

T-SQL Cursors

www.tsq.info

In this chapter you can learn how to work with cursors using operations like declare cursor, create procedure, fetch, delete, update, close, set, deallocate.

Cursor operations

- Declare cursor
- Create procedure
- Open cursor
- Close cursor
- Fetch cursor
- Deallocate cursor
- Delete
- Update

Declare cursors

Declare cursor Syntax:

```
DECLARE cursor_name CURSOR [ LOCAL | GLOBAL ]  
[ FORWARD_ONLY | SCROLL ]  
[ STATIC | KEYSSET | DYNAMIC | FAST_FORWARD ]  
[ READ_ONLY | SCROLL_LOCKS | OPTIMISTIC ]  
[ TYPE_WARNING ]  
FOR select_query_statement  
[ FOR UPDATE [ OF column_name [ ,...n ] ] ] ;
```

Declare simple cursor example:

```
DECLARE product_cursor CURSOR  
FOR SELECT * FROM model.dbo.products;  
OPEN product_cursor  
FETCH NEXT FROM product_cursor;
```

Create procedure

Create procedure example:

```
USE model;
GO
IF OBJECT_ID ( 'dbo.productProc', 'P' ) IS NOT NULL
  DROP PROCEDURE dbo.productProc;
GO
CREATE PROCEDURE dbo.productProc
  @varCursor CURSOR VARYING OUTPUT
AS
  SET NOCOUNT ON;
  SET @varCursor = CURSOR
  FORWARD_ONLY STATIC FOR
  SELECT product_id, product_name
  FROM dbo.products;
  OPEN @varCursor;
GO
```

Open cursors

Open cursor Syntax:

```
OPEN { { cursor_name } | cursor_variable_name }
```

Open cursor example:

```
USE model;
GO
DECLARE Student_Cursor CURSOR FOR
SELECT id, first_name, last_name, country
FROM dbo.students WHERE country != 'US';
OPEN Student_Cursor;
FETCH NEXT FROM Student_Cursor;
WHILE @@FETCH_STATUS = 0
  BEGIN
  FETCH NEXT FROM Student_Cursor;
  END;
CLOSE Student_Cursor;
```

```
DEALLOCATE Student_Cursor;
GO
```

Close cursors

Close cursor Syntax:

```
CLOSE { { cursor_name } | cursor_variable_name }
```

Close cursor example:

```
USE model;
GO
DECLARE Student_Cursor CURSOR FOR
SELECT ID, FIRST_NAME FROM dbo.students;
OPEN Student_Cursor;
FETCH NEXT FROM Student_Cursor;
WHILE @@FETCH_STATUS = 0
BEGIN
    FETCH NEXT FROM Student_Cursor;
END;
CLOSE Student_Cursor;
DEALLOCATE Student_Cursor;
GO
```

Fetch cursors

Fetch cursor Syntax:

```
FETCH
[ NEXT | PRIOR | FIRST | LAST
| ABSOLUTE { n | @nvar }
| RELATIVE { n | @nvar }
]
FROM
{ { cursor_name } | @cursor_variable_name }
[ INTO @variable_name [ ,...n ] ] ;
```

Fetch in cursors example:

```
USE model;
GO
DECLARE Student_Cursor CURSOR FOR
SELECT id, first_name, last_name, country
FROM dbo.students WHERE country = 'US';
OPEN Student_Cursor;
FETCH NEXT FROM Student_Cursor;
WHILE @@FETCH_STATUS = 0
BEGIN
FETCH NEXT FROM Student_Cursor;
END;
CLOSE Student_Cursor;
DEALLOCATE Student_Cursor;
GO
```

Deallocate cursors

When the cursor is deallocated, the data structures comprising the cursor are released by Microsoft SQL Server.

Deallocate cursor Syntax:

```
DEALLOCATE { { cursor_name } | cursor_variable_name }
```

Deallocate cursor example:

```
USE model;
GO
DECLARE @CursorName CURSOR
SET @CursorName = CURSOR LOCAL SCROLL FOR
SELECT * FROM dbo.students;
```

```
DEALLOCATE @CursorName;
```

```
SET @CursorName = CURSOR LOCAL SCROLL FOR
SELECT * FROM dbo.students;
GO
```

Delete in cursors

Delete in cursors example:

```
USE model;
GO
DECLARE MyCursor CURSOR FOR
SELECT *
FROM dbo.students
WHERE first_name = 'David' AND last_name = 'BROWN' AND id = 6 ;
OPEN MyCursor;
FETCH FROM MyCursor;
DELETE FROM dbo.students WHERE CURRENT OF MyCursor;
CLOSE MyCursor;
DEALLOCATE MyCursor;
GO
```

Update in cursors

Update in cursors example:

```
USE model;
GO
DECLARE test_cursor CURSOR LOCAL FOR
SELECT id, first_name, last_name, section
FROM dbo.students WHERE id = 2;
OPEN test_cursor;
FETCH test_cursor;
UPDATE dbo.students
SET section = 'Medicine'
FROM dbo.students
WHERE CURRENT OF test_cursor;
GO

SELECT id, first_name, last_name, section FROM dbo.students;
GO
```

Resources:

www.tsql.info/cursors/cursors.php