HOPEX IT Portfolio Management

User Guide

MEGA
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HOPEX Aquila 6.2

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INTRODUCTION TO HOPEX IT PORTFOLIO MANAGEMENT

HOPEX IT Portfolio Management is a tool in the AQUILA Enterprise Architecture solution that helps enterprise architects manage their application portfolios, design IT solutions aligned with business needs, and plan changes to their information systems.

The **HOPEX IT Portfolio Management** solution enables to:

- ✓ Identify the application assets, specify their characteristics, the technologies used, and define the costs;
- ✓ Assess all applications on relevant criteria;
- ✓ Generate comparison and analysis reports leading to effective transformation of application assets.
- ✓ Visualize the impact of the transformation of the applications on the data they use.

It is integrated to the **HOPEX IT Business Management** solution.

The purpose of this guide is therefore to present how to make best use of these functionalities for the successful evolution of your information system.

GOVERNANCE WITH HOPEX IT PORTFOLIO MANAGEMENT

Associated with other **HOPEX** Suite products, **HOPEX IT Portfolio Management** enables description of all components involved in management of the enterprise application assets.

Application and technology inventory

In the inventory phase, Application Owners update business applications and their deployment.

To manage a consistent repository of your application assets, **HOPEX IT Portfolio Management** relies on the following data:

- **Applications** and **Application Systems**;
- **Technologies** included in the application portfolio;
- **Life Cycles** describing the different states that Technology, Application or Deployment object types can take over a given period.
- **Business Processes**: a standard business process tree nomenclature is supplied with **HOPEX IT Portfolio Management**.
- **Business Lines** that correspond to major product segments, distribution channels or business activities, according to enterprises.
- **Business Capabilities** of the enterprise.
- **Org-Units** of the enterprise.
- **Sites** hosting applications.
- Software or hardware **Technologies** required for operation of applications.
- **Editors**, suppliers of technologies.
- **Costs** described based on nomenclature simplifying analysis.
- **Functionalities** offered by the applications.
- **Business Data** exchanged between applications.

Tools are available to help you save time in creating your repository:

- Automatic technology discovery with Eracent's ITMC Discovery to automatically detect the technologies used in your company.
  See Inventorying Technologies with ITMC Discovery.
- Automatic identification of applications and connection to business capabilities.
  See Distinguishing Applications from Technologies.
- Bulk import of data into the repository using an Excel sheet.
  See Importing Objects in HOPEX IT Portfolio Management.

Application and technology evaluation

HOPEX IT Portfolio Management enables comparison of applications inventoried on criteria such as cost, use rate or criticality for the enterprise, and proposes different reports for this purpose.

Transforming application and technology assets

With the **HOPEX Project Portfolio Management** functionalities, you can plan and follow up on the transformation of your application and technological assets. You can build transformation scenarios for your applications and technologies within different projects that can be compared.

When a project is validated, the life cycle that it contains is automatically transferred to the applications that appear in the inventory portfolios.

Analyzing the impact of the applications asset transformation on data used

Applications use and exchange a large amount of data that can be strategic, sensitive, private, etc. The management and transformation of the application portfolio must take into account the impact of applications on data used.

To do so, **HOPEX IT Portfolio Management** offers the following features:

- Building a business glossary
- Defining the data used in the application and the data exchanged
- Categorizing data: Golden data, sensitive data, etc.
- Defining responsibilities and data properties
- Defining Golden source applications
- Assessing data quality
- Generating impact reports on the data used by an application
- Initializing data from an Excel template.

CONNECTING TO HOPEX IT PORTFOLIO MANAGEMENT

The menus and commands available in **HOPEX IT Portfolio Management** depend on the profile with which you are connected.

Prerequisite: Importing the APQC Libraries

If you want to use APQC business processes for the different activity sectors, you can also import the corresponding libraries.

To import the APQC libraries, see the chapter "Prerequisites to using APQC libraries" of the **HOPEX Business Process Analysis** guide.

Connecting to the solution

To connect to **HOPEX IT Portfolio Management**, see HOPEX Common Features, "HOPEX Desktop", "Accessing HOPEX (Web Front-End)".

HOPEX IT Portfolio Management Profiles

The rights of different users on objects depend on their assigned profiles. For more information on creation of users and assignment of profiles, see the chapter "Managing Users" in the **HOPEX Power Supervisor** guide.

In **HOPEX IT Portfolio Management**, there are default user profiles with which specific rights and accesses are associated. These profiles are:

- Enterprise architect
- EA functional administrator
- EA Contributor
- EA Viewer

Profile	Tasks
Enterprise architect	The enterprise architect manages the structure of an organization to ensure that IT systems are aligned with current business strategies and capabilities.
EA functional administrator	The EA functional administrator has rights on all objects and workflows. He/she prepares the working environment and manages reference data used in the solution.
EA Contributor	The EA contributor is responsible for validating the design of the objects assigned to him/her.
EA Viewer	The EA viewer has read-only rights on objects in the repository.

See also: The HOPEX IT Business Management Desktop.

About This Guide

This guide presents how to make best use of **HOPEX IT Portfolio Management** to assure governance of your enterprise application assets.

Guide Structure

The **HOPEX IT Portfolio Management** guide comprises the following chapters:

- Functional Administration: describes initializations of reference data to be set up before starting an application assets inventory campaign.
- Drawing up an Application Inventory: presents functionalities proposed by **HOPEX IT Portfolio Management** to identify and characterize application assets.
- Evaluating Application Assets: introduces the portfolio concept available in **HOPEX IT Portfolio Management** and explains how to evaluate applications during the inventory phase. Also describes the project concept on which the transformation phase of the application assets relies.
- Importing Technology information from BDNA Technopedia™describes how to use the Technopedia connector.

Additional Resources

This guide is supplemented by:

- The **HOPEX Common Features** guide describes the Web interface and tools specific to HOPEX solutions.

  ☛ *It can be useful to consult this guide for a general presentation of the interface.*

- The Web administration guide.

FUNCTIONAL ADMINISTRATION

So that the different participants can play their business role, the functional administrator must first prepare the working environment.

This involves:

- ✓ Defining Enterprise Org-Units
- ✓ Defining Enterprise Org-Units
- ✓ Describing Enterprise Sites
- ✓ Defining Business Lines
- ✓ Defining Business Processes
- ✓ Defining Business Capabilities
- ✓ Defining Life Cycles

PREPARING THE WORK ENVIRONMENT HOPEX IT PORTFOLIO MANAGEMENT

Inventory and evaluation of the application assets are based on description of business elements - in order to map business requirements with the application architectures that serve as their support - as well as organizational elements such as org-units and deployment sites.

The following points indicate how to create elements that constitute your working environment. This step is executed by the Functional Administrator.

Defining Enterprise Org-Units

HOPEX IT Portfolio Management is used to describe the *org-units* of your enterprise.

> 🕮 *An org-unit represents a person or a group of persons that intervenes in the enterprise business processes or information system. An org-unit can be internal or external to the enterprise. An internal org-unit is an organizational element of enterprise structure such as a management, department, or job function. It is defined at a level depending on the degree of detail to be provided on the organization (see org-unit type). Example: financial management, sales management, marketing department, account manager. An external org-unit is an external entity that exchanges flows with the enterprise. Example: customer, supplier, government office.*

Creating an org-unit

To create an org-unit:

1. Connect to **HOPEX IT Portfolio Management** as functional administrator.
2. Click the navigation menu, then **Environment** > **Org-Units**.
3. In the edit area, click **New**.
   The org-unit appears in the edit area. You can modify its name.

Properties of an org-unit

Internal org-unit/external entity

During creation, org-units are considered as elements internal to the company. To specify that an org-unit is not part of the company, in the **Internal/External** column, select the "External" value.

Org-Unit Type

There are several types of org-units:

- An "Accountable" org-unit (for example, Sales Manager).
- A "Generic" org-unit corresponds to a role to be played during a project (for example, Writer, Requester).
- A "Structure" org-unit (for example, Sales Management).
- A "Function" org-unit (for example, Sales Engineer).

> ☛ *You can also specify its details (company name, e-mail address, telephone number, etc.).*

Library (Owner)

> 🕮 *Libraries are collections of objects used to split HOPEX repository content into several independent parts. They allow creation of virtual partitions of the repository. In particular, two objects owned by different libraries can have the same name.*

In the context of the **HOPEX IT Portfolio Management** solution, a library can hold all the elements of your project: processes and org-units, for example.

> ☛ *For more details on managing libraries, see the "Enterprises and Libraries" chapter in the **HOPEX Common Features** guide.*

To view all properties of an org-unit:

- Select the org-unit and click **Properties** in the edit area.

Describing Enterprise Sites

HOPEX IT Portfolio Management allows you to describe *sites* of your enterprise. These sites are used to define the deployment context of an application.

> 🕮 *A site is a geographical location of an enterprise. Examples: Boston subsidiary, Seattle plant, and more generally the headquarters, subsidiaries, plants, warehouses, etc.*

To create a site:

1. Connect to **HOPEX IT Portfolio Management** as functional administrator.
2. Click the navigation menu, then **Environment** > **Sites**.
3. In the edit area, click **New**.
   The site creation wizard opens.
4. Enter the name of the site and an owner if necessary.
5. Click **OK**.

Defining Business Lines

> 🕮 *A business line is a high level classification of main enterprise activities. It corresponds for example to major product segments or to distribution channels. It enables classification of enterprise processes, organizational units or applications that serve a specific product and/or specific market. Regulation frameworks of certain industries impose their own business lines.*

To create a business line:

1. Connect to **HOPEX IT Portfolio Management** as functional administrator.
2. Click the navigation menu then **Environment** > **Business Lines**.
3. In the edit area, click **New**.
   The business line creation wizard appears.
4. Enter the name of the business line and an owner if necessary.
5. Click **OK**.

Defining Business Processes

APQC proposes standard repositories of business processes specific to each major activity sector.

> 🕮 *A business process represents a system that offers products or services to an internal or external client of the company or organization. At the higher levels, a business process represents a structure and a categorization of the business. It can be broken down into other processes. The link with organizational processes will describe the real implementation of the business process in the organization. A business process can also be detailed by a functional view.*

A set of standard business process repositories from APQC is supplied with **HOPEX IT Portfolio Management**.

To import a module in **HOPEX**, see "Importing a module in **HOPEX**" chapter.

To access business processes of your enterprise:

1. Connect to **HOPEX IT Portfolio Management** as functional administrator.
2. Click the navigation menu then **Environment** > **Processes**.
   The list of processes appears in the edit area.

Defining Business Capabilities

Presentation

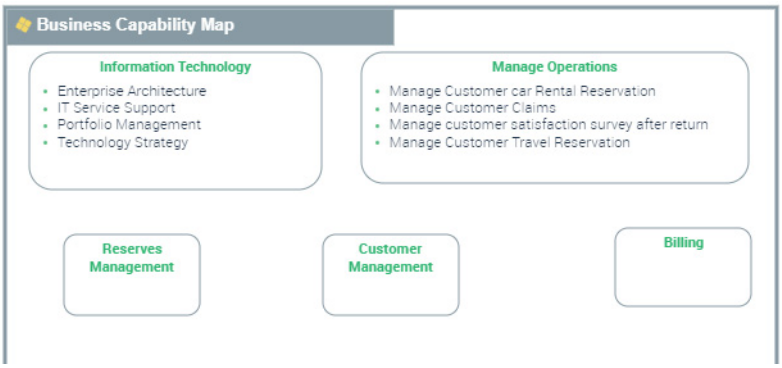
A business capability defines an expected skill.

> 🕮 *A business capability represents a specific ability that an organization possesses or needs to develop to deliver a particular business outcome.*

For example, to respond to a customer satisfaction objective, the organization must be able to provide services conforming to contractual commitments.

A capability map describes what the enterprise is capable of producing for its internal needs or for meeting the needs of its clients. It is thus based on the main business capabilities of its activity at a given moment.

A business capability map is a set of business capabilities with their dependencies that, together, define a framework for an enterprise stage.



In **HOPEX IT Portfolio Management** you can generate a business capability map for a portfolio in the form of a report. The business capability map of a portfolio reflects functional coverage of applications of a given portfolio. It is particularly useful to view the functional coverage change of application assets over time.

See Business Capabilities Tree Map.

Capabilities can be previously defined in a global capability map. The existence of a business capability map of the company enables automatic creation of business capability maps subsequently generated at the portfolio level.

See Describing a Business Capability Map.

Creating a business capability

You can create a capability from a business capability map. See Creating a business capability map.

You can also create a Business Capability from an application. To associate a capability with an application, see Defining Application Functional Scope.

Defining Life Cycles

The life cycle of an object defines the list of possible object states. Associated with begin and end dates, the life cycle of an application is used when planning the different states of an application during a given period. See Defining Application Life.

Life cycles supplied by default

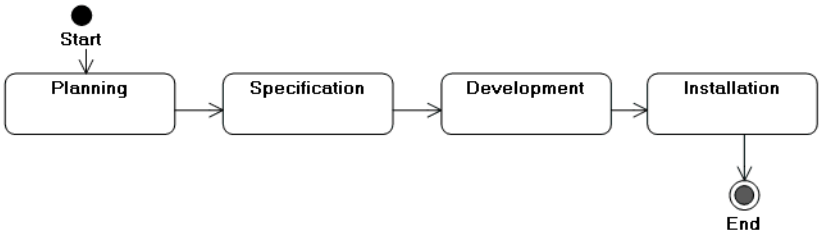
HOPEX supplies standard life cycles for applications and deployment contexts.

Life cycle of an application

This life cycle describes:

- standard development of an application, whatever it might be.
- states that mark steps in the evolution of an application.

This standard life cycle can apply to all applications.



Creating new life cycles

Modifying a standard life cycle impacts data already modeled in the repository. It is therefore a modification that should be restricted to appropriate authorization levels.

To formalize states other than those supplied as standard by **HOPEX**, it is preferable to create a new life cycle.

A life cycle corresponds to the "State Machine" object. To define a new life cycle, you must create a state machine and associate with it the states and transitions constituting the life cycle.

To create a life cycle with **HOPEX IT Portfolio Management**:

1. Connect to **HOPEX IT Portfolio Management** as administrator.
2. Click the navigation menu then **Environment**.
3. in the edit area, click the icon of the library that will contain the state machine, and select **New** > **Building Block.**
4. In the window that appears, select the "State Machine" **Object type** then click **Next**.
5. Enter the **Name** of the state machine and click **Next**.
   The next window allows you to specify the list of object types (MetaClasses) that can be associated with the life cycle created.
6. In the **Valid Type** section, click **Connect**.
7. In the dialog box that appears, select the expected object type and click **OK**.
   The list of selected object types appears.
8. Click **OK**.
   The new state machine appears under the **State Machine** folder of the library.

To create the state diagram associated with the new state machine:

- Click the icon of the state machine and select **New > State Diagram**.

DRAWING UP AN APPLICATION INVENTORY

The application inventory phase consists of collecting information from different viewpoints: descriptive, functional, financial, technical, etc.

This chapter presents functionalities proposed by **HOPEX IT Portfolio Management** to help you inventory the application assets of your enterprise.

The following points are covered here:

CREATING APPLICATION IN HOPEX IT PORTFOLIO MANAGEMENT

HOPEX IT Portfolio Management offers the possibility of describing simple applications or more complex applications via the use of application systems.

Applications and application systems of the organization can be created by the Enterprise Architect or the EA functional administrator.

Application portfolio managers can create applications and specify the owners of those applications. They can then initiate update workflows (functional and technical) so that the application owners can complete the data for their applications.

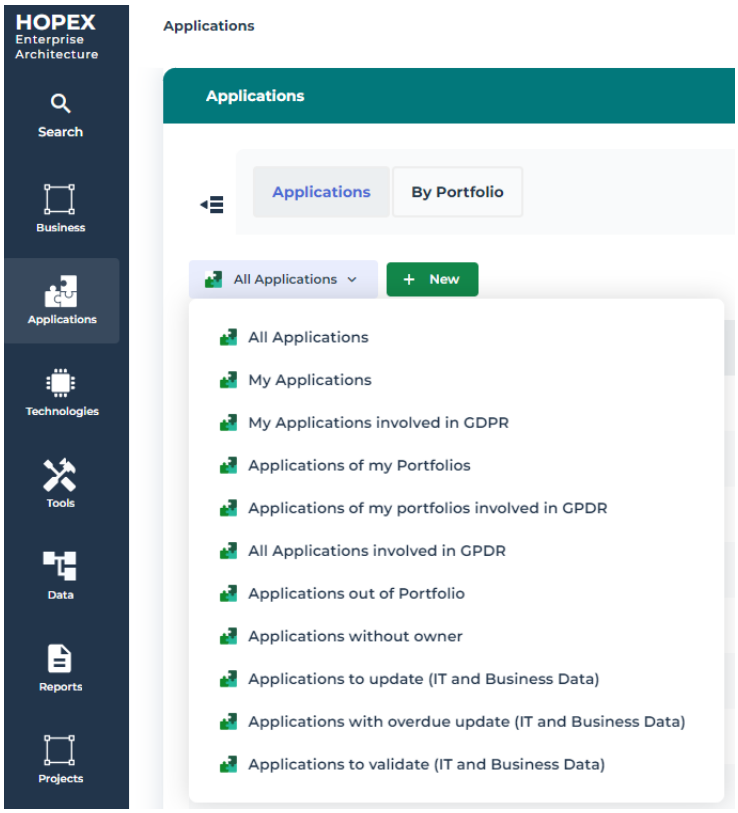
See Application Update Workflow.

Creating an Application

As an Entreprise Architect you can access applications from the **Applications** navigation pane of the HOPEX Architecture desktop.

Under **Applications**, a drop-down list classifies the applications according to the following criteria:

- All applications of the repository
- Applications of the connected user portfolio
- Applications outside portfolio (those not belonging to any inventory portfolio)
- Applications without owner
- etc.



To create an application:

1. In the navigation bar, click **Applications**.
2. In the edit area, click **Inventory**.
   The list of applications appears in the edit area.
3. Click the **+ New** button.
4. In the an application creation window, you can specify:
   - the name
   - the life cycle
   - life cycle begin and end dates
   - the functional scope
   - the associated technologies

   ☛ *For further details, see Application Characteristics.*

5. Click **OK**.

   ☛ *The user that created an application becomes its manager.*

Importing Applications from an Excel file

You can bulk import applications and other application assets via a dedicated Excel file. For more details, see Importing Objects in HOPEX IT Portfolio Management.

Creating an Application System

An application system comprises applications and/or sub-application systems.

Prerequisite

Application systems are not visible by default. To use them in **HOPEX IT Portfolio Management**:

1. On the desktop, click **Main Menu** > **Settings** > **Options**.
   The options window appears.
2. In the tree on the left, click the **HOPEX Solutions** > **Common Features** folder.
3. In the right pane of the window, select the option **Use of Application Systems**.
4. Click **OK**.
5. Save the modification and restart **HOPEX IT Portfolio Management**.

   ☛ *Application systems may appear in certain analysis reports, such as the business capability breakdown report, but if the option is not checked, you cannot access their properties.*

Creating an Application System

To create an application system as an Enterprise Architect:

1. In the navigation bar, click **Inventories** > **Software** > **Application Systems**.
2. Click the drop-down list then **All Application Systems**.
   The list of repository application systems appears.
3. Click the **+ New** button.
4. In the dialog box for creating an application system, indicate:
   - its name
   - its life cycle
   - begin and end dates

     ☛ *For more details on life cycles, see Defining Life Cycles.*

   - version number
   - Cloud Computing: defines how the application system should be installed.
5. Click **Next** if you also want to define the functional scope of the application system (see Defining Application Functional Scope). If not, click **OK**.

Adding an application to the application system

To connect an existing application to the application system:

1. Display the properties of the application system.
2. Click the **Characteristics** page.
3. In the **Component** section, click **Application**.
4. Click **+ New**.
   The application component creation dialog box opens.
5. From the drop-down list, find and select the desired application.
6. Click **OK**.

Aggregation Type

Applications in the application system can be considered as components or as independent applications. This distinction modifies evaluation data of application system costs. See Application System Costs.

Defining the Properties and the Environment of an Application

All elements of an application are accessible from its properties pages.

Accessing Application Properties

To access the properties pages of an application:

1. In the navigation bar, click **Applications**.
2. In the edit area, click the application to display its properties.
   Certain property pages are hidden by default. To display them, click the **Show/Hide** button, then select the desired page.

Application Overview

Colored indicators highlight for the application:

- its **Business Value**: nesting level of the application in enterprise production.
- its **Functional Support**: support level of the application in enterprise process.
- its **Technology Efficiency**: assessment of evolution possibilities of the application from the techniques that support it.

  ☛ *For more details on these indicators see Evaluating Application Criticality.*

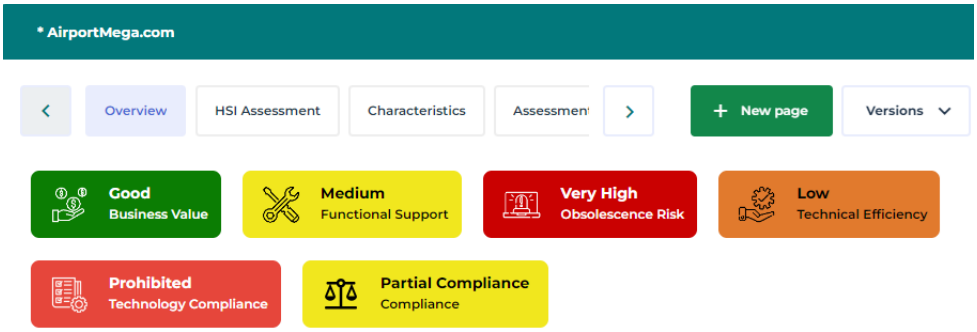
- Its **Technology Compliance**: attribute calculated on the basis of the "Company Standard" defined on all the technologies used by the application.

  ☛ *See Company standard (calculated).*

- its **Obsolescence Risk** corresponds to the highest risk of the technologies linked to it. If an application is linked to three technologies

with "low", "high" and "very high" risks, the application risk takes on the maximum value, i.e. "very high".

☛ *See the obsolescence risk in the Overview of an application.*



Application Characteristics

To access characteristics that enable identification of an application:

- In the properties window of an application, select the **Characteristics** page.

The page displays the following information.

Application identification

The identification includes:

- the **Name**
- the internal **Code**
- the **Application Type**
  - **In House Application**: a specific application, also known as an in-house or proprietary application, is a software application developed specifically for use within a single organization. Unlike commercially available software, in-house applications are tailor-made to meet the specific needs and requirements of the organization developing them. These applications are generally used to manage single process categories, automate tasks and improve operational efficiency within the organization.
  - **Middleware**: middleware is a type of software that acts as an intermediary layer between different applications, systems, or components. It facilitates communication, data exchange, and integration among various software systems, enabling them to work together cohesively.
  - **Office System**: an office system application typically refers to software or a suite of tools designed to facilitate various office-related tasks and streamline workflows. These applications are meant to improve productivity, communication, and collaboration within an office environment. Depending on the specific needs of the

organization, an office system application can encompass a wide range of functionalities.
Some examples of well-known office system applications include Microsoft Office 365, Google Workspace (formerly G Suite), and Zoho Office Suite. These applications typically offer a combination of the features mentioned above and cater to the needs of businesses and organizations of different sizes and industries.

- **Software Package**: a software package application is a specific type of software package that provides a set of related programs or applications to address a particular domain or solve specific problems. It is a collection of software tools bundled together as a unified solution, often with a common theme or purpose. These applications are designed to be installed and used collectively to provide a comprehensive solution to users' needs.
- **System**: a system application, also known as a system software or system-level software, refers to a category of software that is essential for the operation and management of a computer system. Unlike application software, which is designed for end-users to perform specific tasks, system applications work behind the scenes to facilitate the functioning and interaction of hardware, software, and users. System applications are critical for the overall operation, performance, and security of a computer or device.

- the **Cloud Computing**, which indicates how the application should be installed:
  - **On premises**: the application is installed and runs on computers on the premises (in the building) of the company.
  - **Infrastructure as a Service (IAAS)**: the application is installed and runs on an external provider infrastructure (physical or virtual machines and other additional resources such as images in a virtual-machine image-library, raw (block) and file-based storage, firewalls, load balancers, IP addresses, virtual local area networks (VLANs), and software bundles).
  - **Platform as a Service (PAAS)**: the application is installed and runs on an external provider computing platform including operating system, programming language execution environment, database, and web server. Internal/external developers can develop and run their software solutions on a cloud platform.
  - **Software as a Service (SAAS)**: the application is designed, installed and runs by an external delivery partner. Some customization can be implemented during the design phase.
- a **Comment**.

Other characteristics

Some sections of the **Characteristics** page are hidden by default.

To display these:

1. At the top of the **Characteristics** page, click the **Manage sections** > **Service Level Agreement** button.

Application characteristics include:

- the **Service Level Agreement**: displays the indicators that define the application quality level.
- **Functional Scope** of the application. See Defining Application Functional Scope.
- **Responsibility**: it relates to the person or persons responsible for the application. See Designate People Responsible for Applications.
- **Technology** used. See Specifying the Technologies of an Application.
- **Exchanges** with other objects. See Specifying Data Exchanged With Other Applications.
- the **Data** (Classes, Entities or Data views) handled by the application. See Defining the Data Used by an Application.
- the **Concepts** used.
- the **Risks** associated with the application. See Specifying the Risks Associated with an Application.
- **Gantt Chart** of the application presenting the application lifeline. See Defining Application Life.
- associated **Attachments**. See Attaching Documents to an Application.

Defining Application Functional Scope

To indicate the objects that define application functional coverage:

1. Open the application properties.

   ☛ *See also Accessing Application Properties.*

2. Click the **Characteristics** page.
3. Expand the **Functional Scope** section.

   ☛ *A report covers functional characteristics of a list of applications. See Portfolio Analysis Reports.*

The types of data that define functional coverage of the application are:

- the business lines that use the application

  📖 *A business line is a high level classification of main enterprise activities. It corresponds for example to major product segments or to distribution channels. It enables classification of enterprise processes, organizational units or applications that serve a specific product and/or specific market. Regulation frameworks of certain industries impose their own business lines.*

  ☛ *See also: Defining Business Lines.*

- Process Categories using the application

  📖 *A process category defines a group of processes. It is linked to a Process Map or higher level Process Category. It regroups several processes and/or other categorized elements (e.g. Value Streams, Applications). It serves as an intermediate categorization level in the*

process hierarchy, so as to provide a guided and progressive access to finer grained processes.

☛ *For more details on the list of available business processes, see Defining Business Processes.*

- The business capabilities covered by the application

  ☛ *For more details on the list of available business capabilities, see Defining Business Capabilities.*

  ☛ *A report covers distribution of applications in business capabilities, see Generating the Business Capability Map of a Portfolio .*

- functionalities implemented by the application

  📖 *A functionality is a service required by an org-unit in order to perform its work. This functionality is generally necessary within an activity in order to execute a specific operation. If it is a software functionality, it can be provided by an application.*

This data is used in the "Application Overview" and "Application Environment Graph" reports of the application.

See Application Environment Graph of an application.

Connecting a functionality to the application

To create a functionality and connect it to the application:

1. In the **Functional Scope** section, select **Implemented Functions**.
2. Click the **+ New** button.
   The new functionality appears in the list of functionalities of the application.

To connect an existing functionality to the application:

1. In the **Functional Scope** section, select **Implemented Functions**.
2. Click the **Connect** button.
   The connect wizard appears.
3. Click the **Find** button.
   The list of repository functionalities appears.
4. Select the required functionality.
5. Click **Connect**.

Designate People Responsible for Applications

You can assign applications to persons who perform the following business roles:

- Application Owner
- Financial Controller
- IT Owner
- Business User

Defining a manager for an application

To assign an application manager, for example a business manager:

1. Display the properties of the application.

   ☛ *See also Accessing Application Properties.*

2. Click **Characteristics**.
3. Expand the **Responsibilities** section.
4. Click the **Business Manager** tab.
5. Click **Connect**.
   The query dialog box appears.
6. Find and select the person concerned.
7. Click **Connect**.

Designated managers may be asked to complete the information on the applications for which they are responsible. For more details, see Collecting Data for a Set of Applications.

View applications without owners

The role of the application owner is to specify the characteristics of the applications for which he or she is responsible, and to update them regularly.

On the Enterprise Architecture desktop home page, an indicator shows the list of applications without an owner. You can display this list and designate an owner for each application.

To designate the owner of an application:

1. Click the Home page.
2. Click the **Applications without owner** indicator.
   The list of applications concerned appears.
3. For each application, in the associated **Application Owners** column, select the owner((s).

See also Scope Indicators.

Specifying the Technologies of an Application

To specify technical characteristics of an application:

1. Open the application properties.

   ☛ *See also Accessing Application Properties.*
2. Click **Characteristics**.
3. Expand the **Technologies** section.

You may:

- connect existing technologies to the application
- create new technologies.

  📖 *A technology is a definition or format that has been approved by a standards organization, or is accepted as a standard by the industry.*

  ☛ *A report covers the list of applications by technology. See Portfolio Analysis Reports.*

For more details on technologies, see Drawing up an Application Inventory.

Attaching Documents to an Application

You can attach external references to an application.

External references are of URL type: They enable association with an object of a document from a source outside HOPEX.

To attach an external reference to an application:

1. Open the application properties.

   ☛ *See also Accessing Application Properties.*

2. Click **Characteristics**.
3. Expand the **Attachments** section.
4. Click the **New** button.
5. Indicate the name and URL of the reference.
6. Click **OK**.

Specifying Data Exchanged With Other Applications

You can describe the message flows exchanged between applications, with their direction and content. This information enables creation of exchange mapping.

For more details on obtaining this report, see Generating an Application Environment Report.

A message flow is information flowing within an enterprise or exchanged between the enterprise and its business environment. A message flow can carry a content.

A Business data indicates content of a message flow. A Business data can be used by several message flows, since it is not associated with a sender and a destination. The same business data can be used by several message flows.

To create a message flow of a source application to a target application:

1. Open the properties pages of the source application.

   ☛ *See also Accessing Application Properties.*

2. Click **Characteristics**.
3. Expand the **Exchange** section.
4. Click **Sent Application Flows** and click the **New** button.
   The Creation of Message Flow - Content dialog box appears.
5. Select the Receiver application.
6. From the **Content** field, select the business data you want to associate with the message flow.
7. Click **OK**.

See also Defining the Data Used by an Application.

Specifying the Risks Associated with an Application

HOPEX IT Portfolio Management is used to identify the risks associated with an application, and to retrieve the evaluations defined in the **HOPEX Enterprise Risk**

Management solution. You can define a new risk using the application or connect a previously defined risk.

To connect a risk to an application:

1. Open the properties pages of the application.

   ☛ *See also Accessing Application Properties.*

2. Click **Characteristics**.
3. Expand the **Risk** section.

   ☛ *The section can be hidden by default. To display it: at the top of the **Characteristics** page, click the **Manage sections** > **Risk** button.*

4. Click **Connect**.
   The query dialog box appears.
5. Find and select the risk required and click **OK**.

For more details on risks and their evaluation, see **HOPEX Enterprise Risk Management**.

Generating an Application Environment Report

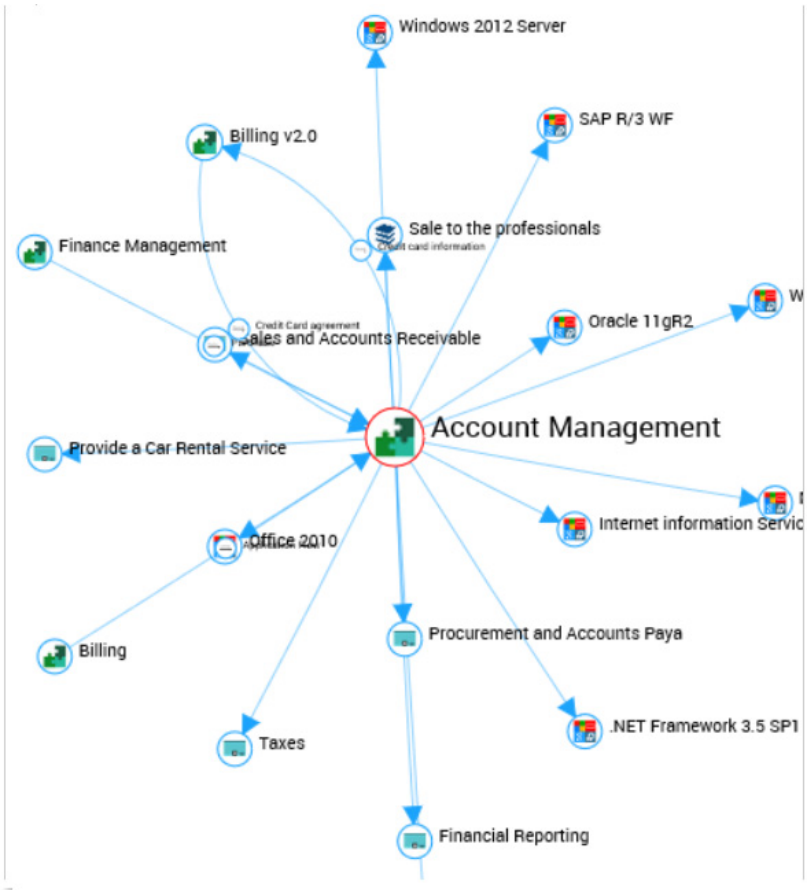
Application Environment Graph of an application

The "Application environment graph" report presents links between an application and its environment. Components appearing in the graph can be applications, installations, technologies, functionalities, consumer org-units or process categories linked to the application.

To open the environment graph of an application:

1. Select the application to display its properties.
2. In its properties window click the **Reporting** page.
3. In the report list, select **Architecture** > **Application Environment Graph**.
   The report consists of four report chapters:
   - **Exchange and Content**: displays data flows between the application and other applications. See also Application Exchange Graph for a set of applications.
   - **Installation and Use** :displays the sites that host the application. See also Managing Application Installations.
   - **Functional scope**: displays the objects that define application functional coverage. See also Defining Application Functional Scope.
   - **All the Environment**: provides a complete view of the application environment. The **Layers** option associated with the graph allows you

to filter the display according to the desired viewpoint (functional scope, installations or data flows).



Application Exchange Graph for a set of applications

You can generate an Application Exchange Graph from a selection of applications to see their connecting links.

To generate an Application Exchange Graph on a set of applications:

1. Display the application list, for example from the **Applications** navigation menu.
2. In the list displayed, select the applications and click **Instant Report**.
3. Select the **Exchange Between Applications** instant report type.
4. Click **OK**.
   The instant report opens in the edit area.

This report displays:

- in the form of nodes: the selected applications
- In the form of an arc: the flows that connect the applications. When there are several flows between applications, they are grouped within the same arc.

You can filter display:

- by content: it is the exchanged data, defined in the application properties. See Specifying Data Exchanged With Other Applications.
- by context: this concerns application flow scenarios, which you can create if you have the **HOPEX IT Architecture** application.

For more visibility an option available under the report allows you to hide applications without link.

See also: List of Analysis Reports Available on Applications and Application Systems.

Defining the Properties and the Environment of an Application System

Similarly to applications, the inventory phase consists of collecting information on application systems from different viewpoints: descriptive, functional, financial, technical.

Prerequisite

Application systems are not visible by default. To use them in **HOPEX IT Portfolio Management**:

1. On the desktop, click **Main Menu** > **Settings** > **Options**.
   The options window appears.
2. In the tree on the left, click the **HOPEX Solutions** > **IT Portfolio Management** folder.
3. In the right pane of the window, select the option **Use of Application Systems**.
4. Click **OK**.
5. Save the modification and restart **HOPEX IT Portfolio Management**.

Accessing Application System Properties

To access application system properties:

- In the list of repository application systems, click the required application system.
  Its property pages appear:
  - Characteristics. See Application System Characteristics.
  - Installation. See Creating an Application System Installation.
  - Projects. See Transforming the Application Portfolio.
  - Evaluation. See Evaluating Application Systems.
  - Cost. See Managing Application and Application System Costs.
  - Reports. See List of Analysis Reports Available on Applications and Application Systems.

Application System Characteristics

To access characteristics that enable identification of an application system:

- In the application system properties, select the **Characteristics** page.

You can specify:

- the **Identification** (name, internal code, etc.)
- the **Service Level Agreement**: displays the indicators that define the application quality level.
- the **Components**. See Adding an application to the application system.
- the **Functional Scope**. See Defining Application Functional Scope.
- the **Responsibility**: see Responsibilities.
- the application system **Gantt** chart. See Application system Gantt chart.
- associated **Attachments**. See Attaching Documents to an Application.

Responsibilities

Owner

An owner should be defined on the application system. He/she is responsible for application system technical and functional information. He/she can be application owner or portfolio manager.

Financial Controller

A financial controller should be connected to an application system. He/she is responsible for defining application system financial information, in particular at time of evaluation.

Business User

A business manager can be specified if necessary, but this is not mandatory.

Application system Gantt chart

The application system has its own life cycle. It is confronted with the life cycle of its components so that possible conflicts in reports can be detected. The application system Gantt chart therefore displays life cycle of the application system with that of its components.

See Defining Application Life.

Evaluating Application Systems

Similarly to applications, the application manager can evaluate application systems for which he/she is responsible on three criteria: business, functional and technological. For more information, see Evaluating Application Criticality.

The Portfolio Manager can evaluate the application assets he/she supervises by creating an application portfolio and associating with it additional evaluation criteria. See Evaluating Application Assets.

DEFINING APPLICATION LIFE

To enable detailed analysis of repository object evolution scenarios and the associated costs, **HOPEX IT Portfolio Management** enables description, from an *object life*, of the planning of steps in the object life cycle.

> 🕮 *The object life is a set of time periods representing the updated calendar of object life cycle states.*

Viewing Application Life (Gantt Chart)

An object evolving over time can take different states (preparation, production, retirement, etc.).

The *Object life* enables viewing of the planning of these different states in the form of a Gantt chart.

To view the Gantt chart representing the different states of an application for example:

1. Open the application properties.

   > ☛ *See also Accessing Application Properties.*

2. Click **Characteristics**.
3. Expand the **Gantt** section.

The first line shows the synthesis of the life cycle of the application, with the sequence of different states. Under this line you access the details of the time periods associated with each state (preparation, production, etc.).

Initializing the life of the application

The object life is a set of time periods representing the updated calendar of object life cycle states.

To create the life of an application:

1. In the **Gantt** section, click **Initialize the Life of the Object**.

   > ☛ *If the life of the object already exists, the **Delete the Life of the Object** button appears.*

   The creation of object life dialog box appears.

2. Specify the following characteristics:
   - a **Life Cycle** which enables definition of the list of possible states of the object.

     ☛ *For more information on proposed life cycles, see Defining Life Cycles.*
   - a **Begin Date** and an **End Date** which enable positioning of the object life in time.
3. Click **OK**.

The object life appears in the Gantt chart of the application.

From information on *object life*, the Gantt chart represents planning of the different steps in time.

Updating the dates of an application life

By default, the different steps in the object life cycle are distributed in equal *time periods* between object life begin and end dates.

