

INDEX CHEAT-SHEET

SQL Server 2016

Index compatibility chart short

Existing structure	Additional structure	Heap	Clustered Index	Non-Clustered Index	Clustered Columnstore Index	Non-Clustered Columnstore Index	Non-Clustered Hash Index	Non-Clustered Range Index
Heap		1	OR	999	OR	1	N	N
Clustered Index (CL)		OR	1	999	N	1	N	N
Clustered Columnstore (CLCS)		N	N	999	1	N	N	N
Memory-Optimized Table (VarHeap)		N	N	N	1*	N	8*	8*

General index rules:

- For page-based data there is either a heap or a clustered index – not both
- There can only be one type of clustered index on one table at any time
 - Only exception: when using indexed views
- Filtered clustered indexes (columnstore or page-based equally) are not supported
- Multiple columnstore indexes on one table are not supported
- Memory-optimized tables must have at least one (non-clustered or hash) index or a primary key
- Memory-optimized tables with *DURABILITY = SCHEMA_AND_DATA* must have a primary key
- A clustered columnstore index on a memory-optimized table requires a primary key (an unique index is not sufficient)
- Columnstore indexes are not allowed on tables for which the durability option *SCHEMA_ONLY* is specified

Y	Yes, compatible, can be added	Y (1)	Yes, exactly one
N	Not compatible	OR	Can be replaced with the other type
1	There can be only one of its kind	*	As part of table definition, not in a second step

SQL Server Books Online Links to start with

- [CREATE INDEX \(Transact-SQL\)](#)
- [CREATE COLUMNSTORE INDEX \(Transact-SQL\)](#)
- [Indexes for Memory-Optimized Tables](#)
- [Create Indexed Views](#)

Index limits:

- Maximum number of Nonclustered indexes per table: 999
- Maximum number of Indexes per memory-optimized table: 8
- Maximum number of Partitions per partitioned table or index: 15,000
- Maximum number of statistics on non-indexed columns: 30,000
- Maximum number of spatial indexes per table: 249
- Maximum number of index-key columns: 32
 - primary key: 16
- Maximum size of clustered index key: 900 bytes
 - With [Included \(aka: nonkey\) Columns](#) this limit can be bypassed
- Maximum size of non-clustered index key: 1700 bytes
- Maximum size of memory-optimized non-clustered index key: 2500 bytes
- Maximum size of memory-optimized hash index key:
 - = maximum of in-row data (8060)

Index compatibility chart long

Existing structure	Additional structure	Heap	CL	NCL	CLCS	NCLCS	HSH	NCLINM
Heap		1	OR	Y	OR	Y (1)	N	N
Clustered Index (CL)		OR	1	Y	N	Y (1)	N	N
Non-Clustered Index (NCL)		Y (1)	Y (1)	Y	Y (1)	Y (1)	N	N
Clustered Columnstore (CLCS)		N	N	Y	1	N	N	N
Non-Clustered Columnstore (NCLC)		Y (1)	Y (1)	Y	N	N	N	N
Memory-Optimized Nonclustered Hash (HSH)		N	N	N	Y (1)*	N	Y*	N
Memory-Optimized Nonclustered Range (NCLINM)		N	N	N	Y (1)*	N	Y*	N
Non-Clustered Filtered (NCLFI)		Y (1)	Y (1)	Y	Y (1)	Y (1)	N	N
Non-Clustered Columnstore Filtered (NCLCFI)		Y (1)	Y (1)	Y	N	N	N	N