Mercator

Mercator?
Mercator is a web application that allows you to manage the mapping of an information system as described in the Information System Mapping Guide from ANSSI.fr

What is a mapping?
Mapping is a way to represent the information system of an organization as well as its connections with the outside world. The term "mapping" refers to a schematic representation of a set of information.

Mapping <-> Inventory

Who is Mercator?
Mercator is a cartographer. He is the author of the Mercator projection, which is a conformal projection, i.e. it keeps the angles (very useful in sailing in the 16th century).
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Why map?

Essential tool to control the information system. It allows you to have knowledge of all the components of the information system and to obtain a better understanding of it by presenting it under different views.

Four challenges of digital security

The control of the information system: the cartography allows to have a common and shared vision of the information system within the organization.

Protection of the information system: mapping makes it possible to identify the most critical and most exposed systems, to anticipate possible attack paths on these systems and to implement adequate measures to ensure their protection.

Defense of the information system: mapping enables a more effective response in the event of an incident or digital attack, to qualify the impacts and predict the consequences of the defensive actions taken.

Information system resilience: mapping makes it possible to identifier the organization's key activities to definie a business continuity plan and is an essential tool for crisis management, whether digital or not.
Composition of a map

1. Business
   - The ecosystem view presents the different entities or systems with which the IS interacts to fulfill its function.
   - The business view of the information system represents the IS through its main processes and information.

2. Application
   - The application view describes the software components of the information system, the services they provide, and the flow of information between them.
   - The administration view lists the scopes and privilege levels of users and administrators.

3. Infrastructure
   - The logical infrastructure view illustrates the logical partitioning of networks, including the definition of IP address ranges, VLANs, and filtering and routing functions;
   - The physical infrastructure view describes the physical equipment that are used by the information system.
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Levels of granularity

Each step has its own level of granularity.

Minimum granularity level 1:
Initial elements essential to digital security operations

Intermediate level 2 granularity:
Digital security oriented mapping. Vital information systems must have a mapping with this minimum level of maturity.

Level 3 fine granularity:
Comprehensive and detailed mapping that incorporates digital security requirements.
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Main screen

- Maturity level
- Breakdown by domain
- Global proportional map
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Top panel
- Views
- Preferences
- Documentation

Left panel
- Data entry
Computing the maturity level

Presence of information:
- no description
- no responsible
- no type ...

Links between assets:
- entity without relations
- process without operations
- application that does not support any process
- server without applications

Computation:
conforming assets / total number of assets

% represents the effort to be compliant
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Lists

- Sort on each column
- Search for
- Hide a column
- Show / Modify / Delete
- Copy
- Print
- Export : Excel, PDF, CSV, ...
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**Forms**
- RFT Editor
- Drop-down list
- Links between objects
- Security requirements
- Roles management
- History of changes

![Image of Mercator interface](image-url)
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Data Model
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Links between objects
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Physical network schema
Explore cartography
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Reports
Information System Mapping Report

Lists
Supported entities and applications
List of information system entities and their supported applications

Applications by application group
List of applications by application group

Logical servers
List of logical servers by applications and managers

Analysis of security needs
List of security needs between macro-processes, processes, applications, database and information.

Logical servers configuration
List of logical servers configuration

Inventory of the physical infrastructure
List of equipment by site/location

Audit
Maturity levels
Lists the maturity levels reached by the different objects of the mapping

Update / changes
Traces the changes made to the map in the last 12 months
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Information System Mapping Report
<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
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</table>
**Analysis of the security needs**

Denormalize the links between macro-processes, processes, applications, databases and information.

Analyze the differences in requirements between each object.
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Cartography updates

Track the changes made to the mapping over the last 12 months

Track the updating of the map

Demonstrate that the mapping is updated regularly
<table>
<thead>
<tr>
<th>Section</th>
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<tbody>
<tr>
<td>A8.1.1</td>
<td>Inventory of assets</td>
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</table>
Mercator

Application available on GitHub https://github.com/dbarzin/mercator under Open Source License

Usage
3 hospitals in Luxembourg
10 hospitals in France
3 administrations of French municipalities

Contributions
10 contributors

Roadmap
Treatment registry (GDPR), crisis directory, link with Monarc