

Elsevier Pure: Reference Document

Kristianstad University (HKR)

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Table of acronyms

Acronym	
ADFS	Active Directory Federation Services
APC	Article Processing Charge
API	Application Programming Interface
AWS	Amazon Web Services
CAS	Central Authentication Service
CD	Compact Disc
CERIF	Common European Research Information Format
CMS	Content Management System
CoI	Co-Investigator
CoPI	Co-Principal Investigator
CRIS	Current Research Information System
CRUD	Create, Read, Update and Delete
CSV	Comma Separated Values
CV	Curriculum Vitae
DOI	Digital Object Identifier
DVD	Digital Versatile Disc
ERM	Enterprise Relationship Management
EU	European Union
HR	Human Resources
HTML	Hypertext markup language
HTTP	Hypertext Transfer Protocol
HTTPS	Hypertext Transfer Protocol Secure
ISBN	International Standard Book Number
ISSN	International Standard Serial Number
JSON	JavaScript Object Notification
LDAP	Lightweight Directory Access Protocol
NLP	Natural Language Processing
OAI-PMH	Open Archives Initiative Protocol for Metadata Harvesting
OGD	Other Government Departments
ORCID	Open Researcher and Contributor ID
PDF	Portable Document Framework
PI	Principal Investigator
REST	Representational state transfer
RIS	Research Information System
SAML	Secure Assertion Markup Language
SOAP	Simple Object Access Protocol
SQL	Structured Query Language
UI	User Interface
URL	Uniform Resource Locator
UTF8	Unicode Transformation Format
VPAT	Voluntary Product Accessibility Template
WAR	Web Application aRchive
WAYF	Where Are You From
WCAG	Web Content Accessibility Guidelines
XML	Extensible Markup Language
XSD	XML Schema Definition

About this document

This document provides information about the technical functionality offered by Elsevier Pure.

Intended audience

This document is intended for anyone who needs to use Pure. This includes those currently using Pure, as well as those interested in learning more about what Pure can do.

Pure users typically include people who work in an institution's IT department, research office, or are librarians with a high level of technical proficiency.

1. About Pure

Pure is a Current Research Information System (CRIS), which helps institutions manage data about their research and other related content. Using this high-quality data, institutions can create reports, showcase their research, analyse and track research progress and impact.

1.1 Pure data model

Built on a robust relational data model, Pure captures and interconnects 20 content types, including Research Output, Activities, Grants, Prizes, Datasets, Equipment, Press/Media coverage and more. This gives you a full view of your institution's research activity and allows you to create detailed reports on data across the research lifecycle. For more details on the different content types in Pure, see [2.1 Content types in Pure](#).

The Pure data model is designed in line with international standards, including CERIF, to ensure the interoperability of Pure with important external databases. As illustrated in Figure 1 below, the Pure data model refers to the structure of the records and their relations as maintained in Pure:

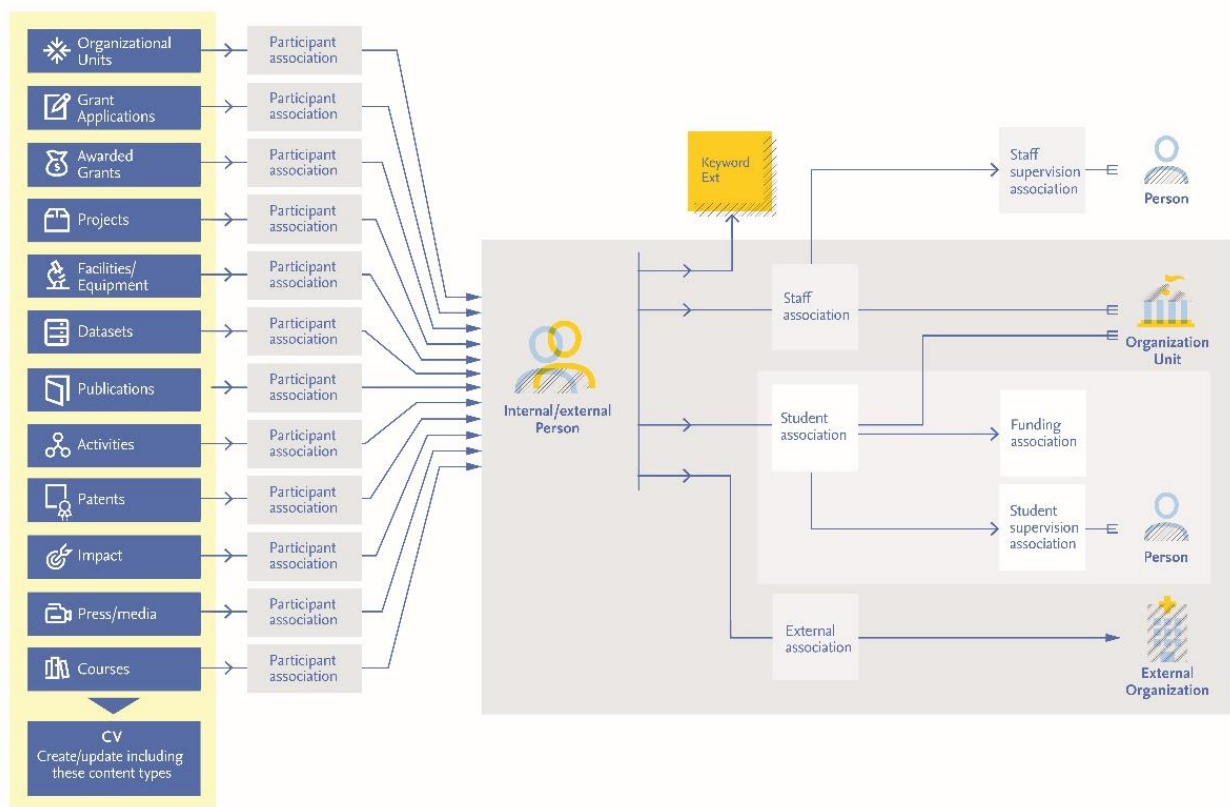


Figure 1: At the heart of Pure is a relational data model which captures and connects 20 content types.

Designed to be system agnostic, Pure has an open architecture that provides clients with:

- Functionality for integrating with almost any institutional data source.
- A Web Service API, available as a SOAP or REST service, to query and extract data in XML or JSON formats.
- Built-in integrations with the sixteen most-used online data sources, including Scopus, Mendeley, Embase, Web of Science, PubMed, CrossRef, WorldCat, ArXiv, EBSCO, CabAbstract, ADS NASA, EscapeNet, SciELO, GVK, CiNii, and SSRN.
- Native integration with Elsevier's Research Intelligence portfolio, including Scopus and SciVal.

By aggregating data from multiple sources and capturing it in its relational database, Pure becomes a comprehensive system-of-record for institutions.

Pure's Reporting Module allows users to create reports and dashboards on all data in their institution's Pure and share them with internal and external stakeholders. Clients can also showcase their institution's research expertise using the Pure Portal, which supports academic showcasing, discovery and networking via a public facing portal populated with curated data from within Pure.

1.2 Pure infrastructure and development

1.2.1 Modules

The Pure application is modularised to a great extent. In Pure, we distinguish between a vertical modularisation and a horizontal modularisation. Vertically, Pure is modularised to accommodate the sharing of functionality between our clients. Horizontally, Pure is modularised into different interfaces - such as administrative interface, portal and Web service. The modules that are relevant to these two modularisation perspectives are described in more detail below.

Vertical: core / base / customer

Pure is separated into vertical modules to accommodate the sharing of functionality among clients, while ensuring adaptability for each individual client.

Vertically, Pure is divided into three modules:

1. **Core:** The core contains functionality, which is shared across all clients. The core contains the framework for most of the functionality that is available to the end client. Examples of core components are:
 - Reporting framework
 - Web service framework
 - Workflow service
 - Security service
 - Template types for many of the standard Pure content types (publications, activities, etc.)
2. **Base:** The base contains all functionality that is shared among a group of users. Usually bases are defined per country or region (e.g. UK, Denmark, Germany, Finland), but can

also be per business domain (e.g. Research, Pharma). Examples of base components are:

- Actual model types (publications, activities etc.)
- Web service definitions
- Report definitions
- Functionality exclusive to the base (e.g. OAI formats, publication import sources)

3. **Customer:** The customer module contains functionality that is exclusive for each individual client. Examples of customer components are:

- Authentication configuration (AD/LDAP, SSO etc.)
- Interface definitions (Web service application, administrative interface application, etc.)

The vertical module structure is mainly used internally at Elsevier as a means of sharing code, whenever possible, while maintaining versions, and maximising individual client customisation freedom.

