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學習

Microsoft SQL Server

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#sql-server

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1: Microsoft SQL Server

SQL Server。

SQL Server 2016	201661
SQL Server 2014	2014318
SQL Server 2012	2011-10-11
SQL Server 2008 R2	2010-04-01
SQL Server 2008	2008-08-06
SQL Server 2005	2005-11-01
SQL Server 2000	2000-11-01

Examples

INSERT / SELECT / UPDATE / DELETE

D ata **M** anipulation **L** anguageDML`INSERT UPDATEDELETE`

```
-- Create a table HelloWorld

CREATE TABLE HelloWorld (
    Id INT IDENTITY,
    Description VARCHAR(1000)
)


-- DML Operation INSERT, inserting a row into the table
INSERT INTO HelloWorld (Description) VALUES ('Hello World')


-- DML Operation SELECT, displaying the table
SELECT * FROM HelloWorld


-- Select a specific column from table
SELECT Description FROM HelloWorld


-- Display number of records in the table
SELECT Count(*) FROM HelloWorld


-- DML Operation UPDATE, updating a specific row in the table
UPDATE HelloWorld SET Description = 'Hello, World!' WHERE Id = 1
```

```
-- Selecting rows from the table (see how the Description has changed after the update?)
SELECT * FROM HelloWorld


-- DML Operation - DELETE, deleting a row from the table
DELETE FROM HelloWorld WHERE Id = 1


-- Selecting the table. See table content after DELETE operation
SELECT * FROM HelloWorld
```

。

```
USE Northwind;
GO
SELECT TOP 10 * FROM Customers
ORDER BY CompanyName
```

`Customer`10`NorthwindCompanyName`Microsoft

CustomerID	CompanyName	ContactName	ContactTitle	Address	City
ALFKI	Alfreds Futterkiste	Maria Anders	Sales Representative	Obere Str. 57	Berlin
ANATR	Ana Trujillo Emparedados y helados	Ana Trujillo	Owner	Avda. de la Constitución 2222	México D.F.
ANTON	Antonio Moreno Taquería	Antonio Moreno	Owner	Mataderos 2312	México D.F.
AROUT	Around the Horn	Thomas Hardy	Sales Representative	120 Hanover Sq.	London
BERGS	Berglunds snabbköp	Christina Berglund	Order Administrator	Berguvsvägen 8	Luleå
BLAUS	Blauer See Delikatessen	Hanna Moos	Sales Representative	Forsterstr. 57	Mannheim
BLONP	Blondesddsl père et fils	Frédérique Citeaux	Marketing Manager	24, place Kléber	Strasbourg
BOLID	Bólido Comidas preparadas	Martín Sommer	Owner	C/ Araquil, 67	Madrid
BONAP	Bon app'	Laurence Lebihan	Owner	12, rue des Bouchers	Marseille
BOTTM	Bottom-Dollar Markets	Elizabeth Lincoln	Accounting Manager	23 Tsawassen Blvd.	Tsawassen

`Use Northwind;`。 [Database]。[Schema]。[Table]

```
SELECT TOP 10 * FROM Northwind.dbo.Customers
ORDER BY CompanyName

SELECT TOP 10 * FROM Pubs.dbo.Authors
ORDER BY City
```

。 “”`dbo`。 。 `dbo`。 。 。

`Date`

```
-- descending order
SELECT TOP 10 [Date] FROM dbo.MyLogTable
ORDER BY [Date] DESC
```

。

```
-- descending order
SELECT top 10 "Date" from dbo.MyLogTable
```

```
order by "Date" desc
```

◦

```
-- descending order
SELECT top 10 "Date" from dbo.MyLogTable
where UserId='johndoe'
order by "Date" desc
```

◦ T-SQLNCharNVarchar

```
SELECT TOP 10 * FROM Northwind.dbo.Customers
WHERE CompanyName LIKE N'AL%'
ORDER BY CompanyName
```

AL %DOSDIR AL* ◦ LIKE ◦

◦ NorthwindRegion◦ RegionDescription Region ◦ RgionID Top 55

```
SELECT TOP 5 Territories.*,
    Regions.RegionDescription
FROM Territories
INNER JOIN Region
    ON Territories.RegionID=Region.RegionID
ORDER BY TerritoryDescription
```

TerritoriesRegionRegionDescription◦ TerritoryDescription◦

◦ ◦

```
<TableName> [as] <alias>
```

as◦

```
SELECT TOP 5 t.*,
    r.RegionDescription
FROM Territories t
INNER JOIN Region r
    ON t.RegionID = r.RegionID
ORDER BY TerritoryDescription
```

◦ EmployeeSupervisorId

```
SELECT e.*,
    s.Name as SupervisorName -- Rename the field for output
FROM Employee e
INNER JOIN Employee s
    ON e.SupervisorId = s.EmployeeId
WHERE e.EmployeeId = 111
```

Join。UNION。。

```
SELECT FirstName+' '+LastName as ContactName, Address, City FROM Employees
UNION
SELECT ContactName, Address, City FROM Customers
```

。UNION ALL。select - SELECTEmployeeFirstNameLastNameContactName。

“”。

```
DECLARE @Region TABLE
(
  RegionID int,
  RegionDescription NChar(50)
)
```

。@。DML

```
INSERT INTO @Region values(3,'Northern')
INSERT INTO @Region values(4,'Southern')
```

```
INSERT INTO @Region
SELECT * FROM dbo.Region WHERE RegionID>2;
```

dbo.Region@Region-。

```
SELECT * FROM Territories t
JOIN @Region r on t.RegionID=r.RegionID
```

NorthernSouthern。。。

100Microsoft。。

。SQL Server Management Studio

```
PRINT 'Hello World!';
```

```
SELECT *
FROM table_name
```

*。SELECTWHERE。

e

```
SELECT *
FROM Employees AS e
```

+“。*”

```
SELECT e.*, d.DepartmentName
FROM Employees AS e
    INNER JOIN Department AS d
        ON e.DepartmentID = d.DepartmentID
```

```
SELECT * FROM [server_name].[database_name].[schema_name].[table_name]
```

/。

table_name。 。

SELECT *。 SELECT。

```
SELECT col1, col2, col3
FROM table_name
```

```
SELECT <column names>
FROM <table name>
WHERE <condition>
```

```
SELECT FirstName, Age
FROM Users
WHERE LastName = 'Smith'
```

```
SELECT FirstName, Age
FROM Users
WHERE LastName = 'Smith' AND (City = 'New York' OR City = 'Los Angeles')
```

```
UPDATE HelloWorlds
SET HelloWorld = 'HELLO WORLD!!!'
WHERE Id = 5
```

“HELLO WORLD !!!”“HelloWorld”HelloWorlds“Id = 5”。

“where”。

。

Score1

```
UPDATE Scores
SET score = score + 1
```

UPDATE。

Transact-SQL。 。

--

```
-- This is a comment
SELECT *
FROM MyTable -- This is another comment
WHERE Id = 1;
```

/**/。。

```
/* This is
a multi-line
comment block. */
SELECT Id = 1, [Message] = 'First row'
UNION ALL
SELECT 2, 'Second row'
/* This is a one liner */
SELECT 'More';
```

SQL。SQL。

/**/。

```
/*
SELECT *
FROM CommentTable
WHERE Comment = '/*'
*/
```

。。

```
/*
SELECT *
FROM CommentTable
WHERE Comment = '/*'
*/  */
```

```
SELECT @@VERSION
```

MS SQL Server。

```
SELECT @@SERVERNAME
```

MS SQL Server。

```
SELECT @@SERVICENAME
```

MS SQL ServerWindows。

```
SELECT serverproperty('ComputerNamePhysicalNetBIOS');
```

SQL Server。。

```
SELECT * FROM fn_virtualservernodes();
```

SQL Server。 。

DML。 DMLUPDATE TRUNCATE INSERTDELETE。 。

DML。 DML。 ROLLBACKCOMMIT。 ROLLBACK。 COMMITDML。

```
--Create a test table

USE [your database]
GO
CREATE TABLE test_transaction (column_1 varchar(10))
GO

INSERT INTO
 dbo.test_transaction
        ( column_1 )
VALUES
        ( 'a' )

BEGIN TRANSACTION --This is the beginning of your transaction

UPDATE dbo.test_transaction
SET column_1 = 'B'
OUTPUT INSERTED.*
WHERE column_1 = 'A'


ROLLBACK TRANSACTION  --Rollback will undo your changes
           --Alternatively, use COMMIT to save your results

SELECT * FROM dbo.test_transaction   --View the table after your changes have been run

DROP TABLE dbo.test_transaction
```

- 。 。 。 。
- 。 。 。

```
DELETE
FROM Helloworlds
```

。 。 DROP TABLE。

```
TRUNCATE TABLE HelloWords
```

DELETE

1.
2. IDENTITY
3. TRUNCATEDELETEWHERE

TRUNCATE

1.

FOREIGN KEYTRUNCATE
2. INDEXED VIEW
3. TRANSACTIONAL REPLICATIONMERGE REPLICATION
4. TRIGGER

[]

TRUNCATE TABLE

```
TRUNCATE TABLE Helloworlds
```

Helloworlds。 Delete from Table。 Truncatewhere。 Truncate。

ID1。 。

```
SELECT * INTO NewTable FROM OldTable
```

。

1. 。
2. SELECT ... INTO。 SELECT ... INTO;。 INSERT INTO ... SELECT FROM。
3. SELECT ... INTO。 SELECT ... INTO。
4. ORDER BY。 。 SELECT ... INTO。
5. 。 SELECT ... INTO。

[*sic*]

table_name

```
SELECT COUNT(*) AS [TotalRowCount] FROM table_name;
```

HEAPindex_id = 0index_id = 1

```
SELECT  [Tables].name                AS [TableName],
        SUM( [Partitions].[rows] )    AS [TotalRowCount]
FROM    sys.tables AS [Tables]
JOIN    sys.partitions AS [Partitions]
    ON  [Tables].[object_id]    =    [Partitions].[object_id]
    AND [Partitions].index_id IN ( 0, 1 )
--WHERE    [Tables].name = N'table name' /* uncomment to look for a specific table */
GROUP BY    [Tables].name;
```

。 /。

Microsoft SQL Server https://riptutorial.com/zh-TW/sql-server/topic/236/microsoft-sql-server

2: bcp

bcpMicrosoft SQL Server。 bcpSQL Server。

Examples

```
REM Truncate table (for testing)
SQLCMD -Q "TRUNCATE TABLE TestDatabase.dbo.myNative;"

REM Import data
bcp TestDatabase.dbo.myNative IN D:\BCP\myNative.bcp -T -n

REM Review results
SQLCMD -Q "SELECT * FROM TestDatabase.dbo.myNative;"
```

bcp https://riptutorial.com/zh-TW/sql-server/topic/10942/bcp--

3: BULK

Examples

BULK INSERT

WITH

```
BULK INSERT People
FROM 'f:\orders\people.csv'
WITH  (  CODEPAGE = '65001',
         FIELDTERMINATOR =',',
         ROWTERMINATOR ='\n'
      );
```

CODEPAGEUTF-8TERMINATORS。

BULK INSERT

BULK INSERTSQL Server

```
BULK INSERT People
FROM 'f:\orders\people.csv'
```

BULK INSERT。

OPENROWSETBULK

OPENROWSETBULK

```
INSERT INTO myTable(content)
   SELECT BulkColumn
          FROM OPENROWSET(BULK N'C:\Text1.txt', SINGLE_BLOB) AS Document;
```

SINGLE_BLOB。

OPENROWSETBULK

YuFORMATFILE

```
INSERT INTO mytable
SELECT a.*
FROM OPENROWSET(BULK 'c:\test\values.txt',
   FORMATFILE = 'c:\test\values.fmt') AS a;
```

format_file.fmtvalues.txt

```
9.0
2
1  SQLCHAR  0  10 "\t"        1  ID                SQL_Latin1_General_Cp437_BIN
2  SQLCHAR  0  40 "\r\n"      2  Description       SQL_Latin1_General_Cp437_BIN
```

OPENROWSETBULKjson

OPENROWSET。

OPENROWSETBULKJSONBulkColumnJSONOPENJSON

```
SELECT book.*
 FROM OPENROWSET (BULK 'C:\JSON\Books\books.json', SINGLE_CLOB) as j
 CROSS APPLY OPENJSON(BulkColumn)
       WITH( id nvarchar(100), name nvarchar(100), price float,
             pages int, author nvarchar(100)) AS book
```

BULK https://riptutorial.com/zh-TW/sql-server/topic/7330/bulk

4: CASE

SQL Servercase。“SELECT DATENAMEWEEKDAYGETDATE”。

Examples

CASE

case。case

```
SELECT CASE DATEPART(WEEKDAY, GETDATE())
    WHEN 1 THEN 'Sunday'
    WHEN 2 THEN 'Monday'
    WHEN 3 THEN 'Tuesday'
    WHEN 4 THEN 'Wednesday'
    WHEN 5 THEN 'Thursday'
    WHEN 6 THEN 'Friday'
    WHEN 7 THEN 'Saturday'
END
```

CASE

Searched Case。

```
DECLARE @FirstName varchar(30) = 'John'
DECLARE @LastName varchar(30) = 'Smith'

SELECT CASE
    WHEN LEFT(@FirstName, 1) IN ('a','e','i','o','u')
        THEN 'First name starts with a vowel'
    WHEN LEFT(@LastName, 1) IN ('a','e','i','o','u')
        THEN 'Last name starts with a vowel'
    ELSE
        'Neither name starts with a vowel'
END
```

CASE https://riptutorial.com/zh-TW/sql-server/topic/7238/case

5: DBCC

Examples

DBCC

DBCC。

```
DBCC DROPCLEANBUFFERS
```

。

```
DBCC FREEPROCCACHE
-- or
DBCC FREEPROCCACHE (0x060006001ECA270EC0215D05000000000000000000000000);
```

SQL。 SQL。

```
DBCC FREESYSTEMCACHE ('ALL', myresourcepool);
-- or
DBCC FREESYSTEMCACHE;
```

。 o =**myresourcepool**

```
DBCC FLUSHAUTHCACHE
```

。

```
DBCC SHRINKDATABASE (MyDB [, 10]);
```

MyDB10。 。 ID。

```
DBCC SHRINKFILE (DataFile1, 7);
```

DataFile1。 7 MBtis。

```
DBCC CLEANTABLE (AdventureWorks2012,'Production.Document', 0)
```

DBCC

DBCC。

```
ALTER TABLE Table1 WITH NOCHECK ADD CONSTRAINT chkTab1 CHECK (Col1 > 100);
GO
DBCC CHECKCONSTRAINTS(Table1);
```

```
--OR
DBCC CHECKCONSTRAINTS ('Table1.chkTable1');
```

nocheck。 DBCC。

DBCC

```
DBCC CHECKTABLE tablename1 | tableid
DBCC CHECKDB databasename1 | dbid
DBCC CHECKFILEGROUP filegroup_name | filegroup_id | 0
DBCC CHECKCATALOG databasename1 | database_id1 | 0
```

DBCC

DBCC。

```
DBCC PROCCACHE
```

。

```
DBCC OUTPUTBUFFER ( session_id [ , request_id ])
```

session_idrequest_idASCII。

```
DBCC INPUTBUFFER ( session_id [ , request_id ])
```

Microsoft SQL Server。

```
DBCC SHOW_STATISTICS ( table_or_indexed_view_name , column_statistic_or_index_name)
```

DBCC

SQL ServerSQL Server/。 DBCC

32053206

```
DBCC TRACEON (3205, -1);
DBCC TRACEON (3206);
```

32053206

```
DBCC TRACEON (3205, -1);
DBCC TRACEON (3206);
```

25283205

```
DBCC TRACESTATUS (2528, 3205);
```

DBCC

DBCCSQL Server。DBCCDBCC HELP...。

DBCC

```
DBCC HELP ('?');
```

DBCC CHECKDB

```
DBCC HELP ('CHECKDB');
```

DBCC https://riptutorial.com/zh-TW/sql-server/topic/7316/dbcc

6: DBMAIL

- sp_send_dbmail [[@profile_name =]'profile_name'] [[@ admients =]'recipients [; ... n]'] [[@ copy_recipients =]'copy_recipient [; ... n]'] [[@ blind_copy_recipients =]'blind_copy_recipient [; ... n]'] [[@ from_address =]'from_address'] [[@ reply_to =]'reply_to'] [[@ subject =]'subject'] [[@ body =]'body'] [[@ body_format =]'body_format'] [[@ import =]'important'] [[@ sensor =]'sensitivity'] [[@ file_attachments =]'attachment [; ... n'] [[@ query =]'query'] [[@ execute_query_database =]'execute_query_database'] [[@ attata_query_result_as_file =] attach_query_result_as_file] [[@ query_attachment_filename =] query_attachment_filename] [[@query_result_header =] query_result_header] [[@ query_result_width =] query_result_width] [[@ query_result_separator =]'query_result_separator'] [[@ exclude_query_output =] exclude_query_output] [[@ append_query_error =] append_query_error] [[@ query_no_truncate =] query_no_truncate] [[@ query_result_no_padding =] @query_result_no_padding] [[@ mailitem_id =] mailitem_id] [OUTPUT]

Examples

recipient@someaddress.com

```
EXEC msdb.dbo.sp_send_dbmail
    @profile_name = 'The Profile Name',
    @recipients = 'recipient@someaddress.com',
    @body = 'This is a simple email sent from SQL Server.',
    @subject = 'Simple email'
```

```
SELECT * FROM Usersrecipient@someaddress.com
```

```
EXEC msdb.dbo.sp_send_dbmail
    @profile_name = 'The Profile Name',
    @recipients = 'recipient@someaddress.com',
    @query = 'SELECT * FROM Users',
    @subject = 'List of users',
    @attach_query_result_as_file = 1;
```

HTML

HTML`sp_send_dbmail`

SQL Server 2012

```
DECLARE @html VARCHAR(MAX);
SET @html = CONCAT
(
    '<html><body>',
    '<h1>Some Header Text</h1>',
    '<p>Some paragraph text</p>',
    '</body></html>'
)
```

SQL Server 2012

```
DECLARE @html VARCHAR(MAX);
SET @html =
    '<html><body>' +
    '<h1>Some Header Text</h1>' +
    '<p>Some paragraph text</p>' +
    '</body></html>';
```

`@html` `@body` argument ◦ HTML `@body` ◦

```
EXEC msdb.dbo.sp_send_dbmail
    @recipients='recipient@someaddress.com',
    @subject = 'Some HTML content',
    @body = @html,
    @body_format = 'HTML';
```

DBMAIL https://riptutorial.com/zh-TW/sql-server/topic/4908/dbmail

7: FILESTREAM

FILESTREAMvarbinarymaxBLOBSQL ServerNTFS。 Transact-SQLFILESTREAM。 Win32。

Examples

MSDN https://technet.microsoft.com/en-us/library/bb933993(v=sql.105).aspx

FILESTREAM https://riptutorial.com/zh-TW/sql-server/topic/9509/filestream

8: FOR XML PATH

FOR XML

- FOR XML RAW - <row>◦
- FOR XML AUTO - ◦
- FOR XML EXPLICIT - XMLFOR XML PATH◦

Examples

Hello World XML

```
SELECT 'Hello World' FOR XML PATH('example')
```

```
<example>Hello World</example>
```

SQL Server 2008

```
WITH XMLNAMESPACES (
    DEFAULT 'http://www.w3.org/2000/svg',
    'http://www.w3.org/1999/xlink' AS xlink
)
SELECT
    'example.jpg' AS 'image/@xlink:href',
    '50px' AS 'image/@width',
    '50px' AS 'image/@height'
FOR XML PATH('svg')
```

```
<svg xmlns:xlink="http://www.w3.org/1999/xlink" xmlns="http://www.w3.org/2000/svg">
    <image xlink:href="firefox.jpg" width="50px" height="50px"/>
</svg>
```

XPath

```
SELECT
    'XPath example' AS 'head/title',
    'This example demonstrates ' AS 'body/p',
    'https://www.w3.org/TR/xpath/' AS 'body/p/a/@href',
    'XPath expressions' AS 'body/p/a'
FOR XML PATH('html')
```

```
<html>
    <head>
        <title>XPath example</title>
    </head>
    <body>
        <p>This example demonstrates <a href="https://www.w3.org/TR/xpath/">XPath
expressions</a></p>
    </body>
</html>
```

FOR XML PATH。 NULL''。 AS *

```
DECLARE @tempTable TABLE (Ref INT, Des NVARCHAR(100), Qty INT)
INSERT INTO @tempTable VALUES (100001, 'Normal', 1), (100002, 'Foobar', 1), (100003, 'Hello
World', 2)

SELECT ROW_NUMBER() OVER (ORDER BY Ref) AS '@NUM',
     'REF' AS 'FLD/@NAME', REF AS 'FLD', '',
     'DES' AS 'FLD/@NAME', DES AS 'FLD', '',
     'QTY' AS 'FLD/@NAME', QTY AS 'FLD'
FROM @tempTable
FOR XML PATH('LIN'), ROOT('row')
```

```
<row>
  <LIN NUM="1">
    <FLD NAME="REF">100001</FLD>
    <FLD NAME="DES">Normal</FLD>
    <FLD NAME="QTY">1</FLD>
  </LIN>
  <LIN NUM="2">
    <FLD NAME="REF">100002</FLD>
    <FLD NAME="DES">Foobar</FLD>
    <FLD NAME="QTY">1</FLD>
  </LIN>
  <LIN NUM="3">
    <FLD NAME="REF">100003</FLD>
    <FLD NAME="DES">Hello World</FLD>
    <FLD NAME="QTY">2</FLD>
  </LIN>
</row>
```

SQL Server。“”。

SELECTSQL Server

'FLD / @ NAME'FOR XML PATHXML。

XMLROOT('row')row

FOR XML PATH

FOR XML PATH。 CSV

```
DECLARE @DataSource TABLE
(
    [rowID] TINYINT
   ,[FirstName] NVARCHAR(32)
);

INSERT INTO @DataSource ([rowID], [FirstName])
VALUES (1, 'Alex')
      ,(2, 'Peter')
      ,(3, 'Alexsandyr')
      ,(4, 'George');

SELECT STUFF
```

```
(
    (
        SELECT ',' + [FirstName]
        FROM @DataSource
        ORDER BY [rowID] DESC
        FOR XML PATH(''), TYPE
    ).value('.', 'NVARCHAR(MAX)')
    ,1
    ,1
    ,''
);
```

- `ORDER BY`
- `STUFF`;

```
SELECT STUFF
(
    (
        SELECT '---' + [FirstName]
        FROM @DataSource
        ORDER BY [rowID] DESC
        FOR XML PATH(''), TYPE
    ).value('.', 'NVARCHAR(MAX)')
    ,1
    ,3 -- the "3" could also be represented as: LEN('---') for clarity
    ,''
);
```

- `TYPE.valueNVARCHAR(MAX)`

FOR XML PATH https://riptutorial.com/zh-TW/sql-server/topic/727/for-xml-path

9: Microsoft SQL Server Management Studio

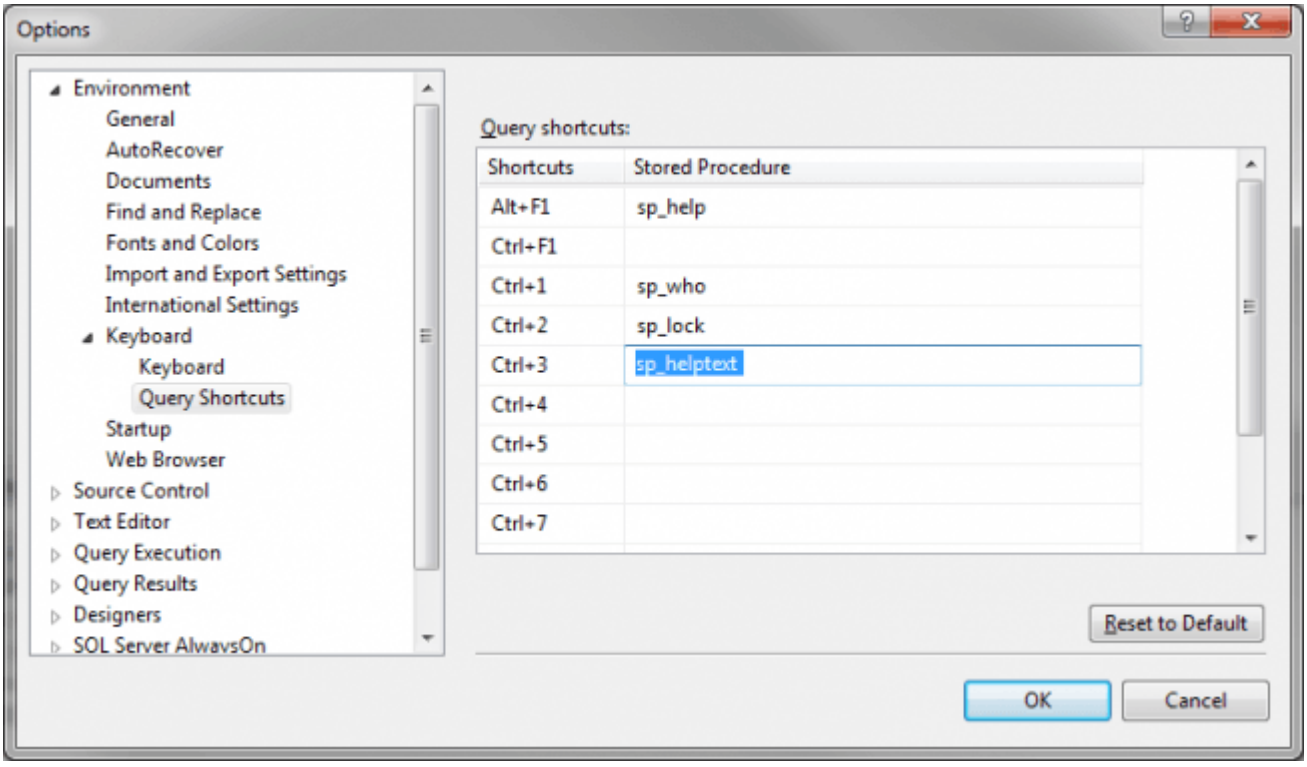
Examples

1. `Ctrl` + `N`
2. `Ctrl` + `Tab`
3. / `Ctrl` + `R`
4. `Ctrl` + `E`
5. `Ctrl` + `Shift` + `U` `Ctrl` + `Shift` + `L`
6. `Ctrl` + `Space` `Tab`
7. `Ctrl` + `G`
8. SQL Server Managament Studio `Ctrl` + `F4`

1. SQL Server Management Studio `ALT`
2. `ALT` + `HYPHEN`
3. `SHIFT` + `F`
4. “” `CTRL` + `N`
5. “” `CTRL` + `SHIFT` + `0`
6. “” `CTRL` + `SHIFT` + `A`
7. “” `CTRL` + `SHIFT` + `A`
8. `CTRL` + `SHIFT` + `Q`
9. `ESC`

- >。 - > - >

SSMS。“”。



- CTRL + 3

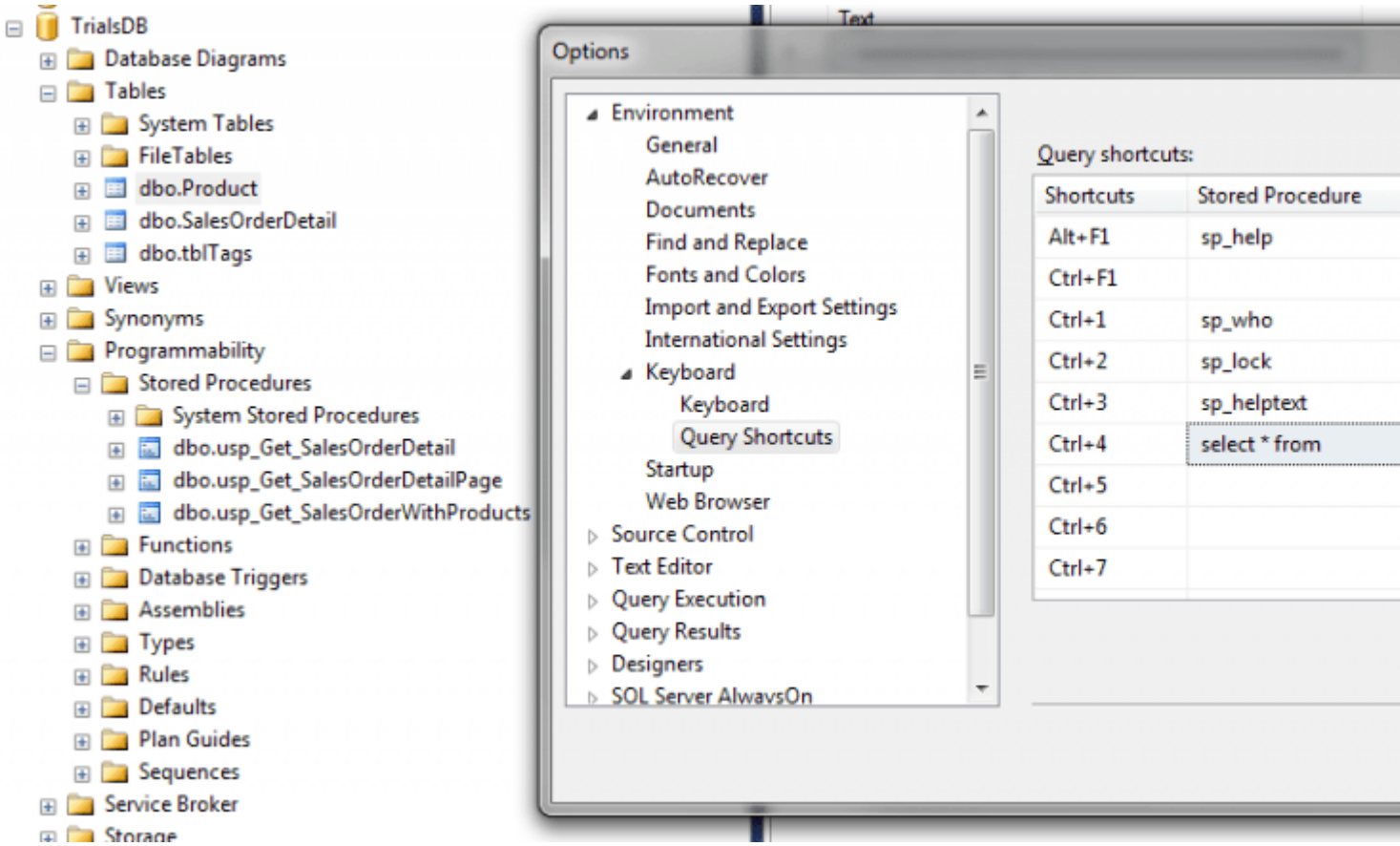
```
usp_Get_SalesOrderDetail
```

100 %

Results | Messages

	Text
1	-- ==
2	-- Author: <Author,Sibeesh Venu>
3	-- Create date: <Create Date, 18-Feb-2016>
4	-- Description: <Description,To fetch SalesOrderDetail>
5	-- ==
6	CREATE PROCEDURE [dbo].[usp_Get_SalesOrderDetail]
7	AS
8	BEGIN
9	-- SET NOCOUNT ON added to prevent extra result sets ...
10	-- interfering with SELECT statements.
11	SET NOCOUNT ON;
12	
13	-- Select statements for procedure here
14	SELECT top(100) SalesOrderID,SalesOrderDetailID,Carri...
15	END

CTRL + 5



CTRL + 4。

Microsoft SQL Server Management Studio https://riptutorial.com/zh-TW/sql-server/topic/7749/microsoft-sql-server-management-studio

10: MS SQL ServerDDL

Examples

DDL =“ **D** ata **DL**”。

SQL`C:\Program Files\Microsoft SQL Server\MSSQL11.INSTSQL2012\MSSQL\DATA\Northwind`

```
USE [master]
GO

CREATE DATABASE [Northwind]
 CONTAINMENT = NONE
 ON  PRIMARY
 (
  NAME = N'Northwind',
  FILENAME = N'C:\Program Files\Microsoft SQL
Server\MSSQL11.INSTSQL2012\MSSQL\DATA\Northwind.mdf' , SIZE = 5120KB , MAXSIZE = UNLIMITED,
FILEGROWTH = 1024KB
 )
 LOG ON
 (
  NAME = N'Northwind_log',
  FILENAME = N'C:\Program Files\Microsoft SQL
Server\MSSQL11.INSTSQL2012\MSSQL\DATA\Northwind_log.ldf' , SIZE = 1536KB , MAXSIZE = 2048GB ,
FILEGROWTH = 10%
 )
GO

ALTER DATABASE [Northwind] SET COMPATIBILITY_LEVEL = 110
GO
```

T-SQL`*.mdf*.ldf` 。 。

SQL`dboCategories Use <DatabaseName>`

```
CREATE TABLE dbo.Categories(
    CategoryID int IDENTITY NOT NULL,
    CategoryName nvarchar(15) NOT NULL,
    Description ntext NULL,
    Picture image NULL,
      CONSTRAINT PK_Categories PRIMARY KEY CLUSTERED
      (
         CategoryID ASC
      )
      WITH (PAD_INDEX = OFF, STATISTICS_NORECOMPUTE = OFF, IGNORE_DUP_KEY = OFF,
            ALLOW_ROW_LOCKS = ON, ALLOW_PAGE_LOCKS = ON) ON PRIMARY
) ON PRIMARY TEXTIMAGE_ON PRIMARY
```

SQL`dboSummary_of_Sales_by_Year Use <DatabaseName>`

```
CREATE VIEW dbo.Summary_of_Sales_by_Year AS
  SELECT ord.ShippedDate, ord.OrderID, ordSub.Subtotal
  FROM Orders ord
  INNER JOIN [Order Subtotals] ordSub ON ord.OrderID = ordSub.OrderID
```

`Orders[Order Subtotals]ShippedDate OrderIDSubtotal。 [Order Subtotals]`Northwind。

SQLschema `dboCustOrdersDetail Use <DatabaseName>`

```
CREATE PROCEDURE dbo.MyCustOrdersDetail @OrderID int, @MinQuantity int=0
AS BEGIN
  SELECT ProductName,
    UnitPrice=ROUND(Od.UnitPrice, 2),
    Quantity,
    Discount=CONVERT(int, Discount * 100),
    ExtendedPrice=ROUND(CONVERT(money, Quantity * (1 - Discount) * Od.UnitPrice), 2)
  FROM Products P, [Order Details] Od
  WHERE Od.ProductID = P.ProductID and Od.OrderID = @OrderID
  and Od.Quantity>=@MinQuantity
END
```

```
exec dbo.MyCustOrdersDetail 10248
```

@ OrderId = 10248> = 0。

```
exec dbo.MyCustOrdersDetail 10248, 10
```

10。

MS SQL ServerDDL https://riptutorial.com/zh-TW/sql-server/topic/5463/ms-sql-serverddl

11: OPENJSON

Examples

JSON

OPENJSONJSONJSON

```
declare @json NVARCHAR(4000) = N'{"Name":"Joe","age":27,"skills":["C#","SQL"]}';
SELECT * FROM OPENJSON(@json);
```

		1
	27	2
	[“C”“SQL”]	4

null0string1number2boolean3array4object5。

JSON

OPENJSONJSONJSON。

```
declare @json nvarchar(4000) = N'[
  {"Number":"SO43659","Date":"2011-05-31T00:00:00","Customer":
"MSFT","Price":59.99,"Quantity":1},
  {"Number":"SO43661","Date":"2011-06-
01T00:00:00","Customer":"Nokia","Price":24.99,"Quantity":3}
]'

SELECT    *
FROM OPENJSON (@json)
    WITH (
          Number   varchar(200),
          Date     datetime,
          Customer varchar(200),
          Quantity int
  )
```

WITHOPENJSON。 JSON。WITHJSONPrice。。

SO43659	2011-05-31T000000	MSFT	1
SO43661	2011-06-01T000000		3

JSON

OPENJSONJSONJSON。WITH

```
declare @json nvarchar(4000) = N'[
  {"data":{"num":"SO43659","date":"2011-05-
31T00:00:00"},"info":{"customer":"MSFT","Price":59.99,"qty":1}},
  {"data":{"number":"SO43661","date":"2011-06-
01T00:00:00"},"info":{"customer":"Nokia","Price":24.99,"qty":3}}
]'

SELECT    *
FROM OPENJSON (@json)
    WITH (
          Number   varchar(200) '$.data.num',
          Date     datetime '$.data.date',
          Customer varchar(200) '$.info.customer',
          Quantity int '$.info.qty',
  )
```

WITHOPENJSON。JSON。 JSON。。

SO43659	2011-05-31T000000	MSFT	1
SO43661	2011-06-01T000000		3

JSON

OPENJSONJSONJSON。JSONnvarcharmaxAS JSON

```
declare @json nvarchar(4000) = N'[
  {"Number":"SO43659","Date":"2011-05-
31T00:00:00","info":{"customer":"MSFT","Price":59.99,"qty":1}},
  {"Number":"SO43661","Date":"2011-06-
01T00:00:00","info":{"customer":"Nokia","Price":24.99,"qty":3}}
]'

SELECT    *
FROM OPENJSON (@json)
    WITH (
          Number   varchar(200),
          Date     datetime,
          Info nvarchar(max) '$.info' AS JSON
  )
```

“”。

SO43659	2011-05-31T000000	{“”“MSFT”“”59.99“”1}
SO43661	2011-06-01T000000	{“”“”“”24.99“”3}

JSON

JSON。OrderItems。

```
declare @json nvarchar(4000) = N'[
  {"Number":"SO43659","Date":"2011-05-31T00:00:00",
    "Items":[{"Price":11.99,"Quantity":1},{"Price":12.99,"Quantity":5}]},
  {"Number":"SO43661","Date":"2011-06-01T00:00:00",

"Items":[{"Price":21.99,"Quantity":3},{"Price":22.99,"Quantity":2},{"Price":23.99,"Quantity":2}]}

]'
```

OPENJSONItemsAS JSON。ItemsOPENJSONJSON。JOIN“”

```
SELECT    *
FROM
    OPENJSON (@json)
    WITH (  Number varchar(200), Date datetime,
            Items nvarchar(max) AS JSON )
        CROSS APPLY
            OPENJSON (Items)
            WITH ( Price float, Quantity int)
```

SO43659	2011-05-31 000000.000	[{“”11.99“”1}{“”12.99“”5}]	11.99	1
SO43659	2011-05-31 000000.000	[{“”11.99“”1}{“”12.99“”5}]	12.99	
SO43661	2011-06-01 000000.000	[{“”21.99“”3}{“”22.99“”2}{“”23.99“”2}]	21.99	3
SO43661	2011-06-01 000000.000	[{“”21.99“”3}{“”22.99“”2}{“”23.99“”2}]	22.99	2
SO43661	2011-06-01 000000.000	[{“”21.99“”3}{“”22.99“”2}{“”23.99“”2}]	23.99	2

OPENJSON https://riptutorial.com/zh-TW/sql-server/topic/5030/openjson

12: PARSENAME

- PARSENAME'object_name'object_piece

“OBJECT_NAME”	object_piece
◦ object_namesysname◦ ◦ ◦	◦ object_pieceint1 =2 =3 =4 =

Examples

PARSENAME

```
Declare @ObjectName nVarChar(1000)
Set @ObjectName = 'HeadOfficeSQL1.Northwind.dbo.Authors'

SELECT
 PARSENAME(@ObjectName, 4) as Server
,PARSENAME(@ObjectName, 3) as DB
,PARSENAME(@ObjectName, 2) as Owner
,PARSENAME(@ObjectName, 1) as Object
```

	D B
HeadofficeSQL1	

DBO	

PARSENAME https://riptutorial.com/zh-TW/sql-server/topic/5775/parsename

13: PHANTOM

/。 。

MSDNISOLATION LEVEL

Examples

READ UNCOMMITTED

```
CREATE TABLE [dbo].[Table_1](
    [Id] [int] IDENTITY(1,1) NOT NULL,
    [title] [varchar](50) NULL,
 CONSTRAINT [PK_Table_1] PRIMARY KEY CLUSTERED
(
    [Id] ASC
)WITH (PAD_INDEX = OFF, STATISTICS_NORECOMPUTE = OFF, IGNORE_DUP_KEY = OFF, ALLOW_ROW_LOCKS =
ON, ALLOW_PAGE_LOCKS = ON) ON [PRIMARY]
) ON [PRIMARY]
```

