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SQL Server Tutorial

Part 75 - Snapshot Isolation Level

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In this session we will learn

- Snapshot Isolation Level in SQL Server

Link to Dot Net Basics, ASP.NET, C#, ADO.NET and SQL Server video series
http://www.youtube.com/user/kudvenkat/playlists

Suggested Videos
Part 72 - SQL Server lost update problem
Part 73 - Non repeatable read example in SQL Server
Part 74 - Phantom reads example in SQL Server

Snapshot Isolation Level in SQL Server

If you are in need of the DVD with all the videos and PPT's, please visit http://pragimtech.com/order.aspx

Just like serializable isolation level, snapshot isolation level does not have any concurrency side effects

Isolation Level	Dirty Reads	Lost Update	Nonrepeatable Reads	Phantom Reads
Read Uncommitted	Yes	Yes	Yes	Yes
Read Committed	No	Yes	Yes	Yes
Repeatable Read	No	No	No	Yes
Snapshot	No	No	No	No
Serializable	No	No	No	No

Difference between serializable and snapshot isolation levels

Serializable isolation is implemented by acquiring locks which means the resources are locked for the duration of the current transaction. This isolation level does not have any concurrency side effects but at the cost of significant reduction in concurrency.

Snapshot isolation doesn't acquire locks, it maintains versioning in Tempdb. Since, snapshot isolation does not lock resources, it can significantly increase the number of concurrent transactions while providing the same level of data consistency as serializable isolation does.

Snapshot Isolation Level in SQL Server

Example : Reading data with Snapshot Isolation level

```
--Transaction 1
Set transaction isolation level serializable
Begin Transaction
Update tblInventory set ItemsInStock = 5 where Id = 1
waitfor delay '00:00:10'
Commit Transaction
```

```
-- Transaction 2
-- Enable snapshot isloation for the database
Alter database SampleDB SET ALLOW_SNAPSHOT_ISOLATION ON
-- Set the transaction isolation level to snapshot
Set transaction isolation level snapshot

Select ItemsInStock from tblInventory where Id = 1
```

From the first window execute Transaction 1 code and from the second window, execute Transaction 2 code. Notice that Transaction 2 is not blocked and returns the data from the database as it was before Transaction 1 has started

Snapshot Isolation Level in SQL Server

Example : Modifying data with Snapshot Isolation level

```
--Transaction 1
Set transaction isolation level serializable
Begin Transaction
Update tblInventory set ItemsInStock = 5 where Id = 1
waitfor delay '00:00:10'
Commit Transaction
```

```
-- Transaction 2
-- Enable snapshot isloation for the database
Alter database SampleDB SET ALLOW_SNAPSHOT_ISOLATION ON
-- Set the transaction isolation level to snapshot
Set transaction isolation level snapshot

Update tblInventory set ItemsInStock = 8 where Id = 1
```

Transaction 2 is blocked while Transaction 1 is in progress. When Transaction 1 completes, Transaction 2 fails with an error.

Additional Resources

PRAGIM Home Page:

www.PragimTech.com

Resources:

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