

**Proven Practices,
Design Examples & Templates
for
Version & Scenario Management
and Variance Analysis
with IBM Planning Analytics**

Prepared:

July 2014

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Document Version History

Date	Version	Author	Description
6/2014	1.0	Andreas Kugelmeier	
7/1/2014	1.5	Andreas Kugelmeier	
7/2/2014	1.6	Andreas Kugelmeier	Add Content on Variance Analysis & Reporting Version design Misc. minor other changes
7/10/2014	1.7	Andreas Kugelmeier	Update Design Template: Process 'SYS_IBM_Version_Management.pro' (fix process for iterative submissions)
7/30/2014	1.8	Andreas Kugelmeier	Minor updates to design template
9/11/2015	1.85	Andreas Kugelmeier	Minor updates to document
11/20/2015	1.9	Andreas Kugelmeier	Updates to Version Dimension in zip archive, updates to sample rules,
11/2016	2.0	Andreas Kugelmeier	Correct variance calculations

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1. Introduction to Version Management proven practices

In the context of a best practices Version Management methodology, TM1 cube rules are only applied to 'Open' versions; data for submitted / approved / closed / historical versions is 'frozen' (not rule-derived) and hence automatically 'archived'.

A version management methodology should follow the following guidelines¹:

- N-Level Rules shall not apply to submitted (historical) versions
- the left side of the planning cube rules shall only include 'open versions' (the versions that are open for planning)
- there shall be a fixed number of open versions (hence the open versions can be included on the left side of the rules)
- Open versions are submitted to ('copied' to) 'historical'/'closed' versions. Closed versions are not ruled (only C-level rules if applicable). Data in 'historical' versions is frozen.
- Closed/Historical Versions shall not be subject to rule evaluations, i.e. only Open Versions shall be specified in the rule area (left side of the rules)
- Data can also be copied from a historical version to an 'open' Version or 'Working Iteration' to allow for forecast/plan seeding.

¹ From a performance perspective, this is particularly important for a system that expects a larger data volume. From a usability & maintenance perspective, the practice should be applied for all forecasting & planning models.

2. Example of a non-optimal version management methodology

The Version/Scenario dimension of TM1 Forecasting & Planning models is often designed such that cube rules that pertain to 'open' or 'input' scenarios/versions are evaluated against all version dimension leaf elements. If a version is to be frozen/static, this is often determined on the right side of the rule(s) based on a version attribute (like 'status'). Historical/submitted/closed versions however should not be exposed to N-level rules at all, i.e. no N-level rules shall have to be evaluated against those versions. Such rules will significantly degrade performance for querying historical/closed/submitted versions – particularly for larger cubes - because the rules are written such that TM1 will do a conditional check for each or most cells if a rule is to be applied before being able to determine that a rule is not to be applied. This practice should be avoided. Instead, Open Versions should be called/defined in the rule area (left side of the rule) rather than by a conditional if/then logic depending on version attributes (right side of the rule)². Only intersections that are identified by a rule area will be evaluated for rules. Therefore, it is always a good practice to specify the rule area for a particular business rule as thoroughly as possible.

Sample case: Flat list of scenarios/versions, behavior and business rules for each version is determined by version attributes alone.

Result: each version needs to be evaluated against its attributes. This evaluation occurs in the input cube rules for each cell, i.e. the evaluation occurs for each cell in the input cubes. This method will significantly degrade performance for large data volumes/sets.

- 2015 Plan Iteration 1
- 2015 Plan Iteration 2
- 2015 Plan Iteration 3
- 2015 Q1 Forecast Iteration 1
- 2015 Q1 Forecast Iteration 2
- 2015 Q1 Forecast Iteration 3
- 2014 ACT
- 2015 Final Business Plan
- 2013 ACT

²The rule area is to the left of the '=' sign. It defines the area or intersection(s) of the cube to which a certain calculation / business rule logic is to be applied: [`<ElementName>`] = N: ...

3. Version Management Methodology Design Template

3.1 Version Management Design Template Overview

The Version Management Asset consists of Turbo-Integrator (TI) processes and (Scenario/Version) Dimensions and dimension attributes that can be used for plug-and-play version management.

