

Roll Up Logic

The following is a summary of logic related to a roll up¹. A roll up relates to how the primary items within a set of [Line Items] is organized.

Examples

XBRL Cloud: <https://xbrlsite.azurewebsites.net/2019/Prototype/conformance-suite/Production/1000-ConceptArangementPatterns/02-RollUp/evidence-package/>

Luca Suite:

<https://luca.pacioli.ai/luca/view/9175b4014583e9fb8113bc253bf24aa764caa86880eec558111ca1cb0f8b1f67f56ce05d/index>

Test case: <http://xbrlsite.com/seattlemethod/platinum-testcases/22-TestCase-rollup.xml>

Pesseract:

The screenshot displays the XBRL software interface with the following components:

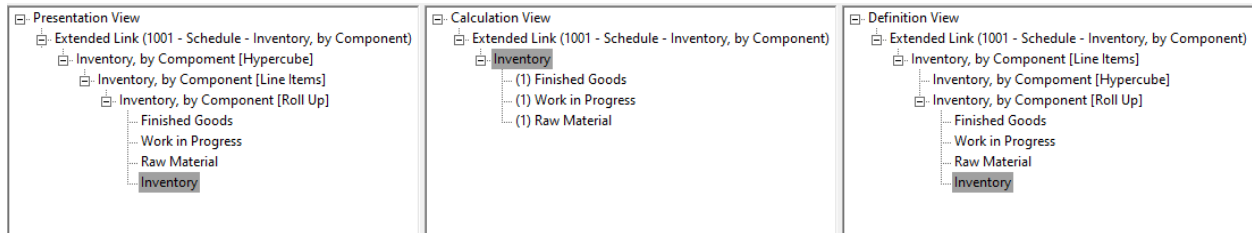
- Component: (Network and Table)**
 - Network: 30000 - Unknown - Property, Plant, and Equipment by Component
 - Table: Implied [Table]
- Reporting Entity [Axis]:** SAMP <http://www.reportingscheme.com/ID>
- Unit [Axis]:** USD
- Period [Axis]:** 2020-12-31 and 2019-12-31
- Implied [Line Items]**

	2020-12-31	2019-12-31
Property, Plant and Equipment, Net [Roll Up]		
Land	5,347,000	1,147,000
Buildings, Net	244,508,000	366,375,000
Furnitures and Fixtures, Net	34,457,000	34,457,000
Computer Equipment, Net	4,169,000	5,313,000
Other Property, Plant and Equipment, Net	6,702,000	6,149,000
Property, Plant and Equipment, Net	295,183,000	413,441,000
- Fact Characteristics and Properties Dialog Box:**

Properties	Occurrences	To Do
Reporting Entity	SAMP http://www.reportingscheme.com/ID	
Period	2020-12-31	
Concept	Other Property, Plant and Equipment, Net	
Fact Value	6702000	
Units	iso4217:USD	
Decimals (rounding)	0	
Nil	<input type="checkbox"/>	

¹ Roll up, <http://www.xbrlsite.com/seattlemethod/platinum-testcases/rollup/>

The following is an example of a modeling of a roll up logical pattern using XBRL:



Brief Description

A **roll up** concept arrangement logical pattern represents a total, or roll up, and some set of other Concepts that aggregate to that total. This concept arrangement pattern is commonly referred to a “roll up”, or the equation $A + B + n = \text{Total}$ where “ n ” can be any number of numeric Concepts. All concepts involved in this concept arrangement pattern have the same set of aspects and all must be numeric and of the same period type and data type.

Component: (Network and Table)		
Network	1073 - Disclosure - Components of Inventories (Detail)	
Table	Inventory, Current [Table]	
Reporting Entity [Axis]	0000789019 http://www.sec.gov/CIK	
Legal Entity [Axis]	Entity [Domain]	
	Period [Axis] ▼	
Inventory [Line Items]	2016-06-30	2015-06-30
Raw materials	612,000,000	1,100,000,000
Work in process	158,000,000	202,000,000
Finished goods	1,481,000,000	1,600,000,000
Total	2,251,000,000	2,902,000,000