--rollback DB。

```
begin tran

INSERT INTO Table_1 values('Title 1')

SELECT * FROM [Test].[dbo].[Table_1]

--rollback
```

```
begin tran

set transaction isolation level READ UNCOMMITTED

SELECT * FROM [Test].[dbo].[Table_1]
```

。 。

```
-- Rollback the first transaction
rollback
```

。

```
set transaction isolation level READ UNCOMMITTED
```

PHANTOM https://riptutorial.com/zh-TW/sql-server/topic/8235/phantom

14: PIVOT / UNPIVOT

- SELECT <non-pivoted column>
  [] AS <column name>
  [] AS <column name>
  ...
  [last pivoted column] AS <column name>
  <SELECT query that produces the data>
  AS <alias for the source query>
  <aggregation function> <column being aggregated>
  [<column that contains the values that will become column headers>]
  IN[][]
  ... []
  AS <alias for the pivot table> <optional ORDER BY clause> ;

PIVOTUNPIVOT。 。

Examples

-

。

group byProduct Id“”。

```
SELECT [100], [145]
  FROM (SELECT ItemId , Quantity
          FROM #ItemSalesTable
       ) AS pivotIntermediate
 PIVOT (   SUM(Quantity)
           FOR ItemId IN ([100], [145])
       ) AS pivotTable
```

“”[]

100	145
45	18

PIVOTUNPIVOTT-SQL

。

。

```
CREATE TABLE tbl_stock(item NVARCHAR(10), weekday NVARCHAR(10), price INT);
```

```
INSERT INTO tbl_stock VALUES
('Item1', 'Mon', 110), ('Item2', 'Mon', 230), ('Item3', 'Mon', 150),
('Item1', 'Tue', 115), ('Item2', 'Tue', 231), ('Item3', 'Tue', 162),
('Item1', 'Wed', 110), ('Item2', 'Wed', 240), ('Item3', 'Wed', 162),
('Item1', 'Thu', 109), ('Item2', 'Thu', 228), ('Item3', 'Thu', 145),
('Item1', 'Fri', 120), ('Item2', 'Fri', 210), ('Item3', 'Fri', 125),
('Item1', 'Mon', 122), ('Item2', 'Mon', 225), ('Item3', 'Mon', 140),
('Item1', 'Tue', 110), ('Item2', 'Tue', 235), ('Item3', 'Tue', 154),
('Item1', 'Wed', 125), ('Item2', 'Wed', 220), ('Item3', 'Wed', 142);
```

```
+========+=========+=======+
|   item | weekday | price |
+========+=========+=======+
|  Item1 |    Mon  |   110 |
+--------+---------+-------+
|  Item2 |    Mon  |   230 |
+--------+---------+-------+
|  Item3 |    Mon  |   150 |
+--------+---------+-------+
|  Item1 |    Tue  |   115 |
+--------+---------+-------+
|  Item2 |    Tue  |   231 |
+--------+---------+-------+
|  Item3 |    Tue  |   162 |
+--------+---------+-------+
|          . . .           |
+--------+---------+-------+
|  Item2 |    Wed  |   220 |
+--------+---------+-------+
|  Item3 |    Wed  |   142 |
+--------+---------+-------+
```

PIVOTweekday

```
SELECT * FROM tbl_stock
PIVOT (
    AVG(price) FOR weekday IN ([Mon], [Tue], [Wed], [Thu], [Fri])
) pvt;
```

```
+--------+------+------+------+------+------+
|  item  |  Mon |  Tue |  Wed |  Thu |  Fri |
+--------+------+------+------+------+------+
|  Item1 |  116 |  112 |  117 |  109 |  120 |
|  Item2 |  227 |  233 |  230 |  228 |  210 |
|  Item3 |  145 |  158 |  152 |  145 |  125 |
+--------+------+------+------+------+------+
```

PIVOTUNPIVOT

```
SELECT * FROM tbl_stock
PIVOT (
    AVG(price) FOR weekday IN ([Mon], [Tue], [Wed], [Thu], [Fri])
) pvt
UNPIVOT (
    price FOR weekday IN ([Mon], [Tue], [Wed], [Thu], [Fri])
) unpvt;
```

```
+=======+========+=========+
|  item |  price | weekday |
+=======+========+=========+
| Item1 |    116 |     Mon |
+-------+--------+---------+
| Item1 |    112 |     Tue |
+-------+--------+---------+
| Item1 |    117 |     Wed |
+-------+--------+---------+
| Item1 |    109 |     Thu |
+-------+--------+---------+
| Item1 |    120 |     Fri |
+-------+--------+---------+
| Item2 |    227 |     Mon |
+-------+--------+---------+
| Item2 |    233 |     Tue |
+-------+--------+---------+
| Item2 |    230 |     Wed |
+-------+--------+---------+
| Item2 |    228 |     Thu |
+-------+--------+---------+
| Item2 |    210 |     Fri |
+-------+--------+---------+
| Item3 |    145 |     Mon |
+-------+--------+---------+
| Item3 |    158 |     Tue |
+-------+--------+---------+
| Item3 |    152 |     Wed |
+-------+--------+---------+
| Item3 |    145 |     Thu |
+-------+--------+---------+
| Item3 |    125 |     Fri |
+-------+--------+---------+
```

PIVOT

PIVOTIN◦ INPIVOT◦

BookstoreBooks ◦

```
Table: Books
-----------------------------
BookId (Primary Key Column)
Name
Language
NumberOfPages
EditionNumber
YearOfPrint
YearBoughtIntoStore
ISBN
AuthorName
Price
NumberOfUnitsSold
```

```
CREATE TABLE [dbo].[BookList](
      [BookId] [int] NOT NULL,
      [Name] [nvarchar](100) NULL,
```

```
      [Language] [nvarchar](100) NULL,
      [NumberOfPages] [int] NULL,
      [EditionNumber] [nvarchar](10) NULL,
      [YearOfPrint] [int] NULL,
      [YearBoughtIntoStore] [int] NULL,
[NumberOfBooks] [int] NULL,
[ISBN] [nvarchar](30) NULL,
      [AuthorName] [nvarchar](200) NULL,
      [Price] [money] NULL,
      [NumberOfUnitsSold] [int] NULL,
 CONSTRAINT [PK_BookList] PRIMARY KEY CLUSTERED
(
      [BookId] ASC
)WITH (PAD_INDEX = OFF, STATISTICS_NORECOMPUTE = OFF, IGNORE_DUP_KEY = OFF, ALLOW_ROW_LOCKS =
ON, ALLOW_PAGE_LOCKS = ON) ON [PRIMARY]
) ON [PRIMARY]

GO
```

PIVOT

```
SELECT * FROM
  (
   SELECT YearBoughtIntoStore AS [Year Bought],[Language], NumberOfBooks
   FROM BookList
  ) sourceData
 PIVOT
  (
  SUM(NumberOfBooks)
  FOR [Language] IN (English, Russian, German, Hindi, Latin)
  ) pivotrReport
```

SQL

```
DECLARE @query VARCHAR(4000)
DECLARE @languages VARCHAR(2000)
SELECT @languages =
        STUFF((SELECT DISTINCT '],['+LTRIM([Language])FROM [dbo].[BookList]
        ORDER BY '],['+LTRIM([Language]) FOR XML PATH('') ),1,2,'') + ']'
SET @query=
'SELECT * FROM
  (SELECT YearBoughtIntoStore AS [Year Bought],[Language],NumberOfBooks
   FROM BookList) sourceData
PIVOT(SUM(NumberOfBooks)FOR [Language] IN ('+ @languages +')) pivotrReport' EXECUTE(@query)
```

PIVOT / UNPIVOT https://riptutorial.com/zh-TW/sql-server/topic/591/pivot---unpivot

15: SCOPE_IDENTITY

- SELECT SCOPE_IDENTITY;
- SELECT SCOPE_IDENTITYAS [SCOPE_IDENTITY];
- SCOPE_IDENTITY

Examples

SCOPE_IDENTITY。。。

INSERT INTO[column1][column2]VALUES8,9;

SELECT SCOPE_IDENTITYAS [SCOPE_IDENTITY];

SCOPE_IDENTITY https://riptutorial.com/zh-TW/sql-server/topic/5326/scope-identity--

16: SELECT

SQL SELECT◦ SELECTWHERE GROUP BYORDER BY◦

Examples

SELECT

```
SELECT *
FROM sys.objects
```

```
SELECT object_id, name, type, create_date
FROM sys.objects
```

WHERE

WHERE

```
SELECT *
FROM sys.objects
WHERE type = 'IT'
```

ORDER BY

ORDER BY

```
SELECT *
FROM sys.objects
ORDER BY create_date
```

GROUP BY

GROUP BY

```
SELECT type, count(*) as c
FROM sys.objects
GROUP BY type
```

◦

	C
SQ	3
	72

	C
	16
PK	1
ü	

HAVING

HAVING

```
SELECT type, count(*) as c
FROM sys.objects
GROUP BY type
HAVING count(*) < 10
```

	C
SQ	3
PK	1
ü	

N

TOPN

```
SELECT TOP 10 *
FROM sys.objects
```

OFFSET FETCH

OFFSET FETCHTOP。N1N2

```
SELECT *
FROM sys.objects
ORDER BY object_id
OFFSET 50 ROWS FETCH NEXT 10 ROWS ONLY
```

fetchOFFSET50

```
SELECT *
FROM sys.objects
ORDER BY object_id
OFFSET 50 ROWS
```

FROMSELECT

SELECTFROM

```
declare @var int = 17;

SELECT @var as c1, @var + 2 as c2, 'third' as c3
```

/。

SELECT https://riptutorial.com/zh-TW/sql-server/topic/4662/select

17: SQL Server Management StudioSSMS

SQL Server Management StudioSSMSSQL ServerSQL。

SSMSMicrosoft。

SSMS。

Examples

IntelliSense

IntelliSense。 IntelliSense。

```
Ctrl + Shift + REdit | IntelliSense | Refresh Local CacheEdit | IntelliSense | Refresh Local Cache 。
```

IntelliSense。

SQL Server Management StudioSSMS https://riptutorial.com/zh-TW/sql-server/topic/10642/sql-server-management-studio-ssms-

18: Sql ServerJSON

- **JSON_VALUE** - JSON。
- **JSON_QUERY** expression [path] - JSON。
- **OPENJSON** jsonExpression [path] - JSONJSON。
- **ISJSON** - JSON。
- **JSON_MODIFY** expressionpathnewValue - JSONJSON。

	JSON。
	JSON。 path[append] [lax |] $。 <json path>
jsonExpression	JSONUnicode。

OPENJSON130。130SQL ServerOPENJSON。Azure SQL120。

```
ALTER DATABASE <Database-Name-Here> SET COMPATIBILITY_LEVEL = 130
```

Examples

FOR JSONJSON

ID		
1		23
2		31

```
SELECT Id, Name, Age
FROM People
FOR JSON PATH
```

```
[
    {"Id":1,"Name":"John","Age":23},
    {"Id":2,"Name":"Jane","Age":31}
]
```

JSON

JSON_VALUEJSON_QUERYJSONJSON/。

```
DECLARE @json NVARCHAR(100) = '{"id": 1, "user":{"name":"John"}, "skills":["C#","SQL"]}'
```

```
SELECT
    JSON_VALUE(@json, '$.id') AS Id,
    JSON_VALUE(@json, '$.user.name') AS Name,
    JSON_QUERY(@json, '$.user') AS UserObject,
    JSON_QUERY(@json, '$.skills') AS Skills,
    JSON_VALUE(@json, '$.skills[0]') AS Skill0
```

ID		UserObject		Skill0
1		{“”“”}	[“C”“SQL”]	C

CROSS APPLY OPENJSONJSON

```
DECLARE @json nvarchar(1000) =
N'[
    {
        "id":1,
        "user":{"name":"John"},
        "hobbies":[
            {"name": "Reading"},
            {"name": "Surfing"}
        ]
    },
    {
        "id":2,
        "user":{"name":"Jane"},
        "hobbies":[
            {"name": "Programming"},
            {"name": "Running"}
        ]
    }
 ]'
```

```
SELECT
    JSON_VALUE(person.value, '$.id') as Id,
    JSON_VALUE(person.value, '$.user.name') as PersonName,
    JSON_VALUE(hobbies.value, '$.name') as Hobby
FROM OPENJSON (@json) as person
    CROSS APPLY OPENJSON(person.value, '$.hobbies') as hobbies
```

WITH。

```
SELECT
    Id, person.PersonName, Hobby
FROM OPENJSON (@json)
WITH(
    Id int '$.id',
    PersonName nvarchar(100) '$.user.name',
    Hobbies nvarchar(max) '$.hobbies' AS JSON
) as person
CROSS APPLY OPENJSON(Hobbies)
WITH(
    Hobby nvarchar(100) '$.name'
)
```

ID	PERSONNAME	
1		
1		
2		
2		

JSON

SQL ServerJSONJSON。

```
CREATE TABLE JsonTable
(
    id int identity primary key,
    jsonInfo nvarchar(max),
    CONSTRAINT [Content should be formatted as JSON]
    CHECK (ISJSON(jsonInfo)>0)
)
```

```
INSERT INTO JsonTable
VALUES(N'{"Name":"John","Age":23}'),
(N'{"Name":"Jane","Age":31}'),
(N'{"Name":"Bob","Age":37}'),
(N'{"Name":"Adam","Age":65}')
GO
```

'Adam'。

```
SELECT *
FROM JsonTable Where
JSON_VALUE(jsonInfo, '$.Name') = 'Adam'
```

SQL。

JSON。 JSON`$.Name`。

```
ALTER TABLE JsonTable
ADD vName as JSON_VALUE(jsonInfo, '$.Name')

CREATE INDEX idx_name
ON JsonTable(vName)
```

SQL Server。

SQL - `JSON_VALUE(jsonInfo, '$.Name') vName`

FOR JSONJSON

*FOR JSON***WITHOUT_ARRAY_WRAPPER**JSON。。

JSON。

ID		
1		23
2		31

```
SELECT Id, Name, Age
FROM People
WHERE Id = 1
FOR JSON PATH, WITHOUT_ARRAY_WRAPPER
```

```
{"Id":1,"Name":"John","Age":23}
```

OPENJSONJSON

OPENJSONJSON。WITH。。WITHSQL。/AS JSON。

```
DECLARE @json NVARCHAR(100) = '{"id": 1, "user":{"name":"John"}, "skills":["C#","SQL"]}'

SELECT *
FROM OPENJSON (@json)
    WITH(Id int '$.id',
        Name nvarchar(100) '$.user.name',
        UserObject nvarchar(max) '$.user' AS JSON,
        Skills nvarchar(max) '$.skills' AS JSON,
        Skill0 nvarchar(20) '$.skills[0]')
```

ID		UserObject		Skill0
1		{“”“”}	[“C”“SQL”]	C

Sql ServerJSON https://riptutorial.com/zh-TW/sql-server/topic/2568/sql-serverjson

19: Sql ServerSplit String

Examples

Sql Server 2016

SQL Server 2016 Split `STRING_SPLIT`

nvarcharvarcharncharchar。

nvarchar1varchar1nchar1char1。

。

```
Select Value
From STRING_SPLIT('a|b|c','|')
```

```
String    : 'a|b|c'
separator : '|'
```

```
+-----+
|Value|
+-----+
|a    |
+-----+
|b    |
+-----+
|c    |
+-----+
```

```
SELECT value
FROM STRING_SPLIT('',',')
```

```
  +-----+
  |Value|
  +-----+
1 |     |
  +-----+
```

`WHERE`

```
SELECT value
FROM STRING_SPLIT('',',')
WHERE LTRIM(RTRIM(value))<>''
```

XMLSql Server 2008/2012/2014

`STRING_SPLIT`XML hack

```
SELECT split.a.value('.', 'VARCHAR(100)') AS Value
FROM   (SELECT Cast ('<M>' + Replace('A|B|C', '|', '</M><M>')+ '</M>' AS XML) AS Data) AS A
       CROSS apply data.nodes ('/M') AS Split(a);
```

```
+-----+
|Value|
+-----+
|A    |
+-----+
|B    |
+-----+
|C    |
+-----+
```

T-SQLXML

```
Declare @userList Table(UserKey VARCHAR(60))
Insert into @userList values ('bill'),('jcom'),('others')
--Declared a table variable and insert 3 records

Declare @text XML
Select  @text = (
        select UserKey  from @userList for XML Path('user'), root('group')
)
--Set the XML value from Table

Select @text

--View the variable value
XML:
\<group>\<user>\<UserKey>bill\</UserKey>\</user>\<user>\<UserKey>jcom\</UserKey>\</user>\<user>\<UserKe
```

Sql ServerSplit String https://riptutorial.com/zh-TW/sql-server/topic/3713/sql-serversplit-string

20: Sql Server

Sql Server

Examples

AS

ANSI SQLRDBMS。。

```
CREATE TABLE AliasNameDemo (id INT,firstname VARCHAR(20),lastname VARCHAR(20))

INSERT INTO AliasNameDemo
VALUES      (1,'MyFirstName','MyLastName')

SELECT FirstName +' '+ LastName As FullName
FROM   AliasNameDemo
```

=

。。。。

```
CREATE TABLE AliasNameDemo (id INT,firstname VARCHAR(20),lastname VARCHAR(20))

INSERT INTO AliasNameDemo
VALUES      (1,'MyFirstName','MyLastName')

SELECT FullName = FirstName +' '+ LastName
FROM   AliasNameDemo
```

。

```
CREATE TABLE AliasNameDemo(id INT,firstname VARCHAR(20),lastname VARCHAR(20))

INSERT INTO AliasNameDemo
VALUES      (1,'MyFirstName','MyLastName')

SELECT *
FROM   (SELECT firstname + ' ' + lastname
        FROM   AliasNameDemo) a (fullname)
```

-

AS

AS。 AS

```
CREATE TABLE AliasNameDemo (id INT,firstname VARCHAR(20),lastname VARCHAR(20))
```

```
INSERT INTO AliasNameDemo
VALUES      (1,'MyFirstName','MyLastName')

SELECT FirstName +' '+ LastName FullName
FROM   AliasNameDemo
```

Sql Server https://riptutorial.com/zh-TW/sql-server/topic/10784/sql-server

21: SQL Server

Examples

STUFF

SubjectIdStudent。subjectId。

SQL Server

```
create table #yourstudent (subjectid int, studentname varchar(10))

insert into #yourstudent (subjectid, studentname) values
 ( 1       ,'Mary'    )
,( 1       ,'John'    )
,( 1       ,'Sam'    )
,( 2       ,'Alaina')
,( 2       ,'Edward')

select subjectid,  stuff(( select concat( ',', studentname) from #yourstudent y where
y.subjectid = u.subjectid for xml path('')),1,1, '')
    from #yourstudent u
    group by subjectid
```

String_Agg

SQL Server 2017vnextSTRING_AGG。

```
create table #yourstudent (subjectid int, studentname varchar(10))

insert into #yourstudent (subjectid, studentname) values
 ( 1       ,'Mary'    )
,( 1       ,'John'    )
,( 1       ,'Sam'    )
,( 2       ,'Alaina')
,( 2       ,'Edward')

select subjectid, string_agg(studentname, ',') from #yourstudent
    group by subjectid
```

SQL Server https://riptutorial.com/zh-TW/sql-server/topic/9892/sql-server

22: SQLCMD

SQLCMD.exePATH。

Examples

SQLCMD.exe

```
echo off

cls

sqlcmd.exe -S "your server name" -U "sql user name" -P "sql password" -d "name of databse" -Q
"here you may write your query/stored procedure"
```

SQL Server Express。

SQLCMD https://riptutorial.com/zh-TW/sql-server/topic/5396/sqlcmd

23: STUFF

character_expression	
START_POSITION	character_expressionlengthreplacement_string
	character_expressioncharacter_expression
replacement_string	character_expressioncharacter_expression

Examples

STUFF

STUFF()。 “Svr”“Server”。 start_positionlength。

```
SELECT STUFF('SQL Svr Documentation', 5, 3, 'Server')
```

SQL Server DocumentationSQL Svr Documentation.

FOR XML

FOR XML。

Customers

```
SELECT
    STUFF( (SELECT ';' + Email
        FROM Customers
        where (Email is not null and Email <> '')
        ORDER BY Email ASC
        FOR XML PATH('')),
    1, 1, '')
```

FOR XML PATH(''));。 STUFF;。 STUFFXMLvarchar。

XML< characters with <FOR XML PATH(''))FOR XML PATH, TYPE).value('.[1]','varchar(MAX)')

```
SELECT
    STUFF( (SELECT ';' + Email
        FROM Customers
        where (Email is not null and Email <> '')
        ORDER BY Email ASC
        FOR XML PATH, TYPE).value('.[1]','varchar(900)'),
    1, 1, '')
```

MySQLGROUP_CONCATPostgreSQL 9.0+string_aggGROUP BY。 GROUP_CONCAT。

```
/*
The result can be use for fast way to use columns on Insertion/Updates.
Works with tables and views.

Example: eTableColumns  'Customers'
ColumnNames
-----------------------------------------------------
Id, FName, LName, Email, PhoneNumber, PreferredContact

INSERT INTO Customers (Id, FName, LName, Email, PhoneNumber, PreferredContact)
    VALUES (5, 'Ringo', 'Star', 'two@beatles.now', NULL, 'EMAIL')
*/
CREATE PROCEDURE eTableColumns (@Table VARCHAR(100))
AS
SELECT ColumnNames =
   STUFF( (SELECT ', ' +  c.name
FROM
    sys.columns c
INNER JOIN
    sys.types t ON c.user_type_id = t.user_type_id
WHERE
    c.object_id = OBJECT_ID( @Table)
        FOR XML PATH, TYPE).value('.[1]','varchar(2000)'),
    1, 1, '')
GO
```

sql server

```
FOR XML PATHSTUFF
```

```
  select distinct t1.id,
      STUFF(
             (SELECT ', ' + convert(varchar(10), t2.date, 120)
              FROM yourtable t2
              where t1.id = t2.id
              FOR XML PATH (''))
              , 1, 1, '')  AS date
    from yourtable t1;
```

STUFF。

STUFFOriginal_ExpressionStartLengthReplacement_expression

STUFFReplacement_expressionLength。

```
 Select FirstName, LastName,Email, STUFF(Email, 2, 3, '*****') as StuffedEmail From Employee
```

			StuffedEmail
Jomes		James@hotmail.com	J*****s@hotmail.com
	rathod	Shyam@hotmail.com	S*****m@hotmail.com
		Ram@hotmail.com	[R ***** hotmail.com

STUFF https://riptutorial.com/zh-TW/sql-server/topic/703/stuff

24: WHILE

`WHILE`SQL Server。

Examples

While

`WHILECURSORS`。 099。

```
 DECLARE @i int = 0;
 WHILE(@i < 100)
 BEGIN
    PRINT @i;
    SET @i = @i+1
 END
```

whilemin

```
DECLARE @ID AS INT;

SET @ID = (SELECT MIN(ID) from TABLE);

WHILE @ID IS NOT NULL
BEGIN
    PRINT @ID;
    SET @ID = (SELECT MIN(ID) FROM TABLE WHERE ID > @ID);
END
```

WHILE https://riptutorial.com/zh-TW/sql-server/topic/4249/while

25:

◦ ◦

◦

Examples

```
 -- Identity primary key - unique arbitrary increment number
 create table person (
 id int identity(1,1) primary key not null,
 firstName varchar(100) not null,
 lastName varchar(100) not null,
 dob DateTime not null,
 ssn varchar(9) not null
 )
```

GUID

```
 -- GUID primary key - arbitrary unique value for table
 create table person (
 id uniqueIdentifier default (newId()) primary key,
 firstName varchar(100) not null,
 lastName varchar(100) not null,
 dob DateTime not null,
 ssn varchar(9) not null
 )
```

```
 -- natural primary key - using an existing piece of data within the table that uniquely
identifies the record
 create table person (
 firstName varchar(100) not null,
 lastName varchar(100) not null,
 dob DateTime not null,
 ssn varchar(9) primary key not null
 )
```

```
 -- composite key - using two or more existing columns within a table to create a primary key
 create table person (
 firstName varchar(100) not null,
 lastName varchar(100) not null,
 dob DateTime not null,
 ssn varchar(9) not null,
 primary key (firstName, lastName, dob)
 )
```

```
ALTER TABLE person
 ADD CONSTRAINT pk_PersonSSN PRIMARY KEY (ssn)
```

ssn ◦

```
ALTER TABLE Person
 DROP CONSTRAINT pk_PersonSSN
```

https://riptutorial.com/zh-TW/sql-server/topic/4543/

26:

- SET TRANSACTION ISOLATION LEVEL {READ UNCOMMITTED | READ COMMITTED || SNAPSHOT | SERIALIZABLE} [;]

MSDN SET TRANSACTION ISOLATION LEVEL

Examples

SQL Server 2008 R2

```
SET TRANSACTION ISOLATION LEVEL READ UNCOMMITTED
```

◦ ◦ “”◦

SQL Server 2008 R2

```
SET TRANSACTION ISOLATION LEVEL READ COMMITTED
```

◦ ◦ READ COMMITTEDREAD_COMMITTED_SNAPSHOT

- OFF◦
- ONREADCOMMITTEDLOCKREAD COMMITTED◦

READ COMMITTEDSQL Server◦

“”

◦

2◦

1 -

```
CREATE TABLE dbo.demo (
    col1 INT,
    col2 VARCHAR(255)
);
GO
--This row will get committed normally:
BEGIN TRANSACTION;
    INSERT INTO dbo.demo(col1, col2)
    VALUES (99, 'Normal transaction');
COMMIT TRANSACTION;
--This row will be "stuck" in an open transaction, causing a dirty read
BEGIN TRANSACTION;
    INSERT INTO dbo.demo(col1, col2)
    VALUES (42, 'Dirty read');
```

```
--Do not COMMIT TRANSACTION or ROLLBACK TRANSACTION here
```

2 -

```
SET TRANSACTION ISOLATION LEVEL READ UNCOMMITTED;
SELECT * FROM dbo.demo;
```

```
col1        col2
----------- ---------------------------------------
99          Normal transaction
42          Dirty read
```

PS

```
COMMIT TRANSACTION;
DROP TABLE dbo.demo;
GO
```

SQL Server 2008 R2

```
SET TRANSACTION ISOLATION LEVEL REPEATABLE READ
```

READ COMMITTED ◦

READ COMMITTED ◦

SQL Server 2008 R2

```
SET TRANSACTION ISOLATION LEVEL SNAPSHOT
```

◦

SNAPSHOT◦

SNAPSHOT◦ ◦

ALLOW_SNAPSHOT_ISOLATIONONSNAPSHOT◦

SQL Server 2008 R2

```
SET TRANSACTION ISOLATION LEVEL SERIALIZEABLE
```

◦ ◦ INSERT◦

SELECTHOLDLOCK◦

◦

https://riptutorial.com/zh-TW/sql-server/topic/5114/

27:

Examples

CROSS APPLY“”。

CompanyProductList。CompanyProductListCompany“”

```
SELECT *
FROM Companies c
     CROSS APPLY dbo.GetProductList( c.ProductList ) p
```

ProductList。

JSON

CROSS APPLYJSON“”。

CompanyJSONProductList。 OPENJSON。CompanyOPENJSONJSONCompany“”

```
SELECT *
FROM Companies c
     CROSS APPLY OPENJSON( c.ProductList )
                 WITH ( Id int, Title nvarchar(30), Price money)
```

*ProductList*OPENJSONJSONWITH。

STRING_SPLIT。 **CROSS APPLY***STRING_SPLIT*“”。

Productpromosalesnew。STRING_SPLITCROSS APPLY

```
SELECT *
FROM Products p
     CROSS APPLY STRING_SPLIT( p.Tags, ',' ) tags
WHERE tags.value = 'promo'
```

STRING_SPLIT。。

SQL Server 2016 *STRING_SPLIT*

https://riptutorial.com/zh-TW/sql-server/topic/5462/

28:

transaction_name	- -
[']	[*transaction_name*]

Examples

```
BEGIN TRY -- start error handling
    BEGIN TRANSACTION; -- from here on transactions (modifictions) are not final
        -- start your statement(s)
        select 42/0 as ANSWER  -- simple SQL Query with an error
        -- end your statement(s)
    COMMIT TRANSACTION; -- finalize all transactions (modifications)
END TRY   -- end error handling -- jump to end
BEGIN CATCH -- execute this IF an error occured
        ROLLBACK TRANSACTION; -- undo any transactions (modifications)
-- put together some information as a query
    SELECT
        ERROR_NUMBER() AS ErrorNumber
        ,ERROR_SEVERITY() AS ErrorSeverity
        ,ERROR_STATE() AS ErrorState
        ,ERROR_PROCEDURE() AS ErrorProcedure
        ,ERROR_LINE() AS ErrorLine
        ,ERROR_MESSAGE() AS ErrorMessage;

END CATCH;  -- final line of error handling
GO -- execute previous code
```

https://riptutorial.com/zh-TW/sql-server/topic/5859/

29: JSON

Examples

JSON

JSON_VALUEJSONselect

```
select ProductID, Name, Color, Size, Price, JSON_VALUE(Data, '$.Type') as Type
from Product
where JSON_VALUE(Data, '$.Type') = 'part'
```

JSON

JSONJSON。JSON

```
select JSON_VALUE(Data, '$.Type') as type,
        AVG( cast(JSON_VALUE(Data, '$.ManufacturingCost') as float) ) as cost
from Product
group by JSON_VALUE(Data, '$.Type')
having JSON_VALUE(Data, '$.Type') is not null
```

JSON

JSONISJSON。

```
select ProductID, Name, Color, Size, Price, JSON_VALUE(Data, '$.Type') as Type
from Product
where JSON_VALUE(Data, '$.Type') = 'part'
and ISJSON(Data) > 0
```

JSON

JSON_MODIFY。UPDATEJSON

```
update Product
set Data = JSON_MODIFY(Data, '$.Price', 24.99)
where ProductID = 17;
```

JSON_MODIFYPrice。NULL。 JSON_MODIFYJSON。JSONJSON_QUERY

```
update Product
set Data = JSON_MODIFY(Data, '$.tags', JSON_QUERY('["promo","new"]'))
where ProductID = 17;
```

JSON_QUERY“JSON”。JSON_QUERYJSONJSONJSON_MODIFY。

JSON

JSON_MODIFYJSON

```
update Product
set Data = JSON_MODIFY(Data, 'append $.tags', "sales")
where ProductID = 17;
```

[“sales”]。 JSON_MODIFYJSON。JSONJSON_QUERY

```
update Product
set Data = JSON_MODIFY(Data, 'append $.tags', JSON_QUERY('{"type":"new"}'))
where ProductID = 17;
```

JSON_QUERY“JSON”。JSON_QUERYJSONJSONJSON_MODIFY。

JSONJOIN

“”JSONJSON。CROSS APPLYJOIN。JSON

```
select ProductID, Name, Size, Price, Quantity, PartName, Code
from Product
    CROSS APPLY OPENJSON(Data, '$.Parts') WITH (PartName varchar(20), Code varchar(5))
```

ProductPart。

JSON

Tags[“promo”“sales”]

```
select ProductID, Name, Color, Size, Price, Quantity
from Product
    CROSS APPLY OPENJSON(Data, '$.Tags')
where value = 'sales'
```

OPENJSON。。

JSON https://riptutorial.com/zh-TW/sql-server/topic/5028/json

30: SQLCMDtxt

- sqlcmd -S SHERAZM-E7450 \ SQL2008R2 -d Baseline_DB_Aug_2016 -o c\ employee.txt -Q“select * from employee”

Examples

SQLCMD

sqlcmd -S yourservername \ instancename -d database_name -o outputfilename_withpath -Q“your select query”

-Sservername

-d

-o

-Q

SQLCMDtxt https://riptutorial.com/zh-TW/sql-server/topic/7076/sqlcmdtxt

31: TEMP

。

。

tempdb。

1. 。
2. 。
3. 。

。

Examples

- 。

  。

  temp

  ```
  CREATE TABLE #LocalTempTable(
                 StudentID      int,
                 StudentName    varchar(50),
                 StudentAddress varchar(150))
  ```

```
insert into #LocalTempTable values ( 1, 'Ram','India');

select * from #LocalTempTable
```

```
“Invalid object name #LocalTempTable”
```

- #### temp。

  。

  。

  ```
  CREATE TABLE ##NewGlobalTempTable(
                 StudentID      int,
                 StudentName    varchar(50),
                 StudentAddress varchar(150))

  Insert Into ##NewGlobalTempTable values ( 1,'Ram','India');
  Select * from ##NewGlobalTempTable
  ```

。

ID。

```
There is already an object named '#tempTable' in the database.
```

。

```
drop table #tempTable
```

```
Cannot drop the table '#tempTable', because it does not exist or you do not have permission.
```

```
IF OBJECT_ID ('tempdb..#tempTable', 'U') is not null DROP TABLE #tempTable
```

TEMP https://riptutorial.com/zh-TW/sql-server/topic/5328/temp

32: JSON

Examples

JSON

JSON_MODIFYJSON

```
declare @json nvarchar(4000) = N'{"Id":1,"Name":"Toy Car","Price":34.99}'
set @json = JSON_MODIFY(@json, '$.Price', 39.99)
print @json -- Output: {"Id":1,"Name":"Toy Car","Price":39.99}
```

“Price”39.99JSON。JSON_MODIFYkeyvalue。

keyvalueNULL

```
declare @json nvarchar(4000) = N'{"Id":1,"Name":"Toy Car","Price":34.99}'
set @json = JSON_MODIFY(@json, '$.Price', NULL)
print @json -- Output: {"Id":1,"Name":"Toy Car"}
```

JSON_MODIFY。

JSON

JSON_MODIFY'append'。

```
declare @json nvarchar(4000) = N'{"Id":1,"Name":"Toy Car","Tags":["toy","game"]}'
set @json = JSON_MODIFY(@json, 'append $.Tags', 'sales')
print @json -- Output: {"Id":1,"Name":"Toy Car","Tags":["toy","game","sales"]}
```

JSON_MODIFYappend

```
declare @json nvarchar(4000) = N'{"Id":1,"Name":"Toy Car","Price":34.99}'
set @json = JSON_MODIFY(@json, 'append $.Tags', 'sales')
print @json -- Output {"Id":1,"Name":"Toy Car","Tags":["sales"]}
```

JSONJSON

JSON_MODIFYJSONJSON

```
declare @json nvarchar(4000) = N'{"Id":1,"Name":"Toy Car"}'
set @json = JSON_MODIFY(@json, '$.Price',
                        JSON_QUERY('{"Min":34.99,"Recommended":45.49}'))
print @json
-- Output: {"Id":1,"Name":"Toy Car","Price":{"Min":34.99,"Recommended":45.49}}
```

JSON_QUERY“”JSON。“”JSON_MODIFY。JSON_QUERY

```
{"Id":1,"Name":"Toy Car","Price":'{\"Min\":34.99,\"Recommended\":45.49}'}
```

JSON_MODIFY;NULL。

FOR JSONJSON

FOR JSONSELECTJSONJSON

```
declare @json nvarchar(4000) = N'{"Id":17,"Name":"WWI"}'
set @json = JSON_MODIFY(@json, '$.tables',
                        (select name from sys.tables FOR JSON PATH) )
print @json

(1 row(s) affected)
{"Id":1,"Name":"master","tables":[{"name":"Colors"},{"name":"Colors_Archive"},{"name":"OrderLines"},{"n
```

JSON_MODIFYFOR JSONselectJSONJSON。

SELECTFOR JSON **WITHOUT_ARRAY_WRAPPER** JSON。JSON。

FOR JSONJSON

FOR JSONWITHOUT_ARRAY_WRAPPERSELECTJSONJSON

```
declare @json nvarchar(4000) = N'{"Id":17,"Name":"WWI"}'
set @json = JSON_MODIFY(@json, '$.table',
                        JSON_QUERY(
                         (select name, create_date, schema_id
                           from sys.tables
                           where name = 'Colors'
                           FOR JSON PATH, WITHOUT_ARRAY_WRAPPER)))
print @json

(1 row(s) affected)
{"Id":17,"Name":"WWI","table":{"name":"Colors","create_date":"2016-06-
02T10:04:03.280","schema_id":13}}
```

SELECTWITHOUT_ARRAY_WRAPPERFOR JSONJSONTOP 1。JSON_MODIFY JSON_QUERY。

JSON_QUERYFOR JSONWITHOUT_ARRAY_WRAPPERJSON。

JSON https://riptutorial.com/zh-TW/sql-server/topic/6883/json

33:

- BACKUP DATABASE *backup_device [... n]* WITH *with_options [... o]*
- RESTORE DATABASE FROM *backup_device [... n]* WITH *with_options [... o]*

BACKUP_DEVICE	{DISKTAPE}。
with_options	。replace。

Examples

“”“D\ DB_Backup”。 。

```
BACKUP DATABASE Users TO DISK = 'D:\DB_Backup'
```

“D\ DB_Backup”””。

```
RESTORE DATABASE Users FROM DISK = 'D:\DB_Backup'
```

REPLACE

3154。

WITH REPLACE

```
RESTORE DATABASE WWIDW
FROM DISK = 'C:\Backup\WideWorldImportersDW-Full.bak'
WITH REPLACE
```

31561631'WWI_Primary"D\ Data \ WideWorldImportersDW.mdf'。 WITH MOVE。

。

```
RESTORE DATABASE WWIDW
FROM DISK = 'C:\Backup\WideWorldImportersDW-Full.bak'
WITH REPLACE,
MOVE 'WWI_Primary' to 'C:\Data\WideWorldImportersDW.mdf',
MOVE 'WWI_UserData' to 'C:\Data\WideWorldImportersDW_UserData.ndf',
MOVE 'WWI_Log' to 'C:\Data\WideWorldImportersDW.ldf',
MOVE 'WWIDW_InMemory_Data_1' to 'C:\Data\WideWorldImportersDW_InMemory_Data_1'
```

。

https://riptutorial.com/zh-TW/sql-server/topic/5826/

34: OLTPHekaton

Examples

```
-- Create demo database
CREATE DATABASE SQL2016_Demo
 ON  PRIMARY
(
    NAME = N'SQL2016_Demo',
    FILENAME = N'C:\Dump\SQL2016_Demo.mdf',
    SIZE = 5120KB,
    FILEGROWTH = 1024KB
 )
 LOG ON
 (
    NAME = N'SQL2016_Demo_log',
    FILENAME = N'C:\Dump\SQL2016_Demo_log.ldf',
    SIZE = 1024KB,
    FILEGROWTH = 10%
 )
GO

use SQL2016_Demo
go

-- Add Filegroup by MEMORY_OPTIMIZED_DATA type
ALTER DATABASE SQL2016_Demo
    ADD FILEGROUP MemFG CONTAINS MEMORY_OPTIMIZED_DATA
GO


--Add a file to defined filegroup
ALTER DATABASE SQL2016_Demo ADD FILE
    (
        NAME = MemFG_File1,
        FILENAME = N'C:\Dump\MemFG_File1' -- your file path, check directory exist before
executing this code
    )
TO FILEGROUP MemFG
GO

--Object Explorer -- check database created
GO

-- create memory optimized table 1
CREATE TABLE dbo.MemOptTable1
(
    Column1     INT         NOT NULL,
    Column2     NVARCHAR(4000)  NULL,
    SpidFilter  SMALLINT    NOT NULL   DEFAULT (@@spid),

    INDEX ix_SpidFiler NONCLUSTERED (SpidFilter),
    INDEX ix_SpidFilter HASH (SpidFilter) WITH (BUCKET_COUNT = 64),

    CONSTRAINT CHK_soSessionC_SpidFilter
        CHECK ( SpidFilter = @@spid ),
)
```

```
    WITH
        (MEMORY_OPTIMIZED = ON,
         DURABILITY = SCHEMA_AND_DATA);  --or DURABILITY = SCHEMA_ONLY
go

-- create memory optimized table 2
CREATE TABLE MemOptTable2
(
    ID INT NOT NULL PRIMARY KEY NONCLUSTERED HASH WITH (BUCKET_COUNT = 10000),
    FullName NVARCHAR(200) NOT NULL,
    DateAdded DATETIME NOT NULL
) WITH (MEMORY_OPTIMIZED = ON, DURABILITY = SCHEMA_AND_DATA)
GO
```

.dll

```
SELECT
    OBJECT_ID('MemOptTable1') AS MemOptTable1_ObjectID,
    OBJECT_ID('MemOptTable2') AS MemOptTable2_ObjectID
GO

SELECT
    name,description
FROM sys.dm_os_loaded_modules
WHERE name LIKE '%XTP%'
GO
```

```
SELECT
    name,type_desc,durability_desc,Is_memory_Optimized
FROM sys.tables
    WHERE Is_memory_Optimized = 1
GO
```

tempdb

```
CREATE TYPE dbo.testTableType AS TABLE
(
   col1 INT NOT NULL,
   col2 CHAR(10)
);
```

```
memory_optimized=on
```

```
CREATE TYPE dbo.testTableType AS TABLE
(
   col1 INT NOT NULL,
   col2 CHAR(10)
)WITH (MEMORY_OPTIMIZED=ON);
```

```
CREATE TABLE ##tempGlobalTabel
(
    Col1   INT   NOT NULL ,
    Col2   NVARCHAR(4000)
);
```

```
CREATE TABLE dbo.tempGlobalTabel
(
    Col1   INT   NOT NULL   INDEX ix NONCLUSTERED,
    Col2   NVARCHAR(4000)
)
    WITH
        (MEMORY_OPTIMIZED = ON,
         DURABILITY = SCHEMA_ONLY);
```

temp

1. `##tempSCHEMA_ONLY`
   -
2. Transact-SQL`##temp`temp
3. `DELETE FROM tempDROP TABLE ##temp`
4. `CREATE TABLE ##temp` -

◦ T-SQL

```
DECLARE @tvp TABLE
(
    col1   INT NOT NULL ,
    Col2   CHAR(10)
);
```

```
CREATE TYPE dbo.memTypeTable
AS TABLE
(
    Col1  INT NOT NULL INDEX ix1,
    Col2  CHAR(10)
)
WITH
    (MEMORY_OPTIMIZED = ON);
```

```
DECLARE @tvp memTypeTable
insert INTO @tvp
values (1,'1'),(2,'2'),(3,'3'),(4,'4'),(5,'5'),(6,'6')

SELECT * FROM @tvp
```

```
Col1    Col2
1       1
2       2
3       3
4       4
5       5
6       6
```

```
CREATE TABLE [dbo].[MemOptimizedTemporalTable]
(
    [BusinessDocNo] [bigint] NOT NULL,
    [ProductCode] [int] NOT NULL,
    [UnitID] [tinyint] NOT NULL,
    [PriceID] [tinyint] NOT NULL,
```

```
    [SysStartTime] [datetime2](7) GENERATED ALWAYS AS ROW START NOT NULL,
    [SysEndTime] [datetime2](7) GENERATED ALWAYS AS ROW END NOT NULL,
    PERIOD FOR SYSTEM_TIME ([SysStartTime], [SysEndTime]),

    CONSTRAINT [PK_MemOptimizedTemporalTable]  PRIMARY KEY NONCLUSTERED
    (
        [BusinessDocNo] ASC,
        [ProductCode] ASC
    )
)
WITH (
    MEMORY_OPTIMIZED = ON , DURABILITY = SCHEMA_AND_DATA, -- Memory Optimized Option ON
    SYSTEM_VERSIONING = ON (HISTORY_TABLE = [dbo].[MemOptimizedTemporalTable_History] ,
DATA_CONSISTENCY_CHECK = ON )
)
```

OLTPHekaton https://riptutorial.com/zh-TW/sql-server/topic/5295/oltp-hekaton-

35:

Examples

A.

