## Cached Query Plans

#### sys.dm exec cached plans

Returns a row for each query plan that is cached by SQL Server for faster query execution. You can use this dynamic management view to find cached query plans, cached query text, the amount of memory taken by cached plans, and the reuse count of the cached plans.

#### sys.dm exec sql text

Returns the text of the SQL batch that is identified by the specified sql handle.

#### sys.dm exec query plan stats

Returns the equivalent of the last known actual execution plan for a previously cached guery plan.

#### Queries with CPU times

#### sys.dm exec query stats

Returns aggregate performance statistics for cached query plans in SQL Server. The view contains one row per query statement within the cached plan, and the lifetime of the rows are tied to the plan itself. When a plan is removed from the cache, the corresponding rows are eliminated from this view.

#### sys.dm exec procedure stats

Returns aggregate performance statistics for cached stored procedures. The view returns one row for each cached stored procedure plan, and the lifetime of the row is as long as the stored procedure remains cached. When a stored procedure is removed from the cache, the corresponding row is eliminated from this view.

## Find still running sessions (right now)

#### sys.dm exec requests

Returns information about each request that is executing in SQL Server.

## Current active sessions right now

#### sys.dm exec connections

Returns information about the connections established to this instance of SQL Server and the details of each connection. Returns server wide connection information for SQL Server. Returns current database connection information for SQL Database.

## Data and log I/O usage

#### sys.dm db resource stats (Azure SQL Database)

Returns CPU, I/O, and memory consumption for an Azure SQL Database database or an Azure SQL Managed Instance. One row exists for every 15 seconds, even if there is no activity. Historical data is maintained for approximately one hour.

## <u>sys.resource\_stats</u> (all databases – must be in "master" database in Azure SQL Database when executing it).

Returns CPU usage and storage data for an Azure SQL Database. The data is collected and aggregated within five-minute intervals. For each user database, there is one row for every five-minute reporting window in which there is a change in resource consumption. The data returned includes CPU usage, storage size change, and database SKU modification. Idle databases with no changes may not have rows for every five-minute interval. Historical data is retained for approximately 14 days.

#### sys.server\_resource\_stats (Managed Instance)

Returns CPU usage, IO, and storage data for Azure SQL Managed Instance. The data is collected and aggregated within five-minute intervals. There is one row for every 15 seconds reporting. The data returned includes CPU usage, storage size, IO utilization, and SKU. Historical data is retained for approximately 14 days.

#### sys.elastic pool resource stats (elastic pool databases)

Returns resource usage statistics for all the elastic pools in a SQL Database server. For each elastic pool, there is one row for each 15 second reporting window (four rows per minute). This includes CPU, IO, Log, storage consumption and concurrent request/session utilization by all databases in the pool. This data is retained for 14 days.

#### sys.resource\_usage

Provides hourly summary of resource usage data for user databases in the current server. Historical data is retained for 90 days.

For each user database, there is one row for every hour in continuous fashion. Even if the database was idle during that hour, there is one row, and the usage\_in\_seconds value for that database will be 0. Storage usage and SKU information is rolled up for the hour appropriately.

#### sys.dm user db resource governance

Returns actual configuration and capacity settings used by resource governance mechanisms in the current database or elastic pool.

#### sys.dm os job object

Returns a single row describing the configuration of the job object that manages the SQL Server process, as well as certain resource consumption statistics at the job object level.

A job object is a Windows construct that implements CPU, memory, and IO resource governance at the operating system level.

sys.dm\_io\_virtual\_file\_stats(null, null) -database\_id and file\_id Returns I/O statistics for data and log files.

#### sys.dm\_os\_performance\_counters

Returns a row per performance counter maintained by the server.

## Find long running transactions

#### sys.dm tran active transactions

Returns information about transactions for the instance of SQL Server.

#### Indexes

#### sys.dm db missing index details

Returns detailed information about missing indexes, excluding spatial indexes.

In Azure SQL Database, DMVs cannot expose information that would impact database containment or expose information about other databases the user has access to.

#### sys.dm db missing index group stats

Returns summary information about groups of missing indexes, excluding spatial indexes.

In Azure SQL Database, DMVs cannot expose information that would impact database containment or expose information about other databases the user has access to.

#### sys.dm db missing index groups

This DMV returns information about indexes that are missing in a specific index group, except for spatial indexes.

In Azure SQL Database, DMVs cannot expose information that would impact database containment or expose information about other databases the user has access to.

#### sys.dm db missing index group stats query

Returns information about queries that needed a missing index from groups of missing indexes, excluding spatial indexes. More than one query may be returned per missing index group. One missing index group may have several queries that needed the same index.

In Azure SQL Database, DMVs cannot expose information that would impact database containment or expose information about other databases the user has access to.