Horizontal: administration / portal / Web service

Horizontally, Pure is split into modules based on the services that are made available. Currently Pure is split into three major modules:

1. **Administrative interface:** The administrative interface is the main interaction point for Pure. This is where all personal users update their data, and where most reporting is done.
2. **Portal:** The portal exhibits public research information - most clients use a portal for Internet-wide exhibition of research information. The portal module focuses on accessing and presenting the research information stored in Pure.
3. **Web service:** The web service interface allows programmatic access to data stored in Pure. Currently the Web service supports the following formats:
 - SOAP (will be deprecated)
 - REST
 - OAI-PMH

1.2.2 Development framework

Pure is developed using open-source Java EE frameworks, notably the Spring Framework, Hibernate, Lucene and CXF. We make extensive use of IOC containers in the Spring framework to configure and manage the platform. The container is responsible for managing object lifecycles by creating objects, calling initialisation methods, and configuring objects by wiring them together. Most of the configuration of Pure is done in Spring XML configuration.

We are currently in the process of migrating the Administration module from Java Server Faces 2.0 to the GraphQL/React/TypeScript stack. Our architecture group continuously assess industry best practices, in order for us to keep Pure up to date with both technology and design choices.

1.2.3 Deploying Pure

When offered as a cloud solution, we deploy Pure on the Amazon Web Services infrastructure using best-of-breed products like Apache httpd, Apache Tomcat, PostgreSQL, all running on Amazon Linux based AMLs. Our DevOps team, together with our architecture group, continually assess industry best practices, in order for us to make platforms and deployment choices when developing Pure.

When hosted by clients, the different horizontal modules of Pure, i.e. administration interface, portal, and Web service, are shipped as individual Web Application archive (WAR) files. Each WAR file contains all the code and resources needed by the specific module, and can therefore be considered an individual Web application.

For more details on deploying Pure, see [17. Installation and security](#).

1.2.4 Pure application architecture

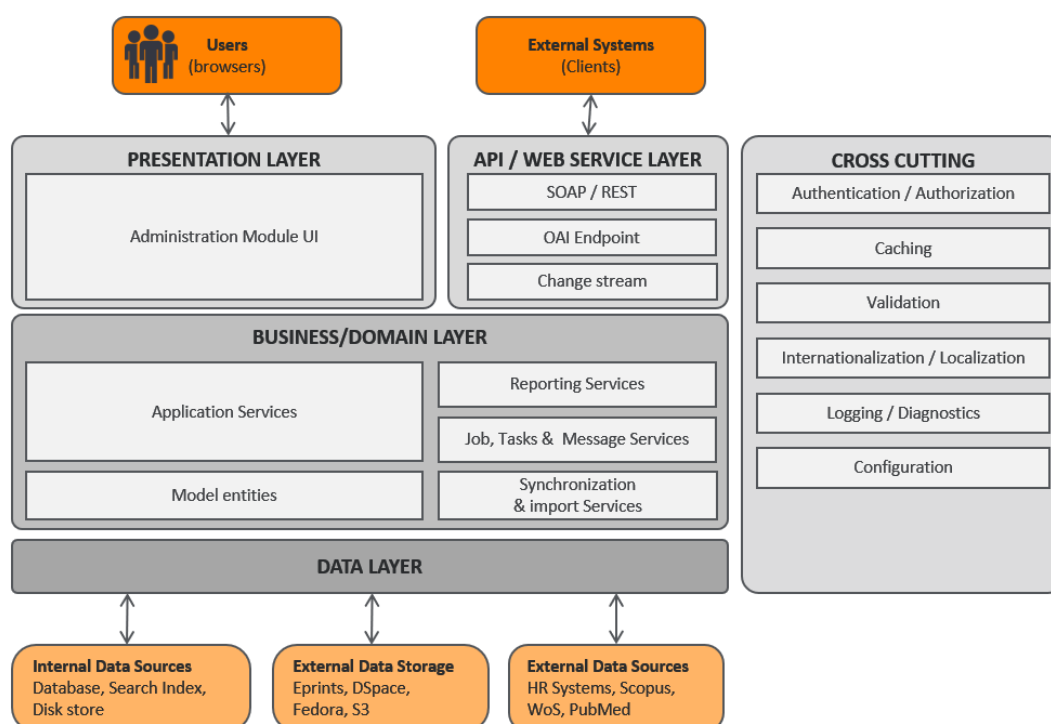


Figure 2: Application architecture of Pure, showing the different layers.

Below is a description of each layer:

- **Presentation Layer:** Contains UI logic and views providing web access to the administration module.
- **API / Web Services Layer:** API endpoints for programmatic access to the system.
- **Business Layer:** Main application services, model entities, reporting services, synchronisation and import services and job scheduling services.
- **Data Layer:** Integration layer to internal and external data stores and integration with external systems.
- **Cross Cutting:** Auxiliary services that are used at all layers in the system.

2. Managing research information in Pure

This section covers the key concepts and features that are involved in managing your institution's research information in Pure.

2.1 Content types in Pure

In Pure, records are organised based on their content type, i.e. the type of real-world entity they represent. Content type determines how a record is processed, reported on, and displayed in Pure. Each content type has its own unique set of fields, which users are required to complete when creating or editing a record.

Researchers will typically have access to the content types required to manage their work. For example, Research output, Activities, Datasets.

Editors and Administrators have access to an additional group of content types, known as master data. Master data refers to a small set of content types that are frequently linked to by other items, such as Persons, Organisational units and Journals. When populating Pure for the first time, master data is integrated before other content types.

For certain content types, you can configure which roles can access them. You also have an option to disable or enable most content types.

There are 20 content types in Pure. The following sections describe a number of the main ones:

2.1.1 Persons

Persons in Pure are academic staff members of different types: professors, PhDs, teaching personnel, research assistants, etc. You can configure different types of Persons to suit your institution's requirements. This is done using the "Different types of titles for persons" classification scheme in Pure. For more details, see [2.3 Classifications](#).

Persons are usually current members of staff. However, it is also possible to have Person records in Pure for former staff members. This is important for reporting purposes as it allows institutions to report on former staff members in an assessment or retrospective review. If a Person re-joins an institution, you can reactivate their profile by adding their latest affiliation at your institution to their Person settings. Persons can also have relations to each other: a researcher can be a supervisor to a postgraduate student, for example.

Most information held in a Person record in Pure is already available in other institutional systems, such as HR or finance. Institutions often maintain this data in the external data source and regularly import it into Pure. You can synchronise records from any data source on a regular basis, provided the data can be extracted from this source and transformed into XML that conforms to the Pure XML schema definitions. This process is described further in [4.1 Integration with other systems](#).

The table below shows the main information that Pure can hold about a Person:

Section	Fields
Personal Identification	<ul style="list-style-type: none"> • First and last name* • Gender* • Date of birth • Nationality • Name variants <p>Note: It is possible to add multiple name variants to a Person in Pure.</p> <ul style="list-style-type: none"> • Title(s) • IDs, such as employee ID, Scopus ID, ORCID, Researcher ID, and others. <p>Note: An ORCID can be added to the profile or be created directly through the profile.</p> <ul style="list-style-type: none"> • Profile photos • Links to other webpages. <p>*Required fields.</p>
Curriculum and research description	<p>Any relevant personal and professional information can be added as free text, including:</p> <ul style="list-style-type: none"> • Research interests • Personal profile • Teaching activities • Consultancy • Other work • Previous employer • Future employer.
Organisational affiliations	<p>Affiliation with departments and related Organisational units within a Person's current institution. Persons can set the start and end date for each of their affiliations and can select an organisational role from a list pre-defined by their institution.</p> <p>If Persons have multiple affiliations, they can have different contact details for each affiliation. In situations where a Person with multiple affiliations is related to a content type in Pure, it is possible to select the correct affiliation for the content type.</p> <p>Organisational affiliation is a required field when creating a new Person.</p>
Positions outside of the institution	<p>Affiliation with organisations external to a Person's institution. Persons can add the name of the appointment, as well as start</p>

	and end dates. They can also add a new External Organisation or select from one that is already recorded in Pure.
Education/Qualifications	Details about a Person's educational and professional background. Including awards and qualifications and start and end dates of study.
Keywords	Describes the Person's scientific domain and area of expertise.
Portal details	Additional information which will be displayed on the Pure Portal, including whether the Person is willing to take PhD students and any available PhD research projects.
Visibility	Information on persons can be limited using visibility if needed.

2.1.2 Organisational units

Organisational units are a research institution's schools, faculties, institutes, departments, etc. These units are often organised hierarchically, and the organisation's hierarchy can be modelled in Pure. There are many different types of Organisational units; in a traditional hierarchy, the university is at the top, then faculties or schools, departments or institutes, for example.