AdventureWorks2012HumanResources.JobCandidateJobCandidateID。ft。ftResume。

```
USE AdventureWorks2012;
GO
CREATE UNIQUE INDEX ui_ukJobCand ON HumanResources.JobCandidate(JobCandidateID);
CREATE FULLTEXT CATALOG ft AS DEFAULT;
CREATE FULLTEXT INDEX ON HumanResources.JobCandidate(Resume)
   KEY INDEX ui_ukJobCand
   WITH STOPLIST = SYSTEM;
GO
```

https://www.simple-talk.com/sql/learn-sql-server/understanding-full-text-indexing-in-sql-server/

https://msdn.microsoft.com/en-us/library/cc879306.aspx

https://msdn.microsoft.com/en-us/library/ms142571.aspx

```
USE AdventureWorks2012;
GO
CREATE FULLTEXT CATALOG production_catalog;
GO
CREATE FULLTEXT INDEX ON Production.ProductReview
 (
  ReviewerName
     Language 1033,
  EmailAddress
     Language 1033,
  Comments
     Language 1033
 )
  KEY INDEX PK_ProductReview_ProductReviewID
      ON production_catalog;
GO
```

```
USE AdventureWorks2012;
GO
CREATE FULLTEXT INDEX ON Production.Document
  (
  Title
      Language 1033,
  DocumentSummary
      Language 1033,
  Document
      TYPE COLUMN FileExtension
      Language 1033
  )
  KEY INDEX PK_Document_DocumentID
```

```
          WITH STOPLIST = SYSTEM, SEARCH PROPERTY LIST = DocumentPropertyList, CHANGE_TRACKING
OFF, NO POPULATION;
   GO
```

```
ALTER FULLTEXT INDEX ON Production.Document SET CHANGE_TRACKING AUTO;
GO
```

```
SELECT product_id
FROM products
WHERE CONTAINS(product_description, "Snap Happy 100EZ" OR FORMSOF(THESAURUS,'Snap Happy') OR
'100EZ')
AND product_cost < 200 ;


SELECT candidate_name,SSN
FROM candidates
WHERE CONTAINS(candidate_resume,"SQL Server") AND candidate_division =DBA;
```

https://msdn.microsoft.com/en-us/library/ms142571.aspx

https://riptutorial.com/zh-TW/sql-server/topic/4557/

36:

Examples

CLR

CLR。CLR

```
sp_configure 'show advanced options', 1;
GO
RECONFIGURE;
GO
sp_configure 'clr enabled', 1;
GO
RECONFIGURE;
GO
```

CLRTRUSTWORTHYON

```
ALTER DATABASE MyDbWithClr SET TRUSTWORTHY ON
```

Sql CLR.dll

.Net.dll。CLR.dllSQL Server

```
CREATE ASSEMBLY MyLibrary
FROM 'C:\lib\MyStoredProcedures.dll'
    WITH PERMISSION_SET = EXTERNAL_ACCESS
```

PERMISSION_SET.dll。

PERMISSION_SET = EXTERNAL_ACCESS。

sys.assembliesCLR

```
SELECT *
FROM sys.assemblies asms
WHERE is_user_defined = 1
```

SQL ServerCLR

.Net.dllSQL

```
CREATE FUNCTION dbo.TextCompress(@input nvarchar(max))
RETURNS varbinary(max)
AS EXTERNAL NAME MyLibrary.[Name.Space.ClassName].TextCompress
```

.Net。AS EXTERNAL NAME/。

CLR

```
SELECT * FROM dbo.sysobjects WHERE TYPE ='FS'
```

SQL ServerCLR

.Net.dllSQL

```
CREATE TYPE dbo.Point
EXTERNAL NAME MyLibrary.[Name.Space.Point]
```

T-SQL。EXTERNAL NAME。

SQL ServerCLR

.Net.dllSQL

```
CREATE PROCEDURE dbo.DoSomethng(@input nvarchar(max))
AS EXTERNAL NAME MyLibrary.[Name.Space.ClassName].DoSomething
```

.Net。AS EXTERNAL NAME/。

https://riptutorial.com/zh-TW/sql-server/topic/7116/

37:

Examples

```
SELECT        ps.name AS PartitionScheme
            , fg.name AS [FileGroup]
            , prv.*
            , LAG(prv.Value) OVER (PARTITION BY ps.name ORDER BY ps.name, boundary_id) AS
PreviousBoundaryValue

FROM        sys.partition_schemes ps
INNER JOIN    sys.destination_data_spaces dds
            ON dds.partition_scheme_id = ps.data_space_id
INNER JOIN    sys.filegroups fg
            ON dds.data_space_id = fg.data_space_id
INNER JOIN    sys.partition_functions f
            ON f.function_id = ps.function_id
INNER JOIN    sys.partition_range_values prv
            ON f.function_id = prv.function_id
            AND dds.destination_id = prv.boundary_id
```

[TechNet Microsoft] [1]

。

;。

```
ALTER TABLE [SourceTable] SWITCH TO [TargetTable]
```

NULL。。

[1] https //technet.microsoft.com/en-us/library/ms191160v = IDENTITYIDENTITY。

-

```
SELECT DISTINCT
    object_name(i.object_id) AS [Object Name],
    c.name AS [Partition Column],
    s.name AS [Partition Scheme],
    pf.name AS [Partition Function],
    prv.tot AS [Partition Count],
    prv.miVal AS [Min Boundry Value],
    prv.maVal AS [Max Boundry Value]
FROM sys.objects o
INNER JOIN sys.indexes i ON i.object_id = o.object_id
INNER JOIN sys.columns c ON c.object_id = o.object_id
INNER JOIN sys.index_columns ic ON ic.object_id = o.object_id
    AND ic.column_id = c.column_id
    AND ic.partition_ordinal = 1
INNER JOIN sys.partition_schemes s ON i.data_space_id = s.data_space_id
INNER JOIN sys.partition_functions pf ON pf.function_id = s.function_id
OUTER APPLY(SELECT
                COUNT(*) tot, MIN(value) miVal, MAX(value) maVal
```

```
            FROM sys.partition_range_values prv
            WHERE prv.function_id = pf.function_id) prv
--WHERE object_name(i.object_id) = 'table_name'
ORDER BY OBJECT_NAME(i.object_id)
```

wheretable_nameactual table name◦

https://riptutorial.com/zh-TW/sql-server/topic/3212/

38:

Examples

vs

SQL ServerSeekScan。

SQL Server。 `where name = 'Foo'` 。

SQL Server。

。

https://riptutorial.com/zh-TW/sql-server/topic/7713/

39:

SQL Server

- SELECT * FROM TableName ORDER BY id OFFSET 10 ROWS FETCH NEXT 10 ROWS ONLY;

Examples

ROW_NUMBER

SQL Server 2008

ROW_NUMBER BETWEEN "" 1-1011-2021-30

```
WITH data
AS
(
    SELECT ROW_NUMBER() OVER (ORDER BY name) AS row_id,
        object_id,
        name,
        type,
        create_date
    FROM sys.objects
)
SELECT *
FROM data
WHERE row_id BETWEEN 41 AND 50
```

WHEREROW_NUMBER

```
SELECT object_id,
    name,
    type,
    create_date
FROM sys.objects
WHERE ROW_NUMBER() OVER (ORDER BY name) BETWEEN 41 AND 50
```

SQL Server

Msg 4108Level 15State 1Line 6

SELECTORDER BY

OFFSET FETCH

SQL Server 2012

OFFSET FETCH N1OFFSETN2FETCH

```
SELECT *
FROM sys.objects
ORDER BY object_id
OFFSET 40 ROWS FETCH NEXT 10 ROWS ONLY
```

ORDER BY。

Paginaton

SQL ServerTOP

```
 SELECT TOP 10 *
 FROM
 (
    SELECT
    TOP 50 object_id,
        name,
        type,
        create_date
    FROM sys.objects
    ORDER BY name ASC
) AS data
ORDER BY name DESC
```

name50。 501010。

SQL Server

SQL Server 2012/2014

```
DECLARE @RowsPerPage INT = 10, @PageNumber INT = 4
SELECT OrderId, ProductId
FROM OrderDetail
ORDER BY OrderId
OFFSET (@PageNumber - 1) * @RowsPerPage ROWS
FETCH NEXT @RowsPerPage ROWS ONLY
```

SQL Server 2005/2008 / R2

```
DECLARE @RowsPerPage INT = 10, @PageNumber INT = 4
SELECT OrderId, ProductId
FROM (
    SELECT OrderId, ProductId, ROW_NUMBER() OVER (ORDER BY OrderId) AS RowNum
    FROM OrderDetail) AS OD
WHERE OD.RowNum BETWEEN ((@PageNumber - 1 ) * @RowsPerPage) + 1
AND @RowsPerPage * @PageNumber
```

SQL Server 2000

```
DECLARE @RowsPerPage INT = 10, @PageNumber INT = 4
SELECT OrderId, ProductId
FROM (SELECT TOP (@RowsPerPage) OrderId, ProductId
        FROM (SELECT TOP ((@PageNumber)*@RowsPerPage) OrderId, ProductId
                FROM OrderDetail
                ORDER BY OrderId) AS OD
    ORDER BY OrderId DESC) AS OD2
ORDER BY OrderId ASC
```

SQL Server 2012/2014ORDER BY OFFSETFETCH NEXT

10

```
SELECT * FROM TableName ORDER BY id OFFSET 10 ROWS FETCH NEXT 10 ROWS ONLY;
```

- ORDER BYOFFSETFETCH。
- FETCHOFFSET。 ORDER BY ... FETCH 。
- TOPOFFSETFETCH。

https://riptutorial.com/zh-TW/sql-server/topic/6874/

40:

DropSQL。

MSDN。

- DROP TABLETransact-SQL
- DROP PROCEDURETransact-SQL
- DROP DATABASETransact-SQL

Examples

DROP TABLE。

。

FOREIGN KEY。FOREIGN KEY。

。

```
DROP TABLE [ IF EXISTS ] [ database_name . [ schema_name ] . | schema_name . ]
table_name [ ,...n ] [ ; ]
```

- `IF EXISTS` -
- `database_name` -
- `schema_name` -
- `table_name` -

dbo**TABLE_1**

```
DROP TABLE Table_1;
```

HRdbo**TABLE_1**

```
DROP TABLE HR.Table_1;
```

HRTABLE_1

```
DROP TABLE HR.external.TABLE_1;
```

DROP DATABASESQL Server。

。

'sp_detach_db'。

SQL Server。

。

```
DROP DATABASE [ IF EXISTS ] { database_name | database_snapshot_name } [ ,...n ] [;]
```

- `IF EXISTS` -
- `database_name` -
- `database_snapshot_name` -
-

;

```
DROP DATABASE Database1;
```

```
DROP DATABASE Database1, Database2;
```

```
DROP DATABASE Database1_snapshot17;
```

```
DROP DATABASE IF EXISTS Database1;
```

SQL Server

1. `##GlobalTempTable`。
2. `#LocalTempTable` temp - - `SELECT @@SPID`id

```
DROP TABLE [ database_name . [ schema_name ] . | schema_name . ] table_name
```

SQL Server 2016

```
IF(OBJECT_ID('tempdb..#TempTable') is not null)
    DROP TABLE #TempTable;
```

SQL Server 2016

```
DROP TABLE IF EXISTS #TempTable
```

https://riptutorial.com/zh-TW/sql-server/topic/9532/

41:

Examples

```
CREATE VIEW view_EmployeeInfo
AS
    SELECT EmployeeID,
        FirstName,
        LastName,
        HireDate
    FROM Employee
GO
```

```
SELECT FirstName
FROM view_EmployeeInfo
```

。

```
CREATE VIEW view_EmployeeReport
AS
    SELECT EmployeeID,
        FirstName,
        LastName,
        Coalesce(FirstName,'') + ' ' + Coalesce(LastName,'') as FullName,
        HireDate
    FROM Employee
GO
```

SELECT◦ EmployeeFirstNameLastName◦

```
CREATE VIEW view_EmployeeInfo
WITH ENCRYPTION
AS
SELECT EmployeeID, FirstName, LastName, HireDate
FROM Employee
GO
```

INNER JOIN

```
CREATE VIEW view_PersonEmployee
AS
    SELECT P.LastName,
        P.FirstName,
        E.JobTitle
    FROM Employee AS E
    INNER JOIN Person AS P
        ON P.BusinessEntityID = E.BusinessEntityID
GO
```

◦ PersonFirstNameLastNameEmployeeJobTitle◦

Managers

```
SELECT *
FROM view_PersonEmployee
WHERE JobTitle LIKE '%Manager%'
```

```
WITH SCHEMABINDINGWITH SCHEMABINDING
```

```
CREATE VIEW view_EmployeeInfo
WITH SCHEMABINDING
AS
    SELECT EmployeeID,
        FirstName,
        LastName,
        HireDate
    FROM [dbo].Employee
GO
```

```
CREATE UNIQUE CLUSTERED INDEX IX_view_EmployeeInfo
ON view_EmployeeInfo
(
     EmployeeID ASC
)
```

- 。
- 。
- -。
- 。WITH SCHEMABINDING。
- COUNTMINMAXTOP。

MSDN

VIEWGROUP BY。VIEW。VIEW。SQL。VIEW。

https://www.simple-talk.com/sql/t-sql-programming/sql-view-beyond-the-basics/

```
CREATE VIEW BigSales (state_code, sales_amt_total)
AS SELECT state_code, MAX(sales_amt)
     FROM Sales
    GROUP BY state_code;
```

UNION-ed VIEWs

UNIONUNION ALLVIEW。 UNION。 UNIONUNION ALL。VIEWaUNION [ALL]。UNION。

https://www.simple-talk.com/sql/t-sql-programming/sql-view-beyond-the-basics/

```
CREATE VIEW DepTally2 (emp_nbr, dependent_cnt)
AS (SELECT emp_nbr, COUNT(*)
      FROM Dependents
     GROUP BY emp_nbr)
   UNION
   (SELECT emp_nbr, 0
      FROM Personnel AS P2
     WHERE NOT EXISTS
          (SELECT *
             FROM Dependents AS D2
            WHERE D2.emp_nbr = P2.emp_nbr));
```

https://riptutorial.com/zh-TW/sql-server/topic/3815/

42:

T-SQL。 。 。

。 SQL Server Management Studio。

Examples

SQL Server [] 。 *DescriptionName*;

```
SELECT [Description]
FROM   dbo.TableName
WHERE  [Name] = 'foo'
```

SQL Server' 。 *O'Shea*

```
SELECT [Description]
FROM   dbo.TableName
WHERE  [Name] = 'O''Shea'
```

https://riptutorial.com/zh-TW/sql-server/topic/7156/

43:

SQLJOIN。 ANSI SQLJOIN。

Examples

Inner joinON//。 。 inner join

```
SELECT *
FROM table_1
INNER JOIN table_2
  ON table_1.column_name = table_2.column_name
```

JOIN

```
SELECT *
FROM table_1
JOIN table_2
  ON table_1.column_name = table_2.column_name
```

```
/* Sample data. */
DECLARE @Animal table (
    AnimalId Int IDENTITY,
    Animal Varchar(20)
);

DECLARE @AnimalSound table (
    AnimalSoundId Int IDENTITY,
    AnimalId Int,
    Sound Varchar(20)
);

INSERT INTO @Animal (Animal) VALUES ('Dog');
INSERT INTO @Animal (Animal) VALUES ('Cat');
INSERT INTO @Animal (Animal) VALUES ('Elephant');

INSERT INTO @AnimalSound (AnimalId, Sound) VALUES (1, 'Barks');
INSERT INTO @AnimalSound (AnimalId, Sound) VALUES (2, 'Meows');
INSERT INTO @AnimalSound (AnimalId, Sound) VALUES (3, 'Trumpets');
/* Sample data prepared. */

SELECT
    *
FROM
    @Animal
    JOIN @AnimalSound
        ON @Animal.AnimalId = @AnimalSound.AnimalId;
```

```
AnimalId    Animal              AnimalSoundId AnimalId    Sound
----------- ------------------- ------------- ----------- --------------------
1           Dog                 1             1           Barks
2           Cat                 2             2           Meows
3           Elephant            3             3           Trumpets
```

1table212

```
select *
  from Table1 t1
    inner join Table2 t2 on t1.ID_Column = t2.ID_Column
    left  join Table3 t3 on t1.ID_Column = t3.ID_Column
  where t2.column_name = column_value
    and t3.ID_Column is null
  order by t1.column_name;
```

A cross join◦ ◦ ◦

```
SELECT * FROM table_1
CROSS JOIN table_2
```

```
/* Sample data. */
DECLARE @Animal table (
    AnimalId Int IDENTITY,
    Animal Varchar(20)
);

DECLARE @AnimalSound table (
    AnimalSoundId Int IDENTITY,
    AnimalId Int,
    Sound Varchar(20)
);

INSERT INTO @Animal (Animal) VALUES ('Dog');
INSERT INTO @Animal (Animal) VALUES ('Cat');
INSERT INTO @Animal (Animal) VALUES ('Elephant');

INSERT INTO @AnimalSound (AnimalId, Sound) VALUES (1, 'Barks');
INSERT INTO @AnimalSound (AnimalId, Sound) VALUES (2, 'Meows');
INSERT INTO @AnimalSound (AnimalId, Sound) VALUES (3, 'Trumpet');
/* Sample data prepared. */

SELECT
    *
FROM
    @Animal
    CROSS JOIN @AnimalSound;
```

```
AnimalId    Animal              AnimalSoundId AnimalId    Sound
----------- ------------------- ------------- ----------- --------------------
1           Dog                 1             1           Barks
2           Cat                 1             1           Barks
3           Elephant            1             1           Barks
1           Dog                 2             2           Meows
2           Cat                 2             2           Meows
3           Elephant            2             2           Meows
1           Dog                 3             3           Trumpet
2           Cat                 3             3           Trumpet
3           Elephant            3             3           Trumpet
```

CROSS JOIN。“”ANSI SQL-92/

```
SELECT *
FROM @Animal, @AnimalSound;
```

“”CROSS JOIN◦

```
SELECT *
FROM
    @Animal
    JOIN @AnimalSound
        ON 1=1
```

LEFT JOINON◦ ONNULL ◦ LEFT JOIN

```
SELECT * FROM table_1 AS t1
LEFT JOIN table_2 AS t2 ON t1.ID_Column = t2.ID_Column
```

RIGHT JOINON◦ ONNULL ◦ RIGHT JOIN

```
SELECT * FROM table_1 AS t1
RIGHT JOIN table_2 AS t2 ON t1.ID_Column = t2.ID_Column
```

FULL JOINLEFT JOINRIGHT JOIN ◦ ON◦ ONNULL NULL ◦ FULL JOIN

```
SELECT * FROM table_1 AS t1
FULL JOIN table_2 AS t2 ON t1.ID_Column = t2.ID_Column
```

```
/* Sample test data. */
DECLARE @Animal table (
    AnimalId Int IDENTITY,
    Animal Varchar(20)
);

DECLARE @AnimalSound table (
    AnimalSoundId Int IDENTITY,
    AnimalId Int,
    Sound Varchar(20)
);

INSERT INTO @Animal (Animal) VALUES ('Dog');
INSERT INTO @Animal (Animal) VALUES ('Cat');
INSERT INTO @Animal (Animal) VALUES ('Elephant');
INSERT INTO @Animal (Animal) VALUES ('Frog');

INSERT INTO @AnimalSound (AnimalId, Sound) VALUES (1, 'Barks');
INSERT INTO @AnimalSound (AnimalId, Sound) VALUES (2, 'Meows');
INSERT INTO @AnimalSound (AnimalId, Sound) VALUES (3, 'Trumpet');
INSERT INTO @AnimalSound (AnimalId, Sound) VALUES (5, 'Roars');
/* Sample data prepared. */
```

LEFT OUTER JOIN

```
SELECT *
FROM @Animal As t1
```

```
LEFT JOIN @AnimalSound As t2 ON t1.AnimalId = t2.AnimalId;
```

LEFT JOIN

```
AnimalId    Animal               AnimalSoundId AnimalId    Sound
----------- -------------------- ------------- ----------- --------------------
1           Dog                  1             1           Barks
2           Cat                  2             2           Meows
3           Elephant             3             3           Trumpet
4           Frog                 NULL          NULL        NULL
```

```
SELECT *
FROM @Animal As t1
RIGHT JOIN @AnimalSound As t2 ON t1.AnimalId = t2.AnimalId;
```

RIGHT JOIN

```
AnimalId    Animal               AnimalSoundId AnimalId    Sound
----------- -------------------- ------------- ----------- --------------------
1           Dog                  1             1           Barks
2           Cat                  2             2           Meows
3           Elephant             3             3           Trumpet
NULL        NULL                 4             5           Roars
```

```
SELECT *
FROM @Animal As t1
FULL JOIN @AnimalSound As t2 ON t1.AnimalId = t2.AnimalId;
```

FULL JOIN

```
AnimalId    Animal               AnimalSoundId AnimalId    Sound
----------- -------------------- ------------- ----------- --------------------
1           Dog                  1             1           Barks
2           Cat                  2             2           Meows
3           Elephant             3             3           Trumpet
4           Frog                 NULL          NULL        NULL
NULL        NULL                 4             5           Roars
```

UPDATE

```
CREATE TABLE Users (
    UserId int NOT NULL,
    AccountId int NOT NULL,
    RealName nvarchar(200) NOT NULL
)

CREATE TABLE Preferences (
    UserId int NOT NULL,
    SomeSetting bit NOT NULL
)
```

PreferencesSomeSettingUsers

```
UPDATE p
SET p.SomeSetting = 1
```

```
FROM Users u
JOIN Preferences p ON u.UserId = p.UserId
WHERE u.AccountId = 1234
```

pFROMPreferences。 UsersAccountId。

```
Update t
SET  t.Column1=100
FROM Table1 t LEFT JOIN Table12 t2
ON t2.ID=t.ID
```

```
UPDATE t1
SET t1.field1 = t2.field2Sum
FROM table1 t1
INNER JOIN (select field3, sum(field2) as field2Sum
from table2
group by field3) as t2
on t2.field3 = t1.field3
```

/CountAvgMaxMin/ header。/。

。 Purchase OrdersPurchaseOrderLineItems。Id。

```
SELECT po.Id, po.PODate, po.VendorName, po.Status, item.ItemNo,
  item.Description, item.Cost, item.Price
FROM PurchaseOrders po
LEFT JOIN
     (
       SELECT l.PurchaseOrderId, l.ItemNo, l.Description, l.Cost, l.Price, Max(l.id) as Id
       FROM PurchaseOrderLineItems l
       GROUP BY l.PurchaseOrderId, l.ItemNo, l.Description, l.Cost, l.Price
     ) AS item ON item.PurchaseOrderId = po.Id
```

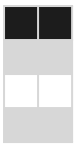
。 。

Employees

ID		Boss_ID
1		3
2		1
3		2

Boss_IDID。 。 Bosses。

```
SELECT Employees.Name,
    Bosses.Name AS Boss
FROM Employees
INNER JOIN Employees AS Bosses
    ON Employees.Boss_ID = Bosses.ID
```



Join

DELETE◦

```
CREATE TABLE Users (
    UserId int NOT NULL,
    AccountId int NOT NULL,
    RealName nvarchar(200) NOT NULL
)

CREATE TABLE Preferences (
    UserId int NOT NULL,
    SomeSetting bit NOT NULL
)
```

PreferencesUsers

```
DELETE p
FROM Users u
INNER JOIN Preferences p ON u.UserId = p.UserId
WHERE u.AccountId = 1234
```

pFROMPreferencesUsersAccountId◦

◦

```
Table People
PersonID FirstName
       1 Alice
       2 Bob
       3 Eve

Table Scores
PersonID Subject Score
       1 Math    100
       2 Math     54
       2 Science  98
```

```
Select * from People a
left join Scores b
on a.PersonID = b.PersonID
```

```
PersonID FirstName PersonID Subject Score
       1 Alice            1 Math    100
       2 Bob              2 Math     54
       2 Bob              2 Science  98
       3 Eve           NULL NULL   NULL
```

```
Select * from People a
left join Scores b
on a.PersonID = b.PersonID
where Subject = 'Math'
```

BobEve`Subject`NULL ◦

`People`Math

```
Select * from People a
left join Scores b
on a.PersonID = b.PersonID
and b.Subject = 'Math'
```

https://riptutorial.com/zh-TW/sql-server/topic/1008/

44:

WITH PRIVATE KEY	CREATE CERTIFICATE (FILE='D:\Temp\CertTest\private.pvk', DECRYPTION BY PASSWORD = 'password');

DER。Base64SQL

```
Msg 15468, Level 16, State 6, Line 1
An error occurred during the generation of the certificate.
```

Base64DER。

。“/ TDE”

---

https //msdn.microsoft.com/en-us/library/ms187798.aspx

/ TDE https //msdn.microsoft.com/en-us/library/bb934049.aspx

https //msdn.microsoft.com/en-us/library/ms188061.aspx

Examples

```
CREATE CERTIFICATE My_New_Cert
FROM FILE = 'D:\Temp\CertTest\certificateDER.cer'
GO
```

```
SELECT EncryptByCert(Cert_ID('My_New_Cert'),
'This text will get encrypted') encryption_test
```

。

NULL。“512RSA5310241172048245。”

EncryptByAsymKey。UNICODE216102458。

```
USE TDE
CREATE DATABASE ENCRYPTION KEY
WITH ALGORITHM = AES_256
ENCRYPTION BY SERVER CERTIFICATE My_New_Cert
GO

ALTER DATABASE TDE
SET ENCRYPTION ON
GO
```

"TDE

```
-- Create the key and protect it with the cert
CREATE SYMMETRIC KEY My_Sym_Key
WITH ALGORITHM = AES_256
ENCRYPTION BY CERTIFICATE My_New_Cert;
GO

-- open the key
OPEN SYMMETRIC KEY My_Sym_Key
DECRYPTION BY CERTIFICATE My_New_Cert;

-- Encrypt
SELECT EncryptByKey(Key_GUID('SSN_Key_01'), 'This text will get encrypted');
```

```
SELECT EncryptByPassphrase('MyPassPhrase', 'This text will get encrypted')
```

。

https://riptutorial.com/zh-TW/sql-server/topic/7096/

45: SQL

Examples

SQL

SQL。 EXECEXECUTEsp_executesqlSQL

```
sp_executesql N'SELECT * FROM sys.objects'
-- or
sp_executesql @stmt = N'SELECT * FROM sys.objects'
-- or
EXEC sp_executesql N'SELECT * FROM sys.objects'
-- or
EXEC('SELECT * FROM sys.columns')
-- or
EXECUTE('SELECT * FROM sys.tables')
```

SQL。 sp_executesql/SQL

```
declare @table nvarchar(40) = N'product items'
EXEC(N'SELECT * FROM ' + @table)
declare @sql nvarchar(40) = N'SELECT * FROM ' + QUOTENAME(@table);
EXEC sp_executesql @sql
```

QUOTENAME@table。@table。

SQL

AS USER ="SQL

```
EXEC(N'SELECT * FROM product') AS USER = 'dbo'
```

SQLdbo。SQLdbo。

SQLSQL

```
SET @sql = N'SELECT COUNT(*) FROM AppUsers WHERE Username = ''' + @user + ''' AND Password =
''' + @pass + ''''
EXEC(@sql)
```

myusername"OR 1 = 1 -

```
SELECT COUNT(*)
FROM AppUsers
WHERE Username = 'myusername' OR 1=1 --' AND Password = ''
```

@username1 = 1。0。

。

SQL

SQL

```
SET @sql = N'SELECT COUNT(*) FROM AppUsers WHERE Username = @user AND Password = @pass
EXEC sp_executesql @sql, '@user nvarchar(50), @pass nvarchar(50)', @username, @password
```

。

sp_executesqlsql。

SQL https://riptutorial.com/zh-TW/sql-server/topic/6871/sql

46: SQL Pivot

SQL Server。

Examples

SQL

```
if object_id('tempdb.dbo.#temp') is not null drop table #temp
create table #temp
(
    dateValue datetime,
    category varchar(3),
    amount decimal(36,2)
)

insert into #temp values ('1/1/2012', 'ABC', 1000.00)
insert into #temp values ('2/1/2012', 'DEF', 500.00)
insert into #temp values ('2/1/2012', 'GHI', 800.00)
insert into #temp values ('2/10/2012', 'DEF', 700.00)
insert into #temp values ('3/1/2012', 'ABC', 1100.00)


DECLARE
    @cols AS NVARCHAR(MAX),
    @query  AS NVARCHAR(MAX);

SET @cols = STUFF((SELECT distinct ',' + QUOTENAME(c.category)
            FROM #temp c
            FOR XML PATH(''), TYPE
            ).value('.', 'NVARCHAR(MAX)')
        ,1,1,'')

set @query = '
            SELECT
                dateValue,
                ' + @cols + '
            from
            (
                select
                     dateValue,
                     amount,
                     category
                from #temp
           ) x
            pivot
            (
                 sum(amount)
                for category in (' + @cols + ')
            ) p '


exec sp_executeSql @query
```

SQL Pivot https://riptutorial.com/zh-TW/sql-server/topic/10751/sql-pivot

47:

Examples

email

```
ALTER TABLE  Company
ALTER COLUMN Email ADD MASKED WITH (FUNCTION = 'email()')
```

mXXX@XXXX.com

zXXX@XXXX.com

rXXX@XXXX.com

```
ALTER TABLE  Company
ALTER COLUMN Phone ADD MASKED WITH (FUNCTION = 'partial(5,"XXXXXXX",2)')
```

partial。

381XXXXXXX39

360XXXXXXX01

415XXXXXXX05

random

rundom

```
ALTER TABLE  Product
ALTER COLUMN Price ADD MASKED WITH (FUNCTION = 'random(100,200)')
```

。

SELECT

```
ALTER TABLE  Company
ALTER COLUMN Postcode ADD MASKED WITH (FUNCTION = 'default()')
```

```
GRANT UNMASK TO MyUser
```

```
REVOKE UNMASK TO MyUser
```

https://riptutorial.com/zh-TW/sql-server/topic/7052/

48:

- COALESCE[1][2] ... [ColumnN]

Examples

COALESCE

coalesce。

。 BEGINEND。

```
BEGIN

    --Table variable declaration to store sample records
    DECLARE @Table TABLE (FirstName varchar(256), LastName varchar(256))

    --Inserting sample records into table variable @Table
    INSERT INTO @Table (FirstName, LastName)
    VALUES
    ('John','Smith'),
    ('Jane','Doe')

    --Creating variable to store result
    DECLARE @Names varchar(4000)

    --Used COLESCE function, so it will concatenate comma seperated FirstName into @Names
varible
    SELECT @Names = COALESCE(@Names + ',', '') + FirstName
    FROM @Table

    --Now selecting actual result
    SELECT @Names
    END
```

COALESCE()NON NULL。 。 NON NULL。

```
DECLARE @Table TABLE (UserID int, PhoneNumber varchar(12), CellNumber varchar(12))
INSERT INTO @Table (UserID, PhoneNumber, CellNumber)
VALUES
(1,'555-869-1123',NULL),
(2,'555-123-7415','555-846-7786'),
(3,NULL,'555-456-8521')


SELECT
    UserID,
    COALESCE(PhoneNumber, CellNumber)
FROM
    @Table
```

not null

```
SELECT COALESCE(NULL, NULL, 'TechOnTheNet.com', NULL, 'CheckYourMath.com');
Result: 'TechOnTheNet.com'

SELECT COALESCE(NULL, 'TechOnTheNet.com', 'CheckYourMath.com');
Result: 'TechOnTheNet.com'

SELECT COALESCE(NULL, NULL, 1, 2, 3, NULL, 4);
Result: 1
```

https://riptutorial.com/zh-TW/sql-server/topic/3234/

49:

SQL Server 2008MERGE。

MERGE。

- MSDN - https://msdn.microsoft.com/en-us/library/bb510625.aspx [WITH <common_table_expression> [... n]] MERGE [TOP[PERCENT]] [INTO] < target_table> [WITH<merge_hint>] [[AS] table_alias] USING <table_source> ON <merge_search_condition> [WHEN MATCHED [AND <clause_search_condition>] THEN <merge_matched>] [... n] [WHEN NOT MATCHED [BY] TARGET] [AND <clause_search_condition>]<merge_not_matched>] [[AND <clause_search_condition>] <merge_matched>] [... n] [<output_clause>] [OPTION<query_hint> [。 ..n]]; <target_table> :: = {[database_name。 schema_name。 | schema_name。] target_table} <merge_hint> :: = {{[<table_hint_limited> [... n]] [[] INDEXindex_val [... n]]}} <table_source> :: = {table_or_view_name [[AS] table_alias] [<tablesample_clause>] [WITHtable_hint [[] ... n]] | rowset_function [[AS] table_alias] [bulk_column_alias [... n]] | user_defined_function [[AS] table_alias] | OPENXML <openxml_clause> | derived_table [AS] table_alias [column_alias [... n]] | <joined_table> | <pivoted_table> | <unpivoted_table>} <merge_search_condition> :: = <search_condition> <merge_matched> :: = {UPDATE SET <set_clause> | DELETE} <set_clause> :: = SET {column_name = {expression || NULL} | {udt_column_name。 {{property_name = expression | field_name = expression} | method_nameargument [... n]}} | column_name {.WRITEexpression@ Offset@ Length} | @variable =| @variable = column = expression | column_name {+ = | - = | * = | / = | = | = | ^ = | | =}| @variable {+ = | - = | * = | / = | = | = | ^ = | | =}| @variable = column {+ = | - = | * = | / = | = | = | ^ = | | =} expression} [... n] <merge_not_matched> :: = {INSERT [column_list] {VALUESvalues_list| DEFAULT VALUES}} <clause_search_condition> :: = <search_condition> :: = {[NOT] | <search_condition>} [{AND |} [NOT] {| <search_condition>}] [... n] :: = {expression {= | <> | = |

  | > = | > | <| <= | <}| string_expression [NOT] LIKE string_expression [ESCAPE'escape_character'] |[NOT] BETWEEN|IS [NOT] NULL | CONTAINS {column | *}'<contains_search_condition>'| FREETEXT{column | *}'freetext_string' |[NOT] IN|[... n]|{= | <> | = | | > = | > | <| <= | <} {ALL || ANY}| EXISTS} <output_clause> :: = {[OUTPUT <dml_select_list> INTO {@table_variable | output_table} [column_list]] [OUTPUT <dml_select_list>]} <dml_select_list> :: = {<column_name> | scalar_expression} [[AS] column_alias_identifier] [... n] <column_name> :: = {DELETED | INSERTED | from_table_name}。 {* | column_name} | $

。 。

Examples

//

```
MERGE INTO targetTable

USING sourceTable
ON (targetTable.PKID = sourceTable.PKID)

WHEN MATCHED AND (targetTable.PKID > 100) THEN
    DELETE

WHEN MATCHED AND (targetTable.PKID <= 100) THEN
    UPDATE SET
        targetTable.ColumnA = sourceTable.ColumnA,
        targetTable.ColumnB = sourceTable.ColumnB

WHEN NOT MATCHED THEN
    INSERT (ColumnA, ColumnB) VALUES (sourceTable.ColumnA, sourceTable.ColumnB);

WHEN NOT MATCHED BY SOURCE THEN
    DELETE
; --< Required
```

- MERGE INTO targetTable -
- USING sourceTable -
- ON ... - targetTablesourceTable◦
- WHEN MATCHED -
- ◦ AND (targetTable.PKID > 100) -
- THEN DELETE - targetTable
- THEN UPDATE - SET ....SET ....
- WHEN NOT MATCHED - **targetTable**
- WHEN NOT MATCHED BY SOURCE - **sourceTable**

WHEN NOT MATCHED THEN INSERT

◦

- WHEN MATCHEDINSERT
- UPDATE◦ ◦

CTE

```
WITH SourceTableCTE AS
(
    SELECT * FROM SourceTable
)
MERGE
 TargetTable AS target
USING SourceTableCTE AS source
ON (target.PKID = source.PKID)
WHEN MATCHED THEN
    UPDATE SET target.ColumnA = source.ColumnA
WHEN NOT MATCHED THEN
    INSERT (ColumnA) VALUES (Source.ColumnA);
```

```
MERGE INTO TargetTable  AS Target
USING (VALUES (1,'Value1'), (2, 'Value2'), (3,'Value3'))
       AS Source (PKID, ColumnA)
ON Target.PKID = Source.PKID
WHEN MATCHED THEN
    UPDATE SET target.ColumnA= source.ColumnA
WHEN NOT MATCHED THEN
    INSERT (PKID, ColumnA) VALUES (Source.PKID, Source.ColumnA);
```

