

# Orthophoto information



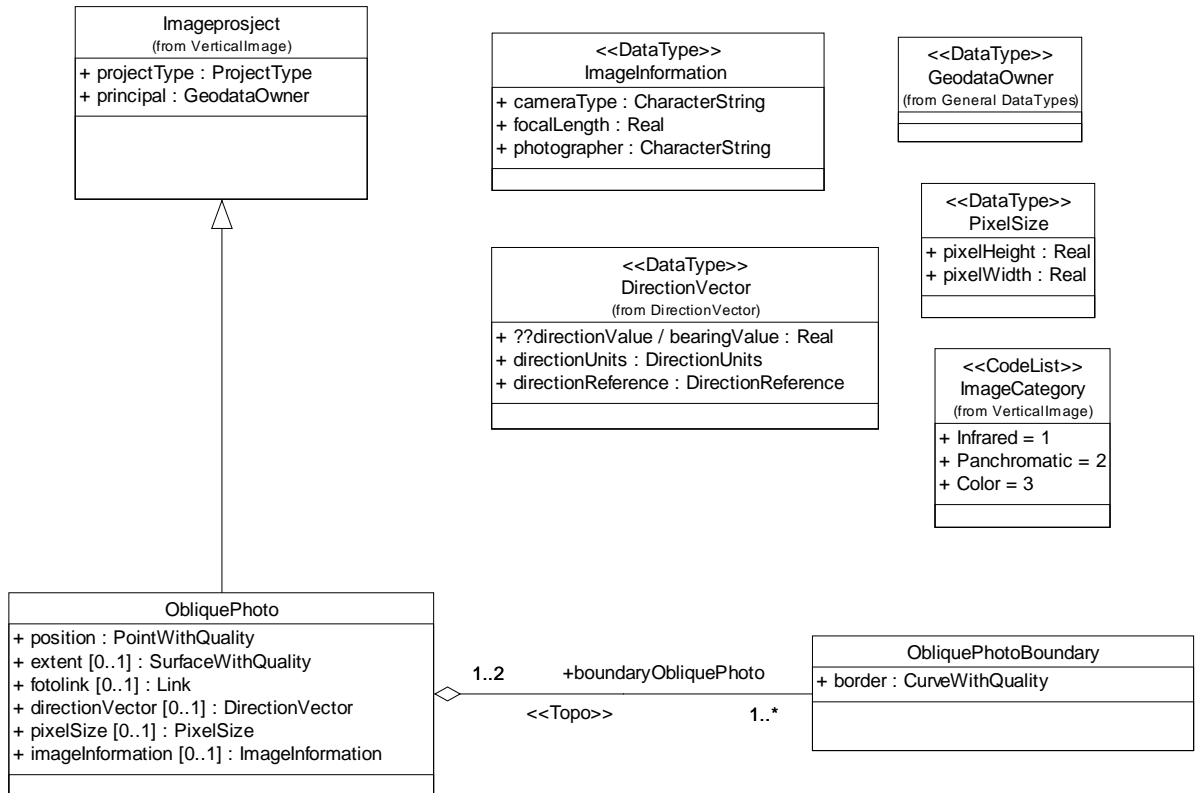
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