The Organisational units content type also enables institutions to create research groups or cross-departmental units. These can be separate from an institution's formal hierarchy, although it is still possible to use them in the same way as the formal Organisational units. To support clients' unique structure, Pure allows institutions to have a high number of Organisational units. For example, one Pure client has 1389 active organisations, with 2055 organisations in total.

Institutions can model their Organisational units and research groups in Pure to mirror their actual organisation. For example, you can have multiple hierarchies in parallel, and you can let Organisational units have multiple parents. In case of internal changes at an institution, such as restructuring or discontinuation of a department, Pure provides you with the flexibility to move Organisational units to different parent units.

The hierarchical view in the Pure backend enables you to view the organisational hierarchy, i.e. relations between one Organisational unit and its parent/child Organisational unit. It is also possible to display this hierarchical view in the Pure Portal.



Figure 3: Hierarchical view of an institution's Organisational units. There can be multiple entries per Organisational unit, i.e. an Organisational unit can have multiple parent/child units.

When an Organisational unit in the Pure Portal or Reporting Module is selected, Pure displays all of its sub-units. However, when displaying content for an Organisational unit in Pure, you can view content related to just the selected Organisational unit, or you can view an aggregated list of content for both the Organisational unit and its sub-units. In Figure 3 for example, you could display content related to the Pure Academy alone, or you could display content related to the Pure Academy and its sub-groups, such as the Faculty of Health Science, Faculty of Humanities, etc.

HR systems, finance systems, payroll systems, and authentication services like Active Directories or LDAPs often already contain parts of the information required for Organisational units. Institutions often maintain this data in the external data source and regularly synchronise it with Pure. You can synchronise records from any data source, provided the data can be extracted from this source and transformed into XML that conforms to the Pure XML schema definitions. This process is described further in [4.1 Integrations with other systems](#).

When implementing Pure for the first time, organisations must be populated before all other content types because all other content must be linked to at least one organisation.

The table below shows the main information that Pure can hold about an Organisational unit:

Section	Fields
Type	Type* *Required field. The values in this menu can be defined in the "Organisation types" classification scheme.
Organisational unit information	<ul style="list-style-type: none"> Organisational unit name* Short name Sort name Web name Organisation profile

	<ul style="list-style-type: none"> IDs in other systems
	*Required field.
Photo	Profile photo
Physical address	Address in a structured or unstructured format.
Electronic addresses	<ul style="list-style-type: none"> Phone numbers Email addresses Web addresses
Life cycle of the Organisational unit	<ul style="list-style-type: none"> Start date* End date Organisational unit taken over by
	*Required field.
Place in hierarchy	Parent Organisational units
Keywords	Keywords to categorise the Organisational unit.
Cost centres	Cost centre associated with the Organisational unit.
Visibility	Information on Organisational units can be limited using visibility if needed.

2.1.3 External persons

External persons in Pure are records with information to describe people from outside your institution who are linked to records from within your institution. An example is external collaborators on a research paper. External persons are usually created by users when adding Research output records - for example, when they add co-authors to their publications.

You can manually register information in Pure for all content types, depending on your user role. This is particularly relevant to External persons, as they are often created by users adding content to Pure. For example, adding an External person as a co-author on a publication.

The table below shows the main information that Pure can hold about an External person:

Section	Fields
Person details	<ul style="list-style-type: none"> Title First name Last name* Country Gender IDs, such as Mendeley profile ID, Scopus ID and External ERM.
	*Required field.
Keywords	Used to describe the Person's scientific domain and area of expertise.

External organisations	Affiliations with External organisations.
------------------------	---

2.1.4 External organisations

External organisations in Pure generally represents a workplace linked to an External person record. They may also represent funding councils or other stakeholders — in short, any organisation that is not a part of your institution.

There are many relations between External organisations and External persons to other content in Pure. External organisations and persons can be related to Persons, Organisational units, Grant applications, Awards, Projects, and more. Pure's relational data model enables you to view and analyse which other records are related to specific External organisations and persons.

When affiliating an External person or organisation to a content type, you can search from a list to see if the entry you are creating already exists in the system. If it does not exist, you can create a new External person or organisation.

To avoid duplicates, Pure also comes with preventive and corrective measures:

- **Preventive measures:** If you attempt to create a new External organisation that already exists, Pure alerts you of existing records with the same name.
- **Corrective measures:** If duplicates do occur, Pure automatically identifies the duplicate External person and organisation names. Merging is possible both from within individual records and directly from the list of duplicates.

See section [5.4 Duplication handling](#) for more details.

The table below shows the main information that Pure can hold about an External organisation:

Section	Fields
Type	<ul style="list-style-type: none"> • Type* • Nature of the organisation's work. For example, academic, researcher grants, etc.
Information	<p>*Required field.</p> <ul style="list-style-type: none"> • Name* • Acronym • Alternative names • IDs in other systems. For example, SciVal ID or Scopus ID. <p>*Required field.</p>
Photo	Profile photo
Address	<ul style="list-style-type: none"> • Lines of address • Postal code • City • Country

	<ul style="list-style-type: none"> • Subdivision • Geospatial point • Geospatial polygon
Electronic addresses	<ul style="list-style-type: none"> • Phone numbers • Mobile phone number • Fax • Email address
Accounting	<ul style="list-style-type: none"> • Bank account number • VAT number
Files	Documents or links with further information about an External organisation.
Keywords	Keywords to categorise the External organisation.
Notes	Additional information about an External organisation.
Visibility	Information on External organisations can be limited using visibility if needed.

2.1.5 Research outputs

In Pure, Research outputs describe a wide range of academic publications and productions, ranging from classical formats such as peer-reviewed articles or books, to software, patents or performances.

Research outputs can have relations with other outputs or data, and Pure allows you to create links to these related outputs. You can also represent these relationships via our fully integrated reporting engine.

Metadata, attachments, and links are stored in Research output templates, which support ease of use through user centric data completion, SHERPA/RoMEO integration, embargo support, automated data imports, and more. You also have the option to switch from one Research output template to another, which automatically transfers your input data to the new template.

To ensure the information you enter about your Research output is complete and correct, configurable workflows keep track of whether this data has been approved/validated or requires more input from its authors.

The table below shows the different types of Research output that Pure captures:

Category	Output type
Contribution to journal	<ul style="list-style-type: none"> • Article • Meeting abstract • Letter • Comment/debate • Book/Film/Article review • Literature review • Editorial • Special issue • Review article

	<ul style="list-style-type: none"> • Short survey • Conference article
Chapter in book /Report /Conference proceeding	<ul style="list-style-type: none"> • Chapter (Peer reviewed) • Chapter • Entry for encyclopaedia/dictionary • Conference contribution • Foreword/postscript • Other chapter contribution
Book/Report	<ul style="list-style-type: none"> • Book • Anthology • Scholarly edition • Commissioned report • Other report
Contribution to specialist publication	<ul style="list-style-type: none"> • Article • Featured article • Book/Film/Article review • Editorial • Letter • Special issue
Working paper	<ul style="list-style-type: none"> • Working paper • Discussion paper
Contribution to conference	<ul style="list-style-type: none"> • Paper • Poster • Abstract • Other
Non-textual form	<ul style="list-style-type: none"> • Software • Data set/Database • Digital or Visual Products • Web publication/site • Artefact • Exhibition • Performance • Composition • Design
Thesis	<ul style="list-style-type: none"> • Doctoral Thesis • Master's Thesis
Patent	<ul style="list-style-type: none"> • Patent
Memorandum/exposition	<ul style="list-style-type: none"> • Memorandum • Question & Answer/hearing
Contribution to memorandum/exposition	<ul style="list-style-type: none"> • Memorandum contribution • Question & Answer/hearing contribution
Other contribution	<ul style="list-style-type: none"> • Other contribution

We compiled this list of output types in Pure with our clients' institutional libraries and repository managers, ranging from globally leading multi-faculty research-driven universities to highly specific research institutions in different disciplines. As a result, the range of Research Outputs is extensive. However, if your institution has a specific type of Research Output that is not listed, you can add it to Pure from the Administrator page.

