

INSPIRE Directive (2007/2/EC) 2018 monitoring exercise

Reporter guidance document

Version history

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Foreword

This document explains how Member States can use Reportnet, the INSPIRE web forms and the INSPIRE dashboard sandbox to create, edit and submit their annual INSPIRE monitoring information to the European Environment Agency. It thereby supports the work of the Commission and the Member States as regards the collection and transmission of the information from Member States to the European Commission concerning the obligations set in Commission Decision No 2009/442 of 5 June 2009 implementing Directive 2007/2/EC of the European Parliament.

The Directive 2007/2/EC, in its Article 21, requires Member States to monitor the implementation and use of their infrastructures for spatial information and to report on the implementation of that Directive. Consequently, the Commission Decision 2009/442/EC provides for Member States to establish a list of the spatial datasets and spatial data services corresponding to the themes listed in Annex I, II and III of the INSPIRE Directive, as well as network services, which shall then be communicated to the Commission. It also establishes that the monitoring should be based on a set of indicators, to be calculated on the basis of the data collected from appropriate stakeholders at the various levels of public authority. The monitoring indicators, and the data collected for its calculation, shall be provided accordingly to the Commission. The results of the monitoring shall relate to monitoring conducted during a calendar year, and shall be published by 15 May of the following year, being thereafter updated at least every year.

Since 2013, the European Environment Agency is in charge for managing the delivery process of INSPIRE monitoring information and reporting. Reportnet, the EEA's electronic infrastructure for data collection, is since used as the platform for reporting information to the EU Commission in pursuance of the INSPIRE Directive. In 2015, the monitoring process moved from an excel-based to an XML-based reporting and a web form application was made available in Reportnet in order to facilitate the creation of the XML monitoring file.

Following the work carried out in the context of a working group under the INSPIRE Maintenance and Implementation Work Plan (MIWP-16), a set of tools to automate the INSPIRE monitoring were developed. The INSPIRE dashboard sandbox facilitates the generation of the INSPIRE monitoring file out of the metadata harvested from the national INSPIRE Discovery service(s). The same technology is also used to display the official monitoring data once it has been reported by the Member States – the public INSPIRE Dashboard, which displays all the INSPIRE monitoring data reported since 2010. While the use of the dashboard is not formally compulsory, Member States are encouraged to use these tools to generate the XML monitoring file, as it clearly simplifies the process. It will also help the European Commission and the EEA to analyse the level of readiness of the Member States towards a fully automated monitoring system based on metadata, as foreseen in Action Plan to streamline environmental reporting¹ published by the Commission in 2017.

These guidelines cover therefore the different aspects related to the 2018 INSPIRE monitoring exercise:

¹ SWD (2017) 230 final

- The general workflow of the INSPIRE annual monitoring and the different options to generate the INSPIRE monitoring file.
- The application schemas to which the INSPIRE XML monitoring file needs to be compliant.
- How to use the INSPIRE web forms available in Reportnet
- How to use the INSPIRE dashboard sandbox to create the monitoring file and to display the national information.
- How to submit formally the monitoring file to the EEA using Reportnet.
- Additional references

DISCLAIMER: This document only aims at supporting Member States in the delivery process of the 2018 INSPIRE monitoring information and does not have any legal value. Member States are legally bound to the provisions laid down by the Commission Decision No 2009/442 of 5 June 2009 implementing Directive 2007/2/EC of the European Parliament.

1. Introduction to the INSPIRE annual monitoring workflow

This chapter describes the general features of the workflow that National INSPIRE reporters need to follow in order to create and submit, by 15 May 2018, the annual INSPIRE monitoring information through the European Environment Agency (EEA) to the European Commission (EC) in pursuance of the INSPIRE Directive (2007/2/EC) and the Commission Decision No 2009/442 as regards monitoring and reporting.

1.1 General overview

As in previous years and since 2013, the INSPIRE monitoring information shall be submitted formally through **Reportnet**², the EEA's electronic infrastructure for data collection. Being operational since 2002, Reportnet is a suite of IT tools optimised to support the business processes of a data collection network building on a shared information infrastructure. It supports, improves and streamlines information flows which are used for reporting environmental data to the EEA, and also hosts several reporting tasks of the EC and other regional and international organisations (e.g. UNECE).

Since 2015, the INSPIRE monitoring exercise is supported by a series of tools (i.e. web forms and dashboard) which were developed in order to simplify, and automatize as much as possible, the creation of the INSPIRE monitoring file. The **web forms** are online questionnaires available in Reportnet which help National reporters to create, modify, save and upload a reporting file (typically XML files). The **INSPIRE dashboard sandbox** is an application which harvests the content of national catalogues on demand, validates the results and automatically creates a compliant INSPIRE monitoring file that can be then uploaded into Reportnet for its formal submission. A **public INSPIRE dashboard** is used by the EEA to display the national monitoring information once they have been formally submitted to the EC.

Building on these tools, and depending on the capacities of the Member States, **two operational workflows can eventually be used to create the INSPIRE monitoring file:**

1) Member States can generate and edit the INSPIRE monitoring file by **directly filling in the INSPIRE web-form** available in Reportnet the information related to their INSPIRE spatial datasets and services as well as organisational information. The web-form then computes automatically the monitoring indicators based on the data entries. Once the file is completed, it can be formally submitted through the national INSPIRE envelope to Reportnet.

2) Member States can generate the INSPIRE monitoring file automatically out of the content of their **INSPIRE National Discovery Service (Catalogue) harvested using the INSPIRE Dashboard sandbox**. This process can be run several times until the monitoring file provides satisfactory results. The file can be then loaded into the INSPIRE web-form available in Reportnet, which also allows the edition of the file before it is formally submitted to the EEA (**Recommended workflow**).

² <https://www.eionet.europa.eu/reportnet>

These two workflows are presented in the diagram below:

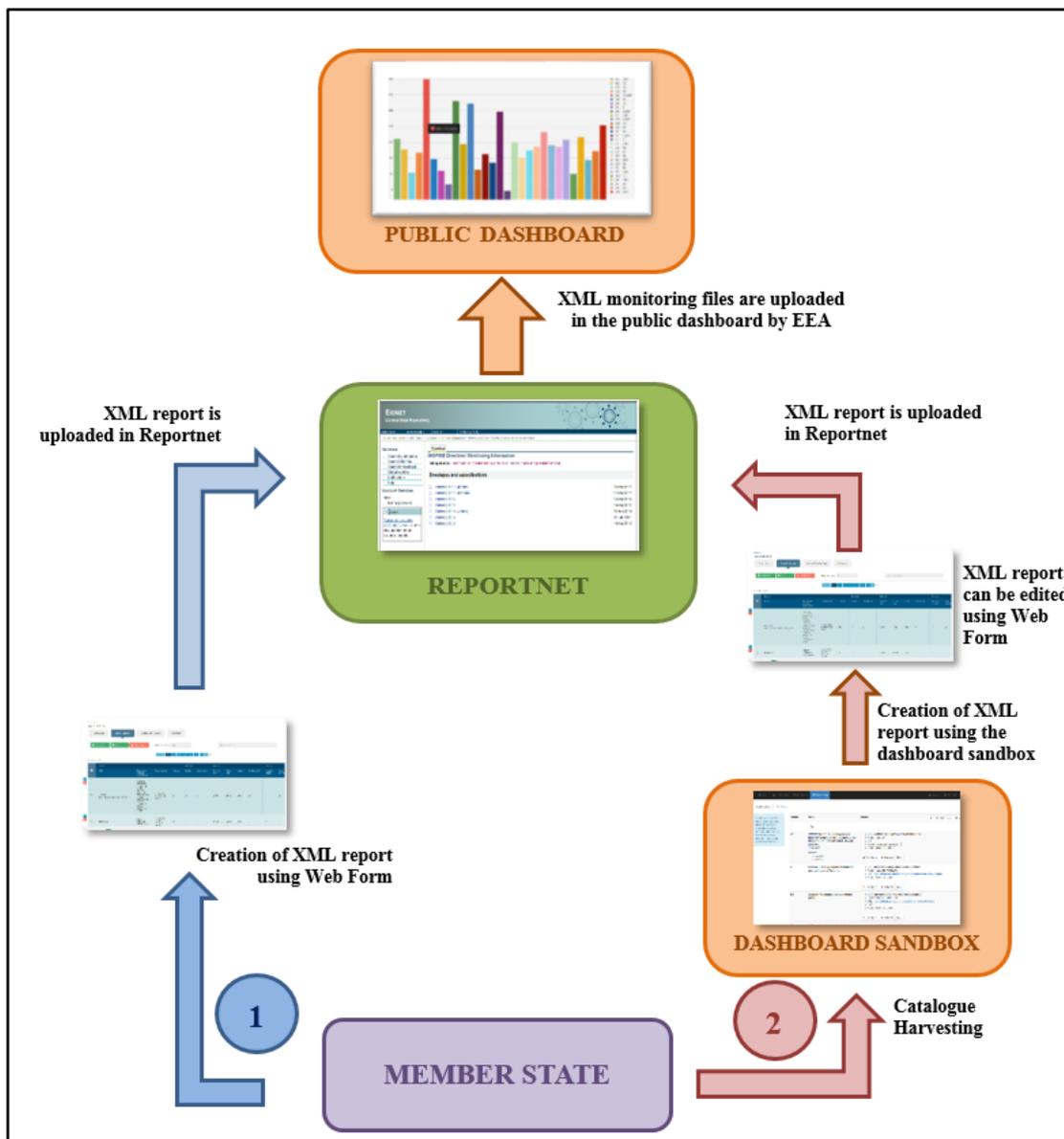


Figure 1: INSPIRE monitoring workflow

The use of the workflow number 2 is recommended as it simplifies and reduces significantly the efforts devoted to the compilation of INSPIRE datasets and services information. It also ensure coherence with the information provided by each Member States through the INSPIRE Geoportal³ -as long as the Discovery Service registered in the Geoportal is the same as the one used in the INSPIRE dashboard sandbox. Lastly, the use of the dashboard to automatize the generation of the monitoring file is encouraged as part of the agenda laid down in the Action Plan to Streamline Environmental Reporting⁴,

³ <http://inspire-geoportal.ec.europa.eu/>

⁴ SWD (2017) 230 final

and especially the actions related to data harvesting and active dissemination of environmental information at European and national level.

The following sections in the document describe how national INSPIRE reporters can use the different tools available for the monitoring submission process in the workflows shown in Figure 1.

Section 2.2 describes **the use of web forms**, both for creating directly the INSPIRE monitoring file by filling in the necessary information or for editing the monitoring file generated using the INSPIRE dashboard sandbox.

Section 2.3 describes **the use of the INSPIRE Dashboard sandbox** to create the inspire monitoring file out of the content of the national catalogues.

Section 2.4 describes how to proceed with the actual submission of the INSPIRE monitoring file to the EEA through the **Central Data Repository (CDR) of Reportnet**.

The **public INSPIRE dashboard**, which builds on the same platform as the INSPIRE dashboard sandbox, is available on <https://inspire-dashboard.eea.europa.eu/official/#/> and contains the INSPIRE monitoring information official from all countries since 2010.

1.2 INSPIRE monitoring file

Since 2015, the INSPIRE monitoring exercise is an **XML-based reporting**. The complex XML schema that describes the content of the INSPIRE monitoring file (**monitoring.xsd**) is stored in the **Data Dictionary** of Reportnet:

Monitoring.xsd: <http://dd.eionet.europa.eu/schema/inspire-monitoring/monitoring.xsd>

This schema in turn refers the following “child” schemas:

- **MonitoringMD.xsd** describes how to encode the information about the organisation responsible for reporting at national level, language and monitoring dates.

MonitoringMD.xsd: <http://dd.eionet.europa.eu/schema/inspire-monitoring/monitoringmd.xsd>

- **Indicators.xsd** describes the indicator-related content as described in the Decision 2009/442/EC.

Indicators.xsd: <http://dd.eionet.europa.eu/schemas/inspire-monitoring/indicators.xsd>

- **RowData.xsd** provides the description of the information needed on spatial datasets and services to compute the indicators.

RowData.xsd <http://dd.eionet.europa.eu/schemas/inspire-monitoring/rowdata.xsd>

- **BasicType.xsd** provides the description of basic types used in the XML file (time, country code).

BasicType.xsd <http://dd.eionet.europa.eu/schemas/inspire-monitoring/basicitype.xsd>

Both the **webforms** and the **INSPIRE dashboard sandbox** allows the creation (and edition) of compliant XML INSPIRE monitoring files as it is explained in Chapter 2. The web forms were also of help for Member States to transition from the Excel sheets used previously to the XML-based monitoring. The **data models** underpinning the application schemas of the INSPIRE monitoring are represented in UML notation in Annex I.

2. User guide

This chapter describes the steps that need to be taken by the INSPIRE reporters when using the tools that have been developed to facilitate the creation and update of the XML monitoring file (the INSPIRE web form and the INSPIRE dashboard sandbox). It also provides some information about the access permission and user accounts to be used in the different tools. Finally, the process of formal submission of the monitoring files through Reportnet is described in the last section of this chapter.

2.1 User accounts and access permissions

Reportnet has been developed and is used by the European Environment Information and Observation Network (Eionet), which requires that any user has an **Eionet account** (user name and password). New users that require access rights to Reportnet services shall contact **Eionet Helpdesk** (helpdesk@eionet.europa.eu), as Eionet user accounts are maintained centrally. Tools and services in domain eionet.europa.eu can be accessed with one user account (although some of these functionalities require specific permissions). Specific permissions, only given to **officially nominated INSPIRE Reporters**, are necessary in order to officially submit the XML monitoring file.

Please inform the EEA⁵ as soon as possible about any update regarding the nominated INSPIRE reporters in your country.

In order to use the **INSPIRE dashboard sandbox** to harvest and create monitoring files it is also necessary that users have an **Eionet account**. However, it is possible for users without specific permissions, or even an Eionet account, to access and use some Reportnet functionalities, in particular, the creation, edition and saving of XML monitoring files using the **INSPIRE web forms** (as explained in section 2.2).

The **public INSPIRE dashboard**⁶, showing the monitoring data reported by Member States since 2010, can be accessed without any login needed.

2.2 INSPIRE Web Forms

As indicated in chapter 1, the web forms available in Reportnet help gather data for reporting obligations in the form of predefined web questionnaire.

Since the 2015 monitoring round, a web form for the INSPIRE monitoring obligation is available in Reportnet with the title “**INSPIRE Monitoring of implementation and use (Article 21)**”, under the “Web Form” section (<http://webforms.eionet.europa.eu/>). As indicated in 2.1, a web form can be created, edited and saved even without an Eionet account.

The INSPIRE web-form can also be accessed directly through the INSPIRE monitoring envelope created by the national reporter as described in section 2.4.

⁵ For this 2018 monitoring exercise, please contact Jose Miguel Rubio (jose.rubio@eea.europa.eu) and Stefan Jensen (Stefan.jensen@eea.europa.eu).

⁶ <https://inspire-dashboard.eea.europa.eu/official/#/>

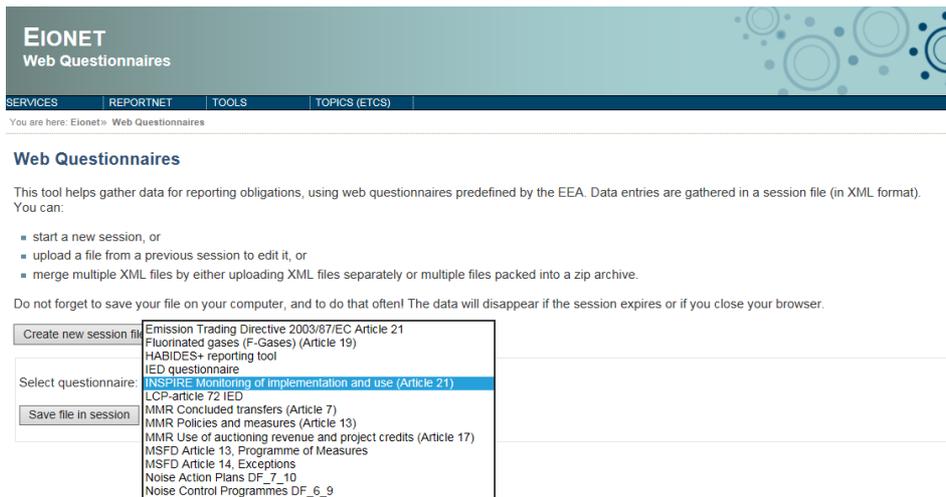


Figure 2: Accessing the INSPIRE monitoring web form

As represented in Figure 1, national reporters can use the web form in different stages of the INSPIRE annual monitoring exercise:

- To **create the INSPIRE XML monitoring file** by filling in directly the monitoring data in the corresponding sections “Contributor”, “Spatial Datasets” and “Spatial Data Services”. The “indicators” section is computed automatically based on the data filled in by the reporters.
- To **review and, edit if necessary, the INSPIRE XML monitoring file** created using the INSPIRE dashboard (**recommended**) as explained in Section 2.3.