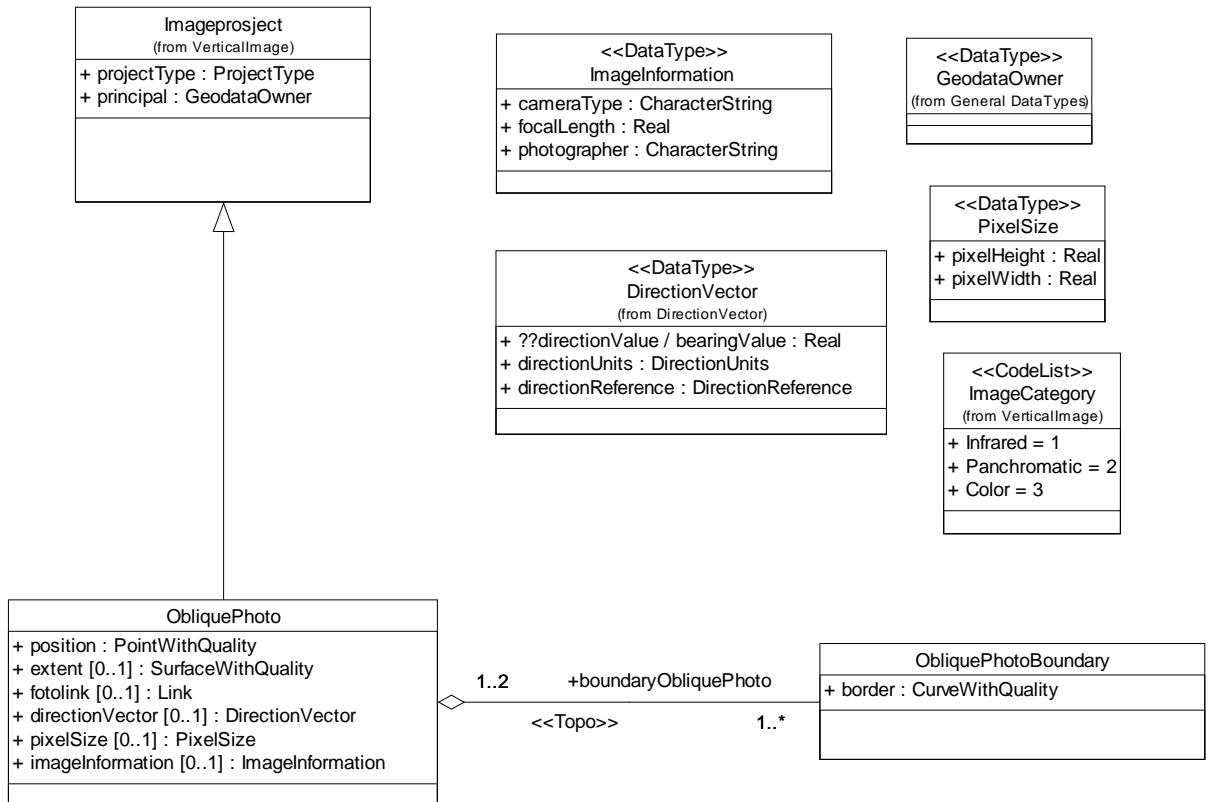
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## 1.1 Application schema