#### sys.dm db index physical stats

Returns size and fragmentation information for the data and indexes of the specified table or view in SQL Server.

For an index, one row is returned for each level of the B-tree in each partition.

For a heap, one row is returned for the IN\_ROW\_DATA allocation unit of each partition.

## Tempdb Database

#### sys.dm db session\_space\_usage

Returns the number of pages allocated and deallocated by each session for the database.

Internal objects are only in tempdb.

#### sys.dm\_db\_task\_space\_usage

Returns page allocation and deallocation activity by task for the database.

Internal objects are only in tempdb.

#### Wait stats

#### sys.dm os wait stats

Returns information about all the waits encountered by threads that executed.

You can use this aggregated view to diagnose performance issues with SQL Server and also with specific queries and batches.

sys.dm\_exec\_session\_wait\_stats provides similar information by session.

#### sys.dm db wait stats

Returns information about all the waits encountered by threads that executed during operation. You can use this aggregated view to diagnose performance issues with Azure SQL Database and also with specific queries and batches.

Specific types of wait times during query execution can indicate bottlenecks or stall points within the query. Similarly, high wait times, or wait counts server wide can indicate bottlenecks or hot spots in interaction query interactions within the server instance.

For example, lock waits indicate data contention by queries; page IO latch waits indicate slow IO response times; page latch update waits indicate incorrect file layout.

#### sys.dm os waiting tasks

Returns information about the wait queue of tasks that are waiting on some resource.

## Resource governance

#### sys.dm resource governor resource pools

Returns information about the current resource pool state, the current configuration of resource pools, and resource pool statistics.

#### sys.dm\_resource\_governor\_workload\_groups

Returns workload group statistics and the current in-memory configuration of the workload group

#### **Cached Query Plans**

# SELECT \* FROM sys.dm\_exec\_cached\_plans AS cp CROSS APPLY sys.dm\_exec\_sql\_text(plan\_handle) AS st CROSS APPLY sys.dm\_exec\_query\_plan\_stats(plan\_handle) AS qps;

	bucketid	20114
sys.dm_exec_cached_plans	refcounts	2
	usecounts	2
	size in bytes	704512
	memory_object_address	0x000000000000
	cacheobitype	Compiled Plan
	objtype	Prepared
	plan_handle	0x06000500D33AFA06C01E5EEE4902000001000000000000000000000000000000
sys.	pool_id	NULL
	parent_plan_handle	NULL
	dbid	5
	objectid	NULL
	number	NULL
	encrypted	0
sys.dm_exec_sql_text(plan_handle)	text	[Name], ISNULL(dc.Name, N") AS [DefaultConstraintName], clmns.is_nullable AS [Nullable], CAST(ISNULL(cik.index_column_id, 0) AS bit) AS [InPrimaryKey], clmns.is_identity AS [Identity], usrt.name AS [DataType], ISNULL(baset.name, N") AS [SystemType], CAST(CASE WHEN baset.name IN (N'nchar', N'nvarchar') AND clmns.max_length <> -1 THEN clmns.max_length/2 ELSE clmns.max_length END AS int) AS [Length], CAST(clmns.precision AS int) AS [NumericPrecision], CAST(clmns.scale AS int) AS [NumericScale], ISNULL(xscclmns.name, N") AS [XmlSchemaNamespace], ISNULL(s2clmns.name, N") AS [XmlSchemaNamespaceSchema], ISNULL( (case clmns.is_xml_document when 1 then 2 else 1 end), 0) AS [XmlDocumentConstraint], s1clmns.name AS [DataTypeSchema], clmns.is_computed AS [Computed] FROM sys.all_objects AS udf INNER JOIN sys.all_columns AS clmns ON clmns.object_id=udf.object_id LEFT OUTER JOIN sys.default_constraints as dc ON clmns.default_object_id = dc.object_id LEFT OUTER JOIN sys.indexes AS ik ON ik.object_id = clmns.object_id and 1=ik.is_primary_key LEFT OUTER JOIN sys.index_columns AS cik ON cik.index_id = ik.index_id and cik.column_id = clmns.column_id and cik.object_id = clmns.object_id and 0 = cik.is_included_column LEFT OUTER JOIN sys.types AS usrt ON usrt.user_type_id = clmns.user_type_id = clmns.system_type_id = clmns.system_t
	dbid	5
	objectid	NULL
	number	NULL
<u> </u>	encrypted	0
sys.dm_exec_query_plan_stats(plan_handle)	query_plan	<pre><showplanxml build="15.0.2195.186" version="1.557" xmins="http://schemas.microsoft.com/sqlserver/2004/07/showplan"><batchsequence><batch><statements><stmtsimple 150"="" statementcompid="1" statementid="1" statementsqlhandle="0x0900B185AADD408F8B0AB3555EEAF21EE5ED0000000000000000000000000000000000&lt;/td&gt;&lt;/tr&gt;&lt;tr&gt;&lt;td&gt;&lt;/td&gt;&lt;td&gt;CardinalityEstimationModelVersion=" statementtext="(@_msparam_0 nvarchar(4000),@_msparam_1 nvarchar(4000))SELECT clmns.column_id AS [ID],  ;WHERE (udf.type in ('TF', 'FN', 'IF', 'FS', 'FT'))and(udf.name=@_msparam_0 and SCHEMA_NAME(udf.schema_id)=@_msparam_1) ORDER BY [ID] ASC" statementtype="SELECT"><statementsetoptions ansi_nulls="true" ansi_padding="true" ansi_warnings="true" arithabort="false" concat_null_yields_null="true" numeric_roundabort="false" quoted_identifier="true"></statementsetoptions></stmtsimple></statements></batch></batchsequence></showplanxml></pre>

