

## Conceptual Overview of Spreadsheet for Component Queries

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This document provides a conceptual overview of the 28msec SECXBRL.info “spreadsheet-for-component query. It is very helpful to understand the multidimensional model<sup>1</sup> when you work with these queries. Thanks to Ghislain Fourny, PhD, from 28msec for helping me understand how to create these queries.

### BASIC QUERY

The following is a basic query. I am going to use the Alaska Airlines income statement to provide a series of examples that build upon each other to show the features offered by this query. The query uses this base URL:

**[http://secxbrl.28.io/v1/\\_queries/public/api/spreadsheet-for-component?](http://secxbrl.28.io/v1/_queries/public/api/spreadsheet-for-component?)**

The following are the query parameters that you need to use:

**token=c3049752-4d35-43da-82a2-f89f1b06f7a4&cik=0000766421** (every query needs a *TOKEN* which gives you access permission and provides security; this is a *FREE ACCESS* token provided by 28msec)

**format=html** (every query needs to provide the format of the information which is returned; we want human readable *HTML*, other formats available are *CSV*, *XML*, and *JSON*)

**section=http://www.alaskaair.com/role/ConsolidatedStatementsOfOperations** (you need to indicate the fragment of the report that you want to work with, in this case we are using the network to identify the piece we want to work with, and we are providing the network URI of the income statement)

**archiveFiscalYear=2015 | archiveFiscalPeriod=FY** (you need to indicate the report that you want to pull information from; generally you use the *aid* which is the archive ID to identify the report; but since you might not know the ID, which for this repository is the accession number assigned by the SEC, you can use these two handy parameters to figure out which report you should use)

You put the query and the parameters together using standard URL syntax which gives you a RESTFUL<sup>2</sup> style and you get the following (which you can click and run)

[http://secxbrl.28.io/v1/\\_queries/public/api/spreadsheet-for-component?token=c3049752-4d35-43da-82a2-f89f1b06f7a4&format=html&cik=0000766421&section=http://www.alaskaair.com/role/ConsolidatedStatementsOfOperations&archiveFiscalYear=2015&archiveFiscalPeriod=FY](http://secxbrl.28.io/v1/_queries/public/api/spreadsheet-for-component?token=c3049752-4d35-43da-82a2-f89f1b06f7a4&format=html&cik=0000766421&section=http://www.alaskaair.com/role/ConsolidatedStatementsOfOperations&archiveFiscalYear=2015&archiveFiscalPeriod=FY)

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<sup>1</sup> Introduction to the Multidimensional Model for Professional Accountants, <http://xbrl.squarespace.com/journal/2016/3/18/introduction-to-the-multidimensional-model-for-professional.html>

<sup>2</sup> Wikipedia, Representational State Transfer (REST), [https://en.wikipedia.org/wiki/Representational\\_state\\_transfer](https://en.wikipedia.org/wiki/Representational_state_transfer)

## IMPROVE THE PERIOD FORMAT

Next, we want to organize the periods differently. We want to swap XBRL periods which are calendar periods for fiscal years and periods which are required in all XBRL-based public company financial filings provided to the SEC. We use what are called the “slicer” and “dicer” features. Dicers go into columns of the returned query. Slicers go into the top portion of the returned results.

Dicers basically are aspects or dimensions that you want to work with and are used to organize the values of the hypercube into columns. Slicers on the other hand just filters you put on the information but don't impact the spreading of information into columns or rows. Slicer and dicer is standard multidimensional terminology in data warehousing and also in Excel pivot tables.

Fiscal years/periods will be dicers, XBRL periods are now slicers. To do this reorganization, you add this parameter to the query:

**xbrl28:FiscalYear::category=dicer&xbrl28:FiscalPeriod::category=dicer&xbrl:Period::category=slicer&xbrl28:FiscalPeriod=FY&xbrl28:FiscalYear=2015&xbrl28:FiscalYear=2014&xbrl28:FiscalYear=2013&xbrl28:FiscalYear=2012&xbrl28:FiscalYear=2011**

That gives us the fiscal periods that we want. This is the revised query:

[http://secxbrl.28.io/v1/\\_queries/public/api/spreadsheet-for-component?token=c3049752-4d35-43da-82a2-f89f1b06f7a4&cik=0000766421&archiveFiscalYear=2015&archiveFiscalPeriod=FY&format=html&section=http://www.alaskaair.com/role/ConsolidatedStatementsOfOperations&xbrl28:FiscalYear::category=dicer&xbrl28:FiscalPeriod::category=dicer&xbrl:Period::category=slicer&xbrl28:FiscalPeriod=FY&xbrl28:FiscalYear=2015&xbrl28:FiscalYear=2014&xbrl28:FiscalYear=2013&xbrl28:FiscalYear=2012&xbrl28:FiscalYear=2011](http://secxbrl.28.io/v1/_queries/public/api/spreadsheet-for-component?token=c3049752-4d35-43da-82a2-f89f1b06f7a4&cik=0000766421&archiveFiscalYear=2015&archiveFiscalPeriod=FY&format=html&section=http://www.alaskaair.com/role/ConsolidatedStatementsOfOperations&xbrl28:FiscalYear::category=dicer&xbrl28:FiscalPeriod::category=dicer&xbrl:Period::category=slicer&xbrl28:FiscalPeriod=FY&xbrl28:FiscalYear=2015&xbrl28:FiscalYear=2014&xbrl28:FiscalYear=2013&xbrl28:FiscalYear=2012&xbrl28:FiscalYear=2011)

