FIBO Metadata Specification

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| *V1:* | *19 June 2018* | *Initial draft as presented at OMG FDTF* |
| *V2:* | *1 July 2018* | *updated incorporating PR comments* |
| *V3* | *5 July 2018* | *Minor corrections and updates; does not include post-Q2 release content* |

# Overview

This document sets out the FIBO metadata for ontologies, modules and the overall FIBO specification as released by the Enterprise Data Management Council. This document does not include metadata specific to the OMG FIBO v2 submission.

## FIBO Modular Structure Components

The Financial Industry Business Ontology is made up of a number of OWL ontology files. These are grouped into a module structure to make up the overall FIBO Specification. These components are as shown in Table 1.

**Table 1: FIBO Modular Structure Components**

| **Exemplar** | **EDMC spec** |
| --- | --- |
| FIBO | Specification |
| FND | Domain |
| FND/Accounting | Module |
| EuropeanEntities | Module |
| CurrencyAmount | Ontology |

**Structure:** Each component of FIBO is nested within a broader component, with the exception of the FIBO Specification component in which all other components are contained. The FIBO Specification contains a number of Domains; each Domain contains a number of Modules, and each Module contains either Ontologies (where ‘ontology’ refers to an individual OWL file) or other Modules. Some Modules contain ontology files containing OWL Individuals that are exemplars or jurisdiction specific instances of classes or properties in the ontologies in the same Module.

Each component is represented both by a directory in the operating system directory structure and by a namespace fragment in the URI of the component (e.g. ‘/Accounting/’).

Each component has a namespace abbreviation which is also divided into parts representing that component and the components above it in the containment structure. For example the Accounting module in the Foundations (FND) domain in FIBO has the namespace abbreviation fibo-fnd-acc and this abbreviation forms the first three parts of the 4-part ontology abbreviations for each ontology in that module, for example fibo-fnd-acc-cur for the CurrencyAmount ontology.

Each Metadata ontology has its own namespace abbreviation for the metadata ontology file, which is distinct from the abbreviation for the FIBO component that it documents, for example fibo-fnd-acc-mod or fibo-fnd-mod. The FIBO Specification has the abbreviation fibo and its metadata ontology file has the abbreviation fibo-spec.

**Note:** Components like ‘European Entities’ provide sets of individuals in separate ontologies within that package / namespace fragment, and are therefore a kind of Module. They are always nested within another Module, for example FBC/FunctionalEntities. These are informally referred to as sub-modules but that is not a formal designation. These kinds of module have distinct metadata requirements.

# Metadata and Imports Files

The files listed in Table 2 below are provided for FIBO Domain and Module metadata and ontology imports. There are three kinds of file as shown in the table below. This table gives examples for domain (Foundations, abbreviated FND) and for a module within that domain (Accounting). Metadata about FIBO components (domains, modules etc.) are maintained as annotations to a named individual (owl:NamedIndividual) representing the domain or module. An example of each of these is included in Table 2. There are no named individuals in the Modular Structure (‘All’) files. There are no named individuals in the OWL ontologies files, the metadata for those being maintained as metadata annotations within the OWL file ‘ontology’ declaration itself.

Note that because the Metadata and All files take the form of OWL ontology files, these have their own file metadata as well, giving basic annotations relating to the metadata file itself. These are separate to the metadata for the FIBO component (domain, module etc.).

**Table 2: Kinds of Metadata and Import Files**

| **Function** | **Example Filename (.rdf)** | **Example Named Individual** |
| --- | --- | --- |
| **Modular Structure** |  |  |
| FIBO as a whole | AllFIBOProd  AllFIBODev | N/A |
| Domain | AllFND | N/A |
| Module\* | AllFNDAccounting | N/A |
| **Metadata** |  |  |
| FIBO as a whole | MetadataFIBO | FIBOSpecification |
| Domain | MetadataFND | FNDDomain |
| Module | MetadataFNDAccounting | AccountingModule |
| Ontology | CurrencyAmount | N/A |
| **Machine Readable** |  |  |
| FIBO as a whole | tbd | FIBOSpecification |
| Domain | tbd | FNDDomain |
| Module | tbd | AccountingModule |
| Ontology | tbd | CurrencyAmountOntology |

\* not currently provided

## Modular Structure Imports Files

A set of files is provided with which to import all the ontologies in FIBO, in a given FIBO Domain and in each FIBO Module. These are called ‘All’ files and take the form of RDF/OWL ontologies.

### Overall FIBO All Files

The All files for all of FIBO are automatically generated during the EDM Council’s publication process and comes in two flavors, one for all of the formal Production content and one for all of FIBO both in development and production, styled as Development. These are therefore not specified here.

### Domain All Files

The Domain ‘All’ files contain imports of all the ontologies in a given Domain.

