

ONTOLOGY FOR MEDIA CREATION PART 9: UTILITIES

VERSION 2.0

Motion Picture Laboratories

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1 Introduction

"Utility" comes, by way of French, from Latin *utilis*, "useful." Its range of meaning in modern English is broad, ranging from the general quality of being useful or serviceable through more specific meanings in philosophy, economics, political science, and game theory.¹

What is the difference between a Utility and Infrastructure? The blurring of the line is most obvious outside the film industry in "utility company" or "utilities" such as water, gas, and electricity suppliers. Those are all, in contemporary usage, utilities, but they are also classed as infrastructure in some circumstances.

In this Ontology, Infrastructure is used in the service of the production – cameras, lights, cloud storage, etc. Utilities are the common bits and pieces used by the Ontology itself, often in multiple different ways. The first recorded use in computing (and there may be earlier ones) is in the IBM Systems Journal in 1962: "The necessary routines such as housekeeping, timekeeping, utility routines, association of equipment, etc."² It is an easy step from applying it to commonly used programs and subroutines to commonly used data structures, which is how it is used here and in the more general technology sector.

1.1 Notational Conventions

In documents generally:

- The definition of a term included in the Dictionary is in bold, followed by the definition, e.g., **Creative Work:** A uniquely identified production.
- When a defined term is used in the text of a document, it is capitalized, for example in "The Production Scene is usually derived from a numbered scene in the Script," Production Scene and Script are defined in the Ontology. (Note, a word that is part of defined term may sometimes be capitalized by itself as a shorthand, e.g., "Scene" may be used to indicate "Narrative or Production Scene.")
- References to other Ontology Documents are in **bold italic**, e.g., **Part 3: Assets** or **Part 3A: Camera Metadata**

For Sample Attributes in the concept documents:

- If a data field or attribute is formally defined in this ontology or a connected ontology, it is italicized, e.g., *Setup* as an attribute refers to a defined concept.
- Attribute [...] indicates an attribute can appear more than once, e.g., *Identifier* [...]
- \rightarrow Thing means that an attribute is expressed as a relationship to a Thing, e.g., the \rightarrow Script attribute of Creative Work means there is a relationship Creative Work \rightarrow Script

¹ As well as the archaic term "utility actor," "an actor of the smallest speaking parts in a play." For this and other compounds, see the Oxford English Dictionary, s.v. "utility."

² OED, s.v. "utility"



- A combination of the two indicates that the concept can have relationships to a set of things, e.g., →Components [...]
- Many elements of the Ontology have a Context element. (See **Part 2: Context**.) Relationships declared in the Context are implied to have the item to which the Context is attached as their starting point, for example, Narrative Location→Context→Narrative Scene.

Contextual relationships that are especially important to the concept being defined are given in the sample attributes tables as C \rightarrow Thing or C \rightarrow Thing [...] as appropriate. These relationships can just as well be on the object that has the Context. For example, if Narrative Location has "C \rightarrow Narrative Scene" as an attribute, it is ok to have the relationship directly on the Narrative Location or in its Context, e.g. Narrative Location \rightarrow Narrative Scene or Narrative Location Location \rightarrow Context \rightarrow Narrative Scene.

Some implementations (e.g. RDF) place these relationships directly on the class as well as allowing them in Context, and others (e.g. JSON) place all relationship in a Context.

2 Utilities

Utilities: Common data models and data structures used in multiple places and in multiple ways in a larger system.

This section will grow as the Ontology grows. Obvious candidates for inclusion are structures and formats for times and dates, for example. The intent is to use existing standards and ontologies wherever possible and include them by reference.³

2.1 Identifier

Identifier: A string of characters that uniquely identifies an object within a particular scope.

Identifier Scope: The universe within which an identifier is valid and unique.

At its simplest, an Identifier is just a way of referring to something – a kind of name for it. Examples include an ISBN for a book, and social security number for a person subject to the US tax code, and an EIDR ID for a TV series. The thing an Identifier refers to is called its referent, and the act of converting an Identifier to its referent is called "resolution" or "resolving." To be useful, an identifier should have only one referent. This is true for the examples given above.⁴ More precisely, an Identifier should have a single referent within its Identifier Scope.

Some identifiers (e.g., DOI and EIDR) carry the Identifier Scope as part of the Identifier, but others need to declare the Identifier Scope explicitly. For example, both South Carolina and New Mexico driver's license numbers consist of 9 decimal digits, and they are only unique within their scope – the issuing state. As another example, "42" is a perfectly good identifier. If the scope is the AlloCine film database it

³ For example, ISO, W3C, and IETF provide many of the things that are needed for times, dates, countries, and languages.

⁴ With exceptions for occasional errors, of course.



is *L'Affaire est dans le sac*, at the AlloCine series database it is *Birds of Prey*, and at Česko-Slovenská filmová database it is *Love and Death*.⁵

It is helpful, but not required, for a referent to have only one Identifier within an Identifier Scope.

Sample Attributes for Identifier

Term	Description
Identifier Value	The identifier itself.
Identifier Scope	See above.
Combined Form	Optional. See Notes.
URL	A URL that can be used for resolving the Identifier within the Identifier Scope. In some systems this can be cached, but in others it has to be rebuilt each time the Identifier is resolved.

Notes:

Some systems impose restrictions on Identifiers, e.g., alphanumeric only or ASCII only.

It is often convenient to combine the Identifier and Identifier Scope in a single string. There are several ways of doing this, but the most common use URN (URN:ID:IdentifierScope:Identifier) or URI path components (Identifier Scope/Identifier). The choice of how to combine them is often dictated by a resolution service.

RFID tags and barcodes are examples of Identifies for Physical Assets.

