

5 Data content and structure

5.1 Application schemas – Overview

5.1.1 Application schemas included in the IRs

Articles 3, 4 and 5 of the Implementing Rules lay down the requirements for the content and structure of the data sets related to the INSPIRE Annex themes.

IR Requirement

Article 4

Types for the Exchange and Classification of Spatial Objects

1. For the exchange and classification of spatial objects from data sets meeting the conditions laid down in Article 4 of Directive 2007/2/EC, Member States shall use the spatial object types and associated data types, enumerations and code lists that are defined in Annexes II, III and IV for the themes the data sets relate to.
2. Spatial object types and data types shall comply with the definitions and constraints and include the attributes and association roles set out in the Annexes.
3. The enumerations and code lists used in attributes or association roles of spatial object types or data types shall comply with the definitions and include the values set out in Annex II. The enumeration and code list values are uniquely identified by language-neutral mnemonic codes for computers. The values may also include a language-specific name to be used for human interaction.

The types to be used for the exchange and classification of spatial objects from data sets related to the spatial data theme *Area Management/Restriction/Regulation Zones and Reporting Units* are defined in the following application schemas (see section 5.3):

- AreaManagementRestrictionAndRegulationZones

The application schemas specify requirements on the properties of each spatial object including its multiplicity, domain of valid values, constraints, etc.

NOTE The application schemas presented in this section contain some additional information that is not included in the Implementing Rules, in particular multiplicities of attributes and association roles.

TG Requirement 1 Spatial object types and data types shall comply with the multiplicities defined for the attributes and association roles in this section.

An application schema may include references (e.g. in attributes or inheritance relationships) to common types or types defined in other spatial data themes. These types can be found in a sub-section called “Imported Types” at the end of each application schema section. The common types referred to from application schemas included in the IRs are addressed in Article 3.

IR Requirement

Article 3

Common Types

Types that are common to several of the themes listed in Annexes I, II and III to Directive 2007/2/EC shall conform to the definitions and constraints and include the attributes and association roles set out in Annex I.

NOTE Since the IRs contain the types for all INSPIRE spatial data themes in one document, Article 3 does not explicitly refer to types defined in other spatial data themes, but only to types defined in external data models.

Common types are described in detail in the Generic Conceptual Model [DS-D2.7], in the relevant international standards (e.g. of the ISO 19100 series) or in the documents on the common INSPIRE models [DS-D2.10.x]. For detailed descriptions of types defined in other spatial data themes, see the corresponding Data Specification TG document [DS-D2.8.x].

5.1.2 Additional recommended application schemas

In addition to the application schemas listed above, the following additional application schemas have been defined for the theme *Area Management/Restriction/Regulation Zones and Reporting Units*:

- ControlledActivities (see section 5.4)
- WaterFrameworkDirective (see **Error! Reference source not found.**)

These additional application schemas are not included in the IRs. They typically address requirements from specific (groups of) use cases and/or may be used to provide additional information. They are included in this specification in order to improve interoperability also for these additional aspects and to illustrate the extensibility of the application schemas included in the IRs.

Recommendation 1

Additional and/or use case-specific information related to the theme *Area Management/Restriction/Regulation Zones and Reporting Units* should be made available using the spatial object types and data types specified in the following application schema(s): ControlledActivities, WaterFrameworkDirective.

These spatial object types and data types should comply with the definitions and constraints and include the attributes and association roles defined in this section.

The enumerations and code lists used in attributes or association roles of spatial object types or data types should comply with the definitions and include the values defined in this section.

5.2 Basic notions

This section explains some of the basic notions used in the INSPIRE application schemas. These explanations are based on the GCM [DS-D2.5].

5.2.1 Notation

5.2.1.1. Unified Modeling Language (UML)

The application schemas included in this section are specified in UML, version 2.1. The spatial object types, their properties and associated types are shown in UML class diagrams.

NOTE For an overview of the UML notation, see Annex D in [ISO 19103].

The use of a common conceptual schema language (i.e. UML) allows for an automated processing of application schemas and the encoding, querying and updating of data based on the application schema – across different themes and different levels of detail.

The following important rules related to class inheritance and abstract classes are included in the IRs.

IR Requirement

Article 5

Types

(...)

2. Types that are a sub-type of another type shall also include all this type's attributes and association roles.
3. Abstract types shall not be instantiated.

The use of UML conforms to ISO 19109 8.3 and ISO/TS 19103 with the exception that UML 2.1 instead of ISO/IEC 19501 is being used. The use of UML also conforms to ISO 19136 E.2.1.1.1-E.2.1.1.4.

NOTE ISO/TS 19103 and ISO 19109 specify a profile of UML to be used in conjunction with the ISO 19100 series. This includes in particular a list of stereotypes and basic types to be used in application schemas. ISO 19136 specifies a more restricted UML profile that allows for a direct encoding in XML Schema for data transfer purposes.

To model constraints on the spatial object types and their properties, in particular to express data/data set consistency rules, OCL (Object Constraint Language) is used as described in ISO/TS 19103, whenever possible. In addition, all constraints are described in the feature catalogue in English, too.

NOTE Since “void” is not a concept supported by OCL, OCL constraints cannot include expressions to test whether a value is a *void* value. Such constraints may only be expressed in natural language.

5.2.1.2. Stereotypes

In the application schemas in this section several stereotypes are used that have been defined as part of a UML profile for use in INSPIRE [DS-D2.5]. These are explained in Table 1 below.

Table 1 – Stereotypes (adapted from [DS-D2.5])

Stereotype	Model element	Description
applicationSchema	Package	An INSPIRE application schema according to ISO 19109 and the Generic Conceptual Model.
leaf	Package	A package that is not an application schema and contains no packages.
featureType	Class	A spatial object type.

type	Class	A type that is not directly instantiable, but is used as an abstract collection of operation, attribute and relation signatures. This stereotype should usually not be used in INSPIRE application schemas as these are on a different conceptual level than classifiers with this stereotype.
dataType	Class	A structured data type without identity.
union	Class	A structured data type without identity where exactly one of the properties of the type is present in any instance.
enumeration	Class	An enumeration.
codeList	Class	A code list.
import	Dependency	The model elements of the supplier package are imported.
voidable	Attribute, association role	A voidable attribute or association role (see section 5.2.2).
lifeCycleInfo	Attribute, association role	If in an application schema a property is considered to be part of the life-cycle information of a spatial object type, the property shall receive this stereotype.
version	Association role	If in an application schema an association role ends at a spatial object type, this stereotype denotes that the value of the property is meant to be a specific version of the spatial object, not the spatial object in general.

5.2.2 Voidable characteristics

The «voidable» stereotype is used to characterise those properties of a spatial object that may not be present in some spatial data sets, even though they may be present or applicable in the real world. This does *not* mean that it is optional to provide a value for those properties.

For all properties defined for a spatial object, a value has to be provided – either the corresponding value (if available in the data set maintained by the data provider) or the value of *void*. A *void* value shall imply that no corresponding value is contained in the source spatial data set maintained by the data provider or no corresponding value can be derived from existing values at reasonable costs.

Recommendation 2 The reason for a *void* value should be provided where possible using a listed value from the VoidReasonValue code list to indicate the reason for the missing value.

The VoidReasonValue type is a code list, which includes the following pre-defined values:

- *Unpopulated*: The property is not part of the dataset maintained by the data provider. However, the characteristic may exist in the real world. For example when the “elevation of the water body above the sea level” has not been included in a dataset containing lake spatial objects, then the reason for a void value of this property would be ‘Unpopulated’. The property receives this value for all spatial objects in the spatial data set.
- *Unknown*: The correct value for the specific spatial object is not known to, and not computable by the data provider. However, a correct value may exist. For example when the “elevation of the water body above the sea level” of a *certain lake* has not been measured, then the reason for a void value of this property would be ‘Unknown’. This value is applied only to those spatial objects where the property in question is not known.
- *Withheld*: The characteristic may exist, but is confidential and not divulged by the data provider.

NOTE It is possible that additional reasons will be identified in the future, in particular to support reasons / special values in coverage ranges.

The «voidable» stereotype does not give any information on whether or not a characteristic exists in the real world. This is expressed using the multiplicity:

- If a characteristic may or may not exist in the real world, its minimum cardinality shall be defined as 0. For example, if an Address may or may not have a house number, the multiplicity of the corresponding property shall be 0..1.
- If at least one value for a certain characteristic exists in the real world, the minimum cardinality shall be defined as 1. For example, if an Administrative Unit always has at least one name, the multiplicity of the corresponding property shall be 1..*.

In both cases, the «voidable» stereotype can be applied. In cases where the minimum multiplicity is 0, the absence of a value indicates that it is known that no value exists, whereas a value of void indicates that it is not known whether a value exists or not.

EXAMPLE If an address does not have a house number, the corresponding Address object should not have any value for the «voidable» attribute house number. If the house number is simply not known or not populated in the data set, the Address object should receive a value of *void* (with the corresponding void reason) for the house number attribute.