-

MERGE -

1. **dbo.Product**
2. **dbo.ProductNew** 。

T-SQL

```
IF OBJECT_id(N'dbo.Product',N'U') IS NOT NULL
DROP TABLE dbo.Product
GO

CREATE TABLE dbo.Product (
ProductID INT PRIMARY KEY,
ProductName NVARCHAR(64),
PRICE MONEY
)

IF OBJECT_id(N'dbo.ProductNew',N'U') IS NOT NULL
DROP TABLE dbo.ProductNew
GO

CREATE TABLE dbo.ProductNew (
ProductID INT PRIMARY KEY,
ProductName NVARCHAR(64),
PRICE MONEY
)

INSERT INTO dbo.Product VALUES(1,'IPod',300)
,(2,'IPhone',400)
,(3,'ChromeCast',100)
,(4,'raspberry pi',50)

INSERT INTO dbo.ProductNew VALUES(1,'Asus Notebook',300)
,(2,'Hp Notebook',400)
,(3,'Dell Notebook',100)
,(4,'raspberry pi',50)
```

dbo.Productdbo.ProductNew。

1. dbo.ProductNewdbo.Productdbo.Product。
2. dbo.Productdbo.ProductNewdbo.Product。
3. dbo.Productdbo.Productdbo.ProductNew。 MERGE。

```
MERGE dbo.Product AS SourceTbl
USING dbo.ProductNew AS TargetTbl ON (SourceTbl.ProductID = TargetTbl.ProductID)
WHEN MATCHED
            AND SourceTbl.ProductName <> TargetTbl.ProductName
            OR SourceTbl.Price <> TargetTbl.Price
    THEN UPDATE SET SourceTbl.ProductName = TargetTbl.ProductName,
                SourceTbl.Price = TargetTbl.Price
WHEN NOT MATCHED
    THEN INSERT (ProductID, ProductName, Price)
         VALUES (TargetTbl.ProductID, TargetTbl.ProductName, TargetTbl.Price)
WHEN NOT MATCHED BY SOURCE
    THEN DELETE
OUTPUT $action, INSERTED.*, DELETED.*;
```

	$action	ProductID	ProductName	PRICE	ProductID	ProductName	PRICE
1	UPDATE	1	Asus Notebook	300.00	1	IPod	300.00
2	UPDATE	2	Hp Notebook	400.00	2	IPhone	400.00
3	UPDATE	3	Dell Notebook	100.00	3	ChromeCast	100.00

MERGE。

EXCEPT

EXCEPT

```
MERGE TargetTable targ
USING SourceTable AS src
    ON src.id = targ.id
WHEN MATCHED
    AND EXISTS (
        SELECT src.field
        EXCEPT
        SELECT targ.field
        )
    THEN
        UPDATE
        SET field = src.field
WHEN NOT MATCHED BY TARGET
    THEN
        INSERT (
            id
            ,field
            )
        VALUES (
            src.id
            ,src.field
            )
WHEN NOT MATCHED BY SOURCE
    THEN
        DELETE;
```

https://riptutorial.com/zh-TW/sql-server/topic/4550/

50: SQLJSON

Examples

JSON

JSONNVARCHAR。 NoSQL

```
CREATE TABLE ProductCollection (
  Id int identity primary key,
  Data nvarchar(max)
)
```

`nvarchar(max)`JSON。 `nvarchar(4000)``varchar(8000)`8KB。

ISJSONJSON

JSON。JSONCHECKJSON

```
CREATE TABLE ProductCollection (
  Id int identity primary key,
  Data nvarchar(max)
       CONSTRAINT [Data should be formatted as JSON]
       CHECK (ISJSON(Data) > 0)
)
```

ALTER TABLE

```
ALTER TABLE ProductCollection
    ADD CONSTRAINT [Data should be formatted as JSON]
        CHECK (ISJSON(Data) > 0)
```

JSON

JSON

```
CREATE TABLE ProductCollection (
  Id int identity primary key,
  Data nvarchar(max),
  Price AS JSON_VALUE(Data, '$.Price'),
  Color JSON_VALUE(Data, '$.Color') PERSISTED
)
```

PERSISTEDJSON。JSON。JSON。

JSON

JSON。

```
SELECT * FROM ProductCollection
WHERE JSON_VALUE(Data, '$.Color') = 'Black'
```

JSONJSON_VALUEData'$ .Color'

```
ALTER TABLE ProductCollection
ADD vColor as JSON_VALUE(Data, '$.Color')

CREATE INDEX idx_JsonColor
ON ProductCollection(vColor)
```

。

JSON

JSON

```
CREATE TABLE ProductCollection (
  Id int identity primary key nonclustered,
  Data nvarchar(max)
) WITH (MEMORY_OPTIMIZED=ON)
```

JSON

- JSON
- JSON

SQLJSON https://riptutorial.com/zh-TW/sql-server/topic/5029/sqljson

51: WindowsSQL Server

Examples

SQL Server

- Express。core-RDBMS。10G。。
- 。。
- SQL Server。。
- Enterprise Edition。

/SQL ServerSQLSetup.exeSQLSetup.exeGUI。

。GUISQLSetup.exe。

WindowsSQL Server https://riptutorial.com/zh-TW/sql-server/topic/5801/windowssql-server

52:

Examples

SSMS

```
SELECT Column1, Column2, Column3 FROM MySourceTable;
```

```
INSERT INTO MyTargetTable (Column1, Column2, Column3)
SELECT Column1, Column2, Column3 FROM MySourceTable;
```

```
SELECT Column1, Column2, Column3 FROM MySourceTable;
```

```
MyNewTable
```

```
SELECT Column1, Column2, Column3
INTO MyNewTable
FROM MySourceTable;
```

- SQL

-

```
SELECT Key1, Key2, Column3, Column4 FROM MyTable;
```

```
INSERT INTO TargetTable (Key1, Key2, Column3, Column4)
SELECT Key1, Key2, Column3, Column4 FROM MyTable;
```

```
Key1  Key2
```

```
DELETE MyTable
WHERE EXISTS (
    SELECT * FROM TargetTable
    WHERE TargetTable.Key1 = SourceTable.Key1
    AND TargetTable.Key2 = SourceTable.Key2
);
```

```
Key1  Key2
```

- - -

```
BEGIN TRAN;

INSERT INTO TargetTable (Key1, Key2, Column3, Column4)
SELECT Key1, Key2, Column3, Column4 FROM MyTable;


DELETE MyTable
```

```
WHERE EXISTS (
    SELECT * FROM TargetTable
    WHERE TargetTable.Key1 = SourceTable.Key1
    AND TargetTable.Key2 = SourceTable.Key2
);

COMMIT TRAN;
```

https://riptutorial.com/zh-TW/sql-server/topic/1467/

53:

Examples

/

。。。 FOREIGN KEY REFERENCES。

CompanyIdCompanyidEmployee。

```
create table Company (
   CompanyId int primary key,
   Name nvarchar(200)
)
create table Employee (
    EmployeeId int,
    Name nvarchar(200),
    CompanyId int
        foreign key references Company(companyId)
)
```

Employee.CompanyIdCompany.CompanyId。companyId。

FOREIGN KEY“”。

/

CompanycompanyId 1.employeecompanyId 1

```
insert into Employee values (17, 'John', 1)
```

CompanyId

```
insert into Employee values (17, 'John', 111111)
```

54716012 INSERTFOREIGN KEY“FK__Employee__Compan__1EE485AA”。“MyDb” “dbo.Company”'CompanyId'。。

employee。

```
delete from company where CompanyId = 1
```

54716014 DELETEREFERENCE“FK__Employee__Compan__1EE485AA”。“MyDb” “dbo.Employee”'CompanyId'。。

“”。

FOREIGN KEY。EmployeeCompanyIdCompanyEmployee。 ALTER TABLE

```
alter table Employee
    add  foreign key (CompanyId) references Company(CompanyId)
```

FOREIGN KEY。EmployeeCompanyIdCompanyEmployee。 ALTER TABLE

```
alter table Employee
    add CompanyId int foreign key references Company(CompanyId)
```

sys.foreignkeys

```
select name,
 OBJECT_NAME(referenced_object_id) as [parent table],
 OBJECT_NAME(parent_object_id) as [child table],
 delete_referential_action_desc,
 update_referential_action_desc
from sys.foreign_keys
```

https://riptutorial.com/zh-TW/sql-server/topic/5355/

54:

Examples

IF

T-SQLIF..ELSE。

`1 = 1`True`BEGIN..END`Print`'One is equal to One'`

```
IF ( 1 = 1)  --<-- Some Expression
 BEGIN
   PRINT 'One is equal to One'
 END
```

IF

IF。

`IF`true`BEGIN...END`。 FirstThirdtrueprint。

```
IF (1 = 1)  --<-- Some Expression      --<-- This is true
BEGIN
    PRINT 'First IF is True'           --<-- this will be executed
END

IF (1 = 2)  --<-- Some Expression
BEGIN
    PRINT 'Second IF is True'
END

IF (3 = 3)  --<-- Some Expression        --<-- This true
BEGIN
    PRINT 'Thrid IF is True'             --<-- this will be executed
END
```

IF..ELSE

`IF..ELSEIF`True`BEGIN..END`Else。

`FalseELSE BEGIN..ENDBEGIN..END`。

falseElse`'First expression was not true'`

```
IF ( 1 <> 1)  --<-- Some Expression
 BEGIN
     PRINT 'One is equal to One'
 END
ELSE
 BEGIN
```

```
     PRINT 'First expression was not true'
 END
```

ELSEIF ... ELSE

IF...ELSE IFTrueELSEIFELSE IFtrue。

IFELSE IFTrueELSE'No other expression is true'

```
IF ( 1 = 1 + 1 )
    BEGIN
       PRINT 'First If Condition'
    END
ELSE IF (1 = 2)
    BEGIN
        PRINT 'Second If Else Block'
    END
ELSE IF (1 = 3)
    BEGIN
        PRINT 'Third If Else Block'
    END
ELSE
    BEGIN
        PRINT 'No other expression is true'  --<-- Only this statement will be printed
    END
```

IF ... ELSE

◦ IF...ELSE IF◦

◦ true◦ true◦

```
IF (1 = 1 + 1)
BEGIN
    PRINT 'First If Condition'
END
ELSE IF (1 = 2)
BEGIN
    PRINT 'Second If Else Block'
END
ELSE IF (1 = 3)
BEGIN
    PRINT 'Third If Else Block'
END
ELSE IF (1 = 1)      --<-- This is True
BEGIN
    PRINT 'Last Else Block'  --<-- Only this statement will be printed
END
```

https://riptutorial.com/zh-TW/sql-server/topic/5186/

55:

Examples

SQL。。

1.
2. ORDER BY。
3. BLOB。

wherefromselectINselectinsertupdatedelete。

ITCompanyInNepal

ID	CompanyName	CompanyAddress	Headquarter	NumberOfEmployee
1	CompanyOne	Kathmandu	USA	350
2	CompanyTwo	Kathmandu	USA	310
3	CompanyThree	Kathmandu	Nepal	300
4	CompanyFour	Kathmandu	Nepal	180
5	CompanyFive	Birgunj	Denmark	150
6	CompanySix	Janakpur	USA	100
7	CompanySeven	Janakpur	Australia	100
8	CompanyEight	Birganj	Australia	150
9	CompanyNine	Biratnagar	Canada	200
10	CompanyTen	Pokhara	India	85

Select

Inwhere

```
SELECT *
FROM ITCompanyInNepal
WHERE Headquarter IN (SELECT Headquarter
                      FROM ITCompanyInNepal
                      WHERE Headquarter = 'USA');
```

with **comparisonwhere**

```
SELECT *
FROM ITCompanyInNepal
WHERE NumberOfEmployee < (SELECT AVG(NumberOfEmployee)
                          FROM ITCompanyInNepal
                      )
```

select

```
SELECT   CompanyName,
         CompanyAddress,
         Headquarter,
         (Select SUM(NumberOfEmployee)
```

```
        FROM ITCompanyInNepal
        Where Headquarter = 'USA') AS TotalEmployeeHiredByUSAInKathmandu
FROM    ITCompanyInNepal
WHERE   CompanyAddress = 'Kathmandu' AND Headquarter = 'USA'
```

insert

IndianCompanyITCompanyInNepal。 IndianCompany

ID	CompanyName	CompanyAddress	Headquarter	NumberOfEmployee
1	CompanyA	Banglore	USA	450
2	CompanyB	Banglore	USA	500
3	CompanyC	Hyderabad	Denmark	480
4	CompanyD	Hyderabad	Australia	780
5	CompanyE	Delhi	Canada	790

```
INSERT INTO ITCompanyInNepal
SELECT *
FROM IndianCompany
```

update

50。

```
UPDATE ITCompanyInNepal
SET NumberOfEmployee = NumberOfEmployee - 50
WHERE Headquarter IN (SELECT Headquarter
                      FROM ITCompanyInNepal
                      WHERE Headquarter = 'USA')
```

Delete

。

```
DELETE FROM ITCompanyInNepal
WHERE Headquarter IN (SELECT Headquarter
                    FROM ITCompanyInNepal
                    WHERE Headquarter = 'Denmark')
```

https://riptutorial.com/zh-TW/sql-server/topic/5629/

56:

- ASCII
-
- CHARINDEX
- CONCAT
-
-
-
-
-
- LTRIM
- NCHAR
- PATINDEX
- QUOTENAME
-
-
-
-
- RTRIM
-
-
- STR
- String_escape
- String_split
-
-
-
-

Examples

char。

1. ◦ `varcharnvarchar textntext`
2. ◦ 0`bigint`9,223,372,036,854,775,807。
   max length。

```
SELECT LEFT('This is my string', 4) -- result: 'This'
```

entier。

```
SELECT LEFT('This is my string', 50) -- result: 'This is my string'
```

。

1. ◦ `varcharnvarchar textntext`
2. ◦ 0`bigint`9,223,372,036,854,775,807。 max length。

```
SELECT RIGHT('This is my string', 6) -- returns 'string'
```

entier。

```
SELECT RIGHT('This is my string', 50) -- returns 'This is my string'
```

char。

1. ◦ `varcharnvarchar textntext`。
2. ◦ `intbigint` ◦ sql serverbase 11。1.0+ - 1。0。
3. ◦ 0`bigint`9,223,372,036,854,775,807。 max length。

```
SELECT SUBSTRING('This is my string', 6, 5) -- returns 'is my'
```

max length + start indexentier。

```
SELECT SUBSTRING('Hello World',1,100) -- returns 'Hello World'
```

。

```
SELECT SUBSTRING('Hello World',15,10) -- returns ''
```

ASCII

intASCII。

```
SELECT ASCII('t') -- Returns 116
SELECT ASCII('T') -- Returns 84
SELECT ASCII('This') -- Returns 84
```

UnicodeASCII127

```
SELECT ASCII(N'ï') -- returns 239 when `SERVERPROPERTY('COLLATION') =
'SQL_Latin1_General_CP1_CI_AS'`
```

Unicodeint63 :(ASCII

```
SELECT ASCII(N'□') -- returns 63
SELECT ASCII(nchar(2039)) -- returns 63
```

CHARINDEX

。

1. 8000
2.
3. 。 intbig int。 1。

`varchar(max) nvarchar(max)varbinary(max) CHARINDEXbigint。 int 。`

```
SELECT CHARINDEX('is', 'this is my string') -- returns 3
SELECT CHARINDEX('is', 'this is my string', 4) -- returns 6
SELECT CHARINDEX(' is', 'this is my string') -- returns 5
```

int ASCIIchar。

```
SELECT CHAR(116) -- Returns 't'
SELECT CHAR(84)  -- Returns 'T'
```

/`CHAR(10) CHAR(13)`。 AsciiTable.com。

0255CHAR`NULL` 。
`CHARchar(1)`

。
`LEN`

```
SELECT LEN('My string'), -- returns 9
       LEN('My string   '), -- returns 9
       LEN('   My string') -- returns 12
```

。 `LEN`1

```
DECLARE @str varchar(100) = 'My string   '
SELECT LEN(@str + 'x') - 1 -- returns 12
```

◦

```
SELECT LEN(CONVERT(NVARCHAR(MAX), @str) + 'x') - 1
```

DATALENGTH◦

```
DECLARE @str varchar(100) = 'My string   '
SELECT DATALENGTH(@str) -- returns 12
```

DATALENGTH◦ varcharnvarchar◦

```
DECLARE @str nvarchar(100) = 'My string   '
SELECT DATALENGTH(@str) -- returns 24
```

◦ ◦

```
DECLARE @str nvarchar(100) = 'My string   '
SELECT DATALENGTH(@str) / DATALENGTH(LEFT(LEFT(@str, 1) + 'x', 1)) -- returns 12
```

SQL Server 2012◦ ◦

REPLACELEN ◦ ◦

CONCAT

SQL Server 2012

◦ CONCAT◦

```
SELECT CONCAT('This', ' is', ' my', ' string') -- returns 'This is my string'
```

+ concat

```
SELECT CONCAT('This', NULL, ' is', ' my', ' string'), -- returns 'This is my string'
       'This' + NULL + ' is' + ' my' + ' string' -- returns NULL.
```

```
SELECT CONCAT('This', ' is my ', 3, 'rd string') -- returns 'This is my 3rd string'
```

```
DECLARE @Age INT=23;
SELECT CONCAT('Ram is ', @Age,' years old');  -- returns 'Ram is 23 years old'
```

SQL Server 2012

CONCAT + ◦ ◦

```
SELECT 'This is the number ' + CAST(42 AS VARCHAR(5)) --returns 'This is the number 42'
```

varcharnvarchar ◦

1. ◦ varchar◦

```
SELECT LOWER('This IS my STRING') -- Returns 'this is my string'

DECLARE @String nchar(17) = N'This IS my STRING';
SELECT LOWER(@String) -- Returns 'this is my string'
```

varcharnvarchar ◦

1. ◦ varchar◦

```
SELECT UPPER('This IS my STRING') -- Returns 'THIS IS MY STRING'

DECLARE @String nchar(17) = N'This IS my STRING';
SELECT UPPER(@String) -- Returns 'THIS IS MY STRING'
```

LTRIM

varcharnvarchar ◦

1. ◦ varchervarcher text ntextimage◦

```
SELECT LTRIM('    This is my string') -- Returns 'This is my string'
```

RTRIM

varcharnvarchar ◦

1. ◦ varchervarcher text ntextimage◦

```
SELECT RTRIM('This is my string     ') -- Returns 'This is my string'
```

Unicode◦

1. Unicode◦ ncharnvarchar◦

```
SELECT UNICODE(N'Ɛ') -- Returns 400

DECLARE @Unicode nvarchar(11) = N'Ɛ is a char'
SELECT UNICODE(@Unicode) -- Returns 400
```

NCHAR

UnicodeUnicode nchar(1)nvarchar(2) Unicode◦

1. ◦ 065535CS01114111◦ null◦

```
SELECT NCHAR(257) -- Returns 'ā'
SELECT NCHAR(400) -- Returns 'Ɛ'
```

。

1. varchar。

```
Select REVERSE('Sql Server') -- Returns 'revreS lqS'
```

PATINDEX

。

1. 。 。 8000。 % _ 。 。 。

2. 。 。

```
SELECT PATINDEX('%ter%', 'interesting') -- Returns 3.

SELECT PATINDEX('%t_r%t%', 'interesting') -- Returns 3.

SELECT PATINDEX('ter%', 'interesting') -- Returns 0, since 'ter' is not at the start.

SELECT PATINDEX('inter%', 'interesting') -- Returns 1.

SELECT PATINDEX('%ing', 'interesting') -- Returns 9.
```

varchar 。

1. 。 8000。 null 。 0。 8000Replicate。

```
SELECT SPACE(-1) -- Returns NULL
SELECT SPACE(0)  -- Returns an empty string
SELECT SPACE(3)  -- Returns '   ' (a string containing 3 spaces)
```

。

1. 。
2. 。 bigint 。 null 。 0。

```
SELECT REPLICATE('a', -1)  -- Returns NULL

SELECT REPLICATE('a', 0)  -- Returns ''

SELECT REPLICATE('a', 5)  -- Returns 'aaaaa'

SELECT REPLICATE('Abc', 3) -- Returns 'AbcAbcAbc'
```

varchar(max)nvarchar(max) 8000。

```
SELECT LEN(REPLICATE('a b c d e f g h i j k l', 350)) -- Returns 7981

SELECT LEN(REPLICATE(cast('a b c d e f g h i j k l' as varchar(max)), 350)) -- Returns 8050
```

varcharnvarchar ◦

1. ◦ ◦
2. ◦ ◦ ◦ pattern◦
3. ◦ ◦ ◦

```
SELECT REPLACE('This is my string', 'is', 'XX') -- Returns 'ThXX XX my string'.
```

- varchar(max)nvarchar(max) replace8,000◦
- - nvarchar nvarcharvarchar ◦
- NULLNULL

String_Split

SQL Server 2016

◦ STRING_SPLIT()FROM◦

1. ◦ char nchar varcharnvarchar
2. ◦ char(1) nchar(1) varchar(1)nvarchar(1) ◦

◦ value nvarchar ncharnvarchar varchar ◦

space

```
SELECT value FROM STRING_SPLIT('Lorem ipsum dolor sit amet.', ' ');
```

```
value
-----
Lorem
ipsum
dolor
sit
amet.
```

STRING_SPLIT**130**◦ 130SQL ServerSTRING_SPLIT◦

```
ALTER DATABASE [database_name] SET COMPATIBILITY_LEVEL = 130
```

SQL Server 2016

sql server◦ ◦ Aaron Bertrand - ◦

STR

varchar ◦

1. ◦ ◦
2. ◦ ◦ ◦ 10◦
3. ◦ ◦ ◦ 1616◦

```
SELECT STR(1.2) -- Returns '         1'

SELECT STR(1.2, 3) -- Returns '  1'

SELECT STR(1.2, 3, 2) -- Returns '1.2'

SELECT STR(1.2, 5, 2) -- Returns ' 1.20'

SELECT STR(1.2, 5, 5) -- Returns '1.200'

SELECT STR(1, 5, 2) -- Returns ' 1.00'

SELECT STR(1) -- Returns '         1'
```

QUOTENAME

UnicodeSQL Server◦

1. ◦ Unicode128 sysname ◦ 128null ◦
2. ◦ ◦ ◦ '`` { [(< >)] } " ◦ null ◦ ◦

```
SELECT QUOTENAME('what''s my name?')      -- Returns [what's my name?]

SELECT QUOTENAME('what''s my name?', '[') -- Returns [what's my name?]
SELECT QUOTENAME('what''s my name?', ']') -- Returns [what's my name?]

SELECT QUOTENAME('what''s my name?', '''') -- Returns 'what''s my name?'

SELECT QUOTENAME('what''s my name?', '"') -- Returns "what's my name?"

SELECT QUOTENAME('what''s my name?', ')') -- Returns (what's my name?)
SELECT QUOTENAME('what''s my name?', '(') -- Returns (what's my name?)

SELECT QUOTENAME('what''s my name?', '<') -- Returns <what's my name?>
SELECT QUOTENAME('what''s my name?', '>') -- Returns <what's my name?>

SELECT QUOTENAME('what''s my name?', '{') -- Returns {what's my name?}
SELECT QUOTENAME('what''s my name?', '}') -- Returns {what's my name?}

SELECT QUOTENAME('what''s my name?', '`') -- Returns `what's my name?`
```

varchar ◦

1. ◦ ◦

soundex◦ char3aeiouhwy ◦

```
SELECT SOUNDEX ('Smith') -- Returns 'S530'

SELECT SOUNDEX ('Smythe') -- Returns 'S530'
```

int soundex。

1. 1。
2. 2。

。

soundex40。

```
SELECT  SOUNDEX('Green'),  -- G650
        SOUNDEX('Greene'),  -- G650
        DIFFERENCE('Green','Greene') -- Returns 4

SELECT  SOUNDEX('Blotchet-Halls'),  -- B432
        SOUNDEX('Greene'),  -- G650
        DIFFERENCE('Blotchet-Halls', 'Greene') -- Returns 0
```

SQL Server 2012

NVARCHAR。 。

1. value。 。 。
2. format。 NVARCHAR。 Microsoft
3. culture。 。 nvarchar。 。

```
DECLARE @d DATETIME = '2016-07-31';

SELECT
    FORMAT ( @d, 'd', 'en-US' ) AS 'US English Result' -- Returns '7/31/2016'
   ,FORMAT ( @d, 'd', 'en-gb' ) AS 'Great Britain English Result' -- Returns '31/07/2016'
   ,FORMAT ( @d, 'd', 'de-de' ) AS 'German Result' -- Returns '31.07.2016'
   ,FORMAT ( @d, 'd', 'zh-cn' ) AS 'Simplified Chinese (PRC) Result' -- Returns '2016/7/31'
   ,FORMAT ( @d, 'D', 'en-US' ) AS 'US English Result' -- Returns 'Sunday, July 31, 2016'
   ,FORMAT ( @d, 'D', 'en-gb' ) AS 'Great Britain English Result' -- Returns '31 July 2016'
   ,FORMAT ( @d, 'D', 'de-de' ) AS 'German Result' -- Returns 'Sonntag, 31. Juli 2016'
```

```
SELECT FORMAT( @d, 'dd/MM/yyyy', 'en-US' ) AS 'DateTime Result' -- Returns '31/07/2016'
      ,FORMAT(123456789,'###-##-####') AS 'Custom Number Result' -- Returns '123-45-6789',
      ,FORMAT( @d,'dddd, MMMM dd, yyyy hh:mm:ss tt','en-US') AS 'US' -- Returns 'Sunday, July
31, 2016 12:00:00 AM'
      ,FORMAT( @d,'dddd, MMMM dd, yyyy hh:mm:ss tt','hi-IN') AS 'Hindi' -- Returns रविवार, जुलाई 31,
2016 12:00:00 पूर्वाह्न
   ,FORMAT ( @d, 'dddd', 'en-US' )  AS 'US' -- Returns 'Sunday'
      ,FORMAT ( @d, 'dddd', 'hi-IN' )  AS 'Hindi' -- Returns 'रविवार'
```

FORMATCURRENCY PERCENTAGENUMBERS。

```
DECLARE @Price1 INT = 40
```

```
SELECT FORMAT(@Price1,'c','en-US') AS 'CURRENCY IN US Culture' -- Returns '$40.00'
       ,FORMAT(@Price1,'c','de-DE') AS 'CURRENCY IN GERMAN Culture' -- Returns '40,00 €'
```

。

```
DECLARE @Price DECIMAL(5,3) = 40.356
SELECT FORMAT( @Price, 'C') AS 'Default', -- Returns '$40.36'
       FORMAT( @Price, 'C0') AS 'With 0 Decimal', -- Returns '$40'
       FORMAT( @Price, 'C1') AS 'With 1 Decimal', -- Returns '$40.4'
       FORMAT( @Price, 'C2') AS 'With 2 Decimal', -- Returns '$40.36'
```

```
   DECLARE @Percentage float = 0.35674
   SELECT FORMAT( @Percentage, 'P') AS '% Default', -- Returns '35.67 %'
   FORMAT( @Percentage, 'P0') AS '% With 0 Decimal', -- Returns '36 %'
   FORMAT( @Percentage, 'P1') AS '% with 1 Decimal'  -- Returns '35.7 %'
```

```
DECLARE @Number AS DECIMAL(10,2) = 454545.389
SELECT FORMAT( @Number, 'N','en-US') AS 'Number Format in US', -- Returns '454,545.39'
FORMAT( @Number, 'N','en-IN')  AS 'Number Format in INDIA', -- Returns '4,54,545.39'
FORMAT( @Number, '#.0')     AS 'With 1 Decimal', -- Returns '454545.4'
FORMAT( @Number, '#.00')    AS 'With 2 Decimal', -- Returns '454545.39'
FORMAT( @Number, '#,##.00') AS 'With Comma and 2 Decimal', -- Returns '454,545.39'
FORMAT( @Number, '##.00')   AS 'Without Comma and 2 Decimal', -- Returns '454545.39'
FORMAT( @Number, '000000000') AS 'Left-padded to nine digits' -- Returns '000454545'
```

:(

```
Category         Type             .Net type
-----------------------------------------
Numeric          bigint           Int64
Numeric          int              Int32
Numeric          smallint         Int16
Numeric          tinyint          Byte
Numeric          decimal          SqlDecimal
Numeric          numeric          SqlDecimal
Numeric          float            Double
Numeric          real             Single
Numeric          smallmoney       Decimal
Numeric          money            Decimal
Date and Time    date             DateTime
Date and Time    time             TimeSpan
Date and Time    datetime         DateTime
Date and Time    smalldatetime    DateTime
Date and Time    datetime2        DateTime
Date and Time    datetimeoffset   DateTimeOffset
```

- `FORMAT`NULL。 formatNULL。
- `FORMAT`.NET FrameworkCLR。
- `FORMAT`CLR。 。

FORMAT 。

String_escape

nvarchar(max) ◦

1. ◦ nvarchar◦
2. ◦ ◦ 'json' ◦

```
SELECT STRING_ESCAPE('\   /
\\    "     ', 'json') -- returns '\\\t\/\n\\\\\t\"\t'
```

```
Special character    Encoded sequence
-------------------------------------
Quotation mark (")   \"
Reverse solidus (\)  \\
Solidus (/)          \/
Backspace            \b
Form feed            \f
New line             \n
Carriage return      \r
Horizontal tab       \t


Control character    Encoded sequence
-------------------------------------
CHAR(0)              \u0000
CHAR(1)              \u0001
...                  ...
CHAR(31)             \u001f
```

https://riptutorial.com/zh-TW/sql-server/topic/4113/

57:

SQL Server。。/。

- CREATE {PROCEDURE | PROC} [schema_name。] procedure_name
- [@parameter [type_schema_name。]
- [VARYING] [=] [OUT ||]
- @ parameter [type_schema_name。]
- [VARYING] [=] [OUT ||]]
- [WITH {ENCRYPTION | RECOMPILE | EXECUTE AS Clause}]
- []
-
-
- [declaration_section]
- executable_section
- ;

Examples

Authors

```
CREATE PROCEDURE GetName
(
    @input_id INT = NULL,       --Input parameter,  id of the person, NULL default
    @name VARCHAR(128) = NULL   --Input parameter, name of the person, NULL default
)
AS
BEGIN
    SELECT Name + ' is from ' + Country
    FROM Authors
    WHERE Id = @input_id OR Name = @name
END
GO
```

。 EXECUTEEXEC

```
EXECUTE GetName @id = 1
EXEC Getname @name = 'Ernest Hemingway'
```

EXEC。。

```
GetName NULL, 'Ernest Hemingway'
```

。

```
 CREATE PROCEDURE dbo.sProcTemp
 (
    @Param1 INT,
```

```
    @Param2 INT
)
AS
BEGIN

    SELECT
        Param1 = @Param1,
        Param2 = @Param2

END
```

@ Param1@Param2。

```
  EXEC dbo.sProcTemp @Param1 = 0,@Param2=1
```

```
  EXEC dbo.sProcTemp @Param2 = 0,@Param1=1
```

@ param2@ Param1。。

sp_procuedresSQL Server。“sp_”SQL Servermaster。master。master“sp_”。

```
Use Master

CREATE PROCEDURE sp_GetName
(
    @input_id INT = NULL,      --Input parameter,  id of the person, NULL default
    @name VARCHAR(128) = NULL  --Input parameter, name of the person, NULL default
)
AS
BEGIN
    SELECT Name + ' is from ' + Country
    FROM Authors
    WHERE Id = @input_id OR Name = @name
END
GO
```

OUT

OUTPUT。

out

```
CREATE PROCEDURE SprocWithOutParams
(
    @InParam VARCHAR(30),
    @OutParam VARCHAR(30) OUTPUT
)
AS
BEGIN
    SELECT @OutParam = @InParam + ' must come out'
    RETURN
END
```

```
GO
```

```
DECLARE @OutParam VARCHAR(30)
EXECUTE SprocWithOutParams 'what goes in', @OutParam OUTPUT
PRINT @OutParam
```

```
CREATE PROCEDURE SprocWithOutParams2
(
    @InParam VARCHAR(30),
    @OutParam VARCHAR(30) OUTPUT,
    @OutParam2 VARCHAR(30) OUTPUT
)
AS
BEGIN
    SELECT @OutParam = @InParam +' must come out'
    SELECT @OutParam2 = @InParam +' must come out'
    RETURN
END
GO
```

```
DECLARE @OutParam VARCHAR(30)
DECLARE @OutParam2 VARCHAR(30)
EXECUTE SprocWithOutParams2 'what goes in', @OutParam OUTPUT, @OutParam2 OUTPUT
PRINT @OutParam
PRINT @OutParam2
```

If ... ElseInsert Into

`Employee`

```
CREATE TABLE Employee
(
    Id INT,
    EmpName VARCHAR(25),
    EmpGender VARCHAR(6),
    EmpDeptId INT
)
```

Employee。

```
CREATE PROCEDURE spSetEmployeeDetails
(
    @ID int,
    @Name VARCHAR(25),
    @Gender VARCHAR(6),
    @DeptId INT
)
AS
BEGIN
```

```
    IF (
        (@ID IS NOT NULL AND LEN(@ID) !=0)
        AND (@Name IS NOT NULL AND LEN(@Name) !=0)
        AND (@Gender IS NOT NULL AND LEN(@Gender) !=0)
        AND (@DeptId IS NOT NULL AND LEN(@DeptId) !=0)
    )
    BEGIN
        INSERT INTO Employee
        (
            Id,
            EmpName,
            EmpGender,
            EmpDeptId
        )
        VALUES
        (
            @ID,
            @Name,
            @Gender,
            @DeptId
        )
    END
ELSE
    PRINT 'Incorrect Parameters'
END
GO
```

```
DECLARE @ID INT,
    @Name VARCHAR(25),
    @Gender VARCHAR(6),
    @DeptId INT

EXECUTE spSetEmployeeDetails
    @ID = 1,
    @Name = 'Subin Nepal',
    @Gender = 'Male',
    @DeptId = 182666
```

SQL

SQLSQL。SQLSQL。

SQL

```
CREATE PROC sp_dynamicSQL
@table_name      NVARCHAR(20),
@col_name        NVARCHAR(20),
@col_value       NVARCHAR(20)
AS
BEGIN
DECLARE  @Query  NVARCHAR(max)
SET      @Query = 'SELECT * FROM ' + @table_name
SET      @Query = @Query + ' WHERE ' + @col_name + ' = ' + ''''+@col_value+''''
EXEC     (@Query)
END
```

sql`@table_name, @col_name, and @col_value`。。。SQL。。

```
DECLARE @table_name     NVARCHAR(20) = 'ITCompanyInNepal',
        @col_name       NVARCHAR(20) = 'Headquarter',
        @col_value      NVARCHAR(20) = 'USA'

EXEC    sp_dynamicSQL   @table_name,
                        @col_name,
                        @col_value
```

ID	CompanyName	CompanyAddress	Headquarter	NumberOfEmployee
1	CompanyOne	Kathmandu	USA	300
2	CompanyTwo	Kathmandu	USA	260
3	CompanyThree	Kathmandu	Nepal	300
4	CompanyFour	Kathmandu	Nepal	180
6	CompanySix	Janakpur	USA	50
7	CompanySeven	Janakpur	Australia	100
8	CompanyEight	Birganj	Australia	150
9	CompanyNine	Biratnagar	Canada	200
10	CompanyTen	Pokhara	India	85

ID	CompanyName	CompanyAddress	Headquarter	NumberOfEmployee
1	CompanyOne	Kathmandu	USA	300
2	CompanyTwo	Kathmandu	USA	260
6	CompanySix	Janakpur	USA	50
1	CompanyA	Banglore	USA	400
2	CompanyB	Banglore	USA	450

#systables

```
select
    o.name,
    row_number() over (order by o.name) as rn
into
    #systables
from
    sys.objects as o
where
    o.type = 'S'
```

```
declare
    @rn int = 1,
    @maxRn int = (
                    select
                        max(rn)
                    from
                        #systables as s
                    )
declare    @tablename sys name
```

◦ select@rn ex set @rn = @rn + 1◦ @rn#systables◦ ◦

```
while @rn <= @maxRn
    begin

        select
```

```
            @tablename = name,
            @rn = @rn + 1
        from
            #systables as s
        where
            s.rn = @rn

        print @tablename
    end
```

```
CREATE PROCEDURE SprocWithSimpleLoop
(
    @SayThis VARCHAR(30),
    @ThisManyTimes INT
)
AS
BEGIN
    WHILE @ThisManyTimes > 0
    BEGIN
        PRINT @SayThis;
        SET @ThisManyTimes = @ThisManyTimes - 1;
    END

    RETURN;
END
GO
```

https://riptutorial.com/zh-TW/sql-server/topic/3213/

58: JSON

Examples

JSON PATH

SELECTJSON。FOR JSON PATH

```
SELECT top 3 object_id, name, type, principal_id FROM sys.objects
FOR JSON PATH
```

JSONJSON。JSON

```
[
  {"object_id":3,"name":"sysrscols","type":"S "},
  {"object_id":5,"name":"sysrowsets","type":"S "},
  {"object_id":6,"name":"sysclones","type":"S "}
]
```

principal_idNULL。

FOR JSON PATH

FOR JSON PATHJSON

```
SELECT top 3 object_id as id, name as [data.name], type as [data.type]
FROM sys.objects
FOR JSON PATH
```

。data.namedata.type。

```
[
  {"id":3,"data":{"name":"sysrscols","type":"S "}},
  {"id":5,"data":{"name":"sysrowsets","type":"S "}},
  {"id":6,"data":{"name":"sysclones","type":"S "}}
]
```

FOR JSON

WITHOUT_ARRAY_WRAPPER。/

```
SELECT top 3 object_id, name, type, principal_id
FROM sys.objects
WHERE object_id = 3
FOR JSON PATH, WITHOUT_ARRAY_WRAPPER
```

```
{"object_id":3,"name":"sysrscols","type":"S "}
```

INCLUDE_NULL_VALUES

FOR JSONNULL。NULL“key”nullINCLUDE_NULL_VALUES

```
SELECT top 3 object_id, name, type, principal_id
FROM sys.objects
FOR JSON PATH, INCLUDE_NULL_VALUES
```

principal_idNULL

```
[
  {"object_id":3,"name":"sysrscols","type":"S ","principal_id":null},
  {"object_id":5,"name":"sysrowsets","type":"S ","principal_id":null},
  {"object_id":6,"name":"sysclones","type":"S ","principal_id":null}
]
```

ROOT

WrapsJSON

```
SELECT top 3 object_id, name, type FROM sys.objects
FOR JSON PATH, ROOT('data')
```

JSON

```
{
  "data":[
            {"object_id":3,"name":"sysrscols","type":"S "},
            {"object_id":5,"name":"sysrowsets","type":"S "},
            {"object_id":6,"name":"sysclones","type":"S "}
          ]
}
```

JSON AUTO

JSON

```
SELECT top 5 o.object_id, o.name, c.column_id, c.name
FROM sys.objects o
    JOIN sys.columns c ON o.object_id = c.object_id
FOR JSON AUTO
```

JSON

```
[
  {
   "object_id":3,
   "name":"sysrscols",
   "c":[
        {"column_id":12,"name":"bitpos"},
        {"column_id":6,"name":"cid"}
```

```
        ]
  },
  {
    "object_id":5,
    "name":"sysrowsets",
    "c":[
         {"column_id":13,"name":"colguid"},
         {"column_id":3,"name":"hbcolid"},
         {"column_id":8,"name":"maxinrowlen"}
     ]
  }
]
```

JSON

FOR JSON PATHFOR JSON AUTOJSONFOR JSONJSON

```
SELECT top 5 o.object_id, o.name,
        (SELECT column_id, c.name
            FROM sys.columns c WHERE o.object_id = c.object_id
            FOR JSON PATH) as columns,
        (SELECT parameter_id, name
            FROM sys.parameters p WHERE o.object_id = p.object_id
            FOR JSON PATH) as parameters
FROM sys.objects o
FOR JSON PATH
```

JSONJSON。

JSON https://riptutorial.com/zh-TW/sql-server/topic/4661/json

59:

- WITH *cte_name* [*column_name_1* *column_name_2* ...] AS *cte_expression*

; CTE。

ie ;`WITH CommonTableName (...) SELECT ... FROM CommonTableName ...`

CTE。 CTECTECTECTECTE。

Examples

```
CREATE TABLE dbo.Employees
(
    EmployeeID INT NOT NULL PRIMARY KEY,
    FirstName NVARCHAR(50) NOT NULL,
    LastName NVARCHAR(50) NOT NULL,
    ManagerID INT NULL
)

GO

INSERT INTO Employees VALUES (101, 'Ken', 'Sánchez', NULL)
INSERT INTO Employees VALUES (102, 'Keith', 'Hall', 101)
INSERT INTO Employees VALUES (103, 'Fred', 'Bloggs', 101)
INSERT INTO Employees VALUES (104, 'Joseph', 'Walker', 102)
INSERT INTO Employees VALUES (105, 'Žydrė', 'Klybė', 101)
INSERT INTO Employees VALUES (106, 'Sam', 'Jackson', 105)
INSERT INTO Employees VALUES (107, 'Peter', 'Miller', 103)
INSERT INTO Employees VALUES (108, 'Chloe', 'Samuels', 105)
INSERT INTO Employees VALUES (109, 'George', 'Weasley', 105)
INSERT INTO Employees VALUES (110, 'Michael', 'Kensington', 106)
```

```
;WITH cteReports (EmpID, FirstName, LastName, SupervisorID, EmpLevel) AS
(
    SELECT EmployeeID, FirstName, LastName, ManagerID, 1
    FROM Employees
    WHERE ManagerID IS NULL

    UNION ALL

    SELECT e.EmployeeID, e.FirstName, e.LastName, e.ManagerID, r.EmpLevel + 1
    FROM Employees        AS e
    INNER JOIN cteReports AS r ON e.ManagerID = r.EmpID
)

SELECT
    FirstName + ' ' + LastName AS FullName,
    EmpLevel,
    (SELECT FirstName + ' ' + LastName FROM Employees WHERE EmployeeID =
cteReports.SupervisorID) AS ManagerName
```

```
FROM cteReports
ORDER BY EmpLevel, SupervisorID
```

