US GAAP Financial Reporting Taxonomy

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Technical Guide

Version 2019*

This version of the Technical Guide accompanies the formal release of the 2019 US GAAP Financial Reporting Taxonomy (Taxonomy) by the Financial Accounting Standards Board.

**With the release of the June 2019 Document and Entity Information (DEI) Taxonomy, an additional entry point has been provided at xbrl.fasb.org. These Release Notes have not been revised however, because the 2019 US GAAP Taxonomy is unchanged and remains as the accepted Taxonomy.*

An electronic copy of this Technical Guide is available on the FASB's website.

Financial Accounting Standards Board

Notice

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[1]This Taxonomy includes by import the SEC Reporting Taxonomy (the "SRT"). "Notice: Authorized Uses" for the SRT can be viewed at http://xbrl.fasb.org/terms/SRT_TermsConditions.html

Table of Contents

Table of Figures

1 Introduction

The purpose of this document is to provide technical details of the 2019 GAAP Financial Reporting Taxonomy (Taxonomy). The intended audience for this document is a technical user familiar with XBRL, other specifications, and modules of XBRL, XML Schema, XSLT stylesheets, and so forth. It is not intended as a tutorial or as an implementation guide for the Securities and Exchange Commission (SEC) filers. Business users may be interested in this document and it is written such that a business user familiar with the technologies (XBRL, XML Schema, XSLT, and so forth) will be comfortable with this document. Users looking for guidance to conform to SEC XBRL filing requirements should look to the SEC EDGAR Filer Manual and other information provided on the SEC website.

Terminology used in XBRL frequently overlaps with terminology from other fields.

Term	Meaning
arcroleRef, child, concept, context, dimension, duplicate item, descendant, DTS, duplicate tuple, element, entity, fact, footnote, instance, item, linkbase, linkbaseRef, period, roleRef, schemaRef, taxonomy, taxonomy schema, tuple, unit	As defined in [XBRL]
DTS Component	A discoverable taxonomy set (DTS) contains taxonomy schemas and linkbases. The bounds of a DTS are such that *DTS Components* include all taxonomy schemas and linkbases that can be discovered by following links or references in the taxonomy schemas and linkbases included in the DTS.
MUST, MUST NOT, REQUIRED, SHALL, SHALL NOT, SHOULD, SHOULD NOT, MAY, OPTIONAL	See [RFC2119] for definitions of these and other terms. In particular, these include: SHOULD Conforming documents and applications are encouraged to behave as described. MUST Conforming documents and consuming applications are required to behave as described; otherwise, they are in error.
FAF, FASB	Financial Accounting Foundation, Financial Accounting Standards Board
Financial report	A document containing quantitative and textual information that is either: (a) meant to satisfy authoritative financial reporting standards and generally accepted accounting principles (GAAP) or a regulatory report whose subject matter is primarily financial position and performance and related explanatory disclosures or (b) a data set used in the collection of financial statistics. This term excludes transaction or journal-level reporting and primarily narrative or nonfinancial quantitative reports.
GAAP or US GAAP	Generally accepted accounting principles: Term used to describe broadly the body of principles and practices that govern the accounting for financial transactions in the preparation of a set of financial statements.
IASB	International Accounting Standards Board
IFRS	International Financial Reporting Standards
PCAOB	Public Company Accounting Oversight Board
XBRL	Extensible Business Reporting Language (XBRL) 2.1 Recommendation [XBRL]
SEC	U.S. Securities and Exchange Commission
XII	XBRL International, Inc.

Term	Meaning
EDGAR	Electronic Data Gathering, Analysis, and Retrieval system, performs automated collection, validation, indexing, acceptance, and forwarding of submissions by companies and others who are required by law to file forms with the U.S. Securities and Exchange Commission (SEC).
SRT	The SEC Reporting Taxonomy (SRT) includes elements to meet SEC requirements for financial schedules required by the SEC, condensed consolidating financial information for guarantors, and disclosures about oil and gas producing activities. The SRT also includes dimensional elements whose underlying recognition and measurement are not specified by GAAP but are elements commonly used by GAAP filers. The SRT is intended to be used with other taxonomies that meet SEC requirements.

2 Physical Location and Organization

The taxonomies are rooted at URLs of the form http://xbrl.fasb.org/{name}/{version}/ and the current taxonomies are specifically at the base URL:

http://xbrl.fasb.org/us-gaap/2019/

A zip file containing all files is located at:

http://xbrl.fasb.org/us-gaap/2019/us-gaap-2019-01-31.zip

There are dozens of entry points for different purposes. Each entry point selects some subset of the hundreds of files constituting all taxonomies.

2.1 Naming Conventions

Figure 1. Directories for Entry Point Schemas

dis	disclosures
elts	elements
stm	statements
entire	entry point for entire Taxonomy
META-INF	manifest file to identify entry points automatically

Figure 2. Abbreviations Used in File Names

-all-	contains labels, relationships with information about deprecation, and documentation and references for concepts
-std-	loads the Taxonomy with labels but no documentation or references
-dep-	contains labels and relationships with information about deprecation
-chg-	contains descriptions and relationships with information about Taxonomy changes and taxonomy implementation notes.
-eedm-	Contains domain of members for use with concepts of type enum:enumerationsItemType [not included in 2019 Taxonomy Update but will be included in 2020 Taxonomy Update, pending Extensible Enumerations 2.0 reaching Recommendation status]
-*tmp-	Contains taxonomy disclosure templates

Figure 3. Entry Point Types

-dis-	a disclosure schema or linkbase
-ent-	a document schema entry point
-stm-	a statement schema or linkbase
-entryPoint-	the root of the entire taxonomy
-tmp-	taxonomy disclosure templates
-wotmp-	Excludes taxonomy disclosure templates

Figure 4. Statement Type Abbreviations

-com-	common	contains definitions and other relationships whose only purpose is to be copied by users into other links
-scf-	statement of cash flows	
-scp-	statement of partner capital	
-sfp-	statement of financial position	also known as a balance sheet
-she-	statement of shareholder equity	
-soc-	statement of comprehensive income	
-soi-	statement of income	

Figure 5. *DELETED*

Figure 6. Prefixes for the Main File Groups

Prefix	**Meaning—FASB Taxonomy**
us-gaap-	U.S. GAAP Taxonomy prefix
srt-	SEC Reporting Taxonomy prefix

Figure 7. Linkbase Naming Abbreviations

-cal-	calculation
-def-	definition
-doc-	documentation

-lab-	labels (contains labels having standard role "label" and others)
-pre-	presentation
-ref-	reference
-dep-	deprecation (contains relationships among deprecated and normal concepts)
-tin-ref-	Taxonomy implementation notes using reference syntax
-tin-def-	Taxonomy implementation note relationships in definition linkbase using http://fasb.org/us-gaap/arcrole/alt-concept-supersededConceptForPeriodOfAndAfterAdoption to associate an alternative concept for a superseded concept for period of and after adoption; and http://fasb.org/us-gaap/arcrole/concept-extensibleEnumerationLineItemLocation to identify which particular element in the financial statements includes the value for that concept when the element representing the concept is not separately disclosed in the financial statements.
-cn-ref-	Taxonomy change notes using reference syntax
-*tmp*-	Linkbase used with a Taxonomy Disclosure Template