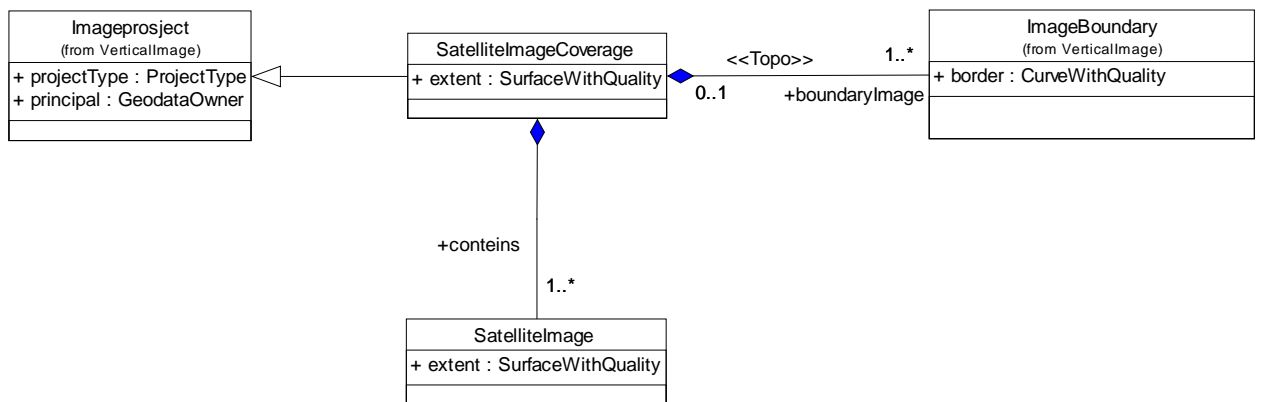
### Oblique photograph



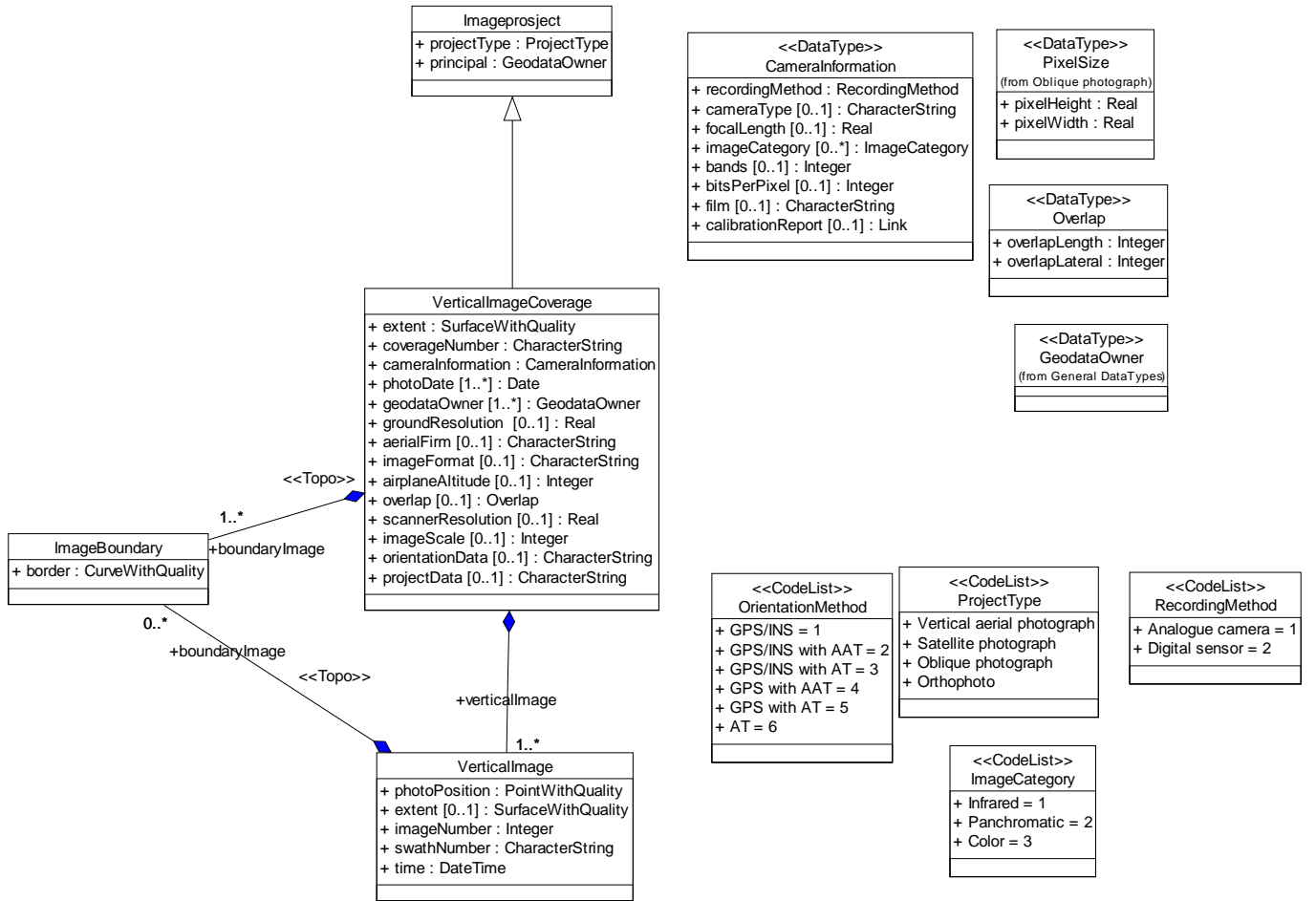
**Orthophoto**



**SatelliteImage**



**VerticalImage**



## 1.2 Description

### 1.2.1 ObliquePhoto

No	Name/ Role name	Description	Obligation/ Condition	Maximum Occurrence	Type	Constraint
1	Class ObliquePhoto	designation of an individual oblique photo, with the necessary attributes				Subtype of Imageproject
1.1	position	angir hvor et skråbilde er tatt fra	1	1	PointWithQuality	
1.2	extent	area over which an object extends	0	1	SurfaceWithQuality	
1.3	fotolink		0	1	Link	
1.4	directionVector	direction vector in the plane, designated by length, unit (degrees, grads) as well as system (true north, magnetic north, etc.)	0	1	DirectionVector	
1.5	pixelSize	image resolution	0	1	PixelSize	
1.6	imageInformation		0	1	ImageInformation	
1.7	Role boundaryObliquePhoto		1	N	ObliquePhotoBoundary	Aggregation

### 1.2.2 ObliquePhotoBoundary

No	Name/ Role name	Description	Obligation/ Condition	Maximum Occurrence	Type	Constraint
2	Class ObliquePhotoBoundary	delimitation of oblique photo area				
2.1	border	course following the transition between different real world phenomena	1	1	CurveWithQuality	
2.2	Role (unnamed) ObliquePhoto		1	2	ObliquePhoto	

### 1.2.3 <<DataType>> ImageInformation

No	Name/ Role name	Description	Obligation/ Condition	Maximum Occurrence	Type	Constraint
3	Datatype ImageInformation	detailed information about an image				
3.1	cameraType	identification of camera type	1	1	CharacterString	
3.2	focalLength	distance from the centre to	1	1	Real	

		the focal point in a lens				
3.3	photographer	person who took the picture	1	1	CharacterString	

#### 1.2.4 <<DataType>> PixelSize

No	Name/ Role name	Description	Obligation/ Condition	Maximum Occurrence	Type	Constraint