	EmpLevel	ManagerName
KenSánchez	1	
	2	KenSánchez
	2	KenSánchez
ŽydreKlybe	2	KenSánchez
	3	
	3	
	3	ŽydreKlybe
Chloe Samuels	3	ŽydreKlybe
	3	ŽydreKlybe
	4	

CTEn

```
|  ID  | FirstName | LastName | Gender | Salary |
+------+-----------+----------+--------+--------+
| 1    | Jahangir  | Alam     | Male   | 70000  |
| 2    | Arifur    | Rahman   | Male   | 60000  |
| 3    | Oli       | Ahammed  | Male   | 45000  |
| 4    | Sima      | Sultana  | Female | 70000  |
| 5    | Sudeepta  | Roy      | Male   | 80000  |
+------+-----------+----------+--------+--------+
```

CTE

```
 WITH RESULT AS
(
    SELECT SALARY,
           DENSE_RANK() OVER (ORDER BY SALARY DESC) AS DENSERANK
    FROM EMPLOYEES
)
SELECT TOP 1 SALARY
FROM RESULT
WHERE DENSERANK = 1
```

N2.N3。

CTE

```
|  ID  | FirstName | LastName | Gender | Salary |
+------+-----------+----------+--------+--------+
|  1   | Mark      | Hastings | Male   | 60000  |
|  1   | Mark      | Hastings | Male   | 60000  |
|  2   | Mary      | Lambeth  | Female | 30000  |
|  2   | Mary      | Lambeth  | Female | 30000  |
|  3   | Ben       | Hoskins  | Male   | 70000  |
|  3   | Ben       | Hoskins  | Male   | 70000  |
|  3   | Ben       | Hoskins  | Male   | 70000  |
+------+-----------+----------+--------+--------+
```

CTE

```
WITH EmployeesCTE AS
(
   SELECT *, ROW_NUMBER()OVER(PARTITION BY ID ORDER BY ID) AS RowNumber
   FROM Employees
)
DELETE FROM EmployeesCTE WHERE RowNumber > 1
```

```
|  ID  | FirstName | LastName | Gender | Salary |
+------+-----------+----------+--------+--------+
|  1   | Mark      | Hastings | Male   | 60000  |
|  2   | Mary      | Lambeth  | Female | 30000  |
|  3   | Ben       | Hoskins  | Male   | 70000  |
+------+-----------+----------+--------+--------+
```

CTE

```
DECLARE @startdate CHAR(8), @numberDays TINYINT

SET @startdate = '20160101'
SET @numberDays = 10;

WITH CTE_DatesTable
AS
(
  SELECT CAST(@startdate as date) AS [date]
  UNION ALL
  SELECT DATEADD(dd, 1, [date])
  FROM CTE_DatesTable
  WHERE DATEADD(dd, 1, [date]) <= DateAdd(DAY, @numberDays-1, @startdate)
)

SELECT [date] FROM CTE_DatesTable

OPTION (MAXRECURSION 0)
```

@startdate@numberDays。

CTE

20112012 - 1。

```
WITH yearsAgo
(
    myYear
)
AS
(
     -- Base Case: This is where the recursion starts
     SELECT DATEPART(year, GETDATE()) AS myYear

     UNION ALL  -- This MUST be UNION ALL (cannot be UNION)

     -- Recursive Section: This is what we're doing with the recursive call
     SELECT yearsAgo.myYear - 1
     FROM yearsAgo
     WHERE yearsAgo.myYear >= 2012
)
     SELECT myYear FROM yearsAgo;  -- A single SELECT, INSERT, UPDATE, or DELETE
```

myYear
2016
2015
2014
2013
2012
2011

MAXRECURSION。

```
WITH yearsAgo
(
    myYear
)
AS
(
     -- Base Case
     SELECT DATEPART(year , GETDATE()) AS myYear
     UNION ALL
     -- Recursive Section
     SELECT yearsAgo.myYear - 1
     FROM yearsAgo
     WHERE yearsAgo.myYear >= 2002
)
     SELECT * FROM yearsAgo
     OPTION (MAXRECURSION 10);
```

Msg 530Level 16State 1Line 2。 10。

ASCTE

```
;WITH cte_query_1
AS
(
    SELECT *
    FROM database.table1
),
cte_query_2
AS
(
    SELECT *
    FROM database.table2
)
SELECT *
FROM cte_query_1
WHERE cte_query_one.fk IN
(
    SELECT PK
    FROM cte_query_2
)
```

AS。。

https://riptutorial.com/zh-TW/sql-server/topic/1343/

60:

Examples

```
CREATE SEQUENCE [dbo].[CustomersSeq]
AS INT
START WITH 10001
INCREMENT BY 1
MINVALUE -1;
```

```
CREATE TABLE [dbo].[Customers]
(
    CustomerID INT DEFAULT (NEXT VALUE FOR [dbo].[CustomersSeq]) NOT NULL,
    CustomerName VARCHAR(100),
);
```

```
INSERT INTO [dbo].[Customers]
       ([CustomerName])
 VALUES
       ('Jerry'),
       ('Gorge')

SELECT * FROM [dbo].[Customers]
```

ID	
10001	
10002	

```
DELETE FROM [dbo].[Customers]
WHERE CustomerName = 'Gorge';

INSERT INTO [dbo].[Customers]
       ([CustomerName])
 VALUES ('George')

SELECT * FROM [dbo].[Customers]
```

ID	
10001	
10003	

https://riptutorial.com/zh-TW/sql-server/topic/5324/

61:

Examples

◦ ◦

```
CREATE TABLE Employees
(
    ID CHAR(900),
    FirstName NVARCHAR(3000),
    LastName NVARCHAR(3000),
    StartYear CHAR(900)
)
GO

CREATE CLUSTERED INDEX IX_Clustered
ON Employees(ID)
GO
```

◦ ◦ SQL Server 2008/2012999◦

https //msdn.microsoft.com/en-us/library/ms143432.aspx

```
CREATE TABLE Employees
(
    ID CHAR(900),
    FirstName NVARCHAR(3000),
    LastName NVARCHAR(3000),
    StartYear CHAR(900)
)
GO

CREATE NONCLUSTERED INDEX IX_NonClustered
ON Employees(StartYear)
GO
```

```
SP_HELPINDEX tableName
```

```
CREATE VIEW  View_Index02
WITH SCHEMABINDING
AS
SELECT c.CompanyName, o.OrderDate, o.OrderID, od.ProductID
     FROM dbo.Customers C
        INNER JOIN dbo.orders O ON c.CustomerID=o.CustomerID
            INNER JOIN dbo.[Order Details] od ON o.OrderID=od.OrderID
GO

CREATE UNIQUE CLUSTERED INDEX IX1 ON
    View_Index02(OrderID, ProductID)
```

```
DROP INDEX IX_NonClustered ON Employees
```

```
sys.dm_db_index_physical_stats (
    { database_id | NULL | 0 | DEFAULT }
  , { object_id | NULL | 0 | DEFAULT }
  , { index_id | NULL | 0 | -1 | DEFAULT }
  , { partition_number | NULL | 0 | DEFAULT }
  , { mode | NULL | DEFAULT }
)


Sample :

SELECT * FROM sys.dm_db_index_physical_stats
    (DB_ID(N'DBName'), OBJECT_ID(N'IX_NonClustered '), NULL, NULL , 'DETAILED');
```

avg_fragmentation_in_percent	
> 5<= 30	
> 30	

```
ALTER INDEX IX_NonClustered ON tableName REORGANIZE;


ALTER INDEX ALL ON Production.Product
 REBUILD WITH (FILLFACTOR = 80, SORT_IN_TEMPDB = ON,
          STATISTICS_NORECOMPUTE = ON);
```

```
ALTER INDEX All ON tableName REBUILD;
```

fragementation。

```
ALTER INDEX All ON tableName REORGANIZE;
```

```
EXEC sp_MSForEachTable 'ALTER INDEX ALL ON ? REBUILD'
```

“SP_HELPINDEX Table_Name”Kimberly Tripp

```
USE Adventureworks
EXEC sp_SQLskills_SQL2012_helpindex 'dbo.Product'
```

Tibor Karaszi。 。

```
USE Adventureworks
EXEC sp_indexinfo 'dbo.Product'
```

https://riptutorial.com/zh-TW/sql-server/topic/4998/

62:

Examples

ROW_NUMBER

```
SELECT Row_Number() OVER(ORDER BY UserName) As RowID, UserFirstName, UserLastName
FROM Users
```

RowID。

```
SELECT *
FROM
    ( SELECT Row_Number() OVER(ORDER BY UserName) As RowID, UserFirstName, UserLastName
      FROM Users
    ) As RowResults
WHERE RowID Between 5 AND 10
```

https://riptutorial.com/zh-TW/sql-server/topic/5803/

63:

- DENSE_RANKOVER[<partition_by_clause>] <order_by_clause>
- RANKOVER[partition_by_clause] order_by_clause

<partition_by_clause>	FROMDENSE_RANK。 PARTITION BYOVERTransact-SQL 。
<order_by_clause>	DENSE_RANK。
OVER ([partition_by_clause] order_by_clause)	partition_by_clauseFROM。 。 order_by_clause。 order_by_clause。 RANKOVER<rows or range clause> 。 OVER Transact-SQL 。

。 SalesYTD。 SalesYTD。 。 DENSE_RANK。

。 。

DENSE_RANK。 。

Examples

A RANK。

```
Select Studentid,Name,Subject,Marks,
RANK() over(partition by name order by Marks desc)Rank
From Exam
order by name,subject
```

Studentid	Name	Subject	Marks	Rank
101	Ivan	Maths	70	2
101	Ivan	Science	80	1
101	Ivan	Social	60	3
102	Ryan	Maths	60	2
102	Ryan	Science	50	3
102	Ryan	Social	70	1
103	Tanvi	Maths	90	1
103	Tanvi	Science	90	1
103	Tanvi	Social	80	3

DENSE_RANK

RANK。

```
Select  Studentid, Name,Subject,Marks,
DENSE_RANK() over(partition by name order by Marks desc)Rank
From Exam
```

```
order by name

Studentid    Name    Subject    Marks    Rank
101          Ivan    Science    80       1
101          Ivan    Maths      70       2
101          Ivan    Social     60       3
102          Ryan    Social     70       1
102          Ryan    Maths      60       2
102          Ryan    Science    50       3
103          Tanvi   Maths      90       1
103          Tanvi   Science    90       1
103          Tanvi   Social     80       2
```

https://riptutorial.com/zh-TW/sql-server/topic/5031/

64: /

Examples

。

```
-- Create a table as an example
CREATE TABLE SortOrder
(
    ID INT IDENTITY PRIMARY KEY,
    [Text] VARCHAR(256)
)
GO

-- Insert rows into the table
INSERT INTO SortOrder ([Text])
SELECT ('Lorem ipsum dolor sit amet, consectetur adipiscing elit')
UNION ALL SELECT ('Pellentesque eu dapibus libero')
UNION ALL SELECT ('Vestibulum et consequat est, ut hendrerit ligula')
UNION ALL SELECT ('Suspendisse sodales est congue lorem euismod, vel facilisis libero
pulvinar')
UNION ALL SELECT ('Suspendisse lacus est, aliquam at varius a, fermentum nec mi')
UNION ALL SELECT ('Praesent tincidunt tortor est, nec consequat dolor malesuada quis')
UNION ALL SELECT ('Quisque at tempus arcu')
GO
```

ORDER BYSQL Server。。。

ORDER BY ==。。

```
-- It may seem the rows are sorted by identifiers,
-- but there is really no way of knowing if it will always work.
-- And if you leave it like this in production, Murphy gives you a 100% that it wont.
SELECT * FROM SortOrder
GO
```

- ASC
- DESC

```
-- Ascending - upwards
SELECT * FROM SortOrder ORDER BY ID ASC
GO

-- Ascending is default
SELECT * FROM SortOrder ORDER BY ID
GO

-- Descending - downwards
SELECT * FROM SortOrder ORDER BY ID DESC
GO
```

ncharnvarchar。。

。 。 。

。 。

```
SELECT * FROM SortOrder ORDER BY CHECKSUM(NEWID())
GO
```

。

```
CREATE PROCEDURE GetSortOrder
AS
    SELECT *
    FROM SortOrder
    ORDER BY ID DESC
GO

EXEC GetSortOrder
GO
```

SQL Serverhacky。

```
/* This may or may not work, and it depends on the way
   your SQL Server and updates are installed */
CREATE VIEW VwSortOrder1
AS
    SELECT TOP 100 PERCENT *
    FROM SortOrder
    ORDER BY ID DESC
GO

SELECT * FROM VwSortOrder1
GO

-- This will work, but hey... should you really use it?
CREATE VIEW VwSortOrder2
AS
    SELECT TOP 99999999 *
    FROM SortOrder
    ORDER BY ID DESC
GO

SELECT * FROM VwSortOrder2
GO
```

ORDER BY。

```
SELECT *
FROM SortOrder
ORDER BY [Text]

-- New resultset column aliased as 'Msg', feel free to use it for ordering
SELECT ID, [Text] + ' (' + CAST(ID AS nvarchar(10)) + ')' AS Msg
FROM SortOrder
ORDER BY Msg

-- Can be handy if you know your tables, but really NOT GOOD for production
```

```
SELECT *
FROM SortOrder
ORDER BY 2
```

。

order by [column]order by [column]。 case。

```
Group
-----
Total
Young
MiddleAge
Old
Male
Female
```

order by

```
Select * from MyTable
Order by Group
```

```
Group
-----
Female
Male
MiddleAge
Old
Total
Young
```

'case'

```
Select * from MyTable
Order by case Group
    when 'Total' then 10
    when 'Male' then 20
    when 'Female' then 30
    when 'Young' then 40
    when 'MiddleAge' then 50
    when 'Old' then 60
    end
```

```
Group
-----
Total
Male
Female
Young
MiddleAge
Old
```

/ https://riptutorial.com/zh-TW/sql-server/topic/5332/-

65:

INSERT INTO。

Examples

INSERT Hello World INTO

```
CREATE TABLE MyTableName
(
    Id INT,
    MyColumnName NVARCHAR(1000)
)
GO

INSERT INTO MyTableName (Id, MyColumnName)
VALUES (1, N'Hello World!')
GO
```

。

```
INSERT INTO USERS (FIRST_NAME, LAST_NAME)
VALUES ('Stephen', 'Jiang');
```

;。 ...。

SQL Server 2008

```
INSERT INTO USERS VALUES
(2, 'Michael', 'Blythe'),
(3, 'Linda', 'Mitchell'),
(4, 'Jillian', 'Carson'),
(5, 'Garrett', 'Vargas');
```

SQL Server“UNION ALL”

```
INSERT INTO USERS (FIRST_NAME, LAST_NAME)
SELECT 'James', 'Bond' UNION ALL
SELECT 'Miss', 'Moneypenny' UNION ALL
SELECT 'Raoul', 'Silva'
```

“INTO”INSERT。 SQL ServerINSERT1000。

```
INSERT INTO USERS(Id, FirstName, LastName)
VALUES (1, 'Mike', 'Jones');
```

```
INSERT INTO USERS
VALUES (1, 'Mike', 'Jones');
```

insert

```
INSERT INTO USERS(FirstName, LastName, Id)
VALUES ('Mike', 'Jones', 1);
```

OUTPUTID

INSERTing`OUTPUT INSERTED.ColumnName`Id - `IDENTITY`。

ADO.net`SELECT`。

```
-- CREATE TABLE OutputTest ([Id] INT NOT NULL PRIMARY KEY IDENTITY, [Name] NVARCHAR(50))

INSERT INTO OutputTest ([Name])
OUTPUT INSERTED.[Id]
VALUES ('Testing')
```

ID。

```
-- CREATE a table variable having column with the same datatype of the ID

DECLARE @LastId TABLE ( id int);

INSERT INTO OutputTest ([Name])
OUTPUT INSERTED.[Id] INTO @LastId
VALUES ('Testing')

SELECT id FROM @LastId

-- We can set the value in a variable and use later in procedure

DECLARE @LatestId int = (SELECT id FROM @LastId)
```

SELECT

SQL

```
INSERT INTO Table_name (FirstName, LastName, Position)
SELECT FirstName, LastName, 'student' FROM Another_table_name
```

SELECT'student'。

/

https://riptutorial.com/zh-TW/sql-server/topic/3814/

66:

Examples

Invoices

```
INSERT INTO Invoices [ /* column names may go here */ ]
VALUES (123, '1234abc', '2016-08-05 20:18:25.770', 321, 5, '2016-08-04');
```

- IDENTITY。

```
INSERT INTO Invoices ([ID], [Num], [DateTime], [Total], [Term], [DueDate])
VALUES (123, '1234abc', '2016-08-05 20:18:25.770', 321, 5, '2016-08-25');
```

https://riptutorial.com/zh-TW/sql-server/topic/5323/

67:

SQL Server。

。 。

。 。

EnterpriseDeveloper。

Examples

SQL Server。 。

```
CREATE DATABASE MyDatabase_morning -- name of the snapshot
ON (
     NAME=MyDatabase_data, -- logical name of the data file of the source database
     FILENAME='C:\SnapShots\MySnapshot_Data.ss' -- snapshot file;
)
AS SNAPSHOT OF MyDatabase; -- name of source database
```

```
CREATE DATABASE MyMultiFileDBSnapshot ON
    (NAME=MyMultiFileDb_ft, FILENAME='C:\SnapShots\MyMultiFileDb_ft.ss'),
    (NAME=MyMultiFileDb_sys, FILENAME='C:\SnapShots\MyMultiFileDb_sys.ss'),
    (NAME=MyMultiFileDb_data, FILENAME='C:\SnapShots\MyMultiFileDb_data.ss'),
    (NAME=MyMultiFileDb_indx, FILENAME='C:\SnapShots\MyMultiFileDb_indx.ss')
AS SNAPSHOT OF MultiFileDb;
```

。

```
RESTORE DATABASE MYDATABASE FROM DATABASE_SNAPSHOT='MyDatabase_morning';
```

DELETE DATABASE

```
DROP DATABASE Mydatabase_morning
```

。

https://riptutorial.com/zh-TW/sql-server/topic/677/

68:

```
{GRANT| REVOKE | DENY} {PERMISSION_NAME} [ON {SECURABLE}] TO {PRINCIPAL};
```

- {GRANT | REVOKE | DENY} -
  - “”
  - “”
  - “” DENY SELECT “ SELECT
- PERMISSION_NAME - ◦ ◦ GRANT SELECT◦
- SECURABLE - ◦ ◦ GRANT SELECT TO [aUser];;“SELECT GRANT”◦
- PRINCIPAL - ◦ ◦

Examples

```
GRANT SELECT ON [dbo].[someTable] TO [aUser];

REVOKE SELECT ON [dbo].[someTable] TO [aUser];
--REVOKE SELECT [dbo].[someTable] FROM [aUser]; is equivalent

DENY SELECT ON [dbo].[someTable] TO [aUser];
```

```
--implicitly map this user to a login of the same name as the user
CREATE USER [aUser];

--explicitly mapping what login the user should be associated with
CREATE USER [aUser] FOR LOGIN [aUser];
```

```
CREATE ROLE [myRole];
```

```
-- SQL 2005+
exec sp_addrolemember @rolename = 'myRole', @membername = 'aUser';
exec sp_droprolemember @rolename = 'myRole', @membername = 'aUser';

-- SQL 2008+
ALTER ROLE [myRole] ADD MEMBER [aUser];
ALTER ROLE [myRole] DROP MEMBER [aUser];
```

◦ ◦ /◦ //◦

https://riptutorial.com/zh-TW/sql-server/topic/6788/

69:

SQL Server。

Examples

- 。

-
- TINYINT
- SMALLINT
- INT
- BIGINT

。

	01	1**
TINYINT	0255	1
SMALLINT	-2 ^ 15-32,7682 ^ 15-132,767	2
INT	-2 ^ 31-2,147,483,6482 ^ 31-12,147,483,647	4
BIGINT	-2 ^ 63-9,223,372,036,854,775,8082 ^ 63-19,223,372,036,854,775,807	8

-
-
- SMALLMONEY
-

。 。 。

decimalnumeric。

[p [s]][p [s]]	-10 ^ 38 + 110 ^ 38 - 1	

Precision [p]Scale [s]。

。 19993100。 18。

Scale。 0.00999.99552。 。 。

1 - 9	

10-19	9
20-28	13
29-38	17

。 4 - 。 Scale2。 。

	-922,337,203,685,477.5808922,337,203,685,477.5807	8
SMALLMONEY	-214,748.3648214,748.3647	4

- [**n**]
-

。 。 。

	-1.79E + 308-2.23E-308,02.23E-3081.79E + 308	**n**
	-3.40E + 38-1.18E - 38,01.18E - 383.40E + 38	4

n 。 float53。 *float24*。

n		
1-24	7	4
25-53	15	8

SQL Server

-
- SMALLDATETIME

SQL Server 2012SQL Server

-
- DATETIMEOFFSET
- DATETIME2
-

-
- VARCHAR
-

Unicode

- NCHAR
- nvarchar
- NTEXT

-
- VARBINARY
-

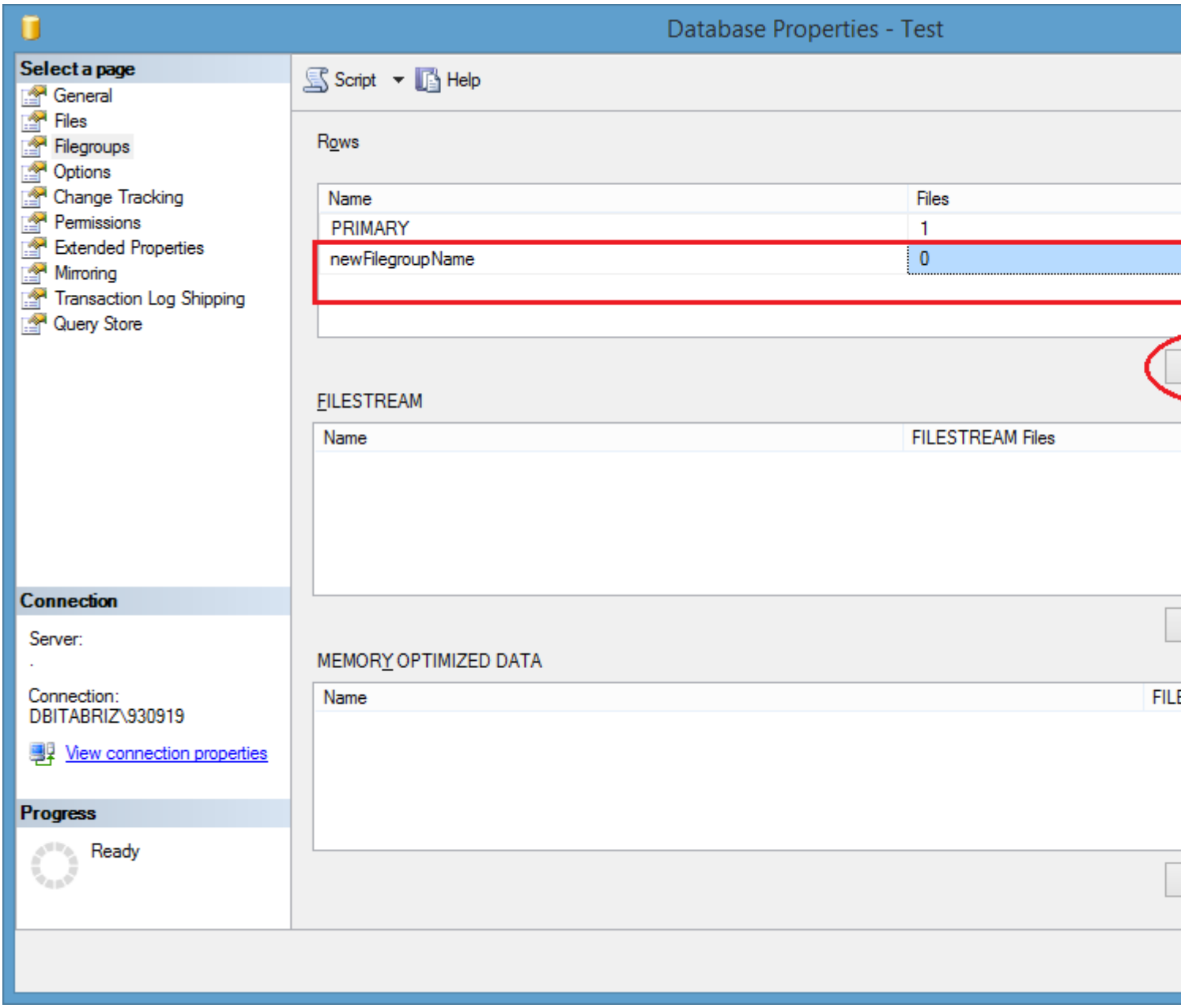
-
-
- HIERARCHYID
-
- SQL_VARIANT
- XML
-
-

https://riptutorial.com/zh-TW/sql-server/topic/5260/

70:

Examples

。



SQL

```
USE master;
GO
-- Create the database with the default data
-- filegroup and a log file. Specify the
-- growth increment and the max size for the
-- primary data file.

CREATE DATABASE TestDB ON PRIMARY
```

```
(
    NAME = 'TestDB_Primary',
    FILENAME = 'C:\Program Files\Microsoft SQL
Server\MSSQL12.MSSQLSERVER\MSSQL\DATA\TestDB_Prm.mdf',
    SIZE = 1 GB,
    MAXSIZE = 10 GB,
    FILEGROWTH = 1 GB
), FILEGROUP TestDB_FG1
(
    NAME = 'TestDB_FG1_1',
    FILENAME = 'C:\Program Files\Microsoft SQL
Server\MSSQL12.MSSQLSERVER\MSSQL\DATA\TestDB_FG1_1.ndf',
    SIZE = 10 MB,
    MAXSIZE = 10 GB,
    FILEGROWTH = 1 GB
),
(
    NAME = 'TestDB_FG1_2',
    FILENAME = 'C:\Program Files\Microsoft SQL
Server\MSSQL12.MSSQLSERVER\MSSQL\DATA\TestDB_FG1_2.ndf',
    SIZE = 10 MB,
    MAXSIZE = 10 GB,
    FILEGROWTH = 1 GB
) LOG ON
(
    NAME = 'TestDB_log',
    FILENAME = 'C:\Program Files\Microsoft SQL
Server\MSSQL12.MSSQLSERVER\MSSQL\DATA\TestDB.ldf',
    SIZE = 10 MB,
    MAXSIZE = 10 GB,
    FILEGROWTH = 1 GB
);

go
ALTER DATABASE TestDB MODIFY FILEGROUP TestDB_FG1 DEFAULT;
go

-- Create a table in the user-defined filegroup.
USE TestDB;
Go

CREATE TABLE MyTable
(
    col1 INT PRIMARY KEY,
    col2 CHAR(8)
)
ON TestDB_FG1;
GO
```

https://riptutorial.com/zh-TW/sql-server/topic/5461/

71:

- EOMONTH *start_date* [month_to_add]

https://msdn.microsoft.com/en-us/library/ms187819.aspx `DateTime` s3ms。

.000.003.007。

01/01/98 235959.999	1998-01-02 000000.000
------	------
01/01/98 235959.995	1998-01-01 235959.997
01/01/98 235959.996	
01/01/98 235959.997	
01/01/98 235959.998	
------	------
01/01/98 235959.992	1998-01-01 235959.993
01/01/98 235959.993	
01/01/98 235959.994	
------	------
01/01/98 235959.990	1998-01-01 235959.990
01/01/98 235959.991	
------	------

`time datetime2datetimeoffset` 。

Examples

CONVERT

CONVERTdatetime。

```
SELECT GETDATE() AS [Result] -- 2016-07-21 07:56:10.927
```

- SQL Server

```
DECLARE @convert_code INT = 100 -- See Table Below
SELECT CONVERT(VARCHAR(30), GETDATE(), @convert_code) AS [Result]
```

@convert_code	
100	“20167217:56”
101	“2016721”
102	“2016721”
103	“21/07/2016”
104	“2016721”
105	“21-07-2016”
106	“2016721”
107	“2016721”
108	“75705”
109	“2016721757457O7AM”
110	“2016721”
111	“2016721”
112	“20160721”
113	“2016721075759553”
114	“075759553”
120	“2016-07-21 07:57:59”
121	“2016-07-21 075759.553”
126	“2016-07-21T075834.340”
127	“2016-07-21T075834.340”
130	“16 ???? 1437 75834340AM”
131	“16/10/1437 75834340AM”

```
SELECT GETDATE() AS [Result]                                    -- 2016-07-21 07:56:10.927
```

```
UNION SELECT CONVERT(VARCHAR(30),GETDATE(),100) AS [Result] -- Jul 21 2016  7:56AM
UNION SELECT CONVERT(VARCHAR(30),GETDATE(),101) AS [Result] -- 07/21/2016
UNION SELECT CONVERT(VARCHAR(30),GETDATE(),102) AS [Result] -- 2016.07.21
UNION SELECT CONVERT(VARCHAR(30),GETDATE(),103) AS [Result] -- 21/07/2016
UNION SELECT CONVERT(VARCHAR(30),GETDATE(),104) AS [Result] -- 21.07.2016
UNION SELECT CONVERT(VARCHAR(30),GETDATE(),105) AS [Result] -- 21-07-2016
UNION SELECT CONVERT(VARCHAR(30),GETDATE(),106) AS [Result] -- 21 Jul 2016
UNION SELECT CONVERT(VARCHAR(30),GETDATE(),107) AS [Result] -- Jul 21, 2016
UNION SELECT CONVERT(VARCHAR(30),GETDATE(),108) AS [Result] -- 07:57:05
UNION SELECT CONVERT(VARCHAR(30),GETDATE(),109) AS [Result] -- Jul 21 2016  7:57:45:707AM
UNION SELECT CONVERT(VARCHAR(30),GETDATE(),110) AS [Result] -- 07-21-2016
UNION SELECT CONVERT(VARCHAR(30),GETDATE(),111) AS [Result] -- 2016/07/21
UNION SELECT CONVERT(VARCHAR(30),GETDATE(),112) AS [Result] -- 20160721
UNION SELECT CONVERT(VARCHAR(30),GETDATE(),113) AS [Result] -- 21 Jul 2016 07:57:59:553
UNION SELECT CONVERT(VARCHAR(30),GETDATE(),114) AS [Result] -- 07:57:59:553
UNION SELECT CONVERT(VARCHAR(30),GETDATE(),120) AS [Result] -- 2016-07-21 07:57:59
UNION SELECT CONVERT(VARCHAR(30),GETDATE(),121) AS [Result] -- 2016-07-21 07:57:59.553
UNION SELECT CONVERT(VARCHAR(30),GETDATE(),126) AS [Result] -- 2016-07-21T07:58:34.340
UNION SELECT CONVERT(VARCHAR(30),GETDATE(),127) AS [Result] -- 2016-07-21T07:58:34.340
UNION SELECT CONVERT(VARCHAR(30),GETDATE(),130) AS [Result] -- 16 ???? 1437  7:58:34:340AM
UNION SELECT CONVERT(VARCHAR(30),GETDATE(),131) AS [Result] -- 16/10/1437  7:58:34:340AM
```

FORMAT

SQL Server 2012

`FORMAT()` ◦

DATETIMEVARCHAR◦

```
DECLARE @Date DATETIME = '2016-09-05 00:01:02.333'

SELECT FORMAT(@Date, N'dddd, MMMM dd, yyyy hh:mm:ss tt')
```

20169512:01:02 AM

DATETIME2016-09-05 00:01:02.333 ◦

YYYY	2016
YY	16
MMMM	
MM	09
	9
DDDD	
DDD	
DD	05

d	
HH	00
H	0
HH	12
H	12
	01
	1
SS	02
	2
TT	
Ť	
FFF	333
FF	33
F	3

FORMAT()

```
DECLARE @Date DATETIME = '2016-09-05 00:01:02.333'

SELECT FORMAT(@Date, N'U')
```

2016954:01:02

d	201695
d	201695
F	20169512:01:02 AM
F	20169512:01 AM
G	9/5/2016 12:01:02 AM
G	9/5/2016 12:01 AM
	059

Ø	2016-09-05T000102.3330000
[R	20169500:01:02 GMT
	2016-09-05T000102
Ť	12:01:02
Ť	12:01
ü	2016954:01:02
ü	2016-09-05 000102Z
ÿ	20169

en-US。 FORMAT()

```
DECLARE @Date DATETIME = '2016-09-05 00:01:02.333'

SELECT FORMAT(@Date, N'U', 'zh-cn')
```

2016954:01:02

DateTime

GETDATEGETUTCDATE。

SQL Server。

GETDATE。 GETUTCDATEUTC。

SELECTWHERE。

```
-- example query that selects the current time in both the server time zone and UTC
SELECT GETDATE() as SystemDateTime, GETUTCDATE() as UTCDateTime

-- example query records with EventDate in the past.
SELECT * FROM MyEvents WHERE EventDate < GETDATE()
```

```
SELECT
    GETDATE(),          --2016-07-21 14:27:37.447
    GETUTCDATE(),       --2016-07-21 18:27:37.447
    CURRENT_TIMESTAMP,  --2016-07-21 14:27:37.447
    SYSDATETIME(),      --2016-07-21 14:27:37.4485768
    SYSDATETIMEOFFSET(),--2016-07-21 14:27:37.4485768 -04:00
    SYSUTCDATETIME()    --2016-07-21 18:27:37.4485768
```

DATEADD

```
DATEADD (datepart , number , datetime_expr)
```

number◦ number◦

```
DECLARE @now DATETIME2 = GETDATE();
SELECT @now;                          --2016-07-21 14:39:46.4170000
SELECT DATEADD(YEAR, 1, @now)         --2017-07-21 14:39:46.4170000
SELECT DATEADD(QUARTER, 1, @now)      --2016-10-21 14:39:46.4170000
SELECT DATEADD(WEEK, 1, @now)         --2016-07-28 14:39:46.4170000
SELECT DATEADD(DAY, 1, @now)          --2016-07-22 14:39:46.4170000
SELECT DATEADD(HOUR, 1, @now)         --2016-07-21 15:39:46.4170000
SELECT DATEADD(MINUTE, 1, @now)       --2016-07-21 14:40:46.4170000
SELECT DATEADD(SECOND, 1, @now)       --2016-07-21 14:39:47.4170000
SELECT DATEADD(MILLISECOND, 1, @now)--2016-07-21 14:39:46.4180000
```

DATEADDdatepart◦ m VS mi ww VS w◦

datepart

DATEPART	
	yyyy
25	qqq
	mmm
DAYOFYEAR	dyy
	ddd
	wkww
	dww
	HH
	min
	sss
	MCS
	NS

m VS mi ww VS w◦ datepart month minute week weekday◦

DATEDIFF

```
DATEDIFF (datepart, datetime_expr1, datetime_expr2)
```

datetime_exprdatetime_expr2 ◦

```
DECLARE @now DATETIME2 = GETDATE();
DECLARE @oneYearAgo DATETIME2 = DATEADD(YEAR, -1, @now);
SELECT @now                                  --2016-07-21 14:49:50.9800000
SELECT @oneYearAgo                           --2015-07-21 14:49:50.9800000
SELECT DATEDIFF(YEAR, @oneYearAgo, @now)       --1
SELECT DATEDIFF(QUARTER, @oneYearAgo, @now)    --4
SELECT DATEDIFF(WEEK, @oneYearAgo, @now)       --52
SELECT DATEDIFF(DAY, @oneYearAgo, @now)        --366
SELECT DATEDIFF(HOUR, @oneYearAgo, @now)       --8784
SELECT DATEDIFF(MINUTE, @oneYearAgo, @now)     --527040
SELECT DATEDIFF(SECOND, @oneYearAgo, @now)     --31622400
```

DATEDIFFdatepart◦ m VS mi ww VS w◦

DATEDIFFUTCSQL Server◦ UTC◦

```
select  DATEDIFF(hh, getutcdate(), getdate()) as 'CentralTimeOffset'
```

DATEPARTDATENAME

DATEPARTdatepart◦

DATENAMEdatepartdatepart◦ DATENAME◦

DATEPARTdatepart◦

```
DATEPART ( datepart , datetime_expr )
DATENAME ( datepart , datetime_expr )
DAY ( datetime_expr )
MONTH ( datetime_expr )
YEAR ( datetime_expr )
```

```
DECLARE @now DATETIME2 = GETDATE();
SELECT @now                       --2016-07-21 15:05:33.8370000
SELECT DATEPART(YEAR, @now)       --2016
SELECT DATEPART(QUARTER, @now)    --3
SELECT DATEPART(WEEK, @now)       --30
SELECT DATEPART(HOUR, @now)       --15
SELECT DATEPART(MINUTE, @now)     --5
SELECT DATEPART(SECOND, @now)     --33
-- Differences between DATEPART and DATENAME:
SELECT DATEPART(MONTH, @now)      --7
SELECT DATENAME(MONTH, @now)      --July
SELECT DATEPART(WEEKDAY, @now)    --5
SELECT DATENAME(WEEKDAY, @now)    --Thursday
--shorthand functions
SELECT DAY(@now)    --21
SELECT MONTH(@now)  --7
SELECT YEAR(@now)   --2016
```

DATEPARTDATENAMEdatepart◦ m VS mi ww VS w◦

DATEADDDATEDIFF。

```
SELECT DATEADD(d, -1, DATEADD(m, DATEDIFF(m, 0, '2016-09-23') + 1, 0))
-- 2016-09-30 00:00:00.000
```

SQL Server 2012

EOMONTH。

```
SELECT EOMONTH('2016-07-21')        --2016-07-31
SELECT EOMONTH('2016-07-21', 4)     --2016-11-30
SELECT EOMONTH('2016-07-21', -5)    --2016-02-29
```

DateTime

DateTimeDate

1. `SELECT CONVERT(Date, GETDATE())`
2. `SELECT DATEADD(dd, 0, DATEDIFF(dd, 0, GETDATE()))`2016-07-21 000000.000
3. `SELECT CAST(GETDATE() AS DATE)`
4. `SELECT CONVERT(CHAR(10),GETDATE(),111)`
5. `SELECT FORMAT(GETDATE(), 'yyyy-MM-dd')`

45。

2DOB

```
  CREATE FUNCTION [dbo].[Calc_Age]
    (
    @DOB datetime , @calcDate datetime
    )
    RETURNS int
    AS
   BEGIN
declare @age int

IF (@calcDate < @DOB  )
RETURN -1

-- If a DOB is supplied after the comparison date, then return -1
SELECT @age = YEAR(@calcDate) - YEAR(@DOB) +
  CASE WHEN DATEADD(year,YEAR(@calcDate) - YEAR(@DOB)
  ,@DOB) > @calcDate THEN -1 ELSE 0 END


RETURN @age


END
```

200011

```
SELECT  dbo.Calc_Age('2000-01-01',Getdate())
```

CROSS PLATFORM DATE OBJECT

SQL Server 2012

Transact SQL`[DATEFROMPARTS][1] [DATETIMEFROMPARTS][1] Date DateTime`

```
DECLARE @myDate DATE=DATEFROMPARTS(1988,11,28)
DECLARE @someMoment DATETIME=DATEFROMPARTS(1988,11,28,10,30,50,123)
```