#### sys.dm exec query stats

Returns aggregate performance statistics for cached query plans in SQL Server.

sql_handle	0x0300FF7FEF1F88F59EF9E3006EAD0000000000000000000000000000000000	
statement_start_offset	928	
statement_end_offset	2896	
plan_generation_num	1	
plan_handle	0x0500FF7FEF1F88F550B0B8F64902000001000000000000000000000000000000	
creation_time	3 Sep 21 00:33:28	
last_execution_time	3 Sep 21 12:34:30	
execution_count	636	
query_hash	0xCA10770CA2F8304A	
query_plan_hash	0x5BF5D968FA8B27FE	
total_rows	636	
last_rows	1	
min_rows	1	
max_rows	1	
statement_sql_handle	NULL	
statement_context_id	NULL	

The following have prefixes of total\_, last\_, min\_ and max\_ For example, total\_worker\_time, last\_worker\_time, min\_worker\_time and max\_worker\_time

Tot example, total_worker_time, last_worker_time, mini_worker_time and max_worker_time			
total_worker_time	84296		
total_physical_reads	0		
total_logical_writes	0		
total_logical_reads	12528		
total_clr_time	0		
total_elapsed_time	84435		
total_dop	636		
total_grant_kb	651264		
total_used_grant_kb	5856		
total_ideal_grant_kb	345984		
total_reserved_threads	0		
total_used_threads	0		
total_columnstore_segment_reads	0		
total_columnstore_segment_skips	0		
total_spills	0		
total_num_physical_reads	0		
total_page_server_reads	0		
total_num_page_server_reads	0		

#### sys.dm exec procedure stats

Returns aggregate performance statistics for cached stored procedures.

database_id	32767	
object_id	-1051784962	
type	P	
type_desc	SQL_STORED_PROCEDURE	
sql_handle	0x0300FF7FFE084FC1A5F7E3006EAD0000010000000000000000000000000000000	
plan_handle	0x0500FF7FFE084FC17034E1EF4902000001000000000000000000000000000000	
cached_time	3 Sep 21 09:25:46	
last_execution_time	06:07.1	
execution_count	5	

The following have prefixes of total\_, last\_, min\_ and max\_ For example, total\_worker\_time, last\_worker\_time, min\_worker\_time and max\_worker\_time

total_worker_time	380
total_physical_reads	0
total_logical_writes	0
total_logical_reads	30
total_elapsed_time	386
total_spills	0
total_num_physical_reads	0
total_page_server_reads	0
total_num_page_server_reads	0

#### sys.dm\_exec\_requests

Returns information about each request that is executing in SQL Server.