5.2.3 Enumerations

Enumerations are modelled as classes in the application schemas. Their values are modelled as attributes of the enumeration class using the following modelling style:

- No initial value, but only the attribute name part, is used.
- The attribute name conforms to the rules for attributes names, i.e. is a lowerCamelCase name. Exceptions are words that consist of all uppercase letters (acronyms).

IR Requirement

Article 6

Code Lists and Enumerations

(...)

- 5) Attributes or association roles of spatial object types or data types that have an enumeration type may only take values from the lists specified for the enumeration type.”

5.2.4 Code lists

Code lists are modelled as classes in the application schemas. Their values, however, are managed outside of the application schema.

5.2.4.1. Code list types

The IRs distinguish the following types of code lists.

IR Requirement
Article 6
Code Lists and Enumerations

- 1) Code lists shall be of one of the following types, as specified in the Annexes:
- a) code lists whose allowed values comprise only the values specified in this Regulation;
 - b) code lists whose allowed values comprise the values specified in this Regulation and narrower values defined by data providers;
 - c) code lists whose allowed values comprise the values specified in this Regulation and additional values at any level defined by data providers;
 - d) code lists, whose allowed values comprise any values defined by data providers.

For the purposes of points (b), (c) and (d), in addition to the allowed values, data providers may use the values specified in the relevant INSPIRE Technical Guidance document available on the INSPIRE web site of the Joint Research Centre.

The type of code list is represented in the UML model through the tagged value *extensibility*, which can take the following values:

- *none*, representing code lists whose allowed values comprise only the values specified in the IRs (type a);
- *narrower*, representing code lists whose allowed values comprise the values specified in the IRs and narrower values defined by data providers (type b);
- *open*, representing code lists whose allowed values comprise the values specified in the IRs and additional values at any level defined by data providers (type c); and
- *any*, representing code lists, for which the IRs do not specify any allowed values, i.e. whose allowed values comprise any values defined by data providers (type d).

Recommendation 3 Additional values defined by data providers should not replace or redefine any value already specified in the IRs.

NOTE This data specification may specify recommended values for some of the code lists of type (b), (c) and (d) (see section 5.2.4.3). These recommended values are specified in a dedicated Annex.

In addition, code lists can be hierarchical, as explained in Article 6(2) of the IRs.

IR Requirement
Article 6
Code Lists and Enumerations

(...)

- 2) Code lists may be hierarchical. Values of hierarchical code lists may have a more generic parent value. Where the valid values of a hierarchical code list are specified in a table in this Regulation, the parent values are listed in the last column.

The type of code list and whether it is hierarchical or not is also indicated in the feature catalogues.

5.2.4.2. Obligations on data providers

IR Requirement

Article 6

Code Lists and Enumerations

(....)

- 3) Where, for an attribute whose type is a code list as referred to in points (b), (c) or (d) of paragraph 1, a data provider provides a value that is not specified in this Regulation, that value and its definition shall be made available in a register.
- 4) Attributes or association roles of spatial object types or data types whose type is a code list may only take values that are allowed according to the specification of the code list.

Article 6(4) obliges data providers to use only values that are allowed according to the specification of the code list. The “allowed values according to the specification of the code list” are the values explicitly defined in the IRs plus (in the case of code lists of type (b), (c) and (d)) additional values defined by data providers.

For attributes whose type is a code list of type (b), (c) or (d) data providers may use additional values that are not defined in the IRs. Article 6(3) requires that such additional values and their definition be made available in a register. This enables users of the data to look up the meaning of the additional values used in a data set, and also facilitates the re-use of additional values by other data providers (potentially across Member States).

NOTE Guidelines for setting up registers for additional values and how to register additional values in these registers is still an open discussion point between Member States and the Commission.

5.2.4.3. Recommended code list values

For code lists of type (b), (c) and (d), this data specification may propose additional values as a recommendation (in a dedicated Annex). These values will be included in the INSPIRE code list register. This will facilitate and encourage the usage of the recommended values by data providers since the obligation to make additional values defined by data providers available in a register (see section 5.2.4.2) is already met.

Recommendation 4 Where these Technical Guidelines recommend values for a code list in addition to those specified in the IRs, these values should be used.

NOTE For some code lists of type (d), no values may be specified in these Technical Guidelines. In these cases, any additional value defined by data providers may be used.

5.2.4.4. Governance

The following two types of code lists are distinguished in INSPIRE:

- *Code lists that are governed by INSPIRE (INSPIRE-governed code lists).* These code lists will be managed centrally in the INSPIRE code list register. Change requests to these code lists (e.g. to add, deprecate or supersede values) are processed and decided upon using the INSPIRE code list register’s maintenance workflows.

INSPIRE-governed code lists will be made available in the INSPIRE code list register at <http://inspire.ec.europa.eu/codelist/<CodeListName>>. They will be available in SKOS/RDF, XML and HTML. The maintenance will follow the procedures defined in ISO 19135. This means that the only allowed changes to a code list are the addition, deprecation or supersession of values, i.e. no value will ever be deleted, but only receive different statuses (valid, deprecated,

superseded). Identifiers for values of INSPIRE-governed code lists are constructed using the pattern `http://inspire.ec.europa.eu/codelist/<CodeListName>/<value>`.

- *Code lists that are governed by an organisation outside of INSPIRE (externally governed code lists)*. These code lists are managed by an organisation outside of INSPIRE, e.g. the World Meteorological Organization (WMO) or the World Health Organization (WHO). Change requests to these code lists follow the maintenance workflows defined by the maintaining organisations. Note that in some cases, no such workflows may be formally defined.

Since the updates of externally governed code lists is outside the control of INSPIRE, the IRs and these Technical Guidelines reference a specific version for such code lists.

The tables describing externally governed code lists in this section contain the following columns:

- The *Governance* column describes the external organisation that is responsible for maintaining the code list.
- The *Source* column specifies a citation for the authoritative source for the values of the code list. For code lists, whose values are mandated in the IRs, this citation should include the version of the code list used in INSPIRE. The version can be specified using a version number or the publication date. For code list values recommended in these Technical Guidelines, the citation may refer to the “latest available version”.
- In some cases, for INSPIRE only a subset of an externally governed code list is relevant. The subset is specified using the *Subset* column.
- The *Availability* column specifies from where (e.g. URL) the values of the externally governed code list are available, and in which formats. Formats can include machine-readable (e.g. SKOS/RDF, XML) or human-readable (e.g. HTML, PDF) ones.

Code list values are encoded using http URIs and labels. Rules for generating these URIs and labels are specified in a separate table.

Recommendation 5 The http URIs and labels used for encoding code list values should be taken from the INSPIRE code list registry for INSPIRE-governed code lists and generated according to the relevant rules specified for externally governed code lists.

NOTE Where practicable, the INSPIRE code list register could also provide http URIs and labels for externally governed code lists.

5.2.4.5. Vocabulary

For each code list, a tagged value called “vocabulary” is specified to define a URI identifying the values of the code list. For INSPIRE-governed code lists and externally governed code lists that do not have a persistent identifier, the URI is constructed following the pattern `http://inspire.ec.europa.eu/codelist/<UpperCamelCaseName>`.

If the value is missing or empty, this indicates an empty code list. If no sub-classes are defined for this empty code list, this means that any code list may be used that meets the given definition.

An empty code list may also be used as a super-class for a number of specific code lists whose values may be used to specify the attribute value. If the sub-classes specified in the model represent all valid extensions to the empty code list, the subtyping relationship is qualified with the standard UML constraint “{complete,disjoint}”.

5.2.5 Identifier management

IR Requirement

Article 9

Identifier Management

1. The data type Identifier defined in Section 2.1 of Annex I shall be used as a type for the external object identifier of a spatial object.
2. The external object identifier for the unique identification of spatial objects shall not be changed during the life-cycle of a spatial object.

NOTE 1 An external object identifier is a unique object identifier which is published by the responsible body, which may be used by external applications to reference the spatial object. [DS-D2.5]

NOTE 2 Article 9(1) is implemented in each application schema by including the attribute *inspireId* of type Identifier.

NOTE 3 Article 9(2) is ensured if the *namespace* and *localId* attributes of the Identifier remains the same for different versions of a spatial object; the *version* attribute can of course change.

5.2.6 Geometry representation

IR Requirement

Article 12

Other Requirements & Rules

1. The value domain of spatial properties defined in this Regulation shall be restricted to the Simple Feature spatial schema as defined in Herring, John R. (ed.), OpenGIS® Implementation Standard for Geographic information – Simple feature access – Part 1: Common architecture, version 1.2.1, Open Geospatial Consortium, 2011, unless specified otherwise for a specific spatial data theme or type.

NOTE 1 The specification restricts the spatial schema to 0-, 1-, 2-, and 2.5-dimensional geometries where all curve interpolations are linear and surface interpolations are performed by triangles.

NOTE 2 The topological relations of two spatial objects based on their specific geometry and topology properties can in principle be investigated by invoking the operations of the types defined in ISO 19107 (or the methods specified in EN ISO 19125-1).

5.2.7 Temporality representation

The application schema(s) use(s) the derived attributes "beginLifespanVersion" and "endLifespanVersion" to record the lifespan of a spatial object.