- Hierarchical list of scenarios/versions, with rules only applied to an N-number of 'Open Versions' or 'Working Iterations' which may have an alias according to their current purpose ('Forecast' may have an alias of '2015 Q1 Forecast', 'Plan' may have an Alias '2015 Business Plan' etc. The Version element names for the 'open' or 'working' versions is to be included on the left hand side of in every input cube rule. If one or more 'open' versions are not to be used for input (because the Final Business Plan cycle is not yet open for example), the versions are to be locked against input by a version attribute 'Is Locked' (applied to security).
- Versions under 'Historical Versions' and the 'Actuals' version are not to be included in any N-level rule area. Historical Versions and Actuals are not to be set as 'stet', rather, they should not be used/contained/included in any N-level rule area (left side of the rule).
- When an open version is submitted, it will be copied to a historical version (that will not have any associated N-level rules). The historical version will be suffixed with an Iteration indicator suffix and a number according to the # of total iterations to date for the particular forecast cycle. Historical Versions hence serve the purpose of 'freezing' and hence 'semi-archiving' submitted planning and forecasting versions³
- Note that the working Forecast and Plan are not the approved (and hence 'current') Forecast and Plan. A 'current' Forecast/Plan needs to be approved (= submitted). The latest approved Plan & Forecast will not only be copied to the 'historical version' branch, but will also be assigned as the descendant of the 'Current Forecast'/'Current Plan' node. It follows that the version management process automatically assigns and updates the 'Current Forecast' and 'Current Plan'.
- What-if Scenario Versions are used for Best-/Worst-/What-if Case Scenario planning
- All input models shall ideally share one and the same version dimension (do not use a version dimension and a separate version iteration dimension).
- Variances (Act vs Plan etc.) all calculated via
 - Leveraging TM1's natural consolidation algorithm, i.e. via hierarchy rollup like in
Forecast vs Plan Var
Current Forecast
- Current Plan
 - Using so-called 'feederless rules', where the calculation rule is written against a C-Level element but where the C-level element is 'fed' by being the parent of the N-Level element that drives the calculation, like in
Act vs Forecast FX Var
Actual
(where the FX Variance is = Actuals in Rptg Curr – Act in Transaction Curr * FCST Fx Rate)

³ Freezing as in 'storing/saving data such that rule & driver changes cannot change their data'
 TM1 Version & Scenario Management & Variance Analysis:
 Proven Practices & Design Examples

3.2 Version Dimension structure

Open Versions (= Working Versions)

Actual

Last Year Actual (used for relative proportional spreading and PY Var calcs)

Forecast (= **working** Forecast, i.e. **NOT** official/submitted forecast)

Plan (= **working** Plan, i.e. **NOT** official/submitted plan)

What-If Scenarios (used for What-if and Best/Worst Case etc.)

What If Plan Scenarios

What If Plan Scenario 1

What If Plan Scenario 2

What If Forecast Scenarios

What If Forecast Scenario 1

What If Forecast Scenario 2

Current Forecast and Plan Versions

Current Forecast (latest **official/approved/submitted** Forecast)

Forecast YYYYMM – Final Iteration

Current Plan (latest **official/approved/submitted** Plan)

Plan YYYYMM – Final Iteration

Prior Forecast (prior **official/approved/submitted** Plan)

Forecast YYYYMMPrior – Final Iteration

Current Plan Target (latest **official/approved/submitted** Plan target)

Plan Target YYYYMM – Final Iteration

Historical Versions (contains FINAL, submitted=approved FCST & Plan)

Forecast YYYYMM – Final Iteration

Plan YYYYMM – Final Iteration

Plan YYYYMM –Iteration 1

Forecast YYYYMMPrior – Final Iteration

Variances (= Standard Variances)

Forecast vs Plan Var Excl FX

Forecast vs Plan Var

Current Forecast

- Current Plan

- Forecast vs Plan FX Var

Current Forecast

Act vs Forecast Var Excl FX

Act vs Forecast Var

Actual

- Current Forecast

- Act vs Forecast FX Var

Actual

Act vs PY Act Var Excl FX

Act vs PY Act Var

Actual

- Last Year Actual

- Act vs PY Act FX Var

Actual

(continued on next page)

