

EEA SERVICES PUBLISHING GUIDELINES

Map services play a pivotal role in supporting the mission and core values of the European Environment Agency (EEA). These services serve a wide range of purposes, from internal use to the dissemination of public information, covering EEA's key thematic areas. Given the dynamic nature of the information and the evolving requirements associated with these services, it is imperative that we establish and adhere to a standardized approach for requesting and maintaining them.

In this document, we will explore the essential guidelines and practices for service publication utilizing ArcGIS Pro in conjunction with ArcGIS Servers and Portal for ArcGIS.

By following these recommendations, we can ensure the highest standards of data quality, streamline workflows, and maximize the benefits of our GIS initiatives. Let us embark on this journey of effective service publication and make a lasting impact in the world of geospatial information.

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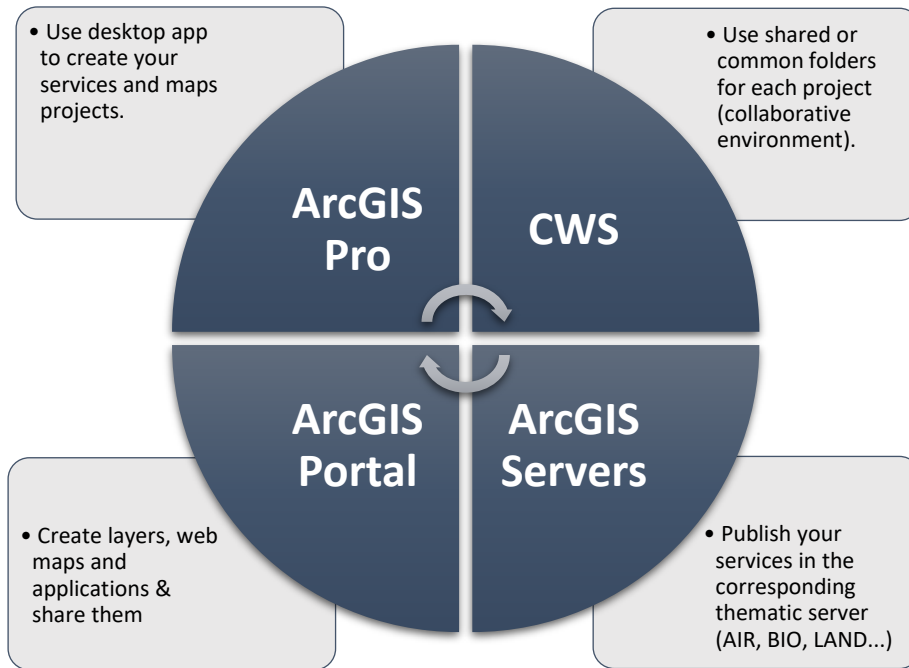
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1. ESRI Software at the EEA Infrastructure

We have embraced ArcGIS Pro as our primary platform for publishing services to ArcGIS Servers and creating engaging content within Portal for ArcGIS.

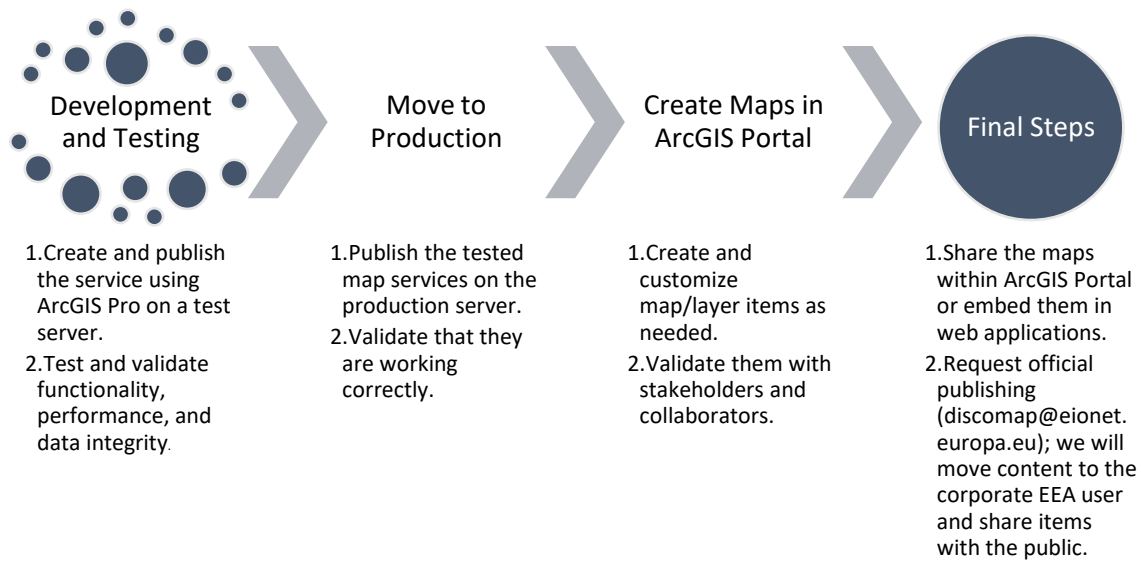
Through the integration of ArcGIS Pro with ArcGIS Servers, we have established a streamlined workflow for publishing and maintaining services. This integration ensures that our data is accessible, discoverable, and reliable for both internal use and external consumption.