4	Datatype PixelSize	image resolution				
4.1	pixelHeight	pixel height in terrain units (metres/second)	1	1	Real	
4.2	pixelWidth	pixel width in terrain units (metres/second)	1	1	Real	

#### 1.2.5 Association <<Topo>> ObliquePhoto-ObliquePhotoBoundary

No	Name/ Role name	Description	Obligation/ Condition	Maximum Occurrence	Type	Constraint
5	Association ObliquePhoto- ObliquePhotoBoundary					
5.1	Role boundaryOblique Photo		1	N	ObliquePhotoBoundary	Aggregation
5.2	Role (unnamed) ObliquePhoto		1	2	ObliquePhoto	

#### 1.2.6 OrthophotoDelimitation

No	Name/ Role name	Description	Obligation/ Condition	Maximum Occurrence	Type	Constraint
6	Class OrthophotoDelimitation	delimitation of an orthophoto area				
6.1	border	course following the transition between different real world phenomena	1	1	CurveWithQuality	
6.2	Role (unnamed) OrthophotoImage		1	1	OrthophotoImage	
6.3	Role (unnamed) OrthophotoProject		1	1	OrthophotoProject	

#### 1.2.7 OrthophotoImage

No	Name/ Role name	Description	Obligation/ Condition	Maximum Occurrence	Type	Constraint

7	Class OrthophotoImage	part of an individual orthophoto which has been used in a mosaic				
7.1	extent	area over which an object extends	1	1	SurfaceWithQuality	
7.2	swathNumber	unique identification of flown swaths during recording	1	1	CharacterString	
7.3	imageNumber	unique identification of the number of the image in the swath	1	1	Integer	
7.4	photoDate	date of photographing	1	1	Dato	
7.5	coverageNumber	unique number which identifies the coverage number from the recording	1	1	CharacterString	
7.6	cameraInformation	information about camera used for the recording	0	1	CameraInformation	
7.7	Role boundaryOrthophoto		1	N	OrthophotoDelimitation	Aggregation
7.8	Role (unnamed) OrthophotoProject		1	1	OrthophotoProject	

