INSPIRE

Infrastructure for Spatial Information in Europe

Status report of on-going MIWP actions

Type	Document for information and discussion
Creator	EC and EEA INSPIRE Team
Date/status/version	23/10/2018 / FINAL
Addressee	MIG-T
Identifier	**MIG-T/52/2018/DOC4**
Description	Status reports from the following MIWP actions:

Status reports from the following MIWP actions:

- 2016.4 Theme-specific issues & Thematic Clusters
- 2017.2 Alternative Encodings for INSPIRE data
- 2017.3 Improved Client Support for INSPIRE data
- 2017.4 Validation and conformity testing
- 2018.1 Tools and procedures for M&R 2019

The document also summarises the status of

- the ongoing maintenance of the INSPIRE registers, and
- the integration of INSPIRE in several e-reporting initiatives (Invasive Alien Species, Industrial emissions, MSFD)
- a feasibility study on data harvesting

actions:	MIG-T to:

MIG-T to:
- Take note and provide feedback on the document

1 2016.4 Theme-specific issues and Thematic Clusters

The main objective of this Action is to support MS with implementation of INSPIRE by providing on-line platform to share, find, propose and discuss issues encountered during the implementation of INSPIRE as well as in adaptation / re-use of INSPIRE infrastructure for other domains/purposes. The thematic clusters on-line collaborative platform https://themes.jrc.ec.europa.eu/ has been in operation over 3.5 years and is managed by JRC with the help of INSPIRE & Domain experts selected as facilitators of 9 Thematic clusters. Recently also the help of MIG-T liaisons (one per each cluster) is increasing especially in linking and bringing the agreed discussion topics (e.g. evaluation of change proposals) to the MIG-T/MIG.

TC Activity – statistics of use (12.9.2018)

- Registered users: **940**
- Discussion topics: **669**
- Discussion replies: **1894**
- Uploaded Files: **275**
- Dedicated topic summarizing pages: **198**
- Groups: **50**
- News/events: **185**
- Nr. of Visits from 1-1-2018 until 12-09-2018: **23937**
- Nr. Pageviews from 1-1-2018 until 12-09-2018: **83482**

- **Most viewed discussion** (3714 views)

Topic	Views
Workshop about Transformation of Coverage-Based Data Themes and WCS - Barcelona, 29-30 September 2015	4115
Cookbooks that can be used for the conversion of OneGeology-Europe web services to INSPIRE web services	3990
Download Service WFS: StoredQuery and ResponsePaging for large datasets?	3718
Distinct metadata for INSPIRE harmonised datasets?	3654
It seems that there is only one fully compliant solution to serve multiple harmonised datasets trough WFS 2.0	3312
PNOT Project (PNOA, PNT, SIOSE)	3274
Experiences on encoding of Elevation and Orthoimagery coverages	3198

- **Most popular discussions** (by number of replies):

Topic	Replies
It seems that there is only one fully compliant solution to serve multiple harmonised datasets trough WFS 2.0	52
domainExtent vs gml:boundedBy (EL & OI coverages encoding)	43
Usability of the 'Zoned Geographic Grid' (Grid_ETRS89-GRS80)	33
Need more guidance for Elevation encoding and correct example (for ElevationGridCoverage) on the basis of GMLCOV schema	24
INSPIRE download services published providing INSPIRE compliant PS data	24
FYI: interpreted coordinate order flipped in GML files with URI format srsName	20
HabitatsAndBiotopes in WCS	18

The new INSPIRE Thematic Cluster platform

The new collaborative platform is being developed based on the conclusions from the INSPIRE Thematic clusters Evaluation meeting (Ispra 12-13.3. 2018). The major changes cover:

- TC platform structure:
    - o Two new cross cutting Clusters (SW tools & services; Environmental policy);
    - o The sub-groups of TCs were merged in the respective TCs.
- TC platform content:
    - o TC content will appear based on the set of controled tags using "virtual views";
    - o in new customised "discussion forum"-like pages.
    - o Integrated with other INSPIRE related platforms (Geoportal helpdesk, MIG-T, INSPIRE in Practice).

INSPIRE TC Facilitators / MIG-T liaisons

The new facilitator (Amelia Baptie) of Earth science TC was agreed with EuroGeosurveys in the framework of the newly signed Collaboration agreement between JRC and EGS.

The two new cross cutting clusters will be supervised by DG JRC (SW TOOLS & Services) and DG ENV (Env. Policy).

