Módulo 6: Administración de rendimiento

Introducción

- Monitoreo del rendimiento de SQL Server

  Herramientas de monitoreo

```
SELECT session_id, login_name, host_name, program_name, status, cpu_time, memory_usage
FROM sys.dm_exec_sessions
WHERE status = 'running';
```

100 %

Resultados | Mensajes

	session_id	login_name	host_name	program_name	status	cpu_time	memory_usage
1	89	DESKTOP-IRVDG58\migue	DESKTOP-IRVDG58	Microsoft SQL Server Management Studio - Consulta	running	0	4

```
SELECT session_id, start_time, status, command, text
FROM sys.dm_exec_requests
CROSS APPLY sys.dm_exec_sql_text(sql_handle);
```

100 %

Resultados | Mensajes

	session_id	start_time	status	command	text
1	89	2025-07-02 18:14:45.940	running	SELECT	SELECT session_id, start_time, status, command, ...

```
SELECT session_id, start_time, status, command,
       wait_type, cpu_time, total_elapsed_time,
       text AS consulta
FROM sys.dm_exec_requests
CROSS APPLY sys.dm_exec_sql_text(sql_handle);
```

100 %

Resultados | Mensajes

	session_id	start_time	status	command	wait_type	cpu_time	total_elapsed_time	consulta
1	89	2025-07-02 18:17:46.310	running	SELECT	NULL	2	22	SELECT session_id,

Haga clic para seleccionar

Métricas clave de rendimiento

```sql
DECLARE @xmlData XML;

SELECT TOP 1 @xmlData = CAST(record AS XML)
FROM sys.dm_os_ring_buffers
WHERE ring_buffer_type = 'RING_BUFFER_SCHEDULER_MONITOR'
AND record LIKE '%<SystemHealth>%'
ORDER BY timestamp DESC;

SELECT
    @xmlData.value('(//SystemHealth/SystemIdle)[1]', 'int') AS CPU_Idle,
    @xmlData.value('(//SystemHealth/ProcessUtilization)[1]', 'int') AS CPU_SQL_Server,
    100 - @xmlData.value('(//SystemHealth/SystemIdle)[1]', 'int') AS CPU_Total_Usado;
```

100 %

Resultados | Mensajes

	CPU_Idle	CPU_SQL_Server	CPU_Total_Usado
1	93	0	7

```sql
SELECT
    DB_NAME(database_id) AS BaseDeDatos,
    num_of_reads, num_of_writes,
    io_stall_read_ms, io_stall_write_ms
FROM sys.dm_io_virtual_file_stats(NULL, NULL);
```

100 %

Resultados | Mensajes

	BaseDeDatos	num_of_reads	num_of_writes	io_stall_read_ms	io_stall_write_ms
1	master	1489	97	2972	221
2	master	12	70	4	8
3	tempdb	546	178	541	61
4	tempdb	7	44	2	5
5	tempdb	23	33	8	13
6	tempdb	25	42	9	31
7	tempdb	16	30	5	7
8	tempdb	17	27	5	29
9	tempdb	25	41	38	57
10	tempdb	24	38	26	19
11	tempdb	16	27	5	54
12	model	323	3	486	0
13	model	7	12	2	6
14	msdb	960	1	839	0
15	msdb	35	5	11	4
16	escuelaDB	714	17	997	2

```sql
SELECT
    (physical_memory_in_use_kb / 1024) AS Memoria_MB_Usada,
    (virtual_address_space_reserved_kb / 1024) AS Memoria_Reservada_MB,
    process_physical_memory_low, process_virtual_memory_low
FROM sys.dm_os_process_memory;
```

100 %

Resultados | Mensajes

	Memoria_MB_Usada	Memoria_Reservada_MB	process_physical_memory_low	process_virtual_memory_low
1	260	37769	0	0

Identificación de cuellos de botella

```sql
SELECT TOP 10 wait_type, wait_time_ms, waiting_tasks_count
FROM sys.dm_os_wait_stats
WHERE wait_type NOT LIKE 'SLEEP%'
ORDER BY wait_time_ms DESC;
```

100 %

Resultados | Mensajes

	wait_type	wait_time_ms	waiting_tasks_count
1	SOS_WORK_DISPATCHER	3690016992	29211342
2	DISPATCHER_QUEUE_SEMAPHORE	293986205	409
3	LOGMGR_QUEUE	193331351	238701
4	CLR_AUTO_EVENT	193280805	469
5	SQLTRACE_INCREMENTAL_FLUSH_SLEEP	96665603	4138
6	DIRTY_PAGE_POLL	96665534	152212
7	HADR_FILESTREAM_IOMGR_IOCOMPLETION	96665462	32567
8	REQUEST_FOR_DEADLOCK_SEARCH	96664891	3312
9	XE_TIMER_EVENT	96663322	4403
10	LAZYWRITER_SLEEP	96661374	19382

```sql
SELECT blocking_session_id, session_id, wait_type, wait_time, wait_resource
FROM sys.dm_exec_requests
WHERE blocking_session_id <> 0;
```

