



1-Evoltree ISS Information System Overview

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1. Evoltree and ISS

The Network of Excellence EVOLTREE has set-up its Intensive Study Sites (ISS) as a shared infrastructure for multidisciplinary research.

ISS are large scale ecosystem plots (a few thousands of hectares) where trees and selected associated species are mapped, genotyped and phenotyped.

The sites comprise entire portions of landscapes (agricultural land and woodlands) where trees are present in different configurations (from single trees to edges and woods).



Seven ISS have been selected, covering the main European forest types. The ISS Information System aims:

- To promote multidisciplinary research by sharing multiple information jointly related to the EVOLTREE Intensive Study Sites.
- To facilitate the access to datasets related to the EVOLTREE ISS.
- To preserve the knowledge of existing datasets.
- To enhance understanding of the benefits of geographic information.

The EVOLTREE ISS Information System is based on the GeoNetwork opensource and allows easy sharing of geo-referenced thematic information between different organizations.



2. ISS Information System Objectives and State

Georeferenced-datasets and maps, (from single tree locations to satellite images), are efficient communication tools for researchers, local managers and decision makers.



The main goal of the Evoltree ISS Information System is to improve the accessibility to a broad variety of data and related metadata (a data describing a data or a dataset) about ISS, obtained at different scales and from multidisciplinary sources, organized and documented in a standard and consistent way using ISO 19139 metadata and European INSPIRE directive.

The challenge is to enhance data sharing among the partners, to increase the collaborations and coordination efforts in collecting and exchanging information in the respect of intellectual property, to preserve data and spare resources.

The information system is based on metadata description to discover, consult and access to the available data related to each ISS. We decided to describe the available datasets (coming from heterogeneous supports: files, maps, databases ...) with the use of metadata that are centralised on a customized metadata management tool named Geonetwork. The information system was developed from June 2007 to August 2008, tool is currently on line (<http://www.evoltree.eu/geonetwork>) and ISS correspondents started to describe their datasets in summer 2008.



A multiple benefit is expected:

- At the individual level, people generally know the data they own and currently work with. Unfortunately, through time, this knowledge is progressively lost. Either people just forget they have the information about a particular subject or they don't remember where the data are located.
- For each actor, the use of metadata is a guarantee to preserve the major part of the knowledge on the existing data.
- At the ISS level, the data description will allow a rapid survey of available data and it will avoid repeating the same work twice.
- At the Network level, it will be very interesting for each partner to discover the data that are available for each ISS and relevant for a particular research.
- It will be a good source of information coming from people working on the same research sites, and it will improve the capacity to conduct cross studies across sites, across disciplines and across partners.
- We expect that the capacity to produce a data survey at the Network level will also stimulate the collaborations and facilitate decisions on joint acquisition of specific datasets like maps and others.



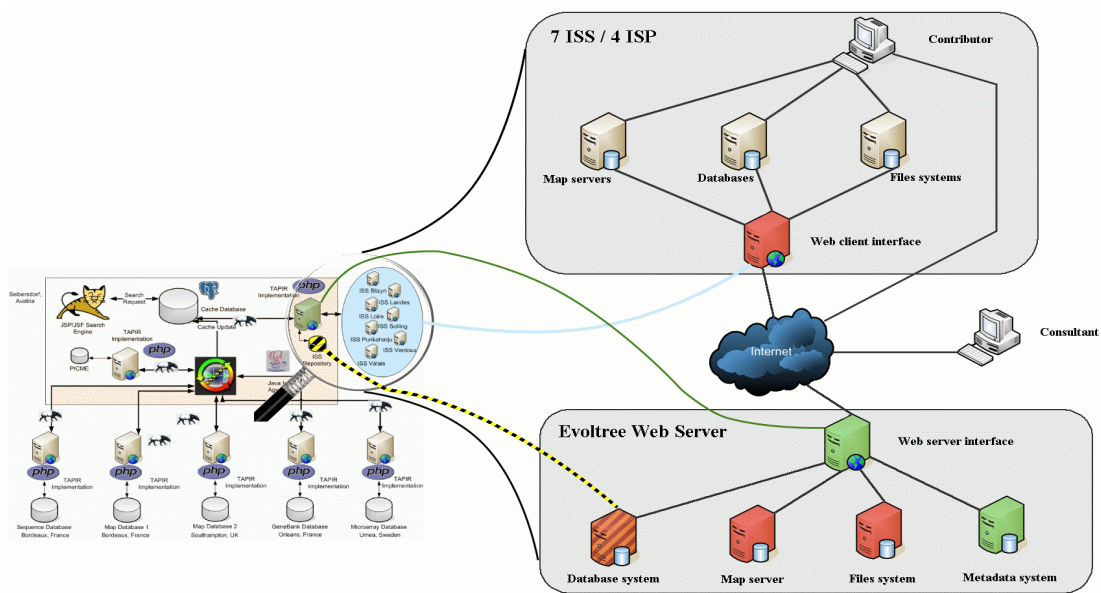
Finally, the global goal is to enhance the data integration and exploitation and to preserve the knowledge about existing data.