request_id 3 Sep 21 00:15:24 start_time 3 Sep 21 00:15:24 status background Command PARALLEL REDO TASK SQI_handle NULL statement_start_offset NULL plan_handle NULL database_id 0 0 user_id 1 1 Commond NULL blocking_sesion_id 0 NULL blocking_sesion_id NULL blockin	cossion id	1
start_time  3 Sep 21 00:15:24 background command PARALLEL REDO TASK sql_handle NULL statement_start_offset NULL plan_handle database_id Ouser_id Outlibebocking_session_id Ouser_id Ous	session_id	1
Status   Background   PARALLEL REPO TASK   Sig.   Inandle   NULL	· -	-
command         PARALLEL REDO TASK           sql_handle         NULL           statement_start_offset         NULL           statement_start_offset         NULL           plan_handle         NULL           database_id         0           user_id         1           connection_id         NULL           blocking_session_id         0           wait_type         DISPATCHER_QUEUE_SEMAPHORE           wait_type		
sql_handle NULL statement_start_offset NULL plan_handle NULL plan_handle NULL plan_handle NULL plan_handle NULL database_id 0 user_id 1 connection_id NULL blocking_session_id NULL start_type DISPATCHER_QUEUE_SEMAPHORE wait_type DISPATCHER_QUEUE_SEMAPHORE wait_time 47650487 last_wait_type DISPATCHER_QUEUE_SEMAPHORE wait_time 0 DISPATCHER_QUEUE_SEMAPHORE wait_time 1 O O context_info NULL percent_complete		-
statement_start_offset statement_end_offset plan_handle   NULL   Database_id   O   User_id   1   Connection_id   NULL   Dlocking_session_id   O   Wait_type   DISPATCHER_QUEUE_SEMAPHORE     Wait_time   47650487     Database_id   O   User_id   O   Wait_type   DISPATCHER_QUEUE_SEMAPHORE     Wait_time   47650487     Database_id   O   User_id   User_id   O   User_id   User_id   User_id   O   User_id   User_i		
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plan_handle		
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user_id         1           connection_id         NULL           blocking_session_id         0           wait_type         DISPATCHER_QUEUE_SEMAPHORE           wait_type         DISPATCHER_QUEUE_SEMAPHORE           wait_type         DISPATCHER_QUEUE_SEMAPHORE           wait_resource         O           open_transaction_count         0           open_esultset_count         1           transaction_id         0           context_info         NULL           percent_complete         0           estimated_completion_time         0           cotal_elapsed_time         47681021           scheduler_id         0           task, address         0x7F2A7C34186D7D0B           reads         2           writes         2           logical_reads         2           text_size         4096           language         us_english           date_format         mdy           date_format         mdy           date_format         0           atext_size         4096           language         us_english           date_format         0           atext_size         0	· <u>-</u>	
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open_resultset_count         1           transaction_id         0           context_info         NULL           percent_complete         0           estimated_completion_time         0           cpu_time         0           total_elapsed_time         47681021           scheduler_id         0           task_address         0x7F2A7C34186D7D0B           reads         2           writes         2           logical_reads         2           text_size         4096           language         us_english           date_format         mdy           date_format         mdy           date_format         mdy           date_first         7           quoted_identifier         0           arithabort         0           ansi_udefaults         0           ansi_defaults         0           ansi_padding         0           ansi_padding         0           ansi_padding         0           ansi_pallill         0           concat_null_yields_null         0           transaction_isolation_level         2           lock_timeout         -1		
transaction_id		-
context_info         NULL           percent_complete         0           estimated_completion_time         0           total_elapsed_time         47681021           scheduler_id         0           task_address         0x7F2A7C34186D7D0B           reeads         2           writes         2           logical_reads         2           text_size         4096           language         us_english           date_format         mdy           date_first         7           quoted_identifier         0           arithabort         0           ansi_ull_dflt_on         0           ansi_warnings         0           ansi_warnings         0           ansi_padding         0           ansi_padding         0           ansi_nulls         0           concat_null_yields_null         0           transaction_isolation_level         2           lock_timeout         -1           deadlock_priority         0           row_count         0           prev_error         0           nest_level         1           granted_query_memory         0		<del>-</del>
percent_complete         0           estimated_completion_time         0           cpu_time         0           total_elapsed_time         47681021           scheduler_id         0           total_elapsed_time         47681021           scheduler_id         0           task_address         0x7F2A7C34186D7D0B           reads         2           writes         2           logical_reads         2           text_size         4096           language         us_english           date_format         mdy           date_first         7           quoted_identifier         0           arithabort         0           ansi_null_dflt_on         0           ansi_null_dflt_on         0           ansi_asi_warnings         0           ansi_avarnings         0           ansi_padding         0           ansi_padding         0           ansi_null_yields_null         0           transaction_isolation_level         2           lock_timeout         -1           deadlock_priority         0           row_count         0           prev_error	transaction_id	-
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total_elapsed_time         47681021           scheduler_id         0           task_address         0x7F2A7C34186D7D0B           reads         2           writes         2           logical_reads         2           text_size         4096           language         us_english           date_first         7           quoted_identifier         0           arithabort         0           ansi_null_dflt_on         0           ansi_padding         0           oncat_null_yields_null         0           transaction_isolation_level         2           lock_timeout         -1           deadlock_priority         0           row_count         0           prev_error         0           nest_level         1           granted_query_memory         0           executing_managed_code         0           group_id         1      <	estimated_completion_time	0
scheduler_id         0           task_address         0x7F2A7C34186D7D0B           reads         2           writes         2           logical_reads         2           text_size         4096           language         us_english           date_format         mdy           date_first         7           quoted_identifier         0           arithabort         0           ansi_null_dflt_on         0           ansi_padling         0           ansi_padding         0           concat_null_yields_null         0           transaction_isolation_level         2           lock_timeout         1           deadlock_priority         0           row_count         0           prev_error         0           nest_level         1           granted_query_memory         0           ex	cpu_time	0
task_address         0x7F2A7C34186D7D0B           reads         2           writes         2           logical_reads         2           text_size         4096           language         us_english           date_format         mdy           date_first         7           quoted_identifier         0           arithabort         0           ansi_null_dff_on         0           ansi_defaults         0           ansi_warnings         0           ansi_padding         0           ansi_nulls         0           concat_null_yields_null         0           transaction_isolation_level         2           lock_timeout         -1           deadlock_priority         0           row_count         0           granted_query_memory         0           executing_managed_code         0           group_id<	total_elapsed_time	47681021
reads 2 writes 2 logical_reads 2 text_size 4096 language us_english date_format mdy date_first 7 quoted_identifier 0 arithabort 0 ansi_null_dflt_on 0 ansi_defaults 0 ansi_warnings 0 ansi_padding 0 ansi_nulls 0 concat_null_yields_null 0 transaction_isolation_level 2 lock_timeout 0 deadlock_priority 0 row_count 0 prev_error 0 nest_level 1 granted_query_memory 0 executing_managed_code group_id 1 query_plan_hash NULL query_plan_hash NULL statement_sql_handle NULL statement_context_id NULL is_resumable 0 page_resource NULL page_server_reads 0 dist_statement_id 00000000-0000-0000-000000000000000000	scheduler_id	0
writes         2           logical_reads         2           text_size         4096           language         us_english           date_format         mdy           date_first         7           quoted_identifier         0           arithabort         0           ansi_null_dflt_on         0           ansi_defaults         0           ansi_padding         0 </td <td>task_address</td> <td>0x7F2A7C34186D7D0B</td>	task_address	0x7F2A7C34186D7D0B
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text_size	writes	2
language  date_format  date_first  quoted_identifier  arithabort  ansi_null_dfit_on  ansi_defaults  ansi_warnings  ansi_warnings  ansi_padding  ansi_nulls  concat_null_yields_null  transaction_isolation_level  deadlock_priority  row_count  prev_error  nest_level  granted_query_memory  executing_managed_code  group_id  query_bash  NULL  query_plan_hash  statement_sql_handle  statement_context_id  dop  paga_resource  page_resource  page_resource  page_server_reads  do  do  do  ansi_null_dfit_on  0  0  0  0  0  0  0  0  0  0  0  0  0	logical_reads	2
date_format         mdy           date_first         7           quoted_identifier         0           arithabort         0           ansi_null_dflt_on         0           ansi_defaults         0           ansi_warnings         0           ansi_padding         0           ansi_warnings         0           ansi_padding         0	text_size	4096
date_first         7           quoted_identifier         0           arithabort         0           ansi_null_dflt_on         0           ansi_defaults         0           ansi_warnings         0           ansi_padding         0           ansi_nulls         0           concat_null_yields_null         0           transaction_isolation_level         2           lock_timeout         -1           deadlock_priority         0           row_count         0           prev_error         0           nest_level         1           granted_query_memory         0           executing_managed_code         0           group_id         1           query_hash         NULL           query_plan_hash         NULL           statement_sql_handle         NULL           statement_sql_handle         NULL           dop         1           parallel_worker_count         NULL           external_script_request_id         NULL           is_resumable         0           page_resource         NULL           page_server_reads         0           dist_statement_i	language	us_english
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	page_server_reads	-
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	label	NULL

