1142664 - MDX: Composite SAP Note about performance improvements

Version	3	**Type**	SAP Note
Language	English	**Master Language**	German
Priority	Correction with medium priority	**Category**	Performance
Release Status	Released for Customer	**Released On**	16.12.2022
Component	BW-BEX-OT-MDX (MDX,OLAP-BAPI,OLE DB for OLAP)		

Please find the original document at **https://launchpad.support.sap.com/#/notes/ 1142664**

Symptom

The execution of an MDX statement requires a long runtime and/or has high memory requirements.

Other Terms

MDX, OLAP, BAPI, XMLA, performance, RSCRM_BAPI APD

Reason and Prerequisites

See "Related Notes".

Solution

- Under "Related Notes", his note contains all the corrections produced in relation to the performance problems in the MDX interface. This note is updated when necessary.

- Check if the notes mentioned under "Related Notes" are relevant and implement them if required.

- It is preferable to import a relatively recent Support Package rather than individual corrections.

Software Components

Software Component	Release
DW4CORE	100 - 100
SAP_BW	700 - 702
SAP_BW	710 - 711
SAP_BW	730 - 730
SAP_BW	731 - 731

SAP_BW	740 - 740
SAP_BW	750 - 751
SAP_BW_VIRTUAL_COMP	700 - 700

Other Components

Component	Description
BW-BEX-ET-ODB	OLE DB Provider

This document refers to

SAP Note/KBA	Title
838800	Composite SAP Note for consulting notes about MDX/OLAP BAPIs
3242725	High main memory consumption when using bXML flattening
3127306	Long runtime for call of BAPI GetCubes
3115866	Extended runtime for determination of time stamp
3080819	Long runtime and high main memory consumption for SUM(DESCENDANTS.....)
3079925	BAPI GetCubes: Extended runtime
3078737	BXML flattening: Long runtime in method GET_LEADING_COLUMNS_DATA
3075774	Calculated member: Optimization of accesses to OLAP processor
3071728	BXML flattening: Long runtime for extensive cross join
3067628	Suppression of sorting: Further runtime optimization
3066620	Increased runtime for use of "Distinct" function in a cross join
3050174	Runtime during access to CDS views
3049587	Long runtime for COUNT with option INCLUDEEMPTY
3034613	Long runtime for HCPR field with association
3030765	Long runtime if function INSTR is used (with three arguments)
3007109	Long runtime when using the function IsEmpty

2983772	Unnecessary access to OLAP processor during calculation of calculated members
2977269	Calculated member: Long runtime
2947530	Long runtime for usage of function TOPCOUNT
2930875	Long runtime when using sets with a very large number of members
2895264	High main memory consumption in case of multiple sets and many display hierarchies
2865605	Long runtime for MDX statements with a large number of sets and a large number of calculated members - further optimization
2855651	Long runtime for use of hierarchy nodes in calculated members
2855421	Runtime problems for MDX statement and BW query with two structures
2840059	Long runtime when using the node for unassigned values
2740894	Long runtime for MDX statement with function "Generate"
2696350	Runtime improvement for method free_request of class cl_rsr_mdx_olap_request
2694574	Long runtime for the functions INSTR, CurrentMember, and MemberCaption
2693996	Long runtime in method add_req_union of class cl_rsr_mdx_olap_request
2693117	Runtime problems for calculated measure with count
2673388	Long runtime in the method find_best_instance
2672662	MDX: Runtime improvement for use of display hierarchies
2640160	Long runtime during MDX portion of the query generation
2632498	Memory problems with large datasets and several calculated members
2632216	Flattening: OLAP access for empty set
2629676	Runtime optimization for the classes CL_RSR_MDX_OPERATOR and CL_RSR_MDX_IIF
2628665	MDX: Long runtime for GetMembers when accessing BW display hierarchy/text properties
2625201	Runtime optimization for metadata BAPIs
2622449	Runtime optimization for calculated member
2609742	Long runtime when using a calculated member
2595384	Long runtime when calculating a calculated member
2594240	Further optimization of accesses to OLAP processor
2591012	Runtime improvement for .[LEVEL<XX>].MEMBERS
2587633	DrillDownMember and DrillDownLevel: Runtime improvement
2585906	Excessive accesses to the OLAP processor when using display hierarchies