Act vs Plan Var Excl FX

Act vs Plan Var

Actual

- **Current Plan**

- Act vs Plan FX Var

Actual

Forecast vs Prior Forecast Var Excl FX

Forecast vs Prior Forecast Var

Current Forecast

- **Prior Forecast**

- Forecast vs Prior Forecast FX Var

Current Forecast

Working Plan vs Forecast Var Excl FX

Working Plan vs Forecast Var

Plan

- **Current Forecast**

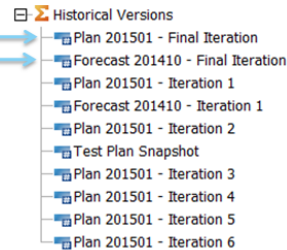
-Working Plan vs Forecast Var Excl FX

Plan

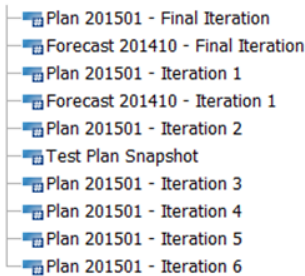
3.3 Relationships & Data Flow

ElementAttributes_Version			
Version	Version Identifier	Hierarchy Suffix	Actuals Through Date
-- Open Versions			0
Actual	Actual 201503		201503
Forecast	Forecast 201410	FCST201410	201410
Plan	Plan 201501	Plan201501	201501

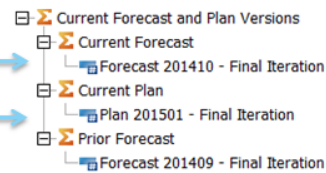
Version Management TI Process
Will Create Elements & Copy Data



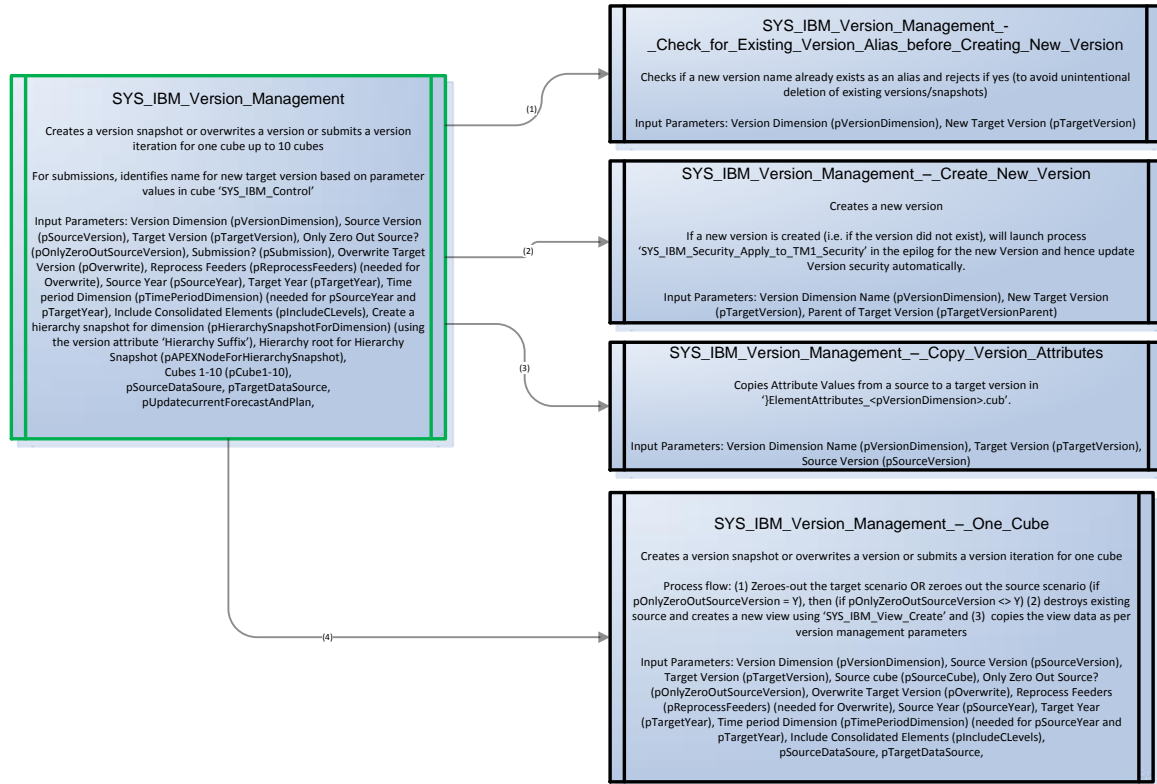
Historical Versions



Version Management
TI Process
will update rollups



3.4 TI Components: Overview



Other processes:

- SYS_IBM_Security_-_Update_ElementSecurity_based_on_Parent_Access_Credentials.pro: sub-process launched by SYS_IBM_Version_Management_-_Create_New_Version.pro if an Element Security cube exists for the Version Dimension. Will update / create Version Dimension access for new dimension based on Version Hier parent access.
- SYS_IBM_DIM_Hierarchy_Create_Suffixed_Hierarchy.pro & SYS_IBM_DIM_Hierarchy_Destroy_Suffixed_Hierarchy.pro: sub-processes used by SYS_IBM_Version_Management.pro to create/destroy(renew) suffixed hierarchies