2.2 The Base Schema us-gaap-2019-01-31.xsd

All concepts in the Taxonomy are contained in a single schema file as detailed by type in Figure 8. This is done for reasons explained in the architecture document and are summarized here:

- Preparers need access to the full set of available concepts when searching for a concept so that they do not unnecessarily extend the Taxonomy.
- Linkages between statements, statements and disclosures, and among disclosures are sufficiently dense that naïve strategies based on, for example, industry concepts or concepts in different statements, wind up loading everything anyway.
- The minimum multimegabyte load of this schema is normally quite fast relative to the processing involved in validating an equivalent set of calculation, definition, or presentation relationships.

2.3 SEC Reporting Taxonomy

With the 2019 Taxonomy, a subset of elements has been moved into the SEC Reporting Taxonomy (SRT) grouped by type in Figure 8. The SRT includes elements that are not US GAAP specific but are used by US GAAP filers to meet SEC requirements for financial schedules required by the SEC, condensed consolidating financial information for guarantors, and disclosures about oil-and gas- producing activities and broker-dealer capital requirements. The SRT also includes elements whose underlying reference are not to US GAAP but also are used by US GAAP filers.

The SRT schema namespace is "http://fasb.org/srt/2019-01-31" located at "http://xbrl.fasb.org/srt/2019/elts/srt-2019-01-31.xsd." The SRT is included with the 2019 Taxonomy by import in the base schema "us-gaap-2019-01-31.xsd" as illustrated in Figure 14. Primary Entry Points.

Consistent with Legacy Element Names, element names are unchanged between the 2018 Taxonomy and the 2019 SRT. Only the namespace prefix is changed from "us-gaap" to "srt" and the usual annual date change.

2.3.1 Taxonomy to SRT Mapping Linkbase

To assist US GAAP filers with the programmatic identification of the elements moved from the 2018 Taxonomy to the SRT, a separate definition linkbase "mapping" these elements from the 2018 Taxonomy to the 2019 SRT is included with the SRT located at http://xbrl.fasb.org/srt/2019/elts/srt-dep-def-2019-01-31.xml. While it is not common to map against a prior Taxonomy, it is necessary in this case as these elements are no longer available in the more current 2019 Taxonomy; hence the need for the mapping. Depending on the application, this file can be referenced directly or by import with http://xbrl.fasb.org/srt/2019/elts/srt-dep-def-2019-01-31.xsd.

With the exception of needing to map from the Taxonomy elements to the SRT elements, GAAP filers should generally be unaware of any changes. Software applications can utilize the "mapping" linkbase to facilitate the annual conversion to the latest Taxonomy. More details are available for the SRT in the **SRT Technical Guide**.

Figure 8. Element Type Breakdown

Type	2018 Taxonomy	New	Deprecated	Moved to SRT	2019 Update
xbrli:monetaryItemType	6,945	398	120	17	7,206
xbrli:stringItemType	1,288	3	48	1	1,242
nonnum:domainItemType	1,686	73	36	22	1,701
nonnum:textBlockItemType	947	44	13	10	968
num:percentItemType	428	9	1	0	436
xbrldt:dimensionItem	240	4	5	3	236
xbrli:sharesItemType	223	0	2	0	221
num:perShareItemType	174	0	22	0	152
xbrli:dateItemType	106	10	1	0	115
xbrli:integerItemType	105	0	2	8	95
Other Data Types	559	121	9	15	656

Elements Available for "Tagging"	12701	662	259	76	13028
Organizational Abstracts (xbrli:stringItemType)	2,895	167	36	23	3,003
Subtotal	15,596	829	295	99	16,031
		Deleted[2]			
Deprecated	1,431	295	681		1,045
Total Elements in Taxonomy Schema	**17,027**				**17,076**

2.4 Typed Dimensions

A typed dimension was included in the 2017 Taxonomy Update in the group "606000 - Disclosure - Revenue from Contract with Customer." The Taxonomy uses this typed dimension to indicate the start date for the period when the remaining performance obligation will be satisfied. It is restricted to a dateItemType, meaning the members must appear in CCYY-MM-DD format. The Taxonomy Implementation Guide for Revenue from Contracts with Customers illustrates usage of this structure. While no additional typed dimensions have been added since the 2017 Taxonomy Update, the Taxonomy is likely to utilize more typed dimensions in future Taxonomy releases.

The typed dimension is identified in the Taxonomy by the presence of the xbrldt:typedDomainRef attribute on the particular dimension.

2.5 Extensible Enumerations (Extensible Lists)

An Extensible List data type element is used to convey additional information about another primary line item reported value that is not subject to disaggregation. For example, the extensible list element "Type of Revenue [Extensible List]" is used to convey additional information about revenue and cost of revenue values that are *not disaggregated* by type of products or services in the statement of income. Further discussion of this example can be found in the "Revenue from Contracts with Customers" Taxonomy Implementation Guide.

Additionally, certain [Extensible list] elements are used in association with elements for which the reported value for those elements are not separately disclosed as line items in the primary financial statements but the filer still discloses the value as well as the line item containing the value.

For example, the extensible list element "Direct Financing Lease, Income, Comprehensive Income [Extensible List]" is used in conjunction with the "Direct Financing Lease, Lease Income" element to identify the element that contains the value reported with the "Direct Financing Lease, Lease Income" element. Further discussion of this example can be found in the "Leases under Topic 842" Taxonomy Implementation Guide. To assist with programmatic identification of these relationships, these elements are associated with each other using the arcrole "http://fasb.org/us-gaap/arcrole/concept-extensibleEnumerationLineItemLocation" located in us-gaap-tin-def-2019-01-31.xml.

The XML Schema construct of enumerated lists [Fixed List] work well when the list of possible values is fixed, but that makes it unusable when the filer requires a custom value. Extensible Enumerations 1.0 (Extensible Lists[3]) addresses this limitation by allowing the filer to add values in a manner similar to adding to the list of members for dimensional modeling in an extension taxonomy. However, Extensible Enumerations 1.0 does not provide a mechanism for providing the reporting of facts that have multiple values, which is expected to be available in Extensible Enumerations 2.0. The full functionality of the Extensible List element is expected to be made available in a future Taxonomy Update.