Furthermore, the integration with Portal for ArcGIS enhances our ability to create captivating and interactive content. This robust portal empowers our team to publish web maps, applications, and other geospatial resources that can be easily shared, accessed, and utilized by our stakeholders. It serves as a centralized hub for collaboration, enabling efficient data sharing and fostering engagement with our target audience.



Publishing workflow overview

We recommend the following workflow for publishing map services, starting from a test environment and moving towards production, including -if needed- the creation of maps in ArcGIS Portal:



Permissions for publishers

- If you want to publish services on any of our thematic servers, you need to ask for permissions via Discomap Helpdesk channel at discomap@eionet.europa.eu and provide such information.
- If you want to create some products on the EEA Portal, you can ask for some groups in order to keep track of all the related items (layers, webmaps and files) by sharing with them.

Where to publish - ArcGIS servers

TEST SERVERS	PRODUCTION SERVERS
<ul style="list-style-type: none"> • https://test.discomap.eea.europa.eu/arcgis • https://trial.discomap.eea.europa.eu/arcgis • https://staging.discomap.eea.europa.eu/arcgis • https://pre.discomap.eea.europa.eu/arcgis (FEDERATED WITH PORTAL) 	<ul style="list-style-type: none"> • https://air.discomap.eea.europa.eu/arcgis • https://bio.discomap.eea.europa.eu/arcgis • https://climate.discomap.eea.europa.eu/arcgis • https://copernicus.discomap.eea.europa.eu/arcgis • https://eeha.discomap.eea.europa.eu/arcgis • https://forest.discomap.eea.europa.eu/arcgis • https://image.discomap.eea.europa.eu/arcgis • https://land.discomap.eea.europa.eu/arcgis • https://lpd.discomap.eea.europa.eu/arcgis • https://maratlas.discomap.eea.europa.eu/arcgis • https://marine.discomap.eea.europa.eu/arcgis • https://noise.discomap.eea.europa.eu/arcgis • https://soer.discomap.eea.europa.eu/arcgis • https://water.discomap.eea.europa.eu/arcgis

2. EEA Services

The publication of services in ESRI software is a critical aspect of effective GIS implementation. As technical professionals responsible for data publication, it is essential to understand the significance of adhering to best practices and applying a robust naming convention. This ensures that the organization's data maintains its quality and makes a positive impact externally.

2.1. General settings

Coordinate Systems

- All layers in the same map must be projected with the same coordinate system. This delivery of map and/or data to EEA have one of these projections:
 - WM Auxiliary Sphere
 - LAEA
- Make sure that both layers and the map use the same coordinate system. With mixed projection services, your data has to be projected on the fly, thereby slowing performance.

Layer Settings

- Set scale-dependent rendering on layers to only draw when needed.
- Do not include non-alphanumeric characters in data frame or layer names, this includes:
(,), >, <, /, -, _, =, etc.
- Avoid charts and 'Multiple Attribute' symbology.
- Keep layer symbology simple.
- Do not use definition queries and table joins on the same layer.
- Keep your definition query simple.
- Use simple labels.
- Do not use layers defined by selections.

