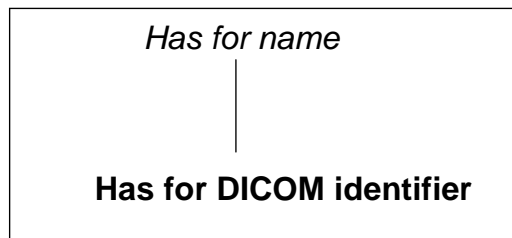


Medical image format-OS

// Metadata

Name	Medical image format-OS
Keywords	Analyze format, DICOM format, GIS format, NIFTI format, INRIMAGE format, DICOM identifier
Creation date	October 1 st , 2008
Has contributor	Michel Dojat, Bernard Gibaud, Gilles Kassel, Lynda Temal
Used ontology engineering methodology	OntoSpec
Is of type	Domain ontology
Natural language	English
Has ontology language	OntoSpec
Has formality level	Semi-informal
Ressource locator	http://www.laria.u-picardie.fr/IC/site/IMG/pdf/Medical_Image_Format-OS.pdf
Version	1.0
Number of concepts (classes)	18
Number of relations (properties)	1

// Relation



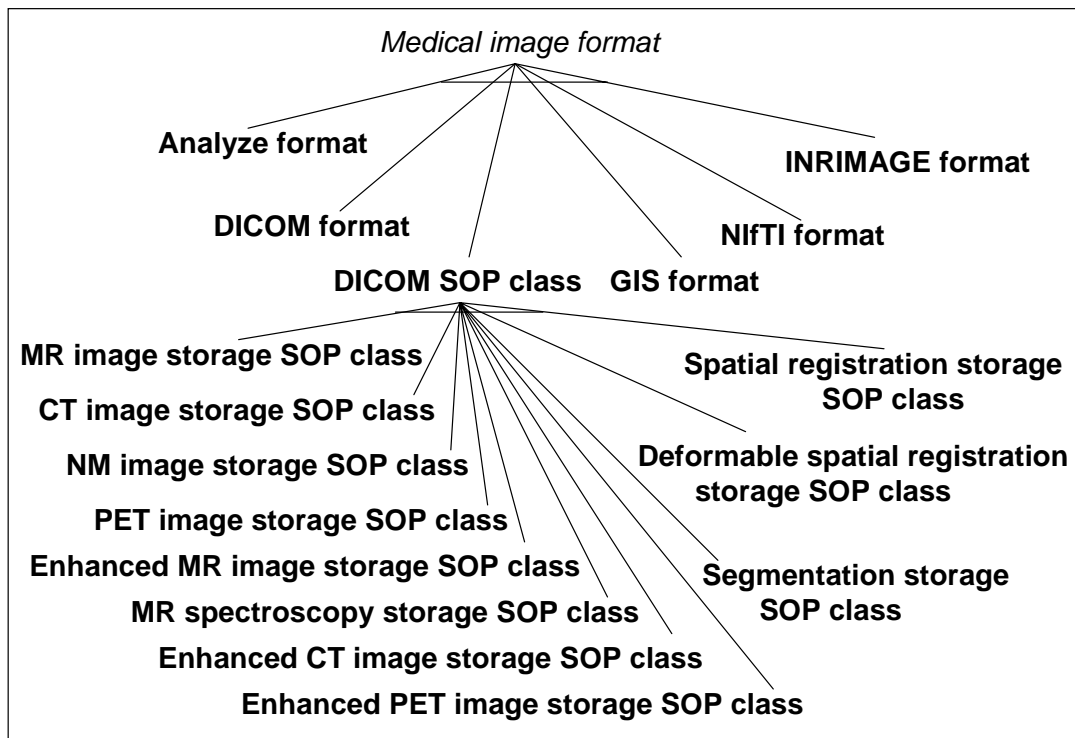
Has for DICOM identifier

Properties

[EP/DR & RR] A DICOM SOP CLASS *has for DICOM identifier* a DICOM IDENTIFIER.

[EP/SL] x *has for DICOM identifier* y implies that x *has for name* y.

// Concepts



Analyze format

Meta-properties

ANALYZE FORMAT is RIGID (+**R**). ANALYZE FORMAT is EXTERNALLY-DEPENDENT (+**D**).