#### sys.dm exec connections

 $Returns\ information\ about\ the\ connections\ established\ to\ this\ instance\ of\ SQL\ Server\ and\ the\ details\ of\ each\ connection.$ 

session_id	65	
most_recent_session_id	65	
connect_time	15:49.4	
net_transport	Named pipe	
protocol_type	TSQL	
protocol_version	1946157060	
endpoint_id	3	
encrypt_option	FALSE	
auth_scheme	NTLM	
node_affinity	0	
num_reads	10	
num_writes	13	
last_read	15:49.6	
last_write	15:57.6	
net_packet_size	8000	
client_net_address	<named pipe=""></named>	
client_tcp_port	NULL	
local_net_address	NULL	
local_tcp_port	NULL	
connection_id	6843D34A-AAA9-471F-9DF7-0CC22F782919	
parent_connection_id	NULL	
most_recent_sql_handle	0x02000000340F11A14617B1A0CD28C992C0E04F3BA3CA3AD000000000000000000000000000000000	

#### sys.dm\_db\_resource\_stats

Returns CPU, I/O, and memory consumption for an Azure SQL Database database or an Azure SQL Managed Instance.

end_time	3 Sep 21 13:33:44
avg_cpu_percent	0
avg_data_io_percent	0
avg_log_write_percent	0
avg_memory_usage_percent	0.19
xtp_storage_percent	0
max_worker_percent	0
max_session_percent	1.33
dtu_limit	5
avg_login_rate_percent	NULL
avg_instance_cpu_percent	0.12
avg_instance_memory_percent	39.71
cpu_limit	NULL
replica_role	0