These dates are accessible and can be modified in the application Gantt chart.

Accessing properties of a time period

In the Gantt chart, the pop-up menu of a time period presents commands specific to the described application ("Billing" in our example), followed by the commands relating to the time period itself.

To access properties of a time period of the application life:

1. In the Gantt chart, right-click the time period.
2. In the time period pop-up menu, select **Properties**.

See also: Defining Life Cycles.

Gantt Chart Report

On an application, a report in the form of a Gantt chart enables viewing of steps in the application life cycle, its deployment and the technologies used. See Analyzing Application Life Cycle and Installations.

Application decommissioning plan report

As an enterprise architect, you can analyze application end-of-life planning to ensure that functional coverage is not compromised, and identify potential action plans.

The **Decommissioning Plan** report covers a map of business capabilities and associated applications. For each capability, it shows the number of applications scheduled for retirement over the next few years, quarter by quarter.

You can filter applications by portfolio.

To create an application decommissioning plan report:

1. Click the **Reports** menu.
2. At top right of the edit window, click **Create a report**.

3. Search for and select the report.
4. Click **Create a report**.
5. In the report creation wizard, select:
   - a business capability map
   - (optional) an application portfolio
6. Click **Preview**.
7. Click **Continue**.
8. You can specify the following elements:
   - report name
   - public concerned
   - tags
   - description
9. Click **Save and open**.
   The report opens in the edit area.

For the defined capability map, the report shows the number of applications that will be removed.

To display application details:

- Click the corresponding number.
  Application details appear at the bottom of the report.

MANAGING APPLICATION INSTALLATIONS

HOPEX IT Portfolio Management enables management of application deployments.

Applications and Installations

HOPEX enables association of an application with one or several installations.

> ☛ *A software installation represents use by a given population of an application over time. The installation is therefore associated with a life cycle which is specified at the time of its creation.*

On each installation you can define:

- The **Hosting Location**: the application is hosted by a data center. An application can be installed in several data centers, depending on the context.
- The **Deployment Support**: this is the server on which the application is deployed.
- The **Usage Context**: an installation is associated with one or more *usage contexts* that allow to specify the Consumer (the user of the application) and the Functionalities offered. See Creating an Installation Usage Context.

> 🕮 *The usage context of an application or an application system enables specification of the list of functionalities offered to each population of users for a given installation over a period of time. Several contexts can be created for a given installation.*

Consulting Application Installations

To access the installations of an application:

1. Open the application properties.
2. Select the **Installation** page.
   The list of installations associated with the application is displayed with:
   - deployment date
   - planned retirement date

To access characteristics of installations of an application:

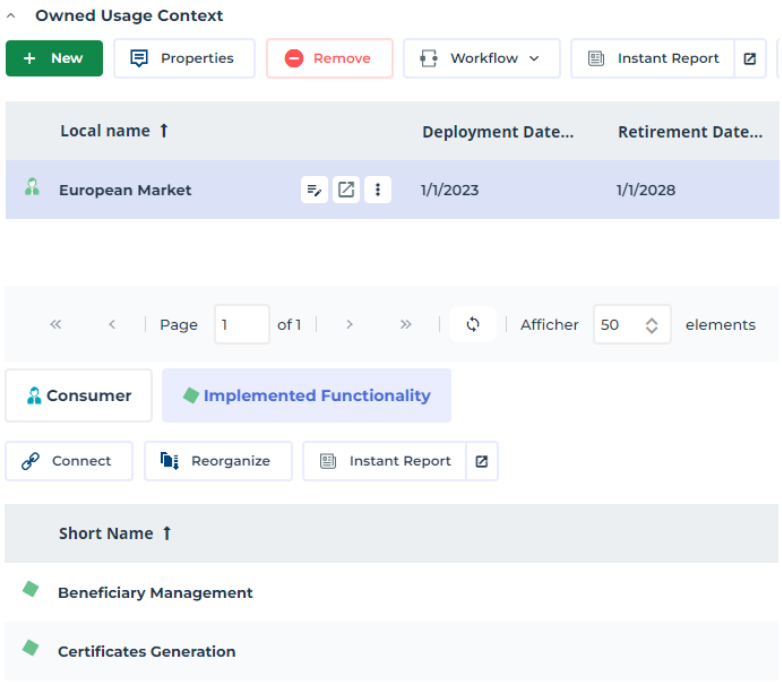
❱ Select an installation.
The hosting, deployment support and usage contexts associated with the installation appear in the following sections.

In **Context of Use**, you can define :

- context begin date
- proposed functionalities retirement date
- planned number of users

By selecting a context, you display in the following section:

- The list of functionalities associated with the context (**Implemented Functionality**)
- The list of users of these functionalities (**Consumer**)



Creating an Application Installation

Application installation on a data center offers functionalities adapted to different populations of users over a time period.

You can create a first installation at creation of the application, or create it later via its properties pages.

To create an application installation:

1. Open the application properties.
2. Select the **Installation** page.

   ☛ *The page can be hidden by default. To display it: to the right of the properties pages, click the **Show/Hide** > **Installation** button.*
3. In the **Software Installation** section, click the **New** button.
   The **Creation of Software Installation** dialog box opens.
4. Enter the name of the deployment.
5. Select the **Deployment Life Cycle** from the drop-down list of this field.

6. Specify:
   - **Start Date**, corresponding to the effective deployment date
   - **End Date**, which can correspond to the application production end date.
7. Select the **Freeze the Source Object of the Software Installation** to avoid modification of the deployed application.

   ☛ *You cannot modify a locked application. If the application is to be modified, a new version must be created.*

   ☛ *For more details on variations, see the **HOPEX Common Features** guide, "Handling Repository Objects", "Object Versions" chapters.*
8. Click **Next**.
9. In the **Hosting Location** section, select the data center that hosts the installation.
10. In the **Usage Context**, specify the usage context of the application, including consumers and functionalities.
11. Click **OK**.
    The new installation appears in the application properties.

Creating an Installation Usage Context

The usage context of an application or an application system enables specification of the list of functionalities offered to each population of users for a given installation over a period of time. Several contexts can be created for a given installation.

To create a *usage context* of an application installation:

1. Open the application properties.
2. Select the **Installation** page.
   The list of installations associated with the application is displayed.
3. Select the installation that interests you.
4. In the **Usage Context** section, click the **New** button.
   The **Creation of Use Context** dialog box opens.
5. Specify the **Life Cycle**, **Start Date** and **End Date** of the context.
6. Click **Next**.
7. Click the **Connect** button to select users specific to the usage context.
   The consumer of a deployment can be an Org-Unit (such as an organization, department or individual) or a Software Installation.
8. Click **Next**.
9. Click the **Connect** button to select the functionalities that will be proposed to users in the usage context.
10. Click **OK**.
    The new usage context appears in the properties of the deployed application.

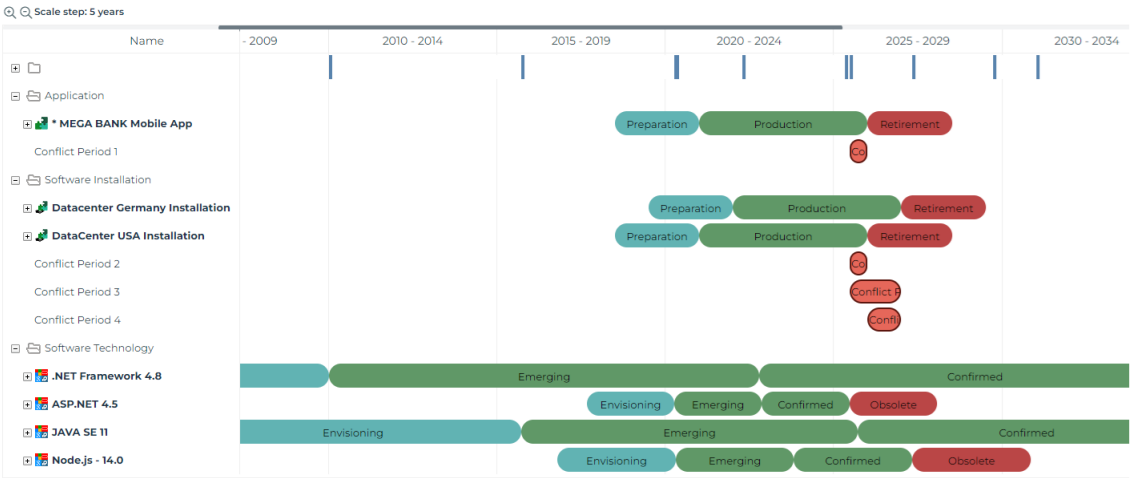
Analyzing Application Life Cycle and Installations

A report enables display in the same Gantt diagram of life cycle steps of the application and its installations.

A second report indicates any conflicts between life cycles of these objects.

To access these reports:

1. Open the properties of the application concerned.
2. Click the **Reporting** page.
3. In the reports list, select:
   - **Gantt Chart** to view life cycles of the objects
   - **Gantt chart with conflicts** to view any conflicts.



Detection of conflicts report on an application

See also: Creating an Application System Installation.

Creating an Application System Installation

When we refer to application system installation, this means installation of all or only certain of its components.

You can create several installations for the same application system.

When you create an application system installation, the wizard allows you to automatically create software installations for all application system components. You can also manually define software installations to be associated with the application system (see Defining Application System Software Installations).

To run application system installation:

1. Open the properties of the application system.
2. Select the **Installation** page.
3. In the **Application System Installation** section, select **New**.
4. In the window that appears, enter:
   - installation name
   - installation start and end dates
5. Indicate if you want to install all components. In this case, the tool creates these automatically.

6. Click **Next**.
   You can specify:
   - the **Consumers**, in other words the users of the deployed application system.
   - the **Implemented Functions**.
7. Click **OK**.

Application System Installation Contexts

A usage context is automatically associated with an application system installation To this context you can connect consumers and implemented functions.

> *The usage context of an application or an application system enables specification of the list of functionalities offered to each population of users for a given installation over a period of time. Several contexts can be created for a given installation.*

You can create several contexts for the same application system installation.

To add a context to an application system installation:

1. Open the properties of the application system.
2. In the **Installation** page, **Application System Installation** section, select the application system installation concerned.
3. In the **Application System Installation Context** section, select **New**. The context appears in the section.
4. Select the context created and in the next section, indicate the **Consumers** of the context and the **Implemented Functions**.

Defining Application System Software Installations

To indicate manually which components are deployed in an application system installation:

1. Open the properties of the application system.
2. In the **Installation** page, **Application System Installation** section, select the application system installation concerned.
3. In the **Software Installation** section, select **New**.
4. From the listed components, select the application to be installed.
   - If the selected application has no existing installation, create an installation. A context is automatically created for this installation in which the consumer is the installation of the application system.
   - If the application presents existing installations, select the required installation. A context is automatically created for this installation in which the consumer is the installation of the application system.

MANAGING APPLICATION VERSIONS

HOPEX IT Portfolio Management allows you to manage different versions of the application assets. Version management applies to following objects:

- Application
- Microservice
- IT Service
- Software technology
- Software technology stack

Managing Application Versions

Creating a new version of an application involves duplicating an existing application and defining the elements that will make up the new version.

Each version constitutes a new application which inherits elements of the application from which it is derived. When duplicating, the user can specify which elements to keep or delete in the new application.

The versioning system makes it possible to track updates made to an application over time.

To create a new version of an application:

1. Open the application properties.
2. Click the **Versions** page.

   ☛ *The page can be hidden by default. To display it: to the right of the properties pages, click the **Show/Hide** > **Version** button.*
3. Click the **+ New** button.
4. In the window that opens, select the items to be retained or deleted and click **Create version**.

   ☛ *For more details on versions, see the **HOPEX Common Features** guide, "Handling Repository Objects", "Object Versions".*

MANAGING APPLICATION AND APPLICATION SYSTEM COSTS

The aim of modeling costs with **HOPEX IT Portfolio Management** is to be able to compare the cost of different components and to compare the different evolution scenarios on identical financial criteria.

To be able to take account of the time (past and future), the cost of a component is represented by a fixed part and a periodic part.

For example, a purchase price is specified in a fixed part, and annual maintenance in a periodic part.

Finally, costs are characterized by different criteria that enable more detailed comparison. Criteria are:

- the type to distinguish investment costs.
- the nature to isolate costs of infrastructure, license, service or manpower.
- life cycle of the component concerned.

Cost Calculation Principles

Each fixed expense is associated with an amount and a date.

Each periodic expense is associated with an initial amount, a start date, and the amount and periodicity of timespots.

☛ *For more details on modeling of costs, see Creating a fixed expense and Modifying a periodic expense.*

The cost of an application can be calculated in the absolute, or in the context of a portfolio. In the case of a portfolio, sums are calculated between begin date and end date of the portfolio.

We assume for example that retirement of an application starts in July with a decreasing periodic cost. The periodic cost is 500€ and the decreasing cost -100€.

Begin Date	End date	Period cost	Total cost obtained
7/1/2012	7/30/2012	500	500
7/1/2012	8/1/2012	400	900
7/1/2012	9/1/2012	300	1200

Begin Date	End date	Period cost	Total cost obtained
7/1/2012	10/1/2012	200	1400
7/1/2012	11/1/2012	100	1500
7/1/2012	12/1/2012	0	1500

The cost calculation formula proposed as standard in **HOPEX** is based on fixed and variable cost characteristics.

Specifying Application Costs

In **HOPEX IT Portfolio Management** costs on an application can be specified by:

- a user with "Financial Controller" role, who has been declared responsible for the application in question;
- the portfolio manager.

> ☛ *To define those responsible for an application, see Application Characteristics.*

One or several *cost lines* can be associated with an application.

> 🕮 *A cost line enables identification of cost kind and type.*

A cost line is characterized by:

- a **type**: operating or capital.
- a **nature**: infrastructure (for a deployment), license (for an application), service, manpower.
- a **state** of the life cycle of the component concerned, such as specification or development phases.

Associated with a cost line can be:

- a periodic expense
- one or several fixed expenses

Creating a cost line

To associate costs with an application, you must begin by creating a *cost line*.

You can create cost lines singly, or automatically create three cost lines corresponding to the three cost natures possible for an application: license, service, manpower.

To create a *cost line* for an application:

1. Open the application **Properties**.
2. Click **Costs**.

   > ☛ *The page can be hidden by default. To display it: to the right of the properties pages, click the **Show/Hide** > **Cost** button.*

3. In the **Cost line** section, click **New**.
   The **Creation of a cost line** box opens.
4. Specify the **Name** of the cost line.

5. Select the **Cost Type**.
6. Select the **Cost Nature**.
7. Select the **State** of the application life cycle.

   ☛ *The states proposed in the drop-down list are the states of the life cycle associated with the object life.*
8. Click **Next**.
   The periodic expenses creation dialog box opens.

   ☛ *Fixed expenses, which can be multiple, are defined separately. For more details on fixed expense creation, see Creating a fixed expense.*
9. Define the periodic cost and click **Next**.

   ☛ *For more details on fixed expense creation, see Modifying a periodic expense.*
10. Click **OK**.
    The new cost line appears in the **Cost Line**.

Creating a fixed expense

Fixed expenses associated with a component are accessible from the component properties pages, in the **Costs** tab.

To create a new fixed expense on an application from a cost line:

1. Open the application **Properties**.
2. Click **Costs**.
3. In the **Cost Line** section, select the cost line that interests you.
4. In the **Fixed Expenses** section, the list of fixed expenses associated with the cost line appears. In this section, click the **New** button.
   The **Creation of Expense** dialog box opens.
5. Specify:
   - the **Name** of the expense
   - the **Date** of the expense,
   - the **Amount** of the expense.
6. Click **OK**.
   The new expense appears in the **Fixed Expenses** section.

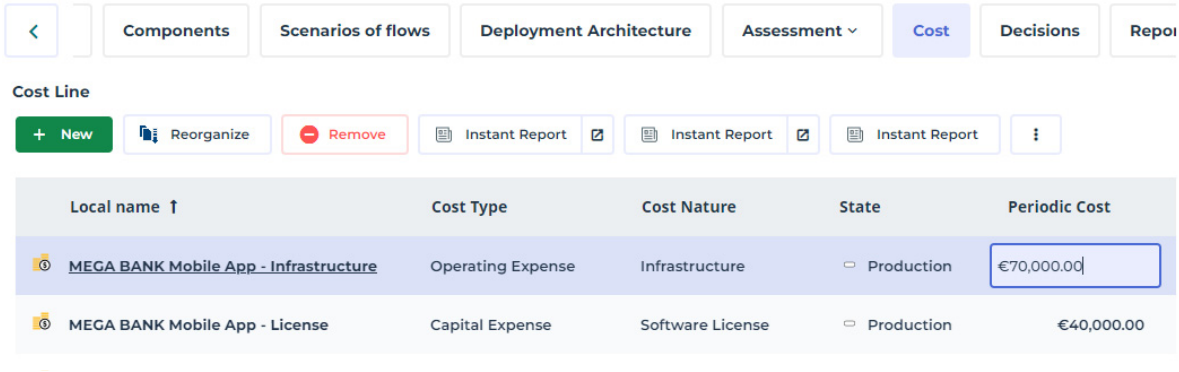
Modifying a periodic expense

To modify characteristics of a periodic expense associated with an application:

1. Open the application **Properties**.
2. Click **Costs**.
3. In the **Cost Line** section, select the cost line that interests you.
4. Columns specific to the periodic expense are associated with the cost line:
   - **Periodic cost**
   - **Periodicity**
   - **Up/Down Amount**

5. Click the column to be modified and enter the new value.

☛ *If you indicate a negative amount, at each time period the amount will be deducted from the periodic cost until this reaches zero.*



Application System Costs

The cost of an application system can be calculated from its different components or globally:

- When an application used by the application system is specified "Application", the cost of this application is not charged to the application system, in other words the cost relates only to the application.
- When an application used is specified "Component", the cost of this application is charged to the application system and is no longer listed on the application.

To indicate that an application is used by the system as a component:

1. Open the properties of the application system.
2. Click **Characteristics**.
3. In the **Component** section, select **Application Component** to display applications making up the application system.
4. Select the required application , and in the **Aggregation Type** column, select "Component".

Specifying a Currency

At the level of each HOPEX environment, the currency used can be specified. The monetary numeric format adapts as a result.

To modify currency:

1. In the HOPEX installation folder, double-click the "Administration.exe" file.
2. Access your work environment.
3. Right-click the desired environment and select **Options** > **Modify**. The options window appears.

4. In the navigator on the left, expand the **Installation** folder and select **Currency**.
5. On the right indicate the currency.
6. Click **OK**.

The format of costs is modified depending on the specified currency. Note also that the format of figures depends on the interface language.

Analyzing Application Costs

In **HOPEX IT Portfolio Management**, a report summarizes the costs of an application and its deployments. The results are derived from values that you specified in the cost page of the application and its deployments.

☛ *The report is also available on an application system.*

To view the report on costs of an application:

1. Open the properties of the application concerned.
2. Click the **Reporting** page.
3. In the Reports lits, select **IT Portfolio Management** > **Application Standard Cost**.

EVALUATING APPLICATION CRITICALITY

Criticality of an application is assessed related to criteria linked with the business, to functionalities covered and to technologies used. The evaluation of an application therefore involves different user types. For more details on users, see HOPEX IT Portfolio Management Profiles.

Assessment can be done:

- in the properties of the applications in question. See Direct Assessment.
- through an evaluation questionnaire sent to the appropriate recipients: see Assessment By Campaign.

The evaluation is supplemented by result analysis tools.

Application Evaluation Criteria

Evaluation of an application relates to:

- its **Business Value** enabling evaluation of the nesting level of the application in enterprise production.
  - Level 1: applications are those which have a limited impact on the company's business objectives. Their absence or malfunction generally does not significantly affect essential business processes. This may include administrative support applications or individual productivity tools.
  - Level 2: applications are those which have a moderate impact on the company's business objectives. Their absence or malfunction may lead to disruptions or slowdowns in certain important business processes. This may include applications such as human resources management systems, customer relationship management (CRM) systems or project management applications.
  - Level 3: applications are those which have a significant impact on the company's business objectives. Their absence or malfunction can lead to significant financial loss or impact on customer satisfaction. This may include applications such as order management systems, enterprise resource planning (ERP) systems or operations management systems.
  - Level 4: applications are those which have an extremely high impact on the company's business objectives. Their absence or malfunction can have major consequences, such as massive revenue losses, serious security problems or regulatory non-compliance risks. This can include central, strategic applications that support essential business operations.
- its **Business Value** enabling evaluation of the support level of the application in enterprise process.
  - Level 1: the application provides basic support features and resources to help users use the application and perform basic business process

tasks. This may include user guides, integrated tutorials, basic documentation and self-service support.
- Level 2: the application offers specific support for functionalities and processes linked to the application itself. This may include context-sensitive help features, task-specific guides, demonstration videos, user discussion forums or e-mail support to answer application-related questions.
- Level 3: the application provides more in-depth assistance by integrating support functionalities directly into business processes. This may include integrated virtual assistants, chatbots or virtual agents that offer real-time assistance while users perform specific tasks.
- Level 4: the application offers individualized assistance to meet the specific needs of users and business processes. This can include consulting services, customized training, tailor-made integrations with other systems, or direct assistance from a dedicated support team.

> ☛ *For more details on businesses addressed and functionalities covered, see Defining Application Functional Scope.*

- its **Technological efficiency** enabling assessment of evolution possibilities of the application from the techniques that support it.
  - Level 1: the application uses technologies that are still under development or are relatively new to the market. These technologies may have promising potential, but they may also involve risks and uncertainties. At this stage, the application can be considered a "proof of concept" or an experimental prototype.
  - Level 2: the application incorporates technologies that have been widely accepted and adopted by the industry. These technologies are proven and considered more stable and mature. The application can leverage these technologies to improve functionality and deliver a better user experience.
  - Level 3: the application is based on well-established technologies widely used in the industry. These technologies are stable, mature and have widespread adoption. They provide a solid, reliable foundation for the application, enabling optimal performance and easy integration with other systems.
  - Level 4: the application explores and adopts the latest technological advances to stay at the forefront of innovation. This may include the use of emerging technologies, advanced concepts such as artificial intelligence, blockchain, machine learning or virtual reality, as well as modern approaches to development and deployment.

> ☛ *For more details on technologies, see Specifying the Technologies of an Application.*

Direct Assessment

You can evaluate an application at precise moments, by creating a new assessment measure each time.

To create an assessment measure:

1. Open the **properties** of the application to be evaluated.

2. Select the **Evaluation** page.
3. Click the **Evaluate** button.
   The assessment creation window opens.
4. Indicate the value of each criterion as well as the evaluation end date.

From evaluation data, a report allows you to classify applications of the installation in a matrix and to rapidly identify the applications to be upgraded. See Application Positioning.

Assessment By Campaign

You can create evaluation campaigns or sessions for applications contained in a portfolio.

On creation of a campaign, questionnaires are sent to designated respondents to obtain qualitative estimations on the applications for which they are responsible.

For more details on campaigns and sessions, see Assessment Campaigns in the IRM solution guide.

Prerequisites for data assessment

Before starting an assessment campaign, you must first prepare the work environment. Ensure that you have defined respondents for the applications.

Creating an assessment campaign on an application portfolio

To create an assessment campaign:

1. Click the **Tools > Assessment Campaigns** navigation menu.
2. In the edit area, click **+ New**.
   A creation wizard appears.
3. If necessary modify the name of the campaign.
4. Select the "Application Assessment - Per Portfolio" **Assessment template**.
5. Specify the **Begin Date** and the **End Date**.
6. Select the portfolio of applications to be evaluated.
7. Click **Next**.
8. Indicate when to send the questionnaires.
9. Click **OK**.
   A questionnaire is sent to respondents.

Next step: Creating an Assessment Session Manually.

See the chapter "Managing Assessment Campaigns > Creating an Assessment Session" in the HOPEX Common Features guide.

RECORDING ARCHITECTURE DECISIONS

As part of an architecture arbitration, you can record the decisions made about applications. HOPEX provides a set of predefined decisions: migration, deployment and investment decisions, as well as a "general" decision type for decisions dealing with other issues.

You can create a decision directly from the decision types provided, or from a SMART analysis.

Decisions resulting from SMART analyses are automatically recorded and archived in the relevant application properties. The **Governance** page of an application's properties shows the history of decisions validated manually or through analysis.

Decision Types

HOPEX provides several types of decision:

- **Cloud Migration Priority** (high or low migration priority)
- **Cloud Migration Type** (replatform, repurchase, etc.)
- **Deployment** (accepted or postponed)
- **General Decision** (accepted or not)
- **TIME Decision** (eliminate, invest, migrate or tolerate).

Cloud Migration Type and **TIME Decision** values can be determined through the corresponding SMART analyses.

Recording a Decision from a SMART analysis

SMART analyses are a tool for evaluating application portfolios, to support architecture arbitration decisions.

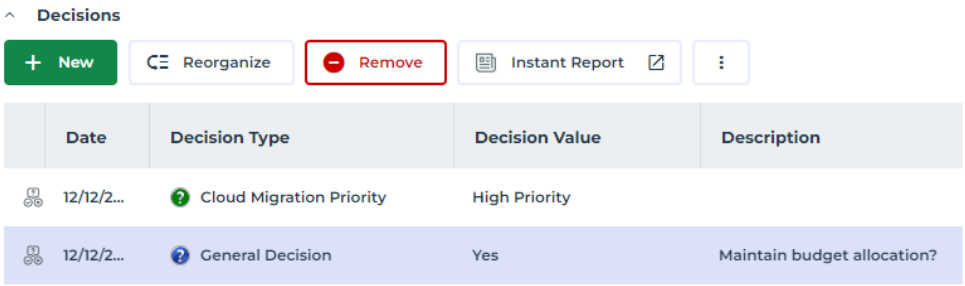
After evaluating the applications, the analysis provides recommendations that the user can accept or reject. If accepted, the decision is automatically recorded on the application.

For more information on SMART analyses, see SMART Analyses.

Entering a Decision on an Application

For migration or deployment decisions, the decision title is clearly defined by its type, e.g. "Cloud Migration Priority", with its value ("High" or "Low").

For “general” decisions, a description should be entered in the form of a question, e.g. “Maintain budget allocation?”, to which the chosen value (“Yes” or “No”) will be applied.



To enter a decision on an application :

1. Open the application properties.
2. Click the **Governance** page.

   ☛ *If the page is hidden by default, click the **Show/Hide** button and select **Governance**.*
3. Click the **New** button.
   The decision creation window appears.
4. In the **Comment** field, enter a description if required.
5. Select the type of resolution and its value, e.g. “Cloud Migration Priority: High Priority”.
6. Click **OK**.

The decision appears with its date, type and value.

LIST OF ANALYSIS REPORTS AVAILABLE ON APPLICATIONS AND APPLICATION SYSTEMS

HOPEX IT Portfolio Management provides predefined report templates that are used to analyze the applications of your repository from different angles.

☛ *For detailed information on reports, see Generating Reports.*

Application and Application System Embedded Reports

The "IT Portfolio Management" reports available for an application or an application system are:

- **Application / Application System Standard Cost**: presents the detailed costs of an application or an application system. See Analyzing Application Costs.
- **Gantt Chart** and **Gantt Chart with Conflicts**: displays the lifeline of the application / the application system and any conflicts in its deployments. See Analyzing Application Life Cycle and Installations.
- **Environment Graph**: provides a graphical view of the environment of the application / application system in terms of data flow, deployments, functional scope. See Application Environment Graph of an application.
- **Application Overview**: presents a summary of the information specified for the application or application system.
- **Software Data Lineage Impact Report**: allows you to visualize the data used by an application and measure the impact between the application and the data it Uses. See Analyzing Impact between an Application and the Data it Uses.

Reports Applicable to a Set of Applications

Reports

You can generate reports on a selection of applications:

Inventory

- **Application Overall State**: shows the current state of applications in their lifecycle (in preparation, in production, etc.)
- **Applications by Age**: shows a graphical breakdown of applications by age.
  Business Capability Map Breakdown: allows you to visualize the applications that cover the components of a business capability map.
  See Generating the Business Capability Map of a Portfolio.
- **Functionality Map Breakdown**: shows the applications associated with a functionality map.

Obsolescence

- **Application Obsolescence** : displays applications entering the retirement phase and applications using technology entering the obsolescence phase.
- **Technology Obsolescence Remediation**. See Obsolescence Risk and Remediation.

Rationalization

- **Decommissioning Plan**. See Application decommissioning plan report.
- **Business Capability Coverage over Time**. See Business Capability Coverage over Time.
- **Business Capabilities Tree Map**: displays a hierarchy of business capabilities according to three possible criteria: number of applications, ratio of applications, cost of applications.
  See Customizing a breakdown report display.
- **Functionalities Tree Map**

Cost

- **Top 10 most expensive applications**
- **Application Total Cost**

Instant reports

Instant reports provide statistical graphic analysis of the data. You can generate instant reports on a selection of applications in order to view certain data graphically (for example, their exchanges) or to compare the applications for specific characteristics (for example, costs).

To launch an instant report on a set of applications:

1. Click the **Applications** navigation menu.
2. In the edit area, select the applications in question.
3. Click the **Instant Report** button.
4. Select the type of report to create and then, if necessary, the application data to be analyzed.

   ```
   For example, to display a histogram of application costs,
   select a "Quantitative" type report then select the "Cost"
   attribute.
   ```

See also:

Managing Instant Reports.

Application Exchange Graph for a set of applications.

Application portfolio reports

It is possible to analyze a set of applications within a portfolio. See Portfolio Analysis Reports.

DRAWING UP A TECHNOLOGY INVENTORY

Similarly to applications, **HOPEX IT Portfolio Management** enables to draw up an inventory of available technologies and to collect information according to different criteria.

The following points are covered here:

- ✓ Defining and Validating Technologies
- ✓ Importing Technologies from BDNA
- ✓ Inventorying Technologies with ITMC Discovery
- ✓ Importing Technologies from IT-Pedia
- ✓ Distinguishing Applications from Technologies
- ✓ Defining Technology Life
- ✓ Managing Deployments of Technologies
- ✓ Managing Costs of Technologies

DEFINING AND VALIDATING TECHNOLOGIES

Technologies associated with applications can be created and validated by the enterprise architect or EA functional administrator.

Validation of technologies is assured by workflows. See Technology Validation Workflow.

Creating a Technology

Technologies are visible under the **Technologies** navigation menu in the HOPEX Enterprise Architecture desktop. You can filter their display:

- All technologies of the repository
- Technologies of the connected user portfolio
- Technologies outside portfolio (those not belonging to any inventory portfolio)
- Technologies to be validated
- etc.

To create a technology:

1. Click the **Technologies** navigation menu.
2. In the edit area, select **All technologies**.
3. Click the **New** button.
4. In the dialog box that appears, indicate:
   - its name
   - the vendor
5. Click **OK**.

When a technology is created in **HOPEX IT Portfolio Management**, a workflow is automatically started. Validation determines the **Company Standard** attribute. See Validating a Technology.

See also:

Importing Technologies from BDNA.

Importing Technologies from IT-Pedia.

Defining Technology Properties

To access technology properties:

- In the list of repository technologies, select the required technology and click the associated **Properties** button.

  The Properties window displays the following pages.

  ☛ *Some pages may be hidden by default. Click the button to display them.*

Overview

The **Overview** page presents indicators on the technology:

- The **Company Standard** : indicates the organization policy regarding the use of technology. See Validating a Technology.
- **Obsolescence Risk**: its value is a function of the interval time between the current date and the technology's end-of-support date (or extended end-of-support date). The shorter the interval, the higher the risk. See below for how to calculate its value.

Calculation of obsolescence risk

The following are taken into account in the calculation, in order of priority:

1. End-of-life date.

   If the end-of-life date is "Indefinite", then the obsolescence risk is "Very low".

2. End-of-support dates

   If there is no end-of-support date, extended end-of-support or end-of-life:

   - If one of these dates is "Expired", the obsolescence risk is "Very high".
   - If one of these dates is "Not Applicable", the risk of obsolescence is "Very low".
   - Otherwise, the indicator value is "Unknown".

3. The interval between the current date and the support end date :

Interval current date / end of support	Obsolescence risk level	Indicator Color
Less than 12 months	Very high	
Between 12 and 24 months	High	
Between 24 and 30 months	Medium	

Interval current date / end of support	Obsolescence risk level	Indicator Color
Between 30 and 36 months	Low	
More than 36 months	Very Low	
Unknown	Unknown	Gray

See also: Defining Technology Life.

Characteristics

In the **Characteristics** page you can specifying:

- **Identification** of the technology:
  - the **Name** of the technology
  - the internal **Code**
  - the **Vendor**
  - The **Company standard**: this attribute indicates the organization policy regarding the use of a technology or technologies of a vendor.

    ☛ *See also Validating a Technology.*
  - a **Comment**.
- the **Official Life Cycle** of the technology, with its publication and support end dates.

  ☛ *The end of support date can be imported from BDNA or IT-Pedia, or specified manually See Defining Technology Life.*
  See also: Support Alert Report.
- the Classification:
  - **Fulfilled Technology Capability**

    📖 *A technology capability is the ability to deliver a technology service which is required by a technology artifact or an application.*
- **Responsibility**: this is the person or persons responsible for the technology:
  - the management controller responsible for financial aspects of the technology
  - the local correspondent who is the main referrer for the technology

    ☛ *This business role is not associated with a specific desktop.*
- **Gantt Chart** presenting the technology life cycle. This is the life cycle within the organization; it can differ from the official life cycle specified by the supplier.
  For more information on the object life cycle and its Gantt chart, see Viewing Application Life (Gantt Chart).
  For more information on the technology official life cycle, see BDNA properties in HOPEX.
- associated **Attachments**.

Installation

See Managing Deployments of Technologies.

Version

See Managing Deployments of Technologies.

Application

This page allows you to connect the technology to existing applications. For each application you can indicate:

- Total expenses for the year
- Capital expenditure (CAPEX)
- Operating expenses (OPEX)

Cost

In this page you can define costs linked to the technology. The definition of costs of a technology is the same as for an application. See Managing Application and Application System Costs.

The "Costs Report" summarizes the costs of the technology.

Reports

The **Reports** page gives access to the analysis reports available on the technology.

☛ *For detailed information on reports, see Generating Reports.*

- **Technology Standard Cost**: summarizes technology costs, by cost nature and by year.
- **Technology Overview**: summarize the main characteristics of the technology.
- **Gantt Chart**: displays technology life cycle steps. See Defining Technology Life.
- **Gantt Chart with Conflicts**: this report presents possible conflicts between the technology life cycle and the life cycle of the applications that use it.
- **Realization Graph Report**: show which elements of the dictionary the technology implements.

BDNA

This page displays properties imported from BDNA. See Displaying BDNA properties in HOPEX.

See also Importing Technologies from BDNA.

IT-Pedia

This page displays properties imported from IT-Pedia. See Importing Technologies from IT-Pedia.

Validating a Technology

Directly on a technology

To validate a technology:

1. Click the **Technologies** navigation menu.
2. Display the **Technologies** list.
3. Click the icon of the technology to be validated and select **Assessment of the Technology** > **Define the technology as Accepted**.

The **Expected** command also validates the technology, but in a more pronounced way, since it specifies that it is an expectation.

Company standard (calculated)

The **Company standard** attribute indicates the organization policy regarding the usage of a technology or technologies of a vendor. This attribute, visible in the technology characteristics, is modified depending on the validation workflow.

It can take the following values:

- Approved
- Accepted
- Prohibited
- Unknown

If a technology belongs to a "prohibited" or "unknown"supplier, it automatically takes the same value.

On demand

The portfolio manager can ask the local correspondent to validate a technology. To do so, a local correspondent must have been specified in the technology's properties.

Outside the workflow he/she can also request financial validation from the Financial Controller responsible for this technology.

Defining a Technology Stack

A technology stack makes up a technology grouping.

It is obsolete when one of the technologies that it contains is obsolete.

It can be associated with applications.

Creating a technology stack

To define a technology stack:

1. In the desktop, click the navigation menu then **Inventories** > **Technologies** > **Technology Stacks**.

2. In the edit area, click **New**.
   The technology stack creation dialog box appears.
3. Enter the name of the technology stack and an owner if necessary.
4. Click **OK**.

Specifying its properties

To specify the properties of the technology stack created:

- Click the technology stack to display its properties.
  Among information you can specify:
  - its characteristics: identification, support alert, company standard.
  - its components (technologies)
  - its life cycle
  - its owner
  - related applications

See Defining Technology Properties.

Support alert

The **Support Alert** attribute available on each technology compares the official life cycle of a technology (imported from BDNA or defined manually) with its life cycle in the organization.

On a technology stack, the value of this attribute is calculated using the values defined for the technologies that it contains.

- If one of the technologies that it contains is “Not Supported”, the support alert for the stack is "Not Supported".
- Otherwise, if one of the technologies that the pile contains is “Delayed Use”, the support alert for the stack is "Delayed Use".
- Otherwise, if one of the technologies that the pile contains is “Early Use”, the support alert for the stack is "Early Use".
- Otherwise, the support alert for the stack is "Supported".

Company standard (computed)

The **Company Standard** attribute indicates the organization policy regarding the usage of a technology.

☛ *See Validating a Technology.*

This attribute can take values:

- Approved
- Accept
- Forbidden
- Unknown

On a technology stack, the value of the **Computed Company Standard** attribute is calculated using the values defined for the technologies that the technology stack contains.

- If one of the technologies the stack contains is "Forbidden", the Computed Company Standard is "Forbidden".
- Otherwise, if one of the technologies the stack contains is "Unknown", the Computed Company Standard is "Unknown".
- Otherwise, if one of the technologies the stack contains is "Accepted", the Computed Company Standard is "Accepted".
- Otherwise, the computed Company Standard is "Approved".

This computed value is providing a reference only. The director of the technology can define a different value for the **Company Standard** attribute for the technology stack.

Conflicts between a technology stack and its components

The "Gantt chart with conflicts" report is used to view any conflicts between the life cycle of a technology stack and those of the technologies that it contains.

To display this report:

1. Open the properties of the technology stack.
2. Select the page **Reporting** > **IT Portfolio Management** > **Gantt Chart with Conflicts**.

IMPORTING TECHNOLOGIES FROM BDNA

BDNA™ is a large repository of technology market information. It provides an up-to-date IT reference catalog of software and hardware information. **HOPEX IT Portfolio Management** provides an integration tool with BDNA™, allowing Enterprise Architects and Technology Portfolio Managers to take full benefit of this information and make more accurate decisions on their IT asset.

With the BDNA Connector you can:

- Import new technologies (as well as technology types and vendors)
- Align BDNA technologies with existing technologies of your repository
- Update technologies imported in your repository

Presentation of the BDNA Connector

Use Case in HOPEX ITPM

In ITPM solution, the BDNA Connector is available to the Functional Administrator. He is in charge of importing data from BDNA. He/she can initialize a new repository by importing software technologies from BDNA and use the Administration Desktop to manage automatic update workflows and alert tools.