Properties

[EP/SL] An ANALYZE FORMAT is a MEDICAL IMAGE FORMAT.

Comment

[DEF] The ANALYZE FORMAT is an image format developed by the Mayo Clinic and used in their image processing Package Analyze.

[DIV] There are two versions of the ANALYZE FORMAT: the basic version, ANALYZE 7.5, and the extended version used notably by the SPM software which we name ANALYZE-SPM. These two versions are modelled as instances of the class ANALYZE FORMAT.

DICOM format

Meta-properties

DICOM FORMAT is RIGID (+**R**). DICOM FORMAT is EXTERNALLY-DEPENDENT (+**D**).

Properties

[EP/SL] A DICOM FORMAT is a MEDICAL IMAGE FORMAT. [EP/ER] Every DICOM FORMAT *has for proper part* DICOM SOP CLASSES *at a* TIME INTERVAL.

Comment

[CIT] Article “DICOM” of Wikipedia: Digital Imaging and Communications in Medicine (DICOM) is a standard for handling, storing, printing, and transmitting information in medical imaging. It includes a file format definition and a network communications protocol.

[DIV] There is one current version of the DICOM FORMAT, DICOM-3, which we name CURRENT DICOM FORMAT. This version is modelled as an instance of the class DICOM FORMAT.

DICOM SOP class

Meta-properties

DICOM SOP CLASS is RIGID (+**R**). DICOM SOP CLASS is EXTERNALLY-DEPENDENT (+**D**).

Properties

[EP/SLD] A DICOM SOP CLASS is a MEDICAL IMAGE FORMAT which *is a proper part* of DICOM FORMAT *at* a TIME INTERVAL. [EP/ER] Every DICOM SOP CLASS *has for DICOM identifier* exactly one DICOM IDENTIFIER.

Comment

[DEF] A DICOM SOP class, or “service-object pair” class, is a functional unit of DICOM which combines a service class and an information object.

MR IMAGE STORAGE SOP class

Meta-properties

MR IMAGE STORAGE SOP CLASS is RIGID (+**R**). MR IMAGE STORAGE SOP CLASS is EXTERNALLY-DEPENDENT (+**D**).

Properties

[EP/SL] A MR IMAGE STORAGE SOP CLASS is a DICOM SOP CLASS. [EP/ER] Every MR IMAGE STORAGE SOP CLASS *has for DICOM identifier* the DICOM IDENTIFIER which *has for quale* “1.2.840.10008.5.1.4.1.1.4” *during* a TIME INTERVAL.

Comment

[DEF] The MR IMAGE STORAGE SOP CLASS is a SOP Class intended for representing a MR image.

CT IMAGE STORAGE SOP class

Meta-properties

CT IMAGE STORAGE SOP CLASS is RIGID (+**R**). CT IMAGE STORAGE SOP CLASS is EXTERNALLY-DEPENDENT (+**D**).

Properties

[EP/SL] A CT IMAGE STORAGE SOP CLASS is a DICOM SOP CLASS. [EP/ER] Every CT IMAGE STORAGE SOP CLASS *has for DICOM identifier* the DICOM IDENTIFIER which *has for quale* “1.2.840.10008.5.1.4.1.1.2” *during* a TIME INTERVAL.

Comment

[DEF] The CT IMAGE STORAGE SOP CLASS is a SOP Class intended for representing a CT image.

NM IMAGE STORAGE SOP class

Meta-properties

NM IMAGE STORAGE SOP CLASS is RIGID (+**R**). NM IMAGE STORAGE SOP CLASS is EXTERNALLY-DEPENDENT (+**D**).

Properties

[EP/SL] A NM IMAGE STORAGE SOP CLASS is a DICOM SOP CLASS. [EP/ER] Every NM IMAGE STORAGE SOP CLASS *has for DICOM identifier* the DICOM

IDENTIFIER which *has for quale* “1.2.840.10008.5.1.4.1.1.20” during a TIME INTERVAL.

Comment

[DEF] The NM IMAGE STORAGE SOP CLASS is a SOP Class intended for representing a NM multi-frame image. Both projection images and reconstructed images may be represented.

PET IMAGE STORAGE SOP class

Meta-properties

PET IMAGE STORAGE SOP CLASS is RIGID (+**R**). PET IMAGE STORAGE SOP CLASS is EXTERNALLY-DEPENDENT (+**D**).