Geometry and Performance

- 'Check Geometry' should be performed on all 'line' and 'polygon' features. Then, apply 'Repair Geometry' to those features where errors were found.
- Incorrect ring order and self-intersecting polygons affect performance and display. N/A for maps with points only.
- Apply indexes to all used fields (including spatial). Fields used for symbology, joins, query definitions & labels should be indexed for improved map performance.
- If you are using a File-geodatabase, **consider using the Compact tool**. It reduces the database's size on disk and improves database performance. **Do not use the Compress tool**.



COMING SOON: *check out the ad-hoc ArcGISPro Toolboxes & publishing tools*

Data Consistency

- For an update, make sure, whenever possible, that field and feature names are identical to the previous version, and that field types are unchanged.
- It is important that field names and types remain consistent across versions as other services/applications could now be using this service.

Backups and updates

- While we can work on our own personal folders, it is always a good practice to keep a common project-level folder where published files are kept. This ensures that any other person in the team can quickly check the latest published version without having to browse through personal folders of a colleague. After publishing a service, make sure to save a copy of your ArcGIS Pro project and file geodatabase to common folder.
 - By doing this, you can also maintain a backup of the previous version.
- Remember using **test servers** to check everything is correct before overwriting the service on production environment.

Services data source summary table

Service-DS-type

I want to be able to update data frequently, keeping different versions and with several colleagues working at the same time. Geographic data is not too complex, or I don't care if it takes more time to show in the service

DBMS Enterprise SDE

PROS

- Update data without stopping service
- Multiuser data editing
- Versioning

I want to be able to update data frequently, and with several colleagues working at the same time. Geographic data is not too complex, or I don't care if it takes more time to show. Having direct access to data from within SQL Server is a plus

DBMS Enterprise GDB

- Update data without stopping . service
- Multiuser data editing
- SQL queries in DB
- Centralized repository

I want a high-performance service whose data source can be either updated regularly by script AND/OR data is too big to copy to AGS Server

FileGDB - Referenced

- Better performance
- Big files - no need to copy to server
- GDB can be updated by scheduled scripts

I want a high-performance service that will be isolated and I want to be sure no one changes the data unless the service needs to be republished. I may need to update the service once a year or every few months, but it needs to be a manual process

FileGDB - Copied

- Better performance
- Isolated

If previous options not good enough

My vector data is very precise or complex and I need it to be drawn very fast. I don't mind not having direct access to the data that is stored in server. I don't care which server and folder it is published in

ArcGis Portal Hosted Service

- Best performance for vector data

CONS

- Needs SQL built-in user
- Worse performance
- Licenses

- No raster data
- Worse performance
- Column name length limitations

- GDB update needs service restart
- GDB versions need to be tracked manually in CWS

- Not ideal for automated data updates
- GDB versions need to be tracked manually in CWS

- Data updates through ArcGis api - may require service restart

- Services all go to same folder in Server

2.2. Naming convention

Maps, feature datasets and geodatabases should be created and supplied following the same structure and naming convention as is used within EEA to deliver map services.

For various map service management purposes (like load balancing) map services 'data' may need to be moved/copied to another server. To ensure that the maps will work, without intervention, following such a move a folder structure and naming convention have been devised.

For the naming convention patterns, we have the following legend:

[REQUIRED TOKEN] Part of the minimum **required information**

{ OPTIONAL TOKEN } For **complementary information** when necessary



Geodatabase

[Category]_[LAEA|WGS84|WM]{_shared}{_SECURE}

e.g., WISESoE_LAEA_shared_SECURE

[Category]: A short name defining the content, e.g., CLC1990, Natura2000, WISESoE.

[LAEA|WGS84|WM]: Identifier of the geodatabase projection, e.g., LAEA (Lambert Azimuthal Equal Area)

{_shared}: Use of this tag denotes that this geodatabase is also used in another map service. An update of this geodatabase will need to be copied (and updated) on all map services using this geodatabase.

{_SECURE}: Data not for public use or access. If one or more feature datasets fall under this classification, then the entire geodatabase is to be treated as secure.

Feature Dataset

[Subject]_Scale}

e.g., ArtificialSurfaces_g1000

[Subject]: A short name used to describe the feature. Subject may be repeated to clarify or differentiate subjects.