The attributes "beginLifespanVersion" specifies the date and time at which this version of the spatial object was inserted or changed in the spatial data set. The attribute "endLifespanVersion" specifies the date and time at which this version of the spatial object was superseded or retired in the spatial data set.

NOTE 1 The attributes specify the beginning of the lifespan of the version in the spatial data set itself, which is different from the temporal characteristics of the real-world phenomenon described by the spatial object. This lifespan information, if available, supports mainly two requirements: First, knowledge about the spatial data set content at a specific time; second, knowledge about changes to a data set in a specific time frame. The lifespan information should be as detailed as in the data set

(i.e., if the lifespan information in the data set includes seconds, the seconds should be represented in data published in INSPIRE) and include time zone information.

NOTE 2 Changes to the attribute "endLifespanVersion" does not trigger a change in the attribute "beginLifespanVersion".

IR Requirement

Article 10

Life-cycle of Spatial Objects

(...)

3. Where the attributes beginLifespanVersion and endLifespanVersion are used, the value of endLifespanVersion shall not be before the value of beginLifespanVersion.

NOTE The requirement expressed in the IR Requirement above will be included as constraints in the UML data models of all themes.

Recommendation 6

If life-cycle information is not maintained as part of the spatial data set, all spatial objects belonging to this data set should provide a void value with a reason of "unpopulated".

5.2.7.1. Validity of the real-world phenomena

The application schema(s) use(s) the attributes "validFrom" and "validTo" to record the validity of the real-world phenomenon represented by a spatial object.

The attributes "validFrom" specifies the date and time at which the real-world phenomenon became valid in the real world. The attribute "validTo" specifies the date and time at which the real-world phenomenon is no longer valid in the real world.

Specific application schemas may give examples what "being valid" means for a specific real-world phenomenon represented by a spatial object.

IR Requirement

Article 12

Other Requirements & Rules

(...)

3. Where the attributes validFrom and validTo are used, the value of validTo shall not be before the value of validFrom.

NOTE The requirement expressed in the IR Requirement above will be included as constraints in the UML data models of all themes.

5.3 Application schema Area Management Restriction and Regulation Zones

5.3.1 Description

5.3.1.1. Narrative description

The Area Management, Restriction and Regulation Zones Application Schema contains the core model for defining zones established in accordance with specific legislative requirements to manage, restrict or regulate activities to protect the environment. A single spatial object type “ManagementRestrictionOrRegulationZone” has been defined to represent the zone as the concepts of management, restriction and regulation overlap and many zones are established to perform at least two of the three concepts.

The ManagementRestrictionOrRegulationZone spatial object type contains a core set of properties that are common to all types of zone. These can be categorised into 3 sets of properties:

1. **Zone specific properties:** these are properties that provide a basic set of information describing the zone:

- *geometry*: The geometry representing the spatial extent of the spatial object. Typically the geometry of a zone shall be represented as either a surface or multi-surface. However, there may be zone that are represented as either point or a line.
- *designationPeriod*: Time period defining when the management, restriction or regulation zone was legally designated or became effective in the real world.
- *competentAuthority*: description of the organisation(s) responsible managing, restricting or regulating measures or activities within the zone.
- *legalBasis*: reference to, or citation of the legislative instrument or document that required the establishment of a zone.

NOTE 1 LegislationCitation is defined in section 9.8.3 of D2.5 Generic Conceptual Model v3.4.

NOTE 2 For each ManagementRestrictionOrRegulationZone, at least the most specific legal instrument that required the establishment of zone shall be provided.

Recommendation 7 If applicable, the relevant legal basis at European level should also be provided.

- *plan*: reference to, or citation of a plan (management or action plan) that describes the environmental objectives and measures that shall be undertaken in the zone to protect the environment.
- *relatedZone*: reference to one or more related ManagementRestrictionOrRegulationZones. The related zone may either be a sub zone or a zone of different type.

2. **Classification and selection properties:** due to the generic nature of the model additional properties were required to enable different types of zone to be distinguished. These are defined using two classification properties:

- *zoneType*: which provide a high level classification of the zone. This is often a generalised classification for all types of zone for a specific thematic area (e.g. animalHealthRestrictionZone). This shall be an extensible INSPIRE code list (see section 5.3.1.2).
- *specialisedZoneType*: this allows more specific classification of the zone. This shall be a relevant zone type defined from an externally governed domain or community code list, where available. If no code list exists then this shall be the commonly used name assigned to the zone within the domain or community (preferably in English).

- *environmentalDomain*: this has been included to enable users to retrieve multiple types of zone that exist within a domain as it was recognised that some users may not know what zone types exist.

3. Identification and maintenance properties:

- *inspireId*: object references have been defined from other INSPIRE Annex themes to the ManagementRestrictionOrRegulationZone. An inspireId is an external object identifier published by the responsible data provider with the intention that they may be used by third parties for referencing. Also as zones are typically "Reporting Units", they also require external object identifiers to enable them to be referenced by non-spatial reported data. See section 14.1 of D2.5 for more details about how to encode external object identifiers.
- *thematicID*: thematic object identifier are additional identifiers that have been assigned to the zone. Multiple thematic object identifiers may be assigned to a zone where different data exchange requirements (e.g. national vs European reporting) have defined different lexical rules for thematic object identifiers. Where multiple thematic object identifiers exist all should be provided. This shall allow external datasets that use these thematic object identifiers for referencing to link to the INSPIRE spatial object.
- *name*: name used to identify the management, regulation or restriction zone in the real world.
- *beginLifespanVersion*: date and time at which this version of the spatial object was inserted or changed in the spatial data set.
- *endLifespanVersion*: date and time at which this version of the spatial object was superseded or retired in the spatial data set.

The INSPIRE-defined code lists included in this application schema include the values specified in the tables in this section.

5.3.1.2. Code lists

Two INSPIRE-governed code lists have been defined within the Area Management Restriction and Regulation Zones application schema:

1. ZoneTypeCode
2. Environmental Domain

ZoneTypeCode

The ZoneTypeCode code list shall be an extensible INSPIRE-governed code list. This code list defines a high level classification for types of ManagementRestrictionOrRegulationZones. At the time of the development of the data specification an initial list of ZoneTypeCodes has been defined that set the initial scope of the theme. However, it is recognised that this code list does not cover all high-level types of zone type in all domains. Consequently this code list shall be extensible using any code list value defined by Member States and thematic communities.

To extend this code list, Member States and thematic communities should only define a set of code lists that define new high-level zone types. If the proposed zone type falls within the scope of an existing ZoneTypeCode then the proposed zone type code should be used as a SpecialisedZoneTypeCode.

For example, if a thematic community wants to define the zone type code: Bluetongue Restriction Zone then this should not be an allowable ZoneTypeCode extension value as this is a specialised zone type code (i.e. narrower) for the INSPIRE zone type code: Animal Health Restriction Zone.

An allowable example of a thematic community or Member State zone type code extension would be: Land Use Restriction Zone.

The intention to allow the INSPIRE-governed ZoneTypeCode code list to be extensible is to enable Public Authorities the ability to publish any dataset they identify that falls within the scope of the AM theme. If a set of extended ZoneTypeCode values are commonly used then thematic communities and Member States should propose these values to be included in the INSPIRE ZoneTypeCode code list through the Data Specification Maintenance Process.

Environmental Domain

The Environmental Domain code list shall be non-extensible INSPIRE-governed. The Environmental Domain code list defines a set of environmental policy domains. It is expected that some ManagementRestrictionOrRegulationZones are cross cut several environmental policy domains. Where this occurs, each environmental domain should be defined.

Changes to the Environmental Domain code list shall be managed according to the Data Specification Maintenance Process.