The current situation is following:

Thematic Cluster	Facilitator	MIG-T liaison
Earth Science	Amelia Baptie (UK)	Carlo Cipolloni (IT)
Statistics	Miroslaw Migacz (PL)	Jari Reini (FI)
Marine and Atmosphere	Keiran Millard* (UK)	Anders Ryden (SE)
Land Cover and Land Use	Lena Hallin-Pihlatie (FI)	Lars Eric Storgaard (DK)
Elevation, Orthoimagery, Reference Systems, Geographical Grids	Jordi Escriu (ES)	Markus Seifert (GE)
Environmental Monitoring and Observations	Katharina Schleidt (AT)	Jose Miguel Rubio Iglesias (EEA)
Biodiversity and Management Areas	Stefania Morrone (IT)	Darja Lihteneger (EEA)
Facilities, Utilities and Public Services	Angel Lopez* (ES)	
Topo & Cadastre, Reference Data	Anja Hopfstock (GE)	Markus Jobst (AU)
(NEW) Environmental Policy	Stefania Morrone** (IT)	Joeri Robbrecht** (DG ENV)
(NEW) Software tools and services	Jordi Escriu** (ES)	Michael Lutz** (JRC)

* Possibility to swap the TC cluster facilitation activity due to the experts working assignments
** Proposed

The old contracts with facilitators finished by 25.5.2018 and the new once are being prepared. The contracts will run for initially 1 years, with a possible 1 year extensions, pending approval of the activity by the MIG in the November meeting.

2   2017.1 Master Guidance

Work on the Master Guidance is ongoing. The 2017.1 drafting team had a first meeting on 21 March 2018 and brainstormed about the scope, form and content of the guidance. No tangible deliverables have been produced yet. The ambition is to present a first draft to the MIG in December 2018.

3   2017.2 Alternative Encodings for INSPIRE data

The action will define alternative encoding rules (mainly for the purpose of viewing/analysis in mainstream GIS systems) for a number of selected application schemas and a template and procedure for proposing and endorsing additional encoding rules in the future. Detailed information on the action (background, action mandate) is available on the action page on the MIG collaboration platform[1].

The sub-group has started its work in July focusing on the following two tasks:

---

[1] https://webgate.ec.europa.eu/fpfis/wikis/x/aAKOE

- developing an encoding rule for GeoJSON (as a first example)
- developing generic rules / approaches for simplifying INSPIRE encodings (including, but not limited to flattening of complex structures)

It was agreed to use the new Good Practice (GP) procedure as the procedure for proposing and endorsing alternative encodings and simplification rules.

The sub-group has started collecting GeoJSON and simplification examples and initiated discussions on open questions on Github[2], including:

- [Proposals for example data sets / themes / use cases](#)
- [Should the GeoJSON encoding rule include simplification rules?](#)
- [Should we include simplification based on UML implementation models?](#)
- [Generic vs. theme-specific rules (for which themes?)](#)
- [Should the simplification rules include extensions?](#)
- [Should the simplification rules / GeoJSON encoding rule include profiling?](#)
- [GeoJSON's CRS does not meet INSPIRE requirements](#)

Next steps are the in-depth analysis of the examples and extraction of aspects or rules to be included in the GP documents.

A call for tender addressing the "Improved usability of INSPIRE data" was launched in the fall of 2018 that aims to support the mandate of MIG actions 2017.2 and 2017.3. The procedure is in the process of being finalised. The main tasks of the contractor will be to draft the two planned GP documents.

A face-to-face meeting is planned for the 17-18 December in Ispra, Italy.

4   2017.3 Improved Client Support for INSPIRE data

A call for tender addressing the "Improved usability of INSPIRE data" was launched in the fall of 2018 that aims to support the mandate of MIG actions 2017.2 and 2017.3. The procedure is in the process of being finalised. In particular, the contractor to be selected will implement the following tasks:

1. Process available information on the usability of INSPIRE data

The contractor will collect and systemise available information from multiple channels. The main sources of information will include:

- The dedicated 2017.3 survey on the usability of INSPIRE data,
- Discussions on the INSPIRE Thematic clusters platform,
- Relevant projects and initiatives on the Member state level

2. Analyse the input data

The contractor will (i) develop a proposal for an analysis framework, (ii) analyse all collected issues, (iii) draft possible solutions to the issues involved with emphasis on joint measures with software vendors.