The Extensible List elements in the 2019 Taxonomy use a custom datatype, extensibleListItemType, for which values reported as a constrained textual value should correspond to elements named in a base or extension taxonomy. The values reported with an Extensible List element are constrained to a QName format, e.g., "us-gaap:Assets us-gaap:Liabilities" and should correspond to elements in the DTS of the schema. While the values reported with the Extensible List elements are restricted to appearing in the above format, the actual reported values are not subject to the same schema validation that are expected to be in place for a future Taxonomy (see below). However, vendors may provide validation within their tool sets. The 2019 Taxonomy also provides Taxonomy Implementation Notes (TIN) and definition domain-member relationships conveying the intended domain and domain-members of the extensible list elements.

[2] Deleted 2016 Taxonomy deprecated elements per EDGAR Release 18.2
[3] https://specifications.xbrl.org/spec-group-index-extensible-enumerations.html

With a future Taxonomy, the extensibleListItemType datatype is expected to be changed to enumerationsItemType pending XBRL International, Inc. specification Extensible Enumerations 2.0 attaining recommendation status. With the enumerationsItemType, the future Taxonomy is expected to use the same values as used for 2019 but may be subject to schema validation. That future Taxonomy would include lists that will enable use of element names provided in the Extensible Lists as values. This change would allow the Extensible List elements to use the same member elements as existing dimensions in the Taxonomy, and convey the same information when the information is not disaggregating a value across a dimension.

With a future Taxonomy, Extensible List elements would be declared with @type equal to enum2:enumerationsItemType, which is defined in the specification Extensible Enumerations 2.0 (currently Public Working Draft status). When this change occurs, extensible list element declarations also will have two attributes new to the Taxonomy: enum2:linkrole and enum2:domain.

2.6 Taxonomy Disclosure Templates

A Taxonomy Disclosure Template (TDT) is a set of presentation, calculation, and definition linkbase files that replicate disclosures as illustrated in FASB Taxonomy Implementation Guides (TIG) available on the FASB website. They differ from other linkbases in two important ways:

- SEC EDGAR will allow the base taxonomy calculation and definition linkbases to appear in the DTS of a submission (i.e., it will appear in edgartaxonomies.xml).
- All the calculation and definition linkbases arcs have priority=10, so that EDGAR will not allow filers to remove or override the arcs, but they can add to them.

Each template models a specific illustration from the TIGs. When a filer's disclosure approximately matches one of the illustrations, they can import or reference the calculation and definition linkbases of the template into their extension taxonomy instead of recreating the modeling. The filer can still add to the template in their extension taxonomy to more precisely match their disclosure, but the key benefit is that they do not have to recreate common disclosures. That also should assist users of the data in establishing models based upon the templates.

The presentation linkbases included with the templates correspond to the illustrations in the Taxonomy Implementation Guides but are not available to import or reference. They are handled in the same manner required for all other linkbases in the Taxonomy.

TDTs for illustrations in the Taxonomy Implementation Guides include:

Taxonomy Implementation Guide	Group Series
Financing Receivable and Current Expected Credit Loss Disclosures	32600X
Financial Instruments—Debt Securities	3301XX
Revenue from Contracts with Customers	60600X
Retirement Benefits	7301XX
Fair Value Inputs	8151XX
Leases Under Topic 842	842XXX
Insurance—Long-Duration Contracts	94410X

2.7 References and the Reference Linkbase

References to the authoritative accounting literature (the *FASB Accounting Standards Codification®*) appear for concepts derived from US GAAP. References previously identified as superseded or redundant have been removed from the 2019 Taxonomy.

The file us-gaap-ref-2019-01-31.xml contains a legal XLink construct that has not commonly been leveraged in XBRL taxonomies. There is only a single reference resource element for each distinct reference so that if several concepts share a literature reference, they each have an arc pointing to the common resource. This saves about 40 percent on the size of that one file.

Reference resources do not have id attributes. Therefore, the arc between the concept and its references cannot be prohibited by any extension linkbase.

2.7.1 Expanded Use of Reference Roles

The 2019 Taxonomy uses reference roles from the XBRL specification as established by XII, except for:

- "http://fasb.org/us-gaap/role/legacyRef"
- "http://fasb.org/us-gaap/role/ref/otherTransitionRef."

Reference Role	Description
http://www.xbrl.org/2003/role/disclosureRef	Reference to documentation that details an explanation of the reporting requirements relating to the concept.
http://www.xbrl.org/2003/role/recommendedDisclosureRef	Reference to documentation that details an explanation of recommended disclosures relating to the concept.
http://www.xbrl.org/2003/role/exampleRef	Reference to documentation that illustrates, by example, the application of the concept that assists in determining appropriate usage.
http://www.xbrl.org/2009/role/commonPracticeRef	Reference for common practice disclosure relating to the concept. Enables reference to a related requirement.
http://fasb.org/us-gaap/role/ref/otherTransitionRef	Reference that is transitional and applicable to entities that apply nonpublic entity timing in adoption of amendments from Accounting Standards Updates, which is used to distinguish references that are transitional and applicable to entities that apply nonpublic entity timing in adoption of amendments from Accounting Standards Updates.
http://fasb.org/us-gaap/role/ref/legacyRef	Reference that has not been reviewed and assigned a specific role, which is used to distinguish references that have not yet been reviewed as part of the ongoing reference project and assigned a specific role

2.8 Change Note

The 2019 Taxonomy includes Change Notes (CN) that identify all taxonomy changes consistent with the TIN construct discussed at Taxonomy Implementation Note. This information can be viewed in the reference section of the Taxonomy alongside the TINs and Accounting Standards Codification® references.

The advantage of the CN is that it uses the reference linkbase syntax as provided by the XBRL specification for associating structured information with Taxonomy elements in a similar manner to the TINs. As such, it can be more readily understood and accommodated by XBRL developers and XBRL applications. The reference parts are defined in the Taxonomy (us-parts-cn-2019-01-31.xsd).

The CNs are expressed using reference parts as illustrated below.

Category	Reference Part	Type	Change Note Part Documentation	Requirement
Taxonomy Version	TaxonomyVersion	gYear	Taxonomy version in YYYY format	Required
Change Date	ChangeDate	gYearMonth	Date change was made in the taxonomy in [CCYY-MM] format	Required
Source Name	SourceName	string	Source for change label. Examples include: Extraordinary Items; Revenue	Required for updates based on Accounting Standards Update [ASU] and projects
Source ASU Number	Source_ASU_Number	cn-part:Asu Number	Accounting Standards Update issued number	Required for updates based on Accounting