Adding to metadata management we developed some web interfaces to make data sharing available through the metadata descriptions. Even if the data are not shared, people can contact the data owner to obtain more details further information or to ask for access to the data themselves (because metadata contain point of contacts).

The sharing interface allows the transfer and the update of datasets from the ISS to the central server and makes the link between the datasets and the corresponding metadata.

3. The ISS Information System in the Evoltree Information System



The ISS information system is part of the global Evoltree information system.

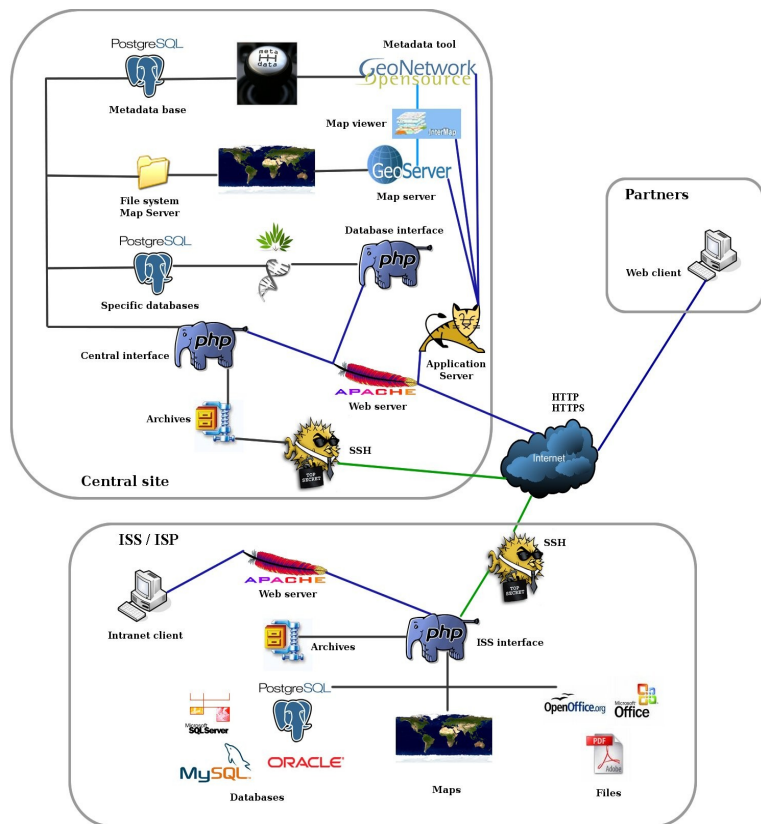
Direct links between the ISS information system and some other Evoltree databases are planned, for example with the genebank database where genetic information on samples coming from the ISS (i.e ISS trees or populations) will be stored.