`DATEFROMPARTS`YearMonthDay`DATETIMEFROMPARTS`。

。

	SQL	
YY-MM-DD	SELECT RIGHTCONVERTVARCHAR10SYSDATETIME208 AS [YY-MM-DD] SELECT REPLACECONVERTVARCHAR8SYSDATETIME11 '/'' - 'AS [YY-MM-DD]	08116
YYYY-MM-DD	SELECT CONVERTVARCHAR10SYSDATETIME120AS [YYYY-MM-DD] SELECT REPLACECONVERTVARCHAR10SYSDATETIME 111'/'' - 'AS [YYYY-MM-DD]	2011-06-08
YYYY-MD	SELECT CASTYEARSYSDATETIMEAS VARCHAR4+' - '+ CASTMONTHSYSDATETIMEAS VARCHAR2+' - '+ CAST DAYSYSDATETIMEAS VARCHAR 2AS [YYYY-MD]	2011-6-8
YY-MD	SELECT RIGHTCASTYEARSYSDATETIMEAS VARCHAR42 +' - '+ CASTMONTHSYSDATETIMEAS VARCHAR2+' - '+ CASTDAYSYSDATETIME AS VARCHAR2AS [YY-MD]	11-6-8
MD-YYYY	SELECT CASTMONTHSYSDATETIMEAS VARCHAR2+' - '+ CASTDAYSYSDATETIMEAS VARCHAR2+' - '+ CASTYEAR SYSDATETIMEAS VARCHAR 4AS [MD-YYYY]	201168
MD-YY	SELECT CASTMONTHSYSDATETIMEAS VARCHAR2+' - '+ CASTDAYSYSDATETIMEAS VARCHAR2+' - '+ RIGHTCAST YEARSYSDATETIMEAS VARCHAR42AS [MD-YY]	6-8-11
DM-YYYY	SELECT CASTDAYSYSDATETIMEAS VARCHAR2+' - '+ CASTMONTHSYSDATETIMEAS VARCHAR2+' - '+ CAST YEARSYSDATETIMEAS VARCHAR 4AS [DM-YYYY]	201186
DM-YY	SELECT CASTDAYSYSDATETIMEAS VARCHAR2+' - '+ CASTMONTHSYSDATETIMEAS VARCHAR2+' - '+ RIGHT CASTYEARSYSDATETIMEAS VARCHAR42AS [DM-YY]	1186

	SQL	
YY-MM	SELECT RIGHTCONVERTVARCHAR7SYSDATETIME205AS [YY-MM] SELECT SUBSTRINGCONVERTVARCHAR10 SYSDATETIME1203,5AS [YY-MM]	11-06
YYYY-MM	SELECT CONVERTVARCHAR7SYSDATETIME120AS [YYYY-MM]	2011-06
YY-M	SELECT RIGHTCASTYEARSYSDATETIMEAS VARCHAR42 +' - '+ CASTMONTHSYSDATETIMEAS VARCHAR2AS [YY-M]	11-6
YYYY-M	SELECT CASTYEARSYSDATETIMEAS VARCHAR4+' - '+ CASTMONTHSYSDATETIMEAS VARCHAR2AS [YYYY-M]	2011-6
MM-YY	SELECT RIGHTCONVERTVARCHAR8SYSDATETIME55AS [MM-YY] SELECT SUBSTRINGCONVERTVARCHAR8SYSDATETIME 54,5AS [MM-YY]	06-11
MM-YYYY	SELECT RIGHTCONVERTVARCHAR10SYSDATETIME1057 AS [MM-YYYY]	06-2011
M-YY	SELECT CASTMONTHSYSDATETIMEAS VARCHAR2+' - '+ RIGHTCASTYEARSYSDATETIMEAS VARCHAR42AS [M-YY]	6-11
M-YYYY	SELECT CASTMONTHSYSDATETIMEAS VARCHAR2+' - '+ CASTYEARSYSDATETIMEAS VARCHAR4AS [M-YYYY]	6-2011
MM-DD	SELECT CONVERTVARCHAR5SYSDATETIME10AS [MM-DD]	06-08
DD-MM	SELECT CONVERTVARCHAR5SYSDATETIME5AS [DD-MM]	08-06
MD	SELECT CASTMONTHSYSDATETIMEAS VARCHAR2+' - '+ CASTDAYSYSDATETIMEAS VARCHAR2AS [MD]	6-8
DM	SELECT CASTDAYSYSDATETIMEAS VARCHAR2+' - '+ CASTMONTHSYSDATETIMEAS VARCHAR2AS [DM]	8-6
M / d / YYYY	SELECT CASTMONTHSYSDATETIMEAS VARCHAR2+'/'+ CASTDAYSYSDATETIMEAS VARCHAR2+'/'+ CASTYEAR SYSDATETIMEAS VARCHAR 4AS [M / D / YYYY]	201168
M / d / YY	SELECT CASTMONTHSYSDATETIMEAS VARCHAR2+'/'+ CASTDAYSYSDATETIMEAS VARCHAR2+'/'+ RIGHTCAST YEARSYSDATETIMEAS VARCHAR42AS [M / D / YY]	1168

	SQL	
d / M / YYYY	SELECT CASTDAYSYSDATETIMEAS VARCHAR2+'/'+ CASTMONTHSYSDATETIMEAS VARCHAR2+'/'+ CAST YEARSYSDATETIMEAS VARCHAR 4AS [D / M / YYYY]	2011/8/6
d / M / YY	SELECT CASTDAYSYSDATETIMEAS VARCHAR2+'/'+ CASTMONTHSYSDATETIMEAS VARCHAR2+'/'+ RIGHT CASTYEARSYSDATETIMEAS VARCHAR42AS [D / M / YY]	1186
YYYY / M / d	SELECT CASTYEARSYSDATETIMEAS VARCHAR4+'/'+ CASTMONTHSYSDATETIMEAS VARCHAR2+'/'+ CASTDAY SYSDATETIMEAS VARCHAR 2AS [YYYY / M / D]	201168
YY / M / d	SELECT RIGHTCASTYEARSYSDATETIMEAS VARCHAR42 +'/'+ CASTMONTHSYSDATETIMEAS VARCHAR2+'/'+ CAST DAYSYSDATETIME AS VARCHAR2AS [YY / M / D]	11/6/8
MM / YY	SELECT RIGHTCONVERTVARCHAR8SYSDATETIME35AS [MM / YY]	06/11
MM / YYYY	SELECT RIGHTCONVERTVARCHAR10SYSDATETIME1037 AS [MM / YYYY]	06/2011
M / YY	SELECT CASTMONTHSYSDATETIMEAS VARCHAR2+'/'+ RIGHTCASTYEARSYSDATETIMEAS VARCHAR42AS [M / YY]	6/11
M / YYYY	SELECT CASTMONTHSYSDATETIMEAS VARCHAR2+'/'+ CASTYEARSYSDATETIMEAS VARCHAR4AS [M / YYYY]	6/2011
YY / MM	SELECT CONVERTVARCHAR5SYSDATETIME11AS [YY / MM]	11/06
YYYY / MM	SELECT CONVERTVARCHAR7SYSDATETIME111AS [YYYY / MM]	2011/06
YY / M	SELECT RIGHTCASTYEARSYSDATETIMEAS VARCHAR42 +'/'+ CASTMONTHSYSDATETIMEAS VARCHAR2AS [YY / M]	11/6
YYYY / M	SELECT CASTYEARSYSDATETIMEAS VARCHAR4+'/'+ CASTMONTHSYSDATETIMEAS VARCHAR2AS [YYYY / M]	2011/6
MM / DD	SELECT CONVERTVARCHAR5SYSDATETIME1AS [MM / DD]	06/08
DD / MM	SELECT CONVERTVARCHAR5SYSDATETIME3AS [DD / MM]	08/06
M / d	SELECT CASTMONTHSYSDATETIMEAS VARCHAR2+'/'+	6/8

	SQL	
	CASTDAYSYSDATETIMEAS VARCHAR2AS [M / D]	
d / M	SELECT CASTDAYSYSDATETIMEAS VARCHAR2+'/'+ CASTMONTHSYSDATETIMEAS VARCHAR2AS [D / M]	8/6
MM.DD.YYYY	SELECT REPLACECONVERTVARCHAR10SYSDATETIME 101'/''。'AS [MM.DD.YYYY]	201168
MM.DD.YY	SELECT REPLACECONVERTVARCHAR8SYSDATETIME1'/'' 。'AS [MM.DD.YY]	1168
MDYYYY	SELECT CASTMONTHSYSDATETIMEAS VARCHAR2+'。' + CASTDAYSYSDATETIMEAS VARCHAR2+'。' + CAST SYSDATETIMEAS VARCHAR4AS [MDYYYY]	201168
MDYY	SELECT CASTMONTHSYSDATETIMEAS VARCHAR2+'。' + CASTDAYSYSDATETIMEAS VARCHAR2+'。' +CAST SYSDATETIMEAS VARCHAR42AS [MDYY]	6.8.11
DD.MM.YYYY	SELECT CONVERTVARCHAR10SYSDATETIME104AS [DD.MM.YYYY]	08.06.2011
DD.MM.YY	SELECT CONVERTVARCHAR10SYSDATETIME4AS [DD.MM.YY]	1168
DMYYYY	SELECT CASTDAYSYSDATETIMEAS VARCHAR2+'。' + CASTMONTHSYSDATETIMEAS VARCHAR2+'。' + CAST SYSDATETIMEAS VARCHAR4AS [DMYYYY]	201168
DMYY	SELECT CASTDAYSYSDATETIMEAS VARCHAR2+'。' + CASTMONTHSYSDATETIMEAS VARCHAR2+'。' +CAST SYSDATETIMEAS VARCHAR42AS [DMYY]	8.6.11
YYYY.MD	SELECT CASTYEARSYSDATETIMEAS VARCHAR4+'。' + CASTMONTHSYSDATETIMEAS VARCHAR2+'。' + CAST DAYSYSDATETIMEAS VARCHAR2AS [YYYY.MD]	201168
YY.MD	SELECT RIGHTCASTYEARSYSDATETIMEAS VARCHAR42 +'。' + CASTMONTHSYSDATETIMEAS VARCHAR2+'。' + CASTDAYSYSDATETIMEAS VARCHAR2AS [YY.MD]	11.6.8
MM.YYYY	SELECT RIGHTCONVERTVARCHAR10SYSDATETIME1047 AS [MM.YYYY]	06.2011
MM.YY	SELECT RIGHTCONVERTVARCHAR8SYSDATETIME45AS [MM.YY]	06.11

	SQL	
M.YYYY	SELECT CASTMONTHSYSDATETIMEAS VARCHAR2+'。' + CASTYEARSYSDATETIMEAS VARCHAR4AS [M.YYYY]	6.2011
M.YY	SELECT CASTMONTHSYSDATETIMEAS VARCHAR2+'。' + CASTSYSDATETIMEAS VARCHAR42AS [M.YY]	6.11
YYYY.MM	SELECT CONVERTVARCHAR7SYSDATETIME102AS [YYYY.MM]	2011.06
YY.MM	SELECT CONVERTVARCHAR5SYSDATETIME2AS [YY.MM]	11.06
YYYY.M	SELECT CASTYEARSYSDATETIMEAS VARCHAR4+'。' + CASTMONTHSYSDATETIMEAS VARCHAR2AS [YYYY.M]	2011.6
YY.M	SELECT RIGHTCASTYEARSYSDATETIMEAS VARCHAR42 +'。' + CASTMONTHSYSDATETIMEAS VARCHAR2AS [YY.M]	11.6
MM.DD	SELECT RIGHTCONVERTVARCHAR8SYSDATETIME25AS [MM.DD]	06.08
DD.MM	SELECT CONVERTVARCHAR5SYSDATETIME4AS [DD.MM]	08.06
MMDDYYYY	SELECT REPLACECONVERTVARCHAR10SYSDATETIME 101'/'"AS [MMDDYYYY]	06082011
MMDDYY	SELECT REPLACECONVERTVARCHAR8SYSDATETIME1'/' "AS [MMDDYY]	060811
DDMMYYYY	SELECT REPLACECONVERTVARCHAR10SYSDATETIME 103'/'"AS [DDMMYYYY]	08062011
DDMMYY	SELECT REPLACECONVERTVARCHAR8SYSDATETIME3'/' "AS [DDMMYY]	080611
MMYYYY	SELECT RIGHTREPLACECONVERTVARCHAR10 SYSDATETIME103'/'"6AS [MMYYYY]	062011
MMYY	SELECT RIGHTREPLACECONVERTVARCHAR8 SYSDATETIME3'/'"4AS [MMYY]	0611
YYYYMM	SELECT CONVERTVARCHAR6SYSDATETIME112AS [YYYYMM]	201106
YYMM	SELECT CONVERTVARCHAR4SYSDATETIME12AS [YYMM]	1106
DDYYYY	SELECT DATENAMEMONTHSYSDATETIME+"+ RIGHT'0'+	201168

	SQL	
	DATENAMEDAYSYSDATETIME2+"+ DATENAMEYEAR SYSDATETIMEAS [Month DDYYYY]	
	SELECT LEFTDATENAMEMONTHSYSDATETIME3+"+ DATENAMESYSDATETIMEAS [Mon YYYY]	20116
YYYY	SELECT DATENAMEMONTHSYSDATETIME+"+ DATENAMESYSDATETIMEAS [YYYY]	20116
DD	SELECT RIGHT'0'+ DATENAMEDAYSYSDATETIME2+"+ DATENAMEMONTHSYSDATETIMEAS [DD Month]	68
DD	SELECT DATENAMEMONTHSYSDATETIME+"+ RIGHT'0'+ DATENAMEDAYSYSDATETIME2AS [DD]	20086
DDYY	SELECT CASTDAYSYSDATETIMEAS VARCHAR2+"+ DATENAMEMMSYSDATETIME+"+ RIGHTCASTYEAR SYSDATETIMEAS VARCHAR42 AS [DDYY]	68
DDYYYY	SELECT RIGHT'0'+ DATENAMEDAYSYSDATETIME2+"+ DATENAMEMONTHSYSDATETIME+"+ DATENAMEYEAR SYSDATETIMEAS [DD Month YYYY]	201168
MON-YY	SELECT REPLACERIGHTCONVERTVARCHAR9 SYSDATETIME66"' - 'AS [Mon-YY]	-08
YYYY	SELECT REPLACERIGHTCONVERTVARCHAR11 SYSDATETIME1068"' - 'AS [Mon-YYYY]	2011
DD-MON-YY	SELECT REPLACECONVERTVARCHAR9SYSDATETIME6"' - 'AS [DD-Mon-YY]	0811
DD-MON-YYYY	SELECT REPLACECONVERTVARCHAR11SYSDATETIME 106"' - 'AS [DD-Mon-YYYY]	082011

https://riptutorial.com/zh-TW/sql-server/topic/1471/

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SQL Server 2016。

SQL Server 2016。。datetime2。。。

Examples

```
CREATE TABLE dbo.Employee
(
  [EmployeeID] int NOT NULL PRIMARY KEY CLUSTERED
  , [Name] nvarchar(100) NOT NULL
  , [Position] varchar(100) NOT NULL
  , [Department] varchar(100) NOT NULL
  , [Address] nvarchar(1024) NOT NULL
  , [AnnualSalary] decimal (10,2) NOT NULL
  , [ValidFrom] datetime2 (2) GENERATED ALWAYS AS ROW START
  , [ValidTo] datetime2 (2) GENERATED ALWAYS AS ROW END
  , PERIOD FOR SYSTEM_TIME (ValidFrom, ValidTo)
 )
 WITH (SYSTEM_VERSIONING = ON (HISTORY_TABLE = dbo.EmployeeHistory));
```

INSERTValidFromUTC**ValidTo**9999-12-31。。

UPDATE ValidToUTC。。**ValidFrom**UTC。**ValidTo**9999-12-31。

DELETES DELETE ValidToUTC。。。。。

MERGE MERGE INSERT UPDATE/DELETE MERGE。

datetime2。**SYSTEM_TIME**UTC。

```
SELECT * FROM Employee
    FOR SYSTEM_TIME
        BETWEEN '2014-01-01 00:00:00.0000000' AND '2015-01-01 00:00:00.0000000'
            WHERE EmployeeID = 1000 ORDER BY ValidFrom;
```

FOR SYSTEM_TIME AS OF

。

```
SELECT * FROM Employee
    FOR SYSTEM_TIME AS  OF '2016-08-06 08:32:37.91'
```

FOR SYSTEM_TIME BETWEEN

FOR SYSTEM_TIME FROM <start_date_time> TO <end_date_time><end_date_time>。

```
SELECT * FROM Employee
    FOR SYSTEM_TIME BETWEEN  '2015-01-01' AND '2015-12-31'
```

FOR SYSTEM_TIME FROM

FROM<start_date_time><end_date_time>。。。FROMTO。

```
SELECT * FROM Employee
    FOR SYSTEM_TIME FROM '2015-01-01' TO '2015-12-31'
```

SYSTEM_TIME

CONTAINED IN。。

```
SELECT * FROM Employee
    FOR SYSTEM_TIME CONTAINED IN ('2015-04-01', '2015-09-25')
```

FOR SYSTEM_TIME ALL

。

```
SELECT * FROM Employee
    FOR SYSTEM_TIME ALL
```

SQL Server

。。

```
CREATE SCHEMA History
GO
CREATE TABLE dbo.Department
(
    DepartmentNumber char(10) NOT NULL PRIMARY KEY NONCLUSTERED,
    DepartmentName varchar(50) NOT NULL,
    ManagerID int  NULL,
    ParentDepartmentNumber char(10) NULL,
    SysStartTime datetime2 GENERATED ALWAYS AS ROW START HIDDEN NOT NULL,
    SysEndTime datetime2 GENERATED ALWAYS AS ROW END HIDDEN NOT NULL,
    PERIOD FOR SYSTEM_TIME (SysStartTime,SysEndTime)
)
WITH
    (
        MEMORY_OPTIMIZED = ON, DURABILITY = SCHEMA_AND_DATA,
        SYSTEM_VERSIONING = ON ( HISTORY_TABLE = History.DepartmentHistory )
    );
```

SQL Server。

```
ALTER TABLE dbo.Employee
```

SETSYSTEM_VERSIONING = OFF;

```
    DELETE FROM dbo.EmployeeHistory
```

WHERE EndTime <='2017-01-26 14:00:29';

```
ALTER TABLE dbo.Employee
```

SETSYSTEM_VERSIONING = ONHISTORY_TABLE = [dbo]。[EmployeeHistory] DATA_CONSISTENCY_CHECK = ON;

Azure SQLAzure SQL。

```
ALTER DATABASE CURRENT
```

TEMPORAL_HISTORY_RETENTION GO

```
ALTER TABLE dbo.Employee
```

SETSYSTEM_VERSIONING = ONHISTORY_RETENTION_PERIOD = 90;

90。 SQL Server 2016TEMPORAL_HISTORY_RETENTIONHISTORY_RETENTION_PERIOD SQL Server 2016。

TEMPORAL_HISTORY_RETENTION

```
Msg 102, Level 15, State 6, Line 34
```

'TEMPORAL_HISTORY_RETENTION'。

HISTORY_RETENTION_PERIOD

```
Msg 102, Level 15, State 1, Line 39
```

'HISTORY_RETENTION_PERIOD'。

https://riptutorial.com/zh-TW/sql-server/topic/5296/

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Examples

SCOPE_IDENTITY

```
CREATE TABLE dbo.logging_table(log_id INT IDENTITY(1,1) PRIMARY KEY,
                               log_message VARCHAR(255))

CREATE TABLE dbo.person(person_id INT IDENTITY(1,1) PRIMARY KEY,
                        person_name VARCHAR(100) NOT NULL)
GO;

CREATE TRIGGER dbo.InsertToADifferentTable ON dbo.person
AFTER INSERT
AS
    INSERT INTO dbo.logging_table(log_message)
    VALUES('Someone added something to the person table')
GO;

INSERT INTO dbo.person(person_name)
VALUES('John Doe')

SELECT SCOPE_IDENTITY();
```

- 1dbo.person。

@@ IDENTITY

```
CREATE TABLE dbo.logging_table(log_id INT IDENTITY(1,1) PRIMARY KEY,
                               log_message VARCHAR(255))

CREATE TABLE dbo.person(person_id INT IDENTITY(1,1) PRIMARY KEY,
                        person_name VARCHAR(100) NOT NULL)
GO;

CREATE TRIGGER dbo.InsertToADifferentTable ON dbo.person
AFTER INSERT
AS
    INSERT INTO dbo.logging_table(log_message)
    VALUES('Someone added something to the person table')
GO;

INSERT INTO dbo.person(person_name)
VALUES('John Doe')

SELECT @@IDENTITY;
```

- logging_tableSQL Server。

IDENT_CURRENT''

```
SELECT IDENT_CURRENT('dbo.person');
```

。

@@ IDENTITYMAXID

```
SELECT MAX(Id) FROM Employees -- Display the value of Id in the last row in Employees table.
GO
INSERT INTO Employees (FName, LName, PhoneNumber) -- Insert a new row
VALUES ('John', 'Smith', '25558696525')
GO
SELECT @@IDENTITY
GO
SELECT MAX(Id) FROM Employees -- Display the value of Id of the newly inserted row.
GO
```

SELECT。

https://riptutorial.com/zh-TW/sql-server/topic/5674/

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Examples

1.

。

https //msdn.microsoft.com/en-us/library/bb522893.aspx

2.

```
ALTER DATABASE [MyDatabase] SET ENABLE_BROKER WITH ROLLBACK IMMEDIATE;
```

3.

```
USE [MyDatabase]

CREATE MESSAGE TYPE [//initiator] VALIDATION = WELL_FORMED_XML;
    GO

CREATE CONTRACT [//call/contract]
(
    [//initiator] SENT BY INITIATOR
)
GO

CREATE QUEUE  InitiatorQueue;
GO

CREATE QUEUE  TargetQueue;
GO

CREATE SERVICE InitiatorService
      ON QUEUE InitiatorQueue
(
     [//call/contract]

)

CREATE SERVICE TargetService
ON QUEUE TargetQueue
(
     [//call/contract]

)

GRANT SEND ON SERVICE::[InitiatorService] TO PUBLIC
GO

GRANT SEND ON SERVICE::[TargetService] TO PUBLIC
GO
```

。

4.

。 **3.** 。

```
USE [MyDatabase]

DECLARE @ch uniqueidentifier = NEWID()
DECLARE @msg XML

BEGIN DIALOG CONVERSATION @ch
    FROM SERVICE [InitiatorService]
    TO SERVICE 'TargetService'
    ON CONTRACT [//call/contract]
    WITH ENCRYPTION = OFF; -- more possible options

        SET @msg = (
                    SELECT 'HelloThere' "elementNum1"
                    FOR XML PATH(''), ROOT('ExampleRoot'), ELEMENTS XSINIL, TYPE
                    );

SEND ON CONVERSATION @ch MESSAGE TYPE [//initiator] (@msg);
END CONVERSATION @ch;
```

TargetQueue

5.TargetQueue

。 **3.** 。

Queue

```
USE [MyDatabase]
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO

CREATE PROCEDURE [dbo].[p_RecieveMessageFromTargetQueue]

    AS
    BEGIN

    declare
    @message_body xml,
    @message_type_name nvarchar(256),
    @conversation_handle uniqueidentifier,
    @messagetypename nvarchar(256);



   WHILE 1=1
   BEGIN
```

```
    BEGIN TRANSACTION
        WAITFOR(
        RECEIVE TOP(1)
        @message_body = CAST(message_body as xml),
        @message_type_name = message_type_name,
        @conversation_handle = conversation_handle,
        @messagetypename = message_type_name
        FROM DwhInsertSmsQueue
        ), TIMEOUT 1000;

         IF (@@ROWCOUNT = 0)
            BEGIN
                ROLLBACK TRANSACTION
                BREAK
            END

         IF (@messagetypename = '//initiator')
             BEGIN

                IF OBJECT_ID('MyDatabase..MyExampleTableHelloThere') IS NOT NULL
                    DROP TABLE dbo.MyExampleTableHelloThere

                SELECT @message_body.value('(/ExampleRoot/"elementNum1")[1]', 'VARCHAR(50)')
AS MyExampleMessage
                INTO dbo.MyExampleTableHelloThere

             END



         IF (@messagetypename = 'http://schemas.microsoft.com/SQL/ServiceBroker/EndDialog')
            BEGIN
                END CONVERSATION @conversation_handle;
            END

    COMMIT TRANSACTION
   END


END
```

TargetQueue

```
USE [MyDatabase]

ALTER QUEUE [dbo].[TargetQueue] WITH STATUS = ON , RETENTION = OFF ,
ACTIVATION
 (  STATUS = ON , --activation status
    PROCEDURE_NAME = dbo.p_RecieveMessageFromTargetQueue , --procedure name
    MAX_QUEUE_READERS = 1 , --number of readers
    EXECUTE AS SELF  )
```

https://riptutorial.com/zh-TW/sql-server/topic/7651/

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Examples

T-SQLdllC。Native Compiled

- CREATE PROCEDURE
- NATIVE_COMPILATION
- SCHEMABINDING
- EXECUTE AS OWNER

BEGIN ENDBEGIN ATOMIC

```
BEGIN ATOMIC
   WITH (TRANSACTION ISOLATION LEVEL=SNAPSHOT, LANGUAGE='us_english')
   -- T-Sql code goes here
END
```

```
CREATE PROCEDURE usp_LoadMemOptTable (@maxRows INT, @FullName NVARCHAR(200))
WITH
    NATIVE_COMPILATION,
    SCHEMABINDING,
    EXECUTE AS OWNER
AS
BEGIN ATOMIC
WITH (TRANSACTION ISOLATION LEVEL=SNAPSHOT, LANGUAGE='us_english')
    DECLARE @i INT = 1
    WHILE @i <= @maxRows
    BEGIN
        INSERT INTO dbo.MemOptTable3 VALUES(@i, @FullName, GETDATE())
        SET @i = @i+1
    END
END
GO
```

Cdll。Native Compiled

- CREATE FUNCTION
- NATIVE_COMPILATION
- SCHEMABINDING

BEGIN ENDBEGIN ATOMIC

```
BEGIN ATOMIC
   WITH (TRANSACTION ISOLATION LEVEL=SNAPSHOT, LANGUAGE='us_english')
   -- T-Sql code goes here
END
```

```
CREATE FUNCTION [dbo].[udfMultiply]( @v1 int, @v2 int )
RETURNS bigint
```

```
WITH NATIVE_COMPILATION, SCHEMABINDING
AS
BEGIN ATOMIC WITH (TRANSACTION ISOLATION LEVEL = SNAPSHOT, LANGUAGE = N'English')

    DECLARE @ReturnValue bigint;
    SET @ReturnValue = @v1 * @v2;

    RETURN (@ReturnValue);
END

-- usage sample:
SELECT dbo.udfMultiply(10, 12)
```

◦ Cdll◦ 2016◦

- CREATE FUNCTION
- NATIVE_COMPILATION
- SCHEMABINDING

BEGIN ENDBEGIN ATOMIC

```
BEGIN ATOMIC
   WITH (TRANSACTION ISOLATION LEVEL=SNAPSHOT, LANGUAGE='us_english')
   -- T-Sql code goes here
END
```

```
CREATE FUNCTION [dbo].[udft_NativeGetBusinessDoc]
(
   @RunDate VARCHAR(25)
)
RETURNS TABLE
WITH SCHEMABINDING,
     NATIVE_COMPILATION
AS
     RETURN
(
    SELECT BusinessDocNo,
           ProductCode,
           UnitID,
           ReasonID,
           PriceID,
           RunDate,
           ReturnPercent,
           Qty,
           RewardAmount,
           ModifyDate,
           UserID
    FROM dbo.[BusinessDocDetail_11]
    WHERE RunDate >= @RunDate
);
```

Hekaton https://riptutorial.com/zh-TW/sql-server/topic/6089/-hekaton-

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Examples

```
CREATE SCHEMA dvr AUTHORIZATION Owner
    CREATE TABLE sat_Sales (source int, cost int, partid int)
    GRANT SELECT ON SCHEMA :: dvr TO  User1
    DENY SELECT ON SCHEMA :: dvr to User 2
GO
```

```
ALTER SCHEMA dvr
    TRANSFER dbo.tbl_Staging;
GO
```

tbl_Stagingdbodvr

```
DROP SCHEMA dvr
```

。 。 /。

https://riptutorial.com/zh-TW/sql-server/topic/5806/

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。 。 。

Examples

```
CREATE VIEW dbo.PersonsView
AS
SELECT
    name,
    address
FROM persons;
```

。

```
IF OBJECT_ID('dbo.PersonsView', 'V') IS NOT NULL
    DROP VIEW dbo.PersonsView
GO

CREATE VIEW dbo.PersonsView
AS
SELECT
    name,
    address
FROM persons;
```

SCHEMABINDING。 。

```
CREATE VIEW dbo.PersonsView
WITH SCHEMABINDING
AS
SELECT
    name,
    address
FROM dbo.PERSONS  -- database schema must be specified when WITH SCHEMABINDING is present
```

。 。 sp_refreshview。

https://riptutorial.com/zh-TW/sql-server/topic/5327/

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Examples

```
ALTER DATABASE tpch SET QUERY_STORE = ON
```

SQL Server / Azure SQLsys.query_store

- sys.query_store_query
- sys.query_store_query_text
- sys.query_store_plan
- sys.query_store_runtime_stats
- sys.query_store_runtime_stats_interval
- sys.database_query_store_options
- sys.query_context_settings

SQL/

CPUioQeries。

```
SELECT Txt.query_text_id, Txt.query_sql_text, Pl.plan_id,
        avg_duration, avg_cpu_time,
        avg_physical_io_reads, avg_logical_io_reads
FROM sys.query_store_plan AS Pl
JOIN sys.query_store_query AS Qry
    ON Pl.query_id = Qry.query_id
JOIN sys.query_store_query_text AS Txt
    ON Qry.query_text_id = Txt.query_text_id
JOIN sys.query_store_runtime_stats Stats
    ON Pl.plan_id = Stats.plan_id
```

```
EXEC sp_query_store_remove_query 4;
EXEC sp_query_store_remove_plan 3;
```

/ID。

```
EXEC sp_query_store_reset_exec_stats 3;
```

ID。

SQLbaes。 QO

```
EXEC sp_query_store_unforce_plan @query_id, @plan_id
```

QO。

```
EXEC sp_query_store_force_plan @query_id, @plan_id
```

QO。

https://riptutorial.com/zh-TW/sql-server/topic/7349/

79:

Examples

SQL ServerQO

- HASH
-
- MERGE

QO。JOIN。LOOPQO

```
select top 100 *
from Sales.Orders o
    inner loop join Sales.OrderLines ol
    on o.OrderID = ol.OrderID
```

MERGE

```
select top 100 *
from Sales.Orders o
    inner merge join Sales.OrderLines ol
    on o.OrderID = ol.OrderID
```

HASH

```
select top 100 *
from Sales.Orders o
    inner hash join Sales.OrderLines ol
    on o.OrderID = ol.OrderID
```

GROUP BY

GROUP BYSQL ServerQO

- HASH Aggregate
- Stream Aggregate

QO。OPTIONORDER GROUPQOStreamStreamSort

```
select OrderID, AVG(Quantity)
from Sales.OrderLines
group by OrderID
OPTION (ORDER GROUP)
```

OPTIONHASH GROUPQOHash

```
select OrderID, AVG(Quantity)
from Sales.OrderLines
```

```
group by OrderID
OPTION (HASH GROUP)
```

number_rows。。number_rows。

```
select OrderID, AVG(Quantity)
from Sales.OrderLines
group by OrderID
OPTION (FAST 20)
```

UNION

UNIONQO

-
-
-

OPTION

```
select OrderID, OrderDate, ExpectedDeliveryDate, Comments
from Sales.Orders
where OrderDate > DATEADD(day, -1, getdate())
UNION
select PurchaseOrderID as OrderID, OrderDate, ExpectedDeliveryDate, Comments
from Purchasing.PurchaseOrders
where OrderDate > DATEADD(day, -1, getdate())
OPTION(HASH UNION)
-- or OPTION(CONCAT UNION)
-- or OPTION(MERGE UNION)
```

MAXDOP

。

```
SELECT OrderID,
    AVG(Quantity)
FROM Sales.OrderLines
GROUP BY OrderID
OPTION (MAXDOP 2);
```

sp_configureMAXDOP。MAXDOP。

INDEX

SQL Server。。SQL Server/。

```
SELECT *
FROM mytable WITH (INDEX (ix_date))
WHERE field1 > 0
    AND CreationDate > '20170101'
```

https://riptutorial.com/zh-TW/sql-server/topic/6881/

80:

Examples

```
EXEC sp_helpserver;
```

```
sp_who2
```

SQL Server。 。

sp_who2

```
-- Create a variable table to hold the results of sp_who2 for querying purposes

DECLARE @who2 TABLE (
      SPID INT NULL,
      Status VARCHAR(1000) NULL,
      Login SYSNAME NULL,
      HostName SYSNAME NULL,
      BlkBy SYSNAME NULL,
      DBName SYSNAME NULL,
      Command VARCHAR(8000) NULL,
      CPUTime INT NULL,
      DiskIO INT NULL,
      LastBatch VARCHAR(250) NULL,
      ProgramName VARCHAR(250) NULL,
      SPID2 INT NULL, -- a second SPID for some reason...?
      REQUESTID INT NULL
)

INSERT INTO @who2
EXEC sp_who2

SELECT    *
FROM    @who2 w
WHERE    1=1
```

```
-- Find specific user sessions:
SELECT  *
FROM    @who2 w
WHERE   1=1
    and  login = 'userName'

-- Find longest CPUTime queries:
SELECT  top 5 *
FROM    @who2 w
WHERE   1=1
order   by CPUTime desc
```

```
SELECT    SERVERPROPERTY('ProductVersion') AS ProductVersion,
          SERVERPROPERTY('ProductLevel') AS ProductLevel,
          SERVERPROPERTY('Edition') AS Edition,
          SERVERPROPERTY('EngineEdition') AS EngineEdition;
```

```
SELECT  DATEDIFF(DAY, login_time, getdate()) UpDays
FROM    master..sysprocesses
WHERE   spid = 1
```

SQL Server

SQL Server

```
SELECT    SERVERPROPERTY('MachineName') AS Host,
          SERVERPROPERTY('InstanceName') AS Instance,
          DB_NAME() AS DatabaseContext,
          SERVERPROPERTY('Edition') AS Edition,
          SERVERPROPERTY('ProductLevel') AS ProductLevel,
          CASE SERVERPROPERTY('IsClustered')
            WHEN 1 THEN 'CLUSTERED'
            ELSE 'STANDALONE' END AS ServerType,
          @@VERSION AS VersionNumber;
```

◦

dbsp

```
SELECT execquery.last_execution_time AS [Date Time], execsql.text AS [Script]
FROM sys.dm_exec_query_stats AS execquery
CROSS APPLY sys.dm_exec_sql_text(execquery.sql_handle) AS execsql
ORDER BY execquery.last_execution_time DESC
```

```
SELECT o.type_desc AS ROUTINE_TYPE,o.[name] AS ROUTINE_NAME,
m.definition AS ROUTINE_DEFINITION
FROM sys.sql_modules AS m INNER JOIN sys.objects AS o
ON m.object_id = o.object_id WHERE m.definition LIKE '%Keyword%'
order by ROUTINE_NAME
```

```
SELECT t.name AS table_name,
SCHEMA_NAME(schema_id) AS schema_name,
c.name AS column_name
FROM sys.tables AS t
INNER JOIN sys.columns c ON t.OBJECT_ID = c.OBJECT_ID
where c.name like 'Keyword%'
ORDER BY schema_name, table_name;
```

```
WITH LastRestores AS
(
SELECT
    DatabaseName = [d].[name] ,
    [d].[create_date] ,
    [d].[compatibility_level] ,
    [d].[collation_name] ,
    r.*,
    RowNum = ROW_NUMBER() OVER (PARTITION BY d.Name ORDER BY r.[restore_date] DESC)
FROM master.sys.databases d
LEFT OUTER JOIN msdb.dbo.[restorehistory] r ON r.[destination_database_name] = d.Name
)
```

```
SELECT *
FROM [LastRestores]
WHERE [RowNum] = 1
```

```
select top 100 * from databaselog
Order by Posttime desc
```

Sps

```
SELECT name, create_date, modify_date
FROM sys.objects
WHERE type = 'P'
Order by modify_date desc
```

https://riptutorial.com/zh-TW/sql-server/topic/2029/

81:

SQL Server。

ISO`INFORMATION_SCHEMA`SQL Server`sys`。

Examples

。

```
USE YourDatabaseName
SELECT COUNT(*) from INFORMATION_SCHEMA.TABLES
WHERE TABLE_TYPE = 'BASE TABLE'
```

SQL Server 2008+。 。

```
SELECT COUNT(*) FROM sys.tables
```

SQL Server 2005

```
SELECT *
FROM INFORMATION_SCHEMA.ROUTINES
WHERE ROUTINE_TYPE = 'PROCEDURE'
```

`ROUTINE_NAME ROUTINE_SCHEMAROUTINE_DEFINITION`。

SQL Server 2005

```
SELECT *
FROM sys.objects
WHERE type = 'P'
```

SQL Server 2005

```
SELECT *
FROM sys.procedures
```

sys.objects`is_auto_executed is_execution_replicated is_repl_serializableskips_repl_constraints`

。

SQL Server 2005

```
SELECT *
FROM sysobjects
WHERE type = 'P'
```

。

'SearchTerm'

SQL Server 2005

```
SELECT o.name
FROM syscomments c
INNER JOIN sysobjects o
    ON c.id=o.id
WHERE o.xtype = 'P'
    AND c.TEXT LIKE '%SearchTerm%'
```

SQL Server 2005

```
SELECT p.name
FROM sys.sql_modules AS m
INNER JOIN sys.procedures AS p
    ON m.object_id = p.object_id
WHERE definition LIKE '%SearchTerm%'
```

1SQL Server 2000+12

```
SELECT * FROM dbo.sysdatabases
```

2

SQL SERVER 2005+

```
SELECT * FROM sys.databases
```

3sp_MSForEachDB

```
EXEC sp_MSForEachDB 'SELECT ''?'' AS DatabaseName'
```

4 SP

```
EXEC sp_helpdb
```

5

```
EXEC sp_databases
```

```
SELECT  d.name AS 'Database',
        d.database_id,
        SF.fileid,
        SF.name AS 'LogicalFileName',
        CASE SF.status & 0x100000
            WHEN 1048576 THEN 'Percentage'
            WHEN 0 THEN 'MB'
        END AS 'FileGrowthOption',
        Growth AS GrowthUnit,
        ROUND(((CAST(Size AS FLOAT)*8)/1024)/1024,2) [SizeGB], -- Convert 8k pages to GB
        Maxsize,
```

```
        filename AS PhysicalFileName

FROM    Master.SYS.SYSALTFILES SF
Join    Master.SYS.Databases d on sf.fileid = d.database_id

Order by d.name
```

```
select * from sys.databases WHERE name = 'MyDatabaseName';
```

```
SELECT
    s.name + '.' + t.NAME AS TableName,
    SUM(a.used_pages)*8 AS 'TableSizeKB'  --a page in SQL Server is 8kb
FROM sys.tables t
    JOIN sys.schemas s on t.schema_id = s.schema_id
    LEFT JOIN sys.indexes i ON t.OBJECT_ID = i.object_id
    LEFT JOIN sys.partitions p ON i.object_id = p.OBJECT_ID AND i.index_id = p.index_id
    LEFT JOIN sys.allocation_units a ON p.partition_id = a.container_id
GROUP BY
    s.name, t.name
ORDER BY
    --Either sort by name:
    s.name + '.' + t.NAME
    --Or sort largest to smallest:
    --SUM(a.used_pages) desc
```

Windows

。

```
xp_logininfo 'DOMAIN\user'
```

COLUMNSTABLES。

```
SELECT
    c.name AS ColName,
    t.name AS TableName
FROM
    sys.columns c
    JOIN sys.tables t ON c.object_id = t.object_id
WHERE
    c.name LIKE '%MyName%'
```

Developer EditionEnterprise Edition。

sys.dm_db_persisted_sku_features

```
SELECT * FROM sys.dm_db_persisted_sku_features
```