{_Scale}: Nomenclature used to differentiate the same generalised feature². Use 'sp1000' where 'simplify polygon' has been set for 1000m, 'sp100' for 100m, etc. Use 's10k' where the data scale is 1:10.000 (and this geodatabase has this feature in several scales).

sp – Simplify Polygon

s – Scale

Service name

[Category]{_Subject}{_Dyna|Cach}_[LAEA|WGS84|WM]

[Category]: A short name defining the content, e.g., CLC1990, Natura2000, WISESoE.

{_Subject}: A short name used to differentiate subjects within a Category.

{_Dyna|Cach}: Internal EEA management of map services.

[LAEA|WGS84|WM]: Native projection the service is serving, e.g., LAEA (Lambert Azimuthal Equal Area)

 **Example:** WISESoE_Groundwater_LAEA

Note: Do not use **version description** in naming (*). The use of version number in naming a dataset, a map or a database, means that an update by necessity must have a new name, this means that linkages will need to be reset for a map service to work. Version descriptions are better kept in metadata descriptors.

() Sometimes, the version number, such as the year, is utilized to reference previous iterations of the services, which are archived as snapshots and do not anticipate future updates. But this is an special case of use.*

Service Folder structure

SOURCES \ [THEME] \ [Category]

Locally map a drive to (X:) or (S:), depending on the server.
 Under X: the folder structure is SOURCES \ [THEME] \ [Category]
 The SOURCES folder can be found on every ArcGIS Server.

SOURCES: This name is **fixed!**

[THEME]: A short name defining the EEA's themes, options listed here:

- Admin: Public map services on abstract features, i.e., boundaries.
- Air: Public map services on Air.
- Bio: Public map services on Biodiversity.
- Climate: Public map services on Climate
- Copernicus: Public map services on Copernicus.
- Internal: Internal map services.
- Land: Public map services on Land.
- Maratlas: Public map services on Maratlas.
- Noise: Public map services on Noise.
- Reports[year]: Public map services, live maps published with reports.
- Water: Public map services on Water.
- ...

[Category]: A short name defining the Subject's content, e.g., CLC1990, Natura2000, BathingWater.

Note: Do not use **spaces** in the folder structure naming.

Database connections

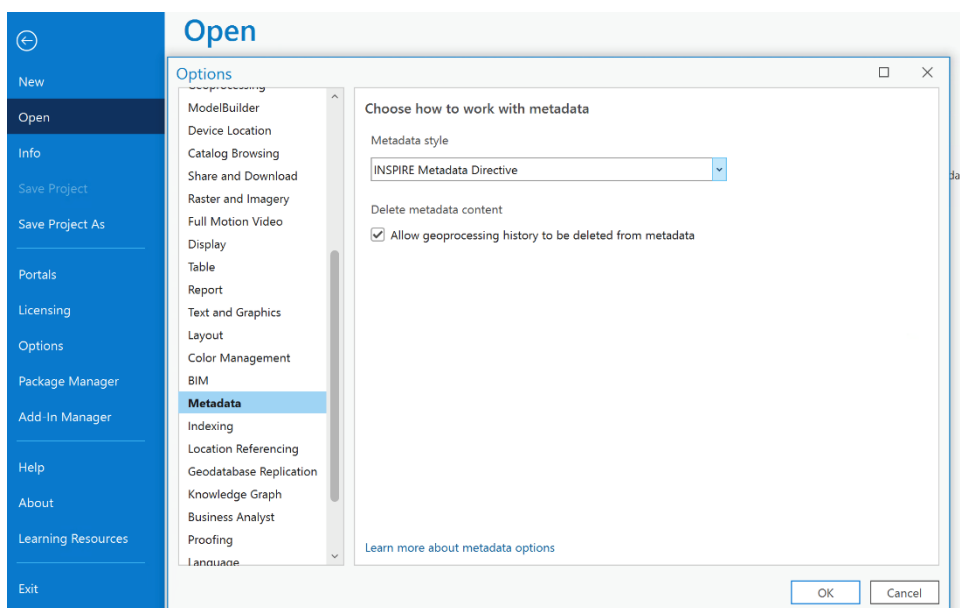
When registering databases or folder connections on ArcGIS Server, please include the project/database name in the connection name.