The Technology Portfolio Manager (TPM) is responsible for software technologies and their life cycle. He can include his software technologies in the scope of the automatic update in order to be notified automatically of any changes. He can also send the Functional Administrator a request to prepare the import of new software technologies from BDNA.

The Application Portfolio Manager should subscribe to the standard notification on sensitive software technologies that are used by his applications. Thus, when these software technologies are updated by automatic or manual import from BDNA properties, he will receive a notification of the change. He will analyze the impact and decide how to proceed (keep the software technology, use a new version or change it).

Prerequisite Conditions

The BDNA Connector is available with **HOPEX IT Portfolio Management** and requires the BDNA license that you will specify in the authentication settings.

To be able to connect BDNA, you must set the **Data Exchange** options related to exchanges between **HOPEX** and third party tools.

To define the required options:

1. Start **HOPEX Administration**.
2. In the navigation tree, right-click the **HOPEX** site name and select **Options** > **Modify**.
   The site options window opens.

3. Expand the **Data Exchange** > **Import** folder.
4. Click the **BDNA** folder.
5. In the right pane of the options window, enter information to access BDNA APIs (provided by BDNA). These are the options visible under **Activate BDNA**:
   - **URL address of the BDNA API**: this is the URL of BDNA public catalog. The HTTP protocol is used by default but to secure the exchanges you can use the HTTPS protocol by entering it directly in the option.
   - **Authentication user for the BDNA API**: BDNA user
   - **Authentication key for the BDNA API**: password
6. Activate **SMTP proxy** if necessary (provided by your IT service):
   - Check the **Authentication for the proxy** option if required.
   - Enter the address of the proxy.
   - Enter the port.
7. Check the **Authentication for the proxy** option if required.

Scope of BDNA Connector

Within the context of the technology management in ITPM, the BDNA Connector enables import of the following concepts:

- Technology types: categorizes software products by the function they perform.
- vendors. Example: Microsoft
- Software technologies. Example: MS Office

Mappings with **HOPEX** concepts are detailed below.

Object correspondence

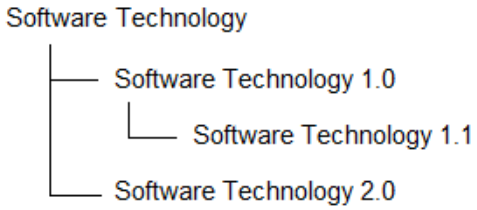
BDNA	HOPEX
Manufacturer (vendor)	Org Unit
Taxonomy (technology type)	_Type
Software Product	Technology
Software Edition	Variation of Software Technology
Software Standard Major/Minor Release	Variation of Software Technology

In BDNA, software technologies are divided into:

- Products (for example: Microsoft Office)
- Editions (for example: Family, Professional)
- Versions (for example: 2013, 2016)
- Releases (major, minor)

Only versions and releases have information on the life cycle (publication date, end support, end of extended support).

Software Products imported from BDNA Technopedia™ into **HOPEX** are saved as Software Technologies. Editions and versions of a software are represented by variations of the Software Technology in MEGA.



Importing new Objects from BDNA

Objects you can import from BDNA are:

- Technology types
- Vendors
- Technologies

Data import is carried out by the functional administrator.

To import data with the BDNA Connector:

1. Connect to ITPM as a Functional Administrator.
2. In the desktop, click the navigation menu then **Tools** > **BDNA**.
3. The edit window displays the following tiles:
   - BDNA technology types
   - BDNA vendors
   - BDNA technologies

Technology types

Importing technology types implies import of all technology types of the BDNA repository.

To import technology types:

1. Click the **Tools** > **BDNA Technology Types** navigation menu.
2. Click **Import**.
   The list of technology types appears in the **Technology Types** folder.

Vendors

You can search vendors to be imported by name, specifying where applicable the Industry and Owner.

The import wizard displays the search results and prompts you to select the vendors to be imported from among the list displayed.

The **Direct Creation** option speeds up the import by eliminating this intermediate stage that lists and displays the vendors found; it creates the vendors found by the wizard directly, without prior validation.

To import a vendor:

1. Click the **Tools** > **BDNA Vendors** navigation menu.
2. In the edit area, click the **Import** button.
   You can search a vendor by specifying:
   - the name (or a part of the name) of the **Vendor**.

   Under the Advanced options, you can specify:
   - The **Industry** within which a vendor belongs, based on the majority of their products.
   - The **Owner** of the vendor. For example, Microsoft is now the owner of Skype.
   - The **Tier**: categorization of vendors based on priority/importance. For example level 1: well-known vendors.

     ☛ ***Direct Creation****: check this option if you want to ignore the results display and directly create the technologies found.*
3. Click **Next**.
   The wizard displays the search results.
4. Select from the list the vendors you want to import.
5. (Optional) At this stage you can merge a vendor to be imported with a vendor of your repository. To do that, click the **Matching Vendor in HOPEX** column and select the vendor of your repository that corresponds to the vendor to be imported.

   ☛ *The existing vendor is maintained in the repository. In its properties you can see the ID as well as the BDNA Name of the vendor to which it corresponds. See also Merging technologies at BDNA import.*
6. Click **Next**.
7. Select the import option:
   - Now
   - As soon as possible: execute the import after saving updates
   - Scheduled: execute the import at the date and time specified
8. Click **Import**.
   The imported vendors are shown in the edit area.

Technologies

You can search software technologies to be imported by:

- their name
- the type of technology and the vendor.

The import wizard displays the search results and prompts you to select the technologies to be imported from among the list displayed.

The **Direct Creation** option speeds up the import by eliminating this intermediate stage that lists and displays the technologies found; it creates the technologies found by the wizard directly, without prior validation.

Note that when importing minor technologies, the tool also imports the major versions from which they are derived.

Searching by name

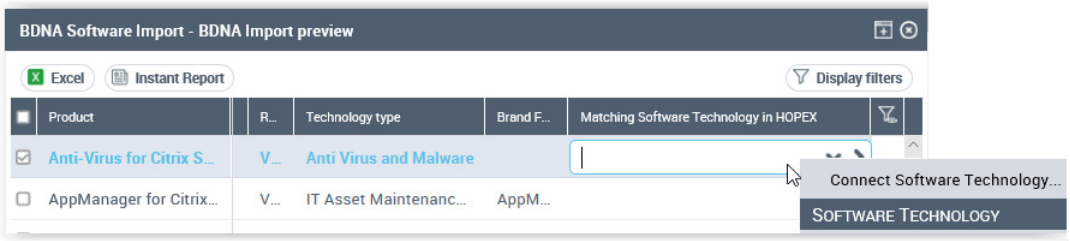
To find a technology using its name:

1. Click the **Tools** > **BDNA Software Technologies** navigation menu.
2. Click **Import**.
3. Select the **Import Software technologies by name** query mode and click **Next**.
4. Complete the following fields:
   - Software Technology Name (enter the name or a part of the name)
   - Technology Version
   - Software Version Group (year)

   Under the Advanced options, you can specify if it is:
   - A minor or major version
   - A technology suite
   - A licensable technology

   ☛ ***Direct Creation*** *: check this option if you want to ignore the results display and directly create the found technologies.*
5. Click **Next**.
   The wizard displays the search results.
6. Select from the list the technologies you want to import.
7. (Optional) At this stage you can merge a technology to be imported with a technology of your repository. To do that, click the **Matching Software Technology in HOPEX** column and select the technology of your repository that corresponds to the technology to be imported.

   ☛ *For more details, see Merging technologies at BDNA import.*



8. Click **Next**.
9. Select the import option:
   - Now
   - As soon as possible: execute the import after saving updates
   - Scheduled: execute the import at the date and time specified
10. Click **Import**.

Searching by the type of technology and the vendor

To find a technology using its type and vendor:

1. Click the **Tools** > **BDNA Software Technologies** navigation menu.
2. Click **Import**.
3. Select the **Import Software technologies by selecting technology types and vendors** query mode and click **Next**.
4. Select the technology type.
5. Click **Next**.

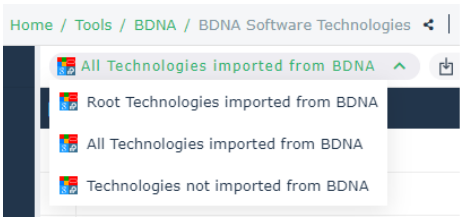
6. Select the vendor.
7. Click **Next**.
8. If necessary, filter the technologies by name.

   ☛ ***Direct Creation*** *: check this option if you want to ignore the results display and directly create the found technologies.*
9. Click **Next**.
   The wizard displays the search results.
10. Select from the list the technologies you want to import.
11. (Optional) At this stage you can merge a technology to be imported with a technology of your repository. To do that, click the **Matching Software Technology in HOPEX** column and select the technology of your repository that corresponds to the technology to be imported.
12. Click **Next**.
13. Select the import option:
    - Now
    - As soon as possible: execute the import after saving updates
    - Scheduled: execute the import at the date and time specified
14. Click **Import**.

Filtering the display of technologies

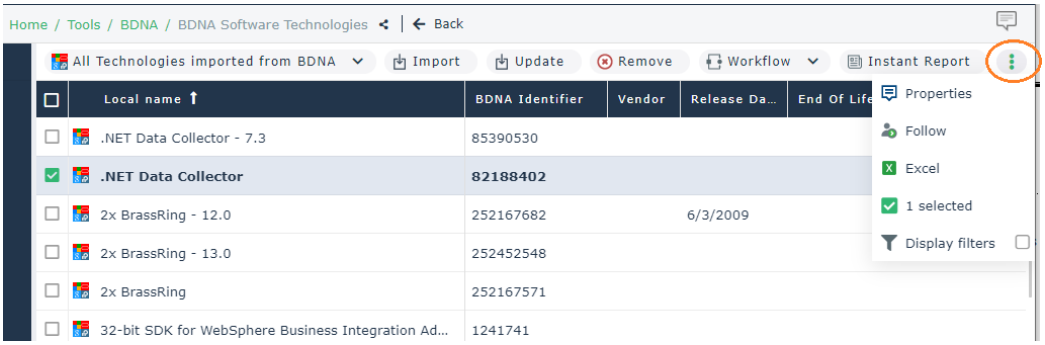
You have the possibility to filter the display of technologies according to:

- Root technologies imported from BDNA: these are the technologies in their first functional version, for which new versions may exist.
- All technologies imported from BDNA
- Technologies not imported from BDNA



Note that additional commands appear when selecting technologies.

☛ *Click ⋮ to access hidden commands.*



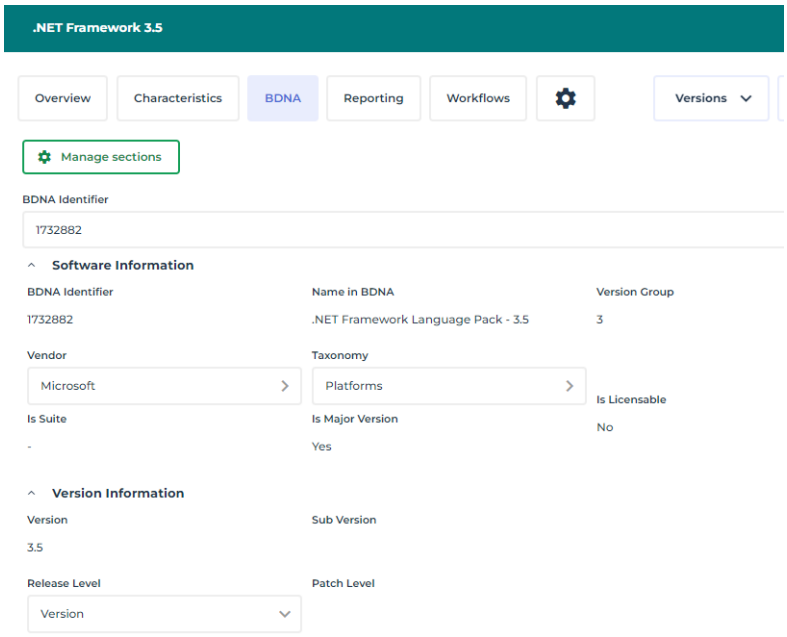
See also:

Updating BDNA Objects Imported into HOPEX.

Merging BDNA technologies with existing technologies of your repository

Displaying BDNA properties in HOPEX

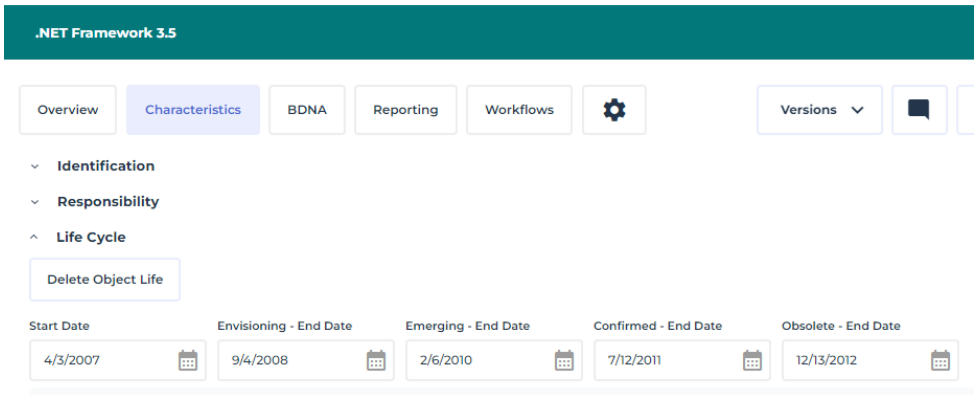
Most of BDNA properties imported into **HOPEX** appear in the **BDNA** property page of the object concerned (software technology, technology type or vendor).



Technology properties related to the official technology life cycle are automatically defined in the **Characteristics** page of the technology properties.

- Release date
- End of Support
- End of Extended Support

> ☛ *These properties can be specified manually if you do not use the BDNA Connector*



A **Support Alert** report uses this data to track technology obsolescence. For example, the solution automatically detects current and future conflicts when an underlying technology component becomes obsolete while the business application is still in production.

See Support Alert report.

Merging BDNA technologies with existing technologies of your repository

Your repository may contain technologies created outside of the BDNA import. These technologies do not benefit from the provider data and updates supplied by the BDNA connector, such as official life cycle dates, for example. To keep the data for these technologies while benefiting from BDNA information, you can merge them with the BDNA technologies that you import in **HOPEX IT Portfolio Management**.

You can merge technologies in three different ways:

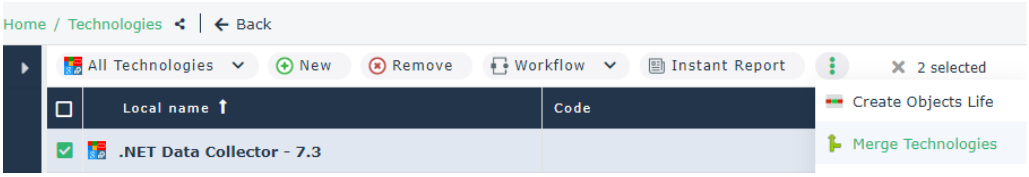
- By merging the technologies (BDNA and non-BDNA) already contained in your repository case by case
- By specifying, during the import of BDNA technologies, those that correspond to technologies existing in your repository
- By specifying the BDNA identifier in the technology's properties

Merging two technologies in HOPEX

To merge two technologies:

1. Click the **Technologies** navigation menu.

2. In the edit area, select the technologies to merge.
3. In the list menu bar, click **More** **> Technologies**.



4. In the wizard that appears, enter:
   - The source technology, which will be merged in the target technology
   - The target technology, which will include information of the source technology.
5. Click **Next**.
6. Select the properties you want to keep from the source and target technologies. By default, properties of the target technology are selected.
7. In the same way, select the links you want to keep.
8. Click **OK**.

Merging technologies at BDNA import

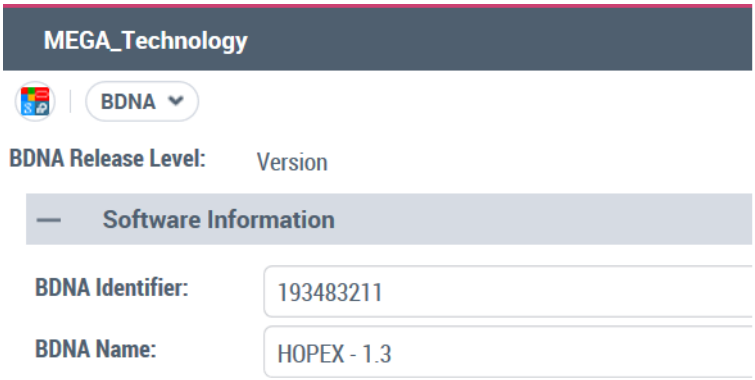
When you import technologies in your HOPEX repository, you can merge them with technologies already present in your repository. The technologies merged in this way are identified as BDNA technologies and can subsequently be updated as such.

In the same way, you can merge vendors.

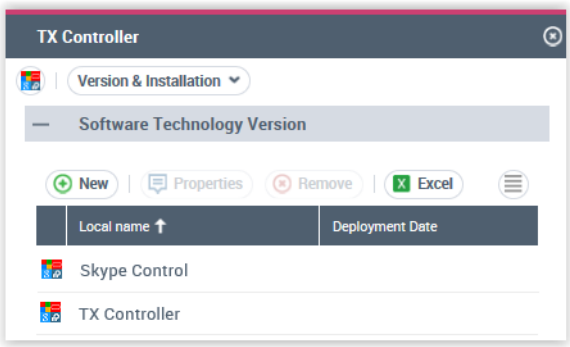
Example of merged technologies

You want to import the "TX Controller V1.15" technology that corresponds to the "Skype control" technology in your repository.

Once the technologies are merged, the existing technology, "Skype control", is kept in your repository. In its properties you can see the ID as well as the BDNA Name of the technology to which it corresponds: "TX Controller V1.15".



The "TX Controller" version has also been imported. This is the major version of "TX Controller", from which the imported version is derived. In its properties, in the **Version** page, you can see the different versions of this technology that exist in your repository.



For more details on how to merge technologies and vendors at import, see Importing new Objects from BDNA.

Modifying the BDNA Identifier of a technology in HOPEX

To define a technology as a BDNA technology, you can manually specify its BDNA identifier.

To specify a BDNA identifier:

1. Select the technology in question.
2. Click the associated **Properties** button.
   The properties of the technology appear.
3. Select the **BDNA** page.
4. In the **Identifier** field, enter the BDNA identifier number.

See also: Updating BDNA Objects Imported into HOPEX.

Updating BDNA Objects Imported into HOPEX

At any time you can update information available on software technologies and vendors imported into **HOPEX**.

To do so:

1. In the **BDNA** navigation pane, click **BDNA Vendors** or **BDNA Technologies** , depending on the objects you want to update.
2. Select the object and click the **Update** button.

☛ *If necessary, click* ⋮ *to display the hidden commands.*

You can also define an automatic update.

Technology Automatic Updating and Alerts

Automatic update checks, at a given frequency, whether properties of software technologies imported into **HOPEX** have changed in the BDNA repository, and if so, carries these updates over to the corresponding technologies in **HOPEX**.

Defining Update Frequency

To activate an automatic update, you must create a trigger in the administration tool which implements the BDNA Automatic Update macro.

Once the trigger is created, you can plan the update in ITPM.

To create a trigger:

1. Open the Administration module.
2. Open the environment.
3. Expand the repository folder concerned.
4. Right-click **Scheduler** and select **Manage Triggers**.
5. Click the **Triggers Definitions** tab.
6. Click the **New** button to create a trigger definition.
7. In the wizard, create a job definition that implements the macro "BDNA Automatic Update Job Implementation".
8. Complete the planning.
9. Click **Finish**.

To define automatic update on technologies:

1. Connect to ITPM as a Functional Administrator.
2. Click the navigation menu, then **Administration**.
3. Select the **Scheduling Management** navigation pane.

4. In the edit window, click BDNA Automatic Update.
   You can set the alert:
   - Daily
   - Weekly
   - Monthly

Subscribing to Alerts

A user can be notified of updates made on the technologies he is in charge of.

To subscribe to an alert:

1. In the edit window, display the list of technologies.
2. Select the technology concerned and click the **Follow** button.

> ☛ *For more details on alerts, see the HOPEX Common Features guide, chapter "Communicating in HOPEX", section "Threads of Posts and Alerts on Objects".*

Support Alert Report

A **Support Alert** MetaAtribute available on each technology compares the technology life cycle (imported from BDNA or defined manually) with its life cycle in the organization.

> ☛ *For more information on technology life, see Defining Technology Life.*

The **Software Technology Support Alert** report, available in the technology portfolio properties, uses the **Support Alert** attribute to analyze the technologies in the **HOPEX** repository and detect any conflicts between their use in the organization and their official lifecycle.

INVENTORYING TECHNOLOGIES WITH ITMC DISCOVERY

Eracent's ITMC Discovery™ tool provides automated discovery of an organization's on-premises technologies and applications.

The data collected is stored in a local Eracent database. You can import this data into your HOPEX repository through a Java job.

Once the technologies are created in HOPEX, you can import their life cycle from IT-Pedia. This is the normalization phase.

> ☛ *The HOPEX IT-Pedia connector allows you to directly import technologies with their life cycle, without going through the ITMC Discovery tool. The normalization of technologies is done automatically. See Importing Technologies from IT-Pedia. See Importing Technologies from IT-Pedia.*

Installation of the Module

Before you can use the Eracent Discovery tool, you must complete the following steps:

1. Install JAVA Standard Edition 8 or higher.
2. In case HOPEX is hosted on a server with a self-signed or internally signed SSL certificate, you need to add this certificate manually to your JAVA trust store:
   - First you must obtain the public certificate from the server where HOPEX is installed. You can request it from the server administrator or view it in any browser by visiting the HOPEX security information Web page and saving a copy of the certificate.
   - Save the certificate in a file (.cer).
   - Add it to your Java Virtual Machine (JVM) truststore.

     > ☛ *In the $JAVA_HOME/jre/lib/security/ folder (for JREs) or the $JAVA_HOME/lib/security folder (for JDKs), a file named "cacerts" provided with Java contains the public certificates.*

   - To import the new certification, run the keytool as a user with permission to write to the cacerts file:

     ```
     keytool -import -file <the cert file> -alias <any name> -keystore <path to cacerts file>
     ```

   - You may be asked for a password. The default password supplied with Java is "changeit".
3. In case Eracent is hosted on a server with a self-signed or internally signed SSL certificate, you must add this certificate manually to your JAVA trust store:
   - You need to obtain the public certificate from the server where Eracent is installed. You can request it from the server administrator or get it

from any browser by displaying an Eracent security information web page, and saving a copy of the certificate.

- Once you have saved the certificate to a file (.cer), you need to add it to the trust list of your JVM.

  ☛ *In $JAVA_HOME/jre/lib/security/ for JREs or $JAVA_HOME/lib/security for JDKs, a file named "cacerts" which comes with Java contains the public certificates.*

- To import the new certification, run keytool as a user with write permission to the "cacerts" file:

  ```
  keytool -import -file <the cert file> -alias <any name> -keystore <path to cacerts file>
  ```

- You may be asked for a password. The default password, as provided with Java, is "changeit"

4. Go to the HOPEX HAS console and generate an API Key used to authenticate to HOPEX:
   - Go to **Modules** -> **Authentication** - > **Api Keys** -> **Create**.
   - In the form, choose an "Open Session" and fill out the other input fields with your user HOPEX parameters.

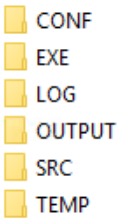
5. Go to the module installation folder in CONF/mega.properties and copy/paste the generated key in the api_key property.

6. Launch the batch file \EXE\EracentToHopex_Sequence**EracentToHopex_Sequence_run.bat** to run the discovery tool:

```
##Connection to HOPEX website##
Hopex_host==
Hopex_URL_query==HOPEXGraphQL/api/ITPM
api_key==


##Connexion to Eracent server##
Eracent_host==
Eracent_endpoint_installed_software==/Discovery/v1/InstalledSoftware/
Eracent_user==
Eracent_mdp==
Eracent_top==100


##Run parameters##

##Possibilities : version, main_version, product
import_type==version
```

Structure of the module

The structure presents the following folders:



CONF

This folder contains:

- The context file (variables to be filled by the user to run the process on his machine)
- The file Types.csv, which contains the technology types from Eracent to load into HOPEX
- The file Functions.csv, which contains the functions from Eracent to load into HOPEX.

Set the configuration before running the .bat file. In the Types.csv and Functions.csv files, in the "Import" column, enter 1 to load the type or function into HOPEX, 0 otherwise.

See Configuration.

EXE

This folder contains the zip file that contains the .bat files you must run to get data from Eracent and load them into Hopex.

See Retrieving Data Collected by ITMC Discovery.

LOG

This folder contains the logs files which are created every time you launch the .bat.

List of log files you can find in this folder:

- log_dateOfTheDay.csv: the files with steps of the execution, errors included
- Hopex_requests.csv: all the requests sent to HOPEX
- errors_WS_Hopex.csv: all the errors from HOPEX POST requests
- errors_response_Hopex.csv: the responses from HOPEX with code 200 which contains errors.

OUTPUT

This folder contains the files used as history of each object already loaded into HOPEX (Publisher_history.csv, Product_history.csv, Version_history.csv). When an object (Technology, Vendor, etc.) has been loaded into HOPEX, it appears with its idabs in the corresponding file. This history ensures that objects already transferred to HOPEX are not altered (renamed, deleted).

If you try to re-import a scanned object after deleting it from HOPEX, it will not be imported as long as it is present in the history file. The object must therefore be manually removed from the history file before it can be re-imported into HOPEX.

SRC

This folder contains the .zip file which is the Talend project that can be imported into Talend to be modified.

TEMP

This folder contains all the temporary files used during the execution.

Configuration

The folder CONF contains three files with a set of properties to configure the Discovery tool:

- Technical Configuration (mega.properties): a text file that contains a set of connection properties to be defined to launch the tool.

```
##Connection to HOPEX website##
Hopex_host=={paste here the URL where Hopex is hosted }
Hopex_URL_query==HOPEXGraphQL/api/ITPM
api_key=={paste here the api key generated in the section I.2}

##Connexion to Eracent server##
Eracent_host=={paste here the URL where Eracent server is hosted }
Eracent_endpoint_installed_software==/Discovery/v1/InstalledSoftware/
Eracent_user=={paste here the username of the user who has access to the Eracent server }
Eracent_mdp=={paste here the password of the user who has access to the Eracent server }
Eracent_top=={Eracent network response package size (in number of technologies)  -  default value = 100 - does not
```

```
affect the number of item retrieved, only the size of the
network query response packages}

##Run parameters##

##Possibilities : version, main_version, product
import_type=={Select one of the possibilities above to
choose the type of technology you want to import }
```

- Type file (Types.csv): a table of all technology types that can be imported from Eracent to the HOPEX repository.

Type	Import
User Defined	1
Licensable Not Detect	1
Licensable	1
Unassigned	1
Not Licensable	0
Unauthorized	1
Unknown	1
Child	0
Driver	0
Patch	0
Licensable Fonts	0
Obsolete	0

For each type, enter 1 to load all technology of this type into Hopex, and 0 if you want to ignore the technologies of this type.

- Function file (Function.csv): in this file you can filter technologies so that they are not imported into HOPEX, based on their source Function, and

you can define an HOPEX Technological Functionality for the imported technologies.
The column "Function" lists the technical functionalities that exist in Eracent.

The column "Technical_Functionality" indicates the corresponding technical functionalities in HOPEX.

Function	Technical_Functionality	Import
Unassigned		0
Operating System	Platform	1
Office Suite	Desktop tools	1
Word Processing	Desktop tools	1
Spreadsheet	Desktop tools	1
Database		0

You can filter the technologies you want to import from Eracent into HOPEX based on these Functions: enter "1" in the "Import" cell to import the Eracent technologies with the given Function, "0" otherwise.

Upon import, the HOPEX Technical Functionality input in the "Technical_Functionality" column will be linked to all imported technologies with the matching Eracent Function specified in the Function Column. If no Technical Functionality is specified, no Technical Functionality will be linked to the imported technology.

Retrieving Data Collected by ITMC Discovery

In the EXE folder of the module installation are the .bat files to be executed to get the data from Eracent and load them into HOPEX:

- GetDataFromEracent_run.bat: to retrieve the data stored in the Eracent database.
- GetDataFromHopex_run.bat: to import the data into HOPEX.

IMPORTING TECHNOLOGIES FROM IT-PEDIA

IT-Pedia™, from Eracent, is an extensive catalog of existing technologies that includes up-to-date information on computer software and hardware.

HOPEX provides an integration module with Eracent IT-Pedia to monitor technology obsolescence. It allows Enterprise Architects and Technology Portfolio Managers to make informed decisions about the evolution of their IT portfolio.

With the IT-Pedia connector you can:

- import new technologies
- align IT-Pedia technologies with existing technologies of your repository
- update information on technologies imported into HOPEX.

Prerequisite

The IT-Pedia connector is available as a module. You can install it in **HOPEX IT Portfolio Management** and **HOPEX IT Business Management**.

☛ *For more details on importing a module, see Importing a Module into HOPEX.*

Communication and protocols

HOPEX connects to IT-Pedia using the java command: HttpURLConnection.

The server hosting HOPEX must have an active Internet connection.

HOPEX must have the right to establish outgoing connections.

The protocol used is HTTPS (standard port = 443).

Any firewalls must allow this connection to pass through.

Connection options to IT-Pedia

After installing the module, before you can import content from IT-Pedia, you must authorize exchanges with IT-Pedia in HOPEX.

To set the required import options :

1. Open the **Administration** desktop.
2. In the edit area, click **Environment Options**.
   The environment options window opens.
3. In the navigation tree, click **Tools** > **Data Exchange**> **Import > IT-Pedia**.
4. In the right pane of the options window, enter information to access IT-Pedia (provided by Eracent):
   - **IT-Pedia URL address**: this is the URL of IT-Pedia public catalog.
   - **IT-Pedia API user**
   - **IT-Pedia API password**

Eracent APIs are available at the following address: https://itpedia.eracent.com/API/.

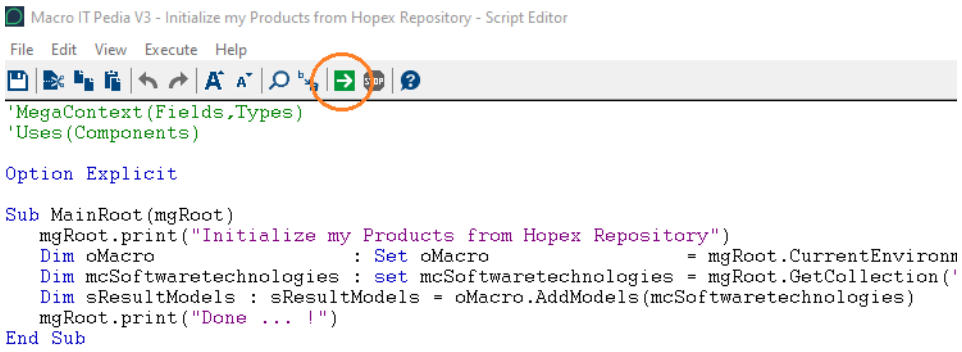
Initializing the list of your technologies in IT-Pedia

Before using the IT-Pedia connector, you must initialize the list of technologies in your repository in IT-Pedia for standardization. This initialization is done through a macro.

> ☛ *Therafter you can standardize the technologies in your repository with the **Refresh** command in the IT-Pedia connector. See Normalizing Technologies.*

To launch the macro:

1. Log into HOPEX (Windows Front-End) as Hopex Customizer.
2. Launch the initialization macro ~kKAycUFMZzWC[IT Pedia V3 - Initialize my Products from Hopex Repository].



After the macro is launched, the My Products Procurement list in IT-Pedia is populated by HOPEX technologies to go through the normalization process.

Importing New Technologies from IT-Pedia

The IT-Pedia import function concerns technology versions, with a view to managing product obsolescence.

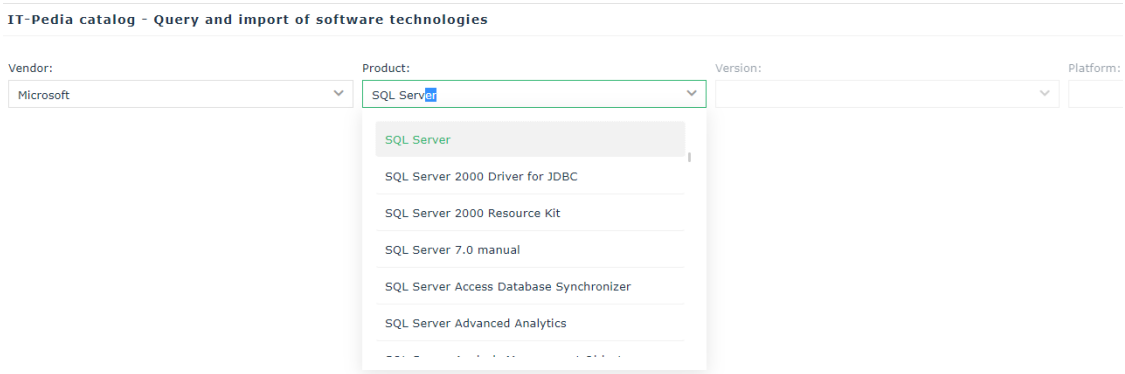
> ☛ *In HOPEX, the technology inventory includes both products and their versions.*

Version data can be imported by the Enterprise Architect or Functional Administrator.

To import data with the IT-Pedia connector:

1. Click the **Technologies** > **IT-Pedia** navigation menu.
2. In the edit area, click the **Import** button.
   The import wizard opens.

3. Select:
   - a vendor
   - a product
   - the version
   - the platform (Mac or Windows)



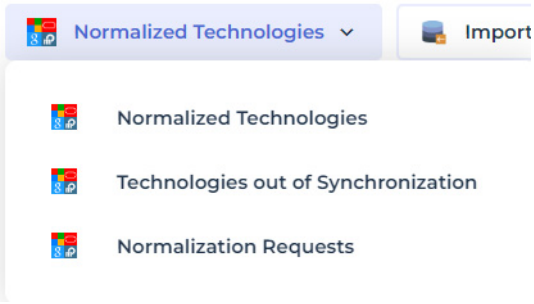
4. Check the product of the selection that appears.

5. Click **Import**.
6. Select the import option:
   - Now
   - As soon as possible: execute the import after saving updates
   - Scheduled: execute the import at the date and time specified
7. Click **OK**.
   A message indicates import progress and completion.

Filtering the display of technologies

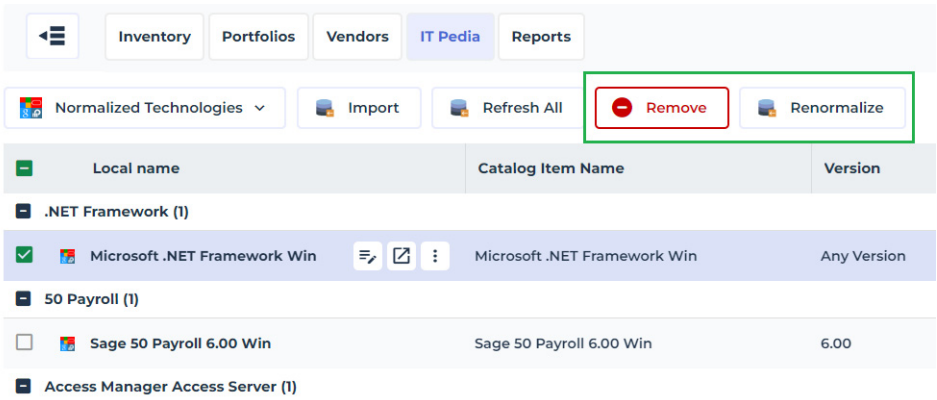
You have the possibility to filter the display of technologies according to:

- Normalized Technologies: all versions imported from IT-Pedia (versions present in the IT-Pedia My Products list)
- Technologies out of synchronization: versions not present in IT-Pedia My Products
- Normalization requests. See Normalizing Technologies.



When you import technologies from IT-Pedia, these technologies are automatically added to the "My Products" list of the IT-Pedia catalog. When updating a technology in HOPEX, if the technology no longer exists in IT-Pedia, it is displayed in the list “Technologies out of Synchronisation”.

Note that additional commands appear when selecting technologies.



Updating IT-Pedia Technologies Imported into HOPEX

You can update information from IT-Pedia at any time. Updates are made to all normalized objects in your repository that have an IT-Pedia identifier.

To update information available on software technologies:

1. Click the **Technologies** > **IT-Pedia** navigation menu.

2. Click **Refresh All**.
   At the end of processing, a message indicates the number of technologies updated.

Synchronization of deletions in HOPEX and IT-Pedia

In the latest versions of the IT-Pedia connector HOPEX v5 and HOPEX Aquila published in the HOPEX Store, when you delete a technology imported from IT-Pedia from the HOPEX repository, the technology is also deleted from your product list in IT-Pedia.

See also : Tracking properties updated by IT-Pedia.

Normalizing Technologies

Normalizing the technologies of your repository means adding them to the list of "My Products Procurement" list in IT-Pedia for standardization.

Normalization is applied to all technologies that have a defined vendor but no IT-Pedia identifier.

Once normalization has been carried out in IT-Pedia, you need to run a manual update to retrieve the IT-Pedia information in HOPEX.

To normalize the technologies:

1. Click the **Technologies** > **IT-Pedia** navigation menu.
2. In the drop-donw list, select **Technologies out of Synchronization**.
3. Select the technologies to normalize.
4. Click the **Normalize** button.

Requests for normalization are displayed in the **Normalization requests** list. Once normalization has been done, the corresponding technologies are visible in the global list of technologies in your repository.

See also: Initializing the list of your technologies in IT-Pedia.

Reporting Missing Technologies in IT-Pedia

From the IT-Pedia connector you can declare missing technologies and request that they be added to the IT-Pedia catalog. This request for addition in IT-Pedia implies automatic creation of the technology in HOPEX.

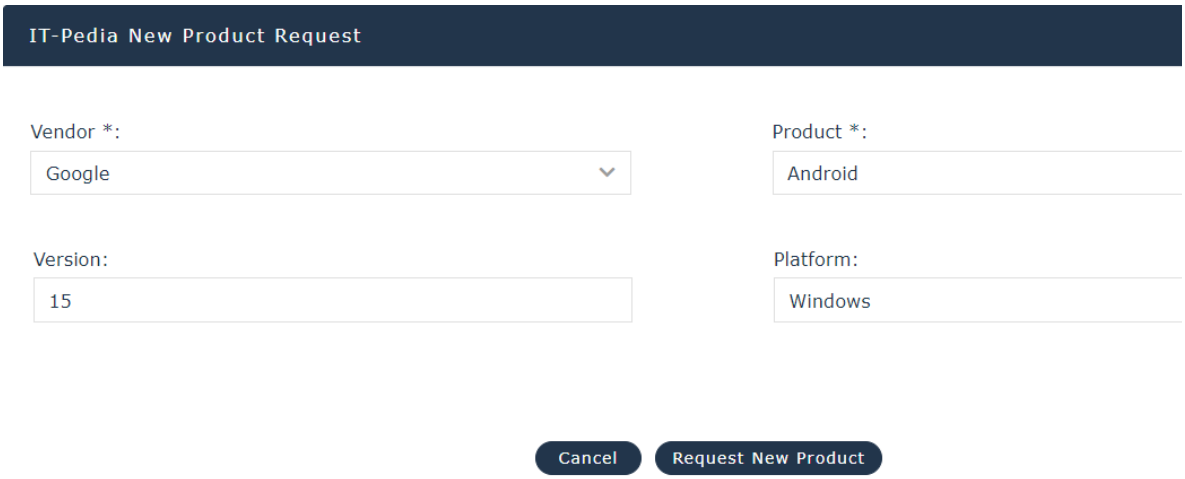
You can also request the addition of a technology in IT-Pedia via an Excel file.