5.3.1.3. UML Overview

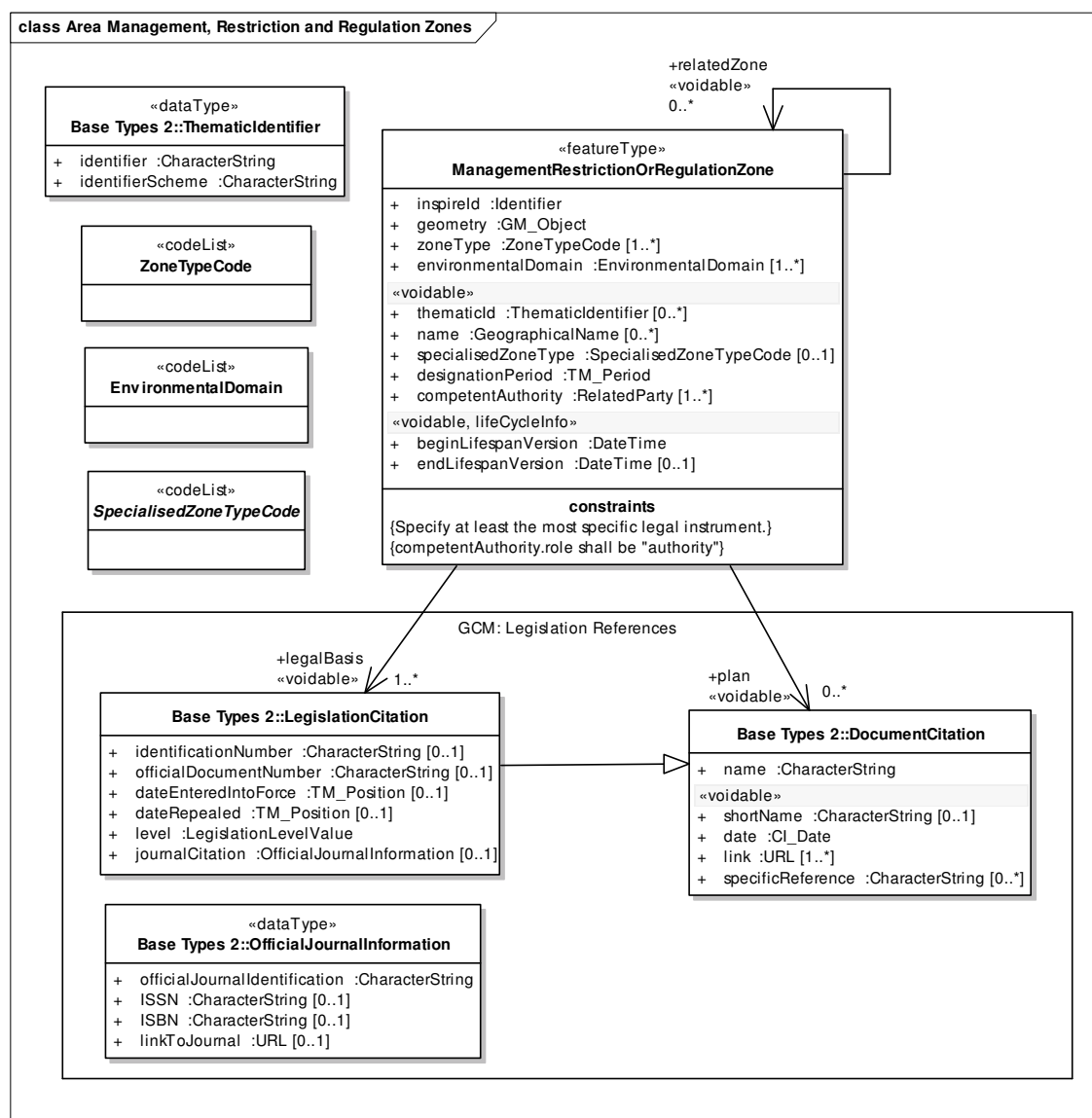


Figure 1 – UML class diagram: Overview of the Area Management Restriction and Regulation Zones application schema

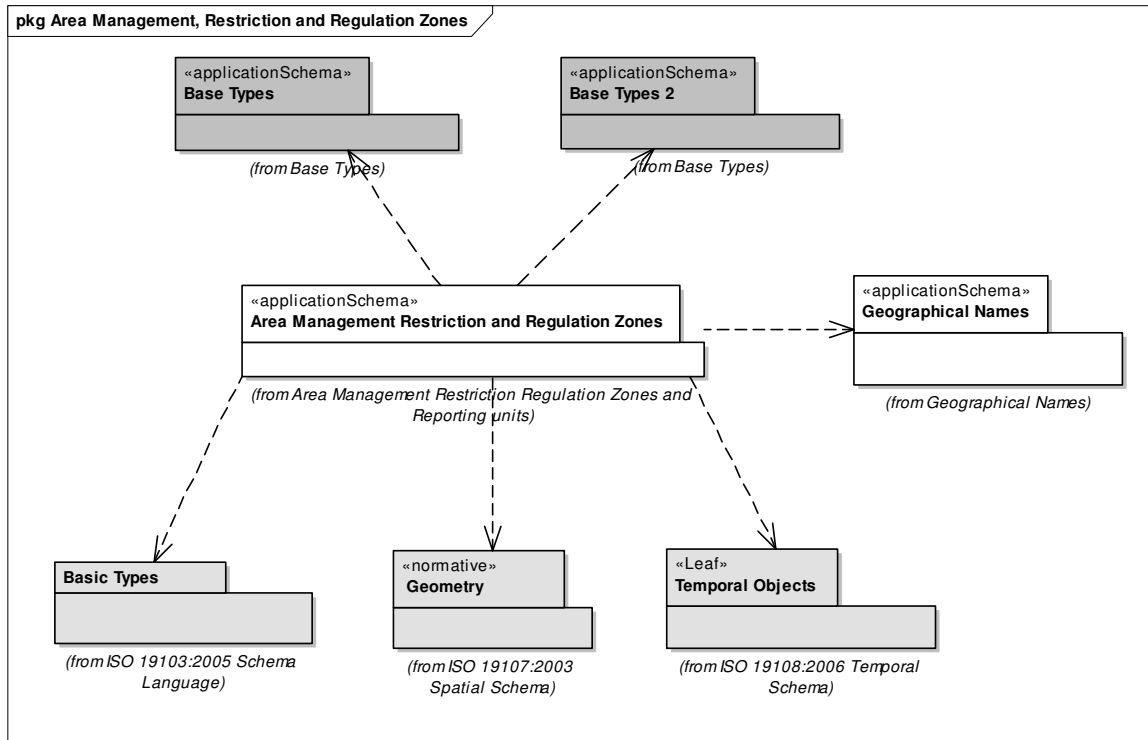


Figure 2 – UML package diagram: Overview of the Area Management Restriction and Regulation Zones application schema

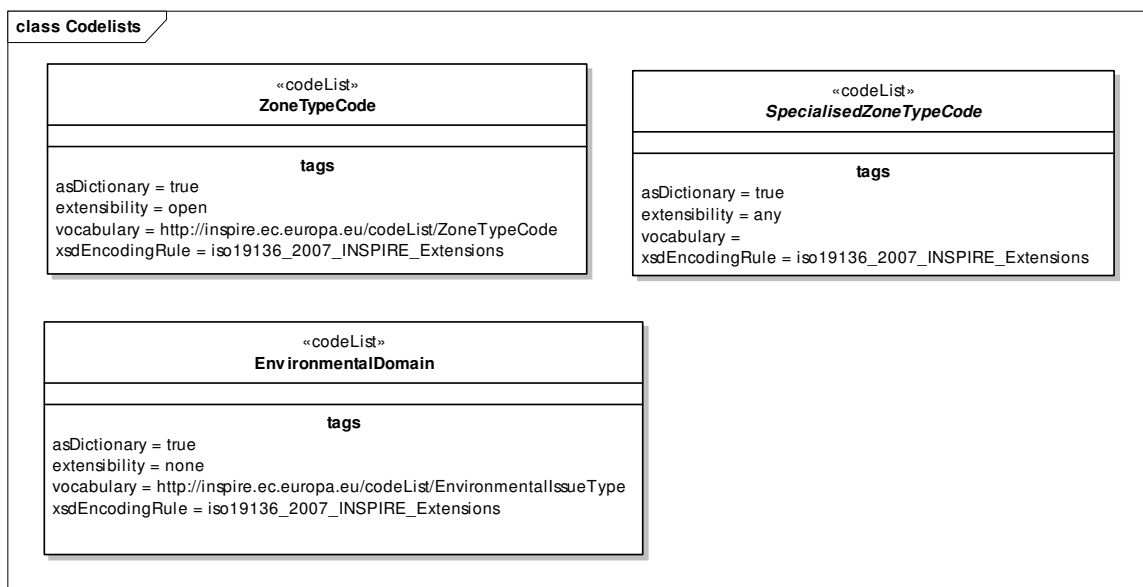


Figure 3 – UML class diagram: Overview of the code lists contained within the Area Management Restriction and Regulation Zones application schema

5.3.1.4. Consistency between spatial data sets

5.3.1.4.1. Consistency between spatial data sets that share geometries

Some ManagementRestrictionOrRegulationZone spatial objects derive their geometry from another spatial object. Where this occurs the geometries of both spatial objects shall be consistent.

IR Requirement

Annex IV, Section 11.4.1

Theme-specific Requirements – Management Restriction Or Regulation Zones

- (1) Where the geometry of the spatial object is derived from another spatial object, the geometries of the two objects shall be consistent.

NOTE Any inconsistencies can be detected using data matching algorithms.

5.3.1.5. Identifier management

ManagementRestrictionOrRegulationZone spatial objects shall be assigned an inspireId in accordance with the rules for Identifier Management defined in section 14 of D2.5 Generic Conceptual Model. The requirement for an inspireId follows Recommendation 27 from section 14 of D2.5:

From Section 14 of D2.5 Generic Conceptual Model

Recommendation 27 It is strongly recommended that unique identifiers should be provided for spatial object types where references from other spatial objects are expected to be applicable.

The inspireId is required for ManagementRestrictionOrRegulationZone spatial objects to enable references from non-spatial resources to be established. The inspireId shall be a persistent, external object identifier. This means that the inspireId shall provide a consistent identifier enabling multiple non-spatial resources to be linked to the same ManagementRestrictionOrRegulationZone.