2.3. Services Metadata

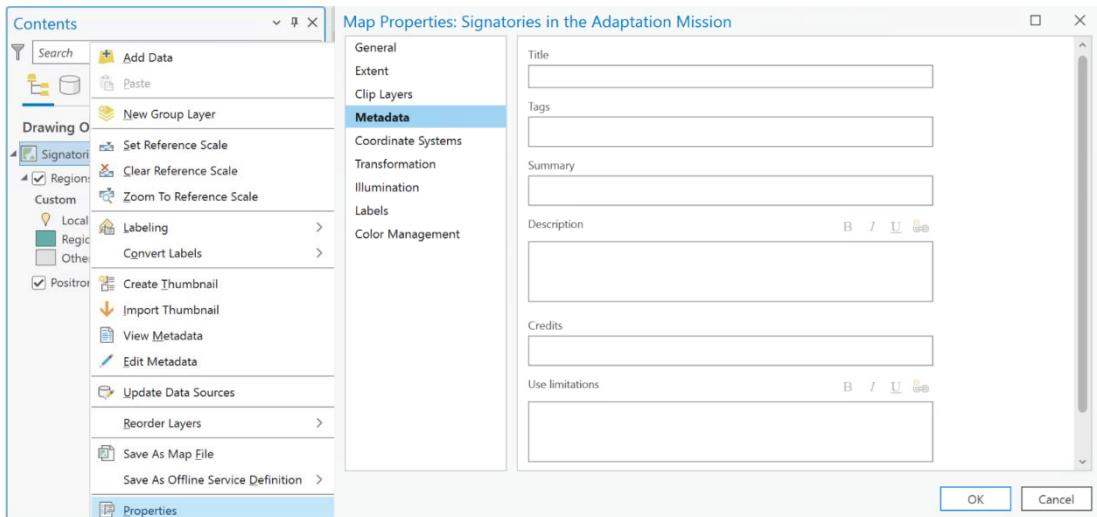
ArcGIS service – filling metadata on publishing

Maps, map layers, and stand-alone tables can have full metadata. For map layers and stand-alone tables, the underlying data source can also have full metadata that is independent of the layer's or table's metadata.

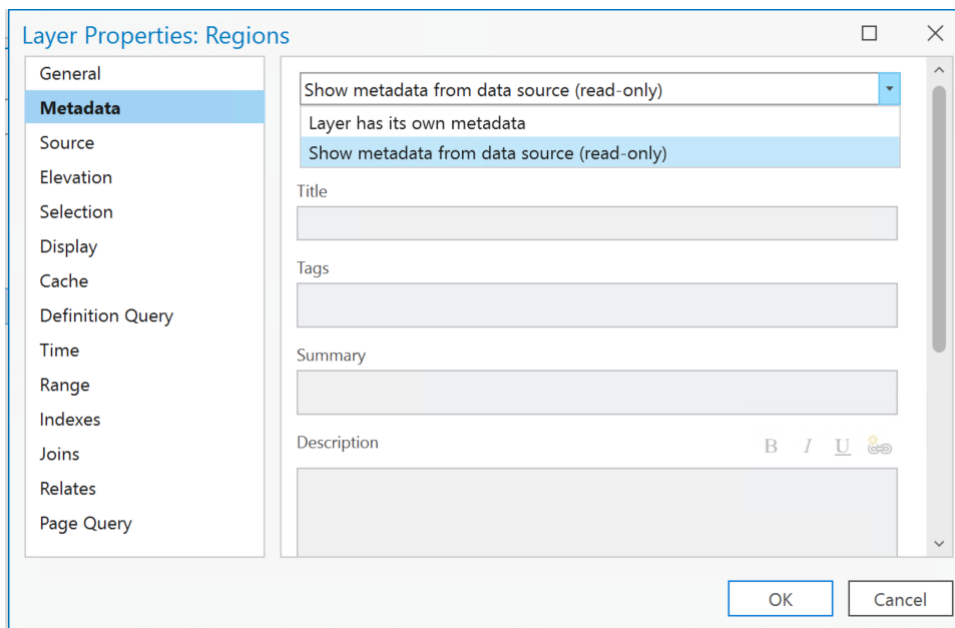
There are several formats to store metadata. For map services, none of them are required (they have been designed for data sources), but to harmonize metadata procedures, it will be helpful to use the most common metadata fields and use the INSPIRE version inside ArcGIS Pro by going into “Project” (top left of the screen) -> ”Options”. Select “Metadata” and in the Metadata Style select “INSPIRE Metadata Directive”.



Metadata can be checked and edited from the Properties window, which can be found by pressing the right button on the mouse over the Map/Layer's name in the Contents panel.