100 %

Resultados | Mensajes

blocking_session_id	session_id	wait_type	wait_time	wait_resource

```sql
SELECT DB_NAME(database_id) AS base_de_datos, file_id, io_stall_read_ms, io_stall_write_ms
FROM sys.dm_io_virtual_file_stats(NULL, NULL);
```

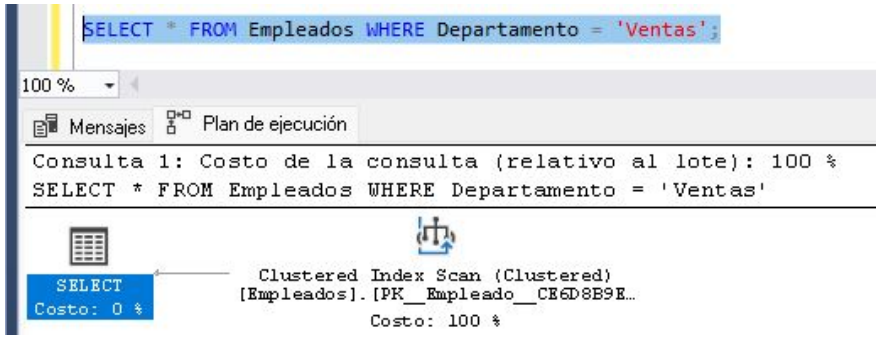
100 %

Resultados | Mensajes

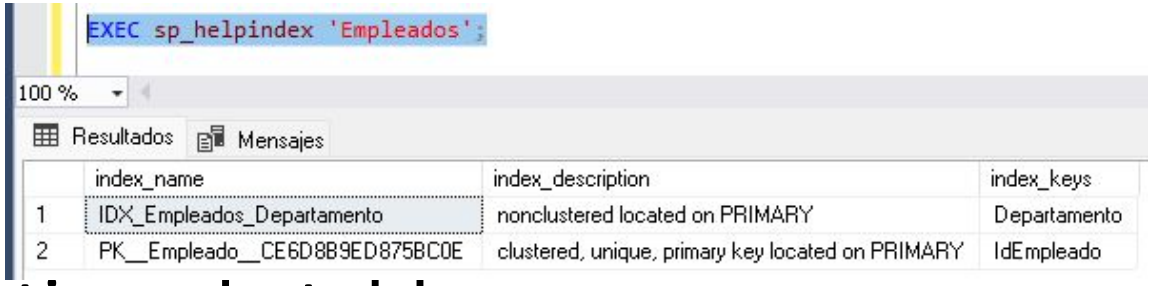
	base_de_datos	file_id	io_stall_read_ms	io_stall_write_ms
1	master	1	2906	221
2	master	2	4	8
3	tempdb	1	514	47
4	tempdb	2	2	5
5	tempdb	3	8	13
6	tempdb	4	8	31
7	tempdb	5	4	6
8	tempdb	6	5	29
9	tempdb	7	26	57
10	tempdb	8	25	19
11	tempdb	9	5	54
12	model	1	483	0
13	model	2	2	6
14	msdb	1	826	0
15	msdb	2	11	4
16	escuelaDB	1	944	2
17	escuelaDB	2	6	1
18	veterinaria	1	874	2
19	veterinaria	2	5	6
20	Northwind	1	937	42
21	Northwind	2	7	61
22	BibliotecaGyS	1	836	4
23	BibliotecaGyS	2	5	2
24	QhatuPERU	1	674	3
25	QhatuPERU	2	6	2

Optimización de consultas

- Planes de ejecución de consultas

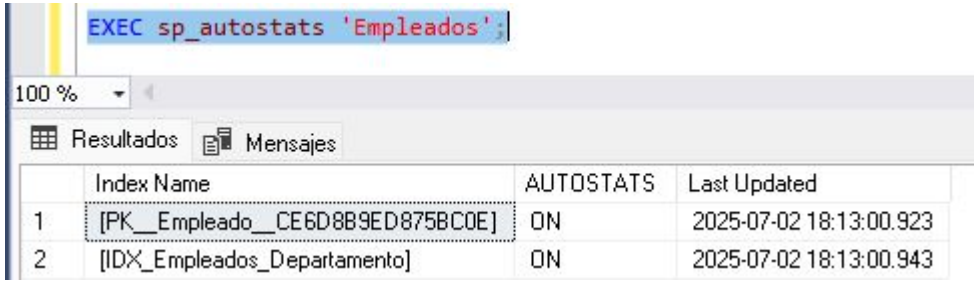


- Índices



	index_name	index_description	index_keys
1	IDX_Empleados_Departamento	nonclustered located on PRIMARY	Departamento
2	PK__Empleado__CE6D8B9ED875BC0E	clustered, unique, primary key located on PRIMARY	IdEmpleado