。

。

。 。 /。

```
DECLARE @SearchStr nvarchar(100)
SET @SearchStr = '## YOUR STRING HERE ##'


    -- Copyright © 2002 Narayana Vyas Kondreddi. All rights reserved.
    -- Purpose: To search all columns of all tables for a given search string
    -- Written by: Narayana Vyas Kondreddi
    -- Site: http://vyaskn.tripod.com
    -- Updated and tested by Tim Gaunt
    -- http://www.thesitedoctor.co.uk
    --
http://blogs.thesitedoctor.co.uk/tim/2010/02/19/Search+Every+Table+And+Field+In+A+SQL+Server+Database+U

    -- Tested on: SQL Server 7.0, SQL Server 2000, SQL Server 2005 and SQL Server 2010
    -- Date modified: 03rd March 2011 19:00 GMT
    CREATE TABLE #Results (ColumnName nvarchar(370), ColumnValue nvarchar(3630))

    SET NOCOUNT ON

    DECLARE @TableName nvarchar(256), @ColumnName nvarchar(128), @SearchStr2 nvarchar(110)
    SET  @TableName = ''
    SET @SearchStr2 = QUOTENAME('%' + @SearchStr + '%','''')

    WHILE @TableName IS NOT NULL

    BEGIN
        SET @ColumnName = ''
        SET @TableName =
        (
            SELECT MIN(QUOTENAME(TABLE_SCHEMA) + '.' + QUOTENAME(TABLE_NAME))
            FROM     INFORMATION_SCHEMA.TABLES
            WHERE         TABLE_TYPE = 'BASE TABLE'
                AND    QUOTENAME(TABLE_SCHEMA) + '.' + QUOTENAME(TABLE_NAME) > @TableName
                AND    OBJECTPROPERTY(
                        OBJECT_ID(
                            QUOTENAME(TABLE_SCHEMA) + '.' + QUOTENAME(TABLE_NAME)
                             ), 'IsMSShipped'
                               ) = 0
        )

        WHILE (@TableName IS NOT NULL) AND (@ColumnName IS NOT NULL)

        BEGIN
            SET @ColumnName =
            (
                SELECT MIN(QUOTENAME(COLUMN_NAME))
                FROM     INFORMATION_SCHEMA.COLUMNS
                WHERE         TABLE_SCHEMA    = PARSENAME(@TableName, 2)
                    AND    TABLE_NAME    = PARSENAME(@TableName, 1)
                    AND    DATA_TYPE IN ('char', 'varchar', 'nchar', 'nvarchar', 'int',
'decimal')
                    AND    QUOTENAME(COLUMN_NAME) > @ColumnName
            )

            IF @ColumnName IS NOT NULL

            BEGIN
                INSERT INTO #Results
                EXEC
```

```
                (
                    'SELECT ''' + @TableName + '.' + @ColumnName + ''', LEFT(' + @ColumnName +
', 3630) FROM ' + @TableName + ' (NOLOCK) ' +
                    ' WHERE ' + @ColumnName + ' LIKE ' + @SearchStr2
                )
            END
        END
    END

    SELECT ColumnName, ColumnValue FROM #Results

DROP TABLE #Results
- See more at: http://thesitedoctor.co.uk/blog/search-every-table-and-field-in-a-sql-server-
database-updated#sthash.bBEqfJVZ.dpuf
```

```
SELECT
    s.name AS [schema],
    t.object_id AS [table_object_id],
    t.name AS [table_name],
    c.column_id,
    c.name AS [column_name],
    i.name AS [index_name],
    i.type_desc AS [index_type]
FROM sys.schemas AS s
INNER JOIN sys.tables AS t
    ON s.schema_id = t.schema_id
INNER JOIN sys.columns AS c
    ON t.object_id = c.object_id
LEFT JOIN sys.index_columns AS ic
    ON c.object_id = ic.object_id and c.column_id = ic.column_id
LEFT JOIN sys.indexes AS i
    ON ic.object_id = i.object_id and ic.index_id = i.index_id
ORDER BY [schema], [table_name], c.column_id;
```

SQL Agent

```
USE msdb
Go


SELECT dbo.sysjobs.Name AS 'Job Name',
      'Job Enabled' = CASE dbo.sysjobs.Enabled
            WHEN 1 THEN 'Yes'
            WHEN 0 THEN 'No'
      END,
      'Frequency' = CASE dbo.sysschedules.freq_type
            WHEN 1 THEN 'Once'
            WHEN 4 THEN 'Daily'
            WHEN 8 THEN 'Weekly'
            WHEN 16 THEN 'Monthly'
            WHEN 32 THEN 'Monthly relative'
            WHEN 64 THEN 'When SQLServer Agent starts'
      END,
      'Start Date' = CASE active_start_date
            WHEN 0 THEN null
            ELSE
            substring(convert(varchar(15),active_start_date),1,4) + '/' +
            substring(convert(varchar(15),active_start_date),5,2) + '/' +
```

```
            substring(convert(varchar(15),active_start_date),7,2)
      END,
      'Start Time' = CASE len(active_start_time)
            WHEN 1 THEN cast('00:00:0' + right(active_start_time,2) as char(8))
            WHEN 2 THEN cast('00:00:' + right(active_start_time,2) as char(8))
            WHEN 3 THEN cast('00:0'
                        + Left(right(active_start_time,3),1)
                        +':' + right(active_start_time,2) as char (8))
            WHEN 4 THEN cast('00:'
                        + Left(right(active_start_time,4),2)
                        +':' + right(active_start_time,2) as char (8))
            WHEN 5 THEN cast('0'
                        + Left(right(active_start_time,5),1)
                        +':' + Left(right(active_start_time,4),2)
                        +':' + right(active_start_time,2) as char (8))
            WHEN 6 THEN cast(Left(right(active_start_time,6),2)
                        +':' + Left(right(active_start_time,4),2)
                        +':' + right(active_start_time,2) as char (8))
      END,

      CASE len(run_duration)
            WHEN 1 THEN cast('00:00:0'
                        + cast(run_duration as char) as char (8))
            WHEN 2 THEN cast('00:00:'
                        + cast(run_duration as char) as char (8))
            WHEN 3 THEN cast('00:0'
                        + Left(right(run_duration,3),1)
                        +':' + right(run_duration,2) as char (8))
            WHEN 4 THEN cast('00:'
                        + Left(right(run_duration,4),2)
                        +':' + right(run_duration,2) as char (8))
            WHEN 5 THEN cast('0'
                        + Left(right(run_duration,5),1)
                        +':' + Left(right(run_duration,4),2)
                        +':' + right(run_duration,2) as char (8))
            WHEN 6 THEN cast(Left(right(run_duration,6),2)
                        +':' + Left(right(run_duration,4),2)
                        +':' + right(run_duration,2) as char (8))
      END as 'Max Duration',
    CASE(dbo.sysschedules.freq_subday_interval)
            WHEN 0 THEN 'Once'
            ELSE cast('Every '
                        + right(dbo.sysschedules.freq_subday_interval,2)
                        + ' '
                        +     CASE(dbo.sysschedules.freq_subday_type)
                                    WHEN 1 THEN 'Once'
                                    WHEN 4 THEN 'Minutes'
                                    WHEN 8 THEN 'Hours'
                              END as char(16))
    END as 'Subday Frequency'
FROM dbo.sysjobs
LEFT OUTER JOIN dbo.sysjobschedules
ON dbo.sysjobs.job_id = dbo.sysjobschedules.job_id
INNER JOIN dbo.sysschedules ON dbo.sysjobschedules.schedule_id = dbo.sysschedules.schedule_id
LEFT OUTER JOIN (SELECT job_id, max(run_duration) AS run_duration
            FROM dbo.sysjobhistory
            GROUP BY job_id) Q1
ON dbo.sysjobs.job_id = Q1.job_id
WHERE Next_run_time = 0

UNION
```

```
SELECT dbo.sysjobs.Name AS 'Job Name',
      'Job Enabled' = CASE dbo.sysjobs.Enabled
            WHEN 1 THEN 'Yes'
            WHEN 0 THEN 'No'
      END,
      'Frequency' = CASE dbo.sysschedules.freq_type
            WHEN 1 THEN 'Once'
            WHEN 4 THEN 'Daily'
            WHEN 8 THEN 'Weekly'
            WHEN 16 THEN 'Monthly'
            WHEN 32 THEN 'Monthly relative'
            WHEN 64 THEN 'When SQLServer Agent starts'
      END,
      'Start Date' = CASE next_run_date
            WHEN 0 THEN null
            ELSE
            substring(convert(varchar(15),next_run_date),1,4) + '/' +
            substring(convert(varchar(15),next_run_date),5,2) + '/' +
            substring(convert(varchar(15),next_run_date),7,2)
      END,
      'Start Time' = CASE len(next_run_time)
            WHEN 1 THEN cast('00:00:0' + right(next_run_time,2) as char(8))
            WHEN 2 THEN cast('00:00:' + right(next_run_time,2) as char(8))
            WHEN 3 THEN cast('00:0'
                        + Left(right(next_run_time,3),1)
                        +':' + right(next_run_time,2) as char (8))
            WHEN 4 THEN cast('00:'
                        + Left(right(next_run_time,4),2)
                        +':' + right(next_run_time,2) as char (8))
            WHEN 5 THEN cast('0' + Left(right(next_run_time,5),1)
                        +':' + Left(right(next_run_time,4),2)
                        +':' + right(next_run_time,2) as char (8))
            WHEN 6 THEN cast(Left(right(next_run_time,6),2)
                        +':' + Left(right(next_run_time,4),2)
                        +':' + right(next_run_time,2) as char (8))
      END,

      CASE len(run_duration)
            WHEN 1 THEN cast('00:00:0'
                        + cast(run_duration as char) as char (8))
            WHEN 2 THEN cast('00:00:'
                        + cast(run_duration as char) as char (8))
            WHEN 3 THEN cast('00:0'
                        + Left(right(run_duration,3),1)
                        +':' + right(run_duration,2) as char (8))
            WHEN 4 THEN cast('00:'
                        + Left(right(run_duration,4),2)
                        +':' + right(run_duration,2) as char (8))
            WHEN 5 THEN cast('0'
                        + Left(right(run_duration,5),1)
                        +':' + Left(right(run_duration,4),2)
                        +':' + right(run_duration,2) as char (8))
            WHEN 6 THEN cast(Left(right(run_duration,6),2)
                        +':' + Left(right(run_duration,4),2)
                        +':' + right(run_duration,2) as char (8))
      END as 'Max Duration',
    CASE(dbo.sysschedules.freq_subday_interval)
            WHEN 0 THEN 'Once'
            ELSE cast('Every '
                        + right(dbo.sysschedules.freq_subday_interval,2)
```

```
                        + ' '
                        +     CASE(dbo.sysschedules.freq_subday_type)
                                    WHEN 1 THEN 'Once'
                                    WHEN 4 THEN 'Minutes'
                                    WHEN 8 THEN 'Hours'
                                END as char(16))
    END as 'Subday Frequency'
FROM dbo.sysjobs
LEFT OUTER JOIN dbo.sysjobschedules ON dbo.sysjobs.job_id = dbo.sysjobschedules.job_id
INNER JOIN dbo.sysschedules ON dbo.sysjobschedules.schedule_id = dbo.sysschedules.schedule_id
LEFT OUTER JOIN (SELECT job_id, max(run_duration) AS run_duration
             FROM dbo.sysjobhistory
             GROUP BY job_id) Q1
ON dbo.sysjobs.job_id = Q1.job_id
WHERE Next_run_time <> 0

ORDER BY [Start Date],[Start Time]
```

```
SELECT sdb.Name AS DatabaseName,
    COALESCE(CONVERT(VARCHAR(50), bus.backup_finish_date, 120),'-') AS LastBackUpDateTime
FROM sys.sysdatabases sdb
    LEFT OUTER JOIN msdb.dbo.backupset bus ON bus.database_name = sdb.name
ORDER BY sdb.name, bus.backup_finish_date DESC
```

```
SELECT
    [d].[name] AS database_name,
    [r].restore_date AS last_restore_date,
    [r].[user_name],
    [bs].[backup_finish_date] AS backup_creation_date,
    [bmf].[physical_device_name] AS [backup_file_used_for_restore]
FROM master.sys.databases [d]
    LEFT OUTER JOIN msdb.dbo.[restorehistory] r ON r.[destination_database_name] = d.Name
    INNER JOIN msdb.dbo.backupset [bs] ON [r].[backup_set_id] = [bs].[backup_set_id]
    INNER JOIN msdb.dbo.backupmediafamily bmf ON [bs].[media_set_id] = [bmf].[media_set_id]
ORDER BY [d].[name], [r].restore_date DESC
```

```
SELECT DISTINCT
 o.name AS Object_Name,o.type_desc
 FROM sys.sql_modules m
    INNER JOIN sys.objects  o ON m.object_id=o.object_id
 WHERE m.definition Like '%myField%'
 ORDER BY 2,1
```

SProcsViews`myField`。

https://riptutorial.com/zh-TW/sql-server/topic/697/

82:

Examples

◦ CRUD◦ ◦ SQL ServerINFORMATION_SCHEMA◦

◦

```
SELECT 'GRANT EXEC ON core.' + r.ROUTINE_NAME + ' TO ' + <MyDatabaseUsername>
FROM INFORMATION_SCHEMA.ROUTINES r
WHERE r.ROUTINE_CATALOG = '<MyDataBaseName>'
```

https://riptutorial.com/zh-TW/sql-server/topic/7929/

83:

- DECLARE cursor_name CURSOR [LOCAL |]
  - [FORWARD_ONLY |]
    [STATIC | KEYSET | DYNAMIC | FAST_FORWARD]
    [READ_ONLY | SCROLL_LOCKS |]
    [TYPE_WARNING]
  - FOR select_statement
  - [FOR UPDATE [OF column_name [... n]]]

。 。

Examples

。 。

```
DECLARE @orderId AS INT

-- here we are creating our cursor, as a local cursor and only allowing
-- forward operations
DECLARE rowCursor CURSOR LOCAL FAST_FORWARD FOR
    -- this is the query that we want to loop through record by record
    SELECT [OrderId]
    FROM [dbo].[Orders]

-- first we need to open the cursor
OPEN rowCursor

-- now we will initialize the cursor by pulling the first row of data, in this example the
[OrderId] column,
-- and storing the value into a variable called @orderId
FETCH NEXT FROM rowCursor INTO @orderId

-- start our loop and keep going until we have no more records to loop through
WHILE @@FETCH_STATUS = 0
BEGIN

    PRINT @orderId

    -- this is important, as it tells SQL Server to get the next record and store the
[OrderId] column value into the @orderId variable
    FETCH NEXT FROM rowCursor INTO @orderId

END

-- this will release any memory used by the cursor
CLOSE rowCursor
DEALLOCATE rowCursor
```

```
/* Prepare test data */
DECLARE @test_table TABLE
(
    Id INT,
```

```
    Val VARCHAR(100)
);
INSERT INTO @test_table(Id, Val)
VALUES
    (1, 'Foo'),
    (2, 'Bar'),
    (3, 'Baz');
/* Test data prepared */

/* Iterator variable @myId, for example sake */
DECLARE @myId INT;

/* Cursor to iterate rows and assign values to variables */
DECLARE myCursor CURSOR FOR
    SELECT Id
    FROM @test_table;

/* Start iterating rows */
OPEN myCursor;
FETCH NEXT FROM myCursor INTO @myId;

/* @@FETCH_STATUS global variable will be 1 / true until there are no more rows to fetch */
WHILE @@FETCH_STATUS = 0
BEGIN

    /* Write operations to perform in a loop here. Simple SELECT used for example */
    SELECT Id, Val
    FROM @test_table
    WHERE Id = @myId;

    /* Set variable(s) to the next value returned from iterator; this is needed otherwise the
cursor will loop infinitely. */
    FETCH NEXT FROM myCursor INTO @myId;
END
/* After all is done, clean up */
CLOSE myCursor;
DEALLOCATE myCursor;
```

SSMS。。。

ID
1

1

ID
2

1

ID
3

1

https://riptutorial.com/zh-TW/sql-server/topic/870/

84:

Examples

```
USE AdventureWorks;
GRANT CREATE TABLE TO MelanieK;
GO
```

SHOWPLAN

```
USE AdventureWorks2012;
GRANT SHOWPLAN TO AuditMonitor;
GO
```

GRANTCREATE VIEW

```
USE AdventureWorks2012;
GRANT CREATE VIEW TO CarmineEs WITH GRANT OPTION;
GO
```

```
use YourDatabase
go
exec sp_addrolemember 'db_owner', 'UserName'
go
```

https://riptutorial.com/zh-TW/sql-server/topic/5333/

85:

@	。
@	。

Dates。http://dba.stackexchange.com/questions/86435/filling-in-date-holes-in-grouped-by-date-sql-data

Examples

CTE

CTE

```
Declare  @FromDate    Date = '2014-04-21',
         @ToDate      Date = '2014-05-02'

;With DateCte (Date) As
(
    Select  @FromDate Union All
    Select  DateAdd(Day, 1, Date)
    From    DateCte
    Where   Date < @ToDate
)
Select  Date
From    DateCte
Option  (MaxRecursion 0)
```

MaxRecursion100.100Option (MaxRecursion N)NMaxRecursion。 0MaxRecursion。

Tally Table

```
Declare   @FromDate   Date = '2014-04-21',
          @ToDate     Date = '2014-05-02'

;With
   E1(N) As (Select 1 From (Values (1), (1), (1), (1), (1), (1), (1), (1), (1), (1)) DT(N)),
   E2(N) As (Select 1 From E1 A Cross Join E1 B),
   E4(N) As (Select 1 From E2 A Cross Join E2 B),
   E6(N) As (Select 1 From E4 A Cross Join E2 B),
   Tally(N) As
   (
        Select    Row_Number() Over (Order By (Select Null))
        From    E6
   )
Select   DateAdd(Day, N - 1, @FromDate) Date
From     Tally
Where    N <= DateDiff(Day, @FromDate, @ToDate) + 1
```

https://riptutorial.com/zh-TW/sql-server/topic/3232/

86:

UDT。。

UDT -

-
- UDTPRIMARY KEYUNIQUEUDT
- UDT

Examples

intUDT

```
CREATE TYPE dbo.Ids as TABLE
(
    Id int PRIMARY KEY
)
```

UDT

```
CREATE TYPE MyComplexType as TABLE
(
    Id int,
    Name varchar(10)
)
```

UDT

```
CREATE TYPE MyUniqueNamesType as TABLE
(
    FirstName varchar(10),
    LastName varchar(10),
    UNIQUE (FirstName,LastName)
)
```

。

UDT

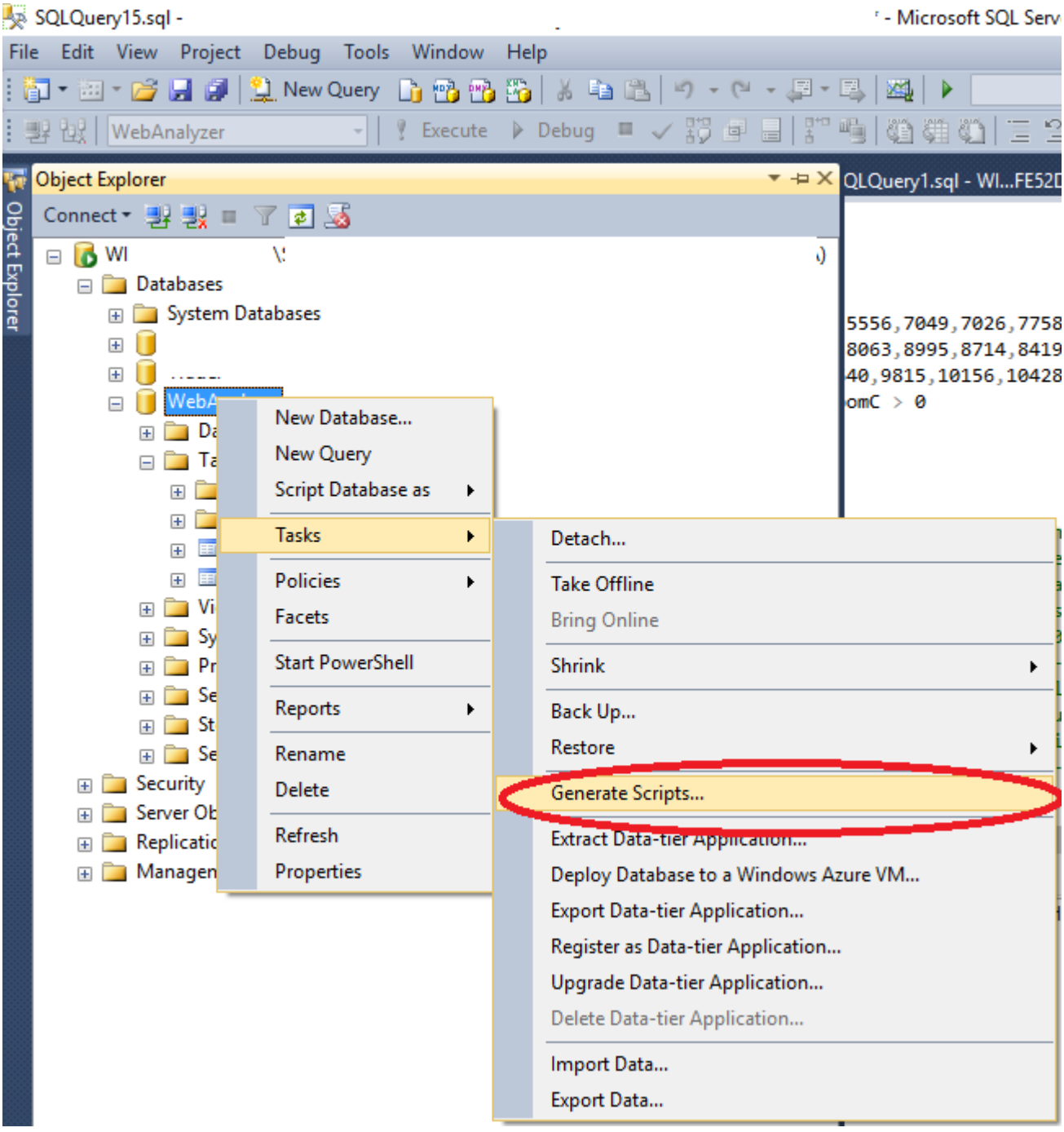
```
CREATE TYPE MyUniqueNamesType as TABLE
(
    FirstName varchar(10),
    LastName varchar(10),
    CreateDate datetime default GETDATE()
    PRIMARY KEY (FirstName,LastName)
)
```

https://riptutorial.com/zh-TW/sql-server/topic/5280/

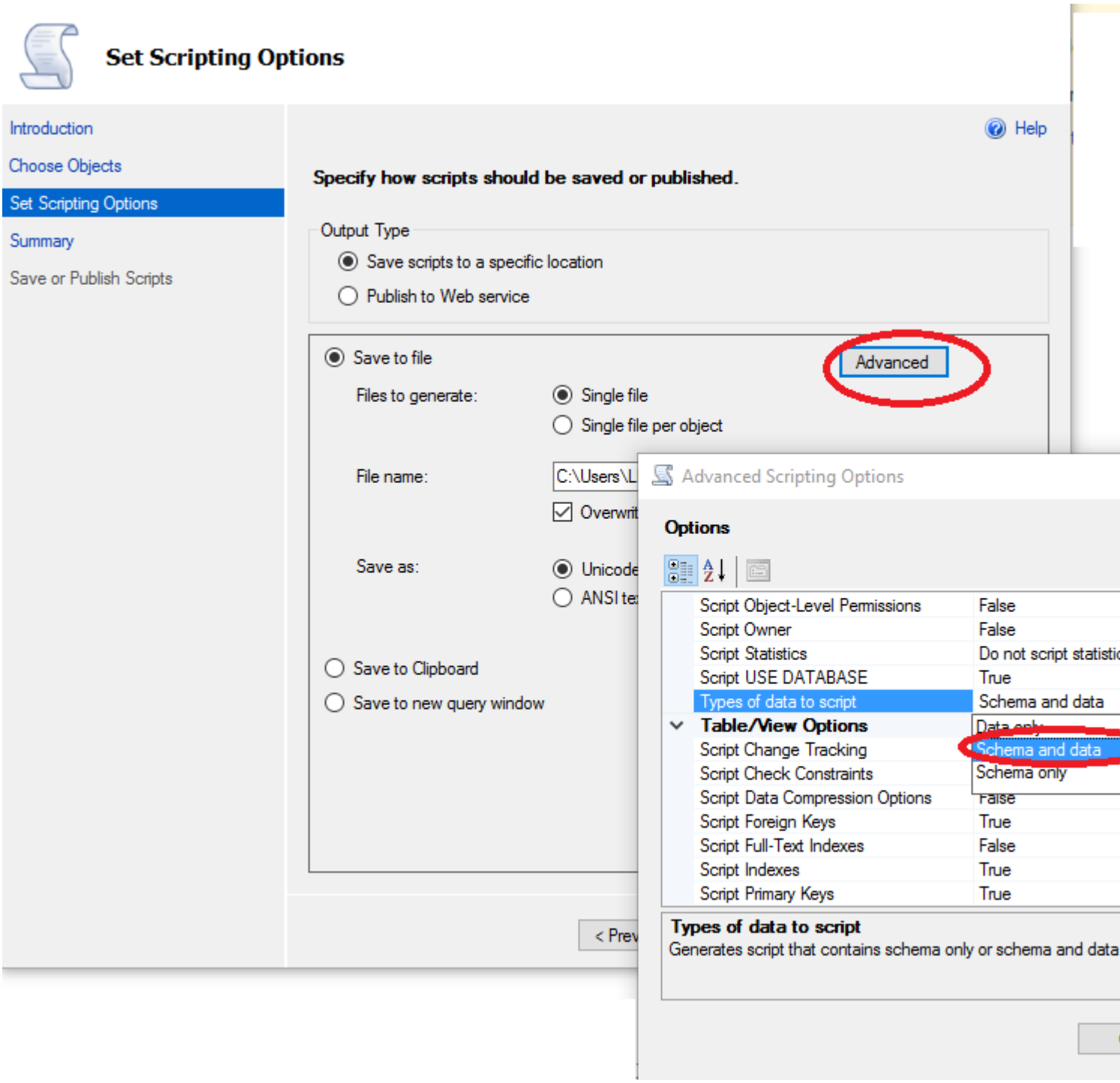
87:

Examples

1. □□□□ - > Tasks - > Generate Scripts...



2. “ Next“ Next “ AdvancedTypes of data to script“ Schema and data



3. “ `Next` “ `Finish.sql`。

4. `.sql`。

https://riptutorial.com/zh-TW/sql-server/topic/4451/

88:

SQL Server NULL。 NULL;。 NULLNULL 。

SQL ServerIS NULL IS NOT NULL ISNULL() COALESCE()。

Examples

NULL

NULL。

。

```
id someVal
 ----
 0 NULL
 1 1
 2 2
```

```
 SELECT id
 FROM table
 WHERE someVal = 1
```

id 1

```
 SELECT id
 FROM table
 WHERE someVal <> 1
```

id 2

```
 SELECT id
 FROM table
 WHERE someVal IS NULL
```

id 0

```
 SELECT id
 FROM table
 WHERE someVal IS NOT NULL
```

ID 12 。

NULL“ = <>

```
 SELECT id
 FROM table
```

```
WHERE ISNULL(someVal, -1) <> 1
```

```
SELECT id
FROM table
WHERE someVal IS NULL OR someVal <> 1
```

02

ANSI Null。

ANSI NULLS

MSDN

SQL ServerANSI_NULLSONOFF。 。

ANSI NULLSoff= / <>。

```
id someVal
 ----
 0 NULL
 1 1
 2 2
```

ANSI NULLS

```
SELECT id
FROM table
WHERE someVal = NULL
```

。 ANSI NULLS

```
set ansi_nulls off

SELECT id
FROM table
WHERE someVal = NULL
```

id 0 。

IsNull()null 。

1. 。 。
2. 。 null。 。

IsNull()check。

```
DECLARE @MyInt int -- All variables are null until they are set with values.

SELECT ISNULL(@MyInt, 3) -- Returns 3.
```

COALESCE

null /null

null。
nullis null

```
DECLARE @Date date = '2016-08-03'
```

6 nullfalseunknown

```
SELECT CASE WHEN @Date = NULL THEN 1
            WHEN @Date <> NULL THEN 2
            WHEN @Date > NULL THEN 3
            WHEN @Date < NULL THEN 4
            WHEN @Date IS NULL THEN 5
            WHEN @Date IS NOT NULL THEN 6
```

@Datenull5

```
SET @Date = NULL -- Note that the '=' here is an assignment operator!

SELECT CASE WHEN @Date = NULL THEN 1
            WHEN @Date <> NULL THEN 2
            WHEN @Date > NULL THEN 3
            WHEN @Date < NULL THEN 4
            WHEN @Date IS NULL THEN 5
            WHEN @Date IS NOT NULL THEN 6
```

COALESCE

COALESCE ()NULL。

```
DECLARE @MyInt int -- variable is null until it is set with value.
DECLARE @MyInt2 int -- variable is null until it is set with value.
DECLARE @MyInt3 int -- variable is null until it is set with value.

SET @MyInt3  = 3

SELECT COALESCE (@MyInt, @MyInt2 ,@MyInt3 ,5) -- Returns 3 : value of @MyInt3.
```

ISNULLCOALESCEISNULL - NULL。 ISNULL

NOT IN SubQueryNULL

nullNULLS

```
create table #outertable (i int)
create table #innertable (i int)

insert into #outertable (i) values (1), (2),(3),(4), (5)
insert into #innertable (i) values (2), (3), (null)
```

```
select * from #outertable where i in (select i from #innertable)
--2
--3
--So far so good

select * from #outertable where i not in (select i from #innertable)
--Expectation here is to get 1,4,5 but it is not. It will get empty results because of the
NULL it executes as {select * from #outertable where i not in (null)}

--To fix this
select * from #outertable where i not in (select i from #innertable where i is not null)
--you will get expected results
--1
--4
--5
```

null

https://riptutorial.com/zh-TW/sql-server/topic/5044/

89:

2

X / Y

/。SQL Server。IDSRID4326。WebSRID

Examples

Point。。

LatX.	Pointx
Y.	Pointy
	/WKB
	WKB/
SRID	int/IDSRID

```
--Explicit constructor
DECLARE @gm1 GEOMETRY = GEOMETRY::Point(10,5,0)

DECLARE @gg1 GEOGRAPHY = GEOGRAPHY::Point(51.511601,-0.096600,4326)

--Implicit constructor (using WKT - Well Known Text)
DECLARE @gm1 GEOMETRY = GEOMETRY::STGeomFromText('POINT(5 10)', 0)

DECLARE @gg1 GEOGRAPHY= GEOGRAPHY::STGeomFromText('POINT(-0.096600 51.511601)', 4326)

--Implicit constructor (using WKB - Well Known Binary)
DECLARE @gm1 GEOMETRY = GEOMETRY::STGeomFromWKB(0x0101000000000000000000144000000000000002440,
0)

DECLARE @gg1 GEOGRAPHY= GEOGRAPHY::STGeomFromWKB(0x01010000005F29CB10C7BAB8BFEACC3D247CC14940,
4326)
```

https://riptutorial.com/zh-TW/sql-server/topic/6816/

90:

Examples

6126

```
SELECT TradeDate, AVG(Px) OVER (ORDER BY TradeDate ROWS BETWEEN 63 PRECEDING AND 63 FOLLOWING)
AS PxMovingAverage
FROM HistoricalPrices
```

63TradeDateTradeDate63◦

◦ ◦ row_numberoverorder by ...my_ranking = 1

```
select *
from (
    select
        *,
        row_number() over (order by crdate desc) as my_ranking
    from sys.sysobjects
) g
where my_ranking=1
```

◦

30

30

```
SELECT
    value_column1,
    (   SELECT
            AVG(value_column1) AS moving_average
        FROM Table1 T2
        WHERE ( SELECT
                    COUNT(*)
                FROM Table1 T3
                WHERE date_column1 BETWEEN T2.date_column1 AND T1.date_column1
                ) BETWEEN 1 AND 30
    ) as MovingAvg
FROM Table1 T1
```

https://riptutorial.com/zh-TW/sql-server/topic/3209/

91: Azure SQL

Examples

Azure SQL

Azure SQL。

AzureSQLS0S1P4P11

```
select @@version
SELECT DATABASEPROPERTYEX('Wwi', 'EDITION')
SELECT DATABASEPROPERTYEX('Wwi', 'ServiceObjective')
```

Azure SQL

ALTER DATABASEAzure SQL

```
ALTER DATABASE WWI
MODIFY (SERVICE_OBJECTIVE = 'P6')
-- or
ALTER DATABASE CURRENT
MODIFY (SERVICE_OBJECTIVE = 'P2')
```

408021611'.....".....'。“”。

ALTER DATABASE。

Azure SQL

Azure SQL Server。

```
ALTER DATABASE <<mydb>>
ADD SECONDARY ON SERVER <<secondaryserver>>
WITH ( ALLOW_CONNECTIONS = ALL )
```

。。。ALLOW_CONNECTIONSALLNO。

```
ALTER DATABASE mydb FAILOVER
```

```
ALTER DATABASE <<mydb>>
REMOVE SECONDARY ON SERVER <<testsecondaryserver>>
```

Azure SQL

azure SQLSQL

```
CREATE DATABASE wwi
( SERVICE_OBJECTIVE = ELASTIC_POOL ( name = mypool1 ) )
```

```
CREATE DATABASE wwi
AS COPY OF myserver.WideWorldImporters
( SERVICE_OBJECTIVE = ELASTIC_POOL ( name = mypool1 ) )
```

Azure SQL https://riptutorial.com/zh-TW/sql-server/topic/7113/azure-sql

92: - TempDb

Examples

TempDb

TempDb。TempDb

```
SELECT
 SUM (user_object_reserved_page_count)*8 as usr_obj_kb,
 SUM (internal_object_reserved_page_count)*8 as internal_obj_kb,
 SUM (version_store_reserved_page_count)*8  as version_store_kb,
 SUM (unallocated_extent_page_count)*8 as freespace_kb,
 SUM (mixed_extent_page_count)*8 as mixedextent_kb
FROM sys.dm_db_file_space_usage
```

Attribute	Meaning
Higher number of user objects	More usage of Temp tables , cursors or temp variables
Higher number of internal objects	Query plan is using a lot of database. Ex: sorting, Group by etc.
Higher number of version stores	Long running transaction or high transaction throughput

TempDB

TempDB

```
USE [MASTER]
SELECT * FROM sys.databases WHERE database_id = 2
```

```
USE [MASTER]
SELECT * FROM sys.master_files WHERE database_id = 2
```

DMVTempDb。TempDb

```
SELECT * FROM sys.dm_db_session_space_usage WHERE session_id = @@SPID
```

- TempDb https://riptutorial.com/zh-TW/sql-server/topic/4427/----tempdb

93:

SQL Server。

- AVG[ALL | DISTINCT]
- COUNT[ALL | DISTINCT]
- MAX[ALL | DISTINCT]
- MIN[ALL | DISTINCT]
- SUM[ALL | DISTINCT]

Examples

。

。 *Marksheet* 。

SubjectCode	SubjectName	MarksObtained
101	Physics	87
102	Chemistry	75
103	Maths	85
104	English	89
105	Computer	95

```
Select SUM(MarksObtained) From Marksheet
```

`sum`NULL

```
106    Italian    NULL
```

AVG

。

。 *Marksheet* 。

SubjectCode	SubjectName	MarksObtained
101	Physics	87
102	Chemistry	75
103	Maths	85
104	English	89
105	Computer	95

```
Select AVG(MarksObtained) From Marksheet
```

`average`NULL

```
106    Italian    NULL
```

MAX

。

。 *Marksheet* 。

SubjectCode	SubjectName	MarksObtained
101	Physics	87
102	Chemistry	75
103	Maths	85
104	English	89
105	Computer	95

```
Select MAX(MarksObtained) From Marksheet
```

MIN

。

。 *Marksheet* 。

SubjectCode	SubjectName	MarksObtained
101	Physics	87
102	Chemistry	75
103	Maths	85
104	English	89
105	Computer	95

```
Select MIN(MarksObtained) From Marksheet
```

。

。 *Marksheet* 。

SubjectCode	SubjectName	MarksObtained
101	Physics	87
102	Chemistry	75
103	Maths	85
104	English	89
105	Computer	95

```
Select COUNT(MarksObtained) From Marksheet
```

`count`NULL。 count*NULL

```
106    Italian    NULL
```

COUNT(*)◦ nullCOUNT(1)COUNT(1)◦

```
Select COUNT(1) From Marksheet
```

COUNTColumn_NameGROUP BY Column_Name

REPORTNAME	ReportPrice
	10.00 $
	10.00 $
	10.00 $
2	11.00 $
	10.00 $
3	14.00 $
3	14.00 $
4	100.00 $

```
SELECT
    ReportName AS REPORT NAME,
    COUNT(ReportName) AS COUNT
FROM
    REPORTS
GROUP BY
    ReportName
```

	4
2	1
3	2
4	1

https://riptutorial.com/zh-TW/sql-server/topic/5802/

94: COLUMNSTORE

Examples

CLUSTERED COLUMNSTORE

INDEX cci CLUSTERED COLUMNSTORE

```
DROP TABLE IF EXISTS Product
GO
CREATE TABLE Product (
    ProductID int,
    Name nvarchar(50) NOT NULL,
    Color nvarchar(15),
    Size nvarchar(5) NULL,
    Price money NOT NULL,
    Quantity int,
    INDEX cci CLUSTERED COLUMNSTORE
)
```

COLUMSTORE。

CREATE CLUSTERED COLUMNSTORE INDEX

```
DROP TABLE IF EXISTS Product
GO
CREATE TABLE Product (
    Name nvarchar(50) NOT NULL,
    Color nvarchar(15),
    Size nvarchar(5) NULL,
    Price money NOT NULL,
    Quantity int
)
GO
CREATE CLUSTERED COLUMNSTORE INDEX cci ON Product
```

CLUSTERED COLUMNSTORE

```
ALTER INDEX cci ON Products
REBUILD PARTITION = ALL
```

CLUSTERED COLUMNSTORE“”。

。

COLUMNSTORE https://riptutorial.com/zh-TW/sql-server/topic/5774/columnstore

95:

Examples

◦ **Union all**◦ ◦ union

1.◦

2.◦

Marksheet1Marksheet2Marksheet3◦ Marksheet3Marksheet2Marksheet2◦

1 Marksheet1

SubjectCode	SubjectName	MarksObtained
101	Physics	87
102	Chemistry	75
103	Maths	85
104	English	89
105	Computer	95

2 Marksheet2

CourseCode	CourseName	MarksObtained
201	PhysicsII	82
202	ChemistryII	86
203	MathsII	95
204	EnglishII	70
205	ComputerII	86

3 Marksheet3

SubjectCode	SubjectName	MarksObtained
201	PhysicsII	82
202	ChemistryII	86
203	MathsII	95
204	EnglishII	70
205	ComputerII	86

Marksheet1Marksheet2

```
SELECT SubjectCode, SubjectName, MarksObtained
FROM Marksheet1
UNION
SELECT CourseCode, CourseName, MarksObtained
FROM Marksheet2
```

Marksheet1Marksheet2union。

```
SELECT SubjectCode, SubjectName, MarksObtained
FROM Marksheet1
UNION
SELECT CourseCode, CourseName, MarksObtained
FROM Marksheet2
UNION
SELECT SubjectCode, SubjectName, MarksObtained
FROM Marksheet3
```

OUTPUT

	SubjectCode	SubjectName	MarksObtained
1	101	Physics	87
2	102	Chemistry	75
3	103	Maths	85
4	104	English	89
5	105	Computer	95
6	201	PhysicsII	82
7	202	ChemistryII	86
8	203	MathsII	95
9	204	EnglishII	70
10	205	ComputerII	86

```
SELECT SubjectCode, SubjectName, MarksObtained
FROM Marksheet1
UNION ALL
SELECT CourseCode, CourseName, MarksObtained
FROM Marksheet2
UNION ALL
SELECT SubjectCode, SubjectName, MarksObtained
FROM Marksheet3
```

OUTPUT

	SubjectCode	SubjectName	MarksObtained
1	101	Physics	87
2	102	Chemistry	75
3	103	Maths	85
4	104	English	89
5	105	Computer	95
6	201	PhysicsII	82
7	202	ChemistryII	86
8	203	MathsII	95
9	204	EnglishII	70
10	205	ComputerII	86
11	201	PhysicsII	82
12	202	ChemistryII	86
13	203	MathsII	95
14	204	EnglishII	70
15	205	ComputerII	86

Marksheet3union all。

https://riptutorial.com/zh-TW/sql-server/topic/5590/

96:

Examples

```
CREATE TABLE #TEST
(
Id INT,
Name VARCHAR(10)
)

Insert Into #Test
select 1,'A'
Union All
Select 1,'B'
union all
Select 1,'C'
union all
Select 2,'D'
```