Requesting new product from the connector

To request the addition of a technology:

1. Click the **Technologies** > **IT-Pedia** navigation menu.
2. Display the **Normalized Technologies** list.
3. In the edit area, click **Import**.
   The IT-Pedia query and import tool appears.

4. Click **request New product**.
   The product request wizard appears.
5. Specify:
   - the vendor
   - the product
   - the version
   - the platform



6. Click the **Request New product** button.
   The request is sent and a message confirms the creation of the product in **HOPEX IT Portfolio Management**. A standardization process is running in IT-Pedia. You can check the status of the request. See Following the request below.

Following the request

To track the status of a new product request:

1. Click the **Technologies** > **IT-Pedia** navigation menu.
2. In the edit area, click **Import**.
3. Click the **Follow my Request** button.
   The list of requests appears, with their status.

Requesting new product via an Excel file

For versions of the IT-Pedia Connector prior to V3.0 that do not have the **Request New product** command, you can import technologies into the IT-Pedia portal using an Excel file:

1. With your customer login, connect to the following address: https://itpedia.eracent.com.
2. Click **My Products** > **Procurement**.
3. Click the **Import** button.

4. Download the Excel file template and fill in the following fields:
   - Manufacturer: indicate the name of the manufacturer
   - Product Name: indicate the name of the technology
   - Version: technology version
   - Manufacturer Part Number : enter "N/A"
5. From the same display, import the file.
   Technologies are added to the **MyProducts** list and a standardization process is carried out in IT-Pedia:
   - Known products are matched
   - Unknown products are added
   - Life cycle data is updated.

To benefit from the additions and updates, use the **Update** function in HOPEX. See Updating IT-Pedia Technologies Imported into HOPEX.

See also:

Merging IT-Pedia Technologies With Existing Technologies of Your Repository.

Displaying IT-Pedia Properties in HOPEX

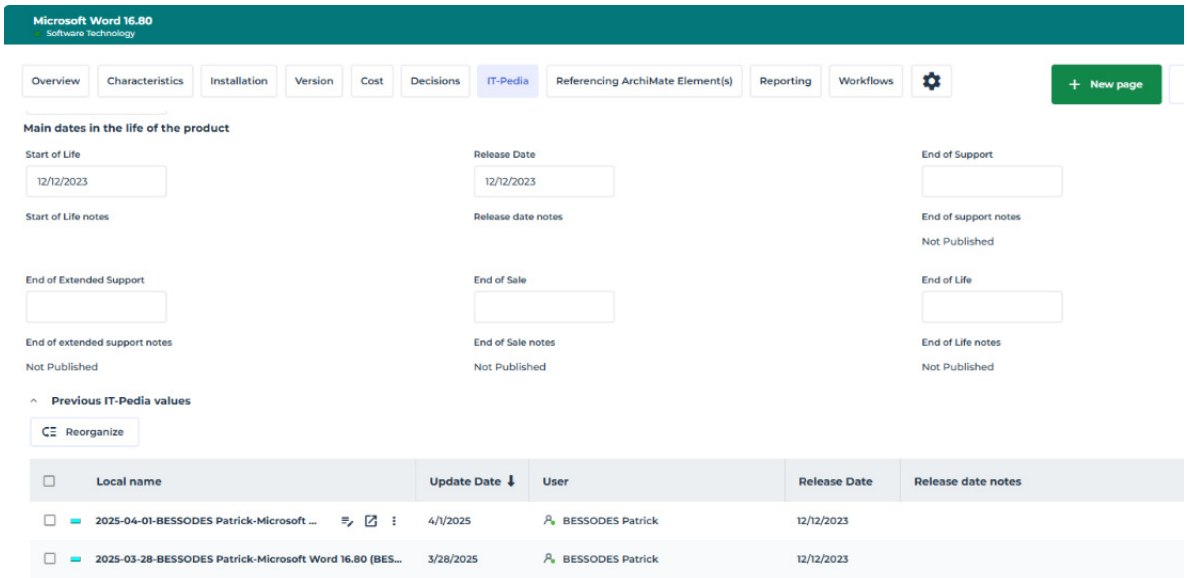
Prerequisite

To view the **IT-Pedia** property page for a technology, you need to activate the corresponding option:

1. Open the **Administration** desktop.
2. In the edit area, click **Environment Options**.
   The environment options window opens.
3. In the navigation tree, click **Tools** > **Data Exchange**> **Import > IT-Pedia**.
4. In the right pane of the options window, check the **Activate IT-Pedia** option.

The IT-Pedia properties imported into **HOPEX** appear under the **IT-Pedia** properties page of the relevant technology.

The page displays the history of changes made to data during a synchronization or update action.



Technology properties related to the official technology life cycle are automatically defined in the **Characteristics** page of the technology properties, under the **Official Lifecycle** section.

- Release date
- End of Support
- End of Extended Support

> ☛ *These properties can be set manually when you are not using the IT-Pedia connector.*

A **Support Alert** report uses this data to track technology obsolescence. For example, the solution automatically detects current and future conflicts when an underlying technology component becomes obsolete while the business application is still in production.

See Support Alert report.

See also: Technology Automatic Updating and Alerts.

Tracking properties updated by IT-Pedia

Each IT-Pedia property update (via data import or update command) creates a record containing the values processed by IT-Pedia and associated with the HOPEX software technology concerned.

The record displays the software technology identifier and the date of modification.

IT-Pedia updates report

You can view IT-Pedia updates in the IT-Pedia Updates report.

To generate this report:

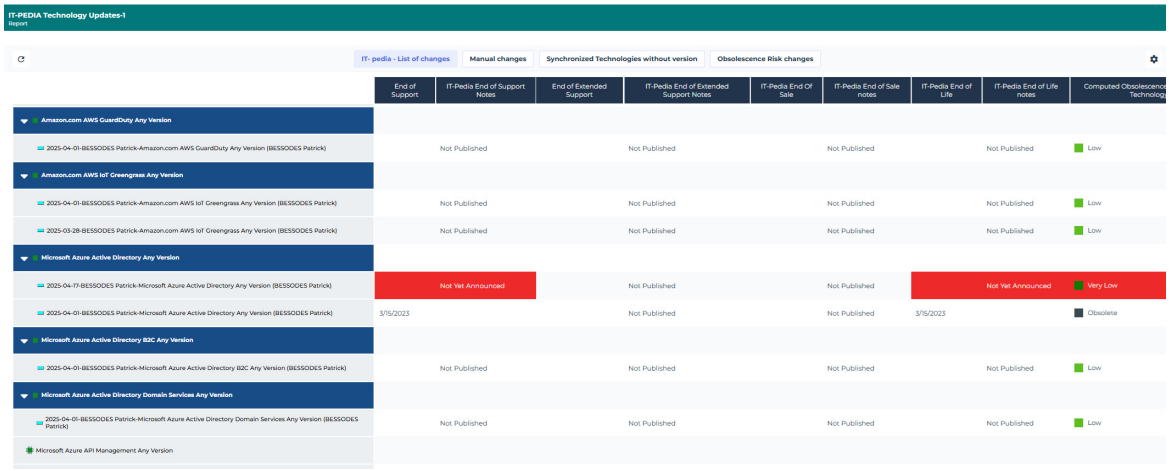
1. In the navigation bar, click **Reports**.
2. In the edit area, click **Create report**.
3. In the filters, enter the report name.
   The report appears in the editing area.
4. Move the mouse over the report and click **Create report**.
5. In the wizard, select the date from which you wish to see updates.

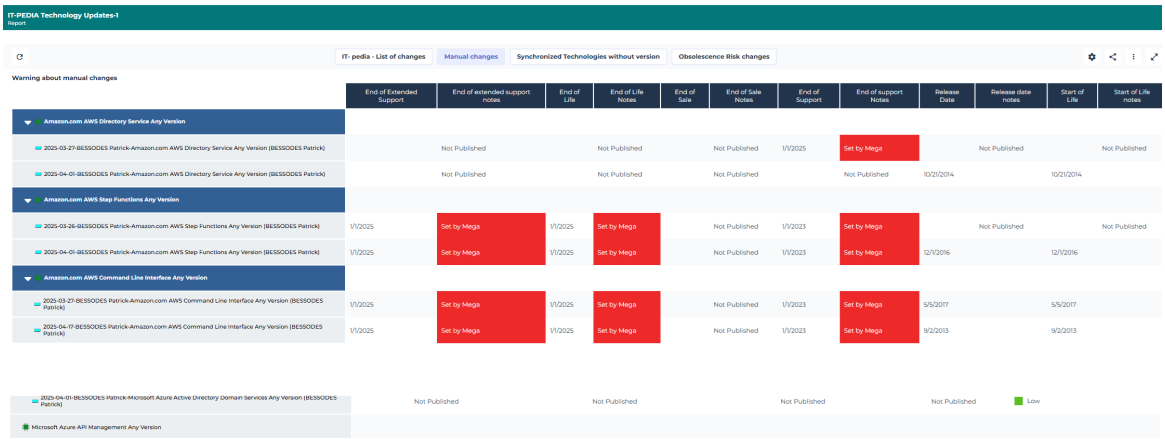
The report includes :

- A list of changes made since the selected date.
- A list of manual changes to support dates: these are software technologies on which a "Set by Mega" date note exists.

  ☛ *See below Modifying dates from IT-Pedia.*
- The list of synchronized software technologies with no defined version ("Any Version").
- The list of synchronized technologies whose obsolescence risk has been modified.

Example





Modifying dates from IT-Pedia

The technology lifecycle dates from the IT-Pedia import may be in read-only mode. Through an Excel file you can modify or complete the technology dates and update them in your repository.

You can use the file in two ways:

- Download it and manually define the technologies and attributes to be modified.
- Select the technologies and their attributes in HOPEX and export them to the file via the Excel export tool.

Once the file is completed, you can import it into HOPEX to update the technologies in your repository

To import the model:

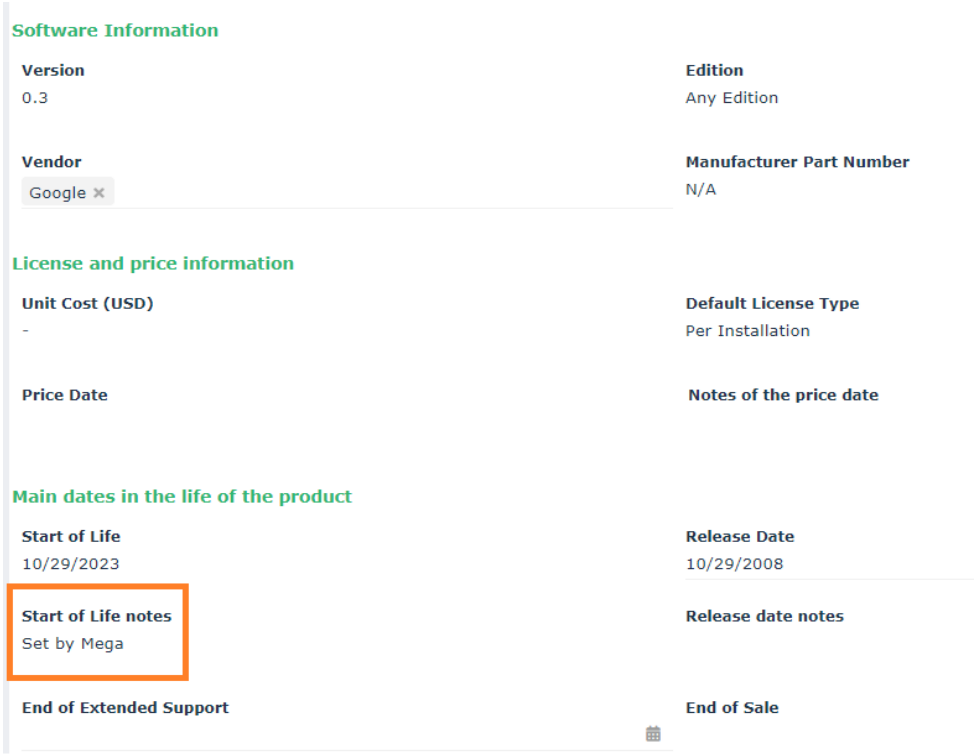
1. Click the **Main Menu** then **Import** > **Excel Template Download**.
2. Select "Technology Lifecycle Date Import Template".

To export directly from HOPEX the technologies and their attributes in the Excel file:

1. Click the **Main Menu** then **Export** > **Excel (*.xls; *.xlsx)**.
2. Select the **Using a HOPEX Template**.
3. Select "Technology Life Cycle Dates Import Template" and check **Load Mega objects**.
4. Click **Next**.
5. Under **Excel Worksheets**, select "Software Technology".
6. Under **Columns**, select the attributes you want to set on the technology.
7. Click **Next**.
8. Select the Excel sheet and under **Objects to be exported**, add the desired technologies.
9. Click **Next**.
10. Open the file that contains the technologies to be modified or completed.
11. For each technology, enter the desired dates in the corresponding columns, for example "Start of Life".

Once the file is completed, you can import it into HOPEX.

The modified attributes appear in the IT-Pedia properties of the concerned technologies, with the note "Set by Mega".



See also: Defining Technology Life.

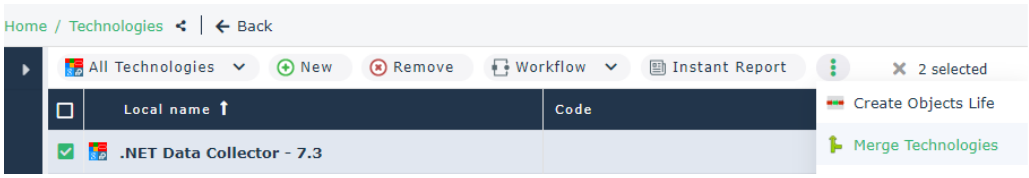
Merging IT-Pedia Technologies With Existing Technologies of Your Repository

Your repository may contain technologies created outside of the IT-Pedia import. These technologies do not benefit from the provider data and updates supplied by the IT-Pedia connector, such as official life cycle dates, for example. To keep the data for these technologies while benefiting from IT-Pedia information, you can merge it with the IT-Pedia technologies that you import **HOPEX IT Portfolio Management**.

Merging two technologies

To merge two technologies:

1. Click the **Technologies** navigation menu.
2. In the edit area, select the technologies to merge.
3. In the list menu bar, click **More** > **Merge Technologies** .



4. In the wizard that appears, enter:
   - The source technology, which will be merged in the target technology
   - The target technology, which will include information of the source technology.
5. Click **Next**.
6. Select the properties you want to keep from the source and target technologies. By default, properties of the target technology are selected.
7. In the same way, select the links you want to keep.
8. Click **OK**.

Technology Automatic Updating and Alerts

Automatic update checks, at a given frequency, if the properties of software technologies imported into **HOPEX** have changed in the IT-Pedia repository and updates the corresponding technologies in **HOPEX**.

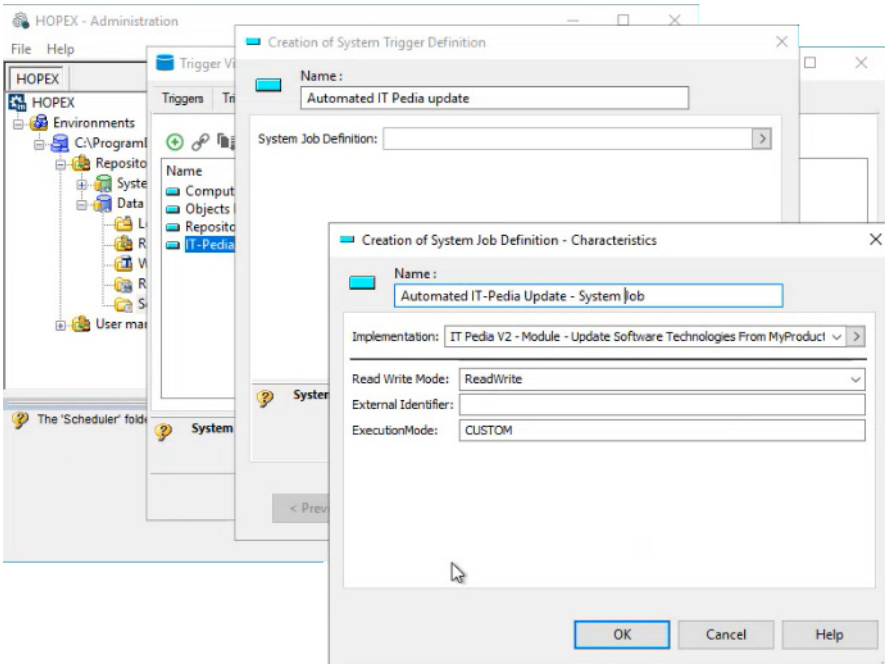
Defining Update Frequency

To activate an automatic update, you must create a trigger in the administration tool which implements the IT-Pedia Automatic Update macro.

A Trigger is based on a Trigger Definition. This definition consists of a job which includes the macro that the Trigger will execute.

To create a trigger definition:

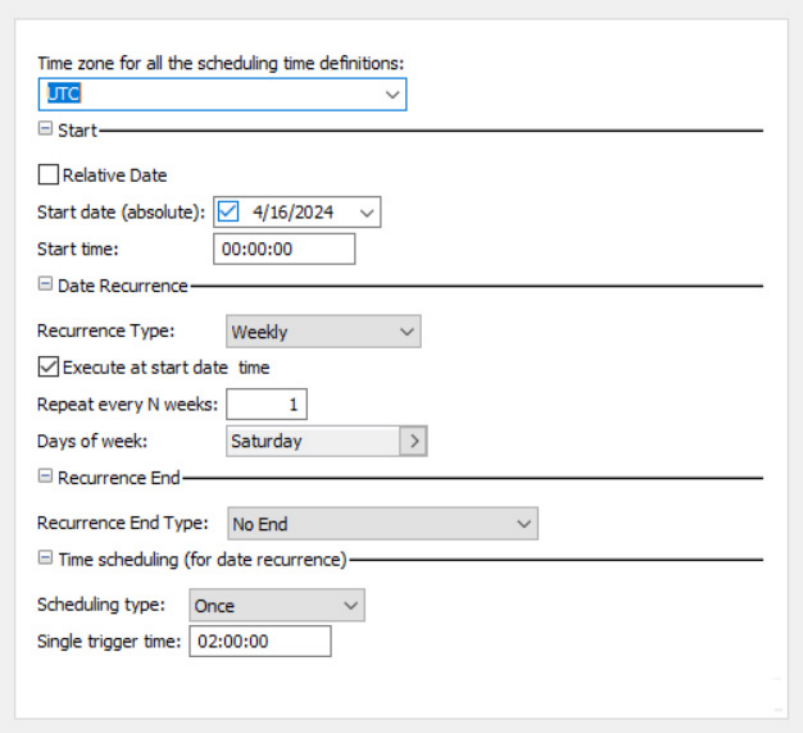
1. Open the Administration module.
2. Open the environment.
3. Expand the repository folder concerned.
4. Right-click **Scheduler** and select **Manage Triggers**.
5. Click the **Triggers Definitions** tab.
6. Click the **New** button.
   The trigger definition wizard opens.
7. Enter a name, for example: "Automated IT-Pedia Update".
8. In the **System Job Definition** field, select **> Create System Job Definition**.
   The Job definition wizard opens.
9. Enter a name for the Job, for example "Automated IT-Pedia Update - System Job".
10. In the **Implementation** field, select **> Connect Macro**.
11. Look for the macro entitled “IT Pedia V2 - Module - Update Software Technologies From MyProducts - Scheduler Job”.



12. Click **OK**.
13. Back in the trigger fefinition wizard, click **Next**.

14. Define a schedule, e.g. each saturday at 2:00:00.

> ☛ *For more details on trigger scheduling, see Configuring the Trigger Scheduling.*



15. Click **Finish**.

To create a trigger:

1. In the **Trigger Viewer** window, click the **Triggers** tab.
2. Click the **New** button.
3. Select a trigger definition, e.g. “Automated IT-Pedia Update”.
4. Give the trigger a name, e.g. "Automated IT-Pedia Update - Trigger".
5. Exit the Administration module.

Subscribing to Alerts

A user can be notified of updates made on the technologies he is in charge of.

To subscribe to an alert:

1. In the edit window, display the list of technologies.
2. Select the technology concerned and click the **Follow** button.

> ☛ *For more details on alerts, see the HOPEX Common Features guide, chapter "Communicating in HOPEX", section "Threads of Posts and Alerts on Objects".*

> ☛ *For more details on alerts, see Managing Your Alerts on Object Modification.*

Support Alert Report

A **Support Alert** MetaAtribute available on each technology compares the technology life cycle (imported from IT-Pedia or defined manually) with its life cycle in the organization.

> ☛ *For more information on technology life, see Defining Technology Life.*

A report uses the **Support Alert** MetaAttribute to analyze technologies in the **HOPEX** repository and displays all possible conflicts between the use of these technologies in the organization and their official life cycles.

See Support Alert Report.

DISTINGUISHING APPLICATIONS FROM TECHNOLOGIES

Thanks to an AI-based analysis engine, **AI-Driven APM** automatically detects business applications from the list of technologies, helping enterprise architects to build their application repository.

Application detection is based on a repository of technologies standardized with IT-Pedia. Following standardization of technologies in the HOPEX repository, you can use the tool to identify technologies that turn out to be applications, and thus distinguish technical bricks from business applications.

☛ *For more information on the normalization, see Normalizing Technologies.*

HOPEX creates its own classification of IT-Pedia technology products to help the enterprise architect make the technical/business distinction, but also to indicate to which business capability in HOPEX an application contributes. The tool makes recommendations - it's up to the architect to arbitrate and validate them. HOPEX records the decision and updates the repository.

Prerequisites

The application detection function is available with the **AI-Driven APM** module. The module requires installation of the Aquila version of HOPEX and the IT-Pedia module.

☛ *For more details on module installation, see Importing a Module into HOPEX.*

The recommendations provided by the AI-driven APM tool are based on a calculation performed by the Remote-Taxonomy service hosted by MEGA.

To use the tool, you need to specify the URL of this service in the administration options:

1. Access the HAS Console and stop **HOPEX Core Back-End** module. Make sure to perform this action when users are not connected.
2. Open the HOPEX Administration window.
3. Right-click on HOPEX and select **Options** > **Modify**.
4. Unfold the **Tools** > **Data Exchange** > **Remote Taxonomy** folder.
5. In the **Root URL of remote taxonomy** field, enter the following URL: https://ea-ai.saas.mega.com.
6. Click **OK**.
7. In the Administration application, connect to the environment and perform an **Automatic Environment Update**.
8. Restart the **HOPEX Core Back-End** module.

Optimization of the HOPEX Intelligence Experience

To ensure optimal results, our HOPEX AI services have been designed to conform to standard APM usages.

Overly large portfolios or excessively long descriptions can significantly increase processing times. By following best practices, you will fully benefit from the power and responsiveness of our services.

We recommend to:

- ***Dimension your porfolios in an appropriate way***:
  An application domain manager typically works with a few dozen applications (50 to 100). This size allows you to obtain comprehensive analyses in just a few minutes.
- ***Write concise and relevant descriptions***:
  A few well-written lines describing your business capabilities and applications are preferred.
  - For a ***business capability***: [Action verb] + [Business object] + [Context/Objective/Expected result]

    ```
    Example: "Manage customer order lifecycle, from entry to
    delivery, ensuring inventory tracking and invoicing, while
    respecting customer expectations at each stage."
    ```
  - For an ***application***: [Main functions] + [Processes covered] + [User profiles] + [Main business objects handled]

    ```
    Exemple : "ERP managing orders, inventory, and invoicing.
    Covers sales and logistics processes. Used by sales and
    warehouse teams."
    ```

Application Detection

HOPEX can identify which technologies correspond to which applications. For each technology, it provides a recommendation; it's up to you to validate it or not.

Presentation of the wizard

The application detection wizard presents a list of technologies awaiting arbitration.

It consists of two steps:

- Qualification of software assets
- Preview and update of the repository

Qualify software assets

The software products displayed are the “Product” technologies standardized from IT-Pedia, all versions included.

> ☛ *If a new version of a technology is imported, it is attached to the existing technology. You can view the versions of a technology in its properties, on the **Version** page.*

Each software product has a recommendation associated with:

- a confidence level

  ☛ *Using this confidence rate, you can sort technologies.*

- a justification.

Preview and update the repository

This second step presents the applications and their properties that will be created in the HOPEX repository.

When you validate, all the lines you have modified are processed (name and objects associated with the application).

The applications created are connected to the source technologies.

Starting application detection

You can launch application detection with the Enterprise Architect and EA Functional Administrator profiles.

To launch application identification:

1. In the navigation bar, click **Applications** > **Application Detection**.
   A table lists the technologies awaiting qualification.
2. For each one, validate or invalidate the recommendation by selecting **Yes** or **No** in the **Decision** column.
   Depending on the decision, the asset is qualified as **Technology** or **Application**.

   ☛ *At this stage, objects are not created yet.*

3. Click on step 2: **Preview and update repository**.
   A table lists the technologies that have been qualified as **Applications**.
4. If necessary, complete the information before creating them:
   - when a technology corresponds to an application, the application takes the name of the technology by default, but you can override the name.
   - you can associate the application with a portfolio and a manager.

5. You can:
   - create all the applications in the list at once: click the **Create Applications** button. You will be prompted to validate. Click **Yes** to create all the applications displayed.
   - create applications one by one: tick the application in question and click **Create Applications**.
6. Once the applications have been created, the wizard suggests to match them to business capabilities.

   ☛ *You can also carry out this step at a later date. See Matching Applications to Business Capabilities below.*

Matching Applications to Business Capabilities

Once the technologies have been requalified as applications, the **AI-Driven APM** tool defines the functional coverage of these applications by associating them with business capabilities.

☛ *Applications must be linked to an application portfolio.*

☛ *Business capabilities are derived from standard MEGA business capability maps, delivered in the module "Standard Industry Capability Maps" : https://store.mega.com/modules/details/sample.itbm.stdcapamaps?prerelease=False.*

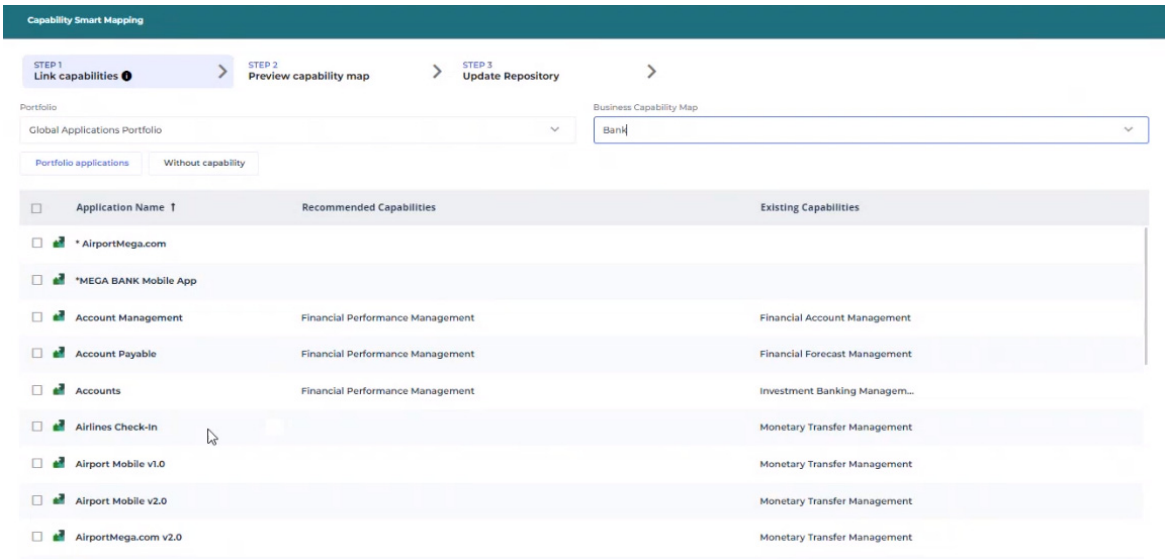
For each application, the tool displays a list of capabilities to which it is likely to respond. You can modify this list.

Launching Capability Smart Mapping

You can launch Capability Smart Mapping with the Enterprise Architect and EA Functional Administrator profiles:

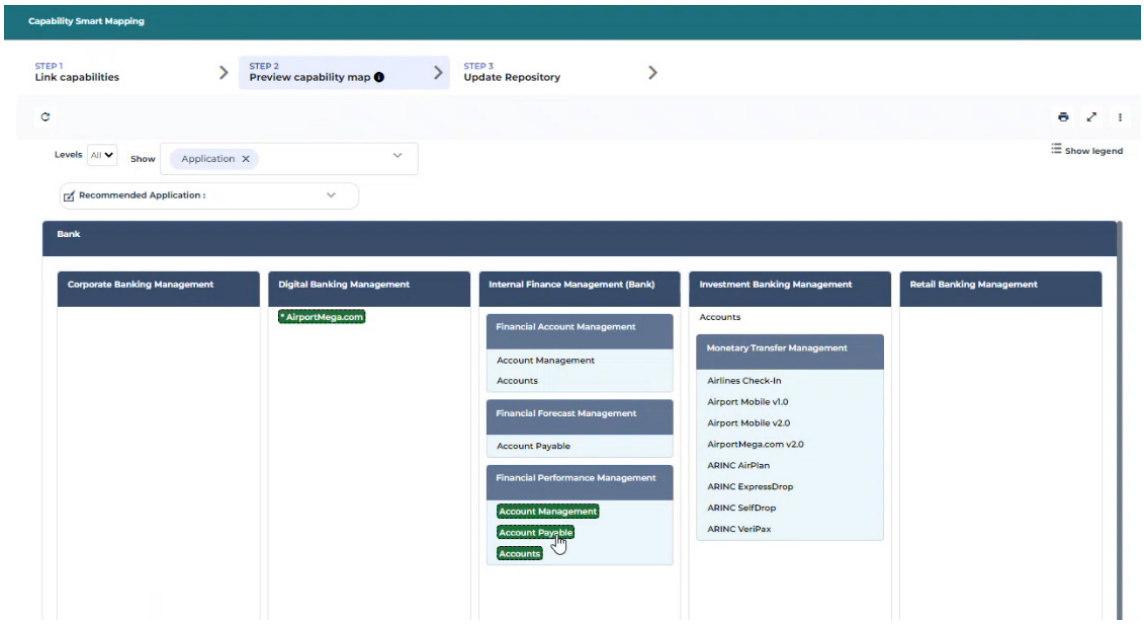
1. In the navigation bar click **Tools**> **Capability Smart Mapping**.
2. Select the portfolio containing the relevant applications and the business capability map.

3. The wizard presents:
   - the application list
   - the recommended business capabilities
   - business capabilities already linked to applications.



You can define or modify recommended capabilities manually. Recommended applications are displayed in the capability map in step 2. If required, you can go back to step 1 and modify the recommendation.

4. Click on step 2 to preview the business capability map.
   Applications associated with business capabilities appear in green.



5. Go to step 3.
6. You can:
   - connect all applications on the list to the recommended capabilities at once: click **Link Applications to Capabilities** and confirm.
   - connect applications one by one: check the application in question and click **Link Applications to Capabilities**.

Reliability of recommendations

The model characterizes a business application on the basis of the following elements:

- Product analysis:
  - A product that brings added value to the company's end-users.
  - A product that supports a business function
  - A product containing specific words such as *Designer*, *Networker*, *Backup*, etc.
- Training on a massive database: the machine learning model has been trained on over 74,000 different technologies, assimilating the patterns that distinguish one application from another.

Model accuracy and performance measures:

Displayed confidence rate	Reliability for an application	Reliability for a technology
>80%	99%	89%
60%-80%	65%	67%
<60%	66%	66%

The model's recommendations may be interpreted differently depending on the expertise of the sector and the user.

Expertise of the user

A software may be considered an application by one user, but a technology by another, depending on their expertise and needs.

> Example
>
> Take software like Docker: it can be considered as an application by a developer who uses it to build and run applications, but it can be considered as a technology or platform by a system administrator who uses it to manage system resources, ensure container security, and so on.

The final categorization may also depend on the user's level of expertise.

A less technical user may rely more on high-confidence recommendations, while a more technical user may feel comfortable interpreting low-confidence recommendations on the basis of their own knowledge and experience.

DEFINING TECHNOLOGY LIFE

The technology life is characterized by:

- Its official life cycle, specified by the vendor
- Its life cycle within the organization; it can differ from the official life cycle.

Based on this data, indicators and report types enable you to analyze the risks of technology obsolescence and the applications concerned.

Official Life Cycle

Dates of the official technology life cycle are automatically defined in the Characteristics tab of the technology properties.

- Release date
- End of Support
- End of Extended Support

These properties are defined automatically when you import a technology from BDNA or IT-Pedia. To modify IT-Pedia properties, see Modifying dates from IT-Pedia.

> ☛ *For more details on importing technologies, see Importing Technologies from BDNA and Importing Technologies from IT-Pedia.*

you can also set them manually.

Technology Life Cycle within the Organization (Gantt Diagram)

An object evolving over time can take different states (preparation, production, retirement, etc.).

The *Object life* enables viewing of the planning of these different states in the form of a Gantt chart.

To view the Gantt chart representing the different states of a technology:

1. Open properties of the technology.
2. In the technology properties window, click the **Characteristics** page.
3. Expand the **Gantt** section.

As with an application, you can initialize the lifecycle of a technology, see Viewing Application Life (Gantt Chart).

Analyzing the life cycle of a technology and the applications that use it

A report enables display in the same Gantt diagram of life cycle steps of the technology and those of the applications that use it.

A second report indicates any conflicts between life cycles of these objects.

To access these reports:

1. Open the properties of the technology concerned.
2. Click the **Reports** page then:
   - **Gantt Chart** to view life cycles of the objects
   - **Gantt chart with conflicts** to view any conflicts.

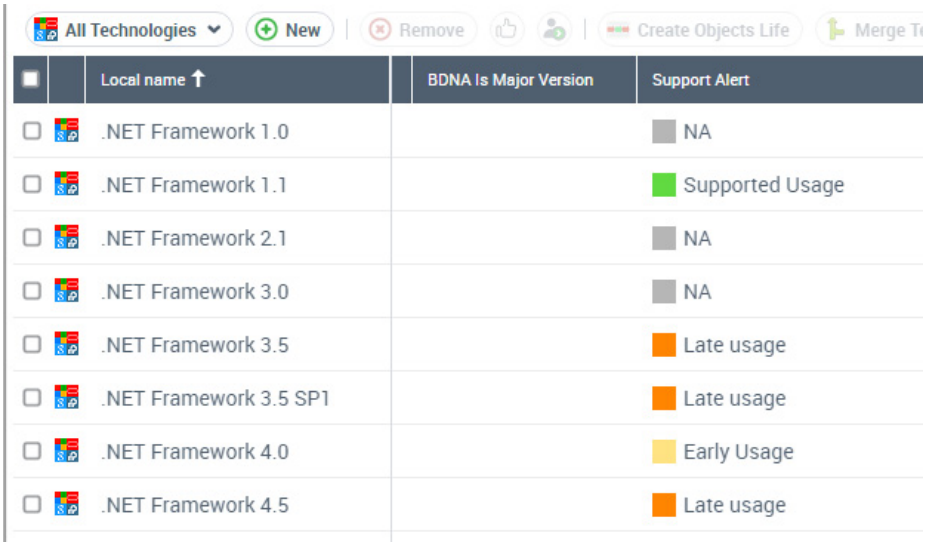
Technology Support Alert

A **Support Alert** MetaAtribute available on each technology compares the technology life cycle (imported from BDNA or IT-Pedia or defined manually) with its life cycle in the organization.

Viewing the support alert of a technology

To view the Support Alert attribute on a technology:

1. Click the **Technologies** navigation menu.
2. Display "All Technologies".
   The **Support Alert** column defines the use of each technology within the organization.



The attribute can take the following values:

- **Early life cycle**: the technology has a life cycle in the organization which started before the official release date of the software technology.
- **Supported usage**: the life cycle of the technology begins after the release date of the technology and ends before the end of the support date.
- **Delayed use**: the life cycle of the technology begins after the release date of the technology and ends before the end of the extended support date.
- **Non-supported use**: the life cycle of the technology begins after the release date of the technology and ends before the end of the extended support date.

Attribute calculation

The value of the **Support Alert** attribute is defined by the following parameters:

Technology life cycle	Support Alert value
Life cycle not defined	NA (Non applicable)
Support end date and extended support end date not defined	NA (Non applicable)
The release date of the technology is later than the current date and the begin date of use.	Early life cycle
The support end date is not defined or later than the usage end date, and the extended support end date is later than the usage end date.	Supported usage
The support end date is earlier than the usage end date, and the extended support end date is later than the usage end date.	Delayed use
The usage end date is later than the support end date and the extended support end date.	Non-supported use

Support Alert report

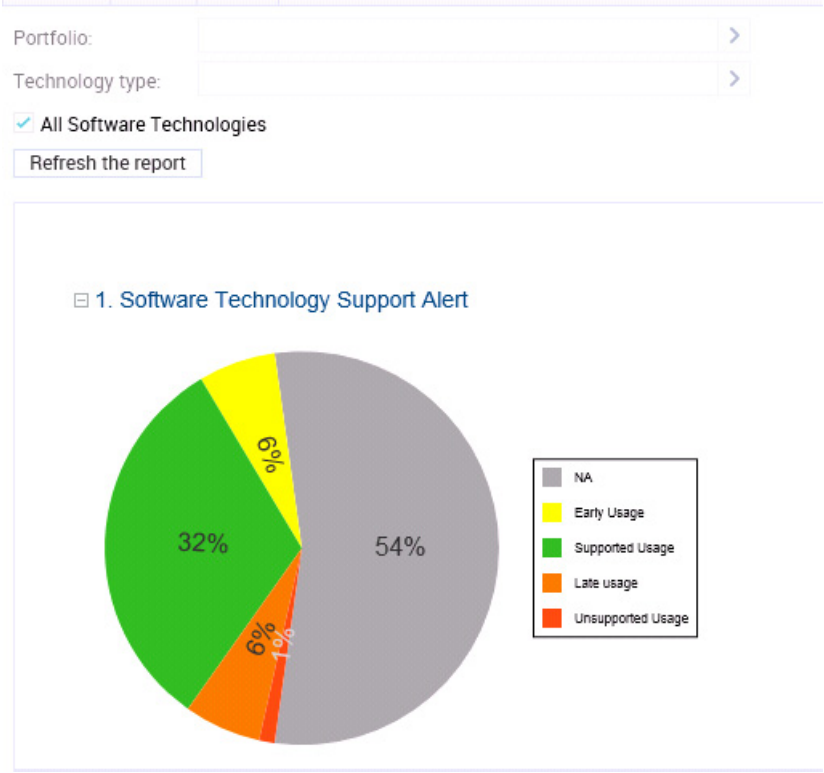
The **Software Technology Support Alert** report uses the **Support Alert** MetaAttribute to analyze technologies in the **HOPEX** repository and displays all possible conflicts between the use of these technologies in the organization and their official life cycles.