### Module All Files

The Module ‘All’ files contain imports of all the ontologies in a given Module. These are not provided for every module. In the special case of Loans, the Loans domain ‘All’ file provides imports only for the ontologies in the module ‘LoanContracts’ and is therefore effectively the All file for that module.

## All files Metadata

All files have metadata for the ontology file itself. These are maintained in the ontology declaration part of the ontology file. The metadata elements used are shown in Table 3:

**Table 3: Metadata Elements in ‘All’ Files**

| **Metadata Element** | **Required contents (description)** |
| --- | --- |
| rdfs:label | ‘All imports ontology for the [name of Domain or Module]’ |
| sm:copyright | Copyright assertion for EDM Council |
| dct:license | MIT License link |
| sm:filename | Name of the All file |
| sm:fileAbbreviation | fibo-[domain or module]-all |
| versionIRI | The OWL versionIRI for the All file |
| dct:abstract | Describes the nature and role of the All file |
| sm:publicationDate | Date of the formal release (Quarterly release date) plus arbitrary time of day (6pm) as this is a complete date/time datum. |
| sm:contentLanguage | OWL (URI for W3C OWL reference) |

## Metadata Files

Each metadata file contains a single ‘Named Individual’ (owl:NamedIndividual) representing the FIBO component, for example for the domain or the module. Metadata relating to each FIBO component is maintained as annotations on that named individual, in a metadata file located in the file system directory corresponding to that component.

For FIBO as a whole, the named individual represents the FIBO specification.

Note that ‘Domain’ is recognized as a distinct concept in the FIBO structure but uses metadata for the concept of ‘Module’ in its more general sense, using OMG Specification Metadata module annotations.

Metadata files are named according to the combination of the domain abbreviation (e.g. MetadataFND) and for module metadata files, the module name appended onto the domain abbreviation (e.g. MetadataFNDAccounting).

These files also have their own metadata, since they are OWL ontology files. This metadata is described separately and is maintained within the ontology declaration of the metadata ontology file.

### Namespace Abbreviations

The namespace abbreviations given in the two sub-sections that follow, are as given in Table 4:

**Table 4: Namespace Abbreviations Used in this Document**

| **Namespace abbreviation** | **Namespace designation** | **Namespace** |
| --- | --- | --- |
| dct | Dublin Core | http://purl.org/dc/terms/ |
| rdf | Resource Description Framework | http://www.w3.org/1999/02/22-rdf-syntax-ns# |
| rdfs | RDF Schema | http://www.w3.org/2000/01/rdf-schema# |
| skos | Simple Knowledge Organization System | http://www.w3.org/2004/02/skos/core# |
| sm | OMG Specification Metadata | http://www.omg.org/techprocess/ab/SpecificationMetadata/ |

### FIBO Components Metadata

The metadata for the FIBO components (domains, modules etc.) are given as metadata annotations on named individuals (owl:NamedIndividual) in the metadata files, as described in Table 5.

**Table 5: FIBO Component Metadata**

**Table 5.1: FIBO Specification Metadata**

**Component Type:** Specification

**Filename:** MetadataFIBO

**Named Individual:** FIBOSpecification

| **Metadata** | **Content and Notes** | **Example** |
| --- | --- | --- |
| rdf:type | sm;Specification |  |
| rdfs:label | Short name | Financial Industry Business Ontology |
| skos:definition | Describes the individual | individual representing metadata about the FIBO specification |
| sm:specificationTitle | Formal title | Financial Industry Business Ontology (FIBO) |
| sm:specificationAbbreviation | FIBO |  |
| dct:issued | EDMC Quarterly release date | 2018-06-30T18:00:00 |
| sm:specificationURL | Formal URL for the specification | <https://spec.edmcouncil.org/fibo/> |
| dct:abstract | Abstract for all FIBO |  |
| sm:technologyArea | Technology covered by the spec | ‘formal semantics’ |
| sm:topicArea | Industry topic(s) | ‘finance’ |
| sm:copyright | EDM Council | Copyright (c) 2013-2018 EDM Council, Inc. |
| dct:license | Link to MIT License | http://opensource.org/licenses/MIT |
| sm:dependsOn | Dependencies if any | None given |
| sm:keyword | Various keywords | FIBO, Financial Industry Business Ontology |
| rdfs:seeAlso | Other relevant URIs | [www.edmcouncil.org](http://www.edmcouncil.org) |

