

# Finding and Using Wait Statistics in Query Store

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# Module Overview



Using wait statistics historically

Wait statistics data and Query Store

Viewing wait statistics in Query Store





A “wait” in SQL Server occurs when a thread needs a resource but that resource is unavailable

The resource the thread is waiting for is tracked in SQL Server



# Wait Statistics in SQL Server

`sys.dm_os_wait_stats`

`sys.dm_os_waiting_tasks`

`sys.dm_exec_session_wait_stats`





The `sys.dm_os_wait_stats` DMV lists aggregated wait statistics for all wait types

Provides “what has happened in the past”





The `sys.dm_os_waiting_tasks` DMV lists all threads currently waiting

Provides “what is happening *right now*”



# Enhancements to Wait Statistics

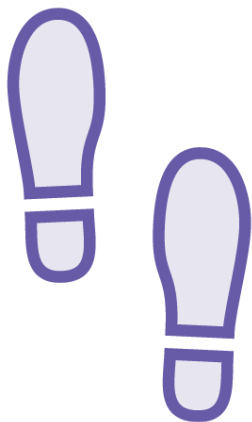


**Session-level wait statistics in SQL Server 2016 via `sys.dm_exec_session_wait_stats`**

**Wait statistics added to the actual execution plan in SQL Server 2016 SP1**



# Wait Statistics and Query Store



Tracked per query  
plan over time



Grouped into  
categories



Category and wait  
time captured





# Wait Statistics Categories

## Wait Category

## Wait types included

CPU

SOS\_SCHEDULER\_YIELD

Buffer I/O

PAGEIOLATCH%

Parallelism

CXPACKET, EXECSYNC

Lock

LCK\_M\_%

Buffer Latch

PAGELATCH\_%

Network I/O

ASYNC\_NETWORK\_IO, ...

Other Disk I/O

ASYNC\_IO\_COMPLETION, ...

Tran Log I/O

WRITELOG, LOGMGR, LOGBUFFER, ...



# Demo



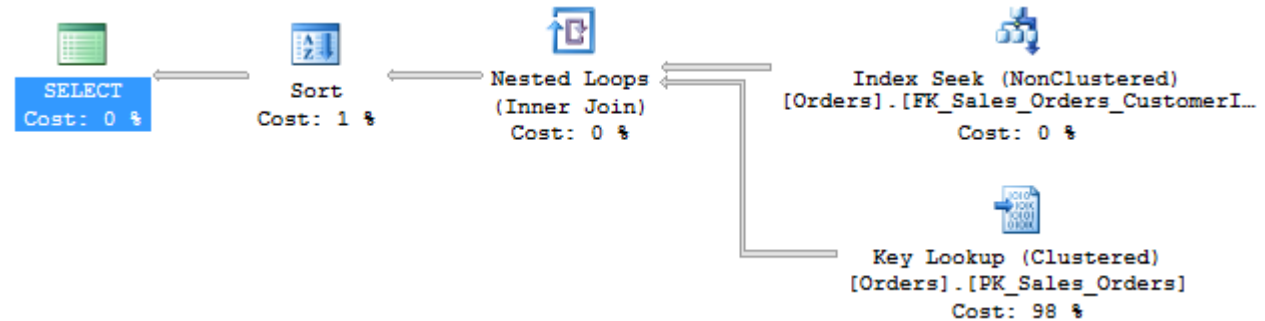
## Using wait statistics in Query Store



# The Relationship Between Plans and Statistics

```
SELECT [OrderID], [OrderDate],  
[CustomerPurchaseOrderNumber]  
FROM [Sales].[Orders]  
WHERE [CustomerID] = @CustID  
ORDER BY [OrderDate];
```

query\_id = 584



plan\_id = 1397

runtime_stats_interval_id	start_time	end_time
2932	2017-12-05 08:00:00.00000000 +00:00	2017-12-05 09:00:00.00000000 +00:00
2933	2017-12-05 09:00:00.00000000 +00:00	2017-12-05 10:00:00.00000000 +00:00
2934	2017-12-05 10:00:00.00000000 +00:00	2017-12-05 11:00:00.00000000 +00:00

sys.query\_store\_runtime\_stats\_interval



runtime_stats_interval_id	start_time	end_time
2932	2017-12-05 08:00:00.00000000 +00:00	2017-12-05 09:00:00.00000000 +00:00
2933	2017-12-05 09:00:00.00000000 +00:00	2017-12-05 10:00:00.00000000 +00:00
2934	2017-12-05 10:00:00.00000000 +00:00	2017-12-05 11:00:00.00000000 +00:00

runtime_stats_interval_id	plan_id	count_executions	avg_duration	last_duration	max_duration	min_duration
2932	1397	432	621	589	912	303
2933	1397	581	493	350	816	291
2934	1397	634	587	502	865	447

runtime_stats_interval_id	plan_id	wait_category_desc	Total_query_wait_time_ms	Avg_query_wait_time_ms
2932	1397	CPU	234	35
2932	1397	Buffer IO	1305	24
2932	1397	Parallelism	21846	158
2932	1397	Other Disk IO	124	8



# What We Covered



**Using wait statistics historically**

**Wait statistics data and Query Store**

**Viewing wait statistics in Query Store**