Category	Reference Part	Type	Change Note Part Documentation	Requirement
				Standards Update [ASU] and projects
New Element	NewElement	boolean	Identifies new elements	Required for new elements
Element Deprecated[4]	ElementDeprecated	boolean	Identifies deprecated elements	Required for deprecated elements
Deprecated Date	DeprecatedDate	date	Deprecation date in [CCYY-MM] format	Required for deprecated elements
Deprecated Label	DeprecatedLabel	string	Provides the details of the deprecated element. Specifically, the reason that the element was deprecated	Required for deprecated elements
Deprecation Replacement	DeprecationReplacement	cn-part:elementListItemType	Identifies possible replacement(s) for deprecated element	Required if definition relationship included
Modified Deprecated Label	ModifiedDeprecatedLabel	boolean	Identifies modified Deprecated Label	Required for when the Deprecation Label has been modified
Modified References	ModifiedReferences	boolean	Identifies reference changes	Required for reference changes
Modified Standard, Period Start, Period End, or Total Labels	ModifiedLabels	boolean	Identifies modified Standard, Period Start, Period End, or Total Labels	Required for label changes excluding documentation label
Modified Documentation Label	ModifiedDocumentation	boolean	Identifies modified Documentation Label	Required for documentation label changes
Previous Documentation Label	PreviousDocumentation	string	Provides the definition (documentation label) of the element as defined from the prior version of the Taxonomy	Required for documentation label changes
Modified Balance Type	ModifiedBalanceType	boolean	Identifies that the balance type attribute on an element has been adjusted	Required for balance attribute changes
Modified Period Type	ModifiedPeriodType	boolean	Identifies that the period type attribute on an element has been adjusted	Required for period type attribute changes
Modified Data Type	ModifiedDataType	boolean	Identifies that the data type attribute on an element has been adjusted	Required for data type attribute changes

An example of a CN that includes a few of the above attributes:

```
<link:reference xlink:label='ref_17' xlink:role='http://fasb.org/srt/role/changeNote/changeNote'
                xlink:type='resource'>
    <cn-part:SourceName>Nonemployee Share-Based Payment</cn-part:SourceName>
    <cn-part:TaxonomyVersion>2019</cn-part:TaxonomyVersion>
    <cn-part:ChangeDate>2018-06</cn-part:ChangeDate>
    <cn-part:ModifiedDocumentation>true</cn-part:ModifiedDocumentation>
```

[4] See Section 7 Deprecated Element Relationships for additional details about deprecated elements.

```
    <cn-part:PreviousDocumentation>Information by award type pertaining to equity-based
                                   compensation.</cn-part:PreviousDocumentation>
    <cn-part:Source_ASU_Number>2018-07</cn-part:Source_ASU_Number>
</link:reference>
```

The file us-gaap-cn-ref-2019-01-31.xml contains the CNs and is structured in a similar manner as references to the authoritative literature as described in "References and the Reference Linkbase" and TINs as described in "Taxonomy Implementation Note." In addition to being contained in a separate file, CNs are identified with the "ChangeNote" role from the SRT – "http://fasb.org/srt/role/changeNote/changeNote."

The CN linkbase is *not* referenced from the base schema (us-gaap-2019-01-31.xsd) so users have the option whether to load this linkbase. Additionally, the SRT CN linkbase is not referenced from the Taxonomy as they are replicated in the Taxonomy as appropriate. Reference resources do not have id attributes. Therefore, the arc between the concept and its references cannot be prohibited by any extension linkbase.

2.9 Taxonomy Implementation Note

The 2019 Taxonomy includes TINs associated with concepts to assist in appropriate selection. TINs use the reference linkbase syntax as provided by the XBRL specification for associating structured information with taxonomy concepts. As such, it can be readily understood and accommodated by XBRL developers and XBRL applications. The TIN structure is explicit with attributes for reference parts that are separated from values. The reference parts are defined in the Taxonomy (us-parts-tin-2019-01-31.xsd). While XBRL syntax does not preclude having duplicate parts in the TIN, our practice is to create separate TIN "objects" whenever a duplicate part is required.

The TINs are expressed using reference parts as illustrated below.

Category	Reference Part	Type	Taxonomy Reference Part Documentation	Requirement
Publish Date	PublishDate	gYearMonth	Publish date for Taxonomy Implementation Note in [YYYY-MM] format	Required
Source	Source	string	Source for Taxonomy Implementation Note. Examples include: Taxonomy Implementation Guide [TIG]; Accounting Standards Update [ASU]	Required
Source Name	SourceName	string	Source name, example: Subsequent Events	Required
Source Version	SourceVersion	decimal	Source version	Required when TIG exists
Source ASU Number	Source_ASU_Number	tin-part:AsuNumber	Accounting Standards Update issued number	Required when TIN created because of new ASU
Positive XBRL Value	Positive_XBRL_Value	string	XBRL value to be entered as positive, when reported amount is present; examples include facts reported as [Gain] [Increase] [Accumulated Earnings]	Required for 2-way elements only
Negative XBRL Value	Negative_XBRL_Value	string	XBRL value to be entered as negative, when reported amount is present; examples include facts reported as [Loss] [Decrease] [Accumulated Deficit]	Required for 2-way elements only
Taxonomy Implementation Note	Note	string	Taxonomy implementation note	Optional. Use when additional explanation is desired.
Link to Taxonomy Implementation Guide on FASB's website	URI	anyURI	URI link to Taxonomy Implementation Guide	Reserved for future use

Category	Reference Part	Type	Taxonomy Reference Part Documentation	Requirement
Potential alternate element(s)	AlternateElement	tin-part:elementListItemType	Potential alternate element name(s)	Optional. Also, if there are several alternate elements, they are listed in the part separated by a space.
Potential alternate element(s) for periods of and after adoption	AlternateElementForPeriodOfAndAfterAdoption	tin-part:elementListItemType	Potential alternate element names(s) for period of and after adoption	Optional. Also, if there are several alternate elements, they are listed in the part separated by a space.
Potential alternate element(s) for periods prior to adoption	AlternateElementForPeriodsPriorToAdoption	tin-part:elementListItemType	Potential alternate element names(s) for periods prior to adoption	Optional. Also, if there are several alternate elements, they are listed in the part separated by a space.
Transition options for new ASU	TransitionOption	tin-part:TransitionOptionList	Transition options for new ASU. Enumerated values include: "Retrospective," "Prospective," "Modified Retrospective," or "Modified Prospective"	Required for transitional elements
Description of TIN Modification	TinModificationDescription	string	Description of modification to TIN	Required if change to TIN is substantially different from previous TIN.
Name of the domain for extensible list element	extensibleListDomain	QName	Element name of the intended domain for the extensible list element	Required for extensible list elements
Linkrole location of the domain for extensible list element	extensibleListLinkroleLocation	anyURI	URI link to domain-member relationships intended to be used for the extensible list element	Required for extensible list elements

An example of a TIN that includes a few of the above attributes:

```
<link:reference xlink:label='ref_3' xlink:role='http://fasb.org/us-gaap/role/tin/taxonomyImplementationNote'
                xlink:type='resource'>
    <tin-part:Note>Element is modeled from other comprehensive income statement perspective.</.</tin-
part:Note>
    <tin-part:PublishDate>2019-01</tin-part:PublishDate>
    <tin-part:Positive_XBRL_Value>Enter a positive XBRL value for accumulated other comprehensive
                                  income.</tin-part:Positive_XBRL_Value>
    <tin-part:Negative_XBRL_Value>Enter a negative XBRL value for accumulated other comprehensive
                                  loss.</tin-part:Negative_XBRL_Value>
</link:reference>
```

The file us-gaap-tin-ref-2019-01-31.xml contains the TINs and is structured in a similar manner as references to the authoritative literature as described in "References and the Reference Linkbase." In addition to being contained in a separate file, TINs are identified with the "taxonomyImplementationNote" role.

