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Knowledge Base Article

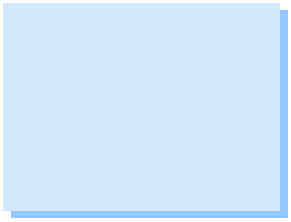
Product Group: Software
Product: Microsoft SQL Server
Version: 2008 and higher

Abstract

This document outlines how to set SQL Server trace to find deadlock situations between queries within the database.

Overview

Database deadlocks occur when two SQL commands get executed to make changes to data in the database, but each is waiting for the other command to complete to access the same resource it is holding.



Example:
Process 1 starts a transaction.
Process 1 makes a change to table “A” but has not committed the data yet.

Process 2 starts another transaction.
Process 2 makes a change to table “B” but has not committed the data yet.

Process 1 wants to make a change to table “B” but is waiting for process 2 to finish from table “B”.

Process 2 wants to make a change to table “A” but is waiting for process 1 to finish from “A”.

As a result, process 1 and process 2 are sitting waiting!

The database in a case like this will cancel one of the processes, probably process 2 because it started second and allowed process 1 to finish. As a result, one process completes its job the second process is lost.

How do I start the trace?

- Connect as SA user to SQL Server Management Studio
- Open a New Query window
- Type in the following command:

```
DBCC TRACEON (1204, -1) --provide info about nodes involved in the deadlock
DBCC TRACEON (1222, -1) --deadlock info in XML format.
```

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How do I know I have a deadlock occurring or whether one has occurred?

- Once a deadlock error happens, run this statement:

```
SELECT
    xed.value('@timestamp', 'datetime2(3)') as CreationDate,
    xed.query('.') AS XEvent
FROM
(
    SELECT CAST([target_data] AS XML) AS TargetData
    FROM sys.dm_xe_session_targets AS st
    INNER JOIN sys.dm_xe_sessions AS s
        ON s.address = st.event_session_address
    WHERE s.name = N'system_health'
            AND st.target_name = N'ring_buffer'
) AS Data
CROSS APPLY TargetData.nodes('RingBufferTarget/event[@name="xml_deadlock_report"]')
AS XEventData (xed)
ORDER BY CreationDate DESC
```

How do I view the trace information?

- The SELECT statement will output result in XML format similar to the image in Figure 1 below. Click on the result in XEvent column and save the report as XML file.

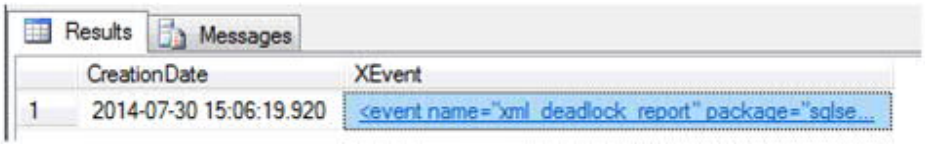

Figure 1. Results tab

How do I interpret results from the trace information?

- Once you open the XML file from trace collected, the file will show the sequence of events on how it occurred.
- It will show what statement ran first, second and so on, and eventually what got released because of the deadlock.
- The trace file should be sent to engineering in San Diego for evaluation.

How do I close the trace?

- To disable the trace, run the following statements:

```
DBCC TRACEOFF (1204, -1)
DBCC TRACEOFF (1222, -1)
```

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For further assistance, please contact the Technical Support Group by phone at 1-800-523-7514 option 8, or by e-mail at TSG-CMC@skf.com.