3.5 Version Attributes

'Version Identifier':

The Identifying of the version that will be used when submitting FCST/Plan/What-If Versions, i.e. the name that the submitted version will get, followed by the iteration suffix

'Actuals Through Date':

FISCAL YEAR and MONTH (like 201502 as in 2nd Fiscal period in Fiscal Year 2015). Determines the last actuals month. Forecast data will be overruled with actuals up to the actuals through date of the version. No effect on Version Management process.

'Hierarchy Suffix' (Text):

Suffix to apply to hierarchy snapshots during version management, i.e. if version management parameters pHierarchySnapshotForDimension and pAPEXNodeForHierarchySnapshot are specified

'Name' (Alias):

Version Alias, not used for rules or scenario processing. However: when the running version management process, the target scenario may not have the name of an existing Alias.

3.6 Version Management processing

3.6.1 SYS_IBM_Version_Management.pro

Version Management processing occurs via Process 'SYS_IBM_Version_Management.pro' to

- create a version snapshot (a copy / backup of data in any version) or to
- overwrite a version (for seeding) or to
- submit a version (iteration) (an official submission)
- zero-out a version

for one cube up to N cubes (currently 17):

Parameter	Type	Default Value	Prompt Question
pVersionDimension	String	Version	Version Dimension?
pSourceVersion	String	Plan	Source Version?
pTargetVersion	String		Target Version?
pOnlyZeroOutSourceVersion	String	N	Only Zero Out Source Version? (leave Target Version Empty) (Default N)
pSubmission	String	Y	Submission?
pOverwrite	String	N	Overwrite/Overlay (for Rollover)? (Default N) NOTE: will only overwrite non-zero source values => run a zero-out only on the target
pReprocessFeeders	String	N	Reprocess Feeders? (Default N)
pSourceYear	String		Source Year? (enter ND.YYYY)
pTargetYear	String		Target Year? (YYYY)
pTimePeriodDimension	String		Dimension containing time periods (years)?
pIncludeCLLevels	String	N	Include C-Levels in processing? (Default N)
pHierarchySnapshotForDimension	String		Name of Dimension for which to create a hierarchy snapshot
pAPEXNodeForHierarchySnapshot	String		Root element for Hierarchy Branch of Snapshot Dimension (above)?
pCube1	String	Operating Revenue & Expense	Cube?
pCube2	String		Cube?
pCube3	String		Cube?
pCube4	String		Cube?
pCube5	String		Cube?
pCube6	String		Cube?
pCube7	String		Cube?
pCube8	String		Cube?
pCube9	String		Cube?
pCube10	String		Cube?
pCube11	String		Cube?
pCube12	String		Cube?
pCube13	String		Cube?
pCube14	String		Cube?
pCube15	String		Cube?
pCube16	String		Cube?
pCube17	String		Cube?
pSourceDataSource	String		Source Data Source?
pTargetDataSource	String		Target Data Source?
pUpdateCurrentForecastandPlan	String	Y	Update Rollups for Current Forecast and Plan? (Default=N)

Input Parameters:

Version Dimension (pVersionDimension):

Enter version dimension name ('Version'). Adjust if some models use a different version dimension.

Source Version (pSourceVersion):

Source version, for example 'Forecast' or 'Plan' or 'What-If FCST Scenario 1' etc.

Target Version (pTargetVersion):

Enter target dimension name IF Submission <> 'Y'. If 'Overwrite' = Y, enter a non-Actuals 'Open' Version; if 'Overwrite' = N, enter any name for a snapshot version.

Only Zero Out Source? (pOnlyZeroOutSourceVersion):

If set to Y, target version is not needed. Process will only zero-out the source version.

Submission? (pSubmission):

If set to Y, will 'officially' 'submit' a version. For submissions the iteration suffixes for new target versions (Final & Iterations) are queried from parameter values in cube 'SYS_IBM_Control'⁴; the Submission Version name (w/o suffix) will be taken from version attribute 'Version Identifier'.

Overwrite Target Version (pOverwrite):

If set to Y, will overwrite (open) target version. Submission needs to be set to N

Reprocess Feeders (pReprocessFeeders):

If set to Y, will re-process feeders after an overwrite. Needed in case cube rule feeders include conditional feeders.