The TIN linkbase is *not* referenced from the base schema (us-gaap-2019-01-31.xsd) so users have the option whether or not to load this linkbase. Reference resources do not have id attributes. Therefore, the arc between the concept and its references cannot be prohibited by any extension linkbase.

Elements with identified possible replacement elements (alternate elements) are included in the definition linkbase with a relationship to the possible replacement element (using arcrole: http://fasb.org/us-gaap/arcrole/alt-concept-supersededConceptForPeriodOfAndAfterAdoption).

2.10 Documentation and the Documentation Linkbase

The file us-gaap-doc-2019-01-31.xml and other documentation label files contain label resources with the "documentation" role and concept-label arcs for most of the concepts. Labels and documentation linkbases are *not*

referenced from the base schema (us-gaap-2019-01-31.xsd) so users have the option whether or not to load this linkbase. Documentation label resources do not have id attributes. Therefore, the arc between the concept and its documentation cannot be prohibited by any extension linkbase.

Figure 9. DELETED

2.11 Labels and the Label Linkbase

File us-gaap-lab-2019-01-31.xml contains the "standard" labels for all concepts in the base schema us-gaap-2019-01-31.xsd.

Standard label resource elements have id attributes. Therefore, the arc between the concept and its standard label may be prohibited by any extension linkbase.

A standard label with a bracketed suffix completely determines the type, substitution group, period, and whether a concept is abstract. All abstract concepts must have one of these bracketed suffixes.

Figure 10. Mandatory Relationship of Standard Label Suffix to Concept Type

Suffix	Type	Substitution Group	Abstract	Period
[Abstract]	xbrli:stringItemType	xbrli:item	Abstract	duration
[Domain]	nonnum:domainItemType	xbrli:item	Abstract	duration
[Member]	nonnum:domainItemType	xbrli:item	Abstract	duration
[Line Items]	xbrli:stringItemType	xbrli:item	Abstract	duration
[Table]	xbrli:stringItemType	xbrldt:hypercubeItem	Abstract	duration
[Axis]	xbrli:stringItemType	xbrldt:dimensionItem	Abstract	duration
[Roll Forward]	xbrli:stringItemType	xbrli:item	Abstract	duration
[Text Block]	nonnum:textBlockItemType	xbrli:item		duration
[Policy Text Block]	nonnum:textBlockItemType	xbrli:item		duration
[Table Text Block]	nonnum:textBlockItemType	xbrli:item		duration
[true false]	xbrli:booleanItemType	xbrli:item		instant duration
[Fixed List]	us-types:complexType list	xbrli:item		instant duration
[Extensible List]	srt-types:extensibleListItemType (Future Update) enum2:enumerationsItemType (Future Update)	xbrli:item		instant duration

2.11.1 Legacy Element Names

Experience shows that stability of the element name and its meaning is essential for preparers throughout their tagging and verification processes and when rolling forward tagging from period to period.

Generally, an element name introduced in a Taxonomy Update will always have the same properties (data type, substitution group, abstract attribute, period type attribute, and balance attribute) in future Updates.

2.11.2 Standard and Documentation Labels

The standard label is generally stable but may change in minor ways from Taxonomy Update to Update, such as to improve understanding and consistency or to correct typos.

Likewise, the documentation and references may change but only in ways that have been verified as semantically equivalent by the FASB staff.

2.11.3 Standard and Preferred Label with Filer Count

The 2019 Taxonomy as displayed in the FASB Taxonomy Online Review and Comment System (TORCS) contains numerical values appended to the Standard and Preferred Labels, which represent the usage of the element for all SEC filings for a recent full reporting year after removing duplicates for each filer. For example, the element for Revenues appears as "Revenues {4681}," which means that 4,681 filers have used the element in their filings in the reporting year covered. These filer counts are provided for informational purposes only and are not intended to promote or limit use of elements. Elements may have low counts for multiple reasons because they are transactional in nature (for example, dispositions and acquisitions) or are a reflection of the current economic environment (for example, impairments).

These counts will only appear in the Taxonomy as viewed in TORCS and supporting collateral. They are not available in the Taxonomy published at http://xbrl.fasb.org/us-gaap/2019/.

2.11.4 Negating Labels

The Taxonomy uses no Negating Labels in any label linkbase. Negating Labels allow customization of a presentation to give the preparer detailed control.

2.12 Calculation, Definition, and Presentation Linkbases

There are hundreds of individual linkbases organized by entry points as described below in Section 3 ("Discoverable Taxonomy Sets"), Section 5 ("Presentation Linkbases for Viewing the Taxonomy"), and Section 6 ("Calculation, Definition, and Presentation Alignment").

3 Discoverable Taxonomy Sets

Developers familiar with XML Schema understand the <import> and<include> elements and xsi:schemaLocation attributes in XML. Close study of the Discoverable Taxonomy Set (DTS) algorithm in the XBRL 2.1 is critical because taxonomies and instances *will not validate* unless an entry point (an XML Schema file with additional details) is processed correctly to collect the DTS. To give you a sense of the issue, note that Version 1.0 of the Taxonomy was 45MB in 509 files with 152 entry points and more than 355 linkbases. Interrelationships among these files are illustrated in Figure 11. The directory entire/ contains two entry point schemas for accessing the entire taxonomy.