This report is available on an application portfolio or a technology portfolio.

To generate a **Support Alert** report:

1. Open the properties of the portfolio.

2. Click the **Reporting** > **Software Technology Support Alert** page. The report results appear.



Obsolescence Risk and Remediation

You can visualize the risk of technological obsolescence for each technology, as well as for technologies associated with a portfolio or a selection of applications.

For each technology, the **Obsolescence Risk** indicator is available in the technology properties, and is calculated on the basis of the technology's lifecycle dates.

☛ *See Defining Technology Properties.*

For a portfolio of applications or a selection of applications, you can analyze the obsolescence risks of the technologies associated with the applications. The **Technology Obsolescence Remediation** report shows, for the applications in the portfolio, the list of software technologies, their support state for the coming years and the potential new versions available to remedy their obsolescence.

☛ *Remediation proposals are based on technologies developed by IT-Pedia. See Importing Technologies from IT-Pedia.*

To open this report:

1. Click the **Reports** menu.

2. To the right of the edit area, click the **Create a report** button.
3. Search for the "Technology Obsolescence Remediation" report.
   The report appears in the edit area.
4. Select the report type and click **Create a report**.
   The report creation wizard opens.
5. Select the relevant application portfolio.
6. Click **Preview** then **Continue**.
7. Name the report.
8. Click **Save and open**.

The report displays:

- portfolio applications
- the technologies associated with the applications, with:
  - The current version
  - its life cycle for the current year and the next two years
  - in the event of obsolescence, the proposed technology and version
- other applications concerned by the technologies analyzed

Application Name	Lifecycle	Production End Date	Portfolio	Technology Product Used	Version Used	Other Applications	Technology Capability	Today	End of 2024	End of 2025	End of 2026	Technology Product Suggested	Version Suggested	Support
Law eBooks	Retirement	01/01/2023	• * Airport IT Rationalization Evaluation											
				Windows	7	5		✗	✗	✗	✗			
												Internet Information Services	*	11/01/2027
				Internet Information Services	8	10		✗	✗	✗	✗	Internet Information Services	10	11/01/2027
												Internet Information Services	10.0	11/01/2027
				Database	10g	2		✓	✓	✓	✓			
												Internet Information Services	*	11/01/2027
Zeus Purchasing	Retired	23/03/2021	• * Airport IT Rationalization Evaluation • Global Applications Portfolio	Internet Information Services	6	5		✗	✗	✗	✗	Internet Information Services	10	11/01/2027
												Internet Information Services	10.0	11/01/2027
				Windows Server	2012 6.3	14		✗	✗	✗	✗			
				SQL Server	15	15	• Storage	✓	✓	✓	✓			
				Windows Server	2012	13		✗	✗	✗	✗			

MANAGING DEPLOYMENTS OF TECHNOLOGIES

HOPEX IT Portfolio Management enables management of deployments of technologies.

Versions and Deployments

HOPEX enables association of a technology with one or several deployments. A deployment is supported by a site or server and associated with a life cycle.

On the same site, a technology is deployed to offer different services to different users. Each deployment is therefore associated with several *usage contexts* which enable specification of lists of functionalities available to different users.

Consulting Technology Deployments

To access deployments of a technology:

1. Open properties of the technology.
2. Select the **Installation** page.
   The list of associated deployments is displayed.
   - deployment date
   - planned retirement date

To access characteristics of a technology deployment:

1. In the **Deployed Technology** section, select a deployment.
   The hostings and usage contexts associated with the deployment appear in the following sections.

In **Context of Use** you can define :

- context begin date:
- proposed functionalities retirement date
- planned number of users (consumers)

Creating a Technology Deployment

Technology deployment on a site offers functionalities adapted to different populations of users over a time period.

You can create a first deployment at creation of the technology, or create it later via its properties pages.

To create a technology deployment:

1. Open properties of the technology.
2. Select the **Installation** page.

3. In the **Deployed Technology** section, click the **New** button.
   The Deployment creation window opens.
4. Specify the deployment name.
5. Select the **Deployment Life Cycle** from the drop-down list of this field.
6. Specify:
   - **Start Date**, corresponding to the effective deployment date
   - **End Date**, which can correspond to the technology production end date.
7. Select the **Freeze the Source Object of the Software Installation** to avoid modification of the deployed technology.

   ☛ *You cannot modify a locked technology. If the technology is to be modified, a new version must be created.*

   ☛ *For more details on variations, see the **HOPEX Common Features** guide, "Handling Repository Objects", "Object Versions" chapters.*
8. Click **Next**.
9. In the **Deployment Support** section, select the site or server that hosts the deployment.
10. Click **OK**.
    The new installation appears in the technology properties.

Creating an Deployment Usage Context

The deployment context of a technology enables specification of the list of functionalities offered to each population of users for a given deployment over a period of time. Several contexts can be created for a given deployment.

To create a *usage context* of an application installation:

1. Open properties of the technology.
2. Select the **Installation** page.
3. Under **Deployed Technology**, select the deployment.
4. In the **Usage Context**section, click the **New** button.
   The **Creation of Use Context** dialog box opens.
5. Specify the **Life Cycle**, **Start Date** and **End Date** of the context.
6. Click **Next**.
   The wizard offers you to add **consumers**. It relates to the application installations that will use the deployed technology in this context.
7. Click the **Connect** button to connect the consumers to the usage context.
8. Click **Next**.
   You can add functionalities to the context:
9. Click the **Connect** button to select the functionalities that will be proposed to consumers in the usage context.
10. Click **OK**.
    The new usage context appears in the properties of the deployed technology.

MANAGING COSTS OF TECHNOLOGIES

Similarly to application, **HOPEX IT Portfolio Management** allows you to specify and analyze the costs of your organization's technologies.

The definition of costs of a technology is the same as for an application.

See Managing Application and Application System Costs.

IMPORTING OBJECTS IN HOPEX IT PORTFOLIO MANAGEMENT

HOPEX IT Portfolio Management provides an Excel file template for bulk importing objects into the repository. You can also use this template to export data from the HOPEX repository.

Downloading the Excel Import Template

The Excel import template is available in the HOPEX Store.

To download the file (HOPEX Aquila version):

1. Connect to the HOPEX Store.
2. Click **Modules**.
3. Search for the **ITPM Excel Import Template for Hopex Aquila** template.
4. To the right of the template presentation page, click **All versions**.
5. Select the "HOPEX Aquila" version.

Template Description

The file enables bulk import of the following object types:

- Environment objects: org-units, processes, business lines, sites.
- Capability inventory: business capabilities, functionalities, technical functionalities.
- Application asset inventory: applications, technologies, costs, software installations, usage contexts, application flows, deployed technologies, portfolios, deployed servers.

The different types of objects concerned are presented in dedicated sheets.

```
Example: the "Application" sheet is used to define
applications and their properties (type, code, owner,
etc.).
```

The _README sheet details the object import:

This HOPEX template provides means to bulk import ITPM data		
Environment	Org-Units	allows import of Org-Units with their sub Org-Units. Sub Org-Units cell can contain multiple values using ALT+ENTER keys as separator.
	Process Categories	allows import of Process Categories with their sub Process Categories. Sub Process Categories cell can contain multiple values using ALT+ENTER keys as separator.
	Business Lines	allows import of Business Lines with their sub Business Lines. Sub Business Lines cell can contain multiple values using ALT+ENTER keys as separator.
	Sites	allows import of Sites with their sub Sites. Sub Sites cell can contain multiple values using ALT+ENTER keys as separator.
Capabilities inventories	Business Capabilities	allows import of Business Capabilities with their potential Business Capability Map and sub Business Capabilities. Sub Business Capabilities cell can contain multiple values using ALT+ENTER keys as separator.
	Functionalities	allows import of Functionalities with their potential Functionality Map and sub Functionalities. Sub Functionalities cell can contain multiple values using ALT+ENTER keys as separator.
	Technology Capabilities	allows import of Technology Capabilities with their potential Technology Capability Map and sub Technology Capabilities. Sub Technology Capabilities cell can contain multiple values using ALT+ENTER keys as separator.
ITPM inventories data	Applications	allows import of Applications with their main characteristics and links: - the responsible persons : Business / IT / Financial owner persons - required supporting technologies - the link to functional perimeters : Business Lines, Process Categories and Capabilities - their lifecycle dates Application Owner, Financial Controler, IT Owner, Business Owner, Technologies, Business Lines, Business Capabilities and Functionalities cell can contain multiple values using ALT+ENTER keys as separator.
	Software Technologies	allows import of Software Technologies with their supported Technology Capabilities and lifecycle dates. Technology Capabilities cell can contain multiple values using ALT+ENTER keys as separator.
	Costs	allows import of Costs information for applications / technologies or servers.
	Software Installations	allows import of Software Installations with their hosting location and lifecycle dates.
	Usage Contexts	allows import of Usage Contexts with their concerned Installations, Org-Units, used Functionalities and lifecycle dates.
	Application Flows	allows import of Application Flows with their Content and sender / receiver Applications.
	Deployed Technologies	allows import of Technology Deployments with their lifecycle information.
	Portfolios	allows import of governance Portfolios of Applications or Software Technologies with their Responsible.
	Server (Deployed)	allows import of Server (Deployed) with their hosting location and lifecycle dates.

MANAGING THE DATA USED IN THE APPLICATION ASSETS

The following points are covered here:

- ✓ Introduction to Data Management in HOPEX IT Portfolio Management
- ✓ Creating a Business Glossary in HOPEX IT Portfolio Management
- ✓ Drawing up a Data Inventory in HOPEX IT Portfolio Management
- ✓ Defining the Data Used by an Application
- ✓ Assessing the Data Quality in HOPEX IT Portfolio Management

Introduction to Data Management in HOPEX IT Portfolio Management

Scope

HOPEX IT Portfolio Management allows you to link the application assets to the data it uses. You can therefore:

- make the inventory of data
- build a business glossary
- connect the data to the relevant applications
- assess data quality
- generate reports on an application to visualize the scope of the data used and measure the impact of an application removal on this data.

Thanks to the integrated HOPEX platform you can exploit this data inventory in the solution dedicated to the data architecture description **HOPEX Information Architecture**.

For more details on data governance see the **HOPEX Information Architecture** guide.

Profile Associated with Data Management

The Data Asset Manager is responsible for the creation of information assets.

The other profiles of **HOPEX IT Portfolio Management** can read access these assets and use them, for example in data flows.

CREATING A BUSINESS GLOSSARY IN HOPEX IT PORTFOLIO MANAGEMENT

HOPEX IT Portfolio Management allows you to make an inventory of the concepts that define business terms and generate a business glossary from which you can view their definitions, synonyms and illustrations.

Consulting the list of Concepts and their Definitions

HOPEX IT Portfolio Management offers a tool for easy consultation and creation of concepts from which you can generate a business glossary.

To display concepts and their definitions:

1. Click the **Data** > **Business Glossary** navigation menu.
2. In the edit area, click **Concepts**.

For more information on concepts, see: Defining Business Information.

Creating Concepts

To create a concept:

1. In the list of concepts, click **+ New**.
2. In the dialog box that appears, specify:
   - the term name
   - the owner
   - the definition of the term

   A term is the designation of a concept in a given language. Example: the "Country" concept has the "Pays" in French and "Country" in English.
3. Click **OK**.
   The new concept appears in the edit area.
   By default, a term is automatically associated with it.

Generating a Business Glossary

HOPEX provides a ready-to-use glossary report to automatically build the business glossary with terms derived from a set of Business dictionaries. For each term, the glossary displays a list of associated definitions with their text, synonyms and components list.

To launch a glossary report:

1. Click the **Reports** navigation menu.

2. To the right of the edit area, click the **Create a report** button.
3. Search for the "Glossary Report" and create the report.
4. Select the source business dictionary(ies).

   ☛ *You can select more than one.*

5. Click **Preview**.
6. Click **Continue** to give it a name, a description and rights.
7. Click **Save and open**.

DRAWING UP A DATA INVENTORY IN HOPEX IT PORTFOLIO MANAGEMENT

In **HOPEX IT Portfolio Management** you can define business data (Concepts, Terms, etc.) and logical data (Classes, Attributes, etc.).

Business Dictionary

A business dictionary collects and structures a set of concepts that expresses the knowledge of a particular area.

The basic component of a business dictionary is the **Concept**.

> 🕮 *A concept expresses the essential nature of a being, an object, or a word through its properties and characteristics or its specific qualities.*

The word that is associated with a **Concept** and which depends on language is a **Term**.

> 🕮 *A term is a word or word group, that is used for a specific meaning in a specific context.*

To create a business dictionary with **HOPEX IT Portfolio Management**:

1. Click the **Data** > **Business Glossary** navigation menu.
2. In the edit area, select **Dictionaries**.
3. Click the icon of the **Business Dictionaries** folder and click **New** > **Business Dictionary**.
4. Specify:
   - The name of the business dictionary
   - the owner (optional)
   - a description (optional)
5. Click **OK**.

From the Hierarchy View of the business dictionaries you can create concepts and terms, as well as concepts domains.

For the definition of terms see also Creating a Business Glossary in HOPEX IT Portfolio Management.

Concept

To create a concept from a business dictionary:

1. Click the icon of the business dictionary then **New** > **Business Information Building Block**.
2. Select the "Concept" object type.
3. Click **Next**.
4. Enter the **Name** of the concept.

5. The **Existing Terms** section lists terms with the same name as the new concept. You can choose to use an already existing term, or create a new term.

   📖 *A term is a word or word group, that is used for a specific meaning in a specific context.*

   ☛ *If a term has already been created with the same name as the new concept, this term is automatically connected and appears automatically in the **Term** section.*

6. In the **Definition Text** field, enter the text of the concept definition.
7. Click **Next** to associate an image with the concept or **OK** to finish.

Concept Domain

A concept domain is a sub-set of elements of a business dictionary that reduces the scope of a field.

To create a concept domain:

- Click the icon of the business dictionary then **New** > **Concept Domain**. The concept domain appears in the **Concept Domain** folder of the business dictionary.

Concept Domain Map

A Concept Domain Map is a business information urbanization tool. It represents the concept domains of a business dictionary and their dependency links.

Creating a Concept Domain Map

To create a Concept Domain Map:

- Click the business dictionary icon then **New** > **Concept Domain Map**. The map appears under the business dictionary.

Creating the map diagram

To create the diagram of the concept domain map:

- Move the mouse over the map and click the **Create a diagram** button.

Adding components to the map

See The Components of a Concept Domain Map.

Data Dictionary

A data dictionary collects and structures a set of logical data.

Logical data is a realization of business data (concepts). You can define logical data to describe the data used in applications (Data Store) and in flows exchanged between applications.

See also: Defining the Data Used by an Application.

Defining Data Categories

The data category is a mechanism for classifying data such as concepts or classes. You can define one or more categories on the data.

Examples of data classification:

- Sensitive data
- Reference data
- Confidential data
- etc.

Importing the module of Categories

To use the categories, your administrator must import the **Privacy Management Content** module in your environment.

For import a module in **HOPEX**, see "Importing a module in **HOPEX**" chapter in the **HOPEX Administration** guide.

Accessing the list of categories

To access the list of data categories:

1. Click the navigation menu then **Data** > **Data Architecture**.
2. In the edit area, click the **Hierarchy** tile.
3. Expand the **Data Categories** folder to see the list of data categories.

Indicating the Category of a Data Item

You can define the category of a data in the data properties.

You can also specify the category when you connect data to an application. See Connecting Data to an Application.

Visualizing the data of a data category

The **Data Categories Dendrogram** report allows you to visualize where the data of a category is used, for example in the application inventory.

To launch this report:

1. Click the category to display its properties.

2. Click the **Reporting** page.
3. Select the **Data Categories Dendrogram** report.

You can also run a report from a portfolio of applications to view data from specific categories used by the applications in that portfolio.

To launch the report on a portfolio of applications:

1. Open the properties of the portfolio in question.
2. Click **Reports** > **Data Category of Portfolio Dendrogram**.

Importing Data in HOPEX IT Portfolio Management

Two Excel templates are available for importing and exporting data:

- The "Concept Template" to import a list of terms with their definitions, synonyms, etc. See Importing Business Data from an Excel File.
- The "Data Excel Template" template to import classes, attributes, parts, etc. See Importing Logical Data from an Excel File.

Importing classes can result in the creation of concepts or the linking to concepts that exist under the same names. In this way, business and logical data are automatically linked. This mechanism is used to initialize a business dictionary. It can be configured using the **Business dictionary initialization** option. For further details, see Initializing a Business Dictionary Using Logical or Physical Data.

DEFINING THE DATA USED BY AN APPLICATION

Within the framework of personal data protection, the application owner and data manager have the possibility to document the data used by the applications and the way in which this data is accessed.

The information you can enter on an application is:

- the personal data processed by the application, with access rights (CRUD).
- the rights of the persons concerned.
- the management of information to the persons concerned and their consent.

Connecting Data to an Application

To connect data to an application:

1. Open the properties pages of the application.

   ☛ *See also Accessing Application Properties.*
2. Click the **Characteristics** page.
3. Expand the **Data** section.
4. Click **New**.
5. In the wizard that appears, select the object type that represents the data item (Class, Entity, Data view) and the object in question.
6. Click **Next**.

Once the data has been defined, you can specify:

- the access to the data: in create mode (**C**reate), read mode (**R**ead), update mode (**U**pdate), or delete mode (**D**elete).

  ☛ *The content of the **Data access** column is calculated automatically according to the selected actions ("CRUD" is the default value).*
- the category of data: biometric, financial, medical, etc. See Defining Data Categories.
- if the application is “Golden Source” or “Golden Copy” of this data.

Analyzing Impact between an Application and the Data it Uses

The **Data Impact** property page allows you to visualize the scope of data used by an application and to measure the impact of application on the data, and vice versa.

For further information, see Data - Data Gouvernance > Data Architecture and Tools > Use of Data by the Information System.

See in which Applications a Data is Used

Reports allow you to see where data is used in your application assets.

To access these reports in ITBM:

1. Click the navigation menu then **Reports** > **Data Reports**.
   Data usage report templates appear in the edit area.

For further information, see Data - Data Gouvernance > Data Analysis Reports > Data Usage Reports.

ASSESSING THE DATA QUALITY IN HOPEX IT PORTFOLIO MANAGEMENT

An assessment is designed to give values, in a specific context, to data characteristics.

In **HOPEX IT Portfolio Management** it is possible to carry out a direct assessment on the data, as an expert.

> ☛ *For an assessment campaign on the data, you need the **HOPEX Information Architecture** solution.*

The assessment is supplemented by results analysis tools.

Assessing a Data Item

The assessment can focus on business data such as concepts or logical data such as classes.

To directly assess a data item:

1. Open the properties of the data item in question.
2. Select the **Evaluation** page.
3. Click **New**.
4. On the page that appears, select a value for each question.

   > ☛ *For certain identified problems, an optional remediation plan can be created for data cleansing.*

5. Click **OK**.

Data Evaluation Criteria

HOPEX IT Portfolio Management provides by default a data evaluation template that focuses on the following criteria:

Completeness

Identifies percentage completeness of data and missing properties.

Example

Below some columns have no value (in red) and others are truncated (Dupont@Samp.gm)

First Name	Last Name	Billing Address	Shipping Address	Email
Dupont		9 rue Rene Coty Paris 75002	NULL	Dupont@Sample.gm
Durand	Robin	344 rue de Rivoli 75001	NULL	Durand@Sample.com

Accuracy

Identifies the percentage of accurate, reliable data.

Example

Below, for Dupont, the position and the department are reversed.

For Durand, the item displays a typographical error

For Rene, the department displays an erroneous value.

First Name	Position	Department	Email
Dupont	Product Management	Business Analyst	Dupont@Sample.gmail
Durand	Sftware Engineer	Product Development	Durand@Sample.com
René	Test Analyst	xxùpoi*£	Rene@Sample.com

Consistency

Identifies the percentage of inconsistency in the data.

Example

Below is an inconsistency in the data format.

Order Number	Client Id	ShipDate	Total
1000	1	1/12/2018	100$
1001	2	1/12/2018	200£

Validity

Identifies the percentage of invalid data.

Example

The value of the "Available units" field on Prod1 should not be negative.

A withdrawal date is set to Prod2 but the field "Available units" does not display a null value.

Product Code	Name	Units Available	Retire Date
1000	Prod1	-10	12/4/2020
1001	Prod2	100	31/12/2017

Uniqueness

This criterion evaluates duplicate data.

Example

The "Client" table must not contain the same occurrence twice, each record must be unique.

Timeless

This criterion assesses whether the information is available at the required time.

Data Quality Evolution Report

A report template allows you to follow the evolution of the quality of classes and concepts.

To launch this report:

1. Click the pop-up menu then **Reports** > **Data Reports**.
2. In the edit area, click the **Data Quality Evolution** tile.
   The report appears.
3. Select the information concerned (class or concept).
4. Click **Refresh the report**.

EVALUATING APPLICATION ASSETS

Each application manager can evaluate applications for which he/she is responsible based on three criteria: business, functional and technological. See "Evaluating Application Criticality", page 56.

The Portfolio Manager can evaluate the application assets he/she supervises by creating an application portfolio and associating with it additional evaluation criteria.

He/she can also evaluate the quality of the application code of a portfolio by launching a scan campaign with CAST Highlight for the application managers.

The numerous reports proposed by **HOPEX IT Portfolio Management** to analyze applications before starting the transformation phase.

The following points are covered here:

DESCRIBING INVENTORY PORTFOLIOS

An inventory portfolio groups a set of applications.

Creating an inventory *portfolio* consists of defining all the information (comparison criteria, etc.) that will allow you to assess applications to be implemented.

> 🕮 *A portfolio enables representation of all investments of an enterprise (or department) necessary to carry out changes required to achieve strategic objectives. It comprises a set of objects (for example applications for a an inventory portfolio) to be compared based on comparison criteria associated with the portfolio.*

You can also create inventory portfolios for technologies. The technology portfolio definition uses the same methods than applications portfolios.

Creating an Inventory Portfolio

HOPEX IT Portfolio Management proposes two types of *portfolios*:

- The inventory portfolio: comprising different applications (or technologies), it enables follow-up of a given set of applications.
- The transformation portfolio: this intervenes after the inventory and assessment and comprises project lines (including deliverables that can be applications or technologies) and can include several project lines for the same application to measure the option costs of different scenarios.
  See "Transforming an application portfolio", page 73.

To create an application inventory portfolio:

1. Click the **Applications** navigation menu.
2. In the edit area, select **By portfolio**.
   The list of application portfolios appears.
3. Click **New**.
   The new portfolio appears in the list. You can open its properties to define its characteristics.

Defining Inventory Portfolio Content

All elements of a portfolio are accessible from its properties pages.

To access application portfolio properties pages:

- In the application portfolios list, click the one you wish to study.
  Portfolio properties pages appear.

Portfolio characteristics

Portfolio characteristics are divided into several sections:

- **Identification**: name, portfolio type, study dates, comment.
- **Portfolio Criteria**: see "Defining Portfolio Assessment Criteria", page 143
- **Responsibility**: displays person responsible for the portfolio
- **Sub-Portfolios**
- **Report**: enables creation of analysis reports on the portfolio. See "Reports Embedded in a Portfolio", page 155.

Inventory

This page enables listing of portfolio applications - or technologies - and evaluation of their criticality. See "Evaluating Application Criticality", page 56.

In this page, the portfolio manager can launch information gathering for a set of applications. See "Collecting Data for a Set of Applications", page 139.

It is also possible to run instant reports on selected applications or technologies. See "Instant reports", page 62.

Evaluation

This page enables definition of values of *criteria* associated with applications. See "Evaluating Applications on Portfolio Criteria", page 146.

> 🕮 *A criterion is a reference element used to compare objects in a portfolio. Criterion values can be predefined.*

Reports

This page displays the different dynamic analysis reports of the portfolio.

Collecting Data for a Set of Applications

Principle and prior conditions

The goal is to enable a portfolio manager to ask application owners to enter the properties of a set of objects.

The local owner of the application receives a link to the questionnaire by email enabling him/her to enter the properties in which the portfolio manager is interested.

You must first ensure that each application has an owner. For this, in the application properties window, expand the **Responsibilities** section, and link an application owner if this has not already been done.

Request completion of data via an assessment questionnaire

To ask the owner of an application to complete the data:

1. Select an application portfolio and open its properties.
2. In its properties window, click the **Inventory** page.
   The portfolio components (applications) appear.
3. Select the applications for which you wish to collect data.

   ☛ *Check that the objects selected are linked to an application local owner.*

4. Click the hidden commands button ⋮ then **Fill Data**.
5. Scroll the creation wizard and select the elements that you wish to make available to the application owner:
   - one or more properties pages (for example the properties page that concerns risks if you want the application owner to specify the application risks)
   - advanced characteristics (special MetaAttributes, for example, the validation date of the application)
6. Start the session immediately.
   The application owner receives the questionnaire.

Entering data for an application via a questionnaire

To view and fill in the assessment form that was sent to you by your manager:

1. In the navigation bar select **Tools > Data Calls**.
2. Click the form to open it.
   The applications for which you must complete the data appear.
3. Once the fields are filled in, right-click on the questionnaire and select **Assessment Questionnaire (To be Filled In) > Complete**.

Generating the Business Capability Map of a Portfolio

HOPEX IT Portfolio Management enables you to generate a business capability map in the form of a report that reflects the functional coverage of an application portfolio.

To generate a Business Capability Map from an application portfolio:

1. Display the portfolio properties.
2. Click the page **Reporting** > **Business Capability Map Breakdown**.

The report positions the portfolio applications in the areas that represent business capabilities. It therefore reflects the functional coverage of portfolio applications.

☛ *For more details on capability maps, see "Defining Business Capabilities", page 20.*

Report parameters

This consists of defining report input data.

Parameter	Parameter object	Comment
Business capability	Business capability / Business capability Map	One object mandatory.
In-depth research of the application in portfolios and sub-portfolios.		This option displays the applications defined in the sub-portfolios of the portfolio to which the report relates.
Characteristics	Evaluation criteria See "Defining Portfolio Assessment Criteria", page 143.	Displays in the report the application evaluation results for the selected characteristics: - Technology compliance - Cost - Technical efficiency - Etc. Select the form in which you want to display a characteristic: graphic element or highlighting of the application concerned by the characteristic.

Example of a business capability map example

You also have the **Business Capability Breakdown Time Report** that shows the evolution of the functional coverage of an application landscape over time.

See also "Portfolio Analysis Reports", page 155.

DEFINING PORTFOLIO ASSESSMENT CRITERIA

You can compare applications defined in a portfolio based on common criteria associated with the portfolio.

> 🕮 *A criterion is a reference element used to compare objects in a portfolio. Criterion values can be predefined.*

To define portfolio criteria, you can:

- use existing criteria in the repository,
- Create new criteria and associated values.

> ☛ *Criteria are defined from the MetaClass (object type) **TaggedValue**. Some windows use this term rather than **Criteria**.*

Using Existing Criteria

To connect existing criteria to an application portfolio:

1. Click the **Applications** navigation menu.
2. In the edit area, select **By portfolio**.
   The list of application portfolios appears.
3. Display the portfolio properties.
4. Click the **Characteristics** page.
5. In the characteristics, expand the **Portfolio Criteria** section.
6. In the section, click the **New** button.
   The search pane is displayed with a list of criteria already defined.
7. Select the criteria that interest you.
8. Click **Connect**.
   Each selected criterion is displayed in portfolio characteristics.

Using Existing Criteria

Standard criteria are proposed to process costs modeled on applications.

> ☛ *For more details on modeling of costs, see "Managing Application and Application System Costs", page 51.*

Standard criteria for analyzing the costs declared on applications according to their **type** and **nature** are the following:

- For **type**:
  - Capital expenses
  - Operating expenses
- For **nature**:
  - Infrastructure costs
  - Software licenses costs
  - Manpower costs
  - Service costs

The names of standard criteria enabling analysis of costs declared on applications carry the extension "Reference", for example "Reference Costs".

Given that these criteria are automatically calculated, they cannot be modified from the **Inventory** and **Evaluation** pages.

☛ *For more details, see "Evaluating Applications on Portfolio Criteria", page 146.*

Creating a New Criterion

To create new criteria for portfolio application comparison:

1. Open the **Criteria** properties page of the current portfolio.
2. Click the **New** button.
   The creation window opens.
3. Indicate the name of the site and click **OK**.
   The new criteria appears in the list of portfolio criteria.

Defining criteria format

Specification of type and format of a criteria (or **TaggedValue**) is identical to that of a **MetaAttribute**. For more details on declaration of criteria format, see chapter "MetaAttributes" of the **Studio** guide .

To define characteristics of a criteria:

1. Open the **Characteristics** properties page of the current criteria.
2. In the **MetaAttribute Type** field, indicate the type that will take the criteria values.

MetaAttribute Type	Meaning
String	Alphanumeric, the value of the MetaAttribute Length attribute should then be specified
DateTime	Date
VarChar	ASCII text
VarBinary	Binary text (reserved)
Boolean	Boolean (0 or 1)
Short	Integer (0-65535)
Long	Integer (0- 4294967295)
Binary	Binary (reserved)
Double	Integer (0- 18446744073709551616)
Float	Floating number

3. In the **MetaAttribute Format** field, indicate the Format that will take the criteria values. Possible values are:
   - **Standard**: for character strings
   - **Currency**: for currencies
   - **Enumeration**: for a list of character strings with predefined values
   - **Enumeration (Opened)**: for a list of character strings open to the user
   - **Duration**: for dates
   - **Percent**: to enter a percentage
   - **Double**: to enter a number
   - **Object**: to enter an object
   - **Signed Number**: to enter a number possibly negative. In this case, **MetaAttribute Type** must be **Short**, **Long**, **Double** or **Float**.

     ☺ *The following formats are recognized in analysis reports: **Standard**, **Enumeration** and **Signed Number.***
4. Click **OK**.

To define values associated with a criterion of **Enumeration** format:

1. Open the **External Value** properties page of the current criteria.
2. Click the **New** to create new values.

Defining Criterion Aggregation Rules

Aggregation of a criterion enables definition of calculation rules that will be applied to application values to obtain the criterion value on a portfolio. In this way you can compare portfolios.

To define criterion aggregation rules:

1. Open the properties pages of the criterion.
2. Click the **Characteristics** page.

Aggregation policies proposed as standard are:

- **Minimum**
- **Maximum**
- **Average**
- **Sum**

For example, the Cost criterion associated with a portfolio can be obtained by calculating the average cost of initiatives making up the portfolio, or the sum of costs of each of the elements.

To fix more specific aggregation rules, the aggregation policy can be defined by a **Macro**. The name of the macro is defined in the **Aggregation Macro** column.

☛ *For more information on **Macros** in **HOPEX**, see the guide **All about starting with APIs**.*

The result of aggregation of different criteria is accessible in the **Aggregation Value** column.

Evaluating Applications on Portfolio Criteria

Portfolio applications are assessed against the various portfolio criteria.

> ☛ *Standard criteria relating to costs are automatically calculated, they cannot therefore be modified in this property page. For more details on these criteria, see "Using Existing Criteria", page 143.*

Accessing evaluated applications

To access evaluations of all portfolio applications:

1. Open the properties of the portfolio.
2. Select the **Evaluation** page.
   The list of evaluations of all portfolio applications according to different criteria is displayed.

PGenerating a PDF or Excel evaluation data file

The **PDF** and **Excel** allow you to generate PDF and Excel files of evaluation results.

> ☛ *For reasons of readability, the PDF file contains a maximum 12 columns.*

Generating an instant report on evaluation data

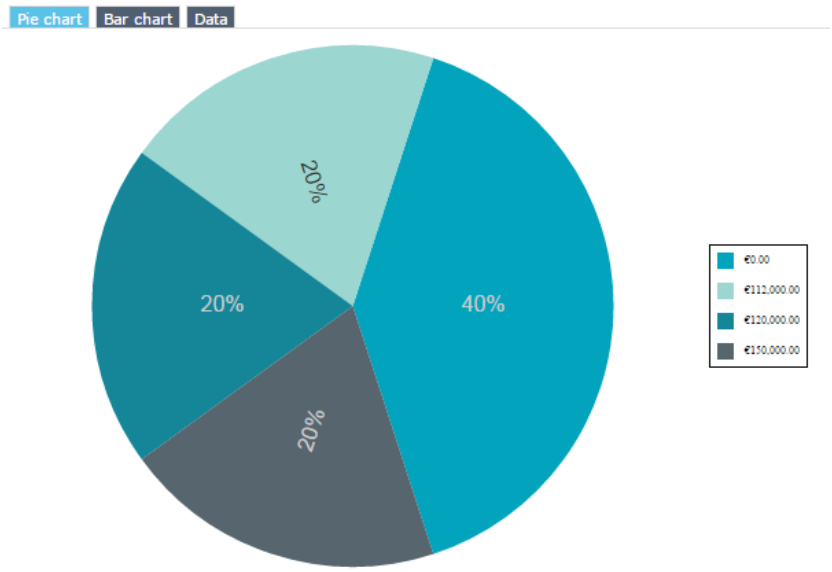
Instant reports allow you to carry out drill-down analysis on evaluated objects. They provide greater detail depending on specific analysis perspectives (quantitative, time, etc.).

To generate an instant report on a list of evaluated applications:

1. Open the properties of the portfolio.
2. Click the **Inventory** page.
3. In the list of applications, select those to be analyzed.
   If you do not select an application, by default the report covers all applications.
4. Click **Instant Report.**

   > ☛ *If necessary, click* ⋮ *to display the hidden commands.*
5. Select the required analysis type, for example "Breakdown".
6. Click **OK**.

7. In the list of possible grouping criteria, select "Costs".
   For all selected technologies, you receive the cost breakdown according to their levels.



For further information on instant reports, see the **HOPEX Common Features** guide, "Generating documentation", "Launching instant reports on lists".

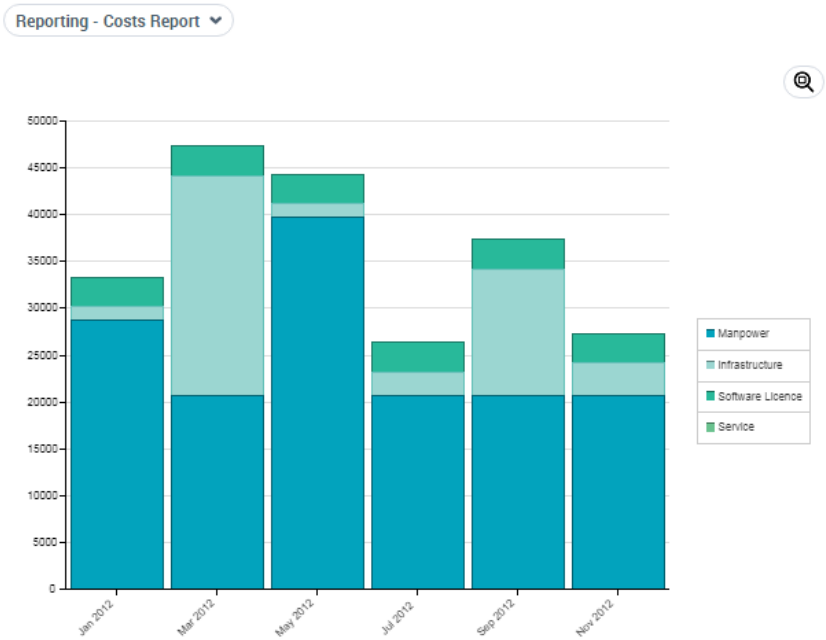
Portfolio costs report

A report automatically displays the global costs of applications contained in a portfolio.

To access the portfolio cost report:

1. Open the properties of the portfolio.

2. Select **Reporting** > **Costs Report**.



2. Detailed Cost per Nature

	Manpower	Infrastructure	Software Licence	Service	Total
Jan 2012	€28,667.00	€1,500.00	€3,167.00	€0.00	€33,334.00
Mar 2012	€20,667.00	€23,500.00	€3,167.00	€0.00	€47,334.00
May 2012	€39,667.00	€1,500.00	€3,167.00	€0.00	€44,334.00
Jul 2012	€20,667.00	€2,500.00	€3,167.00	€0.00	€26,334.00
Sep 2012	€20,667.00	€13,500.00	€3,167.00	€0.00	€37,334.00

An analysis report also summarizes costs of applications and of their versions and deployments between the portfolio start date and end date.

ANALYZING THE APPLICATION CODE OF A PORTFOLIO WITH CAST HIGHLIGHT

On a portfolio containing in-house applications, the portfolio manager can launch a code analysis campaign to analyze the quality of the application code and issue alerts on any risks that might affect the portfolio.

Prerequisite Conditions

The CAST Highlight code analysis functionality requires:

- Entering the client number in HOPEX ITPM
- Identifying the functional administrator as the first CAST Highlight user
- Declaring other users in CAST Highlight
- Establishing the connection between HOPEX and CAST Highlight

Entering the CAST Highlight customer ID

The administrator must specify the CAST Highlight Customer ID in HOPEX. This number is provided by the sales administration.

To specify the CAST Highlight Customer number in HOPEX ITPM:

1. Connect to HOPEX ITPM as HOPEX Administrator.
2. Click **Environment options**.
   The options window appears.
3. In the left pane of the window, expand the **Data Exchange** folder then **Import/Export Synchronization**.
4. Click **CAST Highlight**.
5. In the right pane of the dialog box enter the number of the **CAST Highlight Customer ID**.
6. Click **Apply**.
7. Click **OK** to close the window.

Identifying yourself as the first user (Functional Administrator)

As the first CAST Highlight user, the EA functional administrator must register with the CAST Highlight portal.

Once registered, the functional administrator must enter his/her CAST Highlight user number in HOPEX, which was allocated by CAST Highlight during his/her registration.

To enter your CAST Highlight user number in HOPEX:

1. In the HOPEX desktop, click **Administration** > **CAST Highlight** > **Manage Cast Highlight User**.

2. Click the drop-down list, then **Me** to display your information relating to CAST Highlight.
3. In the **Action** column relating to your name, click **Properties**.
   The properties window of the user appears.
4. In the **CAST Highlight ID** field, enter your user number.

The functional administrator can then define other CAST Highlight users in HOPEX.

