Adding XEvents to Monitor Replication Performance

Last updated by | Holger Linke | Apr 22, 2022 at 8:59 AM PDT

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Extended Events related to Transactional Replication

The following events help you with capturing replication-specific execution and performance details.

```
IF EXISTS(SELECT * FROM sys.server_event_sessions WHERE name='Replication')
  DROP EVENT SESSION [Replication] ON SERVER
GO
if serverproperty('EngineEdition') = 8
  CREATE EVENT SESSION [Replication] ON SERVER
      ADD EVENT sqlserver.repl_subscriber_init,
      ADD EVENT sqlserver.repl_subscriber_sync,
      ADD EVENT sqlserver.repl_subscriber_sync_status,
      ADD EVENT sqlserver.repl_distribution_status,
      ADD EVENT sqlserver.repl_logreader_status,
      ADD EVENT sqlserver.repl_snapshot_status
      WITH (STARTUP_STATE=ON)
GO
if serverproperty('EngineEdition') = 8
  ALTER EVENT SESSION [Replication] ON SERVER STATE = start
GO
```
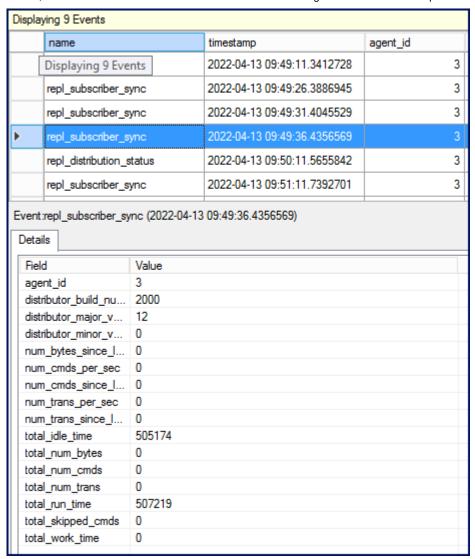
These Extended Events provide the same details as querying the Distribution history tables directly:

```
select top 100 * from distribution..MSlogreader_history order by start_time desc, time desc
select top 100 * from distribution..MSdistribution_history order by start_time desc, time desc
select top 100 * from distribution..MSsnapshot_history order by start_time desc, time desc
select top 100 * from distribution..MSrepl_errors order by time desc
```

To monitor the agent execution at the SQL batch or statement level, you can Use the SSMS XEvent Profiler ⧉ or create a separate event session with the SQL events that you require for troubleshooting the issue.

More Information

After creating the event session, it will show in SSMS under Management - Extended Events - Sessions. Right-click on the `Replication` session and select "Watch Live Data" to see events as they are recorded:

Displaying 9 Events

name	timestamp	agent_id
Displaying 9 Events	2022-04-13 09:49:11.3412728	3
repl_subscriber_sync	2022-04-13 09:49:26.3886945	3
repl_subscriber_sync	2022-04-13 09:49:31.4045529	3
repl_subscriber_sync	2022-04-13 09:49:36.4356569	3
repl_distribution_status	2022-04-13 09:50:11.5655842	3
repl_subscriber_sync	2022-04-13 09:51:11.7392701	3

Event:repl_subscriber_sync (2022-04-13 09:49:36.4356569)

Details

Field	Value
agent_id	3
distributor_build_nu...	2000
distributor_major_v...	12
distributor_minor_v...	0
num_bytes_since_l...	0
num_cmds_per_sec	0
num_cmds_since_l...	0
num_trans_per_sec	0
num_trans_since_l...	0
total_idle_time	505174
total_num_bytes	0
total_num_cmds	0
total_num_trans	0
total_run_time	507219
total_skipped_cmds	0
total_work_time	0

The initial output only contains the name and timestamp columns. But you can add further fields to the table output by right-clicking on the field, like this:

Displaying 7 Events

name	timestamp	agent_id	start_time	time	delivered_comm...	delivered_transa...	delivery_latency	delivery_rate	error_id
repl_subscriber_sync	2022-04-13 09:49:26.3886945	3	NULL	NULL	NULL	NULL	NULL	NULL	NULL
repl_subscriber_sync	2022-04-13 09:49:31.4045529	3	NULL	NULL	NULL	NULL	NULL	NULL	NULL
repl_subscriber_sync	2022-04-13 09:49:36.4356569	3	NULL	NULL	NULL	NULL	NULL	NULL	NULL
repl_distribution_status	2022-04-13 09:50:11.5655842	3	2022-04-13 09:4...	2022-04-13 09:50:11.5533333	0	0	0	0	
repl_subscriber_sync	2022-04-13 09:51:11.7392701	3	NULL	NULL	NULL	NULL	NULL	NULL	NULL
repl_subscriber_sync	2022-04-13 09:51:21.7692875	3	NULL	NULL	NULL	NULL	NULL	NULL	NULL

Event:repl_distribution_status (2022-04-13 09:50:11.5655842)

Details

Field	Value
agent_id	3
average_commands	0
average_delivery_l...	0
average_delivery_r...	0
comments	
db_id	5
delivered_commands	0
delivered_transacti...	0
delivery_latency	0
delivery_rate	0
duration	547
error_id	0
publication_id	1
runstatus	4
start_time	2022-04-13 09:41:04.2533333
time	2022-04-13 09:50:11.5533333
total_delivered_co...	4890

Context menu:
- Show Column in Table
- Hide Column from Table
- Copy

In order to correlate the agent_id's with the corresponding publications and subscriptions, you can check the agent tables:

```
select * from distribution..MSlogreader_agents
select * from distribution..MSdistribution_agents
select * from distribution..MSsnapshot_agents
```

Public Doc Reference

Quickstart: Extended events in SQL Server ⧉

Manage Event Sessions in the Object Explorer ⧉

Extended events overview ⧉

How good have you found this content?