Figure 11. Schematic of Import and LinkbaseRef Relationships among Files

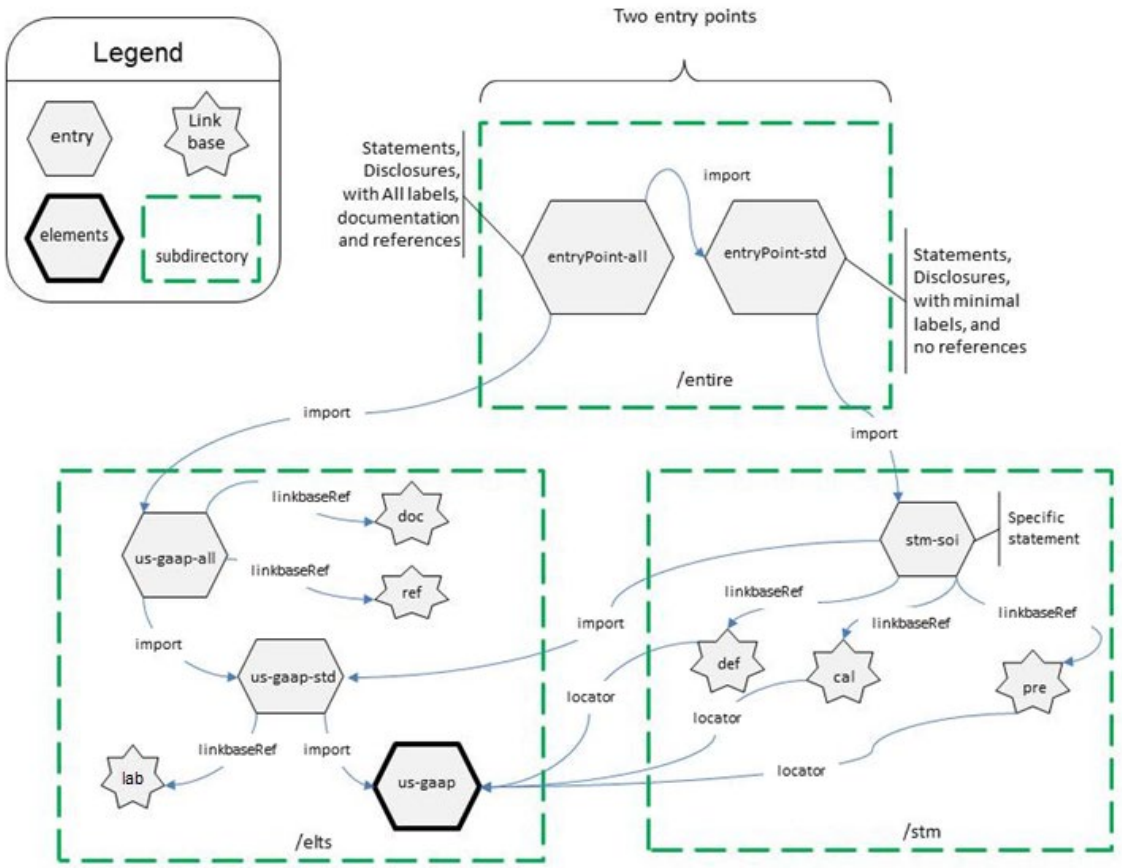


Figure 12. DELETED

The following schemas load all statements and disclosure relationship groups and are useful for navigating the entire Taxonomy.

Figure 13. Entire Taxonomy Entry Points

us-gaap-entryPoint-std-2019-01-31.xsd	DTS includes all components in all folders except for -doc-, -chg-, and -ref- linkbases
us-gaap-entryPoint-all-2019-01-31.xsd	DTS includes all components in all folders
us-gaap-entryPoint-all-wotmp-2019-01-31.xsd	DTS includes all components in all folders except Taxonomy Disclosure Templates
us-gaap-entryPoint-tmp-2019-01-31.xsd	DTS includes Taxonomy Disclosure Templates and related components

The morpheme "-all-" means that the entry point causes *all* documentation strings, CNs, TINs, deprecation information, and references to be loaded. These files are several MB each and while they are essential for preparers and Taxonomy reviewers, it is worth considering for a publisher of instance documents whether an entry point *without* the "all" element should be the target of the instance document's schemaRef.

The morphemes "-stm-" indicates that only the financial statements would be loaded.

Within the directory ../stm are all the statement entry point schemas and their linkbases. A single statement entry point includes all its "alternate calculations."

Within the directory ../elts are the schemas referred to by all the linkbases and imported. Figure 14 illustrates what is included with each entry point. When building extension taxonomies, these are the most relevant files to start with as entry points, particularly ../elts/us-gaap-2019-01-31.xsd.

Taxonomy Implementation Notes and Change Notes are in separate files (us-gaap-tin-ref-2019-01-31.xml; us-gaap-cn-ref-2019-01-31.xml) and referenced with the entry point (us-gaap-ent-all-chg-2019-01-31.xsd). This will permit additions to us-gaap-chg-2019-01-31.xml at other than the annual release cycle with no effect on the base Taxonomy.

SEC Taxonomies

The DTS also includes several SEC taxonomy imports in us-gaap-all-2019-01-31.xsd as listed below, either as a matter of convenience for the filer or because some of the elements are used in the Taxonomy.

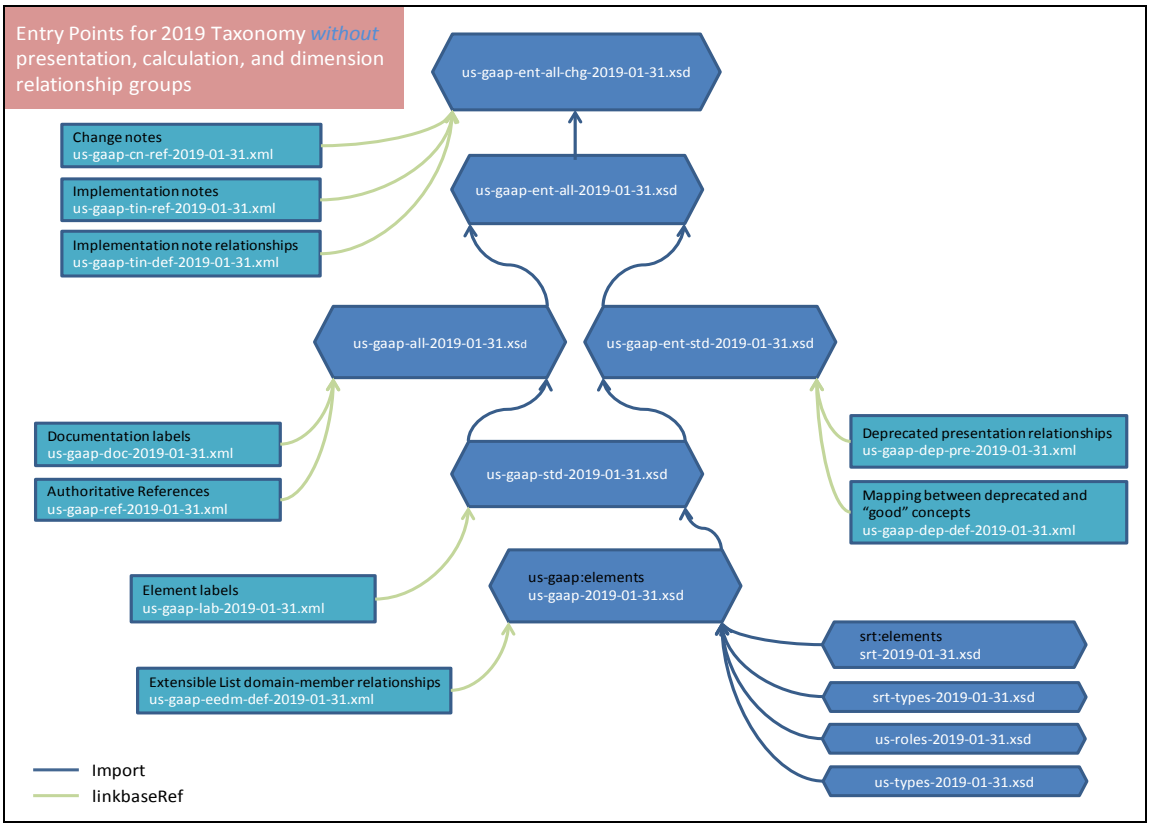
Entry Point	Contains
dei-all-2018-01-31.xsd	Document and Entity Information (dei)
country-ent-all-2017-01-31.xsd	Country Code (country).
exch-ent-all-2019-01-31.xsd	Stock Exchanges (exch).
currency-all-2019-01-31.xsd	Currency (currency).
stpr-ent-all-2018-01-31.xsd	State or Province (stpr).