Declaring other users in CAST Highlight

Once the functional administrator is registered in CAST Highlight and has established a connection between HOPEX and CAST Highlight, he/she can declare other CAST Highlight users in HOPEX. The persons concerned receive an email from CAST Highlight asking them to register in the account created in the CAST Highlight portal.

To add a CAST Highlight user:

1. In the HOPEX desktop, click **Administration** > **CAST Highlight** > **Manage Cast Highlight User**.
   The list of users appears.
2. Select the user in question and click **Create user in CAST**.
   The user receives an email from CAST Highlight to confirm the registration, and the user connexion status switches to "Missing token".

Establishing the connection between HOPEX and CAST Highlight

Before the first use of the code analysis functionality, each user, previously declared as a CAST Highlight user, must establish a connection between HOPEX and CAST Highlight.

To establish the connection between HOPEX and CAST Highlight:

1. In the HOPEX desktop, click **Administration** > **CAST Highlight** > **Manage Cast Highlight User**.
2. Click the drop-down list, then **Me** to display your information relating to CAST Highlight.
3. Select your name and click the **More** > **Generate Token** button.
   The window for creating a token appears.
4. Specify:
   - your CAST Highlight user email
   - your password entered in CAST Highlight
5. Click **OK**.

Launching a Code Analysis Campaign

The code analysis campaign is on the initiative of the application portfolio manager. It relates to the portfolios whose applications are of the "Specific Development" type.

> ☛ *The "Specific Development" application type is defined in the application page, in the **Identification** section of the **Characteristics** page.*

To launch a code analysis campaign on an application portfolio:

1. Display the relevant portfolio properties.
2. Click the **CAST Highlight Campaigns** page.
3. **Portfolios containing specially developed applications**
4. Display "All Application Portfolios Developed Specifically".
5. Select the application portfolio concerned and click **Scan Application Source Code**.
   The campaign creation window appears.
6. Specify:
   - The campaign name
   - The closing date, which determines the date on which the scan results are automatically transferred in HOPEX
   - A message to the application managers
7. Click **OK**.

Following this creation, CAST Highlight sends a notification to the managers concerned inviting them to launch an analysis of their application codes.

Launching the Code Analysis

Following the notification received, each application manager connects to CAST Highlight to:

- download the local agent if this has not already been done

  ☛ *The local agent is used to run code analyses and to create the results file to be uploaded to the CAST Highlight portal.*

- launch a code analysis on the applications concerned.

The analysis results are saved in a file. The application manager can transfer them to the CAST Highlight portal.

To report the results of the analysis in HOPEX ITPM and update the analysis values on an application:

1. Display the properties of the application in question.
2. Click the drop-down list then **Assessment** > **CAST Highlight Metrics**.
3. Click **Update Metrics from CAST Highlight**.

EVALUATING THE CLOUD MIGRATION

The Cloud Migration assessment questionnaire is addressed to the IT managers and owners of the evaluated applications. It presents a series of questions for each application, the answers to which will enrich the analysis of application migration to the Cloud.

> ☛ *For details of the migration analysis, see "Cloud Migration Analysis".*

Presentation of the Cloud Migration Questionnaire

To launch a Cloud Migration Assessment Questionnaire:

1. In the navigation menu, click **Tools** > **Assessments**.
2. In the edit area, click **Session Follow Up**.
3. Display "All sessions".
4. Click **New**.
5. Select the "Cloud Migration Assessment" template.
6. Select the portfolio of applications to be evaluated.
7. Click **Next**.
   A view of the assessment shows the number of objects assessed and the list of respondents. The respondents are the people appointed "IT Manager" or "Local Application Owner" on the applications in the portfolio.
   > ☛ *The people involved in a portfolio are visible in the properties of the portfolio. See also "Designate People Responsible for Applications".*
8. Click **Next**.
9. Indicate when to send the questionnaire to respondents:
   - Now
   - At a specific date and time.
10. Click **OK**.
    The questionnaire is sent to respondents.

Questionnaire Content

The questions in the questionnaire concern an application and are intended to determine the value of migrating the application to the cloud.

The questions addressed to the application respondents are as follows.

Motivations for moving the application to the Cloud

What are the reasons for moving the application to the cloud? The more options you check, the more interest there is in moving to the cloud.

Business and IT Agility

Check the possible motivations:

- Speed to market (quick availability of required resources)
- Data and software accessibility from (quite) anywhere
- Scalability (adaptation to workload)
- Innovation (use capability existing only in cloud)
- Obsolescence avoidance (to be always aligned with technical "state of the art")

Cost improvement

Check the possible motivations:

- Cost reduction (infrastructure assets, staff costs, sub-contractor diversity)
- From Capex to Hopex: we go from innovation costs to operating costs
- Cost reduction (infrastructure assets, staff costs, sub-contractor diversity)

Corporate identity

Green orientation.

Technical interest

Auto scale: automatic load distribution on the servers.

COTS Application

In the case of a COTS ("off-the-shelf") application, the level of customization must be determined.

An application that requires a lot of customization is more difficult to migrate.

Saas Version of the COTS application

The existence of a SaaS version facilitates migration to the Cloud.

Data breach

Probability

Determine the risk of a data breach during and/or after Cloud migration.

Impact

What would be the impact of a data breach during and/or after Cloud migration.

Service disruption risk

Probability

Determine the risk of a service disruption during and/or after Cloud migration.

Impact

What would be the impact of such an interruption?

Risk of out-of-control budget

Probability

What is the probability of an out-of-control budget risk during cloud migration?

Impact

What would be the impact?

Technical skills of the migration team

Determine the skill level of the migration team:

- Required skills are mastered
- It won't be a problem with a little training/coaching
- Required skills are totally new for the team

Migration effort

What would be the level of effort to migrate to the cloud?

PORTFOLIO ANALYSIS REPORTS

HOPEX IT Portfolio Management provides predefined report templates for application portfolio analysis.

Reports Embedded in a Portfolio

The different report templates proposed as standard by **HOPEX IT Portfolio Management** are designed to compare initiatives of a portfolio based on specific criteria. Different report types offer different analysis possibilities.

These reports are based on information provided by the application owners. They do not require any configuration and are available to application portfolio managers.

To access existing reports on an application portfolio:

1. Open the properties of the portfolio.
2. Click the drop-down list then **Reporting**.

☛ *For detailed information on reports, see "Generating Reports".*

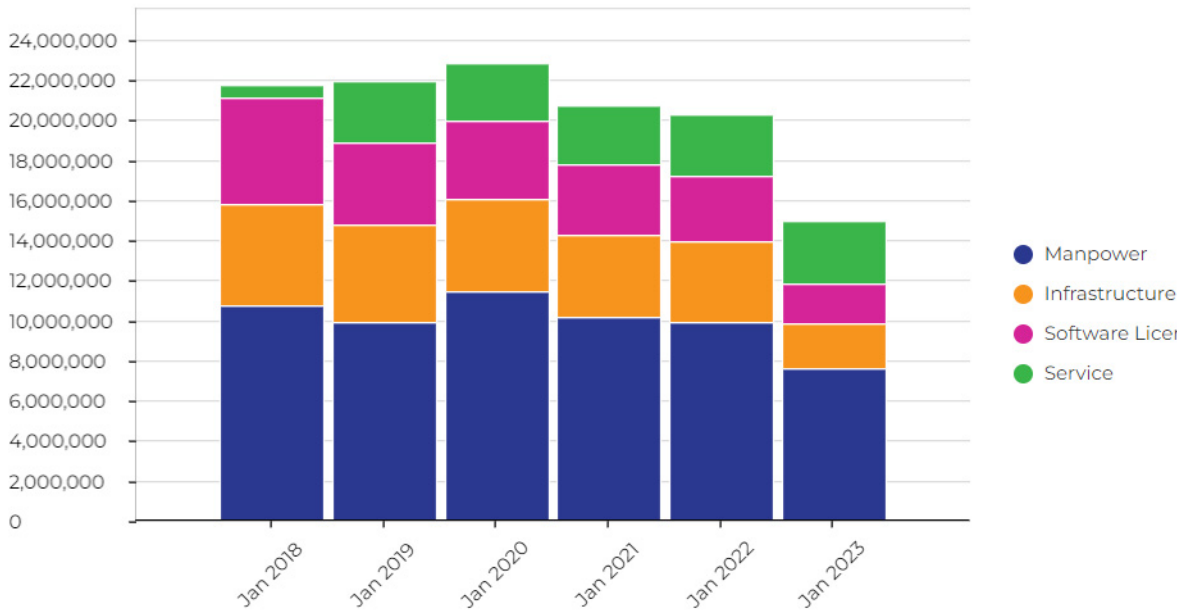
Costs Report

The report presents the cost analysis of the portfolio applications, by type (manpower, infrastructure, etc.) and by year. It offers different views:

- A graphical view of the cost breakdown
- A table of costs by nature
- A table of costs by application

☛ *For further information on application costs, see "Managing Application and Application System Costs".*

Example of costs (graphical view)



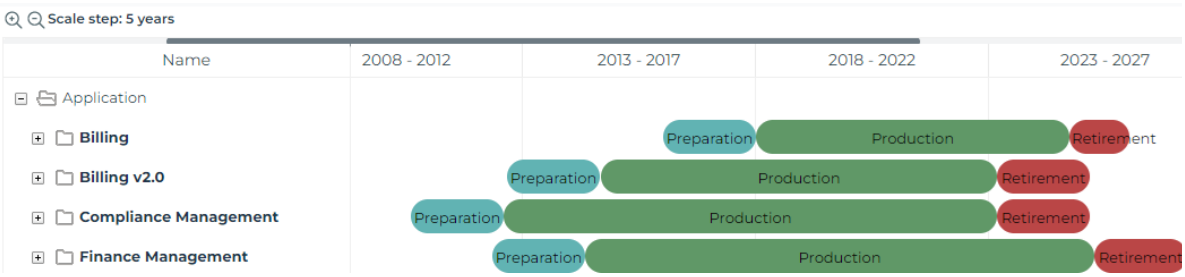
Gantt Chart

The Gantt chart represents the lifelines of applications making up the portfolio.

The preparation, production and retirement phases are described for each application.

☛ *For more information on application life cycle, see "Defining Application Life".*

Example



You can customize the report scale to 1, 2 or 5 years.

Application Inventory and Dependencies

This report presents the functional characteristics of the portfolio's applications in matrix form (lifecycle, associated technologies, business capabilities covered, etc.).

Example

Application	Application Owner	Life Cycle	Software Technologies	Business Capabilities	Process Categories	Deployment Consumers	Sensitive Data
Billing	• Thomas • Anne	Production	• Windows Server 2016 - Essentials - 10.0 • Office 2010 • Internet information Services (IIS) 8 • SAP R/3 WF • .NET Framework 4.7.2	• Financial Instrument Management • Billing Management • Billing • Core Operations • Payments Management • Customer Requests • Accounting • Customers Support • Sales	• Publish Financial Information • Manage Sales and Accounts Receivable • Pay Taxes and Taxes • Sell Products on the Internet • Sell Products	• Sales (Canada) • Sales (US) • Sales (Germany) • Sales (UK) • Sales (Italy) • Sales (France) • Accountability department • Sales (Brazil) • Sales (Japan) • Sales (Belgium)	No
Billing v2.0	• Thomas • Anne	Retirement	• SAP R/3 WF • Internet information Services (IIS) 8 • Internet Explorer 10 • Office 2013 • Internet Information Services (IIS) - 10.0 • * Apache log4j v2.17 • Windows Server 2016 - Essentials - 10.0	• Accounting V2 • Finance Management • Accounting • Purchasing • Sales	• Procurement • Publish Financial Information • Manage Acquisitions and Acquittable Accounts • Manage Sales and Accounts Receivable • Pay Taxes and Taxes • Sell Products on		No

Application Positioning

This report shows distribution of applications related to the business addressed, functionalities covered and technologies used. This presentation enables rapid identification of applications to be developed.

The report is based on the **Business Value**, **Functional Support** and **Technical efficiency** from the latest application evaluation.

☛ *See "Evaluating Application Criticality".*

Example

Eliminate

Costs: €8,272,725.00 (7%)

7 applications (11%)

Application	Business Value	Technical Efficiency	Functional Support	Reference Costs	
FastBooking	Low	Poor	Medium	€0.00	Eliminate
Hardware Purchasing System	Low	Low	Low	€2,144,626.00	Eliminate
Remote Handling	Poor	Poor	Low	€1,955,203.00	Eliminate
Manufacturing Management	Low	Low	Low	€2,268,978.00	Eliminate
Call Management	Low	Low	Poor	€130,133.00	Eliminate
Law recorder	Poor	Medium	Good	€66,200.00	Eliminate
Accounts	Low	Medium	Low	€1,707,585.00	Eliminate

Renovate

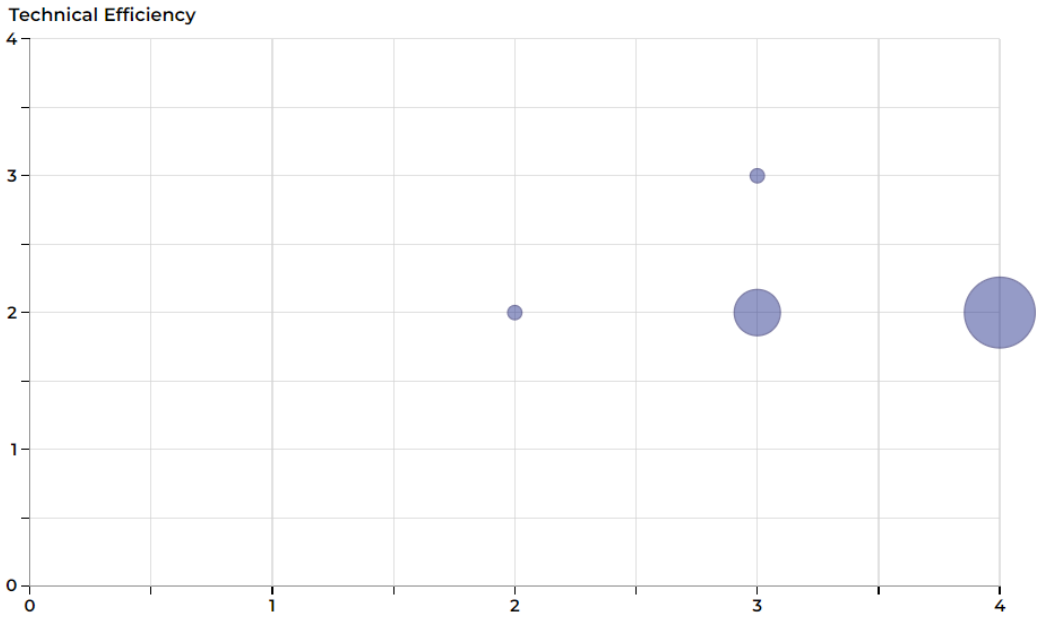
Costs: €8,519,255.00 (7%)

Applications TIME Report

This report uses Gartner's TIME (Tolerate, Invest, Migrate and Eliminate) model to analyze the business value of applications.

In the **Assessed characteristics**, you can select functional support or technical efficiency.

Example



☛ *See also "TIME Analysis".*

Business Capability Maps

This report covers distribution of applications in business capabilities .

☛ *See "Generating the Business Capability Map of a Portfolio".*

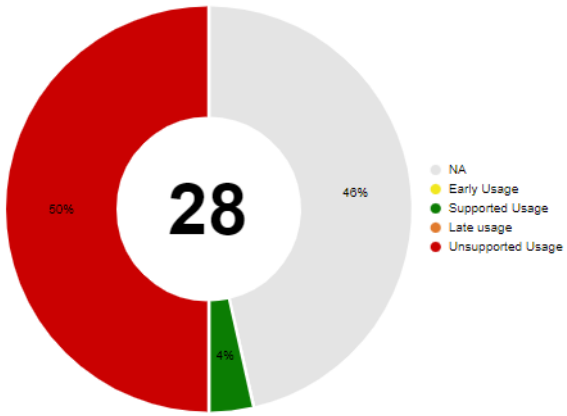
Software technology support alert

This report tracks the obsolescence of technologies associated with the application portfolio.

It uses the technology **Support Alert** attribute to detect any conflicts between their use in the organization and their official lifecycle.

☛ *See "Defining Technology Life".*

Example



Click on a percentage of the graph to access the list of technologies concerned.

Data handled by portfolio applications

This report presents the data used by the portfolio's applications in the form of a word cloud.

☛ *See also: "Defining the Data Used by an Application".*

Data Category of Portfolio Dendrogram

This report displays in dendrogram form the data used by the applications in the portfolio, according to their category.

☛ *See also: "Defining Data Categories".*

Other Reports

Other reports, available in the list of report templates supplied as standard, offer an analysis of portfolio content.

See:

- "Application decommissioning plan report"

SMART Analyses

SMART analyses are designed to:

- Present repository data to support decision-making
- Formulate recommendations for a decision in a given field
- Preparing for action after the decision

HOPEX IT Portfolio Management offers two SMART analyses to evaluate the applications in a portfolio:

- TIME Analysis
- Cloud Migration Analysis

How the SMART analyses work

TIME Analysis and Cloud Migration Analysis are performed on a portfolio of applications. They present, for each application in the portfolio, the values of aggregated indicators, as well as the decision recommendation, when available.

Aggregate indicators are calculated from basic indicators that have a default weight in the calculation.

The value of the aggregated indicators is accompanied by a data completeness percentage that evaluates the relevance of the analysis.

In the analysis report, commands allow you to:

- recalculate the values of the aggregated indicators
- graphically view the values of the aggregated indicators
- see the data completeness details: a matrix indicates which basic indicators have been filled in for each application
- finalize analysis

TIME Analysis

Indicators and their weight in the analysis

Based on aggregated technical and business indicators, this analysis presents rationalization recommendations for the applications in a given portfolio.

Aggregated indicators	Basic indicators	Default weight
Business indicator	Business value Functional support Service-level agreement (SLA)	60% 30% 10%
Technical indicator	Technical efficiency Technology obsolescence Application life cycle	40% 40% 20%

Sources of basic indicators

The analysis is based on the following basic indicators:

- **Business Value**, **Functional Support** and **Technical efficiency** from the latest application evaluation.

  ☛ *See "Evaluating Application Criticality".*

- The **Service Level Agreement (SLA)** defined in the **Service Level Agreement** section of the application properties.
- The **Obsolescence risk**: this corresponds to the highest risk of the technologies linked to the application.

  ☛ *See the obsolescence risk in the "Overview" of an application.*

- The **Life cycle**; the analysis looks for the application's production end date and calculates the difference with the current day.

  ☛ *See also "Defining Application Life".*

Decision options

The possible decisions are as follows:

- "Tolerate": applications that create sufficient business value and whose costs are manageable, maintained for various reasons.
- "Invest": applications that are most lucrative and interesting in terms of investment.
- "Migrate": applications that need to be modernized.
- "Eliminate": applications that have low business value or high risk. They must be eliminated.

Cloud Migration Analysis

Indicators and their weight in the analysis

Based on aggregated indicators, the Cloud Migration Analysis presents migration recommendations for applications in a given portfolio.

Aggregated indicators	Basic indicators	Source	Default weight
Migration Appetite	Last "Time" decision	Repository	30%
	Latest application criticality assessment	Repository	15%
	Motivation: number of motivations	Questionnaire	25%
	Life cycle (the end of production is approaching)	Repository	15%
	Auto scale	Questionnaire	15%
Migration Easyness	Number of different application flows	Repository	25%

Aggregated indicators	Basic indicators	Source	Default weight
	Number of partner applications	Repository	25%
	Data regulations	Repository	25%
	Shared databases	Repository	25%
Migration Readiness	CAST Cloud Ready Score	Repository	20%
	Migration effort	Questionnaire	20%
	Application COTS (Customization weight)	Questionnaire	20%
	Saas Version of the COTS application	Questionnaire	20%
	Technical skills of the migration team	Questionnaire	20%
Migration Safeness	Response time requirement	Repository	20%
	Big data transfer required	Repository	20%
	Data Breach Risk	Questionnaire	20%
	Service disruption risk	Questionnaire	20%
	Risk of out-of-control budget	Questionnaire	20%

Sources of basic indicators

The analysis calculates a score between 0 and 4 for each basic criterion. The value of the indicator is then aggregated with a weight assigned to it. The aggregate score is normalized to 100.

☛ *The aggregate score is not an integer.*

The value of the basic indicators is based on:

- The TIME matrix values:
  - "Tolerate": means that the application has a good technical score but less at business level. It is kept pending a decision. Migration score: 2.
  - "Invest": high business and technical value. The application is already good as it is. Score: 3.
  - "Mitigate": applies to applications that we want to keep but restructure. The migration score is high: 4.
  - "Eliminate": applications to be excluded. Value: 0.
- The last criticality evaluation of the application (business, functional, technology).

  ☛ *See "Evaluating Application Criticality".*
- The migration motivations from the migration assessment questionnaire: the more options are checked, the higher the score. If 4 or more options are checked, the score is 4.

  ☛ *See "Evaluating the Cloud Migration".*
- Application lifecycle: the more distant the end date, the more interesting it is to migrate to the Cloud. The value of the indicator takes into account the number of months between the start date and the end date of production:
  - between 0 and 6 months = 0
  - between 7 and 12 months = 1
  - between 13 and 30 months = 2
  - more than 49 months = 4

  ☛ *See also "Defining Application Life".*
- The number of application flows sent or received by the application: as the number of flows increases, the migration score decreases (as a large number of flows increases security risks, bandwidth problems, etc.).
- The number of distinct partner applications for flows sent or received by the application: the more partner applications there are, the lower the score.
- The number of regulatory frameworks associated with the data categories managed by the application: the more regulations there are, the lower the score.
- The number of deployed databases used by application software installations that are also used by software installations of other applications. The more databases, the lower the score.
- CAST Cloud Ready Score: this is CAST Highlight's analysis of an application's source code. The higher the parameter value, the higher the migration score.
- Application flows with "Required latency " qualification: the higher the latency value, the higher the score.
- Application flows with the "Communication weight" qualification. As the weight of communication increases, the score decreases.

  ☛ *See IT Architecture Guide > Modeling application architectures > Describing an Application Data Flows > Using a Scenario of an Application Flows diagram > Application flow qualification.*

Recommendations and decisions

By default, the recommendations are calculated from the ranges of the **Business Value** and **Technical Efficiency**. indicators. The other indicators are not included in the recommendation.

Recommendations of the analysis are:

- Rehosting/Re-platforming
- Refactoring/Repurchasing
- Retire
- Retain

On these recommendations, possible decisions are:

- Replatform
- Repurchase
- Retain
- Refactor
- Rehost
- Retire

Once the decision to migrate is made, it can be recorded for each application in the portfolio.

Running a Smart analysis

To run the analysis:

1. In the navigation bar select **Tools** > **Smart Analyses**.
2. Select the analysis type.
3. Select the portfolio to be analyzed.
4. Run analysis.
   Recommendations are colored to highlight the decisions to be made. You can select the decision from the associated drop-down list.

TRANSFORMING THE APPLICATION PORTFOLIO

To upgrade the application and technological assets according to the objectives set, ITPM provides the tools to plan and follow up on the transformation projects to be achieved.

Transformation projects can concern business capabilities, applications, application systems, technologies, etc.

With these objects, depending on your connection profile, you can:

- submit an idea that could become a project demand
- submit a project demand
- directly launch a candidate project

The objects concerned are attached to the project demand or the candidate project as deliverables.

Once submitted, the ideas and projects are completed then assessed before being validated or rejected.

For more information on project portfolio management, see "Introduction to Project Portfolio Management".

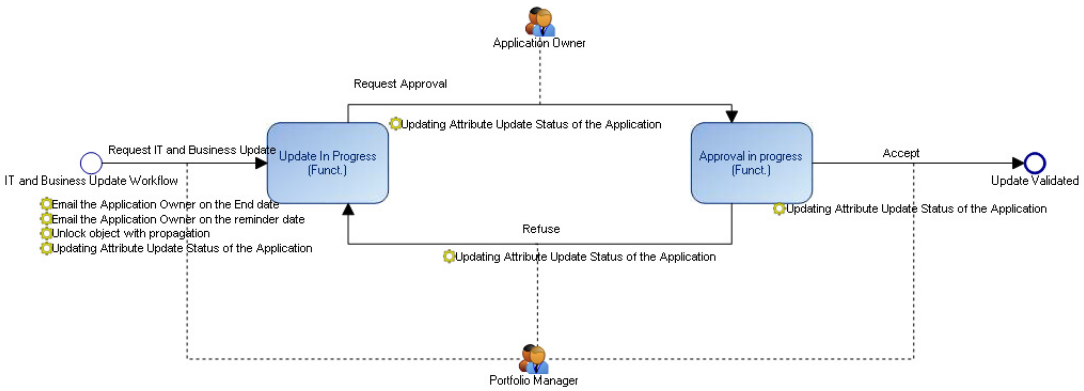
HOPEX IT Portfolio Management Workflows

This chapter presents **HOPEX IT Portfolio Management** workflow diagrams.

APPLICATION UPDATE WORKFLOW

Using workflows, Application Portfolio Managers can launch campaigns to update technical and business information for one or more applications in their portfolios. These workflows can also be run for all portfolios.

Note that the Application Owners must be correctly specified in the applications for the workflow to run correctly.



When the campaign is launched, an e-mail is sent to the owners of the application. It includes the following information:

- List of applications to be updated
- End date of the update campaign (which is set at the end of the month following the date of the request. For example: if the request is made on September 21, 2023, the end date of the campaign will be October 31, 2023).

Applications to be updated appear in the list of application to be updated. A reminder is automatically sent by email fifteen days before the campaign end date.

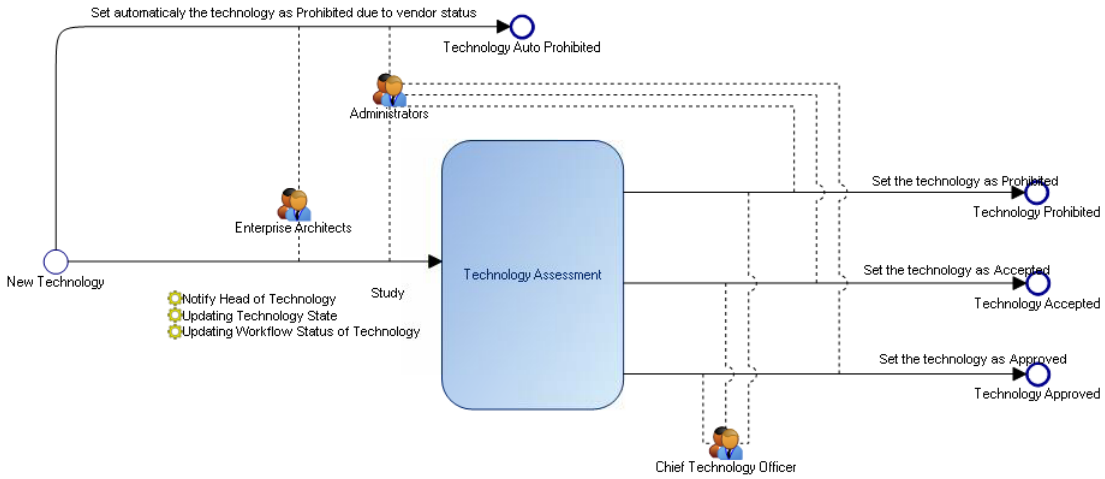
Once the application information is updated, the Application Owner submits the changes to the Portfolio Manager for approval.

TECHNOLOGY VALIDATION WORKFLOW

Functional Administrator and Enterprise Architect profiles can initiate the validation workflow on a technology.

When a vendor is prohibited, all the vendor's technologies automatically change to "Prohibited" status.

A user holding the role of "Local Correspondent" on a technology can evaluate it and define it as "Validated", "Accepted" or "Approved". This correspondent must first be defined in the technology's properties.



SERVICENOW INTEGRATION

WHAT IS SERVICENOW INTEGRATION?

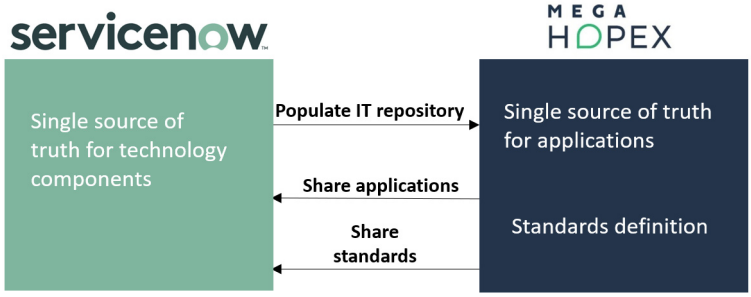
ServiceNow Integration enables to quickly be up and running through an out-of-the box integration with ServiceNow.

Use Case

It enables to synchronize **HOPEX** repository and IT assets coming from ServiceNow.

It helps to bring the strategic vision on these assets by:

- defining technology standards based on IT policy
- linking IT assets to business capabilities
- analyzing the impact of a business change



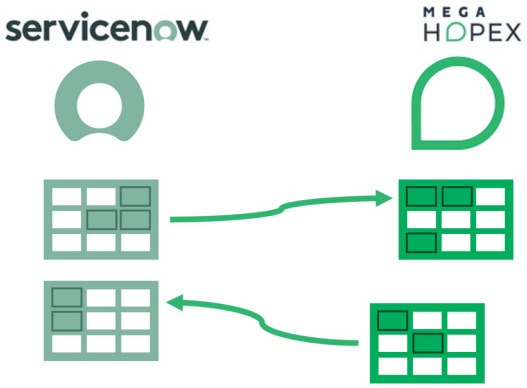
Integration High Level Principles

Correspondence tables (Mappings) have to be configured between the solutions.

Each Mapping will define the direction of data transfer (bidirectional is possible).

The connector will check for:

- Creations
- Changes
- Deletions



ACCESSING SERVICENOW INTEGRATION

Prerequisites

ServiceNow Prerequisites

Version

ServiceNow Integration is compatible with all currently supported versions of ServiceNow.

Mapping Definition

Any user must have read access to "sys_db_object", "sys_dictionary" and "sys_choice" tables in order to view the descriptions of all tables and their columns. Therefore, one or more of the following roles must be assigned to users:

- "Admin";
- "Personalize_choices", to read a column choices;
- "Rest_api_explorer", to use the REST APIs.

Mapping synchonization

In order to exchange data between **HOPEX** and ServiceNow, a user must have the following permissions on the concerned tables:

- Read, to read records;
- Write, to modify records;
- Create, to insert records:
- Delete, to delete records.

HOPEX Prerequisites

Version

You can access ServiceNow Integration using the following **HOPEX** version:

- HOPEX Aquila V6.1 onward

Module installation

ServiceNow Integration module must have been imported into **HOPEX**:

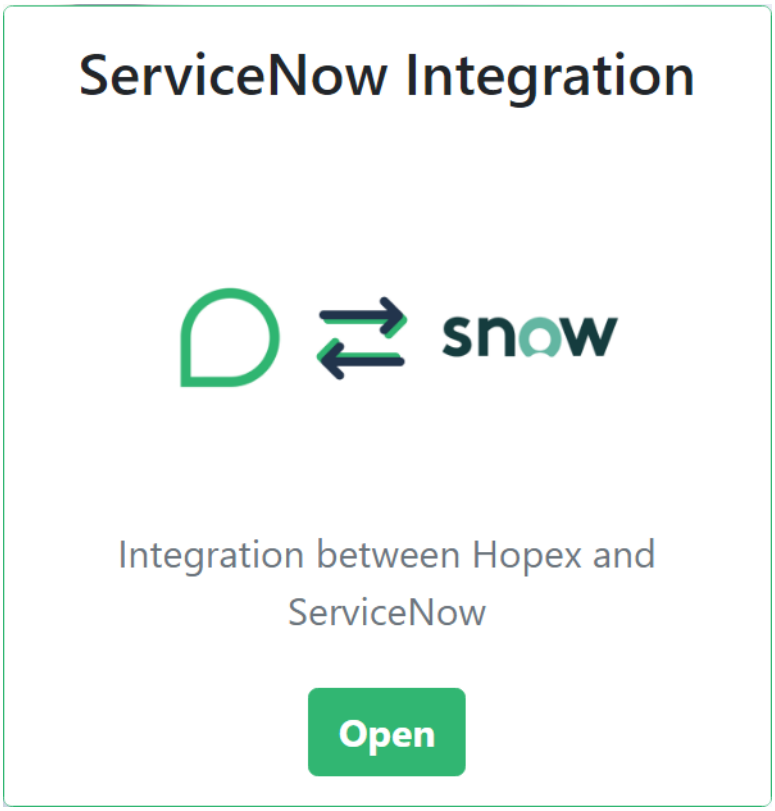
- Download the ServiceNow Integration module labeled "3.x.x".

☛ *See Importing a Module into HOPEX.*

Accessing the Module

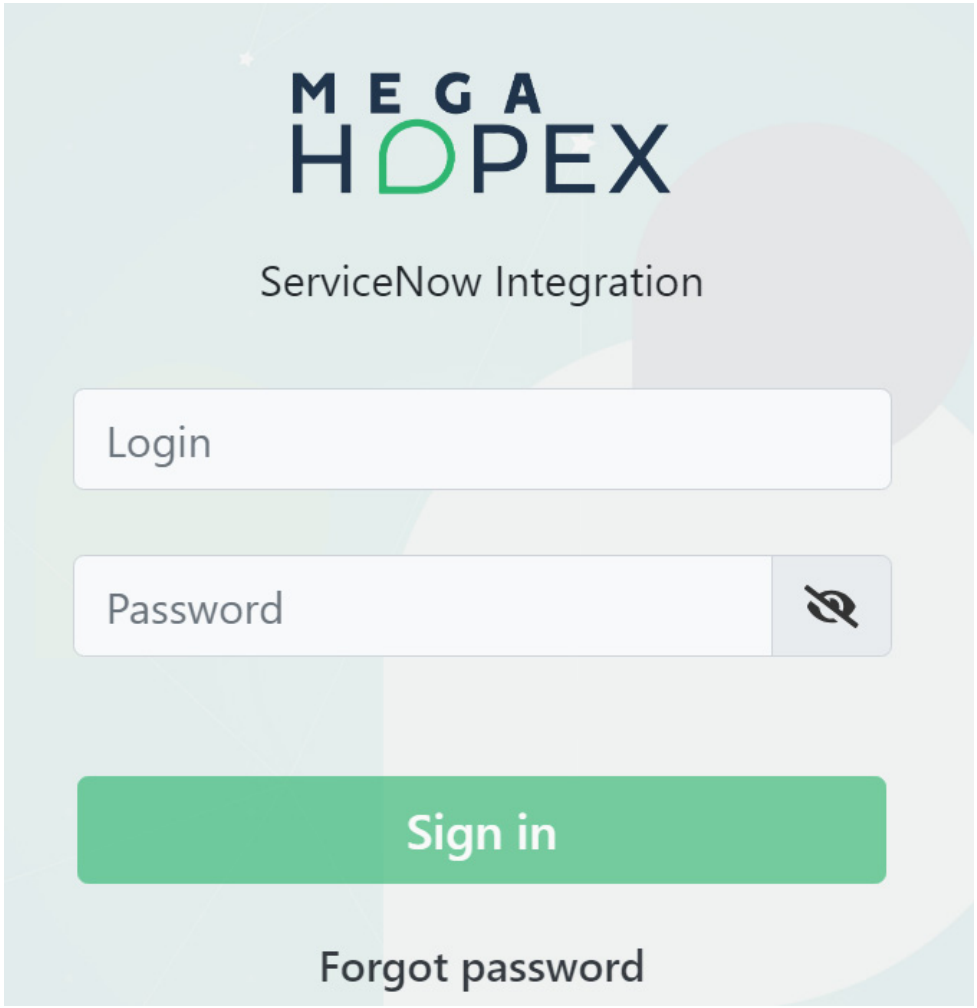
To access the module:

1. Open the HAS main page.
2. Open ServiceNow Integration module.



3. Enter a login and a password.

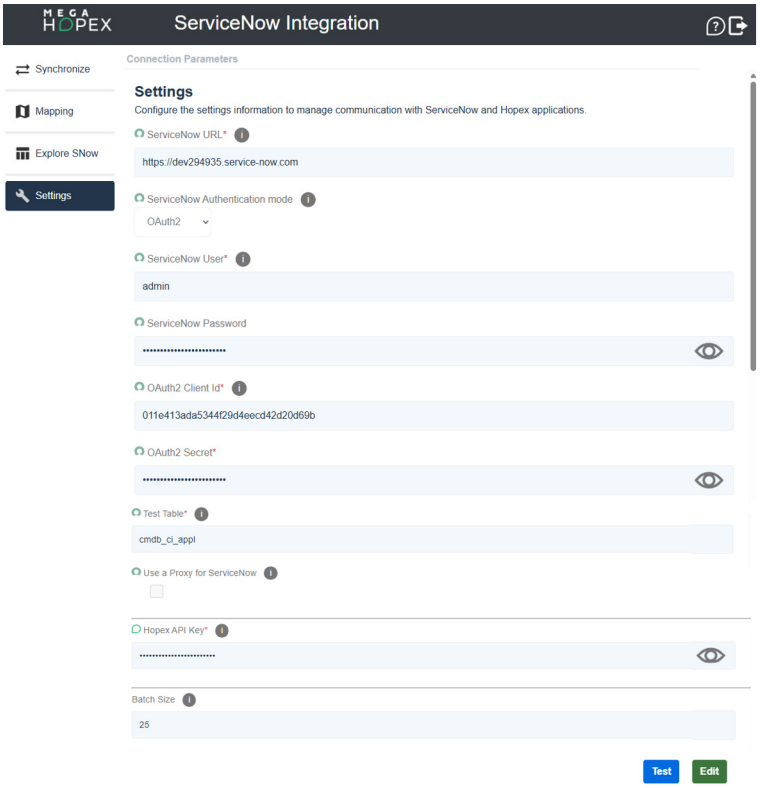
4. Click **Sign in**.



5. Select Repository and Profile if applicable.
6. Click **Enter**.

Setting Up the HOPEX-ServiceNow Connection

To set up the connection between **HOPEX** and ServiceNow:



1. In the menu, select **Settings**.
2. Click **Edit**.
3. Enter the **ServiceNow URL**: The URL of your ServiceNow instance.
4. Select the **ServiceNow Authentication mode**:
   - **Basic**: Can be used for quick set up in non-production environments.
   - **OAuth2**: Recommended for production environments due to its enhanced security and token-based access.

     ☛ *Further configuration is required in your ServiceNow instance to retrieve the **OAuth2 Client ID** and the **OAuth2 Client Secret**. See* Setting Up OAuth2.0 in ServiceNow.
5. Enter the **ServiceNow User** and the **ServiceNow Password**.

   ☛ *The user must have access to REST APIs and the objects to synchronize.*
6. (Optional) Modify the default Test Table.
   - This table is used to test the connection and the rights of the user.
7. (Optional) Tick the box to set up a Proxy for ServiceNow.

   ☛ *See Setting Up a Proxy.*

8. Enter an API key.

   The HOPEX login used to create the API key must be different than the HOPEX login used to access ServiceNow Integration.