Properties

[EP/SL] A PET IMAGE STORAGE SOP CLASS is a DICOM SOP CLASS. [EP/ER] Every PET IMAGE STORAGE SOP CLASS *has for DICOM identifier* the DICOM IDENTIFIER which *has for quale* “1.2.840.10008.5.1.4.1.1.128” during a TIME INTERVAL.

Comment

[DEF] The PET IMAGE STORAGE SOP CLASS is a SOP Class intended for representing a MR image.

ENHANCED MR IMAGE STORAGE SOP class

Meta-properties

ENHANCED MR IMAGE STORAGE SOP CLASS is RIGID (+**R**). ENHANCED MR IMAGE STORAGE SOP CLASS is EXTERNALLY-DEPENDENT (+**D**).

Properties

[EP/SL] An ENHANCED MR IMAGE STORAGE SOP CLASS is a DICOM SOP CLASS. [EP/ER] Every ENHANCED MR IMAGE STORAGE SOP CLASS *has for DICOM identifier* the DICOM IDENTIFIER which *has for quale* “1.2.840.10008.5.1.4.1.1.4.1” during a TIME INTERVAL.

Comment

[DEF] The ENHANCED MR IMAGE STORAGE SOP CLASS is a SOP Class intended for representing a multi-frame MR image.

MR SPECTROSCOPY STORAGE SOP class

Meta-properties

MR SPECTROSCOPY STORAGE SOP CLASS is RIGID (+**R**). ENHANCED MR STORAGE SOP CLASS is EXTERNALLY-DEPENDENT (+**D**).

Properties

[EP/SL] A MR SPECTROSCOPY STORAGE SOP CLASS is a DICOM SOP CLASS. [EP/ER] Every MR SPECTROSCOPY STORAGE SOP CLASS *has for DICOM identifier* the DICOM IDENTIFIER which *has for quale* “1.2.840.10008.5.1.4.1.1.4.2” during a TIME INTERVAL.

Comment

[DEF] The MR SPECTROSCOPY STORAGE SOP CLASS is a SOP Class intended for representing multi-frame MR Spectroscopy data.

ENHANCED CT IMAGE STORAGE SOP class

Meta-properties

ENHANCED CT IMAGE STORAGE SOP CLASS is RIGID (+**R**). ENHANCED CT IMAGE STORAGE SOP CLASS is EXTERNALLY-DEPENDENT (+**D**).

Properties

[EP/SL] An ENHANCED CT IMAGE STORAGE SOP CLASS is a DICOM SOP CLASS. [EP/ER] Every ENHANCED CT IMAGE STORAGE SOP CLASS *has for DICOM identifier* the DICOM IDENTIFIER which *has for quale* “1.2.840.10008.5.1.4.1.1.2.1” *during* a TIME INTERVAL.

Comment

[DEF] The ENHANCED CT IMAGE STORAGE SOP CLASS is a SOP Class intended for representing a multi-frame CT image.

ENHANCED PET IMAGE STORAGE SOP class**Meta-properties**

ENHANCED PET IMAGE STORAGE SOP CLASS is RIGID (+**R**). ENHANCED PET IMAGE STORAGE SOP CLASS is EXTERNALLY-DEPENDENT (+**D**).

Properties

[EP/SL] An ENHANCED PET IMAGE STORAGE SOP CLASS is a DICOM SOP CLASS. [EP/ER] Every ENHANCED PET IMAGE STORAGE SOP CLASS *has for DICOM identifier* the DICOM IDENTIFIER which *has for quale* “1.2.840.10008.5.1.4.1.1.130” *during* a TIME INTERVAL.

Comment

[DEF] The ENHANCED PET IMAGE STORAGE SOP CLASS is a SOP Class intended for representing a multi-frame MR image.

SPATIAL REGISTRATION STORAGE SOP class**Meta-properties**

SPATIAL REGISTRATION STORAGE SOP CLASS is RIGID (+**R**). SPATIAL REGISTRATION STORAGE SOP CLASS is EXTERNALLY-DEPENDENT (+**D**).

