**What are wait stats in SQL Server?**

SQL Server Wait Statistics are one of the most important and common performance tuning metrics that can be used to track and troubleshoot query performance by identifying resource bottlenecks the query is waiting for.

wait types are nothing but wait performed to execute any task created by SQL Server. As per BOL, there are three types of wait types, namely:

* Resource Waits. Resource waits occur when a worker requests access to a resource that is not available because that resource is either currently used by another worker, or it’s not yet available.
* Queue Waits. Queue waits occur when a worker is idle, waiting for work to be assigned.
* External Waits. External waits occur when an SQL Server worker is waiting for an external event.

**CXPACKET**

A lot of the long running queries are being parallelized. This is not necessarily a bad thing but it does consume additional CPU resources. If processor utilization is very high (typically above 80%) this wait should be investigated

## Suggested solutions

1. Examine high CPU queries to see if they can be optimized.
2. Investigate changing default MAXDOP and parallelism settings (links below)
3. Indexing, look for high CPU parallel queries

# WRITELOG

This wait occurs when data in the log cache is being flushed to disk. Whenever a data page is updated, it is written to the buffer cache and the log cache. Data in the log cache is then written to the transaction log file on the physical disk once the transaction is complete. If log flushes are consistently waiting, you need to investigate further.

If this wait occurs in isolation, the most common causes are operations such as checkpoints and frequent transaction commits, or disk subsystem performance issues. If it exists in combination with at least one of the following waits, your servers could be experiencing I/O problems:

* ASYNCH\_IO\_COMPLETION
* IO\_COMPLETION
* LOGMGR
* PAGEIOLATCH\_\*

# ASYNC\_NETWORK\_IO

Accumulates while requests are waiting on network I/O to complete. A common cause of this wait type is when client applications cannot process data as fast as SQL Server can provide it. When this occurs SQL Server must wait until the client is ready. Other causes include network bottlenecks and sending large volumes of data across the network

**Suggested solutions**

1. Reduce the amount of data sent over the network by selecting only the required rows and columns
2. Ensure that Network Packet Size in connection strings is of an appropriate size. If the instance is doing bulk loads try increasing packet size to see whether this improves throughput. The default is 4KB, SQLCAT recommends maximum 32KB for large data loads
3. Add additional or upgrade network interface
4. Remove any additional applications that are using network interfaces

# IO\_COMPLETION

This wait represents SQL Server waiting for non-data page I/O. It is common for this wait to occur during tempdb spill-over from sort and hash operations

Suggested solutions

1 Check to see if tempdb, data and logs are on separate volumes

2 Optimize queries experiencing tempdb spillage