Axioms

1. A roll up is a type of information block object.
2. A roll up is an aggregation of a set of concepts to some total concept.
3. The pseudo mathematical formula is: $A + B + n = \text{Total}$ where “ n ” can be any number of Concepts. Total is always required, at least one Concept which aggregates into that total is also required, but generally there will be two or more Concepts aggregating into the Total.
4. The calendar period type of each concept MUST be the same.
5. The data type of each concept MUST be the same. [CSH: I am pretty sure this is correct; but sometimes a modeling error where the wrong data type is used could cause issues.]
6. The units of each fact in a roll up must be the same.
7. A roll up NEVER has two total concepts or no total concept.
8. A roll up is modeled using XBRL:

- a. Presentation relations show an [Abstract] element which has the Concepts being aggregated and the Concept representing the total as children. The total Concept is always the LAST CHILD of the [Abstract].
 - b. Calculation relations always exist, by definition, which describe the mathematical relations of the total Concept and the Concepts which make up that total.
 - c. Definition relations exist only when a hypercube is explicitly provided and are represented using the rules of XBRL Dimensions.
9. A roll up MAY have ZERO to MANY roll ups nested forming a grand total and subtotals. (See Nested Rollup²)
 10. If there is no total concept for a roll up but there are concepts that do aggregate to that total; the information is a partial set of information and should not be rendered as part of a roll up block of information.
 11. If there is a total concept but there are no detail concepts; the information is a partial set of information and should not be rendered as part of a roll up block of information.

Nested Rollup:

Concept [Aspect]	Period [Aspect]
	2023-12-31
Liabilities and Equity [Roll Up]	
Liabilities [Roll Up]	
Current Liabilities	\$ 100
Noncurrent Liabilities	100
Liabilities	200
Equity [Roll Up]	
Equity Attributable to Controlling Interests	1,000
Equity Attributable to Noncontrolling Interests	1,000
Equity	2,000
Liabilities and Equity	\$ 2,200

² Nested Rollup,
<https://luca.pacioli.ai/luca/view/9175b4014583e9fb8113bc253bf24aa764caa86880eec558111ca1cb0f8b1f673a11cf56/index>

Partial information (NOT PART OF ROLL UP): (note that in the example below, the column related to 2022-12-31 should not have been rendered as part of the roll up block of information because it is not a roll up, it is information that is used in other disclosures that does not relate to the block of information shown below)

Concept [Aspect]	Period [Aspect]	
	2023-12-31	2022-12-31
Assets [Roll Up]		
Current Assets	\$ 0	
Noncurrent Assets	0	
Assets	<u>\$ 0</u>	<u>\$ 0</u>
Liabilities and Equity [Roll Up]		
Liabilities [Roll Up]		
Current Liabilities	\$ 0	
Noncurrent Liabilities	0	
Liabilities	<u>0</u>	
Equity [Roll Up]		
Equity Attributable To Controlling Interests	0	
Equity Attributable to Noncontrolling Interests	0	
Equity	<u>0</u>	<u>0</u>
Liabilities and Equity	<u>\$ 0</u>	

Heavily nested roll up: (this is a heavily nested roll up; but it is just one block of information, just one roll up)

Concept [Aspect]	Period [Aspect]	
	2022-01-01 2022-12-31	2021-01-01 2021-12-31
Profit (Loss) [Roll Up]		
Profit (Loss) from Continuing Operations [Roll Up]		
Profit (Loss) Before Tax [Roll Up]		
Profit (Loss) Before Finance Costs and Tax Expense [Roll Up]		
Profit (Loss) from Operating Activities [Roll Up]		
Operating Income (Loss) [Roll Up]		
Gross Profit (Loss) [Roll Up]		
Revenue	\$ 214,369	\$ 214,369,000
Cost of Sales	55,527	55,527,000
Gross Profit	158,842	158,842,000
Other Operating Income	0	0
Operating Income (Loss)	158,842	158,842,000
Operating Expenses Excluding Cost of Sales	98,294	98,294,000
Profit (Loss) from Operating Activities	60,548	60,548,000
Non-operating Income (Expenses) [Roll Up]		
Income (Loss) from Equity Accounted Entities	340	340,000
Other Non-operating Income (Expense) Not Including Finance Costs or Tax Expense	0	0
Non-operating Income (Expense)	340	340,000
Profit (Loss) Before Finance Costs and Tax Expense	60,888	60,888,000
Finance Costs (Income)	6,649	6,649,000
Profit (Loss) Before Tax	54,239	54,239,000
Tax Expense (Income)	16,325	16,325,000
Profit (Loss) from Continuing Operations	37,914	37,914,000
Profit (Loss) from Discontinued Operations	897	897,000
Profit (Loss)	\$ 38,811	\$ 38,811,000