3. Prepare and run a workshop on "Improved client support for INSPIRE data"

---

[2] https://github.com/INSPIRE-MIF/2017.2/issues

Results from Tasks 2 and 3 will be discussed with the open source community and commercial vendors and other INSPIRE stakeholders on a dedicated event organised by the JRC. Particular emphasis will be put on the most widely used client application (web, desktop and mobile).

4. Issues resolution and roadmap

The contractor will prepare proposals for the resolution of the existing issues, together with a roadmap on how the issues are to be addressed. The most frequently used client applications will be covered.

All foreseen tasks will be accomplished for an overall duration of 10 months.

5   2017.4 Validation and conformity testing

The action focuses on two strands of activities:

- the maintenance and further development of the Abstract and Executable Test Suites (ATS and ETS) and the ETF software, which supports the INSPIRE reference validator (through a contractor); and
- the discussion (in the 2017.4 sub-group) of issues raised in the validator helpdesk, which require interpretation of TG (and in some cases IR) requirements.

The contractor's work is progressing, with a focus on adding ETSs for the Metadata TG v2.0 and the TG for View Services, which should be released before the end of 2018. The JRC is currently working on establishing a test server, where the new ETSs can be tested (by the 2017.4 sub-group and other interested parties). Work on ATS and ETS for SOS-based Download Services TG has started.

A new "Community" space has been set up in Github[3]. This space should become the unique place for submitting issues with the current ATS/ETS implementation, proposals for improvement of the ETF software (e.g. collected from national implementers) or other questions related to validation and conformity testing. The issues will then be assigned and discussed in the relevant technical issue trackers and, where necessary, by the 2017.4 sub-group. The space will also serve to document the development roadmap for ATS and ETS.

The landing page of the reference validator[4] has been revised, to reflect this change (see below).

---

[3] https://github.com/inspire-eu-validation/community/wiki

[4] http://inspire-sandbox.jrc.ec.europa.eu/validator/

Welcome to the INSPIRE Validator

The purpose of the INSPIRE validator is to help data providers, solution providers and national coordinators to check whether data sets, network services and metadata meet the requirements defined in the INSPIRE Technical Guidelines. The validator provides detailed test reports to help implementers understand how well their data, services, metadata or software solutions are doing (or where improvements may be needed).

The validator is based on the Abstract and Executable Test Suites agreed between Member States and the Commission in the INSPIRE Maintenance and Implementation Group. See the Roadmap for the test suites that are currently supported and our future planning.

The validator has been developed under ARE3NA and ELISE Actions of the ISA/ISA2 Programmes.

Test your data, services or metadata

Pick your resource (data, services or metadata), select the test(s) to launch and check the results to see how well you are doing (or where you need to improve).

▶ Start a test ☑

API

If you are a developer, you can access and call the operations of the validator API to power your own applications.

⚙ Try the API ☑

Want more?

Download the software, deploy it in your own infrastructure and customise it to fit your specific needs.

⬇ Get the software ☑

Feedback

Use the Community space to provide your feedback or proposals on the ATS, ETS or the ETF test framework.

💬 Provide your feedback ☑

To further clarify the difference between the reference validator and the checks executed during harvesting by the INSPIRE geoportal[5], the has been renamed to "INSPIRE Geoportal Harvesting Checker", and the following disclaimer has been included on the landing page:

> *This application may be used by INSPIRE data and service providers to emulate the checks executed by the INSPIRE geoportal during its harvesting process. It will report potential issues that are identified during harvesting, when the geoportal is extracting and enriching the information found in the resource in order to present them in a useful and usable fashion. It can therefore help data and service providers to improve the way their implementations are made available in the INSPIRE geoportal.*

> *This application can also be used via a Web Service (instructions available here).*

The discussion and resolution of helpdesk issues in the 2017.4 sub-group has led to some proposals to update TG documents. The change proposals are tracked in a dedicated issue tracker[6] for scrutiny by the MIG-T. Since no comments have been received, new corrigenda versions of the TGs will be prepared and published before the end of 2018.

For the maintenance and development work on the ETF software, a governance structure has been set up, involving the two current main sponsors *interactive instruments* and *JRC*, as well as the active developers. The ToR for the Steering Group and Technical Committee are available on GitHub[7]. ETF

---

[5] http://inspire-geoportal.ec.europa.eu/validator2/

[6] https://ies-svn.jrc.ec.europa.eu/projects/mig/issues?query_id=30

[7] https://github.com/etf-validator/docs/tree/master/TOR

Improvement proposals (EIPs) are collected, discussed and prioritised on Github[8], e.g. on performance improvements, UI simplification. ETF developments are now also funded through a contract with German mapping agencies (AdV).

