Microscopy Glossary

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NBO-Q MICROSCOPY GLOSSARY

Note: This project is under active development. Every one is invited to contribute by posting questions, comments, suggestions to the issue page for this repository.

WHAT IS THE NBO-Q MICROSCOPY GLOSSARY?

This repository contains a Microscopy Glossary developed in the context of QUAlity and REProducibility for Instruments and Images in Light Microscopy (QUAREP-LiMi). and in close collaboration with the 4D Nucleome (4DN) initiative , the Quality Control and Data Management Working Group of Bioimaging North America (BINA), the Open Microscopy Environment (OME) initiative and other national and international bioimaging initiatives.

This glossary is built to extend and augment the 4DN-BINA-OME (NBO) Microscopy Metadata Specifications which were recently published on a Nature Methods FOCUS issue on Reporting and Reproducibility in Microscopy.

The NBO Microscopy Metadata Specifications are a suite of scalable extensions of the OME data model thare being continually developed in the context of QUAREP-LiMi by incorporating feedback from different stakeholders in the community, including microscope manufacturers, custodians and users.

1.1 Features

- Community driven
- Centered on Rigor and Reproducibility
- Maximize Educational value
- Focus on Usability by all biomedical researchers regardless of imaging expertise

1.2 Want to get involved

Tip: Please Note - If you want to know more about this initiative please contact us at the Quality Control and Data Management Working Group of Bioimaging North America and the Metadata Working Group of QUAREP-LiMi.

MICROSCOPY GLOSSARY

2.1 Glossary Structure

The NBO-Q Microscopy Glossary organized in sections, that are organized on the basis of the 4DN-BINA-OME (NBO) Microscopy Metadata Specifications. In addition to a section that describes the microscope **Instrument** as a whole and a section that contain **Manufacturer Specifications** terms that are common to all hardware components (e.g., Manufacturer, Brand, Model, Catalog Number), there is a section for each of the **individual hardware components** that comprise a modern microscope Instrument.

All sections that have been developed so far or are in progress are listed below.

2.2 Glossary Sections

Section Number	Section Name	Description	Type
1	*Manufacturer Specifications*	This section contains terms used by Manufacturers and branding companies to describe and uniquely identify microscope hardware components.	extension base
2	*Instrument*	This section collects terms that describe the general characteristics of a microscope Instrument.	element

MANUFACTURER SPECIFICATIONS

- Type: extension base

- Tier: 1

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3.1 Summary

This table collects terms used by Manufacturers and branding companies to describe and uniquely identify microscope hardware components. Examples include the name of the Brand and of the Manufactuer, the Product and Model names, and the Product, Catalog and Serial numbers.

Note: Please note: the terms that are described in this table are shared by all hardware components in the glossary.

3.2 Table

Name	Alternative Name	_____Description_____	Requirement / Cardinality	Tier	M&M	Data type	Allowed values
Brand		When appropriate, this field refers to the company (also referred to as Value-Added Reseller - VAR), who is selling this hardware component in the case in which the Manufacturer is different from the vendor. The use of this field is often useful when an item is rebranded as part of the marketing process.	Optional	1	Y	string	
Manufacturer		This field refers to the company, research group or individual who built or manufactured this hardware component.	Optional	1	Y	string	
Original Element Manufacturer		When applicable, this field refers to the company that originally produced this hardware component, in case it is used by another company, which then sells the finished item to users.	Optional	3		string	
Model		When applicable, this field records the Model name used by the Manufacturer to describe and identify this hardware component.	Optional	1	Y	string	
Product Name	Brand Name	When applicable, this field records the Product Name used to describe and identify this hardware componet by the branding company, when this is different from the Manufacturer. The use of this field might be useful when an item is rebranded as part of the marketing process.	Optional	1		string	
Catalog Number		When applicable, this field records the Catalog or Part Number used by the Manufacturer or by the branding company to identify all components that share the same entry within the company Catalog. Note: the same Catalog Number is shared by all individual hardware compnents that belong to the same category as defined by the Manufacturer.	Optional	1	Y	string	
Product Number		When applicable, this field records the Product Number used to uniquely identify this component by the branding company, when this is different from the Manufacturer. The use of this field might be useful when an item is rebranded as part of the marketing process.	Optional	1		string	
Serial Number		When applicable, this field records a Serial Number assigned incrementally or sequentially to this component, to uniquely identify it. Note: if two laboratories purchase a Camera with the same Catalog Number, each of the two items will have its unique Serial Number.	Optional	1		string	
Firmware		When applicable, this field records an identifier or name for the Firmware software that provides the low-level control for this hardware component.	Optional	3		string	
Lot Number		This field records the Lot Number used by the Manufacturer to refer to a specific production batch or lot for this component.	Optional	3		string	
Specs File		This element refers to a file or URL that contains the specifications for this hardware component as provided by the Manufacturer.	Optional	3		sub element	

INSTRUMENT

- Type: extension base

- Tier: 1

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4.1 Summary

This table collects terms that describe the general characteristics of a microscope Instrument.

4.2 Table

Name	Alternative Name	Description	Requirement / Cardinality	Tier	M&M	Data type	Allowed values
ID		A Unique Identifier for this component.	Required	1		LSID	
Name		A User-defined Name for this component.		1		Denomination	
Type		The general category to which this Microscope belongs. Options include a Compound Microscope is a Microscope in which the primary image is generated by an objective or an objective and a tube-lens, and in which the Sample is observed through an eyepiece. A Custom Microscope is specially designed for specialized purposes. An Electrophysiology Microscope is a Microscope dedicated to electrophysiological observation and manipulation. A Lightsheet Microscope is a Microscope in which in contrast to epifluorescence microscopy only a thin slice (usually a few hundred nanometers to a few micrometers) of the sample is illuminated perpendicularly to the direction of observation. A Stereo Microscope (also known as Dissecting Microscope) is a low-power, binocular Microscope with long free working distance used for dissecting. Generally in this type of Microscope the object is observed by each eye from a slightly different angle, thus causing stereoscopic perception.	Required	1	Y	enum	Compound, Custom made, Dissection, Electrophysiology, Light sheet, Stereomicroscope, Other
Origin		This describes the origin of this microscope stand. Specifically it specifies whether this Microscope Stand was purchased from a Commercial vendor and is being used as-is (i.e., Commercial- as is), purchased from a Commercial vendor and subsequently Modified for a specialized application (i.e., Commercial- custom-modified) or entirely Custom-built from scratch (i.e., Custom-built).		1	Y	enum	Commercial-as is, Commercial-custom modified, Custom-built
Eyepiece Field Number		The Field Number represents the diaphragm size of the Microscope eyepiece expressed in mm.		3		float with unit:none	
Annotation Ref		This is an empty element that refers to an Annotation (typically a Comment Annotation that consists of a simple multi-line comment) describing this component.		1		Extension of Reference	

NEED HELP?

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