### 1.2.8 OrthophotoProject

No	Name/ Role name	Description	Obligation/ Condition	Maximum Occurrence	Type	Constraint
8	Class OrthophotoProject					Subtype of Imageproject
8.1	extent	area over which an object extends	1	1	SurfaceWithQuality	
8.2	projectName	name of the project	1	1	CharacterString	
8.3	geodataOwner	licensee to the dataset	1	N	GeodataOwner	
8.4	pixelSize	image resolution	1	1	PixelSize	
8.5	groundResolution	geometrical extent of the pixels in terrain scale during recording Note: Stated in metres Note: Corresponds to GSD (Ground Sampling Distance)	0	1	Real	
8.6	projectStart	the year the project starts Note: Uses only year as part of DateTime	0	1	DateTime	
8.7	aerialFirm	firm which performs the photography	0	1	CharacterString	
8.8	geodataProducer		0	1	CharacterString	
8.9	originalImageSys	coordinate system in which orthophoto originally	0	1	Integer	



		was produced				
8.1 0	originalImageFormat	the format in which the orthophoto originally was delivered for example: TIF, JPG, Tiled TIF	0	1	CharacterString	
8.1 1	orientationMethod	method for orienting and positioning images	0	1	OrientationMethod	
8.1 2	productionReport		0	1	Link	
8.1 3	orthophotoProductSpecification	reference to the specification according to which the orthophotos have been produced	0	1	CharacterString	
8.1 4	Role boundaryOrthophoto		1	N	OrthophotoDelimitation	Aggregation
8.1 5	Role (unnamed) OrthophotoImage		1	N	OrthophotoImage	Aggregation

### 1.2.9 Association <<Topo>> OrthophotoImage-OrthophotoDelimitation

No	Name/ Role name	Description	Obligation/ Condition	Maximum Occurrence	Type	Constraint
9	Association OrthophotoImage - OrthophotoDelimitation					
9.1	Role boundaryOrthophoto		1	N	OrthophotoDelimitation	Aggregation
9.2	Role (unnamed) OrthophotoImage		1	1	OrthophotoImage	

### 1.2.10 Association <<Topo>> OrthophotoProject-OrthophotoDelimitation

No	Name/ Role name	Description	Obligation/ Condition	Maximum Occurrence	Type	Constraint
10	Association OrthophotoProject- OrthophotoDelimitation					
10.1	Role boundaryOrthophoto		1	N	OrthophotoDelimitation	Aggregation
10.2	Role (unnamed) OrthophotoProject		1	1	OrthophotoProject	

**1.2.11 Association OrthophotoProject-OrthophotoImage**

No	Name/ Role name	Description	Obligation/ Condition	Maximum Occurrence	Type	Constraint
11	Association OrthophotoProject- OrthophotoImage					
11.1	Role (unnamed) OrthophotoImage		1	N	OrthophotoImage	Aggregation
11.2	Role (unnamed) OrthophotoProject		1	1	OrthophotoProject	

**1.2.12 OrthophotoDelimitation**

No	Name/ Role name	Description	Obligation/ Condition	Maximum Occurrence	Type	Constraint
12	Class OrthophotoDelimitation	delimitation of an orthophoto area				
12.1	border	course following the transition between different real world phenomena	1	1	CurveWithQuality	
12.2	Role (unnamed) OrthophotoImage		1	1	OrthophotoImage	
12.3	Role (unnamed) OrthophotoProject		1	1	OrthophotoProject	

**1.2.13 OrthophotoImage**

No	Name/ Role name	Description	Obligation/ Condition	Maximum Occurrence	Type	Constraint
13	Class OrthophotoImage	part of an individual orthophoto which has been used in a mosaic				
13.1	extent	area over which an object extends	1	1	SurfaceWithQuality	
13.2	swathNumber	unique identification of flown swaths during recording	1	1	CharacterString	
13.3	imageNumber	unique identification of the number of the image in the swath	1	1	Integer	
13.	photoDate	date of photographing	1	1	Dato	

4						
13.5	coverageNumber	unique number which identifies the coverage number from the recording	1	1	CharacterString	
13.6	cameraInformation	information about camera used for the recording	0	1	CameraInformation	
13.7	Role boundaryOrthophoto		1	N	OrthophotoDelimitation	Aggregation
13.8	Role (unnamed) OrthophotoProject		1	1	OrthophotoProject	