**Table 5.2: Domain Metadata**

**Component Type:** Domain

**Example Filename:** MetadataFND

**Example Named Individual:** FNDDomain

| **Metadata** | **Content and Notes** | **Example** |
| --- | --- | --- |
| rdf:type | sm;Module |  |
| rdfs:label | Short name of domain  (for FIBOPedia) | Foundations |
| dct:title | Full title of domain  (for specification annex heading) | EDMC Financial Industry Business Ontology (FIBO) Foundations (FND) Domain |
| sm:moduleAbbreviation | Module abbreviation (lowercase) | fibo-fnd |
| dct:abstract | Domain abstract |  |
| sm:copyright | EDM Council | Copyright (c) 2013-2018 EDM Council, Inc. |
| dct:license | Link to MIT License | http://opensource.org/licenses/MIT |
| dct:creator | Public landing URI of the FCT | [https://spec.edmcouncil.org/fibo/ fct/Foundations](https://spec.edmcouncil.org/fibo/%20fct/Foundations) |
| sm:keyword | One or more keywords of phrases describing the domain | foundational vocabulary |
| rdfs:seeAlso | Link to the FIBO spec web page | https://spec.edmcouncil.org/fibo/ |
| dct:isPartOf | Individual that is the FIBO Specification | &fibo-spec;FIBOSpecification |

**Table 5.3: Module Metadata**

**Component Type:** Module

**Filename:** MetadataFNDAccounting

**Example Named Individual:** AccountingModule

| **Metadata** | **Content and Notes** | **Example** |
| --- | --- | --- |
| rdf:type | sm;Module |  |
| rdfs:label | Module short name | Accounting |
| dct:title | Module long name | FIBO FND Accounting Module |
| sm:moduleAbbreviation | Module abbreviation (lowercase) | fibo-fnd-acc |
| dct:abstract | Module abstract |  |
| rdfs:seeAlso | References to URIs of Metadata files for Domain and Specification | [https://spec.edmcouncil.org/fibo/ ontology/MetadataFIBO/](https://spec.edmcouncil.org/fibo/%20ontology/MetadataFIBO/)  [https://spec.edmcouncil.org/fibo/ ontology/FND/MetadataFND](https://spec.edmcouncil.org/fibo/%20ontology/FND/MetadataFND) |
| dct:isPartOf | Individual that is the Domain | &fibo-fnd-mod;FNDDomain |

### Metadata Ontology File Metadata

The metadata ontology files containing the named individuals described above, are themselves OWL ontology files and therefore contain metadata describing that file. The metadata used for these files is described in Table 6.

Note that this metadata varies between domain and ontology metadata files.

**Table 6: Ontology File Metadata for the Metadata Ontology Files**

| **Metadata Element** | **Required contents (description)** |
| --- | --- |
| rdfs:label | ‘Metadata ontology for the [name of Domain or Module]’ |
| sm:copyright | Copyright assertion for EDM Council |
| dct:license | MIT License link |
| sm:filename | Name of the Metadata file e.g. MetadataFNDAccounting.rdf |
| sm:fileAbbreviation | fibo-[domain or module]-mod |
| versionIRI | The OWL versionIRI for the Metadata file |
| dct:abstract | Describes the nature and role of the Metadata file  NOTE: this is not present in Module Metadata files |
| sm:contentLanguage | OWL (URI for W3C OWL reference) |

### Ontology File Metadata

In addition to the stand-alone metadata files listed above, metadata is maintained for the FIBO content ontologies. The metadata for each ontology is asserted within the ‘ontology’ element of the ontology file itself. There is no OWL named individual corresponding to each of these ontology files.

**Table 7: Ontology File Metadata**

**Component Type:** Ontology

**Example Filename:** CurrencyAmount

There is no Named Individual for these

| **Metadata** | **Content Notes or Examples** |  |
| --- | --- | --- |
| rdfs:label | Ontology name + ‘Ontology’ | Currency Amount Ontology |
| dct:abstract | Ontology abstract |  |
| dct:license | MIT license link | <http://opensource.org/licenses/MIT> |
| sm:contentLanguage | OWL URI | [http://www.w3.org/standards/techs/ owl#w3c\_all](http://www.w3.org/standards/techs/%20owl#w3c_all) |
| sm:copyright | EDMC | Copyright (c) 2013-2018 EDM Council, Inc. |
| sm:dependsOn | List of direct dependencies URIs |  |
| sm:directSource | Where applicable e.g. ISO 4217 |  |
| sm:fileAbbreviation | Namespace abbreviation for the ontology | fibo-fnd-acc-cur |
| sm:filename | Filename of the ontology file | CurrencyAmount.rdf |
| rdfs:seeAlso | Domain, Module, FIBO Metadata URIs |  |
| owl:versionIRI | Full version IRI with e.g. /2018Q2/ |  |
| dct:isPartOf | Named individual for the Module of which the ontology is part | &fibo-fnd-acc-mod;AccountingModule |
| skos:editorialNote | Editorial notes where applicable (typically Provisional) |  |
| hasMaturityLevel | Text from a controlled list of maturity levels | ‘Release’, ‘Provisional’ or ‘Informative’ |

## Additional Machine-Readable Metadata File

In addition to the two kinds of file described above, a third kind of metadata file is provided. This reflects the same information as that contained within the Metadata files, but does not take the form of an OWL ontology.