4. ISS Information System in detail

4.1. Elements

The information system consists in different parts:

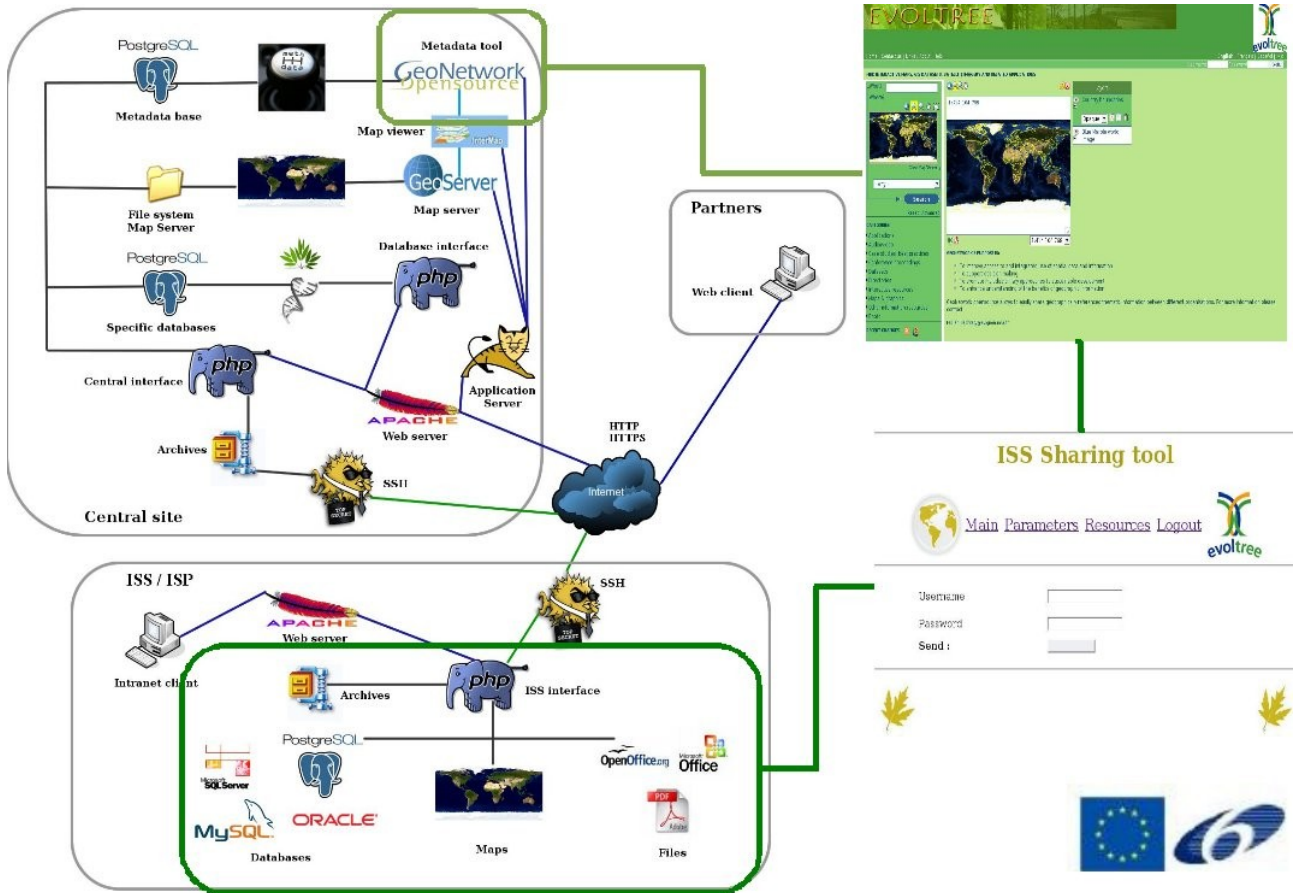
- The Geonetwork tool used to describe the datasets with metadata.
- The central interface that is used to centralise the dataset copies coming from the different ISS.
- The ISS interfaces that are used to define and maintain the shared datasets up-to-date.
- A PostgreSQL database where metadata are stored in a.
- A central file system that stores the datasets coming from the ISS, stored in a central file system as archives but, but these can also be integrated in a centralised database for database dump or in the central Geoserver for maps.



When databases or maps are integrated into the central server, they can be directly consulted on the central server through the internet. Else, they must be downloaded and integrated locally to be used.

The intermap tool is embedded with Geonetwork to display both integrated maps and metadata .