#### sys.resource\_stats

Returns CPU usage and storage data for each Azure SQL Database.

start_time	2 Sep 21 09:30:47
end_time	2 Sep 21 09:35:48
database_name	DP300
sku	Basic
storage_in_megabytes	27
avg_cpu_percent	0
avg_data_io_percent	0
avg_log_write_percent	0
max_worker_percent	0
max_session_percent	0
dtu_limit	5
xtp_storage_percent	0
avg_login_rate_percent	NULL
avg_instance_cpu_percent	0.08
avg_instance_memory_percent	30.58
cpu_limit	NULL
allocated_storage_in_megabytes	32

#### **Related DMVs**

sys.server\_resource\_stats

Returns CPU usage, IO, and storage data for Azure SQL Managed Instance.

sys.elastic\_pool\_resource\_stats

Returns resource usage statistics for all the elastic pools in a SQL Database server.

#### sys.dm\_tran\_active\_transactions

transaction_id	15711	
name	PopulateLockOrdinalsForAllDBs	
transaction_begin_time	3 Sep 21 00:15:56	
transaction_type	2	
transaction_uow	NULL	
transaction_state	2	
transaction_status	0	
transaction_status2	0	
dtc_state	0	
dtc_status	0	
dtc_isolation_level	0	
filestream_transaction_id	NULL	

## sys.dm db missing index details

Returns detailed information about missing indexes, excluding spatial indexes.

index_handle	3	
database_id	5	
object_id	1330103779	
equality_columns	[SalesOrderID]	
inequality_columns	NULL	
included_columns	[CustomerID]	
statement	[DP300].[SalesLT].[SalesOrderHeaderCopy]	

## sys.dm\_db\_missing\_index\_group\_stats

Returns summary information about groups of missing indexes, excluding spatial indexes.

group_handle	4
unique_compiles	1
user_seeks	1
user_scans	0
last_user_seek	6 Sep 21 09:04:57
last_user_scan	NULL
avg_total_user_cost	0.742181705
avg_user_impact	98.26
system_seeks	0
system_scans	0
last_system_seek	NULL
last_system_scan	NULL
avg_total_system_cost	0
avg_system_impact	0

svs.dm	db	missing	index	groups
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This DMV returns information about indexes that are missing in a specific index group, except for spatial indexes.

index_group_handle	1
index_group_nandle	4
index handle	3

#### sys.dm\_db\_missing\_index\_group\_stats\_query

Returns information about queries that needed a missing index from groups of missing indexes, excluding spatial indexes.

group_handle	4
query_hash	0x8B595AB32FF7833E
query_plan_hash	0x79805B4DDC924E89
	0x0200000065F19500F5CA82603E1F6FD836BD762700BD72
	070000000000000000000000000000000000000
last_sql_handle	000000000000000000000000000000000000000
last_statement_start_offset	0
last_statement_end_offset	416
	0x090055030AAC43E1613208272F4B3C28FFB60000000000
	000000000000000000000000000000000000000
last_statement_sql_handle	000000000000000000000000000000000000000
user_seeks	1
user_scans	0
last_user_seek	6 Sep 21 09:04:57
last_user_scan	NULL
avg_total_user_cost	0.742181705
avg_user_impact	98.26
system_seeks	0
system_scans	0
last_system_seek	NULL
last_system_scan	NULL
avg_total_system_cost	0
avg_system_impact	0

#### sys.dm\_user\_db\_resource\_governance

Returns actual configuration and capacity settings used by resource governance mechanisms in the current database or elastic pool.

database_id	5
ogical_database_guid	FBE12256-2F4F-4767-8E72-68F387400F8F
physical_database_guid	8CB58DAC-5460-493B-8B62-72A656CFBBE0
server_name	dp300database
database_name	master System 2, 501,05
ilo_name	System2_SQLG5
dtu_limit	0
cpu_limit ·-	0
min_cpu	0
max_cpu	100
cap_cpu	100
min_cores	1
max_dop	1
min_memory	0
max_memory	100
max_sessions	640
max_memory_grant	25
max_db_memory	2805248
govern_background_io	1
min_db_max_size_in_mb	100
max_db_max_size_in_mb	512000
default_db_max_size_in_mb	512000
db_file_growth_in_mb	16
initial_db_file_size_in_mb	16
log_size_in_mb	163840
nstance_cap_cpu	100
instance_max_log_rate	251658240
instance_max_worker_threads	775
replica_type	0
max_transaction_size	0
checkpoint_rate_mbps	20
checkpoint_rate_io	0
last updated date utc	13 Sep 21 08:47:40
primary_group_id	200000032
primary_group_rd primary group max workers	64
7_0 1	3145728
primary_min_log_rate	
primary_max_log_rate	3145728
primary_group_min_io	3200
primary_group_max_io	3200
primary_group_min_cpu ·	40
primary_group_max_cpu	50
primary_log_commit_fee	3000
orimary_pool_max_workers	0
pool_max_io	-1
govern_db_memory_in_resource_pool	0
volume_local_iops	4000
volume_managed_xstore_iops	2500
volume_external_xstore_iops	2500
volume_type_local_iops	4800
volume_type_managed_xstore_iops	2500
volume_type_external_xstore_iops	2500
volume_pfs_iops	2500
volume_type_pfs_iops	2500
user_data_directory_space_quota_mb	931839
user_data_directory_space_usage_mb	270
bufferpool_extension_size_gb	0