The most frequently used Research output type in Pure is Article. The table below shows the main information that Pure can hold about a journal article:

Section	Fields
Type	<p>Peer-reviewed type: *</p> <ul style="list-style-type: none"> • Peer-reviewed • Not peer reviewed <p>*Required field.</p>
Publication status	<ul style="list-style-type: none"> • Publication statuses*. For example, In preparation, Submitted, Accepted/In press, E-pub ahead of print, Published, or Unpublished. • Dates of publication* <p>*Required field.</p>
Publication information	<ul style="list-style-type: none"> • Original language* • Title of the contribution in original language* • Subtitle of the contribution in original language • Pages in journal • Number of pages • Article number • Abstract <p>*Required field.</p>
Contributors and affiliations	<ul style="list-style-type: none"> • Affiliated persons. You can add internal or external persons to an article and select the role they had (for example, author, translator, etc.). You can also add their Organisational unit, including affiliations with external organisations. This is useful for researchers who want to add publications from their time at previous organisation. Note: For Persons with records already in Pure, it is possible to add alternative names for them on the article. Although the article will display with the alternative name you add, it will still be linked to the original Person record and their name in this record will not be changed. • Affiliated Organisational units. • Author collaborations Note: Author collaborations is a content type in Pure which captures the output of large author collaborations. You can configure the

	<p>minimum number of authors required for an imported Research output to be assigned an author collaboration record.</p> <ul style="list-style-type: none"> • Total number of authors. Note: The Pure Reporting Module provides you with a more in-depth analysis on the number of authors supported.
Publication managed by Journal	<p>Managing Organisational unit</p> <ul style="list-style-type: none"> • Journal* Note: If the journal your article is published in does not have a record in Pure, you can create a new record for it when adding your article to Pure. If the journal you are adding already exists in the database, Pure prompts you before you save your new journal. For more details on duplication in Pure, see 5.4 Duplication handling. • Volume • Issue number <p>*Required field.</p>
Electronic version(s), and related files and links	<ul style="list-style-type: none"> • Electronic version(s) of this work. You can upload an electronic version of the article, add a DOI of an article, or add a link to the electronic version of an article. When adding an electronic version of an article, you can add: <ul style="list-style-type: none"> ○ Document version. For example, submitted manuscript, accepted author manuscript, proof, final published version, or other. These categories are useful when uploading multiple versions of a document. ○ Public access details. * For example, open, embargoed, restricted, closed, unknown. ○ Licence to document. • Other links • Other files. When adding a file, you can add: <ul style="list-style-type: none"> ○ Public access details. * For example, open, embargoed, restricted, closed, unknown. ○ Licence to document. <p>If you upload a PDF to your Research output, you can configure Pure to</p>

	<p>automatically generate a cover sheet. Pure adds this cover sheet to your article when you download it from Pure or the Pure Portal.</p> <p>*Required field if you opt to add an electronic version of an article or a file.</p>
Article Processing Charge (APC)	<p>APC paid</p> <ul style="list-style-type: none"> • Not set • No • Yes
Keywords	Keywords to categorise the article.
Notes	Bibliographical note
Event	Related event
Relations	<p>Relations to the following content types:</p> <ul style="list-style-type: none"> • Research Outputs • Activities • Prizes • Press/Media • Projects • Datasets • Facilities/Equipment
Visibility	Information on the article can be limited using visibility if needed.
External publication IDs	Additional source IDs. For example, from Scopus.

As with content types in Pure, each type of Research output comes with its own unique set of applicable fields. For example:

- Event-related outputs hold information about the event (e.g. a conference).
- Chapters hold information about the host publication/book.
- Books and other relevant publications hold information about ISSN, ISBN, Series.
- Non-textual outputs hold forms of media, such as CD, DVD, online, or film.
- Patent holds information about patent number, country and filing date.
- Thesis holds information about award date, awarding institution and supervisors.

2.1.5.1. Metrics about your Research output

Pure can collect and display comprehensive metrics about your publications as well as the particular journals you publish in, including download counts. The metrics available in Pure are highly dependent on the subscriptions at your institution and how Pure is configured.

When bibliographic publication metadata is imported from Scopus or Web of Science (and to some extent, SciVal), the related citations are imported together with that data. The resulting record in Pure then holds the citation data set as part of the record. You can view metrics about an item from the Metrics tab on a Research output.

2.1.6 Facilities / Equipment

Facilities / Equipment in Pure is a record with information about items available for research. For example, microscopes or submarines. You can relate items to one or more

Organisational unit that owns or manages it. It is also possible to relate externally owned equipment to External organisations.

Once an item is registered in Pure, it can be related to research projects to keep track of the usage. For example, it is possible to create a report to show research projects involving the use of specific types of items or an individual item.

You can select which roles can create equipment in Pure from the Facilities/Equipment menu item in the Administrator page of Pure.

The table below shows the main information that Pure can hold about Facilities/Equipment:

Section	Fields
Type	<p>Dropdown menu containing the following options:</p> <ul style="list-style-type: none"> • Facility • Equipment • Component <p>The values in this menu can be defined in the Facilities/Equipment menu item in the Administrator page of Pure.</p>
Description	<ul style="list-style-type: none"> • Title* • Description <p>*Required field.</p>
Details	<ul style="list-style-type: none"> • Name* • IDs • Acquisition date • Decommission date • Value • Manufacturers <p>*Required field.</p>
Persons and organisations	Affiliations with persons and organisations within the institution.
Facility/equipment managed by	The Organisational unit who manages the item. This is a required field.
Access to facility/equipment	<p>Details of how a user can get more information about getting access to the item.</p> <ul style="list-style-type: none"> • Contact persons • Addresses • Phone numbers • Emails • Links • Available for loan/booking • Terms of loan/booking
Photo	Photo of the item.
Hierarchy	Parent facility/equipment. If the parent is related to another item, for example a

	Research output, all child facility/equipment will also be associated.
Keywords	Keywords to categorise the item.
Relations	Relations to other content types in Pure. If the item has already been related to other items in the system, for example Research output, these items are automatically displayed here.
Visibility	Information about the item can be limited using visibility if needed.

2.1.7 Projects

A Project in Pure is a record with information about a research project. Projects may be externally funded, non-funded, or internally funded (or a mix).

Information is stored about PIs, Cols, other participants, national and international collaborators, lifecycle, grant applications and awards, links to outputs (e.g. publications or patents), links to activities (e.g. conference presentations, prizes or awards), attached documents, etc. Equipment used can also be recorded, datasets can be stored, and press clipping scans can be related.

The table below shows the main information that Pure can hold about a Project:

Section	Fields
Type	<p>Dropdown menu containing the following options:</p> <ul style="list-style-type: none"> • Research project • Consultancy project • Other project <p>The values in this menu can be edited from the Projects menu item in the Administrator workspace.</p>
Identification	<ul style="list-style-type: none"> • Title* • Short title • Acronym • Description • Layman's description • Key findings • IDs <p>*Required field.</p>
Participants	Persons and organisations affiliated with the project.
Project managed by	The Organisational unit who manages the project. This is a required field.
Collaborative partners	<ul style="list-style-type: none"> • Whether the project had any internal or external collaborative partners*

	<ul style="list-style-type: none"> Name of the collaborating organisation.
	*Required field.
Life cycle	<ul style="list-style-type: none"> Start date of project End date of project Curtailed
Files and links	Documents or links with further information about a project.
Relations	<p>Options to relate the project to the following other content types in Pure:</p> <ul style="list-style-type: none"> Related applications and awards Note: You can add multiple funding sources to a project. This is not a required field, therefore you can also create a project without related funding. Related projects Note: To add more details about the relationship between projects, you can categorise the related project as being a predecessor, successor, originator, associated with, and more, to the project you are creating. Research outputs Activities Prizes Press/Media Datasets Facilities/Equipment
Keywords	Keywords to categorise the project.
Visibility	Information about the project can be limited using visibility if needed.

2.1.8 Awards

An Award in Pure is a record with information about research funding granted by a funder. Many fields are shared with the Application content type, though award records can hold unique information about the amount awarded and non-financial contributions.

The table below shows the main information that Pure can hold about an Award:

Section	Fields
Type	<p>Dropdown menu containing the following options:</p> <ul style="list-style-type: none"> Award Renewal Extension

	<ul style="list-style-type: none"> Additional funding <p>These options will differ, depending on the type of award you select. For example, Research Councils, EU, Industry, Other Government Departments (OGD), or Other.</p> <p>You can also select the nature of the activity type, such as research grant, fellowship, etc., and the award status, such as internally approved or terminated.</p> <p>You can edit the templates and types of award from the Awards menu item in the Administrator workspace.</p>
Identification	<ul style="list-style-type: none"> Title* Short title Acronym Description IDs <p>*Required field.</p>
Award holders	<ul style="list-style-type: none"> Persons and organisations affiliated with the project. Role of the award holder.* For example, PI, CoI, CoPI. Academic ownership and clarity of this ownership. Award association period. <p>This is a required field.</p>
Award managed by	<p>The Organisational unit who manages the award. This is a required field.</p>
Collaborative partners	<ul style="list-style-type: none"> Whether the award had any internal or external collaborative partners* Name of the collaborating organisation. <p>*Required field.</p>
Fundings	<ul style="list-style-type: none"> Funding organisation* Further details about funding organisation, such as a description of the project scheme. Financial or non-financial award* <ul style="list-style-type: none"> For financial award: Awarded amount in both your chosen currency and in euro.* For non-financial: Estimated value in euro and a description. Split between collaborative partners Budgets

	<ul style="list-style-type: none"> • Visibility
	*Required field.
Life cycle	<ul style="list-style-type: none"> • Actual start date of project • Actual end date of project • Expected start date of project • Expected end date of project • Award date*
	*Required field.
Milestones	Deadlines for the award, and any Persons that need to be reminded of these.
Time tracking	Amount of time in hours allocated for this award.
Files and links	Documents or links with further information about an award.
Relations	<p>Options to relate the project to the following other content types in Pure:</p> <ul style="list-style-type: none"> • Projects • Applications • Awards • Ethical reviews <p>Once an award has been approved, you can create an application, project or another award based on the details in your approved award. To do so, you select which fields you want copied from your approved award to the new content type you are creating.</p> <p>Note: You can also create an Award without relating it to the above content types.</p>
Keywords	Keywords to categorise the award.
Visibility	Information about the award can be limited using visibility if needed.