The identifier assigned as the inspireId shall follow the four requirements for external object identifiers:

1. **Uniqueness:** the identifier shall not be assigned to any other INSPIRE spatial object.
NOTE 1: Different versions of the spatial object shall have the same identifier
NOTE 2: Identifiers must not be re-used
2. **Persistence:** once assigned the identifier shall remain unchanged during the life-time of a spatial object
3. **Traceability:** a spatial object (or specific version) can be accessed based on its identifier
4. **Feasibility:** the system for defining identifiers has been designed to allow existing identifiers to be used

The inspireId contains three properties: localID, namespace and a «voidable» version. Where an INSPIRE Download Service provides access to multiple versions of spatial objects, the version parameter should be included to enable third parties to include the version of the spatial object when the referencing.

Recommendation 8 It is strongly recommended that a version is included in the inspireId to allow different versions of a spatial object to be distinguished.

Relationship between inspireId and thematicId

Many ManagementRestrictionOrRegulationZone spatial objects have been assigned multiple identifiers based on different identifier schemes that have been defined for data exchange for specific requirements (e.g. national versus European reporting). Thematic identifiers have been and shall continue to be the key used to link non-spatial data to the ManagementRestrictionOrRegulationZone spatial object. To ensure that none of these identifiers and links are lost, a thematicId has been added to the ManagementRestrictionOrRegulationZone.

The key difference between the inspireId and thematicId is that the inspireId shall be a persistent, unique identifier that can be used in external datasets to reference to the spatial object by any third party. Whereas the thematicId is a descriptive unique object identifier assigned to the spatial object defined in an information community.

NOTE: A thematic identifier may form part of the inspireId.

Some ManagementRestrictionOrRegulationZone spatial objects may be assigned more than one thematic identifier. These thematic identifiers may have been assigned to meet internal data maintenance requirements or are identification codes assigned at national, European or International level.

Example: River Basin Districts

The WISE River Basin Districts v1.4 data specification defines the following identifier properties that are assigned to a River Basin District:

Attribute Name	Description
Database Internal Key (Object ID)	Internal unique identifier (Primary Key).
EU RBD Code	Unique RBD code submitted by MS via WFD Art. 3 reporting, national RBD code. National code prefixed by country code.
MS RBD Code	Unique RBD code submitted by MS via WFD Art. 13 reporting, national RBD code.
International Code	RBD codes for non EU countries.
European RBD Code	A code assigned at EU level according to the international RBD the national RBD is part of.

NOTE: The internal unique identifier should not be published as it serves as an internal primary key and is therefore not suitable for use as either an inspireId or thematicId.

The four RBD code properties should be encoded as thematicIds. A thematicId is encoded using the ThematicIdentifier class defined in the GCM (Base Types 2 package) (Figure 4).

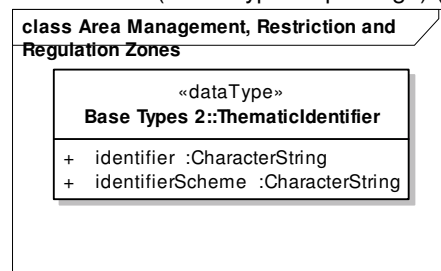


Figure 4 - UML Class Diagram of ThematicIdentifier «dataType»

The ThematicIdentifier is comprised of two properties:

- **identifier**: this is a descriptive unique object identifier assigned to the spatial object ((.g. AT2000, 2000 or AT5001 are different River Basin District codes assigned to Rhine)
- **identifierScheme**: this is preferably a HTTP URI used to identify which scheme is was used to define the identifier. See D2.7 Guidelines for the encoding of spatial data for more information about defining URIs for identifierSchemes.

5.3.1.6. Modelling of object references

Object referencing does not apply to the geometries of ManagementRestrictionOrRegulationZone spatial objects.

Although the geometry of many ManagementRestrictionOrRegulationZone spatial objects are derived from other INSPIRE spatial objects, it was agreed during the development of the data specification

that the benefits of sharing geometries are greatest for data maintenance rather than data exchange. Few services and applications currently do not adequately support object referencing. Therefore, the geometries of ManagementRestrictionOrRegulationZone spatial objects shall be explicitly defined using coordinates.

5.3.1.7. Geometry representation

Typically the representation of the geometry of a ManagementRestrictionOrRegulationZone shall be either a GM_Surface or GM_MultiSurface. However, it has been recognised that at some levels of detail the geometry may be represented as either a GM_Point or GM_Curve. Consequently, any constraints on the geometry representation have been removed.

The requirements to support different geometry representations has required that the geometry data type uses the Abstract GM_Object class, allowing any geometry to be used.

Recommendation 9 If a ManagementRestrictionOrRegulationZone should represent an area in the real world, then the geometry should be represented as either a GM_Surface or GM_MultiSurface.

Recommendation 10 Where a ManagementRestrictionOrRegulationZone is comprised of multiple parts (i.e. surfaces) only one instance of a ManagementRestrictionOrRegulationZone spatial object should be provided. The geometry should be represented as a GM_MultiSurface.

5.3.1.8. Temporality representation

The temporality of a ManagementRestrictionOrRegulationZone spatial object is represented by two types of properties:

- Transactional lifecycle properties: beginLifespanVersion and endLifespanVersion
- Real-world validity property: designationPeriod

The designationPeriod defines the time period (beginPosition and endPosition) when the ManagementRestrictionOrRegulationZone was legally designated or became effective in the real world.

The designationPeriod uses the TM_Period property from ISO 19108:2006. This provides greater encoding flexibility and improved semantics than defining separate “validTo” and “validFrom” that use xsd:DateTime.

TM_Period is implemented using the gml:TimePeriodType. It requires that both the beginPosition and endPosition are provided. If the ManagementRestrictionOrRegulationZone does not have a defined endPosition (i.e. it is unknown) then the endPosition/indeterminatePosition attribute should be used to state that the ManagementRestrictionOrRegulationZone is effective until an unknown endPosition.

The values that can be defined are flexible. The beginPosition and endPosition use the TM_Position type which is a union of ISO 8601 Date, Time or DateTime.

Example:

```
<am:designationPeriod>
  <gml:TimePeriod gml:id="UK0039_TP">
    <gml:beginPosition>2011-10-01</gml:beginPosition>
    <gml:endPosition indeterminatePosition="unknown"/>
  </gml:TimePeriod>
</am:designationPeriod>
```

5.3.2 Feature catalogue

Feature catalogue metadata

Application Schema	INSPIRE Application Schema Area Management Restriction and Regulation Zones
Version number	3.0

Types defined in the feature catalogue

Type	Package	Stereotypes
<i>ManagementRestrictionOrRegulationZone</i>	Area Management Restriction and Regulation Zones	«featureType»

5.3.2.1. Spatial object types

5.3.2.1.1. *ManagementRestrictionOrRegulationZone*

ManagementRestrictionOrRegulationZone	
Name:	management restriction or regulation zone
Definition:	Area managed, restricted or regulated in accordance with a legal requirement related to an environmental policy or a policy or activity that may have an impact on the environment at any level of administration (or used for reporting at international, European, national, regional and local) levels.
Stereotypes:	«featureType»
Attribute: inspireId	
Name:	inspireId
Value type:	Identifier
Definition:	External object identifier of the spatial object.
Description:	An external object identifier is a unique object identifier published by the responsible body, which may be used by external application to reference the spatial object. The identifier is an identifier of the spatial object, not an identifier of the real-world phenomenon. NOTE: ManagementRestrictionOrRegulationZone spatial objects commonly perform the role/function of " <i>Reporting Unit</i> " for non-spatial reported data. The reported data shall contain object references to ManagementRestrictionOrRegulationZones. Therefore, all spatial objects shall be assigned an inspireId.
Multiplicity:	1
Attribute: thematicId	
Name:	thematic identifier
Value type:	ThematicIdentifier
Definition:	Descriptive unique object identifier applied to spatial objects in a defined information theme.
Description:	Some management, restriction or regulation zones may be assigned multiple thematic identifiers. These may have been established to meet the reporting requirements of different legislative instruments at International, European or at Member State levels. Where multiple thematicIDs exist all should be provided. This shall allow any external dataset that uses thematicIDs to referencing to the zone to continue to be linked to the spatial object.
Multiplicity:	0..*
Stereotypes:	«voidable»
Attribute: name	
Name:	name
Value type:	GeographicalName
Definition:	A geographical name that is used to identify the management, restriction or regulation zone in the real world. It provides a 'key' for implicitly associating