Source Year (pSourceYear):

For Overwrite: specify a source year. Format: ND;YYYY (for 'N-level descendants of YYYY)

Target Year (pTargetYear):

For Overwrite: specify a target year. Data will be copied (seeded) from source to target year; Format: YYYY

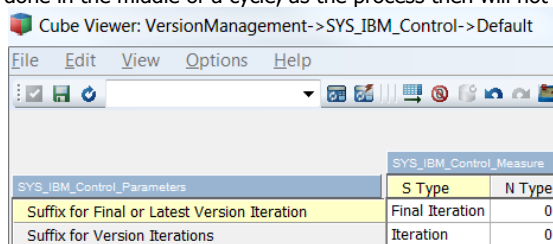
Time period Dimension (pTimePeriodDimension):

Time Period Dimension Name; needed if pSourceYear and pTargetYear are specified); Required for Source to Target Year seeding.

Include Consolidated Elements (pIncludeCLevels):

Set to Y if cubes contain consolidated (text or attribute) elements that are to be copied; if parameter needs to be set to Y for some cubes, only run process for those cubes (Cube 1-N)

⁴ The suffix may be changed for a new FCST/Plan cycle, i.e. after changing the Actuals Through Date. Suffix changes should not be done in the middle of a cycle, as the process then will not be able to determine if a prior iteration existed.



Create a hierarchy snapshot for dimension (pHierarchySnapshotForDimension):

Will use the hierarchy version attribute 'Hierarchy Suffix' to create a suffixed hierarchy snapshot of the specified dimension.

Hierarchy root for Hierarchy Snapshot (pAPEXNodeForHierarchySnapshot):

Will snapshot the hierarchy specified by the root (apex) node

Cubes 1-17 (pCube1-17):

Will run Version Management for the specified cubes

pSourceDataSource

Allows to specify a 'source' data source dimension element

pTargetDataSource

Allows to specify a 'target' data source dimension element and will copy data from source data source to target data source. Used for certain seeding operations

pUpdateCurrentForecastAndPlan

Set to Y to update the 'Current Forecast' and 'Current Plan' rollups in the Version dimension. If set to Y, the 'Current Forecast' and 'Current Plan' rollups will be updated with the latest FCST/Plan submission.

3.6.2 View and Subset generation

The Version management Asset leverages the TI processe SYS_IBM_View_Create.pro to create TM1 cube views. SYS_IBM_View_Create.pro leverages the TI process SYS_IBM_Subset_Create.pro to create subsets.

SYS_IBM_View_Create

Creates subsets named Prefix | <TM1USER> (unless pSubsetName is not empty) using the 'SYS_IBM_Subset_Create' processe and (2) builds a view by the name Prefix | <TM1USERID> (unless pViewName is not empty. If pViewName is specified and pSubsetName is not, the Subsets will get the same name as the view (Prefix queried from 'SYS_IBM_Control').

Input Parameters:

Cube Name (pCubeName), View Name (pViewName), Subset name (pSubsetName), Include rules (pIncludeRules), Include Consolidated Elements (pIncludeCLevels), Zero Supress View (pZeroSupress), Create MDX Subsets (pCreateMDXSubsets),

Only Last Actuals Time Period (pOnlyLastActualsTimePeriod), Only First Non Actuals Time Period (pOnlyFirstNonActualsTimePeriod), Only Actuals Time Periods (pOnlyActualsTimePeriods), Only Non Actuals Time Periods (pOnlyNonActualsTimePeriods), Only Current Year Actuals Time Periods (pOnlyCurrYearActualsTimePeriods), Only Current Year Non Actuals Time Periods (pOnlyCurrYearNonActualsTimePeriods),

Logging (pLogging) (detailed logging), Use Existing View (pUseExistingView) (if set to Y, views will not be recreated and the process will only change the content of the underlying subsets by passing pDestroySubset = N to the process 'SYS_IBM_Subset_Create' => use only if non MDX subsets are used and if applicable and desired for particular processing scenario),

Needed for Time Period Parameters only (Act vs non Act time period(s)): Time Period Dimension (pTimePeriodDimension), Year Dimension (pYearDimension), Month Dimension (pMonthDimension), Version (pVersion), Version Dimension (pVersionDimension) (Version & Version Dimension needed to determine the 'Actuals Through Date' (Attribute of Version)

Default Subset (pDefaultSubset) (N-Levels only or ALL? Leave empty for N-Levels)

