820925 - MDX - Restrictions

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Language	English	**Master Language**	English
Priority	Recommendations / Additional Info	**Category**	Consulting
Release Status	Released for Customer	**Released On**	30.01.2017
Component	BW-BEX-OT-MDX (MDX,OLAP-BAPI,OLE DB for OLAP)		

Please find the original document at **https://launchpad.support.sap.com/#/notes/ 820925**

Symptom

MDX Restrictions

Other Terms

MDX, OLAP, ODBO, OLE DB for OLAP, Restrictions

Reason and Prerequisites

General Information regarding the working of MDX statements

Solution

Here is the list of unsupported query features...

- The MDX engine of SAP BW supports up to one million cells. (-> BRAIN 121) This restriction is only valid for the standard MDX BAPIs. With SAP Note 1232751, new function modules are provided that do not have this limitation any more.
- If your Formula or Calculated Key Figures have following operators: %RT, %GT, %CT, %XT, SUMRT, SUMGT, SUMXT, SUMYT and LEAF then they are not supported in MDX. These operators make use of Special List Geometry which is only available for BEX Analyzer.(-> BRAIN 136, Operator LEAF , -> BRAIN 136)
- Variables with replacement from query result are not supported, if the query again has variables that are ready for input.(-> BRAIN 137)
- Levels greater than 20 are not supported by specifying them directly. For example <dimension>.LEVEL21 is not supported. (-> BRAINOLAPAPI 100). Instead the function <dimension>.LEVELS(<num_exp>) should be used.
- There is a maximum of 10 different hierachies in the drilldown (constant rrk1_c_setxx_max_sid_hindex). If more than 10 hierachies are used in a drilldown, then the error 'SID_INDEXH' will be returned.
- The usage of a non unique external hierarchy (a MDX dimension based on an external BW hierarchy that uses link nodes or duplicate nodes) can lead to unexpected data (see for example the SAP notes 1253646 and 1526045, other effects may be possible as well).
- The return structure of the BAPIs has not been changed with BW 7.40. Texts longer than 60 digits will be displayed abbreviated; characteristic values longer than 60 digits will be displayed abbreviated as well. To guarantuee the uniqueness of unique names (member_unique_name), generated IDs will be used.
- For the MDX Interface, there is still a restriction to the number of drilldown characteristics. The number of drilldown characteristics is still restricted to 50. Every MDX statement that tries to use more than 50 characteristics terminates with an error message.

Here is the list of unsupported list properties. These properties are ignored during MDX execution.

- Variables that can be changed during query navigation are ignored in MDX.
- If the Query has Variables that can be changed during query navigation and have a mandatory entry, then this Query cannot be used. The execution of an MDX statement will return an error (BRAIN629). Please consider to remove the setting for the mandatory entry.
- OLEDB for OLAP has its own query language namely MDX. MDX has its own concept to suppress empty records and to process conditions. Corresponding Query settings do not apply to MDX. These are for example conditions, settings to zero suppress result position.
- Display properties of characteristics and presentation hierarchy do not apply.
- MDX does not support time dependent hierarchies. As a consequence time dependent hierarchies are evaluated by default at current date. The key date can be changed with function BAPI_MDPROVIDER_SET_KEY_DATE. **Note:** hierarchies using the Temporal Hierarchy Join (THJ) feature are supported. The key date is derived from the data itself.
- Attribute properties do not apply.
- Properties of structure elements like hidden, cumulation do not apply.
- In a hierarchy, structure properties do not apply.
- Calculated Results as..., calculated single values as..., cumulation do not apply.

Additional restrictions:

- Usage of MDX keywords
  - It is allowed to load MDX keywords as values of a BW Characteristic. For example, it is allowed to load the value 'LEVEL10'.
  - This can lead to syntax errors in case the Characteristic value is used as a Member in an expression. For examle, <dimension>.[LEVEL10] will be interpreted as a Level although it is loaded as a Dimension Member.
- Restriction of binary XML Flattening API
  - The binary XML-based Flattening API is designed for the use case where the [Measures] Dimension is used on the columns axis.
  - If the [Measures] Dimension is used on the columns axis, then the result will be wrong.Size of the MDX Statement
- Size of the MDX Statement. The MDX parser is able to parse very large statement. The old MDX parser implementation (see SAP Note 1572695) will terminate if statements get too large. There is no fix limit regarding the size of the MDX statement itself. It will fail if the number of parameters (for example MDX dimension names, MDX member names, level numbers) exceeds a limit of 950.000. The new parser implementation will fail in case the stack size exceeds 10.000 (this can be for example achieved if several hundred to thousand unions in combination with other functions are used).

Other Components

Component	Description
BW4-AE	Analytic Engine
BW-BEX-OT-OLAP	Analyzing Data

BW4-AE-API-MDX	Multidimensional Expressions

This document refers to

SAP Note/KBA	Title
845955	MDX: No parallel execution of several MDX commands
838800	Composite SAP Note for consulting notes about MDX/OLAP BAPIs
646699	Restrictions during the use of BW queries
323779	OLE DB for OLAP features and restrictions
2032955	OLAP limitation on number of drilldown characteristics removed
1572695	MDX: System-wide call of old parser implementation
1526045	MDX: Non-unique hierarchies, link nodes, and structures
1381821	Memory and Performance Analysis for MDX
1272044	Analyzing MDX problems
1253646	MDX: Handling link nodes
1232751	MDX: Result contains too many cells (more than 1 million)

This document is referenced by

SAP Note/KBA	Title
1606940	The Query Cannot be Released for OLE DB for OLAP
2777473	MDX: FAQ for Power BI accessing BW or BW/4HANA
1834635	Query results in APD differ from RSRT
2440610	APD: Bex query with filters in the 'default values' not recommended
1925924	How to enable RSTT Trace in SAP BW for Frontend Tool(SAP BI & 3rd-party Tools) [video]
1938885	BICS vs MDX BAPI vs DF Relational(JCo) Connection on BI 4.x
2726532	Output length: Differences between BAPI GetMembers and BAPI GetAxisData
838800	Composite SAP Note for consulting notes about MDX/OLAP BAPIs
1253646	MDX: Handling link nodes

1272044	Analyzing MDX problems
1526045	MDX: Non-unique hierarchies, link nodes, and structures
1381821	Memory and Performance Analysis for MDX
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