2.2.1 Structure of the INSPIRE monitoring web form

The web-form is structured around four main sections, which mirror the content of the INSPIRE monitoring file:

1) Contributor

This section contains the following (general) information:

- **Year the questionnaire refers to:** NOTE for this monitoring exercise, it will be “**2017**”
- **Member State**
- **Organisation**
- **Email**
- **Language**

Annex ---
Inspire monitoring

Contributor Spatial Datasets Spatial Data Services Indicators

Year the questionnaire refers to 2016

Member state Spain

Organization CNIG

Email pabad@fomento.es

Language Español

Figure 3: “Contributor” section of the INSPIRE web form

2) Spatial Datasets

The section contains all the information related to the INSPIRE spatial datasets published and reported by the Member State.

Contributor Spatial Datasets Spatial Data Services Indicators

Multiple rows Row Selected rows Filters: Row validity: -Any- Type here to search...

No sorting specified

General	Metadata		Data set		Services								
UUID	Responsible authority within the MS	Data set name	Themes	Exist?	Conformant?	Relevant area	Actual area	Extent	Conformant?	Metadata access?	View service?	Download service?	View & download services?
500af0de-be87-11e0-be97-002618121484_NGA	Centro de Información Territorial de Aragón. Dirección General de Ordenación del Territorio, Departamento de Política Territorial e Interior. Gobierno de Aragón.	Nomenclador Geográfico de Aragón	1.3	✓	✓	47720	47720	100%	x	✓	x	✓	x
spainNGE	Instituto Geográfico Nacional (IGN)	Nomenclador Geográfico Básico de España	1.3	✓	✓	505990	505990	100%	✓	✓	✓	✓	✓
spain/nomenclator/CV2015	Acadèmia Valenciana de la Llengua	Nomenclador Toponímic Valencià	1.3	✓	✓	23254	23254	100%	x	✓	✓	x	x
ES_GFA.GN.MD	Gipuzkoa Provincial Council	Geographical names of Gipuzkoa, INSPIRE	1.3	✓	✓	1980	1980	100%	✓	✓	✓	✓	✓
098026A60-38F1-4DC6-BACA-809480209AC2L_1200011.es	Instituto de Estadística y Cartografía de Andalucía. Consejería de Economía y Conocimiento. Junta de Andalucía	Nomenclador Geográfico de Andalucía (NGA)	1.3	✓	✓	87597	87597	100%	✓	✓	x	✓	x
spainLLMZ013	Instituto Geográfico Nacional (IGN)	Base de Datos de Límites jurisdiccionales de España	1.4	✓	✓	505990	505990	100%	✓	✓	✓	✓	✓
IDE_DPA_DivAdmin	Servicio de Ordenación del Territorio y Urbanismo. Sección de Información Territorial. Diputación Foral de Álava	Divisiones Administrativas del Territorio Histórico de Álava	1.4	✓	✓	3037	3037	100%	x	✓	✓	x	x
ES_GFA.AU.MD	Gipuzkoa Provincial Council	Administrative units of Gipuzkoa, INSPIRE	1.4	✓	✓	1980	1980	100%	✓	✓	✓	✓	✓
spain_cartocuidad_addresses	Instituto Geográfico Nacional (IGN)	Direcciones de CartoCiudad	1.5	✓	✓	505990	505990	100%	✓	✓	✓	✓	✓
ES_GFA.AD.MD	Gipuzkoa Provincial Council	Addresses of Gipuzkoa, INSPIRE	1.5	✓	✓	1980	1980	100%	✓	✓	✓	✓	✓

Figure 4: “Spatial Datasets” section of the INSPIRE web form

Per each spatial dataset, the following information needs to be added:

- Dataset **name**
- Dataset **UUID** (i.e.: metadata file identifier)
- **Responsible authority** of the dataset within the MS
- INSPIRE **themes** covered by the dataset
- **Existence of metadata.**
- **Conformity of metadata** with the implementing rules referred to by the Article 5(4) of the INSPIRE Directive.
- **Relevant area** to be covered by the dataset
- **Actual area** covered by the dataset

- **Conformity of datasets** with the implementing rules referred to by the Article 7(1) of the INSPIRE Directive.
- Accessibility of the metadata through a **discovery service** (described by its UUID)
- **View service** associated to the dataset (and corresponding UUID)
- **Download service** associated to the dataset (and corresponding UUID)

General			
Responsible authority within the MS	Instituto Geográfico Nacional (I	Themes	x 1.5 Addresses
Data set name	Direcciones de CartoCiudad	Data set uuid	spaign_cartociudad_addresses
Metadata			
Exists?	<input checked="" type="checkbox"/>	Conformant?	<input checked="" type="checkbox"/>
Data set			
Relevant area	505990	Actual area	505990
Extent	100%	Conformant?	<input checked="" type="checkbox"/>
Services			
Metadata access	<input checked="" type="checkbox"/>	Discovery service uuid	<input type="button" value="🔗"/> Servicio de Catálogo Oficial de Datos y ...
View service	<input checked="" type="checkbox"/>	View service uuid	<input type="button" value="🔗"/> WMS del Mapa Base de España [spaign...
Download service	<input checked="" type="checkbox"/>	Download service uuid	<input type="button" value="🔗"/> WFS de Direcciones de CartoCiudad [sp...

Figure 5: Detailed information related to a specific spatial dataset

3) Spatial Data Services

The section contains all the information related to the INSPIRE spatial data services published and reported by the Member State.

General		Metadata				Service		Network service				
UUID	Responsible authority within the MS	Service name	Themes	Existes?	Conformant?	Network service?	MD accessible?	Service type	Directly accessible?	Conformant?	Use	URL
spacodiscw	CNIG en nombre del Consejo Superior Geografico	Servicio de Catalogo Oficial de Datos y Servicios Inspire de España(CODS)	I.1, I.2, I.3, I.4, I.5, I.6, I.7, I.8, I.9, II.1, II.2, II.3, I.4, III.1, III.2, III.3, III.4, III.5, III.6, III.7, III.8, III.9, III.10, III.11, III.12, III.13, III.14, III.15, III.16, III.17, III.18, III.19	✓	✓	✓	✓	Discovery service	✓	✓	-1	http://www.idee.es/csw-codsi/?gwcsw=REQUEST+GetCapabilities+SERVICE=CSW

Figure 6: “Spatial Data Services” section of the INSPIRE web form

Per each service, the following information needs to be added:

- Data service **name**
- Data service **UUID** (i.e. metadata file identifier)
- **Responsible authority** of the service within the MS
- INSPIRE **themes** covered by the service
- **Existence of metadata**.
- **Conformity of metadata** with the implementing rules referred to by the Article 5(4) of the INSPIRE Directive.
- Accessibility of the metadata through a **discovery service** (described by its UUID)
- Direct accessibility of the service
- **Only for network services:**
 - **Type** of network service (i.e. view, download, discovery, transformation, invoke)
 - **Conformity** of the network service with the implementing rules referred to by the Article 16 of the INSPIRE directive
 - **Use** of the network service (annual number of service requests)
 - **URL** of the network service (GetCapabilities request)

General

Responsible authority within the MS: Instituto Geográfico Nacional (IGN)

Data service name: WFS de Direcciones de CartoCiudad

Data service uuid: spaignwfs_cartociudad_address

Themes: x 1.5 Addresses

Metadata

Exists? Conformant?

Service

Network service? MD accessible?

Discovery service uuid: Servicio de Catálogo Oficial de Datos y ...

Network service

Service type: Download service Directly accessible?

Compliant? Use: -1

URL (in the form of a GetCapabilities request to the service)

URL: <http://www.cartociudad.es/wfs-inspire/direcciones?service=WFS&request=GetCapabilities&version=2.0.0>

Save Cancel

Figure 7: Detailed information related to a specific spatial data service

4) Indicators

This section contains all **the general and specific indicators** as defined in the Commission Decision 2009/442/EC as regards monitoring and reporting **automatically calculated** using the data filled in under “Spatial Datasets” and “Spatial Data Services”.