4.2. Data Description and Sharing



The description of the datasets is done through the Evoltree Geonetwork tool. Once the data description is saved, a metadata is stored into the central server.

In a second step, the data sharing can be defined using the ISS interfaces. When a sharing is defined, an archive including a copy of the dataset is created (it can contain maps, database dumps and any other kind of files or directory). This archive is sent to the central server and can be updated whenever necessary through the ISS interfaces.

Finally, to share the dataset copy present on the central server, the partners have to reference the data sharing within the metadata in order to link the data description and the data sharing.

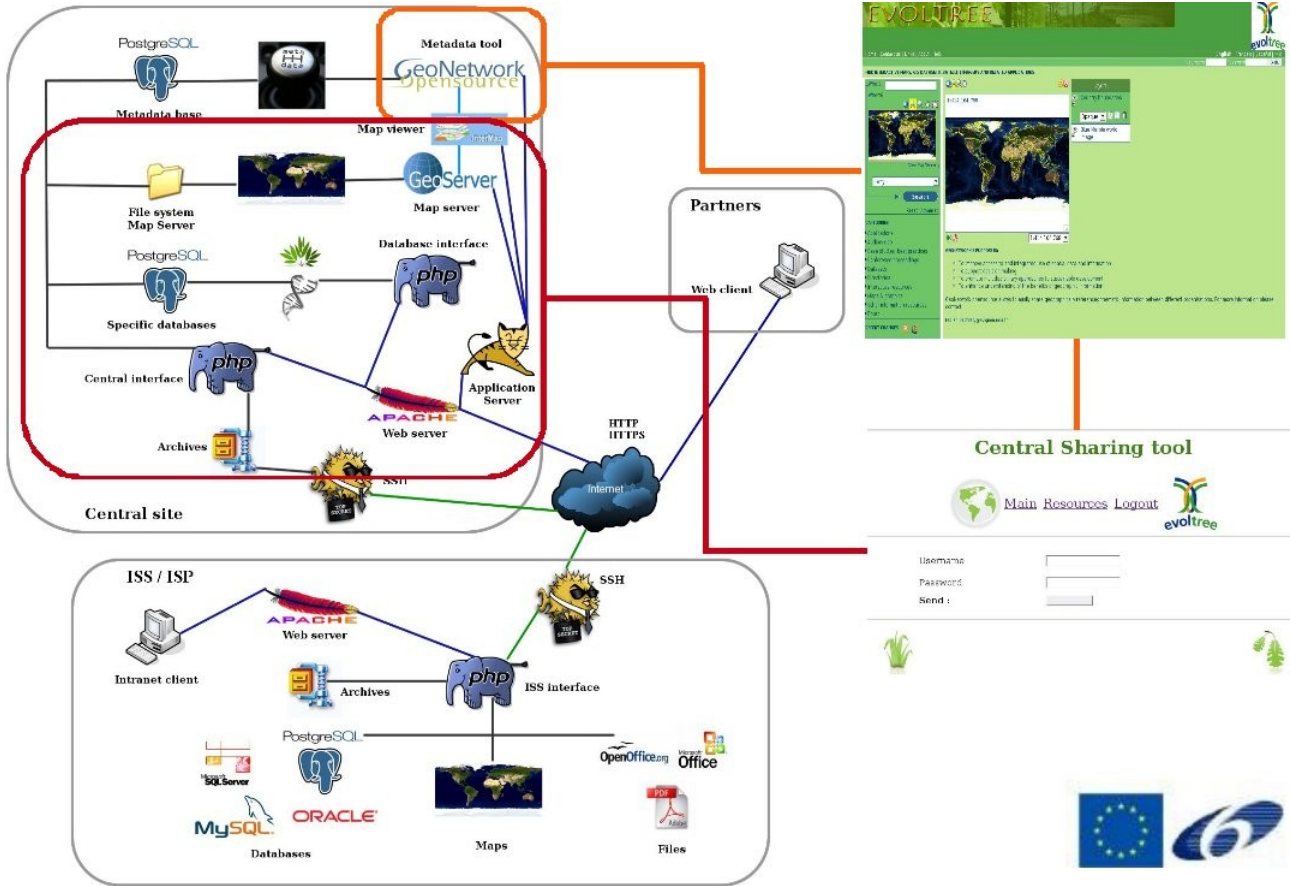
Refer to help documentation about Geonetwork and sharing interfaces for further details about the data sharing.

