

Scalar UDF Inlining not working due to UDF complexity

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Issue

Poor performance of an UDF. Apparently UDF Inlining is not working.

Investigation/Analysis

First we need to understand what is UDF Inlining. We public documentation that explains this - [Scalar UDF Inlining](#) [☞].

In short, UDF inlining allows to overcome some of the performance issues that are associated with Scalar UDFs like serial execution.

UDF Inlining can be enabled by issuing the ALTER DATABASE command

```
ALTER DATABASE SCOPED CONFIGURATION SET TSQL_SCALAR_UDF_INLINING = ON;
```

Note that the database must be on Compatibility level 150.

to check if UDF Inlining is enabled, run:

```
select * from sys.database_scoped_configurations  
where name = 'TSQL_SCALAR_UDF_INLINING'
```

If enabled, the column value should be as 1. Note also that for the compatibility level 150 the value is 1 by default. In other words, Scalar UDF Inlining is enabled by default.

Now, even with Scalar UDF Inlining enabled, Inlining can be not possible. We have this documented [here](#) [☞]. Also check the [requirements](#) [☞]

Like mentioned [here](#) [☞] = "If a scalar UDF is inlineable, it doesn't imply that it will always be inlined. SQL Server will decide (on a per-query, per-UDF basis) whether to inline a UDF or not."

This is true for various reasons as documented, but also if the number of nodes (number of tree nodes on the UDF) is large.

We can see this on telemetry

```
MonQueryProcessing
| where LogicalServerName == "{ServerName}"
| where event == "tsql_scalar_udf_not_inlineable"
| where udf_name contains "{UDFName}"
| distinct blocked_reason, udf_name, object_id
| join (MonQueryProcessing
| where LogicalServerName == "{ServerName}" and event == "tsql_scalar_udf_inlining_threshold"
| where threshold_type == "UdfInlineNodesLimit"
| distinct object_id, threshold_type, value) on object_id
```

The customer can check the function inlining not being applied on the [execution plan](#) 

Mitigation

Simplify UDF. UDF inlining is dynamic and in some cases can not occur.

Internal Reference

[314612363](#) 

How good have you found this content?



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