2575837	Runtime improvement: Avoiding sorting
2570649	Long runtime for method MEMBER_GET of class CL_RSR_MDX_META_DATA
2559772	Calculated member: Longer runtime/authorization problems
2555715	Long runtime with COUNT and many hierarchy elements
2540201	Long runtime when using the Descendants .... function Leaves for flat hierarchy
2533700	Class CL_RSR_MDX_FILTER_SETXX: Runtime optimization
2531234	Minor runtime improvements during execution of MDX statements
2528661	Further optimization of LastPeriods function
2513544	Runtime error or high memory consumption for use of function TopCount or BottomCount
2512777	Long runtime for use of function LastPeriods
2512077	Long runtime in method SET_PRECISION of class CL_RSR_MDX_OPERATOR
2510467	Function PeriodsToDate - too many key figures are read
2509239	Runtime: Calculated member - too many key figures
2504577	Long runtime for use of All-Members
2500399	Runtime optimization for PeriodsToDate function
2498098	Long runtimes for use of function ORDER
2495406	Long runtime for descendants on flat hierarchy
2493932	Unnecessary access to OLAP processor
2485787	CurrentMember: Extremely large number of accesses to data manager
2477412	Runtime optimization for use of multiple calculated members
2466186	Long runtimes with constants in multiplication/division operations
2464871	Long runtime for function CurrentMember
2460481	Runtime problems for characteristics with high cardinality
2459505	Memory problems when using the function LastPeriods (MDX dimension not in slicer)
2453122	Terminations due to main memory bottlenecks when complex calculated members are used
2452708	Long runtime for usage of ParallelPeriod function
2447141	Long runtime for use of functions NextMember and PrevMember
2439823	Long runtime/memory problems if using the LastPeriods function
2404659	Long runtime when descendants function is used

2402450	Aggregates/Except: Long runtimes and high memory consumption
2391299	Long runtime for MDX statement with calculated member/empty rowset
2385946	Runtime optimization when using the functions LAG and ClosingPeriod
2383682	Long runtime when LAG function is used
2377276	Very high memory consumption when you use calculated members for different MDX dimensions
2366825	Long runtime for MDX statements with a large number of sets and a large number of calculated members
2366754	Long runtime during access via ODBO provider
2363861	Long runtime for Descendants ... Leaves on flat hierarchy
2349638	InfoSet: Long runtime for function module RRT_GET_DIM_CARDINALITY
2349189	Unnecessary access to OLAP processor for empty set
2346671	Long runtime when using functions PeriodsToDate and Lag
2344442	Long runtime in method BUILD_DAT_N of class CL_RSR_MDX_COMMAND
2343376	Overly frequent access to OLAP processor when using the function COUNT
2343233	High temporary memory consumption for extremely large result
2342445	Long runtime in class CL_RSR_MDX_OPERATOR / CL_RSR_MDX_CONDITION
2342174	Runtime improvements for an MDX statement with a large number of cells
2340185	Long runtime when using functions AddCalculatedMembers and DrillDownLevel
2340056	Runtime problems following implementation of SAP Note 2336972
2339546	Runtime improvement for MDX statement with empty cells
2334436	Runtime optimization for MDX statements with constants
2330898	Long runtime for calculated members with additions for MDX members of a BW display hierarchy
2327941	Runtime optimization for the function for aggregates and intervals
2327813	RSADMIN parameter MDX_JOIN_CUBE_DIME not taken into account for reading of intervals
2319051	Long runtime for function module RRT_GET_DIM_CARDINALITY
2288615	Overly frequent access to the OLAP processor
2269556	Long runtime for call of BAPI GetMembers despite restriction
2259469	Increased runtime after implementation of SAP Note 1834939
2257747	Long runtime and high main memory consumption despite use of empty set
2250692	Runtime optimization for calculated member (tuple with several dimensions)