   ☛ *See Managing API Keys.*

9. (Optional) Modify the default Batch Size.
   - This represents the quantity of objects synchronized in each call to the web service.

     ☛ *The higher the value, the higher the performance. But bear in mind that this may generate errors if the value is higher than the number of objects in each call.*

10. Click **Test** to check whether the connection between ServiceNow and **HOPEX** is successful.
11. Click **Save**.

Setting Up OAuth2.0 in ServiceNow

To setp up the OAuth2 authentication mode, follow these steps in your ServiceNow instance:

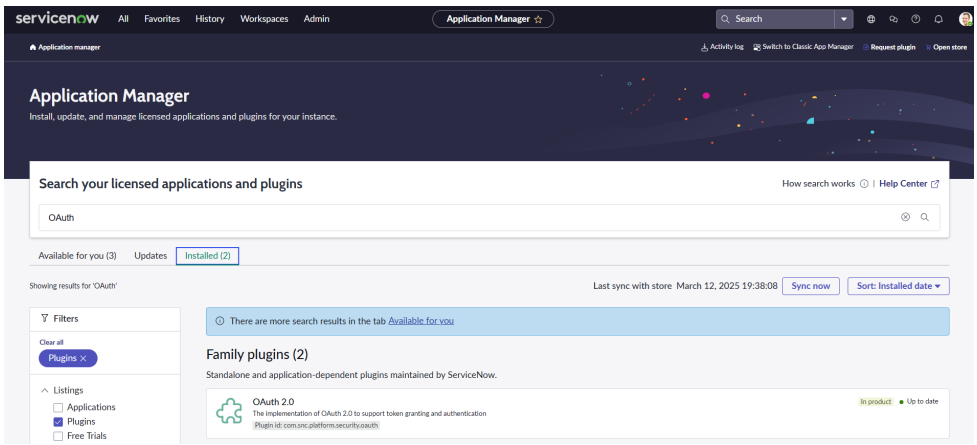
- Ensure the OAuth Plugin is activated
- Set up an OAuth Application

Ensure the OAuth Plugin is activated

To ensure the OAuth Plugin is activated:

1. Navigate to **All > System Definition > Plugins**.
2. Find the "OAuth 2.0" plugin using the filter criteria and search bar.
3. Check that it appears in the **Installed** tab.

   ☛ *If not, activate the plugin.*

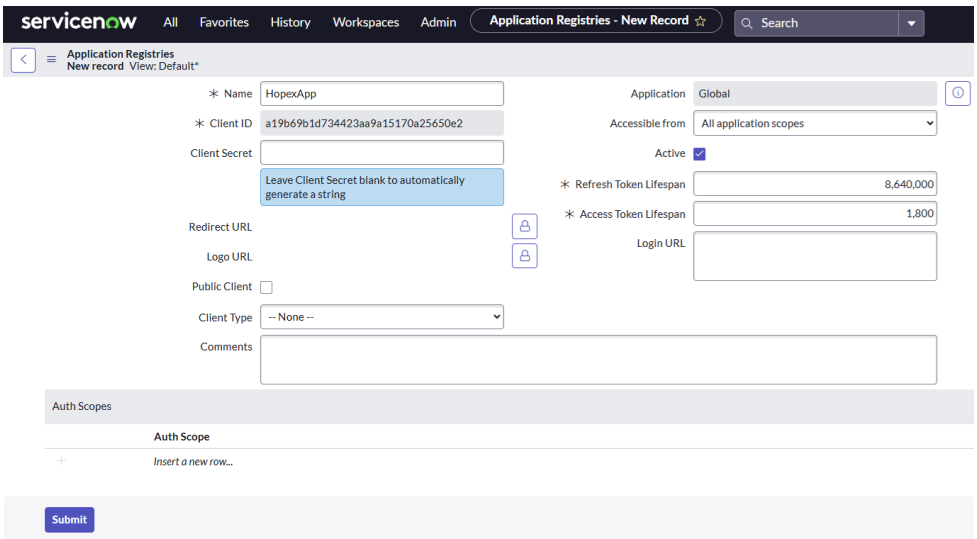


Set up an OAuth Application

To set up an OAuth Application:

1. Navigate to **All > System OAuth > Application Registry**.

2. Click **New**.
3. Select **Create an OAuth API endpoint for external clients**.
4. Fill in the required fields:
   - Name: e.g., HOPEX App
   - Client ID: Automatically generated by ServiceNow
   - Client Secret: Use the one generated or use a custom one
5. Copy the Client ID and the Client Secret.



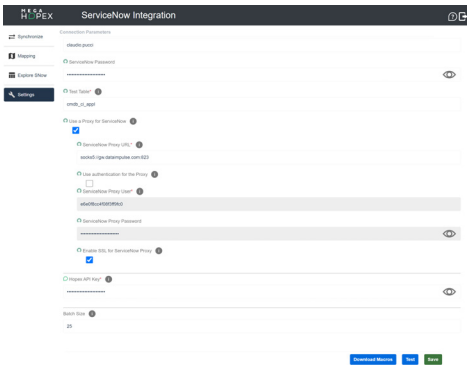
Setting Up a Proxy

According to your company security standards, it may be necessary to set up a Proxy.

☛ *The Proxy will only affect the communications to ServiceNow.*

To set up a Proxy:

1. While Setting Up the HOPEX-ServiceNow Connection, tick the box **Use a Proxy for ServiceNow**.



2. Enter a ServiceNow Proxy URL.
   - The URL format must be as follows: protocol://url:port where protocol can be: HTTP, SOCKS4, SOCKS4a and SOCKS5.
3. (Optional) Tick the box **Use authentication for the Proxy** and enter the following information:
   - ServiceNow Proxy User
   - ServiceNow Proxy Password

   ☛ *According to your specific situation, authentication data for the Proxy can be explicit by filling in the above fields - or implicit in the Proxy URL - or not required at all.*
4. (Optional) Tick the box Enable SSL for ServiceNow Proxy.

MAPPING OBJECTS

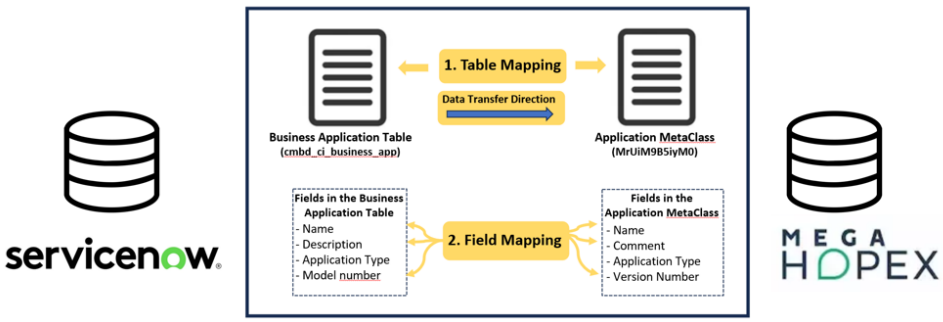
Preparatory Work

Core Concepts

In the module interface, you can configure mappings by setting up:

1. The objects to synchronize between **HOPEX** and ServiceNow (e.g. Applications) through a ***Mapping of tables***.
   The following information must therefore be defined:
   - the **HOPEX** MetaClass and the ServiceNow table in which the objects are stored

     ☛ *If needed, you can explore ServiceNow's data model from **HOPEX**.*
   - the direction of data transfer (bidirectional is possible)
   - the synchronization mode (preserving or deleting objects from the target system)
2. The fields to synchronize along with the objects (e.g. name, description and version number of the Applications) through ***field-level mappings***.



Exploring ServiceNow's data model from HOPEX

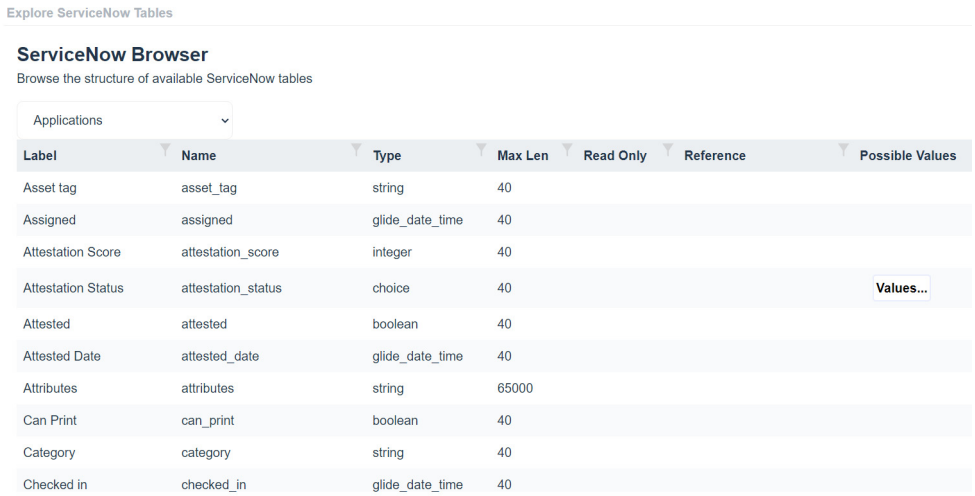
You can explore ServiceNow tables and fields from **HOPEX**.

To do so:

1. In the menu, click **Explore SNow**.
2. Select a ServiceNow table.

3. Click **Explore selected table**.
   A table appears and shows all the fields and their characteristics (type, maximum length, possible values, etc.) for a given object type in ServiceNow.

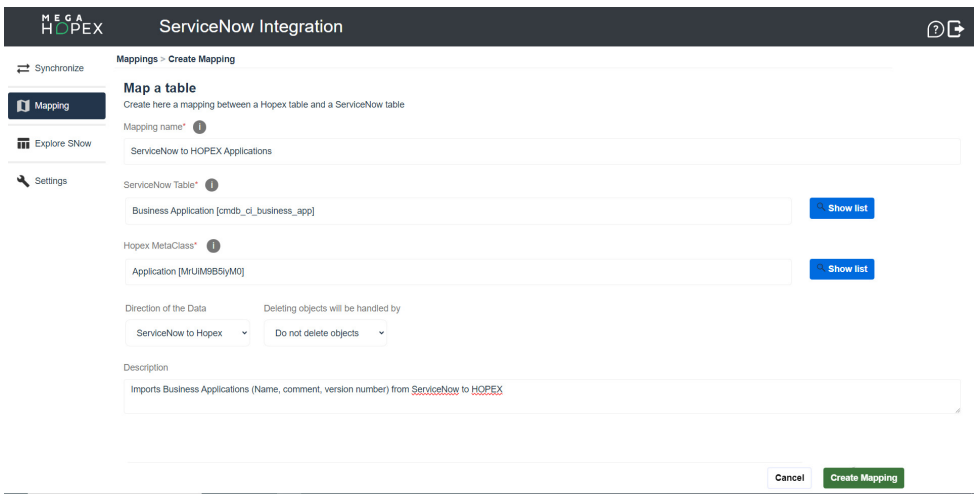
   ☺ *You can filter the results via the column headers* .



Mapping Tables

To map a ServiceNow table with a **HOPEX** MetaClass:

1. From the **Mapping** menu, click **Add New Mapping**.
   The Map a table creation page appears.



2. Enter a **Mapping name**.

3. Select a **Service Now table** and a **Hopex MetaClass**.
4. Select the direction of the data.
5. Precise whether objects should be preserved or automatically deleted from the target system.
   - **Do not delete objects** is safer but is more likely to lead to duplicates if not used carefully.
   - **Deleting objects by Hopex or ServiceNow** is more likely to lead to data loss, but it ensures greater consistency with the source objects.

     ☛ *See Deleting or preserving objects from the target system - Examples*
6. Enter a **Description**.
7. Click **Create Mapping**.
   The mapping now appears in the list of mappings.

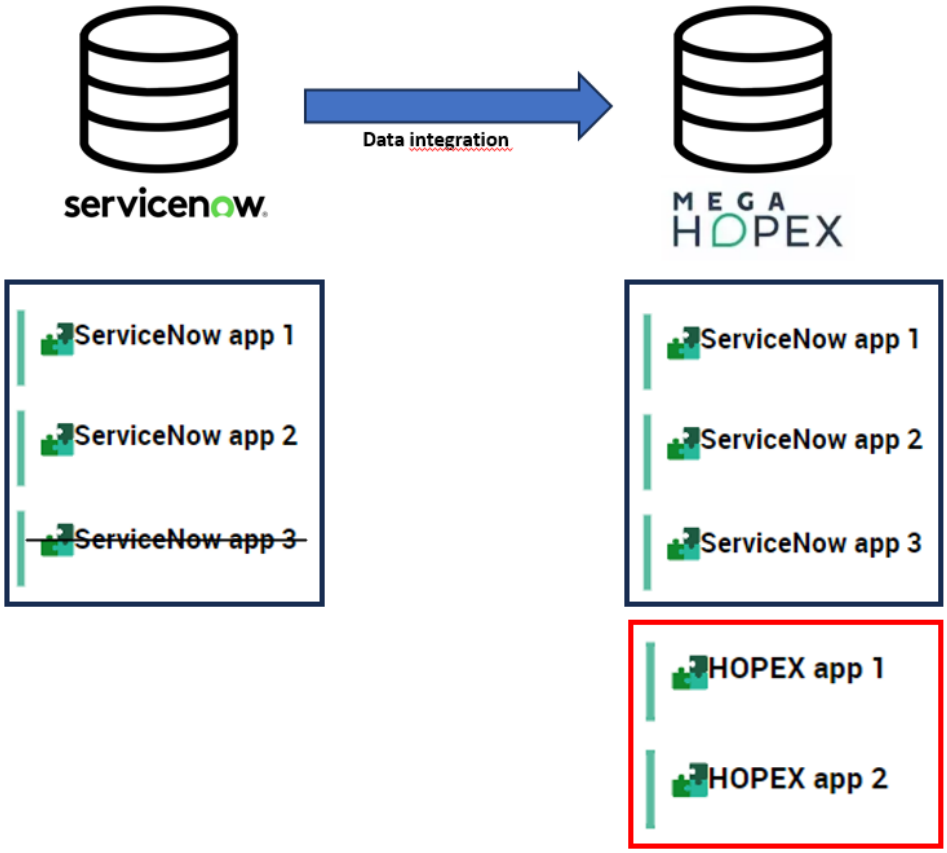
Deleting or preserving objects from the target system - Examples

Example 1

Scenario: Configuring the sync of applications from ServiceNow to **HOPEX** with no deletion.

Results:

- Any application created or updated in ServiceNow is mirrored in **HOPEX**.
- Any application deleted in ServiceNow is not deleted in **HOPEX**.
- Any application created directly in **HOPEX** is not deleted.



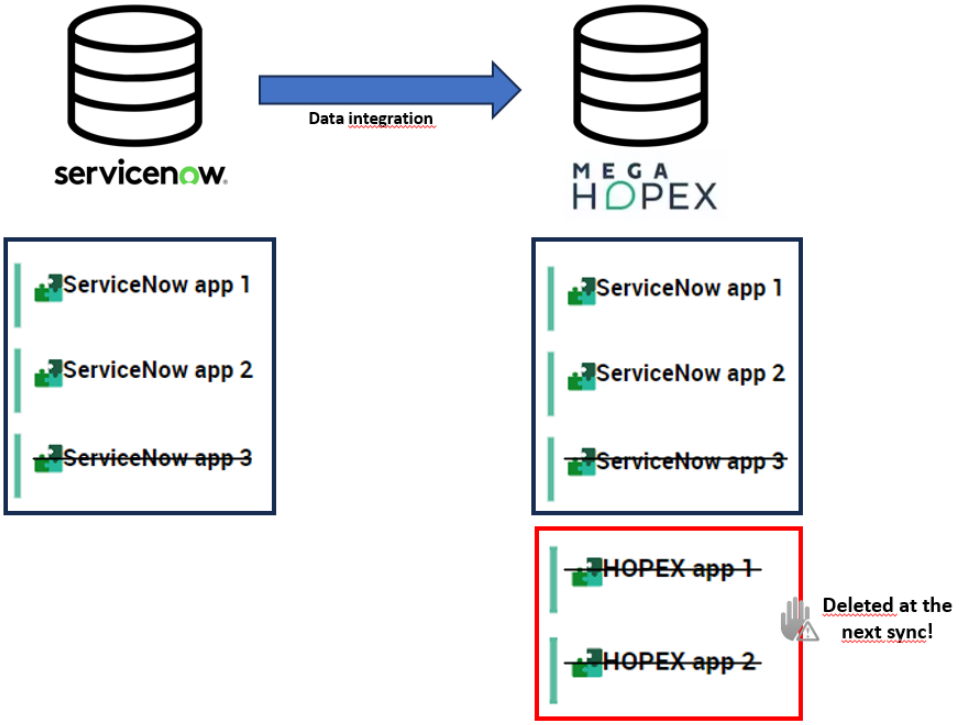
Example 2

Scenario: Configuring the sync of applications from ServiceNow to **HOPEX** with deletion handled by ServiceNow.

Results:

- Any application created, updated or deleted in ServiceNow is mirrored in HOPEX.

  Any application created in Hopex is deleted at the next sync.



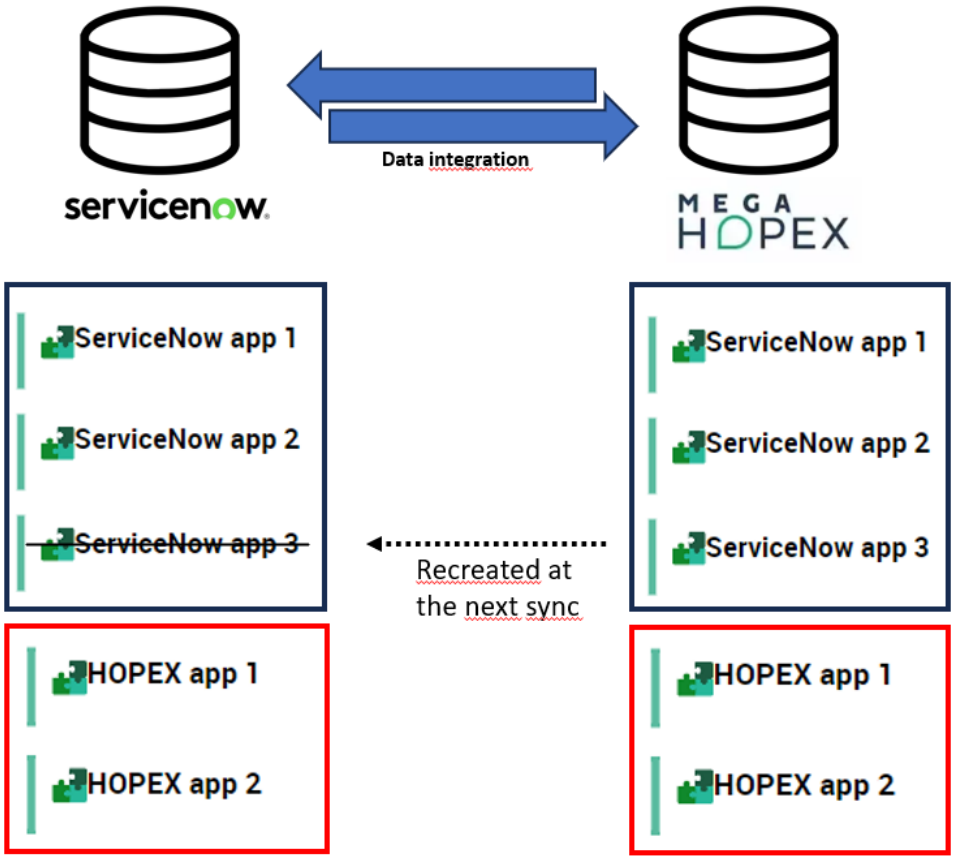
Example 3

Scenario: configuring bidirectional sync of applications with no deletion.

Results:

- Any application created or updated in ServiceNow is mirrored in HOPEX and vice versa.
- Any application deleted in ServiceNow is not deleted in HOPEX and vice versa – but it is recreated at the next sync (as data integration is bidirectional).

> **If you need to delete an application, you therefore have to do it in both solutions.**



Setting Up a Unique Identifier

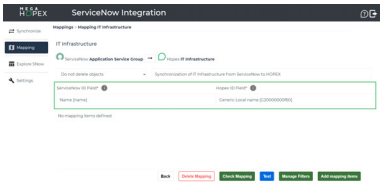
To avoid duplications, it is possible to define which attribute to use as a unique identifier when defining a mapping.

By default, the attribute "name" is used for ServiceNow and the unique name defined by the Hopex MetaModel is selected for Hopex.

However, in some cases where several objects are likely to bear the same name, you should find another attribute that is unique to replace the name.

To set up a unique identifier for a mapping:

1. From the **Mapping** menu, open the relevant mapping.
2. Enter a unique identifier in the **ServiceNow** and **HOPEX Identifier Fields**.



Mapping Fields

Mapping process

To map fields:

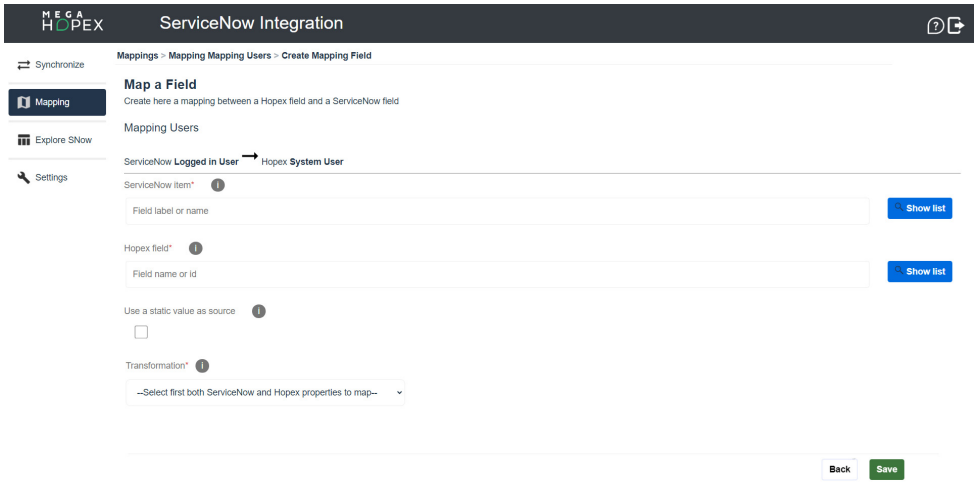
1. From the **Mapping** menu, open the relevant table mapping.
2. Click **Add new mapped item**.
   The Map a Field creation page appears.
3. Enter the **ServiceNow field** and the **HOPEX field** of your choice.

   ☺ *Click **Show list** to display all the fields and their characteristics.*

   You can filter the results via the column headers .
4. (Optional) Click **Use a static value as source** to configure a specific value into the target system.
5. According to the fields you selected, **Transformation** (data conversion) is either automatic or requires further settings.

   ☛ *Data conversion is automatic when mapping fields of the same type, except for specific cases such as enumerations and*

complex links. See the specific mappings below for further information.



Supported Field Types

Field type	Description
GUID	Used for absolute identifiers
String	Used for single line and multiple line text. Formatting is not supported. Strings can be limited in size
Integer	Used for numbers without the comma
Float	Used with decimal numbers and percentages
Boolean	Used with decimal numbers and percentages
Date	Used to identify date and time
Enum	Used when a field can hold a predefined list of values. Note that enums in ServiceNow have the "Choice" type.
Link	Used when the field is a reference to another object. Note that links in ServiceNow have the "Reference" type.

Mapping the Name

To map the name:

1. In the **ServiceNow item** field, enter "Name" and select the adequate value.

Objects should have unique names. If objects have the same short name (Software Technologies for example), it is recommended that you use "Display Name" rather than "Name".

2. In the **Hopex field**, enter "**NAME**".

   It is mandatory to use **NAME - which is a generic local name - so that the adequate value is automatically selected.**

3. Click **Save**.

Mapping the Description

To map the description:

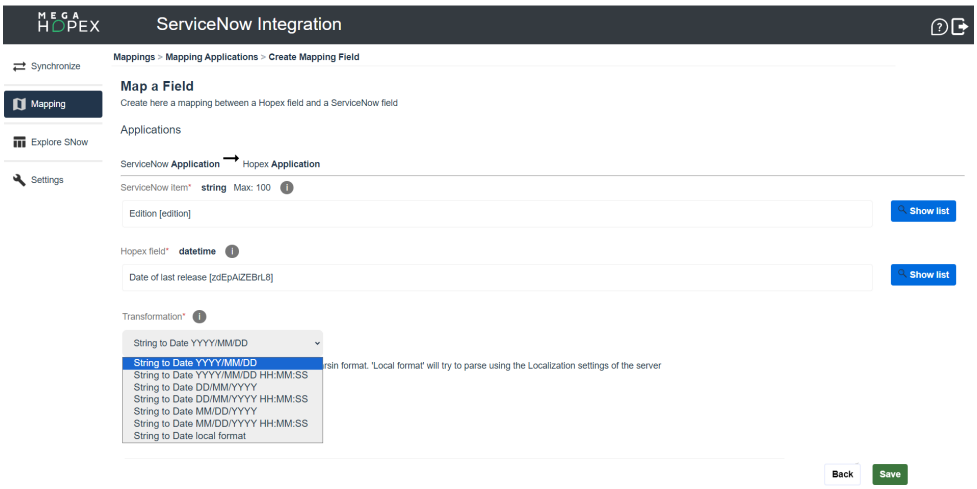
1. In the **ServiceNow item** field, enter "Description".
2. In the **Hopex field**, enter "Comment".
3. Click **Save**.

   Bear in mind that the ServiceNow description field is not available for all tables and that it has a maximum length of about 1000 characters.

Mapping a String to a Date

To map a ***String*** type field ***to*** a ***Date*** type field:

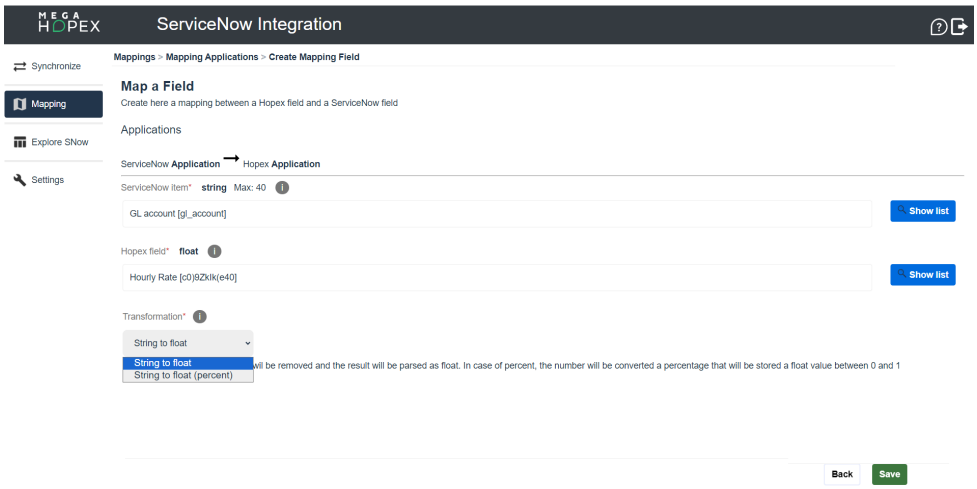
- Select the relevant date format of the destination field.



Mapping a String to a Float

To map a ***String*** type field ***to*** a ***Float*** type field:

- Select the relevant format of the destination field (number or percentage).



Mapping a String to a Link

To map a ***String*** type field ***to*** a ***Link*** type field:

- Select the relevant way to identify the link between its name or its ID.

  ☛ *It is advised to select the name, unless you know precisely the object. The ID is referring to HOPEX Absolute Identifier "IdAbs" or ServiceNow Identifier "sys_id".*

Mapping Enumerations

To map fields containing multiple values, you must specify further the correspondence of the values between **HOPEX** and ServiceNow.

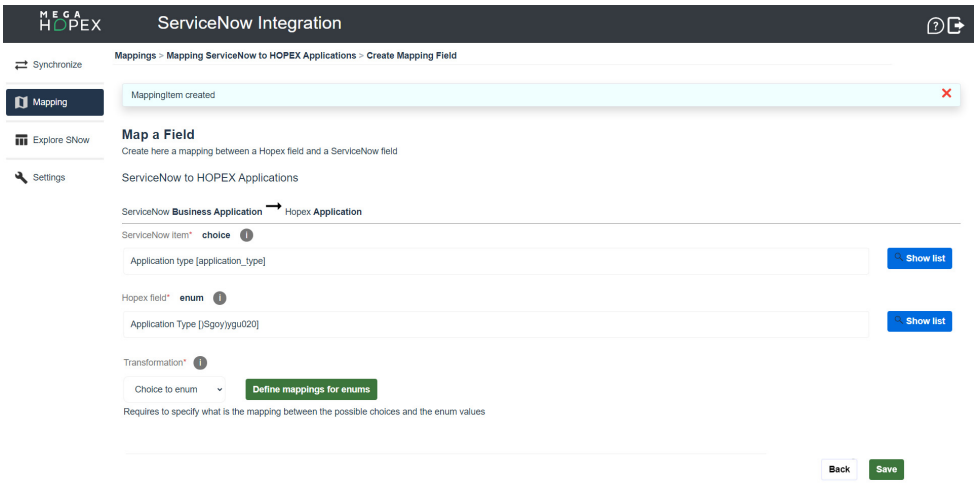
To map enumerations:

1. Access the Map a Field creation page.
2. Enter the relevant **ServiceNow** and **HOPEX fields**.

   ☛ *Note that enumerations in ServiceNow have the "Choice" type.*

3. Click **Save**.

4. Click **Define mappings for enums**.



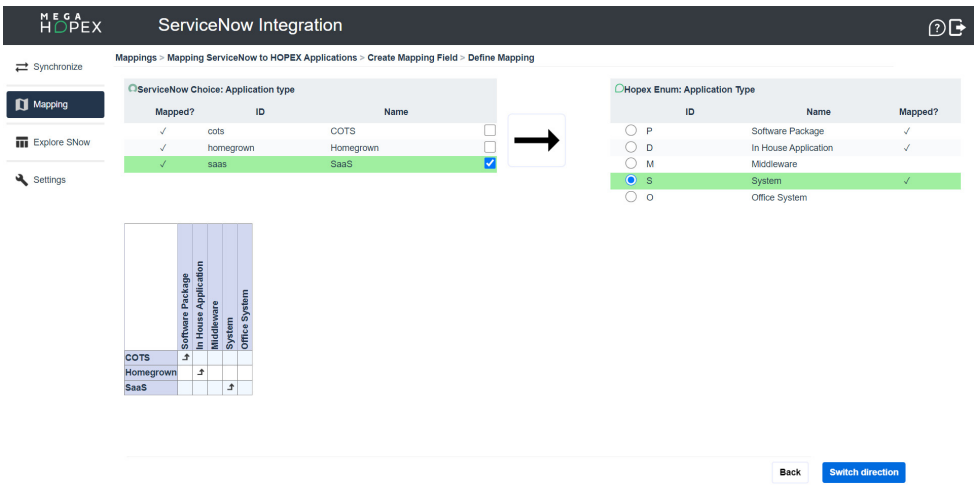
Multiple values of both ServiceNow and **HOPEX** fields are displayed into separate tables.

5. Select a value in the table ***on the right first***.
6. Select the matching value in the table on the left.

> ☺ *Click **Switch direction** if you prefer to reverse tables.*

The correspondence of these values is displayed in a matrix (at the bottom part of the sceen).

7. Click **Back** and **Save**.



Mapping Links

You can map links between ServiceNow and **HOPEX**.

There are two types of links.

- Simple links (i.e. direct link between two objects) are easy to map in the Map a Field creation page.

  ☛ *Note that simple links in ServiceNow have the "Reference" type.*

- Complex links (i.e. links using intermediate objects) require further configuration as presented below.

  You must map both the source object and the target object of a link. If not, the link will not be created.

Mapping complex links

By default, complex links are not available in the list of fields to map.

Therefore, you need to define a complex link in order to be able to map it.

Defining a complex link in HOPEX

To define a complex link in **HOPEX**:

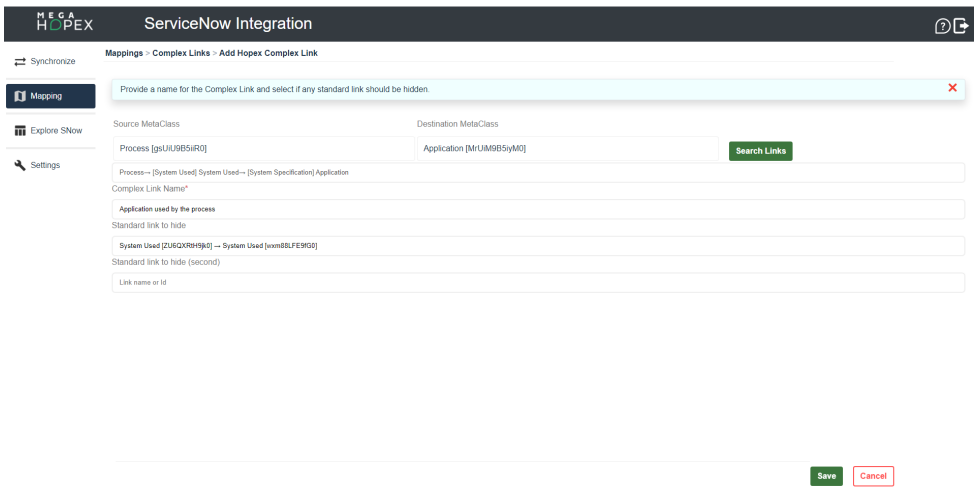
1. From the **Mapping** menu, select **Define complex links**.
2. Click the **Add new HX** button.
3. Select a **Source MetaClass** and a **Destination MetaClass**.
4. Click **Search Links**.
   Complex links between the two MetaClasses appear in a table.

   ☺ *You can filter the results via the column headers* .

5. Click to select the complex link of your choice.
6. Enter a name for this complex link.
7. (Optional) Enter the standard links to hide.

   ☛ *The links from the MetaClasses to the intermediate object will be hidden in the list of **HOPEX** fields.*

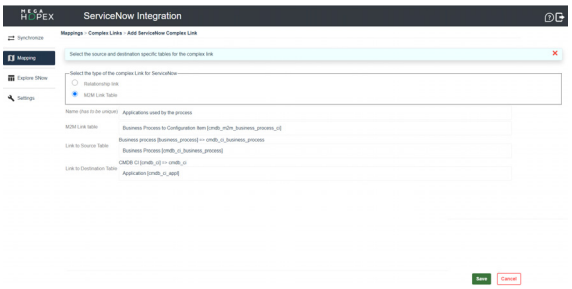
8. Click **Save**.



Defining a complex link in ServiceNow

To define a complex link in ServiceNow:

1. From the **Mapping** menu, select **Define complex links**.
2. Click the **Add new SN** button.
3. Select the type of complex link between:
   - Relationship link
   - Many-to-many link
4. Enter the relevant fields and click **Save**.



Setting Up Filters

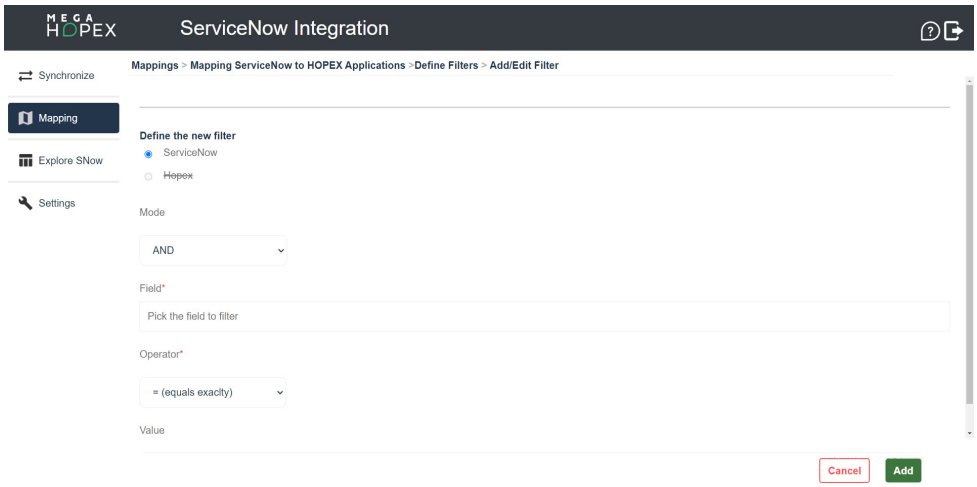
When setting up a mapping, it is possible to specify filters in order to limit the amount of data that will be synced between ServiceNow and **HOPEX**.

> ☛ *For example, it might be wise to set up a filter on the status of the objects, in order to avoid syncing objects which are archived.*

To set up a filter:

1. From the **Mapping** menu, open the relevant mapping.
2. Click **Manage Filters**.

3. Click **Add Filters**.
   The Add/Edit Filter page appears.



4. Select the **Mode**.
   - AND or OR operators

     ☛ *See Composing multiple filters for further information.*
   - Query (only if HOPEX is the source)

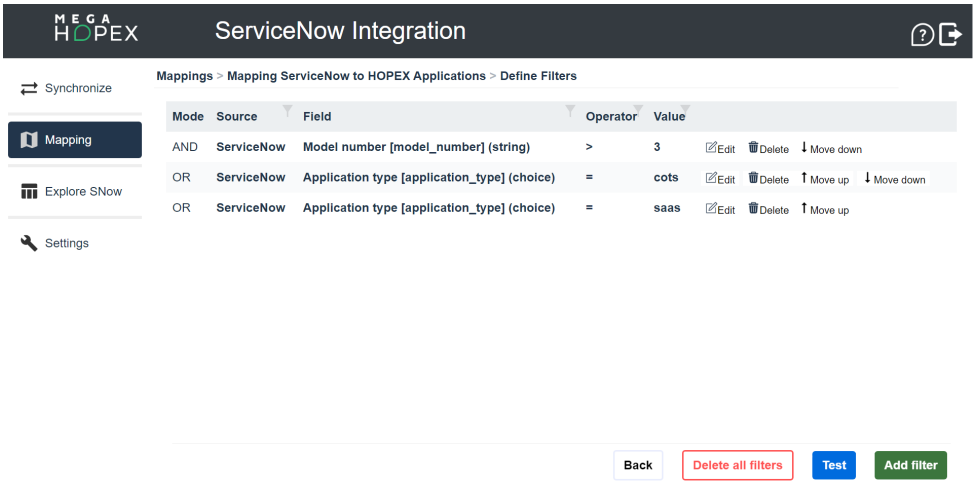
     ☛ *Queries are to be registered in HOPEX first. See Saving an ERQL query for further information.*

     💣 **In case you have previously defined filters for a mapping, and you create a query filter, the previous filters will be deleted.**
5. Select the **Field**.
6. Select the **Operator**.
7. Select the **Value** (if necessary).
8. Click **Add filter**.
   A new filter line appears.

Composing multiple filters

You can create several filter lines for the same mapping. Filter lines are composed of AND and OR operators.

