

8 Top Level Domains

Provenance Domain: Metadata describing the BCO

Usability Domain: Free text field for researcher to explain the analysis and relevant details.

Extension Domain: User-defined fields

Description Domain: Steps of the analysis, external resources needed for the steps, and the relationship of I/O objects

Execution Domain: Information about the environment in which the analysis was run

Parametric Domain: Records any parameters that were changed from default values

Input and Output Domain: A list of global input and output files

Error Domain: Used for describing errors. Can include the limits of detectability, false positives, false negatives, statistical confidence of outcomes, and description of errors

Required

Optional

Quick Checks

```
{
  "etag": "d516a923967ec1f8ee4bc666a2256bb91b3e035a91a1f5ef64b92e33ad23a104",
  "object_id": "https://beta.portal.aws.biochemistry.gwu.edu/bco/BCO_00016484",
  "spec_version": "https://w3id.org/ieee/ieee-2791-schema/2791object.json",
  "provenance_domain": {
    "embargo": {},
    "name": "Regulatory BCO for hepatitis C virus resistance analysis",
    "version": "3.0",
  }
}
```

Always a unique ID

Always this URL

Top level "Domain"

Check for open visibility

Check for modifications

Guidelines

- » "bco_id" may have user specific values (e.g. "FDA_00001" or "GWU_01A")
- » Use Extension Domains to ask for more project specific information
- » Use Verification Kit to quickly check validity of results
- » Steps that do not transform data (e.g. column sorting) can be described in the Usability Domain instead of as a full step in the Description Domain, at the Reviewer's discretion
- » Use IO Domain as a manifest for all data files

Resources:

Website: <https://biocomputeobject.org/>

Official Standard: <https://standards.ieee.org/content/ieee-standards/en/standard/2791-2020.html>

Open source repository: <https://opensource.ieee.org/2791-object/ieee-2791-schema>

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BCO Cheat Sheet

Front side

For FDA Reviewers and administrators



"authoredBy"	Agent that originated or gave existence to the work that is expressed by the digital resource.
"contributedBy"	Agent that provided any sort of help in conceiving the work that is expressed by the digital artifact.
"createdAt"	The geo-location of the agents when creating the resource.
"createdBy"	Agent primarily responsible for encoding the digital artifact or resource representation. This creation is distinct from forming the content, which is indicated with <i>pav:contributedBy</i> or its subproperties.
"createdWith"	The software/tool used by the creator (<i>pav:createdBy</i>) when making the digital resource.
"curatedBy"	Agent specialist responsible for shaping the expression in an appropriate format. Often the primary agent responsible for ensuring the quality of the representation.

"derivedFrom"	Derived from a different resource.
"importedBy"	An agent responsible for importing data from a source given by <i>pav:importedFrom</i> .
"importedFrom"	Original source of imported information.
"providedBy"	Original provider of the encoded information (e.g. PubMed).
"retrievedBy"	Entity responsible for retrieving the data from an external source (usually a software entity).
"retrievedFrom"	The URI where a resource has been retrieved from.
"sourceAccessedBy"	agent who accessed the source.

Versioning

<https://semver.org/>

Versioning is based on “**Semantic Versioning**”
major.minor.patch

Major

Not used in BCO, as a change to warrant a Major version update should be a NEW BCO

Minor

Use for addition of material, like a reviewer block

Patch

Use for editorial corrections

2.4.11

```
{
  "reviewer": {
    "name": "Josiah Carberry",
    "affiliation": "FDA",
    "email": "jcarberry@fda.hhs.gov",
    "contribution": [
      "curatedBy"
    ],
    "orcid": "https://orcid.org/0000-0002-1825-0097"
  },
  "status": "reviewed"
}
```