CAFR DEMONSTRATION Taxonomy v.0.2 | June 2019

A] Introduction

This document outlines the key features of the second release of the XBRL taxonomy developed for Comprehensive Annual Financial Reports (hereinafter called US CAFR XBRL Taxonomy)

CAFR DEMONSTRATION Taxonomy has been developed by the XBRL US State and Local Disclosure Modernization Working Group. The working group provided its input after reviewing feedback from the first demonstration taxonomy released in January 2019.

The taxonomy is intended for demonstration purposes to support the development of digital financial reporting best practices in the public sector.

The study included analysis of CAFR reporting structure used by municipalities in the US as well as an analysis of reporting concepts and presentation.

Concept accounting references and concept documentation were also considered from various authoritative sources such as the GASB (Governmental Accounting Standards Board) *Governmental Accounting Research System Online (GARS)*, Census of Governments Survey of Local Government Finances (form F-28) and the Government Finance Officers Association's (GFOA's) Governmental Accounting, Auditing, and Financial Reporting (GAAFR) resource.

Finally, the XBRL US Style Guide (*A Language Guide for Creating Concepts and Labels*) was followed to the extent possible for preparing element names and labels while the validation rules were based on the Formula 1.0 technical XBRL specification.

B] Data modeling and valid fact values

- The CAFR Demonstration Taxonomy will serve its intended purpose through strategic modeling to ensure that elements are unique (no duplication); and that it can handle multiple scenarios. "Data Point Modeling" (DPM) methodology was used to develop the Taxonomy. DPM has been implemented in prudential reporting for XBRL taxonomies (International and Domestic regulators). Details of DPM have been explained elsewhere in this document.

- It is important that the collected data (fact values) is credible, accurate and internally consistent. This will support data analysis and in turn will result in informed policy decisions. Data should also be in compliance with rules (mathematical, reconciliation & likewise) and in order to ensure that the data (fact values) collected through the US CAFR XBRL Taxonomy is accurate and valid. The CAFR Demonstration Taxonomy includes 594 business rules.

- All 594 business rules are mandatory and the reporting entity would be allowed to generate a valid instance document only after compliance with all business rules. These business rules cover roll-ups (mathematical compliance | addition, subtraction), roll-forwards (linking | reconciliations) as well as dimensional summations (row-wise and column-wise). Details of business rules are explained later in this document.

C] Name of reporting statements covered in v.4.0

At this juncture, CAFR Demonstration Taxonomy covers four (4) CAFR reporting statements besides filing information.

#	CAFR Demonstration Taxonomy | Name of reporting statements
1	Filing information
2	CAFR01 - Statement of net position
3	CAFR02 - Statement of activities
4	CAFR03 - Governmental funds- balance sheet
5	CAFR04 - Governmental funds - statement of revenues, expenditures and changes in fund balance

D] CAFR Demonstration Taxonomy architecture

1.	Folder name| "core"	
#	File name	Details
1	us-cafr_concept.xsd	This file contains the schema namely Element name, Element ID and its attributes Example: Element name = "NameOfGovernment" Element ID = "us-cafr_NameOfGovernment" type="xbrli:stringItemType" abstract="false" xbrli:periodType="duration"
2	us-cafr_doc.xml	This file contains the concept documentation (brief meaning of concepts) for all the concepts developed in the XBRL Taxonomy along with each element's label Example: us-cafr_ CompensatedAbsencesPayable Label= Compensated absences payable *Concept documentation:* Report as at the relevant date, the monetary value, of compensated absences payable. Compensated absences are compensated time off such as vacation and sick leave, which has been earned by employees and probable that the employer will compensate the employees through paid time off or some other means, such as cash payments at termination or retirement but not yet compensated by the employer.
3	us-cafr_label.xml	This file contains the label (human readable) for all schema concepts Example: Element name = "NameOfGovernment" Human readable label = Name of government