Contributor									
Spatial Datasets									
Spatial Data Services									
Indicators									
	Metadata			Data Sets		Services			
	Existence	Compliance		Existence	Compliance	MD Accessibility	DS Accessibility	Use	Compliance
Indicator Name	MDI1	MDI2		DSI1	DSI2	NSI1	NSI2	NSI3	NSI4
Indicator Value	100%	100%		100%	10.03%	100%	62.36%	0	12.74%
Numerator	530	530		105819832	28	530	174	0	32
Denominator	530	530		105819832	279	530	279	251	251
Spatial Data Sets									
All Annexes									
SubInd. Name							NSI1.1		
SubInd. Value							100%		
Numerator							279		
Denominator							279		
Annex I									
SubInd. Name	MDI1.1	MDI2.1		DSI1.1	DSI2.1				
SubInd. Value	100%	100%		100%	37.5%				
Numerator	48	48		19449173	18				
Denominator	48	48		19449173	48				
Annex II									
SubInd. Name	MDI1.2	MDI2.2		DSI1.2	DSI2.2				
SubInd. Value	100%	100%		100%	22.72%				
Numerator	22	22		8688409	5				

Figure 8: “Indicators” section of the INSPIRE web form

Per indicator (general and specific), the web form displays:

- Indicator Name (as defined in the Commission Decision 2009/442/EC)
- Indicator Value (ratio expressed in percentage)
- Numerator (of the ratio)
- Denominator (of the ratio)

For a **complete description of the current INSPIRE monitoring indicators** please refer to the full text of the Commission Decision 2009/442/EC⁷.

2.2.2 Save and Preview options

The web form can be edited and saved using the “**Save WebForm**”. A preview of the information can be obtained by clicking on “**Print Preview**”. To exit without saving the changes, click on “**Close Webform**” and select “**Yes**”.

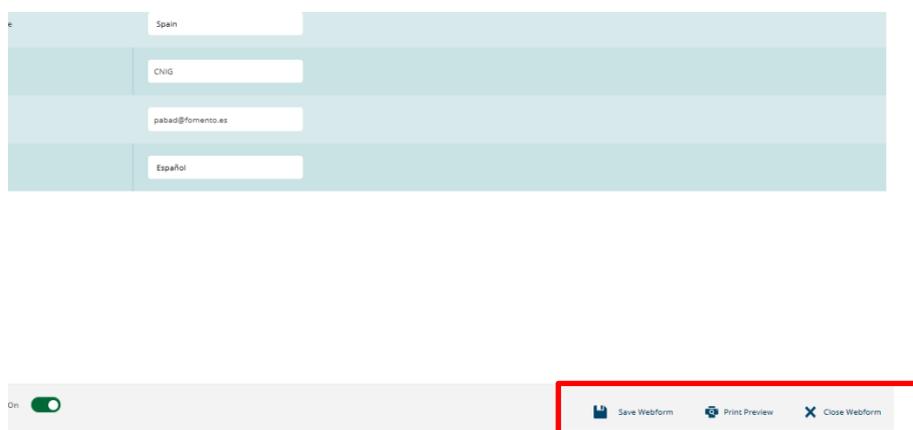


Figure 9: Save, print and close options of the INSPIRE web forms

In section 3.2, links are provided to several videos created in order to guide the reporters when using the web forms.

2.3 INSPIRE dashboard sandbox

Since the 2015 monitoring round, a set of tools have been made available to the Member States to generate a monitoring XML file out of the metadata records contained in their national discovery service (catalogue). These tools are the result of the work carried out by the experts of the MIG/MIWP-16 subgroup⁸. Released under an open-source licence, some Member States have deployed them in their infrastructure and are further developing them. The source code is available on <https://github.com/INSPIRE-MIF/daobs/>.

⁷ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ%3AL%3A2009%3A148%3A0018%3A0026%3AEN%3APDF>

⁸ Final activity report available on: https://ies-svn.jrc.ec.europa.eu/attachments/download/1420/MIG_MIWP-16_activity_report_v1.pdf

In 2017, the INSPIRE dashboard has undergone a series of changes in order to migrate to a different data visualization platform (Kibana⁹) since the previous one (Banana¹⁰) is no longer maintained, as well as to improve stability and incorporate new features.

The dashboard to be used by Member States to create the XML monitoring file is now available on <https://sandbox-inspire-dashboard.eea.europa.eu/#/>. As indicated in 2.1, it requires the use of the **Eionet login and password** to use all its functionalities.

The dashboard provides Member States the possibility to:

- Harvest one or several discovery service end-points (and configure some harvesting parameters).
- Compute the indicators based on the harvested data or a subset of them (e.g. to calculate indicators corresponding to the metadata provided by one responsible authority only).
- Display the indicators and related variables in a dashboard similar to the dashboard for monitoring data officially reported by Member States (INSPIRE public dashboard¹¹). This provides an easy way to visualise (and analyse) the performance on the various indicators.

2.3.1 Practical steps to use the INSPIRE dashboard sandbox

The technical user guide for the dashboard including screenshots of the different steps in order to launch the harvesting and generate the XML reports is available on <https://github.com/INSPIRE-MIF/daobs/blob/2.0.x/doc/USER-GUIDE.md>. This document will therefore only present **the main steps that Member States need to follow** and refers to the guide above for any technical detail in this process.

- 1) Log in using **Eionet user and password** on <https://sandbox-inspire-dashboard.eea.europa.eu/#/>

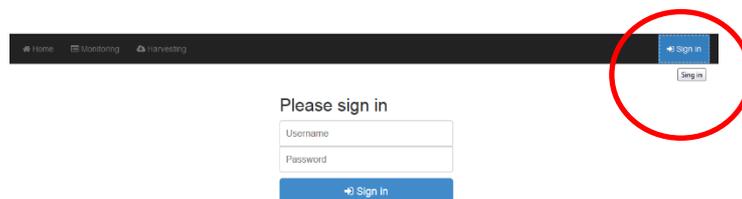


Figure 10: Login into the INSPIRE dashboard sandbox

- 2) Ensure the **National Discovery Service** is listed under “**Harvesting**”, “**Configuration**” tab. The list provides all national discovery services as they are listed in the INSPIRE geoportal. In case your discovery service is not listed, it can be added by clicking on the button “+” as shown in the figure below:

⁹ <https://www.elastic.co/products/kibana>

¹⁰ <https://github.com/lucidworks/banana>

¹¹ Currently available on <https://inspire-dashboard.eea.europa.eu/official/#/>

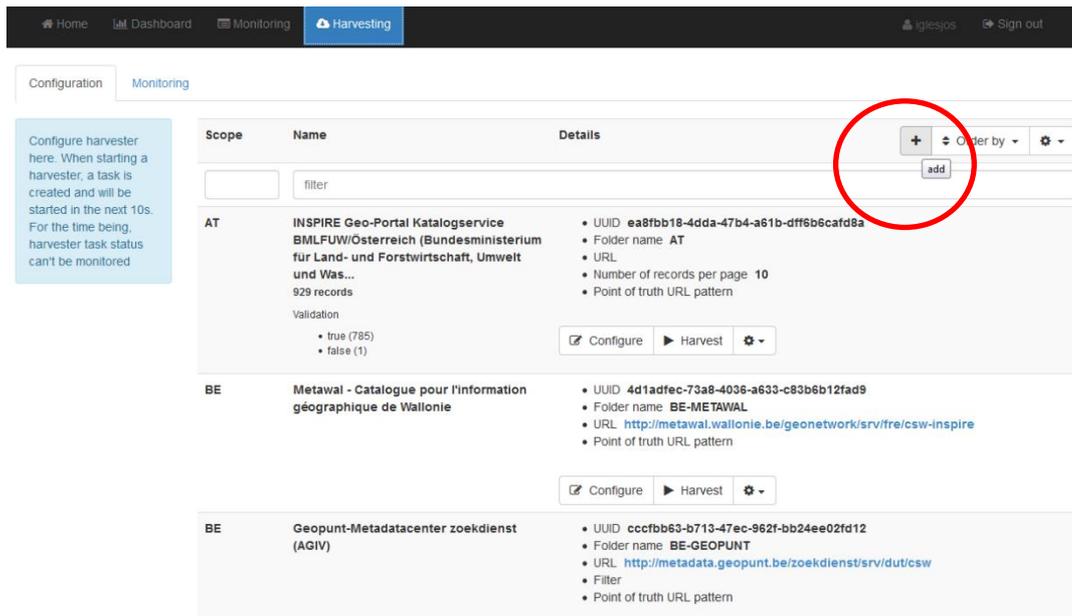


Figure 11: List of harvested catalogues and how to add a new node

To add an additional discovery service it is necessary to fill in the details shown in the following screenshot:

The 'Details' form is used to configure a new discovery service. It contains the following fields and descriptions:

- Area:** A text input field. Description: 'Area is usually a simple code to group a set of records. eg. country codes, admin unit codes.'
- Name:** A text input field.
- URL:** A text input field with the value 'http://catalog.organisation.net/csw'. Description: 'URL of the CSW service URL without parameters (eg. REQUEST=GetCapabilities)'
- Filter:** A text input field with the value '<ogc:Filter ...'. Description: 'A valid OGC filter to retrieve a subset of records from the service'
- Folder name:** A text input field. Description: 'Usually same value as area'
- Point of truth URL pattern:** A text input field with the value 'http://'. Description: 'The URL should contains a token like '{{uid}}' to insert the metadata record identifier.'
- Service metadata:** A text input field with the value 'Service metadata'. Description: 'Service metadata'
- Number of records per page:** A text input field with the value '200'. Description: 'If not set 200 records are retrieved per pages'
- UUID:** A text input field. Description: 'Unique identifier'

At the bottom of the form, there are two buttons: 'Cancel' and 'Save harvester'.