Id..

```
Id   Name
1    A
1    B
1    C
2    D
```

。

```
Select Top (1)  Id,Name From
#test
Order By Id ;
```

:(

```
Id   Name
1    B
```

..

```
Select Top (1) With Ties Id,Name
 From
#test
Order By Id
```

```
Id   Name
1    A
1    B
1    C
```

SQL Server Order by Column 。 .....

```
Select Top (1) With Ties Id,Name
 From
#test
Order By Id ,Name
```

```
Id   Name
1    A
```

TiesSQL ServerTied

https://riptutorial.com/zh-TW/sql-server/topic/2546/

97:

Examples

RLS

Sql Server 2016+Azure Sqlselect。 。

```
DROP FUNCTION IF EXISTS dbo.pUserCanAccessCompany
GO
CREATE FUNCTION

dbo.pUserCanAccessCompany(@CompanyID int)

    RETURNS TABLE
    WITH SCHEMABINDING
AS RETURN (
    SELECT 1 as canAccess WHERE

    CAST(SESSION_CONTEXT(N'CompanyID') as int) = @CompanyID

)
```

SESSION_CONTEXT。database_id。

。WHERE。。

```
CREATE SECURITY POLICY dbo.CompanyAccessPolicy
    ADD FILTER PREDICATE dbo.pUserCanAccessCompany(CompanyID) ON dbo.Company
    WITH (State=ON)
```

。CompanyCompanyIDSELECT。

RLS

。/。

。

```
ALTER SECURITY POLICY dbo.CompanyAccessPolicy
    ADD FILTER PREDICATE dbo.pUserCanAccessCompany(CompanyID) ON dbo.Company
```

```
ALTER SECURITY POLICY dbo.CompanyAccessPolicy
    DROP FILTER PREDICATE ON dbo.Company
```

```
ALTER SECURITY POLICY dbo.CompanyAccessPolicy WITH ( STATE = OFF );
```

```
ALTER SECURITY POLICY dbo.CompanyAccessPolicy WITH ( STATE = ON );
```

RLS

。 。

dbo.pUserCanAccessProduct@CompanyID int

```
RETURNS TABLE
WITH SCHEMABINDING
```

AS RETURN1canAccess WHERE

CASTSESSION_CONTEXTN'CompanyID'as int= @CompanyID

SESSION_CONTEXT。database_id。

- 。WHERE。 。

CompanyID。

dbo.ProductAccessPolicy ADD BLOCK PREDICATE dbo.pUserCanAccessProductCompanyIDON dbo.Product

。

dbo.ProductAccessPolicy ADD BLOCK PREDICATE dbo.pUserCanAccessProductCompanyIDON dbo.Product after INSERT

[{AFTER {INSERT |}}
| {{|]}}]

https://riptutorial.com/zh-TW/sql-server/topic/7045/

98:

TVP。 。

。

Examples

```
CREATE TYPE names as TABLE
(
    FirstName varchar(10),
    LastName varchar(10)
)
GO
```

```
CREATE PROCEDURE prInsertNames
(
    @Names dbo.Names READONLY -- Note: You must specify the READONLY
)
AS

INSERT INTO dbo.TblNames (FirstName, LastName)
SELECT FirstName, LastName
FROM @Names
GO
```

```
DECLARE @names dbo.Names
INSERT INTO @Names VALUES
('Zohar', 'Peled'),
('First', 'Last')

EXEC dbo.prInsertNames @Names
```

https://riptutorial.com/zh-TW/sql-server/topic/5285/

99:

。 。

。 。

Examples

SQL ServerDDLDML。

DDLDDL。 `CREATE ALTERDROP`Transact-SQL。

DMLDML。 `INSERT UPDATEDELETE`Transact-SQL。

DML

1.
   - 。
   - 。
   - 。
2.
   - INSTEAD OF INSERT。
   - INSTEAD OF UPDATE。
   - INSTEAD OF DELETE。

DML

DMLdml `insert updatedelete` 。
dmldml。 dml。

DML`inserteddeleted`insertupdatedelete。

DML。 。

```
CREATE TRIGGER tblSomething_InsertOrUpdate ON tblSomething
FOR INSERT
AS

    INSERT INTO tblAudit (TableName, RecordId, Action)
    SELECT 'tblSomething', Id, 'Inserted'
    FROM Inserted

GO

CREATE TRIGGER tblSomething_InsertOrUpdate ON tblSomething
FOR UPDATE
AS

    INSERT INTO tblAudit (TableName, RecordId, Action)
    SELECT 'tblSomething', Id, 'Updated'
```

```
    FROM Inserted

GO

CREATE TRIGGER tblSomething_InsertOrUpdate ON tblSomething
FOR DELETE
AS

    INSERT INTO tblAudit (TableName, RecordId, Action)
    SELECT 'tblSomething', Id, 'Deleted'
    FROM Deleted

GO
```

tblSomethingtblAudit。

https://riptutorial.com/zh-TW/sql-server/topic/5032/

100:

ORDER BY。

ORDER BY。

ORDER BYMSDN https //msdn.microsoft.com/en-us/library/ms188385.aspx

Examples

ORDER BY

Employees LNameIdFNameLName

```
SELECT Id, FName, LName FROM Employees
ORDER BY LName
```

ID	FName	LName
2		
1		
4		
3		

DESCLName

```
SELECT Id, FName, LName FROM Employees
ORDER BY LName DESC
```

ASCendingDESCending`ORDER BY`。

http://stackoverflow.com/documentation/sql/280/example-databases/1207/item-sales-table#t=201607211314066434211SaleDate。

```
SELECT ItemId, SaleDate, Quantity
FROM [Item Sales]
ORDER BY SaleDate ASC, Quantity DESC
```

`ASC`。

ORDER BY

`ORDER BY`CASE。 12。

ID	FName	LName		ID	DepartmentID		
1			1234567890		1	1000	200211
2			2468101214	1	1	400	23-03-2005
3			1357911131	1	2	600	12-05-2009
4			1212121212	2	1	500	24-07-2016
			1372141312	2	2	400	25-03-2015

```
The following query will provide the required results:
SELECT Id, FName, LName, Salary FROM Employees
ORDER BY Case When DepartmentId = 1 then LName else Salary end
```

/case◦

```
order by Group
```

	6
	4
	10

```
order by case group when 'Total' then 1 when 'Retired' then 2 else 3 end
```

	10
	4
	6

https://riptutorial.com/zh-TW/sql-server/topic/4149/

101:

Examples

◦ ◦

```
Create table NetProfit
(
    SalaryToEmployee            int,
    BonusDistributed            int,
    BusinessRunningCost         int,
    BusinessMaintenanceCost     int,
    BusinessEarnings            int,
    BusinessNetIncome
                As BusinessEarnings - (SalaryToEmployee          +
                                       BonusDistributed          +
                                       BusinessRunningCost       +
                                       BusinessMaintenanceCost    )

)
```

◦

```
Insert Into NetProfit
    (SalaryToEmployee,
     BonusDistributed,
     BusinessRunningCost,
     BusinessMaintenanceCost,
     BusinessEarnings)
Values
    (1000000,
     10000,
     1000000,
     50000,
     2500000)
```

```
CREATE TABLE [dbo].[ProcessLog](
[LogId] [int] IDENTITY(1,1) NOT NULL,
[LogType] [varchar](20) NULL,
[StartTime] [datetime] NULL,
[EndTime] [datetime] NULL,
[RunMinutes]  AS
(datediff(minute,coalesce([StartTime],getdate()),coalesce([EndTime],getdate())))
```

◦

https://riptutorial.com/zh-TW/sql-server/topic/5561/

102:

TRY / CATCHMS SQL ServerT-SQL。

T-SQL.NET。

Examples

TRY / CATCH

```
BEGIN TRANSACTION
BEGIN TRY
    INSERT INTO dbo.Sale(Price, SaleDate, Quantity)
    VALUES (5.2, GETDATE(), 1)
    INSERT INTO dbo.Sale(Price, SaleDate, Quantity)
    VALUES (5.2, 'not a date', 1)
    COMMIT TRANSACTION
END TRY
BEGIN CATCH
    ROLLBACK TRANSACTION -- First Rollback and then throw.
    THROW
END CATCH
```

```
BEGIN TRANSACTION
BEGIN TRY
    INSERT INTO dbo.Sale(Price, SaleDate, Quantity)
    VALUES (5.2, GETDATE(), 1)
    INSERT INTO dbo.Sale(Price, SaleDate, Quantity)
    VALUES (5.2, GETDATE(), 1)
    COMMIT TRANSACTION
END TRY
BEGIN CATCH
    THROW
    ROLLBACK TRANSACTION
END CATCH
```

try-catch

RAISERRORTRY CATCH

```
DECLARE @msg nvarchar(50) = 'Here is a problem!'
BEGIN TRY
    print 'First statement';
    RAISERROR(@msg, 11, 1);
    print 'Second statement';
END TRY
BEGIN CATCH
    print 'Error: ' + ERROR_MESSAGE();
END CATCH
```

10RAISERROR11TRY BLOCKCATCH。ERROR_MESSAGE。

```
First statement
Error: Here is a problem!
```

try catch

10RAISERROR。

```
BEGIN TRY
    print 'First statement';
    RAISERROR( 'Here is a problem!', 10, 15);
    print 'Second statement';
END TRY
BEGIN CATCH
    print 'Error: ' + ERROR_MESSAGE();
END CATCH
```

RAISERRORCATCH。

```
First statement
Here is a problem!
Second statement
```

RAISERROR

TRHOWCATCH

```
DECLARE @msg nvarchar(50) = 'Here is a problem! Area: ''%s'' Line:''%i'''
BEGIN TRY
    print 'First statement';
    RAISERROR(@msg, 11, 1, 'TRY BLOCK', 2);
    print 'Second statement';
END TRY
BEGIN CATCH
    print 'Error: ' + ERROR_MESSAGE();
    THROW;
END CATCH
```

。 。

```
First statement
Error: Here is a problem! Area: 'TRY BLOCK' Line:'2'
Msg 50000, Level 11, State 1, Line 26
Here is a problem! Area: 'TRY BLOCK' Line:'2'
```

TRY / CATCH

try catch

```
DECLARE @msg nvarchar(50) = 'Here is a problem!'
BEGIN TRY
    print 'First statement';
    THROW 51000, @msg, 15;
```

```
    print 'Second statement';
END TRY
BEGIN CATCH
    print 'Error: ' + ERROR_MESSAGE();
    THROW;
END CATCH
```

CATCHTHROW。

```
First statement
Error: Here is a problem!
Msg 51000, Level 16, State 15, Line 39
Here is a problem!
```

THROWRAISERROR

- THROWRASIERROR。
- THROWRAISERRORsys.messagesid
- THROW16
- THROWRAISERROR。FORMATMESSAGERAISERROR。

https://riptutorial.com/zh-TW/sql-server/topic/5189/

103:

- DECLARE @VariableName DataType [= Value];
- SET @VariableName = Value;

Examples

```
DECLARE @Employees TABLE
(
    EmployeeID INT NOT NULL PRIMARY KEY,
    FirstName NVARCHAR(50) NOT NULL,
    LastName NVARCHAR(50) NOT NULL,
    ManagerID INT NULL
)
```

`CREATE TABLE Name (Columns)◦ DECLARE @Name TABLE (Columns)◦`

`SELECT`SQL Server

“@TableVariableName”。

```
DECLARE @Table1 TABLE (Example INT)
DECLARE @Table2 TABLE (Example INT)

/*
-- the following two commented out statements would generate an error:
SELECT *
FROM @Table1
INNER JOIN @Table2 ON @Table1.Example = @Table2.Example

SELECT *
FROM @Table1
WHERE @Table1.Example = 1
*/

-- but these work fine:
SELECT *
FROM @Table1 T1
INNER JOIN @Table2 T2 ON T1.Example = T2.Example

SELECT *
FROM @Table1 Table1
WHERE Table1.Example = 1
```

SET

```
DECLARE @VariableName INT
SET @VariableName = 1
PRINT @VariableName
```

1

SET ◦

SELECT

SELECT ◦

```
DECLARE @Variable1 INT, @Variable2 VARCHAR(10)
SELECT @Variable1 = 1, @Variable2 = 'Hello'
PRINT @Variable1
PRINT @Variable2
```

1

SELECT◦ - ◦

```
CREATE TABLE #Test (Example INT)
INSERT INTO #Test VALUES (1), (2)

DECLARE @Variable INT
SELECT @Variable = Example
FROM #Test
ORDER BY Example ASC

PRINT @Variable
```

2

```
SELECT TOP 1 @Variable = Example
FROM #Test
ORDER BY Example ASC

PRINT @Variable
```

1

```
SELECT TOP 0 @Variable = Example
FROM #Test
ORDER BY Example ASC

PRINT @Variable
```

1

```
DECLARE
  @Var1 INT = 5,
  @Var2 NVARCHAR(50) = N'Hello World',
  @Var3 DATETIME = GETDATE()
```

SQL Server 2008 R2

+=

-=

*=

/=

%=

&=AND

^=

|=OR

```
DECLARE @test INT = 42;
SET @test += 1;
PRINT @test;    --43
SET @test -= 1;
PRINT @test;    --42
SET @test *= 2
PRINT @test;    --84
SET @test /= 2;
PRINT @test;    --42
```

。

```
DECLARE @CurrentID int = (SELECT TOP 1 ID FROM Table ORDER BY CreateDate desc)


DECLARE @Year int = 2014
DECLARE @CurrentID int = (SELECT ID FROM Table WHERE Year = @Year)
```

。

https://riptutorial.com/zh-TW/sql-server/topic/2566/

104:

SQL Server。CPU。。

Enterprise Editions

Examples

```
select *
from sys.dm_resource_governor_workload_groups

select *
from sys.dm_resource_governor_resource_pools
```

adhoc

```
CREATE RESOURCE POOL [PoolAdhoc] WITH(min_cpu_percent=0,
        max_cpu_percent=50,
        min_memory_percent=0,
        max_memory_percent=50)
GO
```

worload

```
CREATE WORKLOAD GROUP [AdhocMedium] WITH(importance=Medium) USING [PoolAdhoc]
```

```
create function [dbo].[ufn_ResourceGovernorClassifier]()
  returns sysname with schemabinding
as
begin
    return CASE
                WHEN APP_NAME() LIKE 'Microsoft Office%'                        THEN
'AdhocMedium'         -- Excel
                WHEN APP_NAME() LIKE 'Microsoft SQL Server Management Studio%'    THEN
'AdhocMedium'         -- Adhoc SQL
                WHEN SUSER_NAME() LIKE 'DOMAIN\username'                    THEN 'AdhocMedium'
-- Ssis
                ELSE 'default'
            END
end

GO

alter resource governor
with (classifier_function = dbo.ufn_ResourceGovernorClassifier)

GO

alter resource governor reconfigure

GO
```

https://riptutorial.com/zh-TW/sql-server/topic/4146/

105:

PARTITION BY"

OVER。。 OVER

-
-

N。

OVERGROUP BY。/OVERGROUP BYOVER。

1SQL Server 2008R2ORDER BY 。

Examples

OVER

COUNT。

Id CustomerId MechanicId

```
SELECT CustomerId,
       SUM(TotalCost) OVER(PARTITION BY CustomerId) AS Total,
       AVG(TotalCost) OVER(PARTITION BY CustomerId) AS Avg,
       COUNT(TotalCost) OVER(PARTITION BY CustomerId) AS Count,
       MIN(TotalCost) OVER(PARTITION BY CustomerId) AS Min,
       MAX(TotalCost) OVER(PARTITION BY CustomerId) AS Max
  FROM CarsTable
 WHERE Status = 'READY'
```

OVER。

ID					
1	430	215	2	200	230
1	430	215	2	200	230

。

GROUP BY

```
SELECT CustomerId,
       SUM(TotalCost) AS Total,
```

```
       AVG(TotalCost) AS Avg,
       COUNT(TotalCost) AS Count,
       MIN(TotalCost) AS Min,
       MAX(TotalCost)  AS Max
  FROM CarsTable
 WHERE Status = 'READY'
GROUP BY CustomerId
```

。 。

```
SELECT item_id, sale_Date
       SUM(quantity * price) OVER(PARTITION BY item_id ORDER BY sale_Date ROWS BETWEEN
UNBOUNDED PRECEDING) AS SalesTotal
  FROM SalesTable
```

。Id。

```
SELECT MostRecentBook.Name, MostRecentBook.Title
FROM ( SELECT Authors.Name,
              Books.Title,
              RANK() OVER (PARTITION BY Authors.Id ORDER BY Books.Id DESC) AS NewestRank
       FROM Authors
       JOIN Books ON Books.AuthorId = Authors.Id
     ) MostRecentBook
WHERE MostRecentBook.NewestRank = 1
```

RANK。。

- `RANK()`
- `DENSE_RANK()`
- `ROW_NUMBER()` “”

CreationDate

```
SELECT Authors.Name,
       Books.Title,
       Books.CreationDate,
       RANK() OVER (PARTITION BY Authors.Id ORDER BY Books.CreationDate DESC) AS RANK,
       DENSE_RANK() OVER (PARTITION BY Authors.Id ORDER BY Books.CreationDate DESC) AS
DENSE_RANK,
       ROW_NUMBER() OVER (PARTITION BY Authors.Id ORDER BY Books.CreationDate DESC) AS
ROW_NUMBER,
FROM Authors
JOIN Books ON Books.AuthorId = Authors.Id
```

				DENSE_RANK	ROW_NUMBER
1	1	22/07/2016	1	1	1
1	2	22/07/2016	1	1	2
1	3	21/07/2016	3	2	3

				DENSE_RANK	ROW_NUMBER
1	4	21/07/2016	3	2	4
1	5	21/07/2016	3	2	
1	6	201647	6	3	6
2	7	201647	1	1	1

NTILE

◦

```
-- Setup data:
declare @values table(Id int identity(1,1) primary key, [Value] float, ExamId int)
insert into @values ([Value], ExamId) values
(65, 1), (40, 1), (99, 1), (100, 1), (90, 1), -- Exam 1 Scores
(91, 2), (88, 2), (83, 2), (91, 2), (78, 2), (67, 2), (77, 2) -- Exam 2 Scores

-- Separate into four buckets per exam:
select ExamId,
       ntile(4) over (partition by ExamId order by [Value] desc) as Quartile,
       Value, Id
from @values
order by ExamId, Quartile
```

	ExamId	Quartile	Value	Id
1	1	1	100	4
2	1	1	99	3
3	1	2	90	5
4	1	3	65	1
5	1	4	40	2
6	2	1	91	9
7	2	1	91	6
8	2	2	88	7
9	2	2	83	8
10	2	3	78	10
11	2	3	77	12
12	2	4	67	11

ntile◦ ntile(100)◦

https://riptutorial.com/zh-TW/sql-server/topic/353/

106:

Examples

SQL Server 2012

。

。 NULL。

TRY_PARSEstring_value AS data_type [USING culture]

String_value - NVARCHAR4000。
Data_type - 。
- 。 “Fr-FR”。 PARSE。

```
DECLARE @fakeDate AS varchar(10);
DECLARE @realDate AS VARCHAR(10);
SET @fakeDate = 'iamnotadate';
SET @realDate = '13/09/2015';

SELECT TRY_PARSE(@fakeDate AS DATE); --NULL  as the parsing fails

SELECT TRY_PARSE(@realDate AS DATE); -- NULL due to type mismatch

SELECT TRY_PARSE(@realDate AS DATE USING 'Fr-FR'); -- 2015-09-13
```

SQL Server 2012

NULL。/。 。

TRY_CONVERTdata_type [length]expression [style]

TRY_CONVERT;null。

Data_type - 。 length。
-
- 。 “May18 2013”111。

```
DECLARE @sampletext AS VARCHAR(10);
SET @sampletext = '123456';
DECLARE @ realDate AS VARCHAR(10);
SET @realDate = '13/09/2015’;
SELECT TRY_CONVERT(INT, @sampletext); -- 123456
SELECT TRY_CONVERT(DATETIME, @sampletext); -- NULL
SELECT TRY_CONVERT(DATETIME, @realDate, 111); -- Sep, 13 2015
```

SQL Server 2012

NULL。/。。

TRY_CASTAS data_type []

TRY_CAST;null。

- 。
Data_type - 。
- 。

```
DECLARE @sampletext AS VARCHAR(10);
SET @sampletext = '123456';

SELECT TRY_CAST(@sampletext AS INT); -- 123456
SELECT TRY_CAST(@sampletext AS DATE); -- NULL
```

Cast。

CAST[Expression] AS

。。

```
DECLARE @A varchar(2)
DECLARE @B varchar(2)

set @A='25a'
set @B='15'

Select CAST(@A as int) + CAST(@B as int)  as Result
--'25a' is casted to 25 (string to int)
--'15' is casted to 15 (string to int)

--Result
 --40

DECLARE @C varchar(2)  = 'a'

select CAST(@C as int) as Result
--Result
 --Conversion failed when converting the varchar value 'a' to data type int.
```

varchar。 Convert。 CONVERT/。

CONVERTdata_type

- datetimesmalldatetime。 100yyyy。

```
select convert(varchar(20),GETDATE(),108)

13:27:16
```

https://riptutorial.com/zh-TW/sql-server/topic/5034/

107: ...

Examples

ID			
1	2		100
1	3	2	200
1	4	1	500
2	1	4	50
3		6	700

。

```
SELECT customerId
FROM orders
GROUP BY customerId;
```

ID
1
2
3

`count()`

```
SELECT customerId,
       COUNT(productId) as numberOfProducts,
       sum(price) as totalPrice
FROM orders
GROUP BY customerId;
```

ID	numberOfProducts	totalPrice
1	3	800
2	1	50
3	1	700

GROUP BY

GROUP BY

```
declare @temp table(age int, name varchar(15))

insert into @temp
select 18, 'matt' union all
select 21, 'matt' union all
select 21, 'matt' union all
select 18, 'luke' union all
select 18, 'luke' union all
select 21, 'luke' union all
select 18, 'luke' union all
select 21, 'luke'

SELECT Age, Name, count(1) count
FROM @temp
GROUP BY Age, Name
```

18		3
21		2
18		1
21		2

Group byjoin。。

ID		
1		20
2		21
3		18

Subject_Id	
1	
2	PE
3	

NN“”。Students_subjects

Subject_Id	
1	1
2	2
2	1
3	2
1	3
1	1

◦ GROUP BY◦ GROUP BYJOIN

```
Select Students.FullName, COUNT(Subject Id) as SubjectNumber FROM Students_Subjects
LEFT JOIN Students
ON Students_Subjects.Student_id = Students.Id
GROUP BY Students.FullName
```

	SubjectNumber
	3
	2
	1

GROUP BYStudents_Subjects◦ GROUPing

```
SELECT Students.FullName, Subjects.Subject,
COUNT(Students_subjects.Subject_id) AS NumberOfOrders
FROM ((Students_Subjects
INNER JOIN Students
ON Students_Subjcets.Student_id=Students.Id)
INNER JOIN Subjects
ON Students_Subjects.Subject_id=Subjects.Subject_id)
GROUP BY Fullname,Subject
```

		SubjectNumber
		2
	PE	1
	PE	1
		1
		1

HAVING

GROUP BYWHEREWHERECOUNT(*) ◦ HAVING◦

```
DECLARE @orders TABLE(OrderID INT, Name NVARCHAR(100))

INSERT INTO @orders VALUES
( 1, 'Matt' ),
( 2, 'John' ),
( 3, 'Matt' ),
( 4, 'Luke' ),
( 5, 'John' ),
( 6, 'Luke' ),
( 7, 'John' ),
( 8, 'John' ),
( 9, 'Luke' ),
( 10, 'John' ),
( 11, 'Luke' )
```

```
SELECT Name, COUNT(*) AS 'Orders'
FROM @orders
GROUP BY Name
```

2	
4	

HAVING◦

```
SELECT Name, COUNT(*) AS 'Orders'
FROM @orders
GROUP BY Name
HAVING COUNT(*) > 2
```

4	

GROUP BY HAVINGSELECT◦

```
SELECT Name, COUNT(DISTINCT OrderID)
```

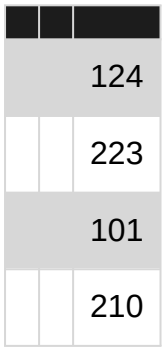
HAVING

```
HAVING COUNT(DISTINCT OrderID) > 2
```

GROUP BYROLLUPCUBE

ROLLUP。

- CUBE。
- ROLLUP。




```
SELECT CASE WHEN (GROUPING(Item) = 1) THEN 'ALL'
            ELSE ISNULL(Item, 'UNKNOWN')
       END AS Item,
       CASE WHEN (GROUPING(Color) = 1) THEN 'ALL'
            ELSE ISNULL(Color, 'UNKNOWN')
       END AS Color,
       SUM(Quantity) AS QtySum
FROM Inventory
GROUP BY Item, Color WITH ROLLUP

Item                 Color                QtySum
-------------------- -------------------- ---------------------------
Chair                Blue                 101.00
Chair                Red                  210.00
Chair                ALL                  311.00
Table                Blue                 124.00
Table                Red                  223.00
Table                ALL                  347.00
ALL                  ALL                  658.00
```

7

ROLLUPCUBECUBE

```
ALL                  Blue                 225.00
ALL                  Red                  433.00
```

https://technet.microsoft.com/en-us/library/ms189305(v=sql.90).aspx

... https://riptutorial.com/zh-TW/sql-server/topic/3231/---

108: SQL Server Evolution2000 - 2016

2004SQL Server。2000SQL Server 2016.SQL。Google。。200020

Examples

SQL Server 2000 - 2016

SQL Server 2000

1. BIGINTSQL_VARIANTTABLE
2. DDL。
3. 。
4. XML
5. 。
6. 。

2005

1. “WITH TIES”TOP。
2. DMLOUTPUTINSERTEDDELETED
3. PIVOTUNPIVOT。
4. TRY / CATCH
5.
6. CTE
7. .NET
8. Service Broker
9.
10. SMTP
11. HTTPT-SQLInternet
12. MARS。。
13. SQL Server Integration ServicesETL
14. Analysis ServicesReporting Services。
15. 。 PARTITION FUNCTIONPARTITION SCHEME。

2008

1. DATETIME
2. - SYSUTCDATETIMESYSDATETIMEOFFSET
3. -。
4. 2 GB
5.
6. INSERTUPDATEDELETEMERGE
7. HierarchyID
8. -。
9.

GROUPING SETS - GROUP BY。
10. FILESTREAM

2008 R2

1. PowerPivot - 。
2. Report Builder 3.0
3.
4. StreamInsight
5.
6. SharePoint
7. DACPAC
8. SQL Server 2008

2012

1. - I / O。
2. - “OFFSET”“FETCH”。
3. - 。
4. AlwaysOn
5. Windows Server Core
6.
7.
8. PowerView
9. SQL Azure
10. SSAS
11. DQS
12. - 2008FILESTREAM。
13. THROW
14. SQL Server Management Studioa。 SQL Server 2012。
C。 IntelliSense - 。

2014

1. OLTP - 20。
2. AlwaysOn
3.
4.
5.
6. SELECT INTO
7. Office 365Power BI
8.
9.

2016

1. - 。
2.
3. PolyBaseSQL Server
4.

JSON
5.
6. AlwaysOn
7. OLTP
8. TempDB
9.
10.
11.

SQL Server 2016T-SQL

1. TRUNCATE TABLE with PARTITION
2. DROP IF EXISTS
3. STRING_SPLITSTRING_ESCAPE
4. ALTER TABLEWITHONLINE = ON | OFF。
5. MAXDOPDBCC CHECKDBDBCC CHECKTABLEDBCC CHECKFILEGROUP
6. ALTER DATABASEAUTOGROW_SINGLE_FILE
7. ALTER DATABASEAUTOGROW_ALL_FILES
8. COMPRESSDECOMPRESS
9. FORMATMESSAGE
10. 2016SERVERPROPERTY8

。InstanceDefaultDataPath

InstanceDefaultLogPath

C。ProductBuild

d。ProductBuildType

ProductMajorVersion

F。ProductMinorVersion

G。ProductUpdateLevel

H。ProductUpdateReference

SQL Server Evolution2000 - 2016 https://riptutorial.com/zh-TW/sql-server/topic/10129/sql-server-evolution-2000-----2016-

109:

Examples

SQL Server 2012

◦ indexvaluesNULL ◦

1. index values ◦ 1◦
2. values

```
SELECT CHOOSE (1, 'apples', 'pears', 'oranges', 'bananas') AS chosen_result

chosen_result
-------------
apples
```

IIF

SQL Server 2012

truefalse◦

1. boolean_expression
2. boolean_expressiontrue true_valueboolean_expression
3. boolean_expressionfalse false_valueboolean_expression

```
SELECT IIF (42 > 23, 'I knew that!', 'That is not true.') AS iif_result

iif_result
------------
I knew that!
```

SQL Server 2012

IIFCASE◦

```
SELECT CASE WHEN 42 > 23 THEN 'I knew that!' ELSE 'That is not true.' END AS iif_result

iif_result
------------
I knew that!
```

https://riptutorial.com/zh-TW/sql-server/topic/10647/

110:

◦ SQL ServerTOPOFFSET FETCH◦

TOP	◦ ◦
PERCENT	◦ TOP◦

ORDER BY◦

Examples

TOP

SELECT100◦

```
SELECT TOP 100 *
FROM table_name;
```

```
DECLARE @CountDesiredRows int = 100;
SELECT TOP (@CountDesiredRows) *
FROM table_name;
```

PERCENT

SELECT15◦

```
SELECT TOP 15 PERCENT *
FROM table_name
```

FETCH

SQL Server 2012

FETCHTOP

```
SELECT *
FROM table_name
ORDER BY 1
OFFSET 0 ROWS
FETCH NEXT 50 ROWS ONLY
```

https://riptutorial.com/zh-TW/sql-server/topic/1555/

111:

- “”

Examples

```
SET TRANSACTION ISOLATION LEVEL READ UNCOMMITTED;
SELECT * FROM Products WHERE ProductId=1;
SET TRANSACTION ISOLATION LEVEL REPEATABLE READ; --return to the default one
```

1. READ UNCOMMITTED - - ◦

2. REPEATABLE READ - - NONREPEATABLE◦ NEW ROWSwhere◦

3. SNAPSHOT - ◦ ◦ ◦ - DB

```
ALTER DATABASE DBTestName SET ALLOW_SNAPSHOT_ISOLATION ON;GO;
SET TRANSACTION ISOLATION LEVEL SNAPSHOT;
```

4. READ COMMITTED - SQL◦ ◦ ◦ READ_COMMITTED_SNAPSHOT - - ◦ -

```
ALTER DATABASE DBTestName SET ALLOW_SNAPSHOT_ISOLATION ON;GO;
SET TRANSACTION ISOLATION LEVEL READ COMMITTED; --return to the default one
```

5. SERIALIZABLE - ◦ DataBase◦

```
SET TRANSACTION ISOLATION LEVEL SERIALIZABLE ;
```

https://riptutorial.com/zh-TW/sql-server/topic/5331/

112:

SQL ServerSQL Server。。。 SQL Server。

Examples

- sp_add_job

```
USE msdb ;
GO
EXEC dbo.sp_add_job
@job_name = N'Weekly Job' ;  -- the job name
```

- sp_add_jobStep

```
EXEC sp_add_jobstep
@job_name = N'Weekly Job',  -- Job name to add a step
@step_name = N'Set database to read only',  -- step name
@subsystem = N'TSQL',  -- Step type
@command = N'ALTER DATABASE SALES SET READ_ONLY',   -- Command
@retry_attempts = 5,  --Number of attempts
@retry_interval = 5 ; -- in minutes
```

-
```
EXEC dbo.sp_add_jobserver
@job_name = N'Weekly Sales Data Backup',
@server_name = 'MyPC\data;   -- Default is LOCAL
GO
```

SQL

sp_add_schedule

```
USE msdb
GO

EXEC sp_add_schedule
    @schedule_name = N'NightlyJobs' ,  -- specify the schedule name
    @freq_type = 4,   -- A value indicating when a job is to be executed (4) means Daily
    @freq_interval = 1,  -- The days that a job is executed and depends on the value of
`freq_type`.
    @active_start_time = 010000 ;   -- The time on which execution of a job can begin
GO
```

sp_add_schedule。

JOB

SQLsp_attach_schedule

```
-- attaches the schedule to the job BackupDatabase
EXEC sp_attach_schedule
```

```
   @job_name = N'BackupDatabase',  -- The job name to attach with
   @schedule_name = N'NightlyJobs' ;  -- The schedule name
GO
```

https://riptutorial.com/zh-TW/sql-server/topic/5329/

113:

Examples

```
Exec sp_configure 'show advanced options' ,1
RECONFIGURE
GO
-- Show all configure
sp_configure
```

```
Exec sp_configure 'backup compression default',1
GO
RECONFIGURE;
```

```
sp_configure 'fill factor', 100;
GO
RECONFIGURE;
```

。

```
USE master;
GO
-- Set recovery every 3 min
EXEC sp_configure 'recovery interval', '3';
RECONFIGURE WITH OVERRIDE;
```

cmd

```
EXEC sp_configure 'xp_cmdshell', 1
GO
RECONFIGURE
```

```
USE master
EXEC sp_configure 'max server memory (MB)', 64
RECONFIGURE WITH OVERRIDE
```

```
EXEC sp_configure "number of checkpoint tasks", 4
```

https://riptutorial.com/zh-TW/sql-server/topic/5185/

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3	BULK	Jovan MSFT
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12	PARSENAME	Mani
13	PHANTOM	Max
14	PIVOT / UNPIVOT	Athafoud, bluefeet, DhruvJoshi, kolunar
15	SCOPE_IDENTITY	Dheeraj Kumar
16	SELECT	cteski, Jovan MSFT

17	SQL Server Management Studio SSMS	dd4711
18	Sql ServerJSON	Jovan MSFT, Mono
19	Sql ServerSplit String	Jibin Balachandran, Jovan MSFT, MasterBob, Pரதீ ப், RamenChef
20	Sql Server	Pரதீ ப்
21	SQL Server	Kannan Kandasamy
22	SQLCMD	Eugene Niemand, Techie
23	STUFF	Arthur D, bluefeet, Chetan Sanghani, dacohenii, Kiran Ukande, Luis Bosquez, MrE, user1690166
24	WHILE	lord5et, Matas Vaitkevicius, podiluska, RamenChef, Wojciech Kazior
25		Kritner
26		Phrancis
27		Hamza Rabah, Jovan MSFT, Tom V
28		Metanormal
29	JSON	bakedpatato, James, Jovan MSFT
30	SQLCMDtxt	sheraz mirza
31	TEMP	APH, New
32	JSON	Jovan MSFT
33		Jones Joseph, Jovan MSFT
34	OLTPHekaton	Akshay Anand, Behzad, Brandon, Jovan MSFT, Martijn Pieters
35		Edathadan Chief aka Arun
36		Jovan MSFT
37		Dan Guzman, James Anderson, John Odom, Susang
38		DForck42
39		cteski, Jovan MSFT, Sender

40		Ignas, Jakub Ojmucianski, Justin Rohr, Max, scsimon
41		Almir Vuk, cteski, Edathadan Chief aka Arun, Hadi, Josh B, Robert Columbia, Tot Zam
42		bassrek
43		4444, Akshay Anand, Andy, APH, Bino Mathew Varghese, cteski, Dean Ward, DhruvJoshi, Dileep, Gajendra, HK1, Iztoksson, Jeffrey Van Laethem, Joao Araujo, JonH, L J, Lamak , Laughing Vergil, LowlyDBA, mtb, Nikolay Kostov, OzrenTkalcecKrznaric, Phrancis, Ram Grandhi, SqlZim
44		Rubenisme
45	SQL	Jovan MSFT
46	SQL Pivot	Jesse
47		Jovan MSFT
48		Bharat Prasad Satyal, Edathadan Chief aka Arun, Karthikeyan, Matej, scsimon, Tab Alleman
49	SQLJSON	Ed Harper, Jovan MSFT, RamenChef
50	WindowsSQL Server	Luis Bosquez
51		Nick.McDermaid
52		Jovan MSFT
53		cteski, M.Ali, RamenChef
54		cnayak
55		A_Arnold, anon, cteski, FoxyBOA, Hadi, hatchet, Igor Micev, Jibin Balachandran, Jovan MSFT, mtb, Phrancis, Raidri, Ricardo C, Ross Presser, takrl, Zohar Peled
56		Bino Mathew Varghese, cnayak, cteski, Erik Oppedijk, Eugene Niemand, Hari K M, Jayasurya Satheesh, Matas Vaitkevicius, Nathan Skerl, Pirate X, scsimon
57	JSON	James, Jovan MSFT
58		Arif, bbrown, cteski, DForck42, Jeffrey Van Laethem, Jovan MSFT, kafka, Keith Hall, Monty Wild, SQLMason
59		Josh Morel

60		Ahmad Aghazadeh, Akshay Anand, cteski, Henrik Staun Poulsen, Martin Smith, Tom V
61		Pat
62		cteski, kolunar, New
63	/	APH, OzrenTkalcecKrznaric
64		Abubakar Riaz, barcanoj, DVJex, Hari K M, intox, martinshort, Matas Vaitkevicius, Max, Michael Stum, n00b, Piotr Nawrot, Robert Columbia, Tot Zam, woony
65		Akash, Daryl, Jovan MSFT, Wolfgang
66		Ben Thul
67		Laughing Vergil, Matas Vaitkevicius
68		Behzad
69		A_Arnold, Adam Porad, Akshay Anand, Bellash, cteski, Edathadan Chief aka Arun, JamieA, Jared Hooper, Kritner, Lamak, Mert Gülsoy, Nick, Phrancis, SHD, Siyual, Soukai, UnhandledExcepSean, Zohar Peled
70		Ahmad Aghazadeh, Akshay Anand, Ben O, Mspaja
71		Jeffrey Van Laethem, sqluser, Tot Zam
72		Ken S., Matej, RamenChef
73	Hekaton	bakedpatato, Jovan MSFT
74		Merenix
75		Benjamin Hodgson, Daniel Lemke, Max
76		bakedpatato, Jovan MSFT
77		cteski, DARKOCEAN, Jovan MSFT, user_0
78		Bino Mathew Varghese, feetwet, James Anderson, Kritner, LowlyDBA, S.Karras, scsimon
79		Andrea, Anuj Tripathi, Baodad, Brent Ozar, dario, feetwet, James Anderson, JamieA, Jasmin Solanki, Jeffrey Van Laethem, jyao, Kritner, Laughing Vergil, LowlyDBA, Mahendra, Moshiour, Phrancis, Rhumborl, scsimon, Shiva, spaghettidba, Tot Zam, TZHX, Umachandar - Microsoft

80		5arx
81		Kane, Phrancis
82		Oluwafemi
83		James, Siyual
84		Jivan, Zohar Peled
85		Matas Vaitkevicius
86		Amir Pourmand, Hadi, Kannan Kandasamy, Kritner, Laughing Vergil, podiluska, Sean Branchaw, Zohar Peled
87		cteski, Neil Kennedy, RamenChef, Vladimir Oselsky
88		andyabel, feetwet, MarmiK
89	Azure SQL	Jovan MSFT
90	- TempDb	Anuj Tripathi, RamenChef
91		Akshay Anand, cnayak, cteski, Jeffrey L Whitledge, Joe Taras, Vexator
92	COLUMNSTORE	Jovan MSFT
93		cnayak
94		TheGameiswar
95		Carsten Hynne, Jovan MSFT
96		Zohar Peled
97		Oluwafemi, The_Outsider, Zohar Peled
98		APH, beercohol, cteski, Gidil, RamenChef
99		cnayak, Kannan Kandasamy
100		Jovan MSFT, ravindra, Uberzen1
101		APH, Keith Hall, Phrancis
102		Ako, RamenChef
103		Athafoud, bluefeet, Brandon, DVT, gofr1, Lamak, Paul Bambury , RamenChef, Rowland Shaw, Sam
104		Ben O, Edathadan Chief aka Arun

105	...	Andy, Edathadan Chief aka Arun, Jenism, juergen d, Julien Vavasseur, Kiran Ukande, Matas Vaitkevicius, ShlomiR
106	SQL Server Evolution2000 - 2016	Dan Guzman, M.Ali
107		dd4711
108		alalp, chrisb, cteski, ErikE
109		RamenChef, sqlandmore.com
110		Edathadan Chief aka Arun, Hadi
111		Ahmad Aghazadeh