## GET ADDITIONAL REPORTED FACTS

Notice that you only have information for 2015, 2014, and 2013. That is because the FY 2014 and 2015 reports that we grabbed don't contain information for 2012 and 2011. What we really want is facts from ANY REPORT that satisfies or query of fiscal years. To allow facts from any report, we add the following to the query:

**xbrl28:Archive=ALL&xbrl28:ArchiveFiscalYearFocus=ALL&xbrl28:ArchiveFiscalPeriodFocus=ALL**

And now, the complete query looks like this:

[http://secxbrl.28.io/v1/\\_queries/public/api/spreadsheet-for-component?token=c3049752-4d35-43da-82a2-f89f1b06f7a4&cik=0000766421&archiveFiscalYear=2015&archiveFiscalPeriod=FY&format=html&section=http://www.alaskaair.com/role/ConsolidatedStatementsOfOperations&xbrl28:FiscalYear::category=dicer&xbrl28:FiscalPeriod::category=dicer&xbrl:Period::category=slicer&xbrl28:FiscalPeriod=FY&xbrl28:FiscalYear=2015&xbrl28:FiscalYear=2014&xbrl28:FiscalYear=2013&xbrl28:FiscalYear=2012&xbrl28:FiscalYear=2011&xbrl28:Archive=ALL&xbrl28:ArchiveFiscalYearFocus=ALL&xbrl28:ArchiveFiscalPeriodFocus=ALL](http://secxbrl.28.io/v1/_queries/public/api/spreadsheet-for-component?token=c3049752-4d35-43da-82a2-f89f1b06f7a4&cik=0000766421&archiveFiscalYear=2015&archiveFiscalPeriod=FY&format=html&section=http://www.alaskaair.com/role/ConsolidatedStatementsOfOperations&xbrl28:FiscalYear::category=dicer&xbrl28:FiscalPeriod::category=dicer&xbrl:Period::category=slicer&xbrl28:FiscalPeriod=FY&xbrl28:FiscalYear=2015&xbrl28:FiscalYear=2014&xbrl28:FiscalYear=2013&xbrl28:FiscalYear=2012&xbrl28:FiscalYear=2011&xbrl28:Archive=ALL&xbrl28:ArchiveFiscalYearFocus=ALL&xbrl28:ArchiveFiscalPeriodFocus=ALL)

## EXCLUDE UNWANTED FACTS

Next, if you look at the results from the last query you see [more]. That means there are some issues with the information returned. Issues will be different for different reports. In this case the following parameter cleans up the data:

**xbrl28:FiscalPeriodType=YTD**

And so, this is now the query string that you have:

<http://secxbrl.28.io/v1/queries/public/api/spreadsheet-for-component?token=c3049752-4d35-43da-82a2-f89f1b06f7a4&cik=0000766421&archiveFiscalYear=2015&archiveFiscalPeriod=FY&format=html&section=http://www.alaskaair.com/role/ConsolidatedStatementsOfOperations&xbrl28:FiscalYear::category=dicer&xbrl28:FiscalPeriod::category=dicer&xbrl28:Period::category=slicer&xbrl28:FiscalPeriod=FY&xbrl28:FiscalYear=2015&xbrl28:FiscalYear=2014&xbrl28:FiscalYear=2013&xbrl28:FiscalYear=2012&xbrl28:FiscalYear=2011&xbrl28:Archive=ALL&xbrl28:ArchiveFiscalYearFocus=ALL&xbrl28:ArchiveFiscalPeriodFocus=ALL&xbrl28:FiscalPeriodType=YTD>

### ADDING VALIDATION

Add a cherry to the top of the cake by showing validation of the information. To turn validation on if the filing provides the XBRL Calculation relations all you need to do is add this parameter to your query string:

**validate=true**

And so, here is your final query:

<http://secxbrl.28.io/v1/queries/public/api/spreadsheet-for-component?token=c3049752-4d35-43da-82a2-f89f1b06f7a4&cik=0000766421&archiveFiscalYear=2015&archiveFiscalPeriod=FY&format=html&section=http://www.alaskaair.com/role/ConsolidatedStatementsOfOperations&xbrl28:FiscalYear::category=dicer&xbrl28:FiscalPeriod::category=dicer&xbrl28:Period::category=slicer&xbrl28:FiscalPeriod=FY&xbrl28:FiscalYear=2015&xbrl28:FiscalYear=2014&xbrl28:FiscalYear=2013&xbrl28:FiscalYear=2012&xbrl28:FiscalYear=2011&xbrl28:Archive=ALL&xbrl28:ArchiveFiscalYearFocus=ALL&xbrl28:ArchiveFiscalPeriodFocus=ALL&xbrl28:FiscalPeriodType=YTD&validate=true>

Component: (Network and Table)					
Network	1002000 - Statement - CONSOLIDATED STATEMENTS OF OPERATIONS <small>(http://www.alaskaair.com/role/ConsolidatedStatementsOfOperations)</small>				
Table	(overridden)				
Reporting Entity (Axis)	ALASKA AIR GROUP, INC. (766421)				
Scenario (Axis)	Scenario, Unspecified (Domain)				
Archive Fiscal Period Focus (Axis)	FY				
Legal Entity (Axis)	Default Legal Entity (Member)				
Fiscal Period Type (Axis)	YTD				
Archive (Axis)	0000766421-16-000055, 0000766421-19-000059, 0000766421-14-000010				
Archive Fiscal Year Focus (Axis)	2015, 2014, 2013				
Statement (Line Items)	Fiscal Year (Axis)				
	2011 Fiscal Period (Axis) FY	2012 Fiscal Period (Axis) FY	2013 Fiscal Period (Axis) FY	2014 Fiscal Period (Axis) FY	2015 Fiscal Period (Axis) FY
<b>Operating Revenues</b>					
Passenger, Mainline	2,995,000,000	3,284,000,000	3,490,000,000	3,774,000,000	3,939,000,000
Passenger, Regional	713,000,000	746,000,000	777,000,000	805,000,000	854,000,000
Total passenger revenue	3,708,000,000	4,030,000,000	4,267,000,000	4,579,000,000	4,793,000,000
Freight and mail	109,000,000	111,000,000	113,000,000	114,000,000	108,000,000
Other - net	501,000,000	516,000,000	584,000,000	675,000,000	697,000,000
Special Revenue	0	0	192,000,000	0	0
Total Operating Revenues	4,318,000,000	4,657,000,000	5,156,000,000	5,368,000,000	5,598,000,000
<b>Operating Expenses</b>					
Wages and benefits	991,000,000	1,038,000,000	1,086,000,000	1,136,000,000	1,254,000,000
Variable incentive pay	72,000,000	88,000,000	105,000,000	116,000,000	120,000,000
Aircraft fuel, including hedging gains and losses	1,298,000,000	1,459,000,000	1,467,000,000	1,418,000,000	954,000,000
Aircraft maintenance	206,000,000	222,000,000	247,000,000	229,000,000	253,000,000
Aircraft rent	116,000,000	116,000,000	119,000,000	110,000,000	105,000,000
Landing fees and other rentals	236,000,000	243,000,000	262,000,000	279,000,000	296,000,000
Contracted services	185,000,000	200,000,000	176,000,000	196,000,000	214,000,000
Selling expenses	178,000,000	165,000,000	179,000,000	199,000,000	211,000,000
Depreciation and amortization	247,000,000	264,000,000	270,000,000	284,000,000	320,000,000
Food and beverage service	67,000,000	79,000,000	84,000,000	93,000,000	113,000,000
Third-party regional carrier expense			45,000,000	58,000,000	72,000,000
Other	235,000,000	248,000,000	276,000,000	308,000,000	356,000,000
Special Item		0	0	-30,000,000	32,000,000
Total Operating Expenses	3,869,000,000	4,129,000,000	4,316,000,000	4,406,000,000	4,300,000,000
Operating income	449,000,000	528,000,000	840,000,000	962,000,000	1,298,000,000
<b>Nonoperating income (expense)</b>					
Interest income	22,000,000	19,000,000	18,000,000	21,000,000	21,000,000
Interest expense	87,000,000	64,000,000	56,000,000	48,000,000	42,000,000
Interest Costs Capitalized Adjustment	12,000,000	18,000,000	21,000,000	20,000,000	34,000,000
Other - net	-2,000,000	9,000,000	-6,000,000	20,000,000	1,000,000
Nonoperating income (Expense) Total	-55,000,000	-18,000,000	-22,000,000	13,000,000	14,000,000
Income (loss) before income tax	394,000,000	510,000,000	818,000,000	975,000,000	1,312,000,000
Income tax expense	149,000,000	198,000,000	308,000,000	370,000,000	464,000,000
Net income	245,000,000	312,000,000	510,000,000	605,000,000	848,000,000
Basic Earnings Per Share:	3.41	2.23	3.63	4.47	6.61
Diluted Earnings Per Share:	3.33	2.20	3.58	4.42	6.56
Shares used for computation:					
Basic	71,755,000	141,416,000	139,910,000	135,445,000	128,373,000
Diluted	73,421,000	143,568,000	141,878,000	136,801,000	129,372,000
Common Stock, Dividends, Per Share, Declared	0.00	0.00	0.20	0.50	0.90