By default, new map layers and tables created by adding a data source to the map reference the metadata associated with the data source. That is, when you add a feature class to a map and view the layer's metadata, you'll see the feature class's metadata. If the metadata is empty or needs correction, select 'Layer has its own metadata' as shown in the picture below.



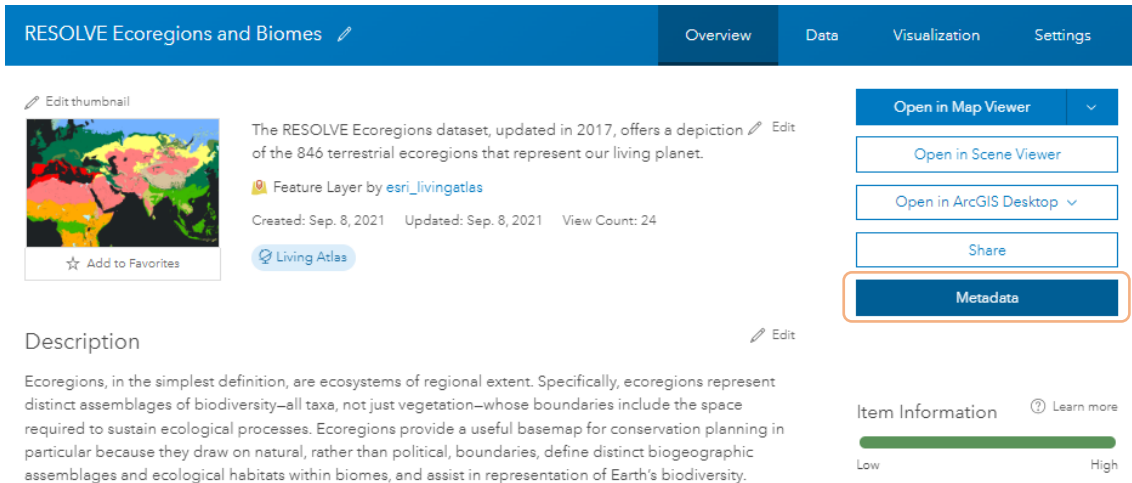
When publishing a new service, both map and layers metadata will automatically propagate to the service.

For a more detailed information, please check [Esri official documentation](#).

ArcGIS Portal – filling metadata in layer, services and map items

- Provide metadata for data layers and **include SDI/Datahub link**. This assists with version consistency between map services and updates.
- Supply Item Description when sharing as a service. This information provides context and discoverability for the map service over the internet. For updates, this information might already exist! This is the metadata of the service or layer itself (not to be confused with the metadata of the data itself). Make sure the following information is correctly filled:
 - **Title**
 - **Summary**
 - **Tags**
 - **Description**
 - **Credits**