2.1.9 Activities

A record with the Activities content type can represent a range of academic activities, such as conference participation, external academic engagement, editorial work or peer reviewing, public engagement etc. These activities are often collected to exhibit with researcher profiles online, or for reporting purposes. You can edit the templates and types of activity to suit your institution from the Activities menu item in the Administrator workspace of Pure.

The table below offers an overview of all standard activities in Pure:

Activity type	Fields
Publication peer-review and editorial work	<ul style="list-style-type: none"> • Editorial work*

	<ul style="list-style-type: none"> • Description • Period* • Degree of recognition • Affiliated Persons or Organisational units* • Managing Organisational unit* • Documents and links • Keywords to categorise the activity • Relations to other content types in Pure • Visibility
Participating in or organising an event	<p>*Required fields.</p> <ul style="list-style-type: none"> • Event attended* • Description • Period* • Degree of recognition • Affiliated Persons or Organisational units* • Managing Organisational unit* • Documents and links • Keywords to categorise the activity • Relations to other content types in Pure • Visibility
Talk or presentation	<p>*Required fields.</p> <ul style="list-style-type: none"> • Location of talk or presentation* • Title* • Description • Period* • Degree of recognition • Affiliated Persons or Organisational units* • Managing Organisational unit* • Documents and links • Keywords to categorise the activity • Relations to other content types in Pure • Visibility
Consultancy	<p>*Required fields.</p> <ul style="list-style-type: none"> • Consultancy work for* • Title* • Description • Period* • Degree of recognition • Affiliated Persons or Organisational units* • Managing Organisational unit* • Documents and links

	<ul style="list-style-type: none"> Keywords to categorise the activity Relations to other content types in Pure Visibility
	*Required fields.
Membership of board, committee, council or network	<ul style="list-style-type: none"> Membership details* Description Period* Degree of recognition Affiliated Persons or Organisational units* Managing Organisational unit* Documents and links Keywords to categorise the activity Relations to other content types in Pure Visibility
	*Required fields.
Visiting an external institution	<ul style="list-style-type: none"> External Organisation visited* Description Period* Degree of recognition Affiliated Persons or Organisational units Managing Organisational unit* Event details Documents and links Keywords to categorise the activity Relations to other content types in Pure Visibility
	*Required fields.
Hosting a visitor	<ul style="list-style-type: none"> Visitor details* Description Start date* Degree of recognition Affiliated Persons or Organisational units* Managing Organisational unit* Event details Documents and links Keywords to categorise the activity Relations to other content types in Pure Visibility
	*Required fields.
Examination	<ul style="list-style-type: none"> Title*

	<ul style="list-style-type: none"> • Description • Period* • Degree of recognition • Details of the examinee, i.e. the internal or external Person you are examining. • Location of examination, i.e. the internal or external organisation the examination took place at. • Affiliated Persons or Organisational units* • Managing Organisational unit* • Documents and links • Keywords to categorise the activity • Relations to other content types in Pure • Visibility
Other, such as public engagement and outreach at schools or external academic engagement.	<p>*Required fields.</p> <ul style="list-style-type: none"> • Title* • Event or organisation • Description • Period* • Degree of recognition • Affiliated Persons or Organisational units* • Managing Organisational unit* • Documents and links • Keywords to categorise the activity • Relations to other content types in Pure • Visibility <p>*Required fields.</p>

2.1.10 Prizes

A Prize in Pure records prizes awarded to Persons who are affiliated with your institution.

These records do not describe the ongoing activity that was the reason for or result of receiving the prize, such as Research output published or stipends received. However, prizes can be linked to other content types, such as related (external) organisations, or Research output.

The table below shows the main information that Pure can hold about prizes:

Section	Fields
Type	Dropdown menu containing the following options:

	<ul style="list-style-type: none"> • Honorary degree • Prize (including medals and awards) • National/international honour <p>You can edit prize templates and types from the Prizes menu item in the Administrator page of Pure.</p>
Prize information	<ul style="list-style-type: none"> • Title* • Description • Awarded date* • Degree of recognition • Granting organisations • Awarded at event <p>*Required field.</p>
Persons/organisations	Persons and organisations affiliated with the prize.
Prize managed by	The Organisational unit who manages the prize. This is a required field.
Documents and files	Documents or links with further information about a prize.
Relations	Options to relate the prize to the following other content types in Pure: <ul style="list-style-type: none"> • Related prizes • Research outputs • Activities • Press/Media • Projects • Datasets • Facilities/Equipment
Visibility	Information about the prize can be limited using visibility if needed.

2.2 Content relations

At the heart of Pure is its structured, relational data model that links together all content types within the system. Creating relations between different content types in Pure helps institutions with data quality assurance, efficiency of data entry and reporting opportunities. You can report on all content types in Pure and create visualisations of the relations between them.

The "Relations" tab on a content type shows you an overview of all records that are related to it:

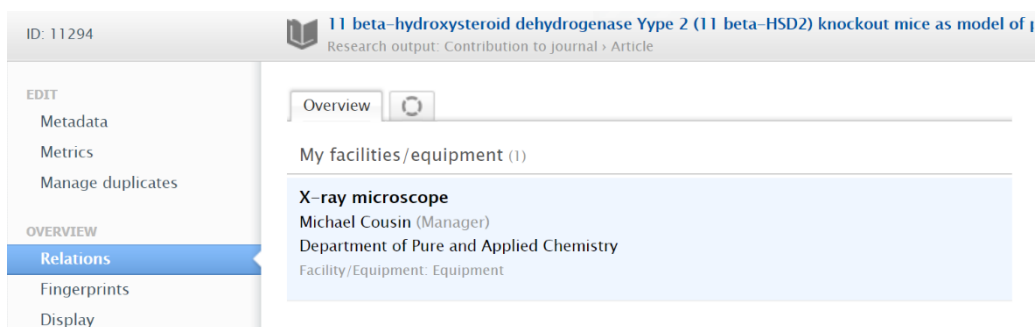


Figure 4: Relations tab on a content type in Pure.

Institutions can also display relations between content types publicly on their Pure Portal. They can display collaboration maps on different pages of the portal. For example, the portal homepage can display a map showing all external institutions globally that an institution has collaborated with. Similarly, a researcher's profile can display a map showing all external institutions globally that the researcher has collaborated with.

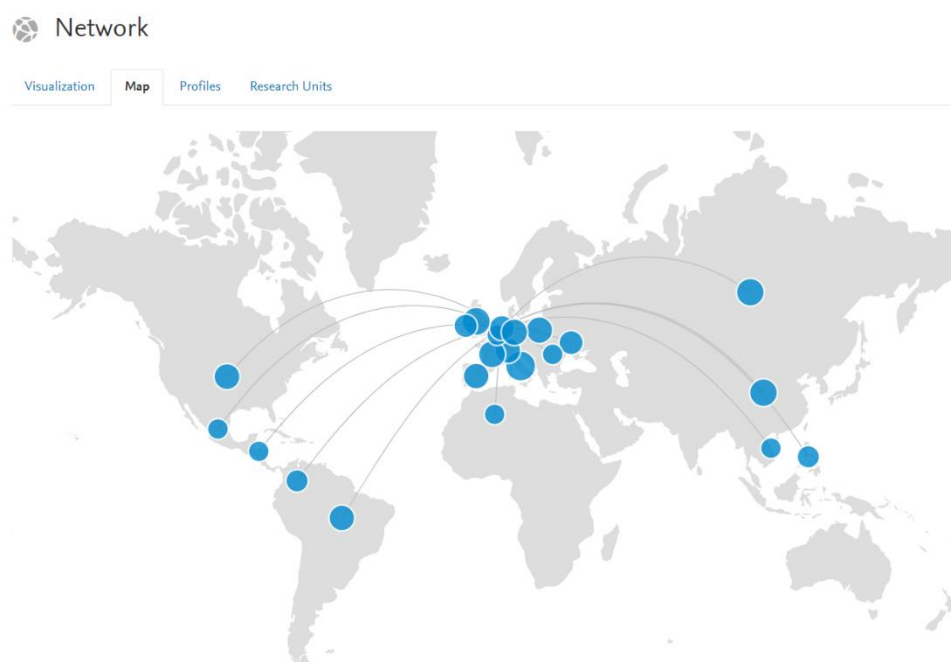


Figure 5: Collaboration map on the Pure Portal showing external organisations a researcher collaborated with.