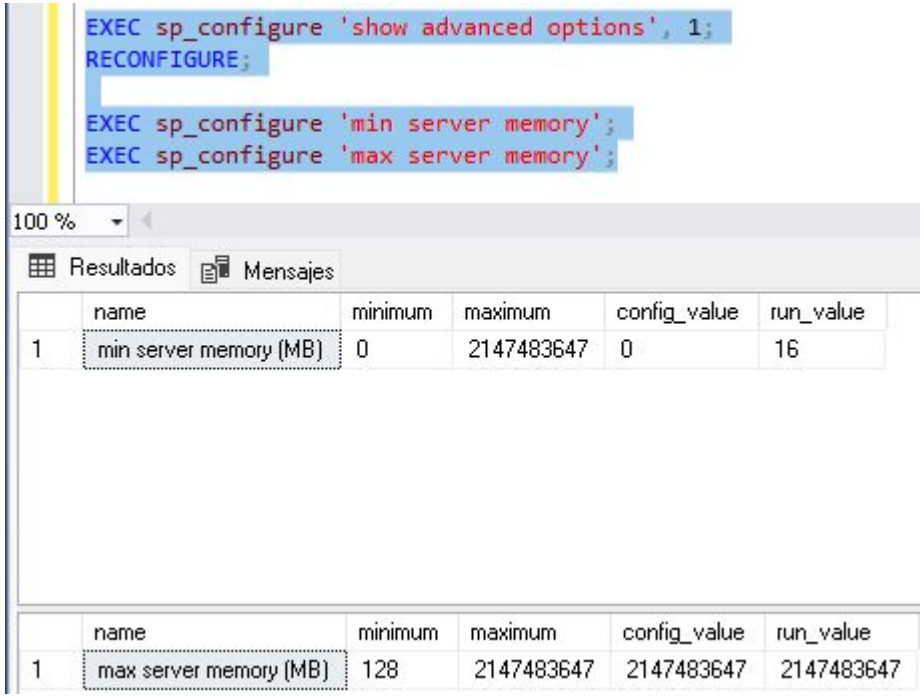
- Estadísticas de tablas



	Index Name	AUTOSTATS	Last Updated
1	[PK__Empleado__CE6D8B9ED875BC0E]	ON	2025-07-02 18:13:00.923
2	[IDX_Empleados_Departamento]	ON	2025-07-02 18:13:00.943

Ajuste del rendimiento del servidor

- Configuración de la memoria



```
EXEC sp_configure 'show advanced options', 1;
RECONFIGURE;

EXEC sp_configure 'min server memory';
EXEC sp_configure 'max server memory';
```

100 %

Resultados | Mensajes

	name	minimum	maximum	config_value	run_value
1	min server memory (MB)	0	2147483647	0	16

	name	minimum	maximum	config_value	run_value
1	max server memory (MB)	128	2147483647	2147483647	2147483647

Configuración del disco

```
SELECT
    DB_NAME(database_id) AS BaseDeDatos,
    file_id,
    num_of_reads,
    num_of_writes,
    io_stall_read_ms,
    io_stall_write_ms
FROM sys.dm_io_virtual_file_stats(NULL, NULL);
```

100 %

Resultados | Mensajes

	BaseDeDatos	file_id	num_of_reads	num_of_writes	io_stall_read_ms	io_stall_write_ms
1	master	1	1598	100	3117	221
2	master	2	12	72	4	9
3	tempdb	1	671	276	731	499
4	tempdb	2	7	47	2	5
5	tempdb	3	25	38	13	14
6	tempdb	4	29	49	11	31
7	tempdb	5	20	39	7	26
8	tempdb	6	21	36	43	31
9	tempdb	7	29	49	40	81
10	tempdb	8	28	46	28	21
11	tempdb	9	18	35	6	141
12	model	1	331	3	510	0
13	model	2	7	12	2	6
14	msdb	1	974	1	846	0
15	msdb	2	35	5	11	4
16	escuelaDB	1	725	17	1021	2

Configuración del procesador

```
SELECT
    cpu_id,
    scheduler_id,
    status,
    is_online,
    current_tasks_count,
    runnable_tasks_count
FROM sys.dm_os_schedulers
WHERE status = 'VISIBLE ONLINE';
```

100 %

Resultados | Mensajes

	cpu_id	scheduler_id	status	is_online	current_tasks_count	runnable_tasks_coun
1	0	0	VISIBLE ONLINE	1	4	0
2	1	1	VISIBLE ONLINE	1	4	0
3	2	2	VISIBLE ONLINE	1	3	0
4	3	3	VISIBLE ONLINE	1	2	0
5	4	4	VISIBLE ONLINE	1	5	0
6	5	5	VISIBLE ONLINE	1	4	0
7	6	6	VISIBLE ONLINE	1	3	0
8	7	7	VISIBLE ONLINE	1	3	0
9	8	8	VISIBLE ONLINE	1	3	0
10	9	9	VISIBLE ONLINE	1	4	0
11	10	10	VISIBLE ONLINE	1	2	0
12	11	11	VISIBLE ONLINE	1	5	0