2248685	High memory consumption for calculation of calculated members II
2248045	High memory consumption for calculation of calculated members
2229666	MDX: Long runtime during the calculation of a large number of calculated members
2224264	Further runtime optimizations for functions ClosingPeriod and OpeningPeriod
2223548	BAPI GetMembers: Minor runtime optimization
2223109	Terminations and long runtime for use of filter function
2222294	Java BICS - long runtime with fully specified search
2204177	Filter function reads too many key figures
2202557	Runtime problems after SAP Note 2197970
2198279	Performance improvement for ClosingPeriod and hierarchy nodes
2197970	MDX: Long runtime and high main memory consumption when many sets used
2196454	MDX: Long runtime in the function module RRT_GET_DIM_CARDINALITY
2191876	MDX: Lots of accesses to table RSRHIEDIR_OLAP
2191296	MDX: Long runtime for use of ClosingPeriod function- level and member specification
2187916	MDX: Long runtime when INTERSECT function is used
2182149	Long runtimes in method IS_PROPERTY_EXISTING of class CL_RSR_MDX_META_DATA
2179398	MDX: Long runtime in classes CL_RSR_HIERARCHY_INCL and CL_RSR_MDX_USRDF_PROPERTY
2178113	MDX: Optimization for PeriodsToDate and CurrentMember
2174831	MDX: Long runtime and high memory consumption for nested calculated member
2171048	MDX: High main memory consumption, long runtime for MDX function LAG and hierarchy nodes
2133122	MDX: Aggregates - long runtime and high memory consumption
2123079	MDX: Long-running OLAP accesses for complex MDX statements
2120862	MDX: Long runtime for set with multiple tuples
2118154	MDX: Accesses to table RSADMIN
2081922	MDX: Runtime optimization for calculated member, incorrect data after SAP Note 2058813
2077120	MDX: Minor runtime extensions of BAPI GetMembers after upgrade to BW 7.40
2073240	MDX: Long runtime with calculated members or many members in calculations
2069887	MDX: Long runtime when ancestor function is used
2041833	MDX: Long runtime and high memory consumption with filter of 0CALMONTH

2025327	MDX: Long runtime for calculated members and use of different hierarchies
2019011	MDX: BAPI "GetMembers" - long runtimes for display hierarchies; multiple restrictions
2012433	MDX: Long runtime/high main memory consumption for named set
1999599	MDX: BAPI GetMembers, long runtime for hierarchies with many non-assigned hierarchy elements
1998493	MDX: High runtime for COUNT
1989106	MDX: Extended runtime when calculating calculated members
1988361	MDX: Smaller runtime optimization in special cases when calculating several Calculated Members
1984206	Runtime improvements during reading of hierarchy root nodes
1978806	MDX: Long runtime for GetMembers when accessing BW display hierarchy with property key (KEY)I
1976979	MDX: Long runtimes BAPI GetMembers and display hierarchy - special case
1957462	MDX: MDX: Long runtime for GetMembers when accessing BW display hierarchy II
1946036	MDX: Long runtime and high memory consumption with filter function
1943243	MDX: Long runtime with calculated measure with Count InludeEmpty
1923754	MDX: Long runtime when calculating an extremely large number of calculated members
1922881	MDX: Long runtime for GetMembers when accessing BW display hierarchy
1921989	MDX: Long runtimes in case of variables with user exit
1919862	MSX: increased runtimes if you use a BW query with two structures
1919082	MDX: Further optimization of the runtime of class CL_RSR_MDX_FILTER_SETXX
1919079	MDX: Further optimization of the LAG funtion
1916884	MDX: High memory consumption when using Lag function
1911601	MDX: Long runtime for calculated member with additions
1910015	MDX: Runtime improvements for the function PeriodsToDate
1909522	MDX: Many OLAP accesses with LastPeriods or PeriodsToDate
1903204	MDX: Runtime optimization for display hierarchies
1901873	MDX: Unnecessary tuple creation for division and multiplication
1893259	MDX: Long runtime - Calculated members different dimensions
1888519	MDX: Long runtime CL_RSR_MDX_OPERATOR/CL_RSR_MDX_IIF
1888318	MDX: Too many accesses to operator class
1884211	MDX: Calculated member, struc.: Runtime, memory consumption

