

# SQL SERVER Performance Tuning Notes

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## Estimated Execution Plan or Actual Execution Plan?

Let's go through some of the differences given below-

Estimated Execution Plan	Actual Execution Plan
In this case you will not observe results tab.	In this case you will observe results tab.
They are good for long running queries.	They are not useful if your query is taking too much of time. Although we can run our queries for hours but that will kill out your time. So it depends on you which one to choose i.e. actual or estimated. In most of the case people use estimated if the query is taking too long time.
They are created without running the queries.	They are created when actual query runs.
They use statistics to get execution plan. Means they are based on statistical understanding of data. May not be correct every time.  For example multi valued table variable will always give you 1 as the estimated number of rows. In 2014 they have upgraded it to 100 rows. They may produce bad plans if the statistics are not up to date.	They are created using real data.

Example of Estimated Execution Plan-

SELECT TOP 10 \* FROM [HumanResources].[Employee]

100 %

Messages Execution plan

Query 1: Query cost (relative to the batch): 100%  
SELECT TOP 10 \* FROM [HumanResources].[Employee]

**Clustered Index Scan (Clustered)**  
Scanning a clustered index, entirely or only a range.

Physical Operation	Clustered Index Scan
Logical Operation	Clustered Index Scan
Estimated Execution Mode	Row
Storage	RowStore
Estimated Operator Cost	0.0034314 (100%)
Estimated I/O Cost	0.0075694
Estimated CPU Cost	0.000476
Estimated Subtree Cost	0.0034314
Estimated Number of Executions	1
Estimated Number of Rows	10
Estimated Row Size	828 B
Ordered	False
Node ID	3

Object  
[AdventureWorks2014].[HumanResources].[Employee].  
[PK\_Employee\_BusinessEntityID]

Estimated plan only contains bunch of estimates **Don't look at cost. Cost is by large meaning less. Stop focusing on this. Cost is not an actual thing.**

Example of Actual Execution Plan-

SELECT TOP 10 \* FROM [HumanResources].[Employee]

100 %

Results Messages Execution plan

Query 1: Query cost (relative to the batch): 100%  
SELECT TOP 10 \* FROM [HumanResources].[Employee]

**Clustered Index Scan (Clustered)**  
Scanning a clustered index, entirely or only a range.

Physical Operation	Clustered Index Scan
Logical Operation	Clustered Index Scan
Actual Execution Mode	Row
Estimated Execution Mode	Row
Storage	RowStore
Actual Number of Rows	10
Actual Number of Batches	0
Estimated I/O Cost	0.0075694
Estimated Operator Cost	0.0034314 (100%)
Estimated CPU Cost	0.000476
Estimated Subtree Cost	0.0034314
Number of Executions	1
Estimated Number of Executions	1
Estimated Number of Rows	10
Estimated Row Size	828 B
Actual Rebinds	0
Actual Rewinds	0
Ordered	False
Node ID	3

Object  
[AdventureWorks2014].[HumanResources].[Employee].  
[PK\_Employee\_BusinessEntityID]

This contains actuals as well as estimates. Most important this is actual no of rows, estimated no rows and number of executions. There are others as well.

Query executed successfully.