

SAP Note

**3251660 - Suboptimal Performance of SQL Command "ALTER TABLE ADD COLUMN [...]"****Version 2****Validity:**

11.11.2022 - active

Language English

Header Data

Released On	11.11.2022 02:16:25 By Jinsol Kim (I533393)
Release Status	Released for Customer
Component	HAN-DB SAP HANA Database Display ACRF Content
Priority	Correction with high priority
Responsible	Jinsol Kim (I533393)
Processor	Jinsol Kim (I533393)
Category	Program error
Relevant for Translation	No

Symptom

You try to add a column to a column-store table by running DDL statement "ALTER TABLE ALTER COLUMN [...]", but the execution takes very long or even fails with OOM with a callstack similar to the following:

```

1: 0x0000 in MemoryManager::LimitInfo::incrementLimitRelevantUsageDoWork(unsigned long)
at mmLimitInfo.cpp
2: 0x0000 in MemoryManager::LimitInfo::incrementCoreStriping(unsigned long) at mmLimitInfo.cpp
3: 0x0000 in MemoryManager::LimitInfo::incrementInterleavedSlots(unsigned long) at mmLimitInfo.cpp
4: 0x0000 in MemoryManager::LimitRelevantUsageScope::incrementUsage(unsigned long) at mmLimitRelevantUsageScope.hpp
5: 0x0000 in MemoryManager::MemoryPool::allocate(unsigned long, unsigned short, ltt::allocator_statistics&, bool&, bool, void const*) at mmMemoryPool.cpp
6: 0x0000 in MemoryManager::MemoryPool::allocateAligned(unsigned long, unsigned long, unsigned short, ltt::allocator_statistics&, bool&, bool, void const*) at mmMemoryPool.cpp
7: 0x0000 in MemoryManager::PoolAllocator::allocateAlignedNoThrowImpl(unsigned long, unsigned long, void const*) at mmPoolAllocator.cpp
8: 0x0000 in ltt::allocator::allocateAligned(unsigned long, unsigned long) at memory.cpp
9: 0x0000 in int AttributeEngine::moveToSingleUpdates<TrexTypes::StringAttributeValue>(AttributeEngine::UpdateContainer&, AttributeEngine::SingleUpdates<TrexTypes::StringAttributeValue>&, TrexBase::IndexName const&, ltt_adp::basic_string<char, ltt::char_traits<char>, ltt::integral_constant<bool, true> > const&, AttributeEngine::AttributeDefinition const&) at memory.hpp
10: 0x0000 in AttributeEngine::PagedAttribute::takeUpdates(AttributeEngine::UpdateContainer&) at PagedAttributeDef.h
11: 0x0000 in AttributeEngine::AttributeValueContainer::fill(int, ltt_adp::basic_string<char, ltt::char_traits<char>, ltt::integral_constant<bool, true> > const*) at AttributeValueContainer.cpp
12: 0x0000 in AttributeEngine::AttributeApi::fill(int, ltt_adp::basic_string<char,
```

```
litt::char_traits<char>, litt::integral_constant<bool, true> > const*, unsigned char) at  
AttributeApiJobs.hpp  
[...]
```

Other Terms

DDL, OOM, Performance, Load Unit, Native Storage Extension (NSE)

Reason and Prerequisites

Issue number 289240

Reason:

Due to a programming error in SAP HANA, command "ALTER TABLE ADD COLUMN [...]" creates a structure for the updated table with the specified default value for each row instead of directly modifying the internal table representation.

For a large table with a number of rows to be filled in, longer execution time and higher amount of memory are required by such an inefficient update logic.

Affected Releases:

- SAP HANA 1:
 - Revisions of SPS07 - SPS12
- SAP HANA 2:
 - Revisions of SPS00 - SPS04
 - Revisions <= 059.03 (SPS05)

Prerequisites:

- The size of the table is huge **AND**
- A default value is specified in the definition of the added column

Solution

Apply one of the following SAP HANA Revisions:

- SAP HANA 2:
 - Revisions >= 059.04
 - or higher
- or higher

Workaround:

- In case the load unit of the column to be added is "PAGE LOADABLE", try using load unit "COLUMN LOADABLE" instead and then convert it to "PAGE LOADABLE" once the additional column is created

For example,

1. Add a column with load unit "COLUMN LOADABLE"

```
> ALTER TABLE "TEST_TABLE" ADD ("COL_ADDED" NVARCHAR (000010) COLUMN LOADABLE DEFAULT " NOT NULL);
```

2. Alter the load unit to "PAGE LOADABLE"

```
> ALTER TABLE "TEST_TABLE" ALTER ("COL_ADDED" NVARCHAR (000010) PAGE LOADABLE);
```

Default load unit is "DEFAULT LOADABLE", which inherits load unit from its parent object. That is, a column inherits its load unit from the partition it belongs to, and the partition inherits its load unit from the table it belongs to. So it is possible that load unit is implicitly set to "PAGE LOADABLE" without specifying it with "PAGE LOADABLE" in the affected "ALTER ... ADD" statement. (For more detailed information, please refer to [SAP HANA Administration Guide for SAP HANA Platform > Reduce the Memory Footprint Using Page-Loadable Columns](#))

Please note that this workaround might not work as it does not guarantee exclusion of the suboptimal update path.

Validity

Software Component	From Rel.	To Rel.	And Subsequent	
HDB	1.00	1.00		
	2.00	2.00		

Support Packages & Patches

Support Package Patches

Software Component	Support Package	Patch Level
SAP HANA DATABASE 2.0	SP059	000004

References

This document refers to:

SAP Notes

3128366 HAN-DB [Known issues detected in SAP HANA 2 SPS06](#)
 2945435 HAN-DB [Known issues detected in SAP HANA 2 SPS05](#)
 2784704 HAN-DB [Known issues detected in SAP HANA 2 SPS04](#)
 2628684 HAN-DB [Known issues detected in SAP HANA 2 SPS03](#)
 2525424 HAN-DB [Known issues detected in SAP HANA 2 SPS02](#)
 2462139 HAN-DB [Known issues detected in SAP HANA 2 SPS01](#)
 2432112 HAN-DB [Known issues detected in SAP HANA 2 SPS00](#)
 2380229 HAN-DB [SAP HANA Platform 2.0 - Central Note](#)
 2325090 HAN-DB [Known issues detected in SAP HANA 1 SPS12](#)
 2265103 HAN-DB [Known issues detected in SAP HANA 1 SPS11](#)
 2184212 HAN-DB [Known issues detected in SAP HANA 1 SPS10](#)
 2093754 HAN-DB [Known issues detected in SAP HANA 1 SPS09](#)
 2066225 HAN-DB [Known issues detected in SAP HANA 1 SPS08](#)

This document is referenced by:

Customer Incident (1)

Number	Year	Title	Status	Processor	Customer Number	Customer Name
0000460019	2022	CONCAT_ATTRIBUTE_Index could not be created because of ho hi	Restricted	Jinsol Kim	0000014167	SWM Services GmbH

SAP Knowledge Base Articles (1)

2800007 HAN-DB [FAQ: SAP HANA Temporary Tables](#)

ServiceNow Case (1)

Number	Year	Text	Status	Processor	Customer Number	Customer
0000460019	2022	CONCATATTRIBUTE Index could not be created because of ho hi	Closed	Jinsol Kim (I533393)		