### 1.2.14 OrthophotoProject

No	Name/ Role name	Description	Obligation/ Condition	Maximum Occurrence	Type	Constraint
14	Class OrthophotoProject					Subtype of Imageproject
14.1	extent	area over which an object extends	1	1	SurfaceWithQuality	
14.2	projectName	name of the project	1	1	CharacterString	
14.3	geodataOwner	licensee to the dataset	1	N	GeodataOwner	
14.4	pixelSize	image resolution	1	1	PixelSize	
14.5	groundResolution	geometrical extent of the pixels in terrain scale during recording Note: Stated in metres Note: Corresponds to GSD (Ground Sampling Distance)	0	1	Real	
14.6	projectStart	the year the project starts Note: Uses only year as part of DateTime	0	1	DateTime	
14.7	aerialFirm	firm which performs the photography	0	1	CharacterString	
14.8	geodataProducer		0	1	CharacterString	
14.9	originalImageSys	coordinate system in which orthophoto originally was produced	0	1	Integer	
14.10	originalImageFormat	the format in which the orthophoto originally was delivered for example: TIF, JPG, Tiled TIF	0	1	CharacterString	
14.11	orientationMethod	method for orienting and positioning images	0	1	OrientationMethod	
14.12	productionReport		0	1	Link	

14.13	orthophotoProductSpecification	reference to the specification according to which the orthophotos have been produced	0	1	CharacterString	
14.14	Role boundaryOrthophoto		1	N	OrthophotoDelimitation	Aggregation
14.15	Role (unnamed) OrthophotoImage		1	N	OrthophotoImage	Aggregation

### 1.2.15 Association <<Topo>> OrthophotoImage-OrthophotoDelimitation

No	Name/ Role name	Description	Obligation/ Condition	Maximum Occurrence	Type	Constraint
15	Association OrthophotoImage - OrthophotoDelimitation					
15.1	Role boundaryOrthophoto		1	N	OrthophotoDelimitation	Aggregation
15.2	Role (unnamed) OrthophotoImage		1	1	OrthophotoImage	

### 1.2.16 Association <<Topo>> OrthophotoProject-OrthophotoDelimitation

No	Name/ Role name	Description	Obligation/ Condition	Maximum Occurrence	Type	Constraint
16	Association OrthophotoProject- OrthophotoDelimitation					
16.1	Role boundaryOrthophoto		1	N	OrthophotoDelimitation	Aggregation
16.2	Role (unnamed) OrthophotoProject		1	1	OrthophotoProject	

### 1.2.17 Association OrthophotoProject-OrthophotoImage

No	Name/ Role name	Description	Obligation/ Condition	Maximum Occurrence	Type	Constraint
17	Association OrthophotoProject- OrthophotoImage					
17.1	Role (unnamed)		1	N	OrthophotoImage	Aggregation

	OrthophotoImage					
17.2	Role (unnamed) OrthophotoProject		1	1	OrthophotoProject	

### 1.2.18 SatellitImage

No	Name/ Role name	Description	Obligation/ Condition	Maximum Occurrence	Type	Constraint
18	Class SatellitImage					
18.1	extent	area over which an object extends	1	1	SurfaceWithQuality	
18.2	Role (unnamed) SatellitImageCoverage		1	1	SatellitImageCoverage	

### 1.2.19 SatellitImageCoverage

No	Name/ Role name	Description	Obligation/ Condition	Maximum Occurrence	Type	Constraint
19	Class SatellitImageCoverage					Subtype of Imageproject
19.1	extent	area over which an object extends	1	1	SurfaceWithQuality	
19.2	Role contains		1	N	SatellitImage	Aggregation
19.3	Role boundaryImage		1	N	ImageBoundary	Aggregation

### 1.2.20 Association SatellitImageCoverage -SatellitImage

No	Name/ Role name	Description	Obligation/ Condition	Maximum Occurrence	Type	Constraint
20	Association SatellitImageCoverage - SatellitImage					
20.1	Role contains		1	N	SatellitImage	Aggregation
20.2	Role (unnamed) SatellitImageCoverage		1	1	SatellitImageCoverage	