ManagementRestrictionOrRegulationZone	
Multiplicity:	different representations of the object. 0..*
Stereotypes:	«voidable»
Attribute: geometry	
Name:	Name geometry
Value type:	GM_Object
Definition:	The geometry representing the spatial extent of the spatial object.
Description:	The geometry of a Management Area, Restriction or Regulation Zone can be defined using any geometry representation. Typically this shall be either a GM_Surface or GM_MultiSurface.
	NOTE: Where a zone forms as a polygon, this should be encoded as a GM_Surface or GM_MultiSurface not a GM_Curve.
Multiplicity:	1
Attribute: zoneType	
Name:	zone type
Value type:	ZoneTypeCode
Definition:	High level classification defining the type of management, restriction or regulation zone.
Multiplicity:	1..*
Values:	The allowed values for this code list comprise the values specified in <i>Annex C</i> and additional values at any level defined by data providers.
Attribute: specialisedZoneType	
Name:	specialised zone type
Value type:	SpecialisedZoneTypeCode
Definition:	Additional classification value which further specialises the type of management, regulation or restriction zone relevant to the domain.
Description:	NOTE: This value should be derived from a relevant domain-specific controlled vocabulary, where available.
	EXAMPLE 1: A ManagementRestrictionOrRegulationZone where the zoneType value = airQualityManagementZone could be further classified as either: <ul style="list-style-type: none"> specialisedZoneType = agglomeration or specialisedZoneType = nonAgglomeration
	EXAMPLE 2: A ManagementRestrictionOrRegulationZone where the zoneType value = sensitiveArea could be further classified as either: <ul style="list-style-type: none"> specialisedZoneType = lessSensitiveArea specialisedZoneType = lessSensitiveNitrates specialisedZoneType = lessSensitiveEutrophic specialisedZoneType = lessSensitiveShellfish
Multiplicity:	0..1
Stereotypes:	«voidable»
Values:	The allowed values for this code list comprise any values defined by data providers.
Attribute: designationPeriod	
Name:	designation period
Value type:	TM_Period

ManagementRestrictionOrRegulationZone	
Definition:	Time period defining when the management, restriction or regulation zone was legally designated or became effective in the real world.
Description:	NOTE: designationPeriod uses the ISO 19108 TM_Period which is comprised of two properties - gml:beginPosition and gml:endPosition. If the zone shall remain in force for an indeterminate period of time then the endPosition/indeterminatePosition="unknown" can be used to state that the zone is still effective.
Multiplicity:	1
Stereotypes:	«voidable»
Attribute: environmentalDomain	
Name:	environmental domain
Value type:	EnvironmentalDomain
Definition:	Classification of the environment domain(s) for which, through the establishment of the zone, certain environmental objectives shall be reached.
Description:	A zone may be established within one environmental domain (e.g. water) or may to cover a wide range of environmental objectives that cross-cut several domains. For example, Marine Regions may relate to water, land use, sustainable development.
Multiplicity:	1..*
Values:	The allowed values for this code list comprise only the values specified in <i>Annex C</i> .
Attribute: competentAuthority	
Name:	competent authority
Value type:	RelatedParty
Definition:	Description of the organisation(s) responsible for managing, restricting or regulating measures or activities within the zone.
Multiplicity:	1..*
Stereotypes:	«voidable»
Attribute: beginLifespanVersion	
Name:	begin lifespan version
Value type:	DateTime
Definition:	Date and time at which this version of the spatial object was inserted or changed in the spatial data set.
Multiplicity:	1
Stereotypes:	«voidable,lifeCycleInfo»
Attribute: endLifespanVersion	
Name:	end lifespan version
Value type:	DateTime
Definition:	Date and time at which this version of the spatial object was superseded or retired in the spatial data set.
Multiplicity:	0..1
Stereotypes:	«voidable,lifeCycleInfo»
Association role: legalBasis	
Value type:	LegislationCitation
Definition:	Reference to, or citation of the legal instrument or document that required the establishment of the zone.
Multiplicity:	1..*
Stereotypes:	«voidable»

ManagementRestrictionOrRegulationZone	
Association role: relatedZone	
Value type:	ManagementRestrictionOrRegulationZone
Definition:	Reference to a related management, regulation or restriction zone.
Description:	<p>EXAMPLE 1: River basin districts (RBD) exist at three levels:</p> <ol style="list-style-type: none"> 1) International River Basin District 2) National River Basin District 3) River Basin District Sub units. <p>An international RBD may contain one or more national RBD and/or River Basin Sub Units.</p> <p>A national RBD may be related to an International RBD and one or more RBD sub-units.</p> <p>EXAMPLE 2: A WFDWaterBody may be related to a River Basin District.</p>
Multiplicity:	0..*
Stereotypes:	«voidable»
Association role: plan	
Value type:	DocumentCitation
Definition:	Reference to, or citation of a plan (management or action plan) that describes the environmental objectives and measures that shall be undertaken in the zone to protect the environment.
Multiplicity:	0..*
Stereotypes:	«voidable»
Constraint: competentAuthority.role shall be "authority"	
Natural language:	The role attribute of the competentAuthority shall take the value "authority".
OCL:	inv: competentAuthority.role = RelatedPartyRoleValue::authority
Constraint: Specify at least the most specific legal instrument.	
Natural language:	At least the most specific legal instrument that required the establishment of zone shall be provided using the legalBasis association role.
OCL:	

5.3.2.2. Code lists

5.3.2.2.1. EnvironmentalDomain

EnvironmentalDomain	
Name:	environmental domain
Definition:	Environmental domain, for which environmental objectives can be defined.
Extensibility:	none
Identifier:	http://inspire.ec.europa.eu/codelist/EnvironmentalDomain
Values:	The allowed values for this code list comprise only the values specified in <i>Annex C</i> .

5.3.2.2.2. SpecialisedZoneTypeCode

SpecialisedZoneTypeCode	
Name:	specialised zone type code
Definition:	Additional classification value that defines the specialised type of zone.
Description:	For some ManagementRestrictionOrRegulationZones each zone may be further specialised. This is used to indicate that additional controls (activities or measures) may be in force depending on its specialised type.

SpecialisedZoneTypeCode

Example 1: Air Quality Management Zones - can be specialised as either:

- agglomerations
- nonAgglomeration

Example 2: Animal Health Restriction Zones - can be specialised as either:

- restrictionZone
- protectionZone
- controlZone
- lowerRiskZone
- surveillanceZone

Extensibility: any

Identifier:

Values: The allowed values for this code list comprise any values defined by data providers.

5.3.2.2.3. ZoneTypeCode

ZoneTypeCode

Name: zone type code

Definition: High-level classification defining the type of Management, Restriction or Regulation Zone.

Extensibility: open

Identifier: <http://inspire.ec.europa.eu/codelist/ZoneTypeCode>

Values: The allowed values for this code list comprise the values specified in *Annex C* and additional values at any level defined by data providers.

5.3.2.3. Imported types (informative)

This section lists definitions for feature types, data types and enumerations and code lists that are defined in other application schemas. The section is purely informative and should help the reader understand the feature catalogue presented in the previous sections. For the normative documentation of these types, see the given references.

5.3.2.3.1. DateTime

DateTime

Package: Date and Time

Reference: Geographic information -- Conceptual schema language [ISO/TS 19103:2005]

5.3.2.3.2. GM_Object

GM_Object (abstract)

Package: Geometry root

Reference: Geographic information -- Spatial schema [ISO 19107:2003]

5.3.2.3.3. GeographicalName

GeographicalName

Package: Geographical Names

Reference: INSPIRE Data specification on Geographical Names [DS-D2.8.1.3]

GeographicalName	
Definition:	Proper noun applied to a real world entity.

5.3.2.3.4. *Identifier*

Identifier	
Package:	Base Types
Reference:	INSPIRE Generic Conceptual Model, version 3.4 [DS-D2.5]
Definition:	External unique object identifier published by the responsible body, which may be used by external applications to reference the spatial object.
Description:	NOTE1 External object identifiers are distinct from thematic object identifiers. NOTE 2 The voidable version identifier attribute is not part of the unique identifier of a spatial object and may be used to distinguish two versions of the same spatial object. NOTE 3 The unique identifier will not change during the life-time of a spatial object.

5.3.2.3.5. *RelatedParty*

RelatedParty	
Package:	Base Types 2
Reference:	INSPIRE Generic Conceptual Model, version 3.4 [DS-D2.5]
Definition:	An organisation or a person with a role related to a resource.
Description:	NOTE 1 A party, typically an individual person, acting as a general point of contact for a resource can be specified without providing any particular role.

5.3.2.3.6. *TM_Period*

TM_Period	
Package:	Temporal Objects
Reference:	Geographic information -- Temporal schema [ISO 19108:2002/Cor 1:2006]

5.3.2.3.7. *ThematicIdentifier*

ThematicIdentifier	
Package:	Base Types 2
Reference:	INSPIRE Generic Conceptual Model, version 3.4 [DS-D2.5]
Definition:	Thematic identifier to uniquely identify the spatial object.
Description:	Some spatial objects may be assigned multiple unique identifiers. These may have been established to meet data exchange requirements of different reporting obligations at International, European or national levels and/or internal data maintenance requirements.

5.3.3 Externally governed code lists

Within the Area Management Restriction and Regulation Zone application schema, it is expected that the values that should be included in the SpecialisedZoneTypeCode are derived from externally governed code lists maintained by thematic communities or Member States.