Figure 12: Details to be filled on the harvesting node

In case a new discovery service needs to be added, or the configuration of the discovery services already listed in the dashboard sandbox requires some changes, please inform the EEA.

3) The **harvesting** of the National Discovery Service is launched when  is clicked upon. The interface shown in 2) will display the harvesting status.

Area	Name	Details
NL	filter	
NL	Nationaal Georegister (BeheerPDOK) 348 records / 349 records (in CSW)	<ul style="list-style-type: none"> • UUID 0a8b54e3-a216-43aa-a132-096eb72197cc • Folder name NL • URL http://www.nationaalgeoregister.nl/geonetwork/srv/dut/inspire • Point of truth URL pattern
	Validation <ul style="list-style-type: none"> • true (15) • false (14) • missing (319) ETF Validation <ul style="list-style-type: none"> • missing (348) 	<div style="text-align: right;"> <input type="button" value="Configure"/> <input type="button" value="Harvest"/> <input type="button" value="Settings"/> </div>

Figure 13: Harvesting status

It is important to ensure that the harvesting has proceeded without problems and that it has been successfully completed. In case a Member State finds problems when harvesting their catalogues please contact the EEA.

4) After harvesting, the dashboard analyses the links between datasets and services and then runs the INSPIRE validation. The validation tool used is the **INSPIRE Geoportal Metadata Validator**¹². A record is marked as valid if the completeness indicator returned by the validator is **above 75%**.

In case only a subset of records are validated, users can click the “**INSPIRE Validation (non-validated record)**” to retry the validation.

5) Once the harvesting process has been completed, the XML monitoring file can be generated under “**Monitoring**”, “**Create Monitoring**” tab.

Monitoring summary
Create monitoring
Submit monitoring

The following forms provides the capability to create a report based on harvested records.

Choose report type

Choose scope

Query filter

eg. to select only dataset use '+resourceType:dataset', to select based on point of contact use '+OrgForResource:RIVM'.

Reporting date

Define a specific date for the report. If not set, date is now.

Report identifier

This field allows to define a custom report identifiers which will be used as the scope once indicator are loaded. This is useful to make distinction between reports made with custom filters (eg. computing indicators for a specific organization).

Figure 14: Creation of the monitoring file

¹² <http://inspire-geoportal.ec.europa.eu/validator2/>

In order to do so, users should follow the steps below:

5.1 Choose **type of report** to be generated (“inspire” or “inspire-first-theme-only”)¹³

5.2 Choose **scope** (i.e. the country the monitoring refers to)

5.3 Optionally define **user facets** or **query filter** to subset records in the catalogue, as well as reporting date and identifier.

5.4 **Preview** how the indicators will be computed in the report

The screenshot shows a web interface for configuring a monitoring report. On the left, there are three main sections: 'Choose monitoring' with a dropdown set to 'inspire-first-theme-only' and a 'View report rules' link; 'Choose reporting area' with a dropdown set to 'NL'; and 'Query filter' with an empty text box and a help icon. Below the query filter, there is a note: 'eg. to select only dataset use '+resourceType:dataset', to select based on point of contact use '+OrgForResource:RIVM'. On the right, under 'Contact details', there are input fields for 'Language', 'Organization', and 'Email'. A note below these fields states: 'Contact informations are required when generating INSPIRE reporting to indicate report contact.' At the bottom of the configuration area, a blue box indicates '348 record(s) matching current filter.' Below this, there are 'Preview' and 'Download' buttons.

Report on **Monitoring Indicators** generated for **NL** based on **348 record(s)**

The table below shows the list of variables and indicators computed for the selected area. It may also reports any errors encountered during computation.

Name	Value
DSI2	%age of conformant spatial data sets with conformant metadata for all Annexes .21
DSI21	%age of conformant spatial data sets with conformant metadata for Annex I .36
DSI22	%age of conformant spatial data sets with conformant metadata for Annex II .30
DSI23	%age of conformant spatial data sets with conformant metadata for Annex III .12

Figure 15: Preview of the indicators calculated after the harvesting

5.5 Download the XML monitoring file. There are several options that are proposed¹⁴, as shown in the figure below:

The screenshot shows a dropdown menu for the 'Download' button. The menu lists several options: 'INSPIRE monitoring format (indicators only)', 'INSPIRE monitoring format with row data', 'INSPIRE monitoring format with row data (using only first INSPIRE theme for dataset)', 'INSPIRE monitoring format with row data (duplicating dataset for each of its INSPIRE themes)', 'XML format', and 'JSON format'. The 'XML format' option is highlighted.

Figure 16: Downloading the XML monitoring file

¹³ As explained in the Final Activity Report of the MIG/MIWP-16 –see above-, the creation of the monitoring file via the INSPIRE dashboard provides two scenarios: i) computing indicators based only on the first INSPIRE themes only (“inspire-first-theme-only” report) and ii) compute indicators based on all INSPIRE themes, in which case the dataset or service containing more than one INSPIRE theme will be take into account for each theme (“inspire” report)

¹⁴ Ibid.

It is important to **add contact details** as indicated in Figure 17, as this is required in the XML monitoring file and cannot be added automatically from the harvested service¹⁵.

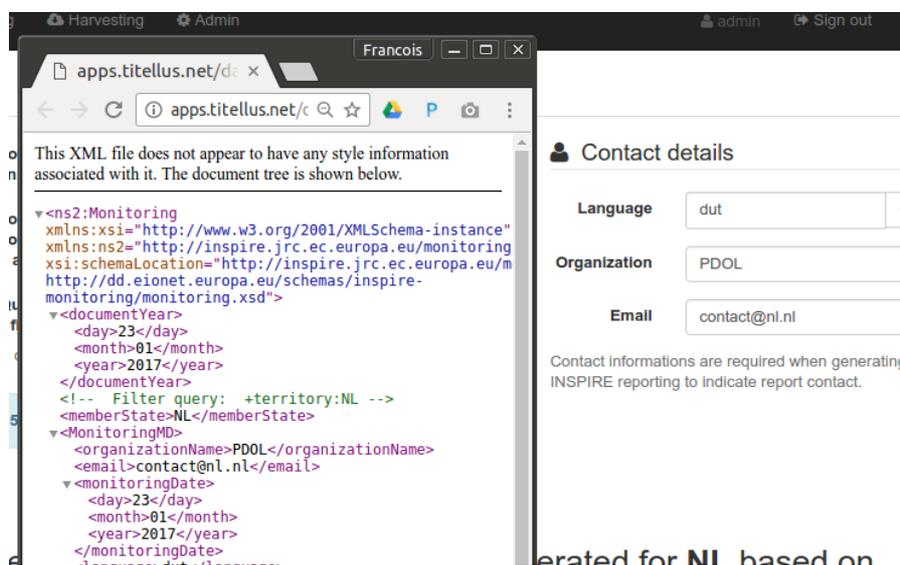


Figure 17: Filling in contact details

The XML monitoring file can then be displayed in Reportnet using the INSPIRE web form, as described in Section 2.2 before it is formally submitted to the EEA as described in the following section. Since the information related to the **geographical coverage** and **use of the services** cannot be harvested from the national catalogues, the web form can also be used to edit the XML file and include this information.

In section 3.2, links are provided to several videos created in order to guide the reporters when using the dashboard sandbox.

2.3.2 Use of the INSPIRE dashboard sandbox to display national monitoring information

Member States can also use the dashboard sandbox to analyse the content of their catalogues as well as to display the data included in the XML monitoring file they have just generated.

The tool provide default dashboards to present information about the catalogue and the monitoring indicators. The list of available dashboards is displayed on the home page (see Figure 18).

¹⁵ Users can always add this information using the web forms as explained in 2.2 or by editing directly the XML file.