Content types displayed in the portal also have visualisation graphs which allow visitors to drill deeper into the relations between content.

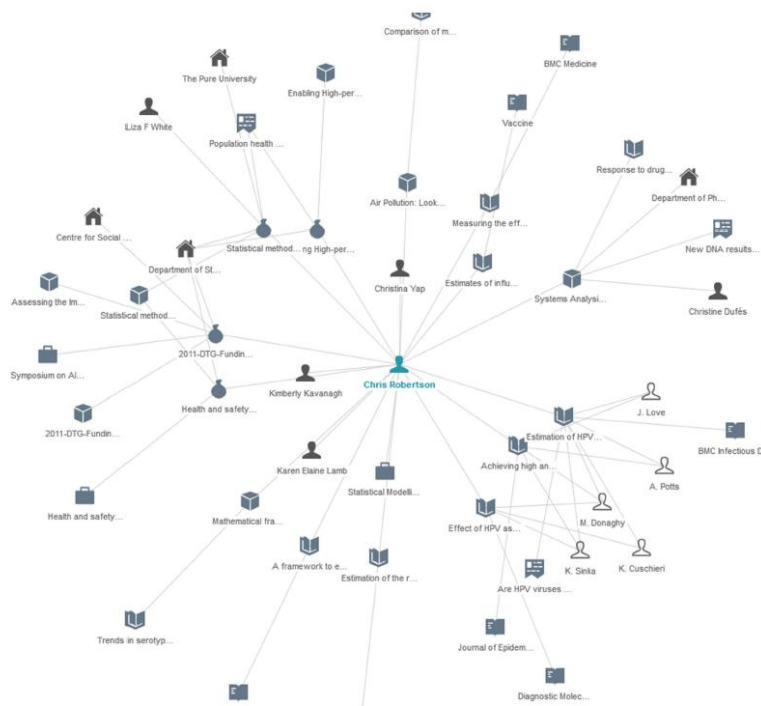


Figure 6: Visualisation map on the Pure Portal showing relations between different content types.

2.3 Classifications

Classifications are fixed values to be added to content instead of free text in order to control input according to your institution's policies, for increased data quality, and to make it faster for users to enter data. Classifications are also used to manage controlled vocabularies and other types of taxonomies in Pure.

Classifications are grouped together under classification schemes—you can include multiple classifications in each classification scheme and order them in a manner that makes sense to your institution.

For example, when adding a country value to a record, the country value “Sweden” is a classification, and the whole list of countries that can be added to is the classification scheme. The ordering of the classifications affects how these countries are ordered in any lists where they are shown.

Classification schemes can be hierarchical, and there is no limit to the number of hierarchical levels. If needed, you can define multiple classification schemes for the same semantic area. For example, you may want a classification scheme with very narrow topic labels, and another classification scheme with very broad topic labels, such as when adding research discipline codes if you want to use both a discipline-specific ontology and a broader, general one such as Dewey or Ortelius.

You can control the visibility of classifications using keywords — these are classifications in Pure that are only available to certain users. When you set up a keyword group, you can select whether you want to limit access to its visibility.

Please note that Pure comes with a large set of default classification schemes, some of which are not editable. However, almost all the default classification schemes in Pure can be edited by certain users.

It is possible to update classification schemes by adding or deleting classifications, or by reordering or editing classifications. If classification values are changed, Pure will automatically find and replace old values with the new ones in the entire database. This is invisible to the user and takes place immediately. The database is then re-indexed for searching and sorting.

2.4 Workflows

Workflows allow your institution to keep track of the status of information entered in Pure. For example, they help users determine whether a record is an incomplete entry and may not yet be fully accurate, or whether it has been checked and approved by the library as a reliable record. Workflows in Pure also support quality control and team collaboration. Quality control could be validating a record, approving it according to internal policies, or controlling its completeness. Team collaboration supported by workflows could be distributing the workload of information submission to a larger group.

Your institution will have various workflow states configured to keep track of the status of records. Depending on your institution's requirements, they can configure whether the workflow should have three or four steps. The following table shows the default workflow states in Pure:

State	Typical usage
Entry in progress	Initial state. Enter as much information as available at that moment.
For approval / For validation	You have marked the record as complete and ready to be approved or validated. The record is waiting for approval from either your department or the library.
Approved	Approved by your department.
Validated	Approved by the library.

When viewing Research output records, you can see the workflow state of each record as a tag:

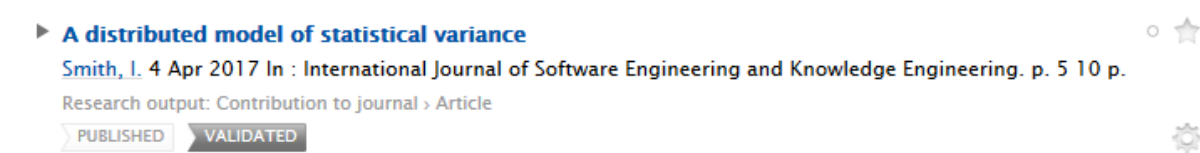


Figure 7: A record with the workflow state Validated.

To select content within a certain workflow state, add the Workflow filter to a content list. When using the Workflow filter, you can choose the direction that the item entered this state from: whether returning from a higher state because there was clarification or correction required or forwarding (progressing to a higher state) as it has recently been created or promoted. For more details about filters in Pure, see [6.1 Search in Pure](#).

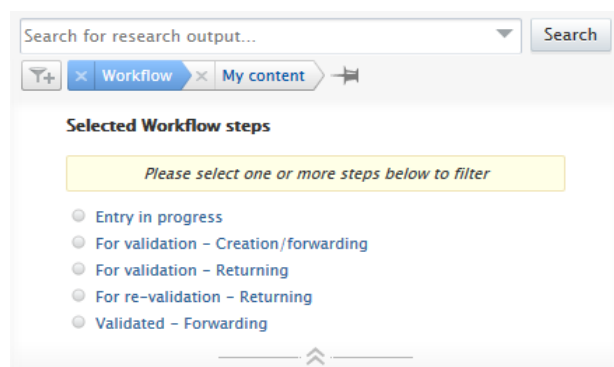


Figure 8: Options to filter by workflow state.

In addition to confidentiality settings, items are only available on the Pure Portal depending on their workflow step. Usually items must be validated before they appear. However, when setting up your Pure Portal, you can choose the workflow step required for each content type to display on the portal. For example, you can have validated student thesis, but approved Research output in the same Portal.

2.4.1 Changing a record's workflow state

When you open a record, you may be able to change its status. For example, to indicate to an editor at your institution that you have finished entering all the relevant information.

If you are a researcher, you can edit content with a workflow state of Entry in progress and view content with other workflow states, but not make changes. If revalidation is enabled, you can edit content at any stage, but your changes will only be visible in the portal once they have been approved/validated.

You can view or change a record's status in the footer of its editor window:

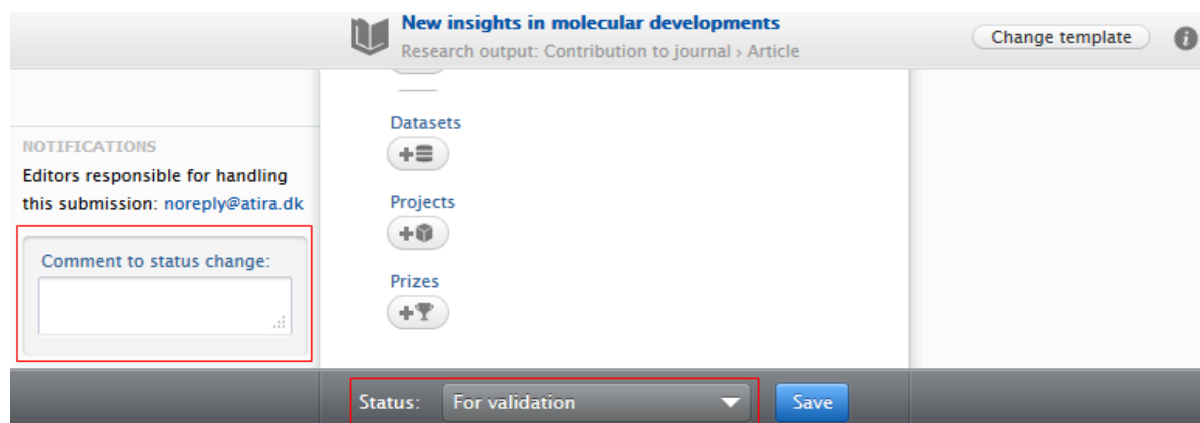


Figure 9: A new Contribution to journal record in the editor window.