It has been proposed to organise a workshop with national implementers to collect feedback and suggestions for improvements of the ETF software, similar to the workshops organised for the Re3gistry software and the planned geoportal workshop.

6   2018.1 Streamlining the monitoring and reporting for 2019

The kick-off meeting of the subgroup will be on 04-05 December in Ispra. So far 11 participants confirmed to attend the meeting (mostly member of previous 2016.2 subgroup). The meeting will be focused on the new Regulation for monitoring and reporting, user requirements, planning and the development of the new system.

7   Maintenance of INSPIRE registers & the INSPIRE register federation

A workshop on the Re3gistry software and INSPIRE register federation[9] took place on 5-6 September, which aimed at collecting and prioritising requirements for Re3gistry software and register federation and setting up a governance structure for future maintenance.

Participants submitted improvement proposals for the Re3gistry before the meeting. During the meeting, every participant was asked to rank his/her 5 top proposals out of the overall possibilities. The most voted proposals were:

- Provide support for linked data (16 votes)
- Improve filtering/search functionality in the user interface (13 votes)
- Improve the search engine to enable searching remote INSPIRE central registers from a "local" registry (9 votes)
- Enable a search history function to navigate across the item changes (9 votes)
- Provide support for additional formats to enhance interoperability, e.g. compliant SKOS/XML (8 votes)
- Provide a syndication service to notify changes in contents and/or functionalities (8 votes)
- Provide additional visualization modes, e.g. a hierarchical tree view (collapsible menus) for hierarchical registers, and an alphabetical index (glossary); suitable/suggested tools are WebVOWL and owlviz (8 votes)
- Provide a REST API for machine-readable access, filter & read actions (7 votes)
- Provide image field type support (7 votes)
- Store developed register types as templates in order to use them to create new registers (7 votes)
- Implement a web based import tool, allowing a preview of the content (for each new entry/change, create a dump of the current content) (7 votes)

---

[8] https://github.com/orgs/etf-validator/projects/2

[9] https://webgate.ec.europa.eu/fpfis/wikis/x/-MGEEQ

The submitted improvement proposals will be documented on Github, together with an estimation of the resources that those would imply.

On the INSPIRE register federation, it was decided not to publish the Register of Registers (RoR) application officially for the time being, since not many countries are sharing or planning to share their code lists in it yet. Testing and experiments will continue in the current sandbox[10]. JRC will investigate how to integrate the RoR within the INSPIRE registry (e.g. showing in INSPIRE empty code lists types a link to the available values coming from other sources)

The workshop also discussed setting up a community around the Re3gistry. It was decided

- not to set up a steering group for the time being, but
- to create a mailing list for stakeholders and general announcements, and
- to set up the Github space[11] for collecting requirements, feature proposal and sharing roadmaps for next releases,
- organise web-conferences (e.g. to present the new versions, features, etc.) on request / when needed, and/or at physical events such as the INSPIRE Conference, FOSS4G, ISA2, etc.

8   INSPIRE & e-Reporting

8.1   Invasive Alien Species

Geospatial data on the invasive alien species (IAS) distribution, associated observations and metadata shall be delivered in line with INSPIRE. Commission Implementing Regulation (EU) 2017/1454 specifies the technical formats for reporting by the Member States. A reporting workflow has been developed in response, where data on IAS will be made available to MS from the JRC European Alien Species Information Network (EASIN) database. The EASIN collects and indexes spatial data on the distribution of the Alien Species in Europe from a network of Data Partners.

The JRC is finalising Guidelines for the compilation of reports on Species Distribution (SD) of Invasive Alien Species of Union concern. They will be presented and discussed on 14 November during the 1st meeting of the Invasive Alien Species Expert Group (IASEG). A pre-meeting is planned for the afternoon of 13 November, with updates from JRC, EEA/ETC, contractors (EaudeWeb & WUR) and ENV. Also the organisation of the meeting on 14 November with the Member States will be discussed and coordinated.

Data made available to MS will be encoded in accordance with an extended INSPIRE Species Distribution (SD) Data Model. Observations, distribution data and metadata will be bundled together. MS will update and push their national data to a dedicated EEA repository.