## INCLUDE QUARTERLY INFORMATION

To include the quarterly information with the fiscal year information simply change the parameter

xbrl28:FiscalPeriod=FY

to

xbrl28:FiscalPeriod=ALL

[http://secxbrl.28.io/v1/\\_queries/public/api/spreadsheet-for-component?token=c3049752-4d35-43da-82a2-f89f1b06f7a4&cik=0000766421&archiveFiscalYear=2015&archiveFiscalPeriod=FY&format=html&section=http://www.alaskaair.com/role/ConsolidatedStatementsOfOperations&xbrl28:FiscalYear::category=dicer&xbrl28:FiscalPeriod::category=dicer&xbrl28:Period::category=slicer&xbrl28:FiscalPeriod=ALL&xbrl28:FiscalYear=2015&xbrl28:FiscalYear=2014&xbrl28:FiscalYear=2013&xbrl28:FiscalYear=2012&xbrl28:FiscalYear=2011&xbrl28:Archive=ALL&xbrl28:ArchiveFiscalYearFocus=ALL&xbrl28:ArchiveFiscalPeriodFocus=ALL&xbrl28:FiscalPeriodType=YTD&validate=true](http://secxbrl.28.io/v1/_queries/public/api/spreadsheet-for-component?token=c3049752-4d35-43da-82a2-f89f1b06f7a4&cik=0000766421&archiveFiscalYear=2015&archiveFiscalPeriod=FY&format=html&section=http://www.alaskaair.com/role/ConsolidatedStatementsOfOperations&xbrl28:FiscalYear::category=dicer&xbrl28:FiscalPeriod::category=dicer&xbrl28:Period::category=slicer&xbrl28:FiscalPeriod=ALL&xbrl28:FiscalYear=2015&xbrl28:FiscalYear=2014&xbrl28:FiscalYear=2013&xbrl28:FiscalYear=2012&xbrl28:FiscalYear=2011&xbrl28:Archive=ALL&xbrl28:ArchiveFiscalYearFocus=ALL&xbrl28:ArchiveFiscalPeriodFocus=ALL&xbrl28:FiscalPeriodType=YTD&validate=true)

## MACHINE READABLE INFORMATION

All that is great, but it is just presentation of the information. What if you want machine-readable information? That is easy also. You simply change the query from “spreadsheet-to-component” to “facttable-to-component” and the format from “format=html” to “format=xml” (or format=json, or format=csv, or format=atom-xml which allows for integration with Tableau). Here is the query to get XML:

[http://secxbrl.28.io/v1/\\_queries/public/api/facttable-for-component?token=c3049752-4d35-43da-82a2-f89f1b06f7a4&cik=0000766421&archiveFiscalYear=2015&archiveFiscalPeriod=FY&format=xml&section=http://www.alaskaair.com/role/ConsolidatedStatementsOfOperations&xbrl28:FiscalYear::category=dicer&xbrl28:FiscalPeriod::category=dicer&xbrl28:Period::category=slicer&xbrl28:FiscalPeriod=ALL&xbrl28:FiscalYear=2015&xbrl28:FiscalYear=2014&xbrl28:FiscalYear=2013&xbrl28:FiscalYear=2012&xbrl28:FiscalYear=2011&xbrl28:Archive=ALL&xbrl28:ArchiveFiscalYearFocus=ALL&xbrl28:ArchiveFiscalPeriodFocus=ALL&xbrl28:FiscalPeriodType=YTD&validate=true](http://secxbrl.28.io/v1/_queries/public/api/facttable-for-component?token=c3049752-4d35-43da-82a2-f89f1b06f7a4&cik=0000766421&archiveFiscalYear=2015&archiveFiscalPeriod=FY&format=xml&section=http://www.alaskaair.com/role/ConsolidatedStatementsOfOperations&xbrl28:FiscalYear::category=dicer&xbrl28:FiscalPeriod::category=dicer&xbrl28:Period::category=slicer&xbrl28:FiscalPeriod=ALL&xbrl28:FiscalYear=2015&xbrl28:FiscalYear=2014&xbrl28:FiscalYear=2013&xbrl28:FiscalYear=2012&xbrl28:FiscalYear=2011&xbrl28:Archive=ALL&xbrl28:ArchiveFiscalYearFocus=ALL&xbrl28:ArchiveFiscalPeriodFocus=ALL&xbrl28:FiscalPeriodType=YTD&validate=true)

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