To change the workflow state of a record, choose a new state from the Status dropdown menu in the footer of the editor window. If you want to add a comment to address questions or comments from the responsible editor about the workflow state, add these in the “Comment to status change” box.

Depending on the workflow state the content will enter, the email address of the relevant editor is shown in the Notifications area above the comment box. You can also send messages about the content in the History and comments tab of the editor window.

3. Users in Pure

Users refer to people who have been granted access to use Pure.

Importing users creates user profiles that are based on a username and email address. This information is usually maintained in an external system, such as HR or finance, and imported into Pure. Users can only log in to Pure once their user profile has been linked to a Person record (see [section 3.2](#) below), or additional roles have been assigned (see [section 3.3](#) below).

The table below shows the main information that Pure can hold about a User:

Section	Fields
User information	<ul style="list-style-type: none">• Username*• First name• Last name• Email*

3.1 User roles and rights

In Pure, rights are the permissions needed to perform certain actions and roles are sets of rights that are assigned to a user. You can assign roles at a user level — roles are managed on each User record.

For comprehensiveness and ease of use, Pure comes with a number of built-in roles configured. Roles in Pure generally correspond with some area of responsibility in the research management workflow. For instance, a user may be assigned the Submitter role, which gives them the rights to submit content on behalf of other users.

Roles also are often connected to a content type and an Organisational unit. For example, a user may have the role Editor of Research output (content type) in the Department of Physics (Organisational unit).

A user can have multiple roles at the same time. The roles assigned to each user control the tasks they can perform in Pure and the way Pure appears. To support their users, system administrators can switch to any user's profile which enables them to see what a user sees. You can view an overview of the roles that are configured in your Pure and how these roles relate to certain Organisational units.

Show roles for content type: Custom overview <input type="checkbox"/> Show former affiliation		Views  							
Organisational unit	Editor of Activities	Editor of press/media	Editor of datasets	Editor of facilities/equipment	Editor of prizes	Editor of Research output	Editor of applications	Editor of awards	Editor of projects
The Pure University Organisational unit: University	1	0	0	0	0	1	0	0	0
Faculty of Science Organisational unit: Faculty	1	0	0	0	0	1	0	0	0
Centre for Social Statistics Organisational unit: Research group	1	0	0	0	0	1	0	0	0
Department of Civil Engineering Organisational unit: Department	1	0	0	0	0	1	0	0	0

Figure 10: Roles configured in Pure and which Organisational units they apply to.

3.1.1 Rights in Pure

The most common rights in Pure are described below:

Right	Description
Create	Add a record. For example, add a Research output record, or add a Publisher record.
Read	Open and view a record.
Update	Open, edit and save content. Some read-only fields may still not be editable, e.g. fields that are synchronised with an external source.
Delete	Delete a record.
Administrate	Adjust settings within Pure. These rights are only available to the roles of Technical administrator and Administrator.

3.1.2 Roles in Pure

Roles are divided in two levels; global or organisational.

- **Global:** Roles that handle certain content or tasks across the whole institution. That is, they can perform their tasks across all relevant records in the whole Pure instance.

- **Organisational:** Roles that handle content or tasks within one or more Organisational units. This is generally not the top-level organisation in the organisational hierarchy; in this case the user should receive the global role. You can select the Organisational units that the role should apply to in your organisational hierarchy:

Figure 11: Organisational roles can apply to different levels in your organisational hierarchy. It is possible to choose which levels the roles should apply to.

Depending on a user's role, Pure is customised for them in the following ways:

- Tasks they receive.
- Messages and notifications they can configure (these are related to their tasks).
- Tabs available in the top navigation.
- Tabs available in the left navigation (i.e. the content types available).

3.2 Personal user

The most common role in Pure is the Personal user role. Personal user is a combination of a Person and User in Pure. It is used to identify researchers in Pure; they can log in to Pure and view or update their Personal Profiles.

3.2.1 Personal Profiles

A researcher's Personal Profile consists of general information about them, such as identifying information and information about their job position and research, as well as the sum of records related to them, such as Research output they authored or Activities they performed.

A Personal Profile is used to:

- Manage personal information about a researcher.
- Determine the content shown on a researcher's Pure Portal profile.

Note that if parts of a Personal Profile are populated from an institution's HR system, researchers cannot edit these fields in Pure.

3.3 Other user roles

Editor roles are different from the Personal user role, as they allow the assigned user to edit content that does not belong to them. Editor roles are Organisational roles, which means they are associated with a content type and one or more Organisational units. For the given Organisational units, an Editor can create, view, edit and delete content.

Administrator roles are similar to Editor roles, except they are for the whole institution across all of the organisational hierarchy, i.e. they are Global roles. Often associated with a content type, users with an Administrator role can perform create, view, edit and delete content, and can often change configurations within their area of responsibility. Users assigned with the Administrator of Pure role have unlimited access to all content and actions in Pure.

In addition to these roles, Pure has a number of specialised roles, some of which are CRUD (create, read, update, and delete) and some of which are purely administrative. The Technical Administrator role for example allows systems integration job management but is without ability to create or manage content at all.

3.3.1 Administrator page

System administrators, i.e. those with the Administrator of Pure role, have access to the Administration page in Pure. From this page, they can configure settings for specific features, set up and manage systems integration, and more.

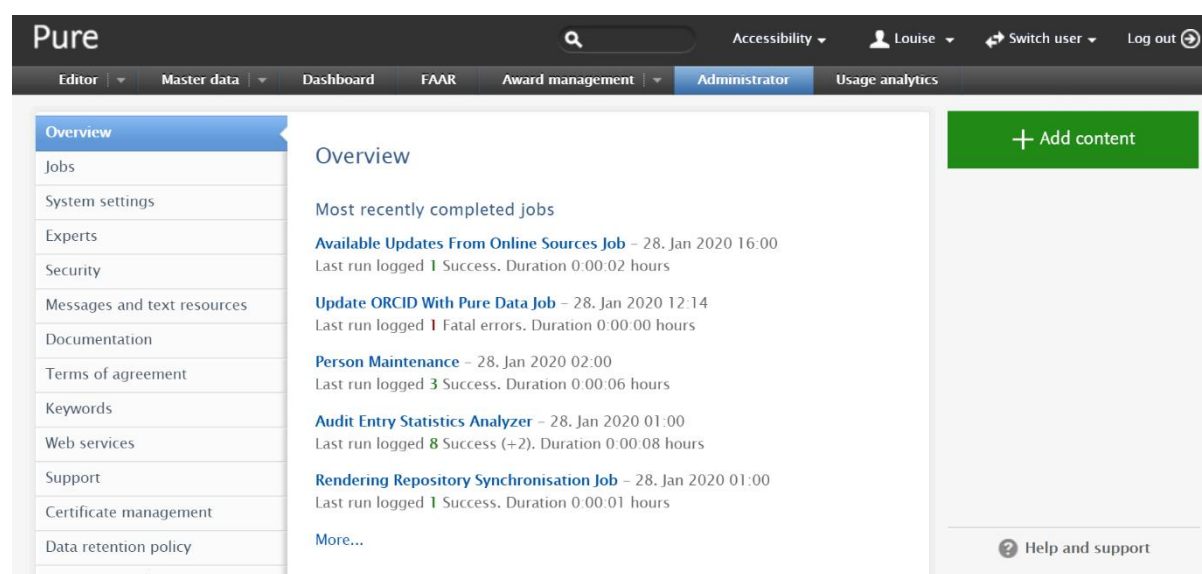


Figure 12: Administrator page in Pure. Administrators can change settings globally in Pure. They also have an overview of recently completed jobs.

3.4 Trusted users

Pure supports the delegation of permissions from one registered user to another. You can allow another Pure user to manage information in Pure on your behalf by adding them as trusted user.

A trusted user can take control of your user account and can perform all the tasks that you can in Pure, with the exception of taking control of other user accounts for which you are a trusted user.

4. Getting data in and out of Pure

Designed to be system agnostic, Pure is a versatile and interoperable solution that integrates with several external data sources. Pure's data model covers all aspects of research, from projects to outputs to societal impact. The main elements of Pure (seen below in Figure 13) include its ability to integrate with almost any institutional data source, built-in integrations with the most-used online data sources (e.g. Scopus, Web of Science, PubMed, etc.), and integrations with Elsevier's Research Intelligence portfolio.