### 1.2.21 Association <<Topo>> SatellitImageCoverage -ImageBoundary

No	Name/ Role name	Description	Obligation/ Condition	Maximum Occurrence	Type	Constraint
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21	Association SatelliteImageCoverage - ImageBoundary					
21.1	Role boundaryImage		1	N	ImageBoundary	Aggregation
21.2	Role (unnamed) SatelliteImageCoverage		0	1	SatelliteImageCoverage	

### 1.2.22 VerticalImageCoverage

No	Name/ Role name	Description	Obligation/ Condition	Maximum Occurrence	Type	Constraint
22	Class VerticalImageCoverage	geographical area of vertical images which have been photographed on the same date				Subtype of Imageproject
22.1	extent	area over which an object extends	1	1	SurfaceWithQuality	
22.2	coverageNumber	unique number which identifies the coverage number from recording	1	1	CharacterString	
22.3	cameraInformation	information about camera which has been used for recording	1	1	CameraInformation	
22.4	photoDate	date of photographing	1	N	Date	
22.5	geodataOwner	licensee to the dataset	1	N	GeodataOwner	
22.6	groundResolution	geometrical extent of the pixels in terrain scale Note: Corresponds to GSD (Ground Sampling Distance)	0	1	Real	
22.7	aerialFirm	firm which performs the photography	0	1	CharacterString	
22.8	imageFormat	the format of the vertical images within the vertical image coverage area For example: JPG,PNG, TIF, Tiled TIF, ECW, etc.	0	1	CharacterString	
22.9	airplaneAltitude	average altitude above sea level, stated in metres	0	1	Integer	
22.10	overlap	overlap between vertical images	0	1	Overlap	
22.11	scannerResolution	resolution at which the images have been scanned, stated in $\mu$	0	1	Real	
22.	imageScale	average scale of the	0	1	Integer	

12		analogue vertical image Note: Stated as a scale number, e.g. 1:15000 is indicated as 15000.				
22.13	orientationData	link (URL) to an address where orientation data are available	0	1	CharacterString	
22.14	projectData	link (URL) to an address where project data (project report) is available	0	1	CharacterString	
22.15	Role verticalImage		1	N	VerticalImage	Aggregation
22.16	Role boundaryImage		1	N	ImageBoundary	Aggregation

### 1.2.23 VerticalImage

No	Name/ Role name	Description	Obligation/ Condition	Maximum Occurrence	Type	Constraint
23	Class VerticalImage	an individual vertical image within the area of coverage				
23.1	photoPosition		1	1	PointWithQuality	
23.2	extent	area over which an object extends	0	1	SurfaceWithQuality	
23.3	imageNumber	identification in the form of the number of the picture in the swath	1	1	Integer	
23.4	swathNumber	unique identification of flown swaths during recording/shoot	1	1	CharacterString	
23.5	time	time of recording	1	1	DateTime	
23.6	Role (unnamed) VerticalImageCoverage		1	1	VerticalImageCoverage	
23.7	Role boundaryImage		0	N	ImageBoundary	Aggregation

### 1.2.24 <<DataType>> Overlap

No	Name/ Role name	Description	Obligation/ Condition	Maximum Occurrence	Type	Constraint
24	Datatype Overlap	overlap in lengthwise and sideways direction in vertical images				
24.1	overlapLength	overlap in longitudinal direction as a percentage	1	1	Integer	
3.2	overlapLateral	sideways overlap as a percentage	1	1	Integer	

**1.2.25 <<DataType>> CameraInformation**

No	Name/ Role name	Description	Obligation/ Condition	Maximum Occurrence	Type	Constraint
25	Datatype CameraInformation	information about camera which has been used for recording				
25.1	recordingMethod	analogue or digital recording	1	1	RecordingMethod	
25.2	cameraType	identification of camera type	0	1	CharacterString	
25.3	focalLength	distance from the centre to the focal point in a lens	0	1	Real	
25.4	imageCategory	indication of which bandwidths have been used for the recording	0	N	ImageCategory	
25.5	bands	the number of recording channels on which information is registered For example: R,G,B (3 recording channels), panchromatic (1)	0	1	Integer	
25.6	bitsPerPixel	the colour depth of the image in bits per pixel For example: 8, 12, 16	0	1	Integer	
25.7	film	film type used for analogue recordings	0	1	CharacterString	
25.8	calibrationReport	link (URL) to an address where calibration data are available	0	1	Link	