Outline for	INSPIRE official monitoring dashboards
	INSPIRE Country fiche (beta)
	INSPIRE EU dashboard
	INSPIRE EU dashboard (without EFTA countries)
	INSPIRE Indicator trends
	INSPIRE Indicators thematic map (beta)
	INSPIRE Indicators thematic map (without EFTA countries) (beta)
	INSPIRE Member State and EFTA countries dashboard
	INSPIRE Monitoring indicator values
	INSPIRE Monitoring Raw Data statistics
Dashboards	
Catalogue statistics	
Catalogue validation reports	
Service validation report (ETF)	

Figure 18: Dashboards to monitor indicators and catalogue statistics

To review the content of the catalogue, the dashboard “**catalogue statistics**” provides an overview of the content of the catalogue (e.g. records per INSPIRE themes, per service type, per spatial type) as shown in Figure 19:

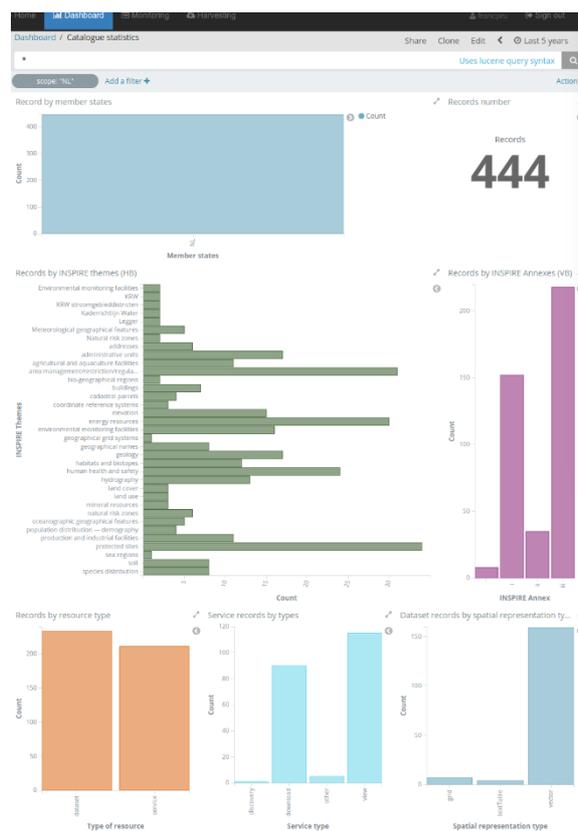


Figure 19: Dashboard “catalogue statistics”

All these dashboards can be customized and improved using the functionalities of the web interface of the dashboard application (based on Kibana).

In order to display the information related to the monitoring indicators computed in 2.3.1, users will need to select under “**Monitoring**” the “**Submit Monitoring**” tab. Thereafter, upload the XML monitoring file created and click on “**Submit Monitoring**”. The import will be finished when the application shows the message “*Monitoring_file_name.xml* imported as shown below.

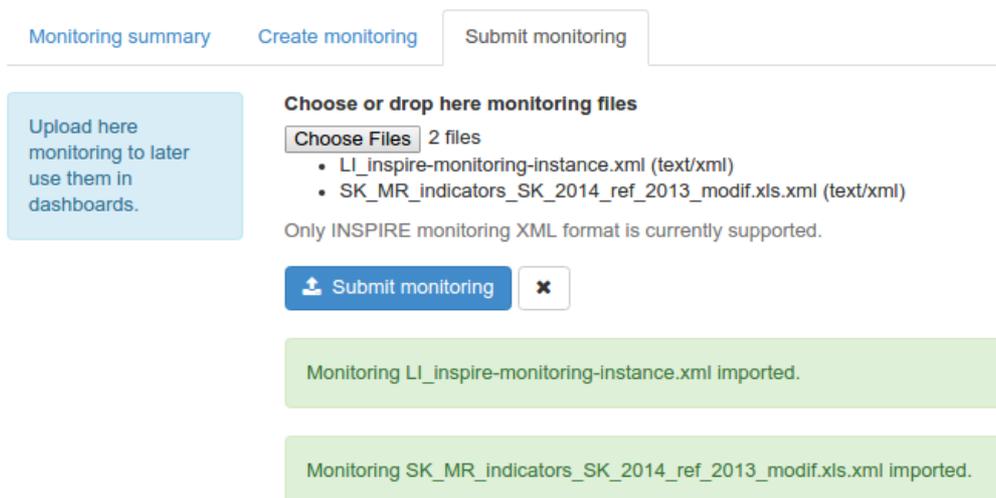


Figure 20: Import XML monitoring data into the dashboard

More information about the use of dashboards to analyse the content of a catalogue and to display information is provided in the User Guide <https://github.com/INSPIRE-MIF/daobs/blob/2.0.x/doc/USER-GUIDE.md>, as this is out of the main scope of this document.

2.4 Formal submission of the INSPIRE monitoring file in Reportnet

Created either using only the web-form or after harvesting the national catalogue with the INSPIRE dashboard sandbox, the XML monitoring file needs to be formally submitted by the National INSPIRE reporter in Reportnet. This section describes this process.

2.4.1 The Central Data Repository (CDR) and the national INSPIRE folder

In order to formally submit the INSPIRE monitoring file, national reporters need to access the **INSPIRE folder of their respective country folders in the EEA’s Central Data Repository (CDR)**. The CDR is part of the Reportnet architecture, and it is like a bookshelf containing the reports on the environment submitted by EEA Member Countries, other countries and international organisations.

The table below provides the links to each country’s INSPIRE folders in CDR:

Table 1: National INSPIRE folders in the CDR

Country	URL to INSPIRE folder in EEA Central Data Repository (CDR)
Austria	http://cdr.eionet.europa.eu/at/eu/inspire
Belgium	http://cdr.eionet.europa.eu/be/eu/inspire
Bulgaria	http://cdr.eionet.europa.eu/bg/eu/inspire
Croatia	http://cdr.eionet.europa.eu/hr/eu/inspire
Cyprus	http://cdr.eionet.europa.eu/cy/eu/inspire

Czech Republic	http://cdr.eionet.europa.eu/cz/eu/inspire
Denmark	http://cdr.eionet.europa.eu/dk/eu/inspire
Estonia	http://cdr.eionet.europa.eu/ee/eu/inspire
Finland	http://cdr.eionet.europa.eu/fi/eu/inspire
France	http://cdr.eionet.europa.eu/fr/eu/inspire
Germany	http://cdr.eionet.europa.eu/de/eu/inspire
Greece	http://cdr.eionet.europa.eu/gr/eu/inspire
Hungary	http://cdr.eionet.europa.eu/hu/eu/inspire
Iceland	http://cdr.eionet.europa.eu/is/eu/inspire
Ireland	http://cdr.eionet.europa.eu/ie/eu/inspire
Italy	http://cdr.eionet.europa.eu/it/eu/inspire
Latvia	http://cdr.eionet.europa.eu/lv/eu/inspire
Liechtenstein	http://cdr.eionet.europa.eu/li/eu/inspire
Lithuania	http://cdr.eionet.europa.eu/lt/eu/inspire
Luxembourg	http://cdr.eionet.europa.eu/lu/eu/inspire
Malta	http://cdr.eionet.europa.eu/mt/eu/inspire
Netherlands	http://cdr.eionet.europa.eu/nl/eu/inspire
Norway	http://cdr.eionet.europa.eu/no/eu/inspire
Poland	http://cdr.eionet.europa.eu/pl/eu/inspire
Portugal	http://cdr.eionet.europa.eu/pt/eu/inspire
Romania	http://cdr.eionet.europa.eu/ro/eu/inspire
Slovakia	http://cdr.eionet.europa.eu/sk/eu/inspire
Slovenia	http://cdr.eionet.europa.eu/si/eu/inspire
Spain	http://cdr.eionet.europa.eu/es/eu/inspire
Sweden	http://cdr.eionet.europa.eu/se/eu/inspire
Switzerland	http://cdr.eionet.europa.eu/ch/eu/inspire
United Kingdom	http://cdr.eionet.europa.eu/gb/eu/inspire

As the art. 21 of the INSPIRE Directive and accordingly the Commission Decision No 2009/442 foresee two obligations, a yearly monitoring and a three-yearly reporting exercise, each national INSPIRE folder contains therefore two subfolders (“INSPIRE Directive: Monitoring Information” and “INSPIRE Directive: Country Reports”), each linked to one of the mentioned obligation. In 2018, **only the monitoring obligation is applicable** and therefore this document only addresses the submission of this information through the folder “**INSPIRE Directive: Monitoring Information**”.

The folder “**INSPIRE Directive: Monitoring Information**” is linked to the INSPIRE Directive 2007/2/EC monitoring obligation in the EEA reporting obligations database (ROD)¹⁶. The ROD is also part of Reportnet and contains the environmental reporting obligations that countries have towards international organisations.

2.4.2 Creation of envelopes and submission of the monitoring file

In order to **upload the XML monitoring file** into the “INSPIRE Directive: Monitoring Information” folder for the specific country, these are the steps that national reporters shall follow:

1) **Log in** using the reporter’s Eionet user name and password as shown in the example below.