4	us-cafr_part.xsd	This file contains the part used for typed (implicit) dimensions. Implicit dimensions are developed when reporting members in definition linkbase are unknown. For example, there may be a variety of reasons a governmental entity would restrict its net position balance (i.e., public safety, litigation, etc.) which could vary by jurisdiction or even by year within a jurisdiction. The list would be endless; thus, there is a need to assign a "typed" dimension for that given category (restricted net position in this example).
5	us-cafr_ref.xml	This file contains the references for the concepts' documentation taken primarily from the GASB's Codification, GFOA's GAAFR, US Census Bureau's Census of Governments' form F28 and other authoritative literature. Example: Element id: us-cafr_GeneralRevenues Label: General revenues _Accounting reference:_ Publisher: Codification of Governmental Accounting and Financial Reporting Standards, GASB, 2017-2018 Section: 2200 Paragraph: 140
6	us-cafr_type.xsd	This file contains the enumerations (options) used for reporting; the reporting entity has to select one of the given enumerations. Example: Element id ="TypeOfGovernment" Label = Type of government _Enumerations (options)_ - State - County - City - Town - Village - Borough - Other general purpose government - School district - Special district - Township
7	us-cafr_core-entry.xsd	This is the entry point for the core folder which can be used to see the details of concepts namely schema, concept documentation (brief meaning), concept accounting reference, concept label (human readable) and everything which is part of core folder.

Folder name	Details
META-INF	• This contains a file namely ".taxonomy-package". • This file contains details such as the XBRL taxonomy version number, the description of the taxonomy and its publisher and entry point details so as to access each individual CAFR as well as the entire XBRL taxonomy

Folder name	Details
formula	- This contains business rules and it contains a unique formula which will evaluate multiple CAFR reporting statements fact values for compliance. - All other CAFR reporting statement wise business rules are in their own individual "cafr" folder - Details on business rules are explained elsewhere in this document

Folder name	Details
reports	This folder contains all the statements to be reported by reporting institution including filing information. This folder contains sub-folder namely - cafr01 - cafr02 - cafr03 - cafr04 - filing info

Details of sub-folder "cafr01" are given herein below and on the same lines are details for other sub-folders.

Ex:	Folder name| "reports/ cafr01/1.0.0"	
#	**File name**	**Details**
1	cafr01-definition	This file contains the definition linkbase namely the modeling of concepts and its dimensions through explicit and implicit dimensions.
2	cafr01-presentation	This file contains the presentation linkbase namely hierarchical structure of presentation of concepts.
3	cafr01-role	This file contains the name of statements along with table numbers to present the modeling.
4	cafr01-formula-….	This file contains business rules and all business rules are mandatory for compliance. Compliance of all business rules will ensure a valid instance document.
5	cafr01-entry	This is the entry point for cafr01 folder and this can be used to view definition linkbase, presentation linkbase, name of statements with table numbers and formulas (business rules).

File name	Details
us-cafr_full-entry	• This is the main entry point of US CAFR XBRL Taxonomy and it contains all statements. • This main entry point will give access to the entire contents of US CAFR XBRL Taxonomy

E] Business rules

1. The CAFR Demonstration Taxonomy contains mandatory business rules.
2. Mandatory business rules means the reporting entity must be in compliance with each MANDATORY business rule for a successful submission.
3. Only when the reporting entity is fully compliant with all the business rules will it be allowed to generate a valid instance document from instance creator tool.
4. All mandatory business rules (row-wise calculations, column-wise calculations, roll forward, roll up and likewise) have been developed in US CAFR XBRL Taxonomy through formula linkbase.
5. All business rules have been integrated with "Error messages" and these error messages will be displayed if the business rule is found to be non-compliant during instance document validation process.
6. Details of business rules (self-explanatory) are provided in a separate excel file namely "US-CAFR_Business_Rules_Guide_v.3.0" and this file is part of US CAFR XBRL Taxonomy set.