**1.2.26 Imageproject**

No	Name/ Role name	Description	Obligation/ Condition	Maximum Occurrence	Type	Constraint
26	Class Imageproject					
26.1	projectType	indication of whether it is a satellite or aerial photo project	1	1	ProjectType	
26.2	principal	the organization which has commissioned the project	1	1	GeodataOwner	

**1.2.27 ImageBoundary**

No	Name/ Role name	Description	Obligation/ Condition	Maximum Occurrence	Type	Constraint
27	Class ImageBoundary	delimitation of a vertical image area / vertical image coverage area				
27.1	border	course following the transition between different real world	1	1	CurveWithQuality	



		phenomena				
27.2	Role (unnamed) VerticalImageCoverage		1	1	VerticalImageCoverage	
27.3	Role (unnamed) VerticalImage		1	1	VerticalImage	
27.4	Role (unnamed) SatelliteImageCoverage		0	1	SatelliteImageCoverage	

### 1.2.28 Association VerticalImageCoverage-VerticalImage

No	Name/ Role name	Description	Obligation/ Condition	Maximum Occurrence	Type	Constraint
28	Association VerticalImageCoverage- VerticalImage					
28.1	Role verticalImage		1	N	VerticalImage	Aggregation
28.2	Role (unnamed) VerticalImageCoverage		1	1	VerticalImageCoverage	

### 1.2.29 Association <<Topo>> VerticalImageCoverage-ImageBoundary

No	Name/ Role name	Description	Obligation/ Condition	Maximum Occurrence	Type	Constraint
29	Association VerticalImageCoverage- ImageBoundary					
29.1	Role boundaryImage		1	N	ImageBoundary	Aggregation
29.2	Role (unnamed) VerticalImageCoverage		1	1	VerticalImageCoverage	

### 1.2.30 Association <<Topo>> VerticalImage-ImageBoundary

No	Name/ Role name	Description	Obligation/ Condition	Maximum Occurrence	Type	Constraint
30	Association VerticalImage- ImageBoundary					
30.1	Role boundaryImage		0	N	ImageBoundary	Aggregation
30.2	Role (unnamed)		1	1	VerticalImage	

	VerticalImage					
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## 1.2.31 Codelists

### 1.2.31.1 <<CodeList>> ImageCategory

Nr	Code name	Definition/Description	Code
1	CodeList ImageCategory	indication of which bandwidths have been used for the recording	
1.1	Infrared	FF-Engelsk	1
1.2	Panchromatic		2
1.3	Color	FF-RGB	3

### 1.2.31.2 <<CodeList>> RecordingMethod

Nr	Code name	Definition/Description	Code
2	CodeList RecordingMethod	analogue or digital recording	
2.1	Analogue camera		1
2.2	Digital sensor		2

### 1.2.31.3 <<CodeList>> OrientationMethod

Nr	Code name	Definition/Description	Code
3	CodeList OrientationMethod	method for orienting and positioning images	
3.1	GPS/INS	angivelse i form av posisjon(GPS) og relativ orientering av bilde i form av phi, omega og kappa (INS)	1
3.2	GPS/INS with AAT	GPS/INS med automatisk aerotriangulering	2
3.3	GPS/INS with AT	GPS/INS med aerotriangulering	3
3.4	GPS with AAT	GPS med automatisk aerotriangulering	4
3.5	GPS with AT	GPS med aerotriangulering	5
3.6	AT	konvensjonell aerotriangulering	6

### 1.2.31.4 <<CodeList>> ProjectType

Nr	Code name	Definition/Description	Code
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4	CodeList ProjectType	indication of whether it is a satellite or aerial photo project	
4.1	Vertical aerial photograph		
4.2	Satellite photograph		
4.3	Oblique photograph		
4.4	Orthophoto		