Figure 21: Login in the national INSPIRE folder in CDR

2) **Create a new envelope** to host the data to be submitted. It is recommended to add a meaningful title for the envelope, including the year in which the data has to be submitted, e.g. “Delivery 2013”, “Delivery 2014”, etc. Please also include the year covered by the dataset (in this case, it will refer to the previous year). Envelope “description” and “coverage note” fields are optional.

New envelope

3) **Open the new envelope** by clicking on its title.

4) **Activate the task**, by clicking on the related button. Activating means that the national reporter has reserved the envelope to work on. Other users will not be able to modify it. The new envelope is now in **Draft** status and files can be added.

Activate task

5) There are **different options** to upload the XML INSPIRE monitoring file:

- **Upload** directly the XML monitoring file that follows the most up-to-date schema, for your country from your own system using the “**Add file**” option.

Add file

- You can alternatively add and edit the INSPIRE web form (“**Inspire monitoring questionnaire**”). The process of how to fill in the web form is explained in section 2.2.

Add and edit a **Inspire monitoring** questionnaire

- If the monitoring sheet or XML file is available from a national web site, reporters can upload a link to its exact location (“**Add hyperlink**”)

Add hyperlink

¹⁶ <http://rod.eionet.europa.eu/obligations/692>

6) Once the reporter has uploaded the correct and complete monitoring information, the delivery shall be completed by **releasing the envelope**. The purpose of release is to signal that **the data have been delivered** and Reportnet will issue and save an **automated official confirmation letter from the EEA**. Once the envelope has been released, the national INSPIRE monitoring information is typically made publicly available in the Reportnet Central Data Repository (CDR).

Release envelope

2.4.3 Redeliveries and finish

The envelope is currently released and the EEA may have uploaded some feedback thereafter. The Member State can then update the delivery as a reaction to the feedback (e.g. upload a new file or remove a wrong one). In order to do so, the reporter shall click on "**Back to drafting**" to revoke the release and brings the reporter to section 2.4.2. The reporter will have to activate the task (as before), add or remove files and eventually release the envelope again.

If there is no need to revoke the release and the report is final, then click on "**Finish**".

The screenshot shows the EIONET Central Data Repository interface. The main content area displays details for a 'Delivery 2013'. The status section indicates that the task is waiting to be assigned, with a red arrow pointing to the 'Activate task: Redeliver or Finish' link. The interface also includes a navigation menu on the left and a breadcrumb trail at the top.

Figure 22: Redeliver of finish

3. References

This chapter provides legal references underpinning the annual INSPIRE monitoring obligation and additional material in order to support INSPIRE national reporters in the 2018 monitoring exercise.

3.1 Legal references

The legal references to the annual INSPIRE monitoring are the **art. 21 of the INSPIRE Directive (2007/2/EC)**¹⁷ and the **Commission Decision No 2009/442 as regards monitoring and reporting**¹⁸, which are the rules for the implementation of the art. 21.

3.2 Tutorials

The webpage <http://published-files.eea.europa.eu/> contains some short screencasts (without sound) on how to use the INSPIRE dashboard sandbox and the INSPIRE web forms available in Reportnet. Please note that these were created for a previous monitoring exercise, but the information provided is still valid for this year:

- http://published-files.eea.europa.eu/webcast/monitoring_indicator_auto_generation.mp4 shows how to preview the content of the monitoring file using the dashboard sandbox (after harvesting).
- http://published-files.eea.europa.eu/webcast/monitoring_indicator_auto_generation_editing_webform.mp4 shows how to generate the monitoring file and how it can then be edited using the web forms available in Reportnet.
- http://published-files.eea.europa.eu/webcast/monitoring_indicator_auto_generation_filtering.mp4 indicates how to create filters in the dashboard.
- http://published-files.eea.europa.eu/webcast/webform_contributor.mp4 explains how to fill in the “Contributor tab” of the web-form.
- http://published-files.eea.europa.eu/webcast/webform_dataset_service_single.mp4 provides an example of how to fill in the information related to a spatial dataset and a spatial data service in the web form and how to associate a dataset to a specific network service.
- http://published-files.eea.europa.eu/webcast/webform_printing.mp4 indicates shows how to print a preview of the form in PDF format.
- http://published-files.eea.europa.eu/webcast/webform_xls_xml.mp4 aims at helping those countries still using Excel monitoring sheets (XLS) to collect monitoring information to convert it to a XML file using the webform.

¹⁷ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2007:108:0001:0014:en:PDF>

¹⁸ <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32009D0442&from=EN>

3.3 Additional references

This section presents other important reference material relevant to the INSPIRE monitoring process:

INSPIRE knowledge base – section on Monitoring and Reporting:

<https://inspire.ec.europa.eu/monitoring-and-reporting/69>

Final Activity Report of the MIG/MIWP-16 (subgroup on monitoring):

[https://ies-svn.jrc.ec.europa.eu/attachments/download/1420/MIG MIWP-16 activity report v1.pdf](https://ies-svn.jrc.ec.europa.eu/attachments/download/1420/MIG_MIWP-16_activity_report_v1.pdf)

Fitness Check on Reporting and Monitoring:

http://ec.europa.eu/environment/legal/reporting/fc_overview_en.htm

About Reportnet and Eionet:

About Reportnet: <http://www.eionet.europa.eu/reportnet>

CDR on-line help – including also the latest version of this document: <http://cdr.eionet.europa.eu/help>

About Eionet: <http://www.eionet.europa.eu/about>

Eionet Helpdesk: helpdesk@eionet.europa.eu.

About the INSPIRE dashboard:

User Guide: <https://github.com/INSPIRE-MIF/daobs/blob/2.0.x/doc/USER-GUIDE.md>

Maintainer Guide: <https://github.com/INSPIRE-MIF/daobs/blob/2.0.x/doc/MAINTAINER-GUIDE.md>

Contributor Guide: <https://github.com/INSPIRE-MIF/daobs/blob/2.0.x/doc/CONTRIBUTOR-GUIDE.md>

Annex I UML class diagrams of the INSPIRE monitoring

The data models underpinning the application schemas of the INSPIRE XML monitoring are shown below:

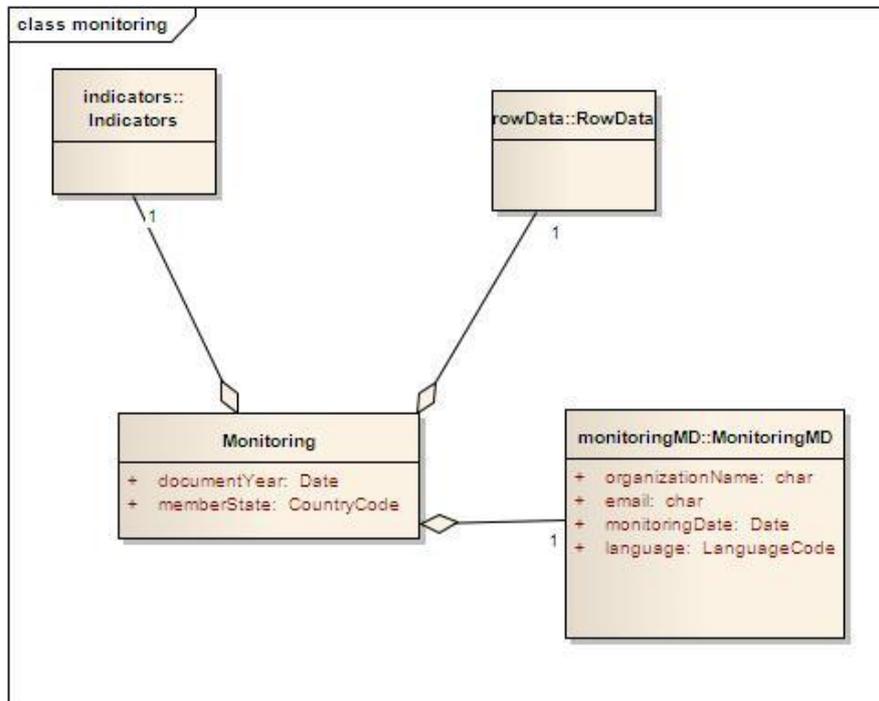


Figure I.1: Monitoring Class Diagram

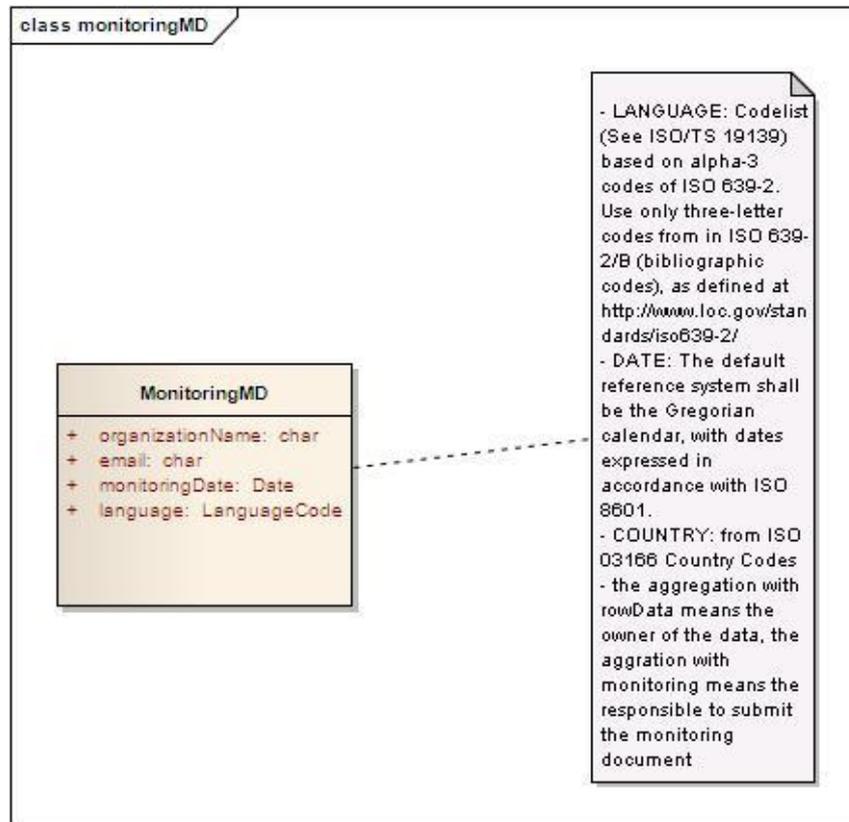


Figure I.2: Monitoring MD Class Diagram

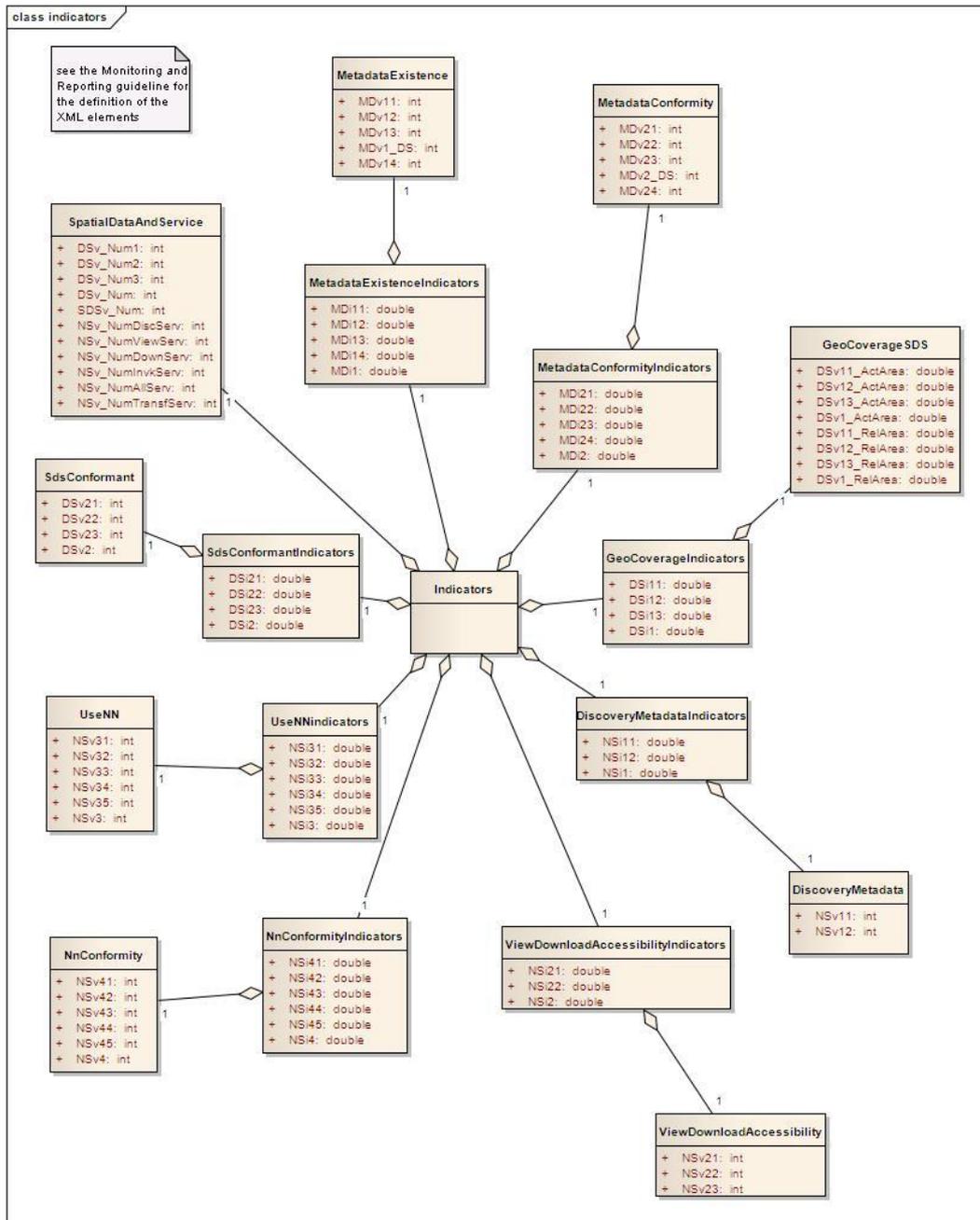


Figure I.3: Indicators Class Diagram

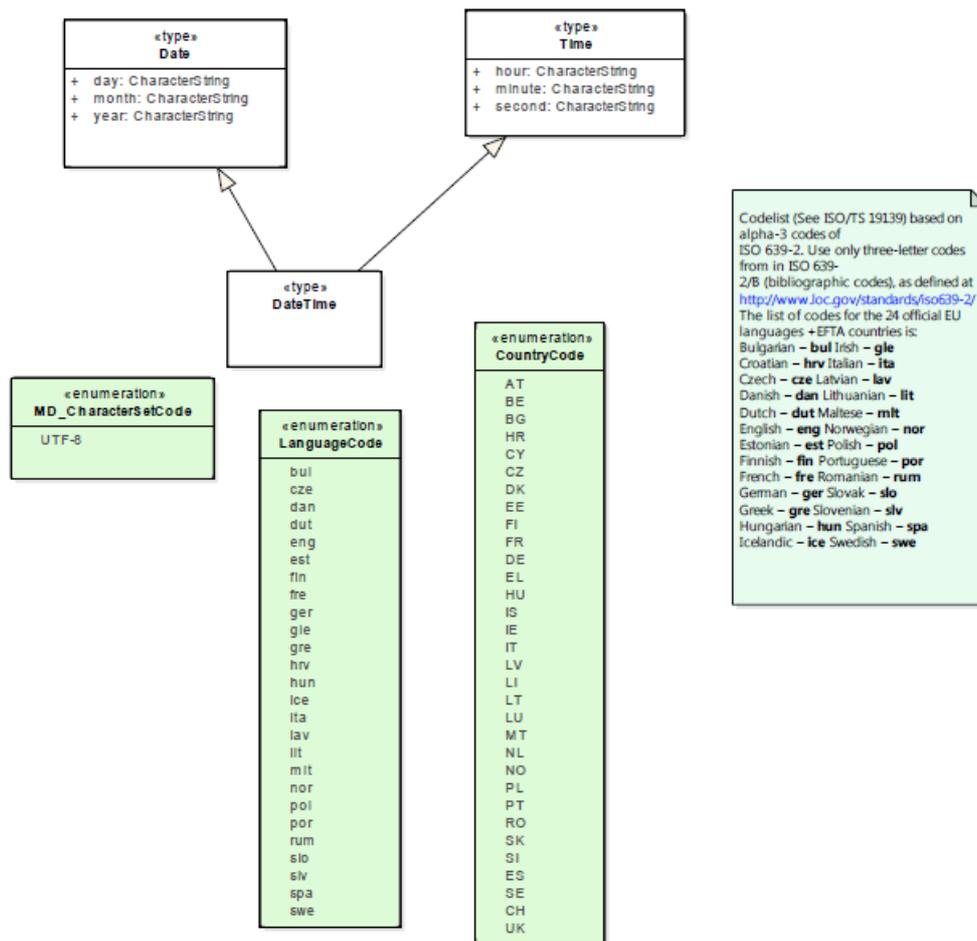


Figure I.5: Basic Data Types Class Diagram