1881779	MDX: Long runtime, high memory consumption for intersect
1869513	MDX: Problems with calculated member with many calculations
1865190	MDX: Long runtime for Lag / Lead / ParallelPeriod
1861833	MDX: OLAP accesses for calculated member or display hierarchy
1861007	MDX: Long runtime in class CL_RSR_MDX_FILTER_SETXX
1859399	MDX: Optimization for several calculated members in slicer
1848172	MDX: Long runtime for parsing of extremely large MDX statements
1845706	MDX: Runtime improvement in methods GET_DATA/GET_DATA_CRM
1838467	MDX: Long runtime for calculated measures/members
1832681	MDX: Long runtime for function DrillDownMember
1832140	MDX: OLAP access runs for long time for calculated member
1814929	MDX: Too many tuples when calculated member is calculated
1814437	MDX: Too many MDX members for dimension [0FISCPER]
1812964	MDX: Long runtime in the class CL_RSR_MDX_FILTER_SETXX
1809499	MDX:GetMembers - Long runtimes for non-compounded keys
1803095	MDX: GetMembers 0CALDAY non-cumulatives
1801823	MDX: Long runtime when using ClosingPeriod function
1797401	MDX: Frequent call of method CHECK_IF
1789664	MDX: Filters, several conditions and high cardinality
1782363	MDX: Long runtimes when using CurrentMember
1775384	MDX: Long runtime/high memory consumption in case of filter
1770245	MDX: Long runtime with Descendants / Leaves function
1766405	MDX: Runtime problems when using calculated members
1758768	MDX: Long runtime, calculated member with sign change
1758038	MDX:Long runtime/large memory consumption for open request
1754540	MDX:Long runtime for aggregate or nested calculations
1740924	MDX: OLAP access runs for a long time
1740020	MDX: Long runtime for the function PeriodsToDate
1731768	MDX: Runtime for calc. members of different MDX dimensions

1730858	MDX: Parameter MDX_JOIN_CUBE_DIME not taken into account
1729206	MDX: Long runtimes when parsing extremely large statements
1708707	MDX: Long runtimes for calculated member with IIF
1708376	MDX: Long runtimes for calculated measure with interval
1704745	MDX: Web Intelligence calls multidimensional BAPIs
1704169	MDX:Runtime increase when using external hierarchies
1702369	MDX: Nested calculated measures - too many key figures
1697555	MDX: Long runtimes for calculation of calculated measures
1693595	MDX: Long runtime in class CL_RSR_MDX_USRDF_PROPERTY
1688886	MDX: Long runtimes when calculating calculated measures
1687536	MDX: Long runtimes/incorrect data for LAG or LEAD function
1675942	MDX: Long runtime for "Contains Pattern" (CP)
1674335	MDX: Long runtime for except and set with only one member
1673451	MDX: High memory consumption for calculated member
1672014	MDX: Function RRT_BROWSE_VARIABLES has long runtime
1644997	MDX: Individual members read the complete rowset
1644434	MDX: Long runtime for LASTPERIODS
1640795	MDX: Too many BW key figures are read
1639514	MDX: Long runtime even though an empty set is queried
1638551	MDX: Long runtimes when using hierarchize function
1637792	MDX: Long runtime in the method FIND_BEST_INSTANCE
1611618	MDX: Runtime of functions INSTR & UCASE
1610004	MDX: Long runtime in the method GET_MULTIPLE_STRINGS
1607491	MDX: Long runtime for MDX function INSTR
1604027	MDX: Long runtime when you use a calculated member
1596989	MDX: Long runtime in method CHECK_IF
1596255	MDX: Long runtime in the method IS_AUTHORIZED
1574984	MDX: Too many characteristic structure elements are read
1573815	MDX: Long runtime on the database for COUNT (*)