#	Statement name	Formula (numbers)
1	Filing information	17
2	CAFR 1- Statement of net position	106
3	CAFR02-Statement of activities	72
4	CAFR03-Governmental funds-Balance sheet	257
5	CAFR04 - Governmental funds - Statement of revenues, expenditures and changes in fund balance	140
6	Multiple returns (horizontal computations)	2
	Total	594

F] Statistics

#	Particulars	Quantity (number)
1	Number of statements (including filing information) in XBRL taxonomy	5
2	Number of elements in XBRL taxonomy	514
3	Number of business rules integrated in XBRL taxonomy (validations covering mandatory reporting, roll up, roll forward, horizontal computations, vertical computations, sub-total, main total and typed dimensions total)	594
4	Number of unique data points mapped in XBRL taxonomy	4204

G] Pertinent points

1. This CAFR Demonstration Taxonomy at this juncture covers only four (4) reporting statements besides filing information.

2. This CAFR Demonstration Taxonomy has been developed based on "Data Point Modeling" (DPM) methodology.
   - DPM focus on positive relationship between reporting concepts and its dimensions.
   - DPM ensures every reporting concept with its unique dimensions is mapped separately and uniquely (no duplication).
   - DPM is developed using a definition linkbase which plays a pivotal role in instance creation.
3. Both Explicit dimensions (reporting members known) and Implicit dimensions (typed) (reporting members unknown) has been used to model the mapping of concepts with its unique dimensions.
4. Data modeling is based solely on how the data is presented in the provided sample reports.
5. Typed dimensions are used wherever standardized elements could not be created for specific concepts and their reporting combinations.
6. Every unique combination of primary elements and dimensions are created in a separate hypercube (table) within a definition linkbase and the same should be considered for creation of instance document.
7. The presentation linkbase is provided only for display purposes - namely visualization of the taxonomy in a taxonomy viewer and should not be used for the creation of instance documents.

H] A Path forward

The approach taken with this second Demonstration Taxonomy differs substantially from our earlier release. In this section, we reiterate issues raised in the v0.1 preparers guide.

1 Taxonomy Architecture

XBRL represents a syntactical standard. What we express in the standard reflects a particular model for representing government accounting standards and disclosure components of a CAFR. There are many choices we could have made with regard to this model. This latest release makes heavy use of business rules, which we believe are necessary to promote accurate, consistent filings.

The use of extensions is controversial. Our v0.2 release precludes extensions, but gives preparers flexibility through the use of Typed Dimensions. The use of extensions and/or typed dimensions should be carefully considered by any developer of a Production taxonomy.

In the disclosure modernization community there are a number of proposals for how to model financial reports. We could have aligned our model as closely as possible with one that already exists. Going forward, as we consider long-term needs for a production-quality taxonomy for state and local government reporting, we would want to take into account the model or models that are used for grant reporting in the US (especially models that will arise as the result of pending federal legislation for grant reporting and single audits); proposed models for normalizing corporate reporting in the United States; and models for international financial reporting standards and other government reporting standards. Let us just say that with the demonstration taxonomy there is still much more work to be done. Additionally, continued collaboration from the user community, standard setters and stakeholders is necessary to refine the architecture to help minimize typed dimensions. For instance, there is too much variation in reporting cash, cash equivalents and investments. Agreement among the collaborators could convert these from a typed dimension to a few elements.

2 Process for Inclusion of Elements

We included a limited number of elements based on reviews of authoritative literature, discussions with subject matter experts and reviews of selected PDF CAFRs. We anticipate a more rigorous process for a production-quality taxonomy.

Ideally, identifying and defining elements would be based on authoritative standards as to the identification and definition of elements. Best practices may also identify needs for coverage, though it won't be a union of what the approximately 30,000 CAFRs report; that would be unwieldy and undermine achieving the goals of improving report consistency and quality, and facilitating automation for report generation and data consumption as is happening in corporate reporting. Therefore, we believe a taxonomy should first start with the authoritative standards, and then incorporate best practices that are prevalent and widely used and which satisfy a review process yet to be determined.