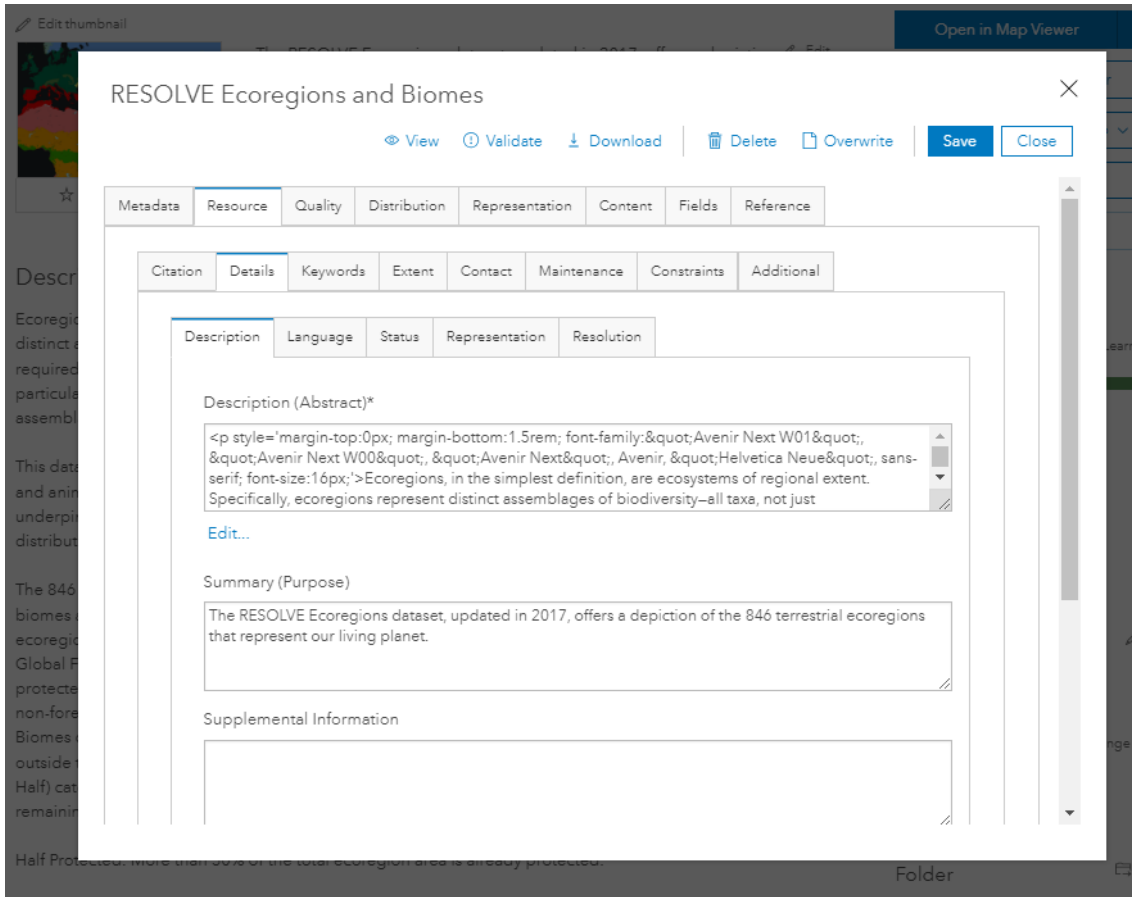
It is possible to add metadata easily to those items once they are published/created on [ArcGIS Portal](#) by accessing the item information.



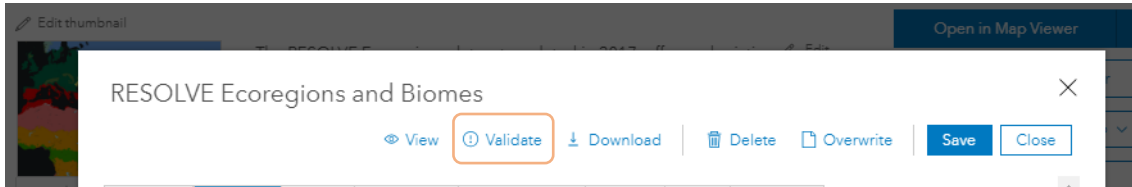
The screenshot shows the ArcGIS Portal interface for the item 'RESOLVE Ecoregions and Biomes'. The interface includes a navigation bar with tabs for 'Overview', 'Data', 'Visualization', and 'Settings'. The main content area displays a thumbnail of a world map, a description of the dataset, and a 'Metadata' button highlighted with a red box. The 'Metadata' button is located in the right-hand navigation pane, below the 'Share' button. The 'Item Information' section shows a progress bar indicating the level of metadata completion, ranging from 'Low' to 'High'.

EEA's ArcGIS Portal metadata follows the [INSPIRE Metadata Directive](#). There is some information that must be filled in. The mandatory information is in the **Resource** tab.

The **description**, **summary** and **credits** are needed in the *Details>Description* section, also **Keywords** are quite important. Previous detailed information is mandatory; however, **all the provided information will be valuable**.



Once the metadata has been added it is possible to validate it.





3. Other general recommendations and best practices

- TASKMAN TRACEABILITY
 - Add **service URL and item IDs** on **Taskman** after publishing. This way we could find it in the future if some issues affect the service/item in question.
- KEEP TRACK OF YOUR PRODUCTS
 - Please, if some service/item is no longer valid, make sure you notify us in order to mark it as 'Deprecated' and turn it off.
- OFFICIAL PRODUCTS WITH PUBLICITY
 - If the map service is part of a **publicity/event launch**, or there is a launch or promised delivery dates we need to be aware of. We need two weeks' notice for map publishing. Contact Discomap Helpdesk at discomap@eionet.europa.eu and provide such information.