1554272	MDX: Long runtime if crossjoin is used
1553927	MDX: High memory consumption; crossjoin, intersect, generate
1530858	MDX: Runtimes are long when the member rowset is determined
1511745	MDX:Default measure&numerous members in a set- runtime prob.
1507653	MDX: High memory consumption/runtime error during EXCEPT
1489375	MDX: High memory consumption with Descendants / Leaves
1481568	MDX: YTD, calculated members and many dimensions
1479836	MDX: Generate - Too many hierarchy levels are read
1454543	MDX: Optimized data query for IIF statement
1450366	MDX: High memory consumption with Intersect(), Crossjoin()
1448691	MDX: Performance of set
1448445	MDX: Performance improvement of EXCEPT() function
1446437	MDX:Increased memory consumption for op in calculated member
1437074	MDX: Optimization of IIF statement for property values
1430427	MDX: Increased memory consumption for calculated members
1426394	MDX:Increased memory consumption with YTD calculated members
1425854	MDX:Increased memory consumption w/ calculated member tuple
1410242	MDX: Performance of LAG() and LEAD()functions
1398382	MDX: Performance optimization of the filter function
1395307	MDX: Retrieving axis data takes an extremely long time
1392631	MDX: Subsequent correction to Note 1383354
1392193	MDX: Subsequent correction for 1390371: Sorting is too slow
1390371	MDX: Sorting is very slow
1390065	MDX: Accelerating bXML
1383593	MDX: Improving the performance of some MDX functions
1383354	MDX: Very long runtime -- too many KIDs read
1381821	Memory and Performance Analysis for MDX
1368202	MDX optimization: Reading minimal set of key figures
1338760	MDX: Performance of function EXCEPT(<d>.Members, <d>.[All])

1333559	MDX: Performance of DESCENDANTS (..., LEAVES) function
1322798	MDX: Enhanced performance for basXML-based flattening
1316004	MDX: Performance of INTERSECT() function
1312912	MDX: Optimized usage of constants
1310048	MDX: Optimized processing of the IIF statement
1283099	MDX: Performance of the UNION() function
1281603	OLE DB for OLAP: Performance when determining cube rowsets
1273477	MDX: Performance improvements during determination of axes
1272334	MDX: Performance improvement enhanced for basXML API
1241650	MDX: API for flattening access based on basXML
1240165	Performance optimization for hierarchy authorizations
1237933	MDX:More memory released when BAPI_MDPROVIDER_REFRESH called
1235882	MDX: Optimizing the determination of dimension members
1235608	MDX: Optimized memory consumption for flattening access
1230712	MDX: Implementing the unorder function
1230303	MDX: Buffering of hierarchy metadata
1170323	MDX: Performance when filtering on hierarchy node
1169205	MDX: Filter transfer in the case of cross join
1162416	OLE DB for OLAP: Restriction on MEMBER_CAPTION
1162349	OLE DB for OLAP: Restriction on text and performance
1161911	OLE DB for OLAP: Many read accesses to table RSRREPDIR
1161234	MDX: Performance of EXCEPT() function
1086509	MDX: Too many key figures/measures requested
1016067	Improving performance for MDX and DataStore object

This document is referenced by

SAP Note/KBA	Title
2777473	MDX: FAQ for Power BI accessing BW or BW/4HANA

2272366	Performance Analysis Tools for SAP BPC NetWeaver/BW Reporting
1740924	MDX: OLAP access runs for a long time
1801823	MDX: Long runtime when using ClosingPeriod function
1838467	MDX: Long runtime for calculated measures/members
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1430427	MDX: Increased memory consumption for calculated members
1489375	MDX: High memory consumption with Descendants / Leaves
1395307	MDX: Retrieving axis data takes an extremely long time
1437074	MDX: Optimization of IIF statement for property values
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1162349	OLE DB for OLAP: Restriction on text and performance
1161911	OLE DB for OLAP: Many read accesses to table RSRREPDIR
1086509	MDX: Too many key figures/measures requested
1016067	Improving performance for MDX and DataStore object

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