Dimension A (pDimensionA_Name), Dimension A Element (pDimensionA_Element), Dimension A Attribute (pDimensionA_Attribute), Dimension A Attribute Value (pDimensionA_AttributeValue),
 ...
 Dimension F (pDimensionF_Name), Dimension F Element (pDimensionF_Element), Dimension F Attribute (pDimensionF_Attribute), Dimension F Attribute Value (pDimensionF_AttributeValue),

SYS_IBM_Subset_Create

Creates subsets named Prefix | <TM1USER> (unless pSubsetName is not empty) using the 'SYS_IBM_Subset_Create' processe and (2) builds a view by the name Prefix | <TM1USERID> (unless pViewName is not empty. If pViewName is specified and pSubsetName is not, the Subsets will get the same name as the view (Prefix queried from 'SYS_IBM_Control').

Input Parameters:

Dimension Name (pDimensionName), Subset Name (pSubsetName), Destroy Subset (pDestroySubset) (prior to rebuild), use MDX (pMDX), Element Name (pElementName), Element Attribute (pAttribute), pAttribute Value (pAttributeValue),

Needed for Time Period Parameters only (Act vs non Act time period(s)):

Time Period Dimension (pTimePeriodDimension), Time period Dimension Type (pTimePeriodDimensionType) (YYYYMM, YYYYm MM),
 Version (pVersion), Version Dimension (pVersionDimension) (Version & Version Dimension needed to determine the 'Actuals Through Date' (Attribute of Version),
 Only Last Actuals Time Period (pOnlyLastActualsTimePeriod), Only First Non Actuals Time Period (pOnlyFirstNonActualsTimePeriod), Only Actuals Time Periods (pOnlyActualsTimePeriods), Only Non Actuals Time Periods (pOnlyNonActualsTimePeriods), Only Current Year Actuals Time Periods (pOnlyCurrYearActualsTimePeriods), Only Current Year Non Actuals Time Periods (pOnlyCurrYearNonActualsTimePeriods),

For zero value-suppressed subsets (will be used if pFilterByCube <> "), subset will be created against specified cube and dimensions and elements as input in parameters 'DimensionX' and 'pDimensionX_Element':
 Create Zero Value suppressed subset based on Data from Cube (pFilterByCube),
 pDimensionA, pDimensionA_Element, pDimensionB, pDimensionB_Element, pDimensionC, pDimensionC_Element, pDimensionD, pDimensionD_Element, pDimensionE, pDimensionE_Element, pDimensionF, pDimensionF_Element, pDimensionG, pDimensionG_Element, pDimensionH, pDimensionH_Element, pDimensionI, pDimensionI_Element,
 And value <> 0 if parameter pStringFilterValue = " and = Text Value pStringFilterValue if specified

Logging Y/N (pLogging)

Process Parameter Options:

Element Name Parameter Values

- <ElementName> = single Element Name
- ⇒ filter view by element name
- Value =* or All:
- ⇒ SubsetIsAllSet = all elements in dimension, filtered by attribute value if specified
- Value = " (empty):
- ⇒ all N-level Elements (DEFAULT), filtered by attribute value if specified

Element Name Parameter Value with Prefix (<Prefix><ElementName>):

- A;<ElementName> or AD;<ElementName>
- ⇒ All Descendants, filtered by attribute value if specified
- ND;<ElementName>
- ⇒ All N-Level Descendants (excluding Parent), filtered by attribute value if specified
- IC;<ElementName>
- ⇒ Immediate Children, filtered by attribute value if specified
- CD;<ElementName>
- ⇒ C-Level Descendants (including Parent), filtered by attribute value if specified
- Multi:<ElementName1>;<ElementName2>;...;<ElementNameN>
- ⇒ Multiple Elements, filtered by attribute value if specified

3.7 Version Management Design Template

Click the following link to download a zip archive which contains a complete plug-and-play Version Management Design Template/Sample: <https://ibm.box.com/s/dcmsqu2opwjwtex4uoz4mz1u966v1iudg>