#### sys.resource\_usage

Provides hourly summary of resource usage data for user databases in the current server. Historical data is retained for 90 days.

end_time	2 Sep 21 10:25:47
database_name	DP300
sku	Basic
storage in megabytes	28

#### sys.dm\_db\_index\_physical\_stats

Returns size and fragmentation information for the data and indexes of the specified table or view in SQL Server.

DBName	DP300
ObjectName	Address
avg_fragmentation_in_percent	90
page_count	20
database_id	5
object_id	1778105375
index_id	1
partition_number	1
index_type_desc	CLUSTERED INDEX
alloc_unit_type_desc	IN_ROW_DATA
index_depth	2
index_level	0
avg_fragmentation_in_percent	90
fragment_count	19
avg_fragment_size_in_pages	1.052631579
page_count	20
avg_page_space_used_in_percent	NULL
record_count	NULL
ghost_record_count	NULL
version_ghost_record_count	NULL
min_record_size_in_bytes	NULL
max_record_size_in_bytes	NULL
avg_record_size_in_bytes	NULL
forwarded_record_count	NULL
compressed_page_count	NULL
hobt_id	7.20576E+16
columnstore_delete_buffer_state	0
columnstore_delete_buffer_state_desc	NOT VALID
version_record_count	NULL
inrow_version_record_count	NULL
inrow_diff_version_record_count	NULL
total_inrow_version_payload_size_in_bytes	NULL
offrow_regular_version_record_count	NULL
offrow_long_term_version_record_count	NULL

## sys.dm db file space usage

Returns space usage information for each data file in the database.

database_id	5
file_id	1
filegroup_id	1
total_page_count	6144
allocated_extent_page_count	3848
unallocated_extent_page_count	2296
version_store_reserved_page_count	NULL
user_object_reserved_page_count	NULL
internal_object_reserved_page_count	NULL
mixed_extent_page_count	248
modified_extent_page_count	1024

## sys.dm db session space usage

Returns the number of pages allocated and deallocated by each session for the database.

session_id	1
database_id	2
user_objects_alloc_page_count	0
user_objects_dealloc_page_count	0
internal_objects_alloc_page_count	0
internal_objects_dealloc_page_count	0
user_objects_deferred_dealloc_page_count	0

## sys.dm\_db\_task\_space\_usage

Returns page allocation and deallocation activity by task for the database.

task_address	0x7F2A7C34186D7D0B
is_remote_task	0
session_id	1
request_id	0
exec_context_id	0
database_id	2
user_objects_alloc_page_count	0
user_objects_dealloc_page_count	0
internal_objects_alloc_page_count	0
internal_objects_dealloc_page_count	0

## sys.dm\_tran\_locks

Returns information about currently active lock manager resources in SQL Server.

resource_type	DATABASE
resource_subtype	
resource_database_id	5
resource_description	
resource_associated_entity_id	0
resource_lock_partition	0
request_mode	S
request_type	LOCK
request_status	GRANT
request_reference_count	1
request_lifetime	0
request_session_id	80
request_exec_context_id	0
request_request_id	0
request_owner_type	SHARED_TRANSACTION_WORKSPACE
request_owner_id	0
request_owner_guid	0000000-0000-0000-0000-0000000000000000
request_owner_lockspace_id	0x00000249FAA5A6E0:0:0
lock_owner_address	0x43C97043C8DAE999

### sys.dm\_os\_job\_object

Returns a single row describing the configuration of the job object that manages the SQL Server process.

cpu_rate	60
cpu_affinity_mask	12884901888
cpu_affinity_group	1
memory_limit_mb	2672
process_memory_limit_mb	2672
workingset_limit_mb	2265
non_sos_mem_gap_mb	500
low_mem_signal_threshold_mb	80
total_user_time	8061250000
total_kernel_time	1533906250
write_operation_count	3504179
read_operation_count	772224
peak_process_memory_used_mb	1477
peak_job_memory_used_mb	1477
process_physical_affinity	{{1,300000000}}