To date, no such externally governed code lists have been identified. Several example SpecialisedZoneTypeCode code lists have been defined for the following ZoneTypeCodes:

- Air Quality Management Zone
- Noise Restriction Zone
- Sensitive Area
- Animal Health Restriction Zone
- WFD Water Body

- River Basin District
- Designated Waters
- Marine Region

Examples code list values are listed in Annex E.2.

5.4 Application schema Controlled Activities

5.4.1 Description

5.4.1.1. Narrative description

The controlled activities application schema is a TG Recommendation that should be used if a *ManagementRestrictionOrRegulationZone* contains specific activities that are controlled (permitted, prohibited, promoted or restricted) within the zone. These activities may be controlled for a specified time period.

Examples of controlled activities include:

- Restricting specific development types within a spatial planning restriction zone (e.g. cannot construct building greater than a specified height)
- Prohibiting animal and human movements during an disease outbreak (e.g. Foot and Mouth, Avian Influenza).
- Permitting abstraction of natural resources (minerals/water)
- Permitting the emission of pollutants
- Restrict noise levels during specific times of day
- Restrict hunting during specified times of the year

As the AM theme covers a broad range of domains it was not possible to define a definitive set of controlled activities that could be modelled within INSPIRE. Instead the aim has been to identify a high-level set of activity types to facilitate interoperability using the *activity* property in the *ControlledActivity* data type. The exact type of activity that is controlled within the zone can be specified using the *specialisedActivityType* and *description* properties.

Invariably, activities are controlled via prohibition, restriction or permission these controls apply for a specified time period. Therefore, a *restrictionPeriod* property has been defined using the *Schedule* data type.

The aim of the *Schedule* data type is to provide a generic, flexibility data type enabling the encoding of a range of different use cases for restricted periods. These include:

- **Define an individual day or set of days:** Monday or Weekends or Public Holidays
- **Define a range of days:** Monday to Thursday
- **Define a set of days:** Monday, Tuesday, Thursday
- **Define a date or range of dates:** 2010-10-01 or 2010-04-01 to 2010-04-30
- **Define a day/range or set of days and time period:** Monday between 12:30-13:30, Monday to Thursday 9am to 5pm 2010-10-01 between 12:30 and 17:00

NOTE: If only a day, set or a range of days/dates is defined then it is assumed that the restricted period applies for 24 hours.

As this extension only defines an additional property: *controlledActivity*, the requirements for: consistency between spatial objects, identifier management, modelling of object references and geometry and temporality representation defined for the *ManagementRestrictionOrRegulationZone* also apply here.

5.4.1.2. UML Overview

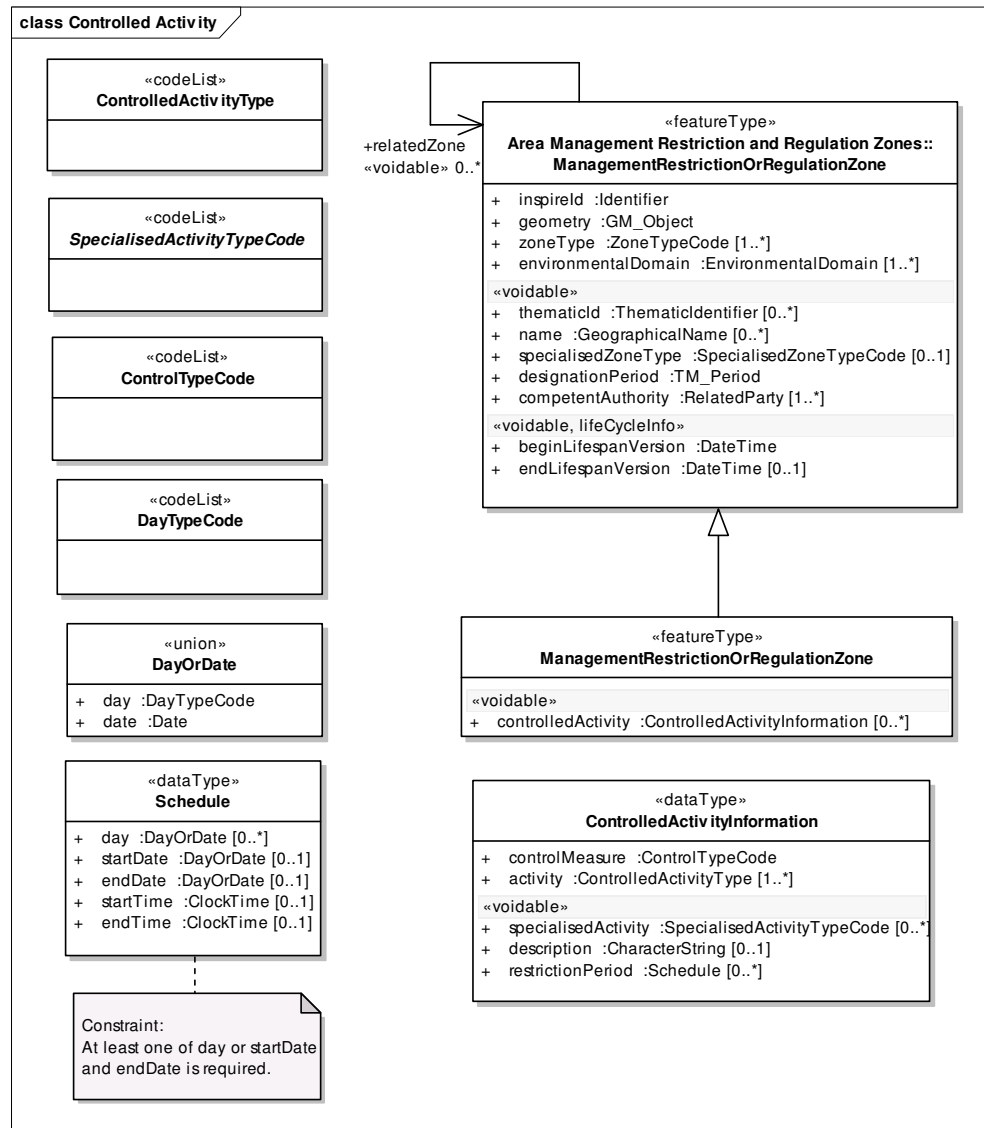


Figure 5 – UML class diagram: Overview of the Controlled Activities application schema

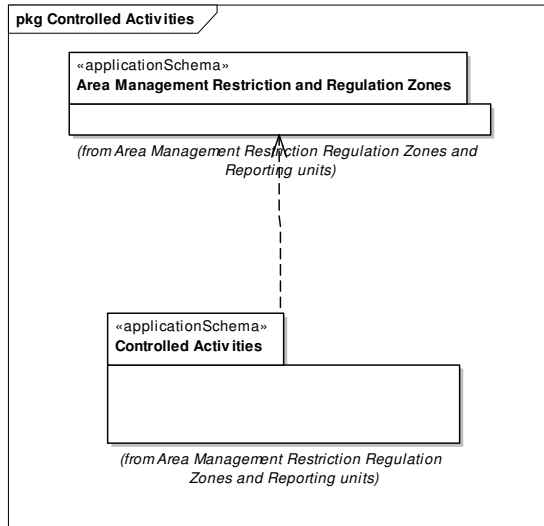


Figure 6 – UML package diagram: Overview of the Controlled Activities application schema

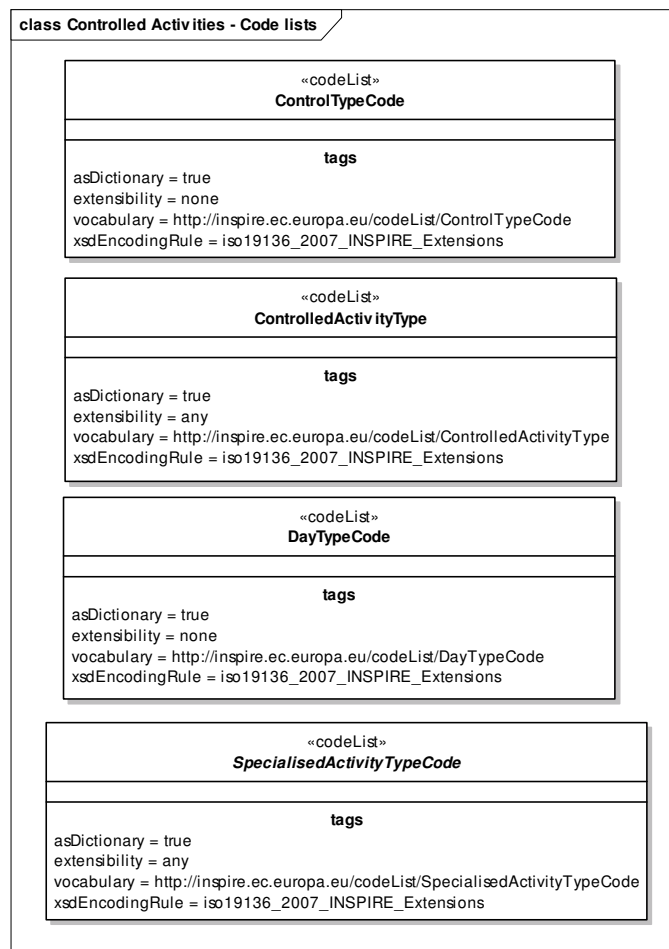


Figure 7 – UML class diagram: Overview of the code lists contained within the Controlled Activities application schema