8.2   MSFD

The EC&EEA INSPIRE team is providing regular support to TG DATA of the MSFD in complying with the requirements of Art. 19 of the Directive. Detailed technical guidance covering all aspects related

---

[10] http://inspire-regadmin.jrc.ec.europa.eu/ror

[11] https://github.com/ec-jrc/re3gistry

to the creation of metadata, data harmonisation and network services have been compiled by the EEA. Several use cases with heterogeneous data encoded in accordance with INSPIRE are also available. The possibility for harvesting the catalogues of regional sea conventions and the consequent reuse of the metadata are being investigated.

In parallel, in collaboration with DG MARE, the implementation of INSPIRE by EMODnet portals is discussed. A dedicated wiki page is created, where EMODnet portals share requirements for data harmonisation and outstanding technical issues.

8.3 EU Registry on Industrial Sites

The **EU Registry on Industrial Sites[12]** is a data flow that collects information on the facilities, installations, and plants, which EU countries (as well as EFTA countries and Serbia) are obliged to report under the **European Pollutant Release and Transfer Register (E-PRTR) Regulation** and the **Industrial Emissions Directive (IED)**. The EU Registry will be the reference dataset to which relevant thematic reporting on Large Combustion Plants (LCPs) and other industrial facilities falling under the abovemention legislation will link to (i.e. data on releases and transfers referring to the entities reported to the EU Registry). The most relevant aspect here is that the **EU Registry will contain all relevant permit and geospatial information** of these industrial entities, avoiding its duplication in the thematic data flows. This shall reduce reporting burden and data management costs, ensuring further investments by reporting countries are not required in the medium term to comply with INSPIRE.

While avoiding inconsistencies across the sectorial legislation, the EU Registry data model[13] extends the INSPIRE **Production and Industrial Facilities** (PF) core model[14] in accordance to the rules set out in the INSPIRE Generic Conceptual Model. During the modelling exercise, it became clear that the INSPIRE PF model was very comprehensive and catered for a very high level of detail, with a number of fields and some feature types which were identified as not relevant in the EU Registry context. Therefore, a streamlined view has been developed, including the feature types and fields relevant to the EU registry reporting, with all mandatory and non-voidable elements, as well as domain reporting requirements and a series of modifications which have no impact on the INSPIRE compliance of the reported data by countries. The rationale for this choice is based on the assumption that Member States do not collect or make available further data on this subject. The modified schemas of the INSPIRE PF model and the INSPIRE Activity Complex (which is imported by the former) are stored locally in the Reportnet Data Dictionary[15], facilitating the workflow and the schema validation process. It is important to stress that all implemented changes do not break INSPIRE rules, since they operate on INSPIRE-allowed values (restrictions on the relevant element domain).

At the same time, **the thematic data (e.g. emissions)** which collection is required by the IED and the E-PRTR have been also subject to a streamlining exercise and an integrated data model[16] has been

---

[12] http://rod.eionet.europa.eu/obligations/721

[13] https://cdrtest.eionet.europa.eu/help/ied_registry/documents/Guidance/EU%20Registry_datamodel_CID_Final%2027%20August%202018.pdf

[14] http://inspire.ec.europa.eu/schemas/pf/4.0/ProductionAndIndustrialFacilities.xsd

[15] https://dd.eionet.europa.eu/schemaset/euregistryonindustrialsites/view

[16] https://cdrtest.eionet.europa.eu/help/eprtr_lcp/help/eprtr_lcp/Guidance/EPRTR-LCP_datamodel_v3.0.pdf

designed in order to operate in parallel with the EU Registry data flow. The thematic data model under both legislative instruments only concerns the transmission of emissions and associated activity data for industrial emissions entities that are included in the EU Registry. The link between these two reporting data flows is based on a consistent use of identifiers between related feature types. In particular, **the INSPIRE identifiers (*inspireId*) of the relevant features will be the key attribute that ties these entities (and therefore their geospatial information) to the corresponding emission data**. The implementation of this relation eliminates the need to provide geospatial information or identification (administrative) data in each thematic data flow.

QA/QC procedures ensure that, when combined, data submitted via both data flows remain logic and coherent to the requirements of the industrial legislation. The EEA will then harvest all country data submission and aggregate them in a European-wide multi-year data set of industrial sites that can be used for analysis, publication and support of environmental programmes.