☛ *The final filter will be in the form of "AND of ORs" - i.e. FilterX AND (FilterY OR FilterZ).*



Example: Filtering the sync of Applications with a version number above "3" and either the Application type "cots" or "SaaS".

Including/Excluding Mappings from Scheduled Synchronizations

You can explicitly choose whether to include or exclude a mapping from the scope of scheduled synchronizations.

- ***Including a mapping*** means it will be automatically synchronized during the next scheduled synchronizations.
- ***Excluding a mapping*** means it will be ignored during scheduled synchronizations and will only be synchronized manually.

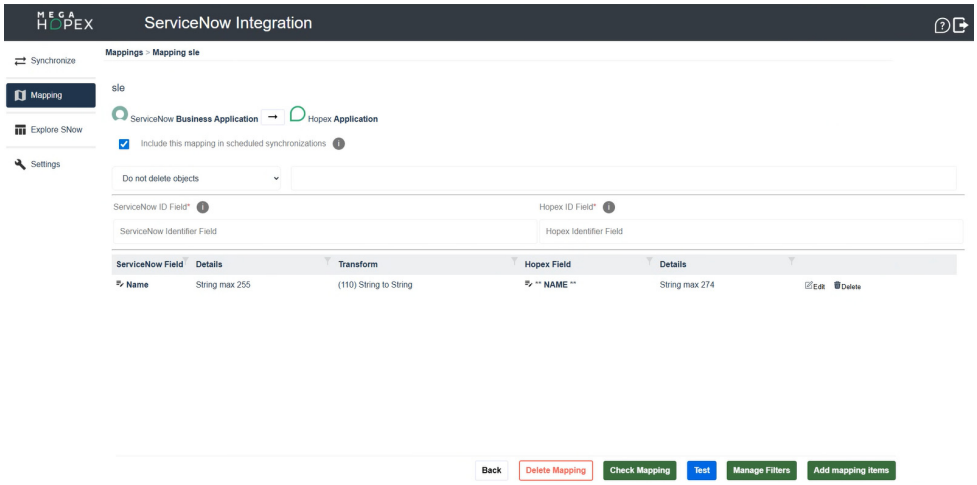
☛ By default, newly created mappings are not included in the scope of scheduled synchronizations.

To include or exclude a mapping from scheduled synchronizations:

1. From the **Mapping** menu, open the relevant mapping.

2. Select or deselect **Include this mapping in scheduled synchronizations**.

☛ *See Scheduling a Synchronization.*



Reviewing Mappings

Checking mappings

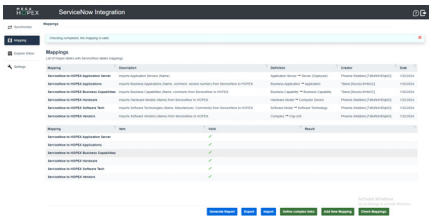
It is advised to run a verification of your mappings before launching a synchronization.

Synchronization will not work if mappings are not valid.

To do so:

1. From the **Mapping** menu, click **Check Mappings**.

☛ *The "Result" column indicates how to fix invalid mappings.*



Generating a report

You can generate a report in html format which shows:

- an overview of all the mappings
- a detailed description of each mapping with their related fields and transformation format

To generate a report:

- From the **Mapping** menu, click **Generate Report**.

Importing & Exporting Mappings

It can be useful to import/export mappings, for example, to:

- configure mappings in a dev environment, then easily export it to preprod or prod environments
- initialize mappings with our Standard Mappings to Import
- create similar mappings for different repositories

Importing mappings

To import mappings:

1. From the **Mapping** menu, click **Import**.
2. Upload the relevant mapping file in a gzip format.
3. Click **Import**.

Exporting mappings

To export mappings:

1. From the **Mapping** menu, click **Export**.
2. Select the mapping(s) you want to export.
3. Click **Export**.
   The mapping file is downloaded in a gzip format.

MAPPING EXAMPLES

Standard Mappings to Import

You can find below standard mappings between **HOPEX** and ServiceNow that you can easily import. You will be able to edit or delete them if need be.

Mapping	Description	Definition
ServiceNow to HOPEX Application Server	Imports Application Servers (Name)	Application Server ⮕ Server (Deployed)
ServiceNow to HOPEX Applications	Imports Business Applications (Name, comment, version number) from ServiceNow to HOPEX.	Business Application ⮕ Application
ServiceNow to HOPEX Business Capabilities	Imports Business Capabilities (Name, comment) from ServiceNow to HOPEX.	Business Capability ⮕ Business Capability
ServiceNow to HOPEX Hardware	Imports Hardware Models (Name) from ServiceNow to HOPEX.	Hardware Model ⮕ Computer Device
ServiceNow to HOPEX Software Tech	Imports Software Technologies (Name, Manufacturer, Comments) from ServiceNow to HOPEX.	Software Model ⮕ Software Technology
ServiceNow to HOPEX Users	Imports Users (Name)	User ⮕ Person (System)
ServiceNow to HOPEX Vendors	Imports Software Vendors (Name) from ServiceNow to HOPEX.	Company ⮕ Org-Unit

☛ *See the description of each mapping for further detail (field-level mapping, data transfer direction, deletion option).*

Importing standard mappings

To import the above standard mappings:

1. Click ServiceNowMappings.gzip.
2. Import the mappings.

☛ *See Importing mappings.*

Mapping ServiceNow Users with HOPEX Application Owners

Here is an example of a complex link configuration in order to map the ***Users in ServiceNow*** with the ***Application Owners in HOPEX***.

Please note the following first:

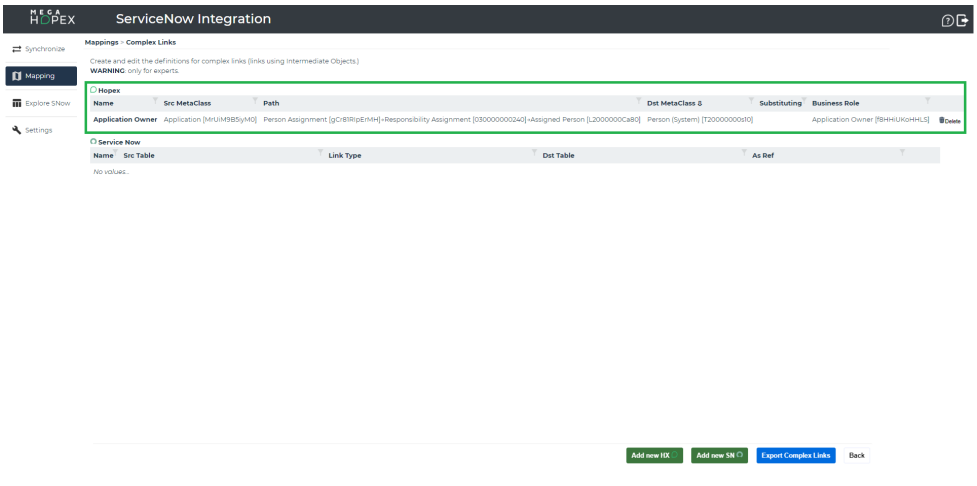
- In **HOPEX**, there is an intermediary object between the MetaClasses "Application" and "Person (System)". Hence, you need to define this complex link.
- In ServiceNow, there is no intermediary object between the tables "Application" and "System User". Hence, no further configuration is needed.
- Once the complex link is created, you eventually need to map HOPEX's complex link with ServiceNow's simple link.

Defining the complex link in HOPEX

To define the complex link in **HOPEX**:

1. From the **Mapping** menu, select **Define complex links**.
2. Click the **Add new HX** button.

3. Select "Application" in the **Source MetaClass** and "Person (System)" in the **Destination MetaClass**.
4. Click **Search Links**.
   A list of links appears.
5. Use the filters to display "Person Assignment" in the "Link1" column.
6. Use the filters to display "Assigned Person" in the "Link2" column.
7. Click  to select the complex link.
8. Enter a name for this complex link.
9. Select "Application Owner" in the **Business Role**.
10. Click **Save**.
    The complex link has been successfully created. It appears in the list of complex links.

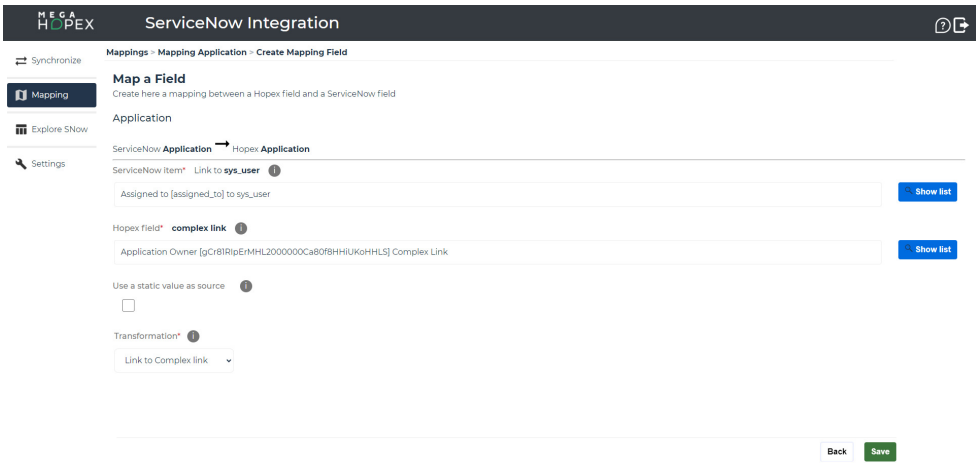


Mapping HOPEX's complex link with ServiceNow's simple link

To map these links:

1. From the **Mapping** menu, select the mapping you created for Applications.
2. Click **Add mapping items**.
   The Map a Field page appears.
3. Select "Assigned to" in the **ServiceNow item**.
4. Select the newly created complex link in the **Hopex field**.

5. Click **Save**.


MEGA HOPEX
ServiceNow Integration
Synchronize
Mapping
Explore SNow
Settings
Mappings > Mapping Application > Create Mapping Field
Map a Field
Create here a mapping between a Hopex field and a ServiceNow field
Application
ServiceNow Application → Hopex Application
ServiceNow item* Link to sys_user
Assigned to [assigned_to] to sys_user
Show list
Hopex field* complex link
Application Owner [gCr81RIpErMHL2000000Ca80f8HHiUKoHHLS] Complex Link
Show list
Use a static value as source
Transformation*
Link to Complex link
Back
Save

SYNCHRONIZING OBJECTS

Cleaning Previous Synchronization Data

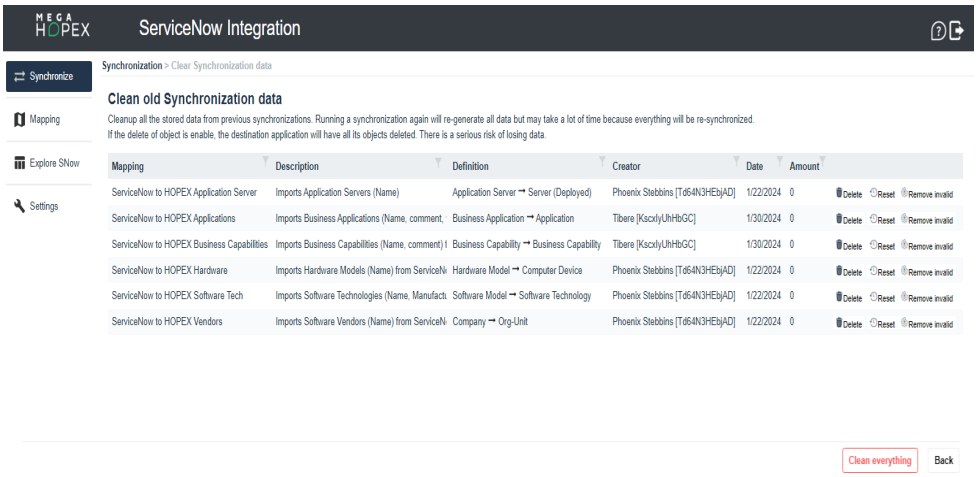
It is recommended that you clean previous synchronization data, especially after modifying mapping settings.

> ☛ *Otherwise, your changes will only take effect when the corresponding elements in the source application are updated.*

To clean previous synchronization data:

1. From the **Synchronize** menu, click **Clear**.
2. Select a cleaning option for the relevant mapping.
   - **Remove invalid** is the safest option to clean the database. It removes any mapping data referencing an object that no longer exists.
   - **Reset** is advised when you have added or modified fields in a mapping and you want to bring new data. Objects will be resynchronized at the next synchronisation, even if they have not been modified.
   - **Delete** is to be used carefully. It removes all correspondences between **HOPEX** and ServiceNow. It is advised if you need to initialize a new mapping (e.g. if you have changed the source or the target object of a mapping).

> 💣 **Clean Everything is to be used carefully: it removes all correspondences between HOPEX and ServiceNow for all the mappings (e.g. you need to restart from zero using a different database).**



Running a Manual Synchronization

To run a manual synchronization:

1. From the **Synchronize** menu, click **Run immediately**.
2. Select the mapping(s) to synchronize.
3. Click **Start a new synchronization**.

☺ *You can see the status of the synchronization by clicking Check progress*.

Scheduling a Synchronization

Scope

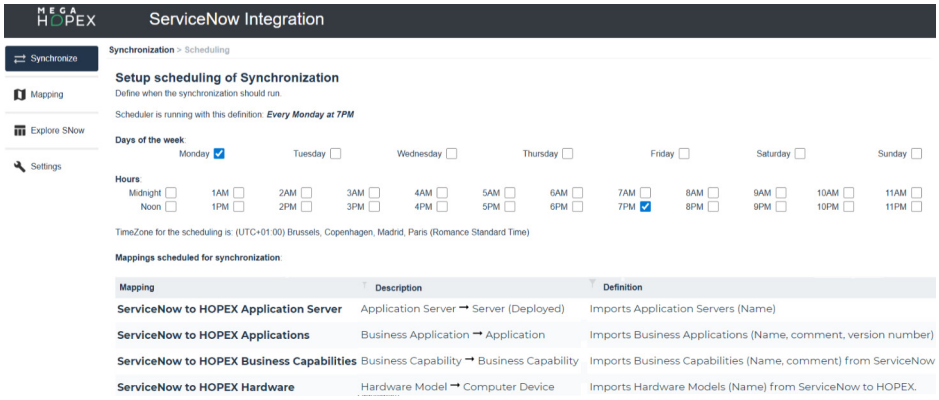
Only mappings included in scheduled synchronizations are synced.

☛ *See Including/Excluding Mappings from Scheduled Synchronizations.*

Procedure

To schedule a synchronization:

1. From the **Synchronize** menu, click **Scheduling**.
   The Setup scheduling of Synchronization page appears.



2. Select the day(s) of the week and the hour(s) to run the synchronization.

   Do not set up synchronizations more than every 6 hours. Both ServiceNow and HOPEX could get overloaded, hence less efficient.

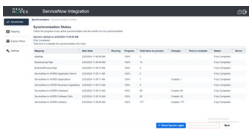
3. Click **Set scheduling**.

   ☛ *The scheduled synchronization can only start if the server hosting HOPEX is running. If not, it will be postponed until the server is available again.*

Checking Synchronization Status

To check the synchronization status:

- From the **Synchronize** menu, click **Check current**.



SERVICENOW MODULE MIGRATION PROCEDURE

Presentation

Purpose

This procedure outlines the steps required to transfer ServiceNow Integration Module configurations from one HOPEX instance to another. It applies when the module has already been deployed in the source version but has not yet been installed in the target version.

By following this procedure, you ensure that all existing configurations are fully retrieved and successfully transferred to the new instance.

Common use cases

This procedure is necessary in the following situations:

- Migrating HOPEX from version ***N*** to version ***N+1*** with an infrastructure change.
- Deploying ServiceNow Integration module in ***Development***, ***Staging***, or ***Production*** environments.

> ☛ *For Development and Staging deployments, make sure to specify the corresponding ServiceNow instances when Setting Up the HOPEX-ServiceNow Connection (ServiceNow URL field).*

Scope of the transfer

The following configurations are transferred:

- ServiceNow connection definition
- Mapping settings
- Mapping table for synchronized objects between ServiceNow and **HOPEX**
- Synchronization schedule (scheduler)

Procedure Overview

This is a ***manual procedure*** that involves copying ServiceNow tables and their contents from HAS in the source version (source database) to HAS in the new version (destination database).

ServiceNow tables in HAS follow the naming convention: [dbo].[SNowInt_xxxxx].

Procedure

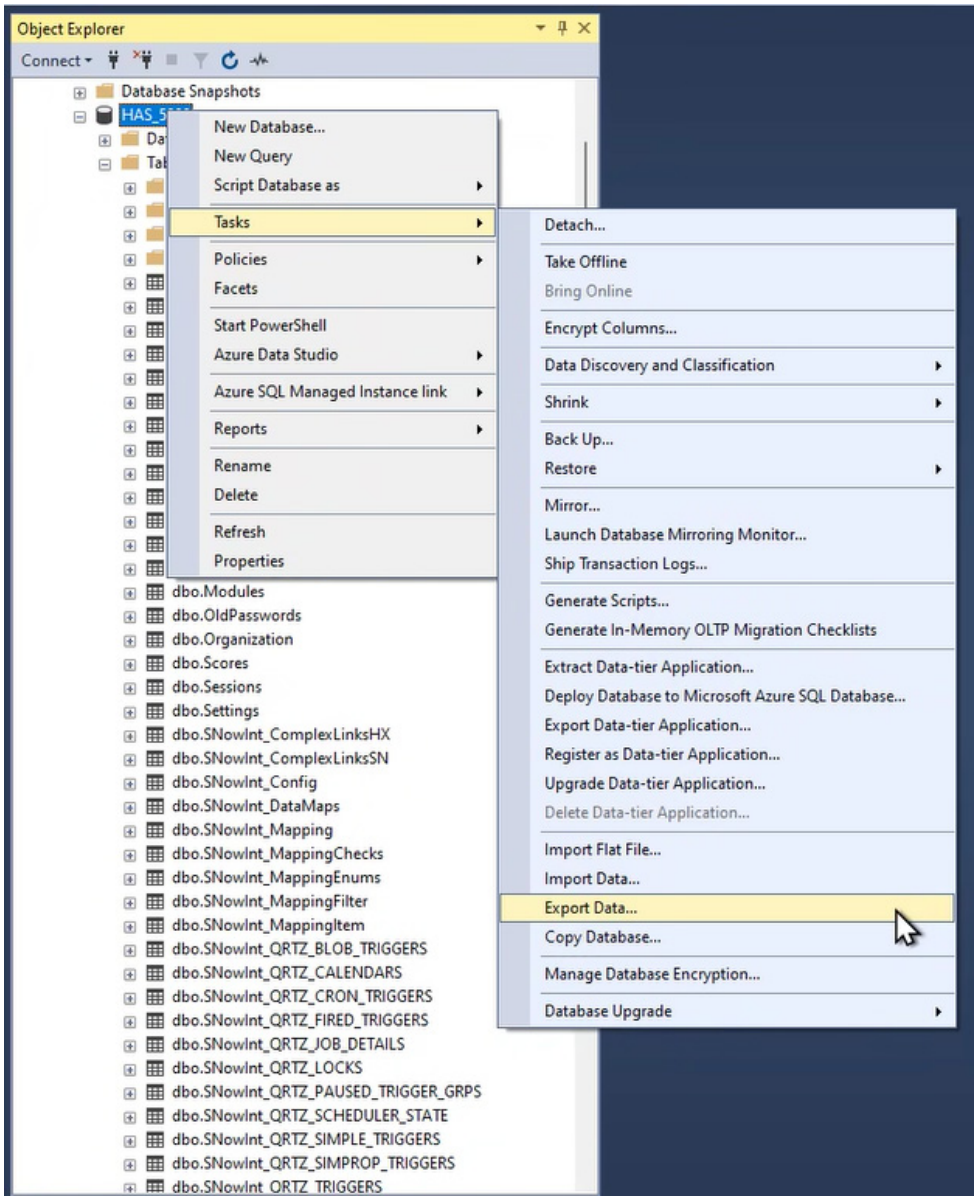
To transfer ServiceNow configurations from one HOPEX Instance to another:

1. Open **SQL Server Management** as a Database Owner (DBO).

   Connecting with a user who has limited permissions may prevent the exported table contents from being imported successfully, resulting in error messages.

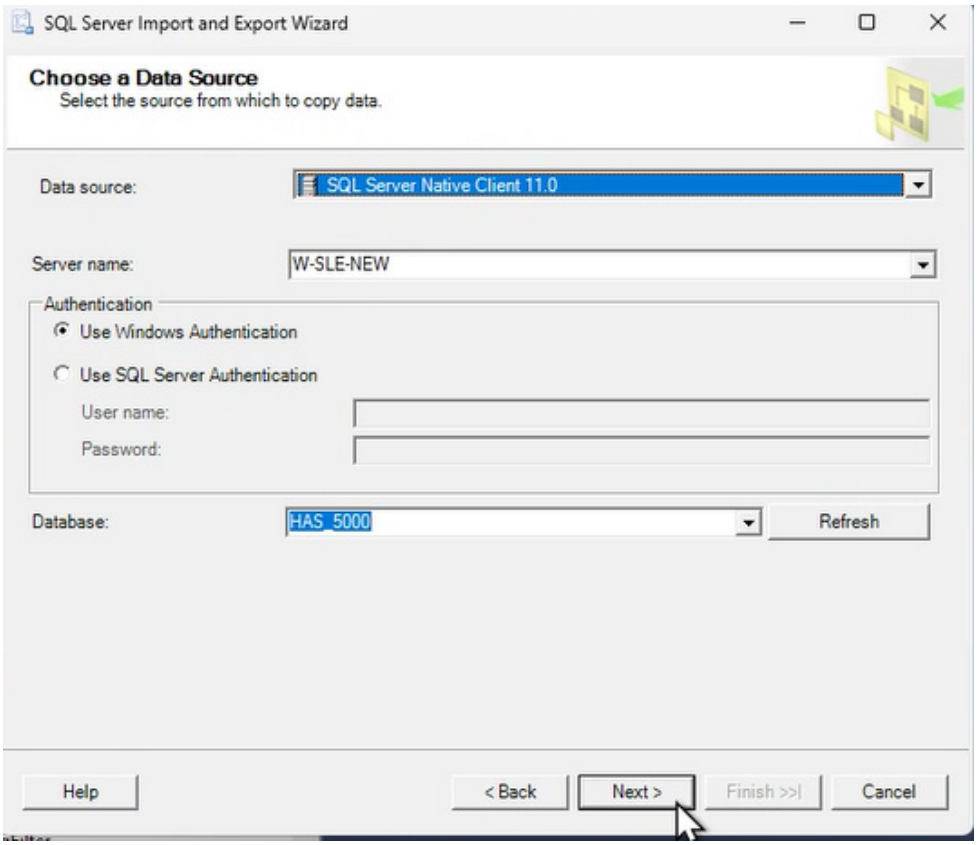
2. Expand **Databases**.

3. Right-click the source database > **Tasks** > **Export data**.

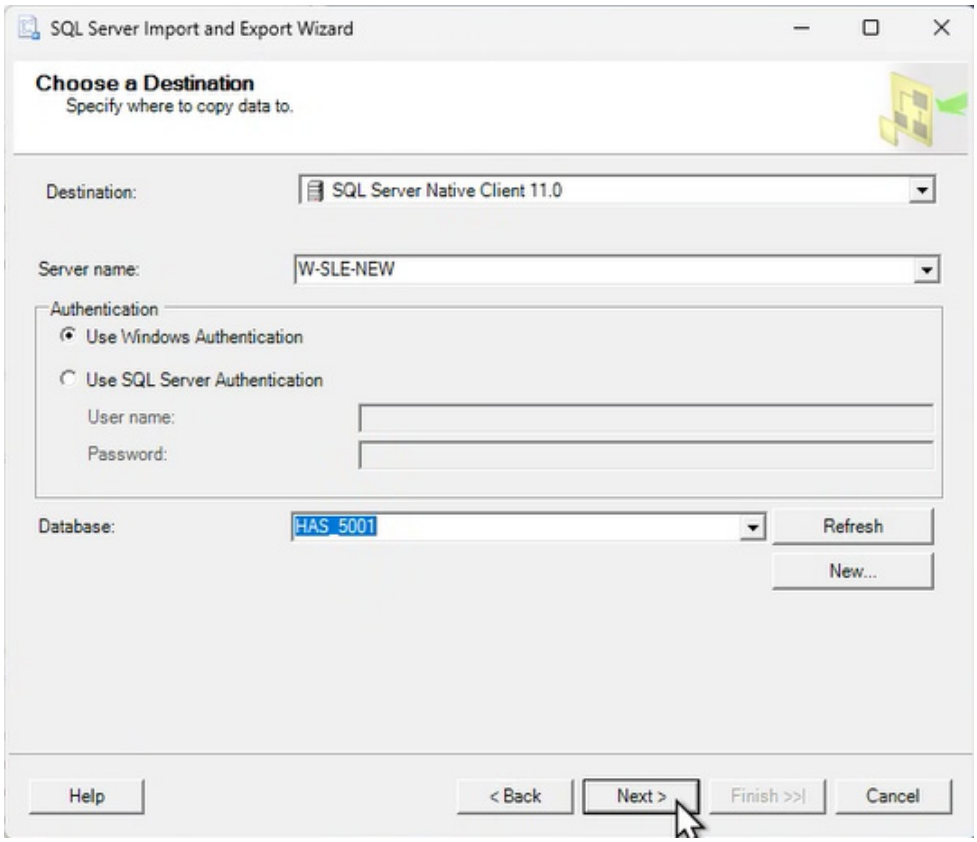


An SQL Server Import and Export Wizard appears.

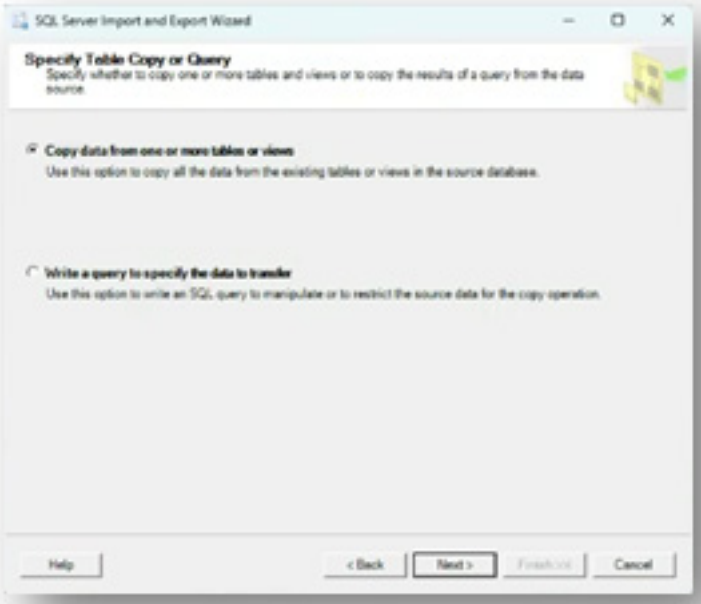
4. Select the source database and click **Next**.



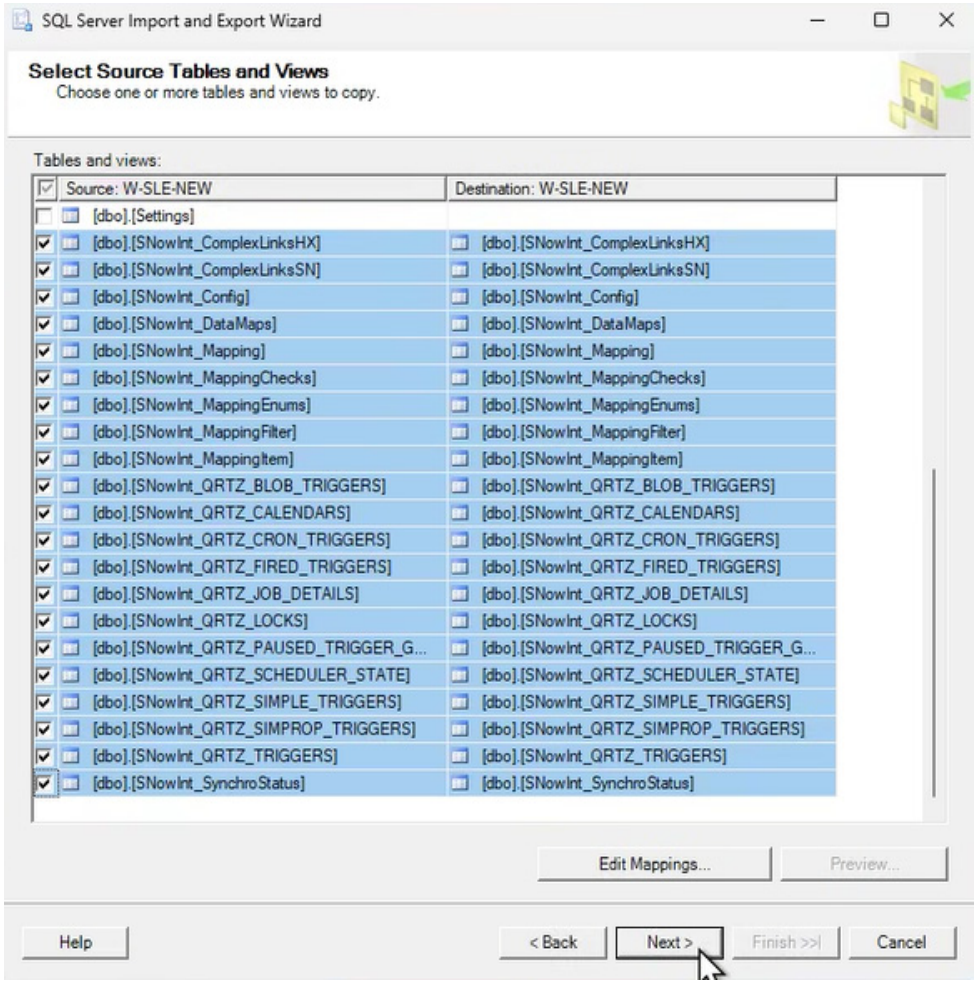
5. Select a target database.



6. Keep the default configuration.

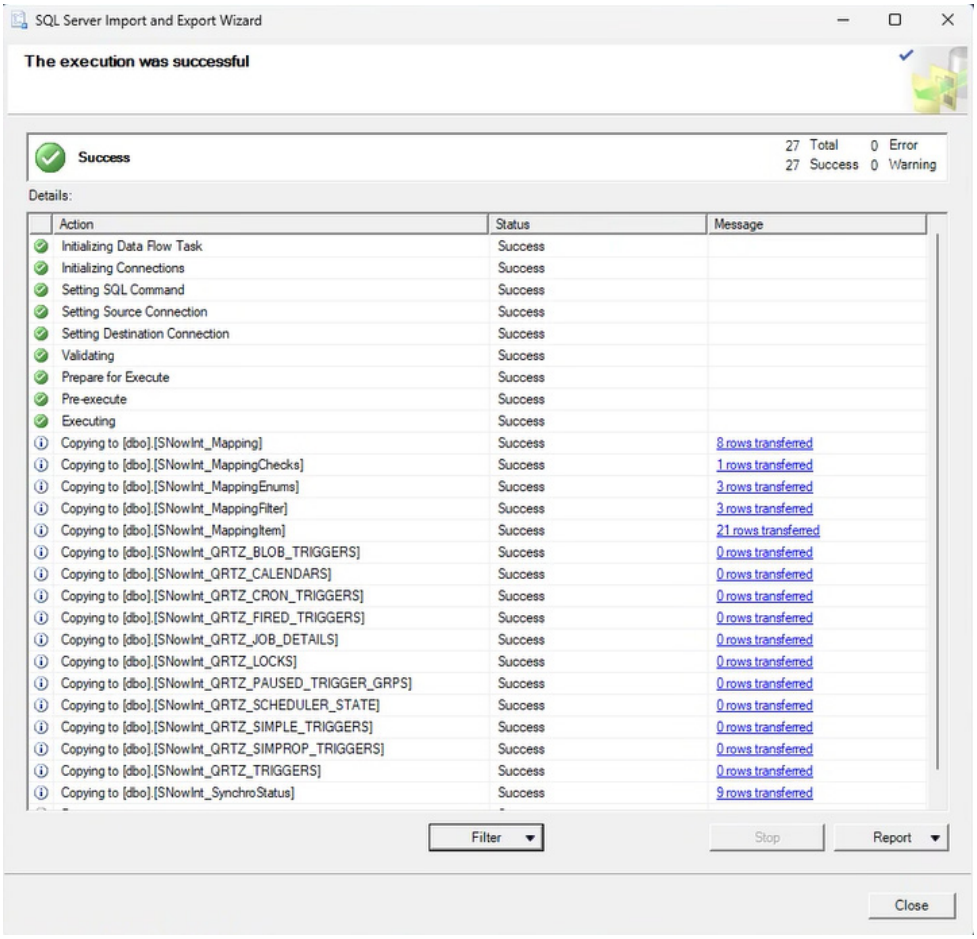


7. Select the ServiceNow tables labeled [dbo].[SNowIntxxxx]

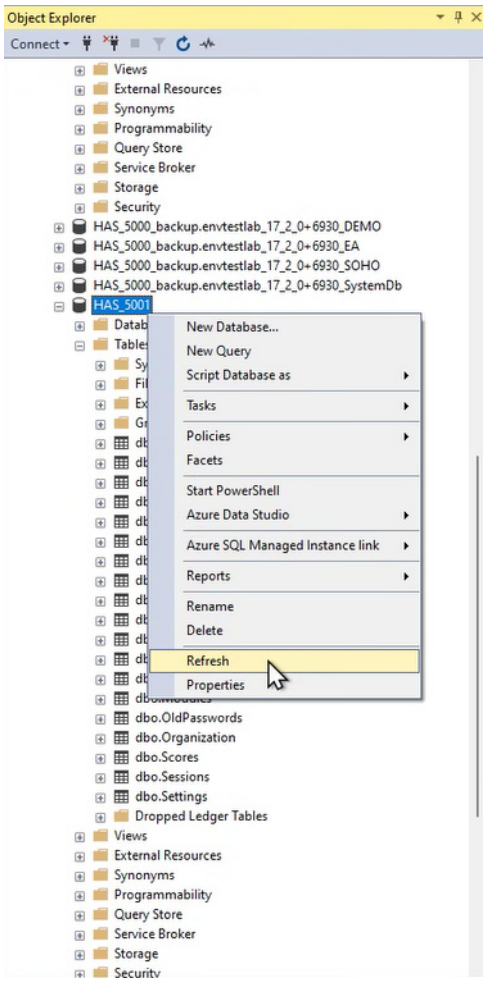


8. Click **Edit Mappings** and keep the default configuration.
9. Select **Run immediatly** to launch the transfer.

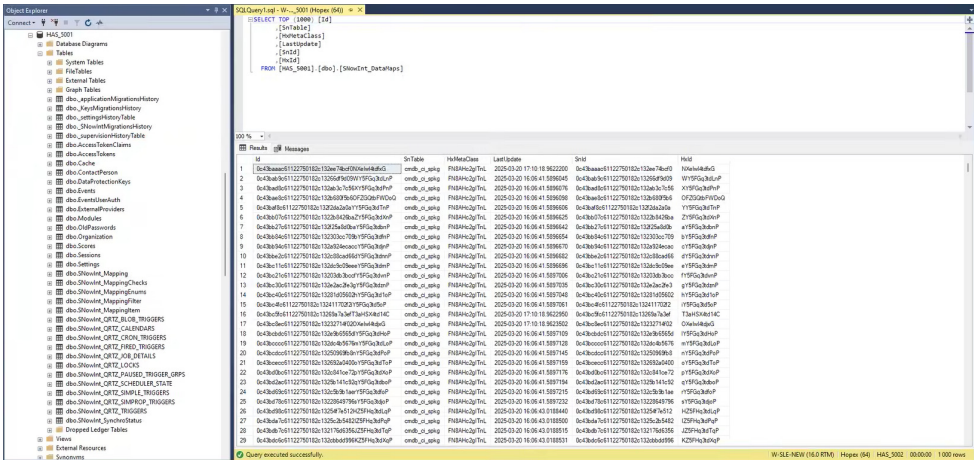
10. Once the transfer is over, you can check whether the execution was successful.



11. Right-click the target database and click **Refresh**.



ServiceNow tables are now displayed in the target database.


Object Explorer
SQLQuery1.sql - W-..._5001 (Hopex (64))
SELECT TOP (1000) [Id]
,[SnTable]
,[HxMetaClass]
,[LastUpdate]
,[SnId]
,[HxId]
FROM [HAS_5001].[dbo].[SNowInt_DataMaps]
Results
Messages
Query executed successfully.

FAQ

How can I see the synchronized data?

You can see the quantity of synchronized objects in the Synchronization menu.

☛ *See Checking Synchronization Status.*

Can I access the trace files of errors?

For experts and on-premises deployment only.

If needed, you can access ServiceNow trace files of errors by opening the "megaerr" trace file. Note that you cannot check synced objects in trace files.

☛ *Viewing User Process Error Trace Files.*

How can I avoid duplications?

To avoid duplicated data, it is possible to define which attribute to use as a unique identifier when defining a mapping.

☛ *Setting Up a Unique Identifier.*

How is data integrated within each system?

Data integration depends on each mapping configuration, and more specifically the direction of data transfer and the synchronization mode (whether objects should be preserved or deleted from the target system).

☛ *See Mapping Tables and Deleting or preserving objects from the target system - Examples.*

What is the difference between the Import/Export Mappings feature and the ServiceNow Module migration procedure?

The Import/Export Mappings feature only allows the transfer of mapping settings.

☛ *See Importing & Exporting Mappings.*

The migration procedure ensures that all existing configurations are fully retrieved and transferred to a new instance. This includes:

- ServiceNow connection definition
- Mapping settings
- Mapping table for synchronized objects between ServiceNow and HOPEX
- Synchronization schedule (scheduler)

☛ *See ServiceNow Module Migration Procedure.*

I modified the mapping settings and then launched a synchronization, but my changes were not applied. Why?

If you modified the mapping settings after an initial synchronization between ServiceNow and HOPEX, you must reset the modified mapping before launching a new synchronization. Otherwise, your changes will only take effect when the corresponding elements in the source application are updated.

To ensure your modifications are applied immediately, reset the mapping before starting a new synchronization.

☛ *See Cleaning Previous Synchronization Data.*

What are the differences between the authentication modes - Basic and OAuth2?

	Basic Auth	**OAuth2**
How it works	Login credentials (username & password) are used for each REST API request sent to the ServiceNow server. Credentials are transmitted multiple times during the synchronization process.	Login credentials are used once to obtain an Access Token (default lifespan: 30 minutes) and a Refresh Token (default lifespan: 100 days). Tokens are used for REST API requests instead of credentials, which significantly improves security.
Recommended for	Quick setup, non-production environments	Production environments
Additional setup	No	Yes, see Setting Up OAuth2.0 in ServiceNow.