For element selection purposes, users are better served using the entire Taxonomy entry point, otherwise all they will see is a flat list of thousands of elements without any presentation hierarchy.

Taxonomy Package
The 2019 Taxonomy Update includes a manifest file with the zipped Taxonomy that allows compliant tools to identify the entry points automatically. This implementation conforms to XBRL International Taxonomy Package 1.0 specification[5]. It provides for inclusion of URL remapping, which can provide public locations (URLs) for files within the package.

[5] https://specifications.xbrl.org/spec-group-index-taxonomy-packages.html

Figure 14. Primary Entry Points



4 Namespace Prefixes, Namespace URIs, Absolute and Relative URLs

It is important to be clear about the distinction among these concepts:

- "us-gaap" is a namespace *prefix*.
- "http://fasb.org/us-gaap/2019-01-31" is a *namespace URI*. It is *not a file location*.
- "http://www.xbrl.org/2003/example.xsd" is a URL, the location of a file that contains the definition of a *namespace* and its contents.
- "file:/c:/www/xbrl.org/2003/example.xsd" and "ftp://ftp.xbrl.org/example.xml" are *also* each a URL; XBRL applications are not technically limited to "http://" URLs.
- Locators in the Taxonomy are rich with xlink:href attributes starting with "../elts/file.xsd". These are relative URLs. Every one of these URLs *must* be interpreted as being relative to the location of the *file in which they appear*. It is critical that software resolves these references correctly.

Maintaining a separate list of user-configurable remappings is a useful feature. For example, if you can place a copy of the 2019 Taxonomy on the user's hard drive (say at %homepath%\cache\), then a path prefix (not to be confused with a namespace prefix) such as "http://xbrl.fasb.org/us-gaap/2019/" can be remapped to that location for faster access.

However, even after remapping, it is still important to enforce the XBRL 2.1 specification rule that the same namespace cannot be defined in more than one (resolved) location.

5 Presentation Linkbases for Viewing the Taxonomy

The relationships included in the presentation linkbases are organized to roughly correspond to the arrangement of elements in the *order* in which they might be found in a financial statement while other aspects of this presentation, such as nesting, abstract headings, name indicators such as [Table], [Axis], and [Line Items], and other

arrangements, are organized to consistently represent the data in a financial statement and to reflect underlying relationships.

The presentation linkbase as it is published does *not* contain enough information for a user to reconstruct the appearance of a financial statement.

Figure 15. Facts in a Sample Statement of Income

	2019
Income Statement [Abstract]	
Statement [Table]	
(srt) Restatement [Axis]	
(srt) Product and Service [Axis]	
Statement [Line Items]	
Net Income (Loss) Available to Common Stockholders, Basic [Abstract]	
Net Income (Loss) Attributable to Parent [Abstract]	
Net Income (Loss), Including Portion Attributable to Noncontrolling Interest [Abstract]	
Income (Loss) from Continuing Operations, Net of Tax, Including Portion Attributable to Noncontrolling Interest [Abstract]	
Income (Loss) from Continuing Operations before Income Taxes, Noncontrolling Interest [Abstract]	
Income (Loss) from Continuing Operations before Equity Method Investments, Income Taxes, Noncontrolling Interest [Abstract]	
Operating Income (Loss) [Abstract]	
Gross Profit [Abstract]	
Revenues [Abstract]	
Revenue from Contract with Customer, Including Assessed Tax	$ 9,000
Operating Lease, Lease Income	2,000
Sales-type Lease, Revenue	550
Direct Financing Lease, Revenue	450
Premiums Earned, Net	2,500
Revenues, Total	$ 14,500

Figure 15 shows a left-to-right nesting of [Abstract] and other organizational elements 10 levels deep. While 10 levels deep is less common, multiple levels of nesting are not unusual in the statements. This is because the relationships must first and foremost be clear and unambiguous about the presentation context of the individual items. Preparers and their tools are not expected to use this nesting but rather flatten the presentation by shifting elements to the left to correspond to their actual presentation. Other visual cues such as the underscore lines (also shown in Figure 15) give the reader the same kind of nesting information. As a general rule of thumb, a person editing the Taxonomy should be able to view a nested presentation and see that the *top-to-bottom order of the nonabstract concepts* is correct.

In summary, the presentation linkbase organization does not represent precisely how a filer would use these elements in its XBRL document but is intended to facilitate Taxonomy navigation and to capture the expected semantics of the elements.

6 Calculation, Definition, and Presentation Alignment

User experience with a taxonomy of this size shows that there must be some default view that packs into it most, if not all, of the information needed to understand presentation, definition, and calculation relationships. The Taxonomy uses the presentation linkbase as this main view because this is how most filers think about and work with the financial statements they tag with the Taxonomy concepts.

The calculation relationships separately capture the simple mathematical relationship of concepts expressed in a summation hierarchy, for example, cash, inventory, and so forth that roll up to current assets (on a classified balance sheet) or revenues and expenses that roll up to and net to “Net Income (Loss) Available to Common Stockholders, Diluted.”

The dimension relationships are modeled symmetrically to the presentation relationships because they provide additional dimensions to the primary concepts that are further disaggregations. For example, the segment disclosure expresses the disaggregation of primary reported facts such as revenues disaggregated across business units, geography, or some other company selected breakout.

Figure 16. *DELETED*

7 Deprecated Element Relationships

For a variety of reasons, concepts are deprecated with each version of the Taxonomy, but they remain in the Taxonomy for two annual updates to satisfy legacy and conversion requirements. However, deprecated concepts should not be used beyond their deprecation date in extension taxonomies and instance documents using the

Taxonomy version the concept was deprecated in. Deprecated items will be removed when the SEC no longer supports the prior Taxonomy.

NOTE: *With the 2016 Taxonomy, 681 concepts were deprecated and have been removed from the 2019 Taxonomy because they are no longer supported.*

It is useful for XBRL applications to identify for preparers concepts that have been deprecated and appropriate replacements when provided. Deprecated concepts can be identified by their labels, Change Notes, and relationships. The labels, Change Notes, and relationships provide users and software tools with specific information about why the concept was deprecated and points the user to use alternate concepts when appropriate.