3 Entity Identifiers

There is currently no national standard for uniquely identifying a state, local government, special district, or other governmental entity. On the corporate side there are CIK numbers. There is also a strong effort for a global legal entity identifier for all legal entities. A future version of the Demonstration Taxonomy may incorporate element(s) from the LEI taxonomy (see https://taxonomies.xbrl.org/taxonomy/14)

In an XBRL filing the specification of the reporting entity is comprised of two values: a value for the identifier scheme, and the value for the identifier. For corporate reporting in the US the scheme is specified by a URL: `http://www.sec.gov/CIK`. The value is the 10-digit CIK number. For the Demonstration Taxonomy, we used the scheme "`http://harvester.census.gov/GID`" and the value is the GID for the reporting governmental entity. With approximately 90,000 local governments, and no other consistent standard, this seems like the best choice even if these are not provided for the 50 states and eight territories. For those, please refer to the table below.

The Census list I provided only included local governments. Here is a list of IDs I would recommend for state governments:

AL State of Alabama	01000000000000	NM State of New Mexico	32000000000000
AK State of Alaska	02000000000000	NY State of New York	33000000000000
AZ State of Arizona	03000000000000	NC State of North Carolina	34000000000000
AR State of Arkansas	04000000000000	ND State of North Dakota	35000000000000
CA State of California	05000000000000	OH State of Ohio	36000000000000
CO State of Colorado	06000000000000	OK State of Oklahoma	37000000000000

CT State of Connecticut	07000000000000	OR State of Oregon	38000000000000
DE State of Delaware	08000000000000	PA Commonwealth of Pennsylvania	39000000000000
DC District of Columbia	09000000000000	RI State of Rhode Island	40000000000000
FL State of Florida	10000000000000	SC State of South Carolina	41000000000000
GA State of Georgia	11000000000000	SD State of South Dakota	42000000000000
HI State of Hawaii	12000000000000	TN State of Tennessee	43000000000000
ID State of Idaho	13000000000000	TX State of Texas	44000000000000
IL State of Illinois	14000000000000	UT State of Utah	45000000000000
IN State of Indiana	15000000000000	VT State of Vermont	46000000000000
IA State of Iowa	16000000000000	VA State of Virginia	47000000000000
KS State of Kansas	17000000000000	WA State of Washington	48000000000000
KY State of Kentucky	18000000000000	WV State of West Virginia	49000000000000
LA State of Louisiana	19000000000000	WI State of Wisconsin	50000000000000
ME State of Maine	20000000000000	WY State of Wyoming	51000000000000
MD State of Maryland	21000000000000	AS American Samoa	60000000000000
MA State of Massachusetts	22000000000000	FM Federated States of Micronesia	64000000000000
MI State of Michigan	23000000000000	GU Guam	66000000000000
MN State of Minnesota	24000000000000	MH Republic Of The Marshall Islands	68000000000000
MS State of Mississippi	25000000000000	MP Northern Mariana Islands	69000000000000
MO State of Missouri	26000000000000	PW Palau	70000000000000
MT State of Montana	27000000000000	PR Commonwealth of Puerto Rico	72000000000000
NE State of Nebraska	28000000000000	VI Virgin Islands	78000000000000
NV State of Nevada	29000000000000		
NH State of New Hampshire	30000000000000		
NJ State of New Jersey	31000000000000		

3.5 Specifying the State

The demonstration taxonomy has a free-form entry for the state. A future version of the demonstration taxonomy could use the extensible enumerations feature of XBRL to improve data quality by limiting the choice of states to a fixed set of values e.g. two letter state codes. The specification for extensible enumerations is available here:
http://www.xbrl.org/Specification/ext-enumeration/REC-2014-10-29/ext-enumeration-REC-2014-10-29.html

3.6 Magnitude

The demonstration taxonomy relies on the professional expertise of the preparer to qualify the magnitude of funds. Future iterations of the taxonomy should consider incorporating validation checks to ensure magnitude requirements (i.e., ratio of individual fund balances as a percent to all funds) are adhered to when classifying funds as either major or nonmajor.

There is also discussion about whether a magnitude validation check should be included in the taxonomy because it reflects a disclosure checklist step rather than a disclosed fact.

3.7 Long Term Maintenance

Sustainability of the production taxonomy: in order to maintain the taxonomy, a designated authoritative body or professional organization must be dedicated to monitoring requests and inquiries; reconciling discrepancies; updating the taxonomy (i.e., adding/removing concepts, updating documentation and related resources, etc.); notifying the public of the changes; etc.