5.4.2 Feature catalogue

Feature catalogue metadata

Application Schema	INSPIRE Application Schema Controlled Activities
Version number	3.0

Types defined in the feature catalogue

Type	Package	Stereotypes
<i>ControlledActivityInformation</i>	Controlled Activities	«dataType»
<i>DayOrDate</i>	Controlled Activities	«union»
<i>ManagementRestrictionOrRegulationZone</i>	Controlled Activities	«featureType»
<i>Schedule</i>	Controlled Activities	«dataType»

5.4.2.1. Spatial object types

5.4.2.1.1. *ManagementRestrictionOrRegulationZone*

ManagementRestrictionOrRegulationZone	
Subtype of:	ManagementRestrictionOrRegulationZone
Definition:	Area managed, regulated or used for reporting at international, European, national, regional and local levels.
Description:	Extended to include information describing activities that are controlled to achieve specific environment objectives within the zone.
Stereotypes:	«featureType»
Attribute: controlledActivity	
Value type:	ControlledActivityInformation
Definition:	A controlled activity is an activity that is either permitted, prohibited, promoted or restricted within the zone.
Description:	The ManagementRestrictionOrRegulationZone has been established to achieve or maintain good environmental status. To achieve this goal Public Authorities must establish a range of measures. These measures may include controlling particular activities within the zone. Examples include: <ul style="list-style-type: none"> controlling emissions to the environment restricting movements within the zone limiting pollutant values to protect health controlling urban or industrial development to protect cultural heritage, nature and biodiversity and greenspaces
Multiplicity:	0..*
Stereotypes:	«voidable»

5.4.2.2. Data types

5.4.2.2.1. *ControlledActivityInformation*

ControlledActivityInformation	
Definition:	Information describing the type of activity that is controlled within the zone.
Stereotypes:	«dataType»
Attribute: controlMeasure	
Value type:	ControlTypeCode
Definition:	Type of control method used to manage activities or measures within the zone.
Description:	An activity can be controlled using different types of method to achieve different types of objective.
EXAMPLES:	

ControlledActivityInformation

- Water abstraction or mineral extraction may be regulated (i.e. require a permit) to avoid over-utilisation of a resource
- Animal movements may be restricted or prohibited in the instance of an animal health epidemic (e.g. blue tongue or avian influenza)
- Hunting may be permitted or prohibited during a specific time.

Multiplicity: 1

Values: The allowed values for this code list comprise any values defined by data providers.

Attribute: activity

Value type: ControlledActivityType

Definition: Type of activity that is controlled within the zone.

Description: This is an extensible INSPIRE codelist containing high-level classification of activity areas. The specific type of activity that this controlled should be defined using the specialisedActivity.

Multiplicity: 1..*

Values: The allowed values for this code list comprise any values defined by data providers.

Attribute: specialisedActivity

Value type: SpecialisedActivityTypeCode

Definition: Specific activity type defining the activity that is controlled in the zone.

Description: The specialisedActivity is a codelist value that should be derived from thematic or Member State codelist. The specialisedActivity should be an relevant activity that has a narrower definition than the ControlledActivityType.

Example:

If the ControlledActivityType is "plantAndAnimalHealth" the specialisedActivity could be "movement" or more specifically "animalMovement" and "humanMovement" (if human movements into an out of a restricted zone apply as was the case with Foot and Mouth disease outbreak in the UK).

Multiplicity: 0..*

Stereotypes: «voidable»

Values: The allowed values for this code list comprise any values defined by data providers. *Annex C* includes recommended values that may be used by data providers.

Attribute: description

Value type: CharacterString

Definition: Narrative summary providing any additional information that explains what controls apply to the activity.

Multiplicity: 0..1

Stereotypes: «voidable»

Attribute: restrictionPeriod

Value type: Schedule

Definition: Time period defining when restrictions apply.

ControlledActivityInformation	
Description:	<p>NOTE: Specific controls may apply to the activities or measures within specified time periods.</p> <p>There are several key use cases for defining a schedule for an activity such as a restriction:</p> <p>Define a day or set of days: Monday or Weekends or Public Holidays Define a range of days: Monday to Thursday Define a set of days: Monday, Tuesday, Thursday Define a date or range of dates: 2010-10-01 or 2010-04-01 to 2010-04-30 Define a day/range or set of days and time period: Monday between 12:30-13:30, Monday to Thursday 9am to 5pm 2010-10-01 between 12:30 and 17:00</p>
Multiplicity:	0..*
Stereotypes:	«voidable»

5.4.2.2.2. *DayOrDate*

DayOrDate	
Definition:	Choice to specify either the day or start day on which a restriction applies if it is a reoccurring scheduled restriction or a specific date or start date on which a restriction applies.
Stereotypes:	«union»
Attribute: day	
Value type:	DayTypeCode
Definition:	A specified day
Multiplicity:	1
Values:	The allowed values for this code list comprise any values defined by data providers.
Attribute: date	
Value type:	Date
Definition:	A specified date
Multiplicity:	1

5.4.2.2.3. *Schedule*

Schedule	
Definition:	Reoccurring time period defining when an activity is controlled.
Stereotypes:	«dataType»
Attribute: day	
Value type:	DayOrDate
Definition:	Day on which the restriction starts or days on which the restriction occurs.
Description:	The day could either be defined as either a Date or as a Day.
Multiplicity:	0..*
Attribute: startDate	
Value type:	DayOrDate
Definition:	Day on which the restriction ends.
Multiplicity:	0..1
Attribute: endDate	
Value type:	DayOrDate
Definition:	Day on which the restriction ends.
Multiplicity:	0..1

Schedule	
Attribute: startTime	
Value type:	ClockTime
Definition:	Time defining when the controlled activity starts.
Description:	EXAMPLE: Valid values include: <ul style="list-style-type: none"> • 21:32:52 • 21:32:52+02:00 • 19:32:52Z • 19:32:52+00:00 • 21:32:52.12679 <p>NOTE: if the startTime is empty then it shall be inferred that the restriction applies for 24 hours.</p>
Multiplicity:	0..1
Attribute: endTime	
Value type:	ClockTime
Definition:	Time defining when the controlled activity starts. --Description NOTE: if the endTime is empty then it shall be inferred that the restriction applies for 24 hours.
Multiplicity:	0..1
Constraint: At least one of day or startDate and endDate is required	
Natural language:	
OCL:	

5.4.2.3. Code lists

5.4.2.3.1. *ControlledActivityType*

ControlledActivityType	
Definition:	Classification of the types of activities controlled within the zone.
Description:	A zone may contain a number of activities that are controlled via regulation/restriction
Extensibility:	any
Identifier:	http://inspire.ec.europa.eu/codelist/ControlledActivityType
Values:	The allowed values for this code list comprise any values defined by data providers.

5.4.2.3.2. *ControlTypeCode*

ControlTypeCode	
Definition:	Types of control used to manage activities within the zone.
Extensibility:	any
Identifier:	http://inspire.ec.europa.eu/codelist/ControlTypeCode
Values:	The allowed values for this code list comprise any values defined by data providers.

5.4.2.3.3. *DayTypeCode*

DayTypeCode	
Definition:	Specified day of the week or period of days
Extensibility:	any

DayTypeCode	
Identifier:	http://inspire.ec.europa.eu/codelist/DayTypeCode
Values:	The allowed values for this code list comprise any values defined by data providers.

5.4.2.3.4. *SpecialisedActivityTypeCode*

SpecialisedActivityTypeCode	
Definition:	Controlled vocabulary or code list defined by domains or Member States of specific controlled activity types related to their domain.
Extensibility:	any
Identifier:	http://inspire.ec.europa.eu/codelist/SpecialisedActivityTypeCode
Values:	The allowed values for this code list comprise any values defined by data providers. <i>Annex C</i> includes recommended values that may be used by data providers.

5.4.2.4. **Imported types (informative)**

This section lists definitions for feature types, data types and enumerations and code lists that are defined in other application schemas. The section is purely informative and should help the reader understand the feature catalogue presented in the previous sections. For the normative documentation of these types, see the given references.

5.4.2.4.1. *CharacterString*

CharacterString	
Package:	Text
Reference:	Geographic information -- Conceptual schema language [ISO/TS 19103:2005]

5.4.2.4.2. *ClockTime*

ClockTime	
Package:	Date and Time
Reference:	Geographic information -- Conceptual schema language [ISO/TS 19103:2005]

5.4.2.4.3. *Date*

Date	
Package:	Date and Time
Reference:	Geographic information -- Conceptual schema language [ISO/TS 19103:2005]

5.4.3 **Externally governed code lists**

Within the Controlled Activities application schema, it is expected that the values that should be included in the *SpecialisedActivityTypeCode* are derived from externally governed code lists maintained by thematic communities or Member States. To date, no such externally governed code lists have been identified.