

## Re: How does CREATE INDEX impact current users?

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**From:** Paul S Randal [MS] (*prandal\_at\_online.microsoft.com*)

**Date:** 05/15/04

Date: Sat, 15 May 2004 09:56:22 -0700

Here's the correct answer for you (Michael please take note).

Creating a non-clustered index will take an S lock on the table, thus preventing all modifications to the table. Creating a clustered index will take an X lock on the table, thus preventing any access to the table at all. This problem is alleviated in SQL Server 2005 with the concept of online index builds and rebuilds, where complete concurrent access to the data is available during the index operation.

Creating a clustered index does not copy the table per se – the heap contents are fed into a sort and the output of the sort is used to construct the b-tree for the clustered index. Once complete the original heap is discarded. In SQL Server 2000, you need approx 1.2x the original heap size of free space to create the clustered index. The amount of transaction log created should also be taken into account, and depends on your logging mode.

Please let me know if you have any additional questions.

Thanks and regards.

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Paul Randal

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"Michael Cheng [MSFT]" <v-mingqc@online.microsoft.com> wrote in message

news:lsrrgRlOEHA.3972@cpmsftngxa10.phx.gbl...

> Hi Danny,

>

> Thanks for Alex's reply

>

> From your descriptions, I understood that you would like to make CREATE  
> INDEX and you are afraid of its possible impact on logged users. Have I  
> understood you? If there is anything I misunderstood, please feel free to  
> let me know :)

>

> Based on my knowledge, it will not lock your table when creating index on  
> it. However, when you create a clustered index, the table is copied, the  
> data in the table is sorted, and then the original table is deleted.

> Therefore, enough empty space must exist in the database to hold a copy of

microsoft.public.sqlserver.server: Re: How does CREATE INDEX impact current users?

> the data. And creating a unique index ensures that any attempt to duplicate  
> key values fails.  
>  
> As Alex suggested, it is strongly recommend to create your index at  
> midnight, which will do less impact on your production server. The  
> following documents will be helpful to you, which tell you how to build  
> index with less defragmentations and better performance:)  
>  
> Microsoft SQL Server 2000 Index Defragmentation Best Practices  
>  
> <http://www.microsoft.com/technet/prodtechnol/sql/2000/maintain/ss2kidbp.mspx>  
>  
> SQL Server Database Index Performance Checklist  
> [http://www.sql-server-performance.com/sql\\_server\\_performance\\_audit7.asp](http://www.sql-server-performance.com/sql_server_performance_audit7.asp)  
>  
> SQL Server - Indexes and Performance  
> <http://www.databasejournal.com/features/mssql/article.php/1467801>  
>  
> Moreover, you could find how an index works from Books Online or MSND  
Online  
>  
> tempdb and Index Creation  
>  
> [http://msdn.microsoft.com/library/default.asp?url=/library/en-us/architec/8\\_ar\\_da2\\_5nou.asp](http://msdn.microsoft.com/library/default.asp?url=/library/en-us/architec/8_ar_da2_5nou.asp)  
>  
> Creating an Index  
>  
> [http://msdn.microsoft.com/library/default.asp?url=/library/en-us/createdb/cm\\_8\\_des\\_05\\_8185.asp](http://msdn.microsoft.com/library/default.asp?url=/library/en-us/createdb/cm_8_des_05_8185.asp)  
>  
> Hope this helps and if you have any questions or concerns, don't hesitate  
> to let me know. We are here to be of assistance!  
>  
> Sincerely yours,  
>  
> Michael Cheng  
> Microsoft Online Support  
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