

## SAP Note

**3032221 - A Suboptimal Host Is Selected for Statement Routing With Replica Table**

Involved

**Version** 11 **Validity:**  
02.09.2022 - active**Language** English

## Header Data

<b>Released On</b>	02.09.2022 04:43:06 <b>By</b> Jinsol Kim (I533393)
<b>Release Status</b>	Released for Customer
<b>Component</b>	HAN-DB SAP HANA Database <a href="#">Display ACRF Content</a>
<b>Priority</b>	Correction with high priority
<b>Responsible</b>	Jinsol Kim ( I533393 )
<b>Processor</b>	Jinsol Kim ( I533393 )
<b>Category</b>	Program error
<b>Relevant for Translation</b>	No

## Symptom

An execution of a statement is routed to a suboptimal host even though there is a more optimal host that contains all the tables necessitated for the statement execution.

For example,

	hostA	hostB
Tables	T1, T2, T3	_SYS_REP_T1#0 (replica of T1)
View	JOIN_V: INNER JOIN (T2, T3)	
Volume ID	3	4

**Statement:** SELECT \* FROM FROM "JOIN\_V" INNER JOIN "T1" ON "JOIN\_V"."C1" = "T1"."C1" AND "JOIN\_V"."C2" = "T1"."C2"

It is expected that the query be executed on hostA by indexserver of volume 3 since T1, T2 and T3 all are in hostA. However, the statement execution at times unexpectedly is routed to indexserver of volume 4 in hostB.

In this case, intermediate result of JOIN\_V can be transferred to hostB and there joined with \_SYS\_REP\_T1#0. However, if the size of intermediate result is too large to be transmitted, T2 and T3 are transmitted to hostB and then the statement is executed in hostB.

If the size of transmitted data is larger than statement memory limit, OOM can be raised.

## Other Terms

Statement Routing, Table Replication, OOM (Out-Of-Memory)

## Reason and Prerequisites

Issue number 261921

### Reason:

Due to a programming error in SAP HANA, only the locations of tables which are not involved in JOIN view (either SQL view or Calculation view) are added to the list of preferred routing locations and the statement execution can be routed to any of the candidates overriding the rule that when there is a volume that contains all tables (including replicas) referenced by the statement, that location is to be selected as a routing destination.

From the example above, T1 is not involved in JOIN\_V so all possible locations of it (volume 3) and its replicas (volume 4) become valid candidates and the statement execution can be routed to any of them even when hostA is clearly an optimal host.

### Affected Releases:

- SAP HANA 1:
  - Revisions of SPS10 - SPS12
- SAP HANA 2:
  - Revisions of SPS00 - SPS04
  - Revisions <= 055.00 (SPS05)

### Prerequisites:

- HANA is a scale-out system
- There is a replicated table that is not involved in JOIN view
- A routed statement contains a view with JOIN
- For JOIN view of type **CALCULATION VIEW**, it is not unfolded

## Solution

Apply one of the following SAP HANA Revisions:

- SAP HANA 2:
  - Revisions >= 056 (SPS05)
  - or higher
- or higher

### Workaround:

- Apply a following statement hint to specify the volume to which the statement should be routed

ROUTE\_TO(<volume\_id>) where <volume\_id> is the volume id of Indexserver where the execution is to be executed

## 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	SP056	<a href="#">000000</a>

## References

### This document refers to:

#### SAP Notes

2945435	HAN-DB	<a href="#">Known issues detected in SAP HANA 2 SPS05</a>
2784704	HAN-DB	<a href="#">Known issues detected in SAP HANA 2 SPS04</a>
2628684	HAN-DB	<a href="#">Known issues detected in SAP HANA 2 SPS03</a>
2525424	HAN-DB	<a href="#">Known issues detected in SAP HANA 2 SPS02</a>
2462139	HAN-DB	<a href="#">Known issues detected in SAP HANA 2 SPS01</a>
2432112	HAN-DB	<a href="#">Known issues detected in SAP HANA 2 SPS00</a>
2380229	HAN-DB	<a href="#">SAP HANA Platform 2.0 - Central Note</a>
2325090	HAN-DB	<a href="#">Known issues detected in SAP HANA 1 SPS12</a>
2265103	HAN-DB	<a href="#">Known issues detected in SAP HANA 1 SPS11</a>
2184212	HAN-DB	<a href="#">Known issues detected in SAP HANA 1 SPS10</a>

### This document is referenced by:

#### Customer Incident (1)

Number	Year	Title	Status	Processor	Customer Number	Customer Name
0000745126	2020	<a href="#">After our scale-out move with ECC we observed that some jobs</a>	Restricted	Jinsol Kim	0000469178	H & M Hennes & Mauritz GBC AB

#### SAP Knowledge Base Articles (1)

2200772 HAN-DB [FAQ: SAP HANA Statement Routing and Client Distribution Mode](#)

**SAP Notes (1)**

3043459 HAN-DB [SAP HANA 2 SPS05 Revision 056.00](#)

**ServiceNow Case (2)**

Number	Year	Text	Status	Processor	Customer Number	Customer
0000745126	2020	<a href="#">After our scale-out move with ECC we observed that some jobs</a>	Closed	Jinsol Kim (I533393)		