The EU Registry on Industrial Sites, which model was finalised and published in August 2018, is to be launched operationally during the first quarter of 2019, with the deadline for the first reporting (ref. year 2017) being June 2019. It is expected that the first pan European dataset based on the EU Registry will be available by the end of 2019. The thematic data model has been developed in 2018 and the first reporting deadline will be in 2020.

8.4   Floods Directive

In the subgroup of the Workgroup on the **Floods Directive** on the updating of reporting tools it was proposed and agreed to use:

- the INSPIRE "Management Restriction Or Regulation Zone" to model the units of management;
- the INSPIRE "Risk Zone" (subtype of AbstractRiskZone) for the Areas with Potential Significant Flood Risk (APSFR);
- the INSPIRE "Hazard Area" (subtype of AbstractHazardArea) for modeling the Preliminary Flood Risk Assessment (PFRA).

The work on the model was finalised in the subgroup meeting of 23 October 2018. Since a considerable amount of Member States indicated that they prefer to use shapefiles for reporting spatial data, the reporting model will support a flat structure. For the modelling of the Areas of Potential Significant Flood Risk (APSFR) an extension to the relevant INSPIRE data specification is needed.

8.5   Environmental Noise Directive

In the last NOISE REGULATORY COMMITTEE (25/09/2018) the progress on INSPIRE implementation for the priority eReporting use case in general and the NOISE Directive specifically was presented. An update of the high-level streamlining roadmap and future actions was presented and discussed:

Future Actions

- Q3/18 – Q3/19: develop common reporting model and process aligned with Reportnet 3.0; address implementation gaps.
- Q4/19 – Q4/20: common reporting model and process implementation by Member States (INSPIRE interoperability deadline in 2020)

- 2021: Test e-reporting model & process (MS/EEA/ENV)
- 2022: next NOISE reporting cycle - NOISE reporting and INSPIRE obligations aligned

9 Feasibility study on data harvesting

The European Environment Agency started the "Feasibility study on data harvesting using INSPIRE infrastructure" as a supporting project to the Reportnet 3.0 modernisation activities with the purpose to evaluate and demonstrate the possibility of using web services in the official reporting data flows. The study case relies on the current publically available INSPIRE download services providing the spatial data of Natura 2000 sites that could be found in the INSPIRE infrastructure as INSPIRE Protected sites. The feasibility study evaluates two use cases:

- use of INSPIRE network services for data harvesting in the reporting obligation to download the national-wide Natura 2000 spatial data sets, and
- referencing and extracting spatial objects through the INSPIRE download services provided as WFS (direct access download).

The feasibility study formed a sample of INSPIRE download services for Natura 2000 data sets provided by 13 countries. The sample includes different data management practices (one or several data sets), data formats (GML, Shapefile) and service types (plain URL, Atom, WFS). The study evaluates several points important for the reporting process, among others:

- non-ambiguity in finding the correct (official) data sets and services
- possibility to connect to services, download the complete data sets and ensure that the requested content has been indeed downloaded
- possibility to reference and download specific spatial objects (INSPIRE) for the Natura 2000 sites that are reported under the Natura 2000 Standard Data Form (SDF).

Although, the feasibility study will be completed in November 2018, it already provides several outcomes that have been used as input to the Reportnet 3.0 requirements catalogue, which is now open for consultation until 31.10.2018. A few outcomes that answer the main points above are summarised as following:

- using INSPIRE Geoportal Priority Data Set search and filtering mechanism or another specific search mechanism on INSPIRE CSW provides a good start to find the services and data but the results might not be precise enough (several data sets and services could be found);
- availability and performance of INSPIRE download services are at high level, however the use of WFS to download complete data sets show higher latency. As Natura 2000 data sets could be a sub-set of Protected sites data sets, it is important to find or request only the Natura 2000 data sets;
- the current data model of Natura 2000 Standard Data Form already includes the possibility to reference the INSPIRE spatial objects, and the INSPIRE download service direct access WFS requests can indeed find the corresponding spatial objects. However, better common good practice guidelines could improve the possibility for referencing, e.g. guidelines for encoding of Inspire identifier in Natura 2000 SDF reported data, guidelines for generating Inspire identifiers (based on Natura 2000 site code) or making queries on attributes in WFS requests (e.g. on Inspire identifier). The findings also confirmed that introducing a thematic identifier in the data

model of INSPIRE Protected sites (that would allow a direct use of agreed Natura 2000 site codes) could improve the referencing mechanism to spatial objects.