2-Evoltree ISS Information System and Data Description (Geonetwork)

3-Evoltree ISS Information System Central Sharing Interface (Consulting Data)

4-Evoltree ISS Information System Local Sharing interface (Sharing Data)

4.3. Data Discovering and Consultation



For discovering data, the partners just have to connect to the Geonetwork tool, then make a simple or an advanced search for available data through their metadata descriptions.

If the user wants to download the dataset linked to the metadata, he just has to click on the link present in the metadata. Then the central interface will check his privileges, and if he is authorised to get the dataset, the central interface will invite the user to download the dataset archive or to consult it directly online if it is integrated.

4.4. Use Cases



a) Data Sharing from ISS Correspondent



- 1) The ISS correspondent describes the dataset with metadata and set the authorisations on the metadata tool.
- 2) The ISS correspondent sets up the data sharing with the ISS sharing interface tool.
- 3) The ISS correspondent creates the link between metadata and data (just saving the sharing id on the metadata).

Step one and two are interchangeable.

b) Data Sharing from Partners



- 0) The ISS correspondent creates the partner's account on the Geonetwork tool if not already registered.
- 1) The partner describes the dataset with metadata and sets the authorisations on the metadata tool.
- 2) The partner provides to the ISS correspondent the dataset he wants to share.
- 3) The ISS correspondent sets up the data sharing with the ISS sharing interface tool.
- 4) The ISS correspondent creates the link between metadata and data (just saving the sharing id on metadata) and checks the metadata content and the authorisations created and set by the partner.

c) Partners and Public Consultation



- 0) The partner/consultant logs on the Evoltree Geonetwork portal.
- 1) The partner/consultant discovers data through data description.
- 2) The partner/consultant clicks on the data link and logs on the central interface to consult and download the dataset according to his privileges.

5. Responsibilities



5.1. ISS Coordinator



To manage the account of ISS correspondents.

To check metadata content.

To check the sharing coherence (detect data shared without metadata and conversely).

5.2. ISS Correspondent



To manage the account of the users and partners for his own ISS.

To check the content of metadata created from his own ISS.

To create and manage the data sharing declarations.

5.3. ISS Partners



To describe with metadata all datasets that can be interesting for the Evoltree community.

To provide to the ISS correspondent the related dataset.

6. How to get efficient help

6.1. Evoltree ISS Information System Overview

This documentation is just to help you getting a global comprehension about the ISS information system.

6.2. Evoltree ISS Information System and Data Description (Geonetwork)

This documentation is the complete help about geonetwork metadata tool use and administration.

The goal is to answer the following questions :

What is Geonetwork ?

What is metadata ?

How to create and manage metadata ?

How to administrate the tool and thesauri ?

What is the global content of the metadata ?

6.3. *Evoltree ISS Information System Central Sharing Interface (Consulting Data)*

This documentation is the complete help about the central sharing interface use and administration.

The goal is to answer the following questions :

How to consult data ?

How to administrate the tool ?(Sharing, Keywords, Metadata coherence)

How work the data synchronisation with ISS ?

What is the limits and know issues of the information system ?

6.4. *Evoltree ISS Information System Local Sharing interface (Sharing Data)*

This documentation is the complete help about the ISS sharing interface use and administration.

The goal is to answer the following questions :

How to share data ?

How to administrate the tool ? (Data and user information synchronisation)

How work the data synchronisation with ISS ?

What is the limits and know issues of the information system ?

6.5. *Evoltree ISS Information System Metadata : ISO standard – INSPIRE – Templates*

This documentation present and detail the Evoltree metadata template's and explain what is INSPIRE directive and ISO 19139 norme.

What is INSPIRE ?

What are the EVOLTREE metadata template's ? (Fields and Keywords)

6.6. *Evoltree ISS Information System Quick Start*

This small document present simple procedures to remind how describe and share data.