- The Change Notes contain the following parts for deprecated concepts:
    - DeprecatedDate—Provides the effective date of deprecation in YYYY-MM format.
    - DeprecatedLabel—Provides the details of the deprecated element. Specifically, the reason that the element was deprecated.
    - DeprecationReplacement—Provides the possible replacement for the deprecated element.
- The deprecated date also is appended to the element's standard label.

In addition to these informational Change Notes and labels, deprecated elements are defined in a definition linkbase relationship to further assist preparers and software vendors. These relationships are contained in http://xbrl.fasb.org/us-gaap/2019/elts/us-gaap-dep-def-2019-01-31.xml. All deprecated elements are listed in http://xbrl.fasb.org/us-gaap/2019/elts/us-gaap-dep-pre-2019-01-31.xml. These relationships can be accessed with an XBRL compliant application by including linkbaseRef's for these linkbases in a taxonomy schema or by using the entry point http://xbrl.fasb.org/us-gaap/2019/elts/us-gaap-ent-std-2019-01-31.xsd. See Figure 14 for an illustration of this entry point.

Deprecated Relationship	Description
No Relationship	No replacement elements exist. Such deprecated items are included in a Deprecated Concepts Group in the presentation linkbase (only) with no ongoing relationship to supported elements.
essence-alias	The essence-alias relationship is a one to one relationship in which a deprecated element has been replaced by an identical concept. Any elements that fall under this relationship also fall under the dep-concept-deprecatedConcept relationship. All deprecated elements with an essence-alias relationship are included in the count of the dep-concept-deprecatedConcept relationship.
dep-aggregateConcept-deprecatedPartConcept	The dep-aggregateConcept-deprecatedPartConcept relationship in the Definition Hierarchy (linkbase) represents multiple concepts that have been deprecated in favor of a single, higher level, and more encompassing concept. For example, if three previously distinct groups of elements such as class of common stock, preferred stock, and convertible preferred stock were combined into a single Dimensional Table, the element that combines and replaces the three elements would be an aggregate concept replacing the three-part concepts.
dep-concept-deprecatedConcept	The dep-concept-deprecatedConcept relationship in the Definition Hierarchy (linkbase) represents a one to one relationship. For example, if an "Instant" period type element replaces a "Duration" period type element, then this relationship would be categorized by the dep-concept-deprecatedConcept relationship.
dep-dimensionallyQualifiedConcept-deprecatedConcept	In the case where an element was replaced with a dimensional equivalent (for example, common stock, additional series, or no par value), the deprecated and replacement element is described using the dep-dimensioallyQualifiedConcept-deprecatedConcept

	relationship. The element that was previously meant to be represented by the deprecated element has been replaced by the interaction between the "new" line item and the dimensionally qualifying Table Member.
dep-mutuallyExclusiveConcept-deprecatedConcept	The dep-mutuallyExclusiveConcept-deprecatedConcept relationship is used when the deprecated element can be represented as two concepts. For example, elements that were meant to represent either the current portion of a concept in a classified balance sheet or the aggregate of the current and noncurrent portion in an unclassified presentation. Such concepts are mutually exclusive for financial data tagging purposes and, therefore, such elements have been deprecated and replaced with separate mutually exclusive concepts. Preparers that previously used such deprecated concepts should use only one of the mutually exclusive replacement concepts; the value previously tagged with the deprecated concept should not be apportioned between the new concepts.
dep-partConcept-deprecatedAggregateConcept	The dep-partConcept-deprecatedAggregateConcept relationship was assigned to deprecated items that were replaced by elements representing greater detail. For example, if "borrowings concepts" was deprecated and replaced with specific concepts representing distinct types of borrowings and the concepts thereof, the dep-partConcept-deprecatedAggregateConcept relationship was assigned.

8 References

[RFC2119] Scott Bradner
Key words for use in RFCs to Indicate Requirement Levels, March 1997
http://www.ietf.org/rfc/rfc2119.txt

[XBRL] Phillip Engel, Walter Hamscher, Geoff Shuetrim, David vun Kannon, Hugh Wallis.
Extensible Business Reporting Language (XBRL) 2.1 Recommendation with corrected errata to 20 February 2013
https://specifications.xbrl.org/work-product-index-group-base-spec-base-spec.html

9 Document History

Document Number	Version	Creation/Issue Date	CR Number
SECOFM-USGAAPT-Technical Guide	Version 1.0	April 28, 2008	0003

Change Record

Change Number	Description of Change	Change Effective Date	Change Entered By
0001	Created Technical Guide for 1.0 Beta using material previously in the architecture document, "Top ten hints" for Software Team members, and other sources.	2007-12-05	W Hamscher
0002	Update for Release 1.0 Beta 2	2008-02-11	W Hamscher
0003	Finalize for Release 1.0	2008-04-28	W Hamscher
0004	Update for 2011 Public Draft	2010-08-31	W Hamscher
0005	Update for 2011 Public Draft	2010-08-31	L Matherne
0006	Update for 2011 Release	2011-01-31	L Li
0007	Update for 2011 Release	2011-01-31	L Matherne
0008	Update for 2012 Public Draft	2011-08-31	L Li
0009	Update for 2012 Public Draft	2011-08-31	L Matherne
0010	Update for 2012 Release	2011-12-23	L Li
0011	Update for 2012 Release	2011-12-27	L Matherne
0012	Update for 2013 Public Draft	2012-08-28	M Connolly, L Li
0013	Update for 2013 Public Draft	2012-08-29	L Matherne
0014	Update for 2013 Release	2012-12-21	M Connolly, L Li, L Matherne
0015	Edits to conform to the proposed 2014 Taxonomy Update.	2013-08-28	L Matherne
0016	Edits to conform to the 2014 Taxonomy Update.	2013-12-11	L Matherne
0017	Edits to conform to the proposed 2015 Taxonomy Update.	2014-08-28	L Matherne, W Harms
0018	Edits to conform to the 2015 Taxonomy Update.	2014-12-11	L Matherne
0019	Edits to conform to the proposed 2016 Taxonomy Update.	2015-08-31	L Matherne
0020	Edits to conform to the 2016 Taxonomy Update.	2015-12-09	L Matherne
0021	Edits to conform to the proposed 2017 Taxonomy Update	2016-08-31	L Matherne, D Shaw
0022	Edits to conform to the 2017 Taxonomy Update	2016-12-05	L Matherne, D Shaw
0023	Edits to conform to the proposed 2018 Taxonomy Update	2017-08-31	L Matherne, D Johaneman, D Shaw
0024	Edits to conform to the 2018 Taxonomy Update	2018-01-31	L Matherne, D Johaneman, D Shaw
0025	Edits to conform to the 2019 Taxonomy Update	2019-01-31	L Matherne, D Johaneman, D Shaw