It is perfectly acceptable for an item to have more than one identifier; these multiple identifiers usually are in different Identifier Scopes⁶. Different systems can create their own identifiers for internal reasons. For example, a struct RDF system may want to create its own identifiers when it imports data from other sources; when it makes the information available to other systems, it should include its own identifier in the list of identifiers for an object. Similarly, an animation tool that has its own internal asset management system can add its own identifiers to externally generated objects. People often have multiple identifiers – one in an HR system, one in a guild system, one in a production staff database, and so on and keeping all of these with the Person record in OMC makes it easier for other applications to find the person.

2.2 Location

Location: A particular place or position either in either the real world or the narrative world.

⁵ <u>https://www.allocine.fr/film/fichefilm_gen_cfilm=42.html</u>, <u>https://www.allocine.fr/series/ficheserie_gen_cserie=42.html</u>, and <u>https://www.csfd.cz/film/42</u>

⁶ There may be more than one identifier in a scope if, for example, the system or systems responsible for that scope have an aliasing mechanism to cope with duplicate entries.



Sample Attributes for Location

Attribute	Description
Identifier []	One or more Identifiers for the Location. This Identifier is for the Location
	location (such as a Narrative Location or a Production Location. ⁷)
Name	The name of the Location, independent of the use of the Location.
Description	A description of the Location, independent of the use of the Location.
\rightarrow Related Location	Locations to which this location is related. This field is primarily intended
[]	for connecting less detailed locations, e.g., a building, to more detailed
	locations, e.g., a sound stage.
Address	The address of the Location. There are many formats available for this, and
	a future version of the Ontology will provide more detail on the contents of
	this field and how to use it with existing standards.
Coordinates	Geolocation coordinates for the Location. There are many formats available
	for this. See below under Common Data Types for preferred formats.
Custom Data	Anything that is application or workflow dependent that can't be otherwise expressed in the Ontology or needs to be present in a particular format.

Notes:

This Location is intentionally generic. Its principal use is as a component of other elements of the Ontology, such as Narrative Location and Production Location.

These Locations may exist in a system that is managed and run independently of the production process. The Identifier field refers to the Location within the scope of those systems. Ontology elements that use Location will usually have their own Identifiers but could use an Identifier of the Utility Location if they really need no other information than is contained in those external systems. For example, the identifier Q73094 with Identifier Scope "wikidata.org" can be used in the Location for The Queen's College, Oxford, which was used as a Production Location in *The Golden Compass* (2007.) That Production Location has its own Identifier(s) (in a studio or production database, for example) with their own Identifier Scope.

2.3 Common Data Types

Simple data types should use existing standards wherever possible. Some of the more common ones are:

⁷ See Part 2: Context



Countries and Languages

- Countries: Use ISO 3166
- Languages: Use IETF BCP 47, with the practices published as the Language Metadata Table (LMT) at https://www.mesaonline.org/language-metadata-table

Dates, Times, and Durations

- Date, Time, and DateTime: Use ISO 8601
- Duration: Use ISO 8601
- Time intervals: Use ISO 8601, using Start/End or Start/Duration whenever possible. Duration only is acceptable but requires extra context to be useful. Duration/End is allowed but probably less common.

Coordinates:

• Coordinates should use WGS84 coordinates.

Future versions of this document will include recommendations for timestamps and timecodes, based on industry feedback.

Measurements

Measurements are important throughout the production process. Characters have approximate heights and weights, images have a size in pixels, inches, or millimeters, and the coordinate system units in computer graphics often have to be translated into real-world measurements when the object is used.

Measurements can be expressed in two ways.

Formatted Strings

It is possible to express measurements as formatted strings, for example:

- 1mi800ft9in : 1 mile, 800 feet, 6 mm
- 2km745m6mm : 2 kilometres, 745 meters, 6 millimetres
- 650px : 650 pixels, using CSS conventions

Quantity and Units

Measurements can also be more formally structured.

Attribute	Description
quantity	The numeric part of the measurement, specific as a number, not a string
units	The units of the measurement.

Units should expressed follows:

• Metric system: use SI standard abbreviations, such as "kg" and "g" for weight and "mm" and "m" for length.



- Pixels: measurements expressed in pixels should use "pixels" in the units field.
- Imperial measure: These should use the unabbreviated form of the unit, e.g. "mile" not "mi" and "inch" not "in". Measurements expressed in feet and inches should be converted to inches, and those in pounds and ounces should be converted to ounces. Hundredweight and ton should be avoided because of the confusion between their long and short versions.⁸

Appendix A External Definitions

These are terms defined elsewhere in the Production Ontology, included here for ease of reference.

Media Creation Context: Informs scope within the construction process of a Creative Work.

See Part 2: Context

Asset: A physical or digital object or collection of objects specific to the creation of the Creative Work.

See Part 3: Assets

Camera Metadata: Capture-specific details and information about the Camera itself.

See Part 3A: Camera Metadata

Participant: The entities (people, organizations, or services) that are responsible for the production of the Creative Work.

See Part 4: Participants

Task: A piece of work to be done and completed as a step in the production process.

See Part 5: Tasks

Creative Work: A uniquely identified production.

See Part 6: Creative Works

Relationship: Describes and defines the connections between elements of the Ontology, such as Assets, Tasks, Participants, and Contexts.

See Part 7: Relationships

Infrastructure: The underlying systems and framework required for the production of the Creative Work; it is generally not specific to a particular Creative Work.

See Part 8: Infrastructure

⁸ "Let's just say we'd like to avoid any imperial entanglements" – Obi-Wan Kenobi in Star Wars: Episode IV – A New Hope (1977)



Utilities: Common data models and data structures used in multiple places and in multiple ways in a larger system.

See Part 9: Utilities

Identifier: An identifier uniquely identifies an entity within a particular scope.

See Part 9: Utilities