3.8 Sample Variance Rules

The following rules are examples of how the version management design can be leveraged for variance calculations. For a concrete example with data, please refer to the TM1 Solution Template for Price, Cost & Volume Analysis ('TM1TemplateFor_PriceCostVolumeMixVarianceAnalysis.docx').

```
#region Rule Version and Time Period APEX Nodes to 0
#note: Descendants are 0-weighted but C-Level rules may be applied => rule to 0 at beginning of rules file
['Version':('Current Forecast and Plan Versions','Open Versions','What If Scenarios','What If Plan Scenarios','What If FCST Scenarios','Historical Versions','Variances')] = C: 0;
#endregion

#region For non-Headcount, No 'consolidation' of 'Input currencies', i.e. set 'All Currencies' to 0 for 'Transaction Value'
['Transaction Currency':'All Currencies','Reporting Currency':'Transaction Value'] = C: 0;
#endregion

# for Transaction Currency = 'All Currencies', Consolidate USD and EUR reporting currency conversions
#(a) based on Time if Time period > Month (i.e. roll up months) and
#(b) based on Currency Conversions otherwise
# Consolidate Children for FX conversions is applicable in most cases as the # of currencies is relatively small
[('Forecast vs Prior Forecast Var Excl FX','Forecast vs Prior Forecast Var','Forecast vs Prior Forecast FX Var','Forecast vs Plan Var Excl FX','Forecast vs Plan FX Var','Forecast vs Plan Var','Act Vs Forecast Var Excl FX','Act vs Forecast FX Var','Act Vs Forecast Var','Act vs Plan Var Excl FX','Act vs Plan FX Var','Act vs PY Act Var Excl FX','Act vs PY Act FX Var','Act vs PY Act Var','Working Plan vs Forecast FX Var'),
'Transaction Currency':'All Currencies','Reporting Currency':('USD','EUR')] = C:
    IF ( ELLEV ( 'Time Period', !Time Period ) > 0 ,
        CONSOLIDATECHILDREN ( 'Time Period' ),
        CONSOLIDATECHILDREN ( 'Transaction Currency' ));

# $ Var and Var Exl FX calcs: Consolidate
#(a) based on Time if Time period > Month (i.e. roll up months) and
#(b) based on Version Dim Weights otherwise
[('Forecast vs Prior Forecast Var Excl FX','Forecast vs Prior Forecast Var','Act vs Plan Var Excl FX','Forecast vs Plan Var Excl FX','Act Vs Forecast Var Excl FX','Act vs PY Act Var Excl FX','Act vs Plan Var','Forecast vs Plan Var','Act Vs Forecast Var','Act vs PY Act Var','Working Plan vs Forecast Var Excl FX','Working Plan vs Forecast FX Var','Working Plan vs Forecast Var')] = C:
    IF ( ELLEV ( 'Time Period', !Time Period ) > 0 ,
        CONSOLIDATECHILDREN ( 'Time Period' ),
        CONSOLIDATECHILDREN ( 'Version' ));

#region FX Var
#no FX Var for 'Transaction Value'
[('Forecast vs Prior Forecast FX Var','Act vs Plan FX Var','Forecast vs Plan FX Var','Act vs Forecast FX Var','Act vs PY Act FX Var','Working Plan vs Forecast FX Var'),'Transaction Value'] = C: 0;
#for FX Variances: calculate only for Months, otherwise consolidate over time
[('Forecast vs Prior Forecast FX Var','Act vs Plan FX Var','Forecast vs Plan FX Var','Act vs Forecast FX Var','Act vs PY Act FX Var','Working Plan vs Forecast FX Var')] = C:
    IF ( ELLEV ( 'Time Period', !Time Period ) > 0 ,
        CONSOLIDATECHILDREN ( 'Time Period' ) ,
        continue);

# Act Vs. PY Act
['Act Vs PY Act FX Var'] = C:
    ['Actual'] - ['Actual','Transaction Value'] * DB('FX', !Transaction Currency, !Reporting Currency, 'Actual', STR(NUMBR(!Time Period)-100,6,0), 'Monthly Avg');
# Act vs Forecast
['Act vs Forecast FX Var'] = C:
    ['Actual'] - ['Actual','Transaction Value'] * DB('FX', !Transaction Currency, !Reporting Currency, 'Current Forecast', !Time Period, 'Monthly Avg');
# Act vs Plan
['Act vs Plan FX Var'] = C:
    ['Actual'] - ['Actual','Transaction Value'] * DB('FX', !Transaction Currency, !Reporting Currency, 'Current Plan', !Time Period, 'Monthly Avg');
# Forecast vs Plan
['Forecast vs Plan FX Var'] = C:
    ['Current Forecast'] - ['Current Forecast','Transaction Value'] * DB('FX', !Transaction Currency, !Reporting Currency, 'Current Plan', !Time Period, 'Monthly Avg');
# Forecast vs Prior Forecast
['Forecast vs Prior Forecast FX Var'] = C:
    ['Current Forecast'] - ['Current Forecast','Transaction Value'] * DB('FX', !Transaction Currency, !Reporting Currency, 'Prior Forecast', !Time Period, 'Monthly Avg');
# Working Plan vs Forecast
['Working Plan vs Forecast FX Var'] = C:
    ['Plan'] - ['Plan','Transaction Value'] * DB('FX', !Transaction Currency, !Reporting Currency, 'Current Forecast', !Time Period, 'Monthly Avg');
['Act vs Plan % Var']=C:
    (['Actual']
    -['Current Plan'])
    \['Current Plan'];
['Act Vs Forecast % Var']=C:
```



```
(['Actual']
-['Current Forecast'])
\['Current Forecast'];
['Forecast Vs Plan % Var']=C:
(['Current Forecast']
-['Current Plan'])
\['Current Plan'];
['Forecast Vs Prior Forecast % Var']=C:
(['Current Forecast']
-['Prior Forecast'])
\['Prior Forecast'];
['Act vs PY Act % Var']=C:
(['Actual']
-DB(...,'Actual', ..., STR(NUMBR(SUBST(!Time Period,1,4))-1,4,0) | SUBST(!Time Period,5,2));
\DB(...,'Actual', ..., STR(NUMBR(SUBST(!Time Period,1,4))-1,4,0) | SUBST(!Time Period,5,2));
['Act vs PY Act % Var']=N:
(['Actual']
-DB(...,'Actual', ...,STR(NUMBR(SUBST(!Time Period,1,4))-1,4,0) | SUBST(!Time Period,5,2));
\DB(...,'Actual', ...,STR(NUMBR(SUBST(!Time Period,1,4))-1,4,0) | SUBST(!Time Period,5,2);
#endregion
#endregion
```