## sys.dm io virtual file stats

Returns I/O statistics for data and log files.

database_id	1
file_id	1
sample_ms	1854214171
num_of_reads	74
num_of_bytes_read	4677632
io_stall_read_ms	216
io_stall_queued_read_ms	121
num_of_writes	359
num_of_bytes_written	4358144
io_stall_write_ms	400
io_stall_queued_write_ms	28
io_stall	616
size_on_disk_bytes	4849664
file_handle	0x0000000000000000

## sys.dm os performance counters

Returns a row per performance counter maintained by the server.

object_name	MSSQL\$E1056CC40498:Databases	
counter_name	Transactions/sec	
instance_name	model_masterdb	
cntr_value	7	
cntr_type	272696576	

#### sys.dm\_os\_wait\_stats

Returns information about all the waits encountered by threads that executed.

wait_type	LCK_M_S
waiting_tasks_count	15
wait_time_ms	8530
max_wait_time_ms	2061
signal_wait_time_ms	5

sys.dm\_exec\_session\_wait\_stats provides similar information by session.

#### sys.dm\_db\_wait\_stats

Returns information about all the waits encountered by threads that executed during operation.

wait_type	SOS_SCHEDULER_YIELD	
waiting_tasks_count	266	
wait_time_ms	5418	
max_wait_time_ms	89	
signal_wait_time_ms	5418	

#### sys.dm os waiting tasks

Returns information about the wait queue of tasks that are waiting on some resource.

waiting_task_address	0xD8E696502C138626	
session_id	103	
exec_context_id	0	
wait_duration_ms	22006	
wait_type	LCK_M_U	
resource_address	0x3A0055FBBFAE832F	
blocking_task_address	NULL	
blocking_session_id	90	
blocking_exec_context_id	NULL	
resource_description	keylock hobtid=72057594048872448 dbid=6 id=lock28117429600 mode=X associatedObjectId=72057594048872448	

## sys.dm\_resource\_governor\_resource\_pools

Returns workload group statistics and the current in-memory configuration of the workload group.

pool_id	256
name	myPool
statistics_start_time	20 Sep 2021 14:08:12
total_cpu_usage_ms	0
cache_memory_kb	0
compile_memory_kb	0
used_memgrant_kb	0
total_memgrant_count	0
total_memgrant_timeout_count	0
active_memgrant_count	0
active_memgrant_kb	0
memgrant_waiter_count	0
max_memory_kb	26836016
used_memory_kb	0
target_memory_kb	26836016
out_of_memory_count	0
min_cpu_percent	0
max_cpu_percent	20
min_memory_percent	0
max_memory_percent	100
cap_cpu_percent	100
min_iops_per_volume	NULL
max_iops_per_volume	NULL
read_io_queued_total	NULL
read_io_issued_total	NULL
read_io_completed_total	0
read_io_throttled_total	NULL
read_bytes_total	0
read_io_stall_total_ms	0
read_io_stall_queued_ms	NULL
write_io_queued_total	NULL
write_io_issued_total	NULL
write_io_completed_total	0
write_io_throttled_total	NULL
write_bytes_total	0
write_io_stall_total_ms	0
write_io_stall_queued_ms	NULL
io_issue_violations_total	NULL
io_issue_delay_total_ms io_issue_ahead_total_ms	NULL NULL
reserved_io_limited_by_volume_total	NULL
io_issue_delay_non_throttled_total_ms	NULL
total_cpu_delayed_ms	0
total_cpu_active_ms	0
total_cpu_violation_delay_ms	0
total_cpu_violation_delay_ms total_cpu_violation_sec	0
total_cpu_usage_preemptive_ms	0
rorai_cha_asage_breembrive_ms	U

## sys.dm\_resource\_governor\_workload\_groups

Returns workload group statistics and the current in-memory configuration of the workload group

group_id	2
name	default
pool_id	2
external_pool_id	2
statistics_start_time	20 Sep 2021 09:46:18
total_request_count	17106
total_queued_request_count	0
active_request_count	3
queued_request_count	0
total_cpu_limit_violation_count	0
total_cpu_usage_ms	24366
max_request_cpu_time_ms	424
blocked_task_count	0
total_lock_wait_count	7
total_lock_wait_time_ms	521453
total_query_optimization_count	1731
total_suboptimal_plan_generation_count	35
total_reduced_memgrant_count	0
max_request_grant_memory_kb	111872
active_parallel_thread_count	0
importance	Medium
request_max_memory_grant_percent	25
request_max_cpu_time_sec	0
request_memory_grant_timeout_sec	0
group_max_requests	0
max_dop	0
effective_max_dop	2
total_cpu_usage_preemptive_ms	5481
request_max_memory_grant_percent_numeric	25