Properties

[EP/SL] A SPATIAL REGISTRATION STORAGE SOP CLASS is a DICOM SOP CLASS. [EP/ER] Every SPATIAL REGISTRATION STORAGE SOP CLASS *has for DICOM identifier* the DICOM IDENTIFIER which *has for quale* “1.2.840.10008.5.1.4.1.66.1” *during* a TIME INTERVAL.

Comment

[DEF] A SPATIAL REGISTRATION STORAGE SOP CLASS is a SOP Class intended for representing a registration matrix.

DEFORMABLE SPATIAL REGISTRATION STORAGE SOP class**Meta-properties**

DEFORMABLE SPATIAL REGISTRATION STORAGE SOP CLASS is RIGID (+**R**). DEFORMABLE SPATIAL REGISTRATION STORAGE SOP CLASS is EXTERNALLY-DEPENDENT (+**D**).

Properties

[EP/SL] An DEFORMABLE SPATIAL REGISTRATION STORAGE SOP CLASS is a DICOM SOP CLASS. [EP/ER] Every DEFORMABLE SPATIAL REGISTRATION STORAGE SOP CLASS *has for DICOM identifier* the DICOM IDENTIFIER which *has for quale* “1.2.840.10008.5.1.4.1.66.3” *during* a TIME INTERVAL.

Comment

[DEF] A DEFORMABLE SPATIAL REGISTRATION STORAGE SOP CLASS is a SOP Class intended for representing a deformable registration grid, together with pre- and post-registration matrices to be applied prior and after the deformation.

SEGMENTATION REGISTRATION STORAGE SOP class

Meta-properties

SEGMENTATION REGISTRATION STORAGE SOP CLASS is RIGID (+**R**).
SEGMENTATION REGISTRATION STORAGE SOP CLASS is EXTERNALLY-DEPENDENT (+**D**).

Properties

[EP/SL] A SEGMENTATION REGISTRATION STORAGE SOP CLASS is a DICOM SOP CLASS. [EP/ER] Every SEGMENTATION STORAGE SOP CLASS *has for DICOM identifier* the DICOM IDENTIFIER which *has for quale* “1.2.840.10008.5.1.4.1.66.4” *during* a TIME INTERVAL.

Comment

[DEF] A SEGMENTATION STORAGE SOP CLASS is a SOP Class intended for representing a segmentation result, i.e. a classification (binary or fractional) of pixels in one or several referenced images. It is a multi-frame image.

GIS format

Meta-properties

GIS FORMAT is RIGID (+**R**). GIS FORMAT is EXTERNALLY-DEPENDENT (+**D**).

Properties

[EP/SL] A GIS FORMAT is a MEDICAL IMAGE FORMAT.

Comment

[DEF] GIS is an image format introduced in France in the 90s in the context of the Groupe d'Intérêt Scientifique “Sciences de la Cognition”.

[DIV] As there are no different versions for this format, the only known version is named CURRENT GIS FORMAT and is modelled as an instance of the class GIS format.

NIfTI format

Meta-properties

NIFTI FORMAT is RIGID (+**R**). NIFTI FORMAT is EXTERNALLY-DEPENDENT (+**D**).

Properties

[EP/SL] A NIFTI FORMAT is a MEDICAL IMAGE FORMAT.

Comment

[DEF] The NIfTI image format was proposed in the context of the Neuroimaging Informatics Technology Initiative. This format is a variant of the ANALYZE FORMAT.

[DIV] The current version (July 2006) is NIfTI-1. There is a new version in development, NIfTI-2. These versions are modelled as instances of the class NIFTI FORMAT.

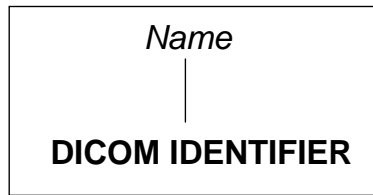
INRIMAGE format

Meta-properties

INRIMAGE FORMAT is RIGID (+**R**). INRIMAGE FORMAT is EXTERNALLY-DEPENDENT (+**D**).

Properties

[EP/SL] An INRIMAGE FORMAT is a MEDICAL IMAGE FORMAT.



DICOM IDENTIFIER

Meta-properties

DICOM IDENTIFIER is RIGID (+**R**). DICOM IDENTIFIER is EXTERNALLY-DEPENDENT (+**D**).

Properties

[EP/SL] A DICOM IDENTIFIER is a NAME.