3.9 Version Dimension for Reporting & Analysis

While operational reporting in the context of Forecasting & Planning should occur against the input models with the Version dimension outlined before, the Reporting & Analysis Model should feature a simplified Version dimension that only contains 'official'/'submitted' versions. In a pure reporting & Analysis model, only Versions used in the context of Reporting & Analysis should be used. This approach not only simplifies security maintenance for reporting & analysis (read for all, w/o element security) but more importantly greatly improves user friendliness for reporting & analysis. Data belonging to Working Forecast/Plan and What-If Versions (any Non-Actuals Version.dim element under 'Open Versions') is not to be shared with the reporting & analysis model. Such data is reserved for operational reporting and analysis in the context of a forecasting or planning cycle. Only Actuals, Current Forecast, Current Plan and possibly Prior Forecast and other related versions are to be shared.

During Version Management, the 'current' – as in 'submitted and approved' - Final Forecast/Plan/Plan Target Version in 'Version.dim' will automatically be assigned to be the descendant of the 'Current Forecast/Plan/Plan Target' C-Level element. 'Current Forecast/Plan' can hence be copied 1:1 from the input models (one-level 'consolidation') to the 'Reporting Version.dim' as the reporting version dimension contains 'Current Forecast(Plan)' as a leaf element.

Mapping of Versions and Version Attributes between 'Version.dim' and 'Reporting Version.dim':

Version.dim:

Open Versions

Actual

Forecast (working Forecast, i.e. NOT official/submitted forecast)

Plan (working plan, i.e. NOT official/submitted plan)

...

Current Forecast and Plan Versions

Current Forecast

Forecast YYYYMM – Final Iteration

Current Plan

Plan YYYYMM – Final Iteration

Prior Forecast

Forecast YYYYMMPrior – Final Iteration

Historical Versions (contains FINAL, submitted=approved FCST & Plan)

Forecast YYYYMM – Final Iteration

Plan YYYYMM – Final Iteration

Variances

...

Reporting Version.dim:

Versions

Actual

Current Forecast

Current Plan

Variances

Forecast vs Plan Var Excl FX

Forecast vs Plan Var

Current Forecast

- Current Plan

- Forecast vs Plan FX Var

Act vs Forecast Var Excl FX

- Act vs Forecast FX Var

Act vs Forecast Var

Actual

- Current Forecast

- Forecast vs Plan FX Var

Act vs PY Act Var Excl FX

Act vs PY Act Var

(N-Level element, processed via TI)

- Act vs PY Act FX Var

Act vs Plan Var Excl FX

Act vs Plan Var

Actual

- Current Plan

- Act vs Plan FX Var