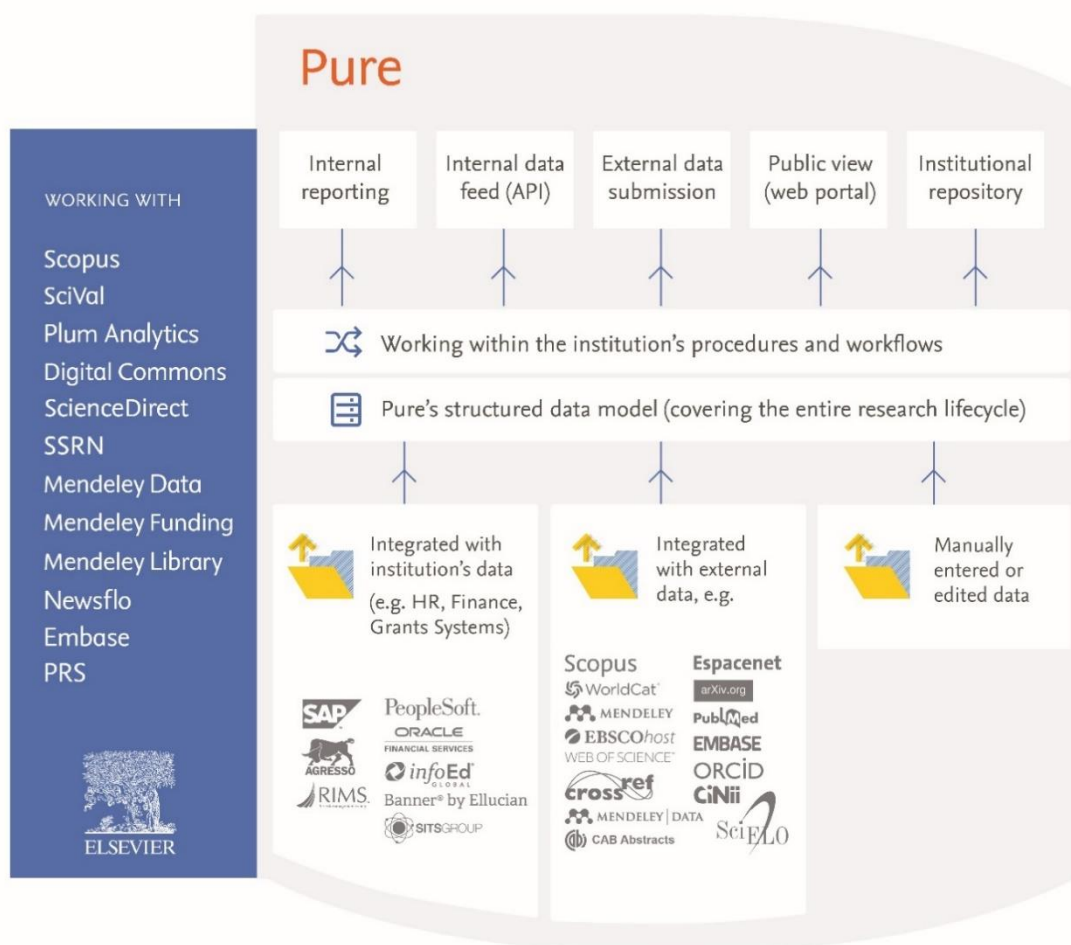


Figure 13: Designed to be system agnostic, Pure can integrate with multiple third-party systems. Pure comes out-of-the box with self-service data import and integration tools and documentation.

4.1 Integration with other systems

When integrated with other institutional data sources, data is regularly copied from systems where it is actively maintained, such as HR, finance and grant management, into Pure. You can import records from any data source, provided the data can be extracted from this source and transformed into XML that conforms to the Pure XML schema definitions (XSD files).

4.1.1 Data synchronisation

Integration from external systems is done using data synchronisation. To transfer data from the external system to Pure you'll create a Custom Converter which converts the data to XML files and push them to an Intermediate Store. Pure will on regular basis pull the XML files from the Intermediate Store and convert and store it in the Pure database. When data changes in the external system, the changes will reflect in Pure after the next pull of XML files.

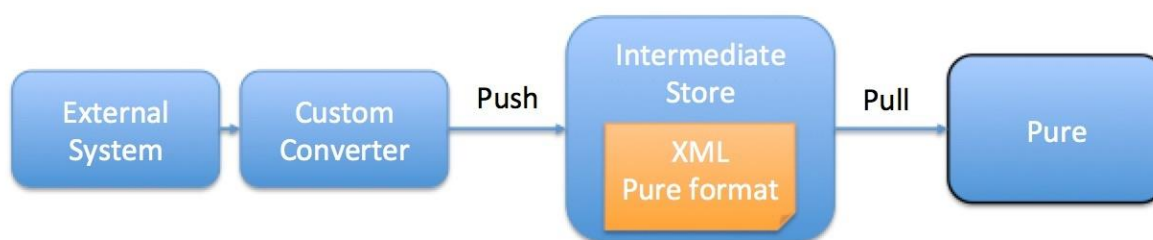


Figure 14: Process for data synchronisation.

The intermediate store in the image above is often a web server hosted by you. Pure must be able to pull the full XML file from a URL. The XML Pure format is defined by schema files (XSD) provided by Elsevier.

By making the existing source data available in a specified XML format, Pure copies this data from the XML format into its database on a regular schedule. Pure synchronises data from your backend system and when data changes in the backend system, the change is reflected in Pure after the next data copy. Data is synchronised via XML files (transmission format) and the secure HTTP protocol (HTTPS). You can schedule how frequently synchronisation takes place using Jobs in Pure, which automate workflows and aims to reduce the amount of manual work. For more details, see [9. Jobs](#).

The process of copying your back-end data to Pure via intermediate XML files accomplishes two things:

- It completes the mapping of your data to the Pure data model. This happens by you mapping the data from your external system to the Pure XML format, and Pure mapping the data from the Pure XML format to the internal Pure data model.
- It does not couple Pure to your external system in any hard way, which has the benefit that both the data model of your external system and the internal Pure data model can change without the other end needing to adjust.

4.1.2 External databases

Pure makes it easy to create, update, and correct researcher profiles by automatically retrieving publication lists from relevant internal and external databases. Pure retrieves the metadata automatically.

To do so, Pure connects to the APIs of online databases to automatically import data from them. You can import bibliographic metadata, full-text and research datasets into Pure from currently 16 major online sources, including: Scopus, Web of Science, Mendeley, Embase,

Espacenet, PubMed, SciELO, EBSCOhost, GVK, Crossref, arXiv, WorldCat, CAB Abstracts, CiNii, SAO/NASA Astrophysics Data System and SSRN.

Based on your subscriptions to the above databases, you need an API key from the database to enable your end users to automatically import publication data from the external database using Pure's automated search functionality. Automated search scans external databases and if it finds a new publication, Pure notifies the potential authors and gives them the option to claim or disclaim the content. Automated search is usually run weekly, but you can configure it to run more or less frequently. You can also run an automated search on a once-off basis. Users are notified about publications by email or from their personal tasks within Pure.

4.1.3 ORCID integration

ORCID is supported in Pure as an identifier. If a researcher does not have an ORCID, they can request one directly from the Pure user interface.

You can configure Pure to allow full synchronisation with ORCID at different workflow steps, for ORCID member organisations using Pure. This enables researchers to connect information about their affiliation, works and more, from Pure seamlessly to their ORCID record. If researchers prefer not to activate the ORCID integration, they can choose to export content to ORCID on-demand.

You can perform the following actions when exporting content from Pure to ORCID:

- Create or link an ORCID and perform a one-off content export only.
- Create or link an ORCID and allow an ongoing content export.
- Perform a one-off export to a linked ORCID.
- Set up an ongoing export from a linked ORCID.
- Manage visibility and privacy of content in ORCID.
- Revoke permissions for Pure to export to ORCID.

We also support ORCID as an online import source for bringing records into Pure. Institutions can store ORCIDs in another system, such as HR or finance, and copy them to Pure when they synchronise information about Persons.

4.2 Bulk Import Wizard

The Bulk Import Wizard allows you to migrate legacy data into Pure. This is typically done during implementation, though you can continue to use the Bulk Import Wizard after implementation. You can also use the Bulk Import Wizard to initially populate data that you want to later integrate into Pure, such as data from an external HR system.

The input for the Bulk Import Wizard is an XML file containing the records to be populated. You can import multiple XML files at once using the Bulk Import Wizard. To import data from several XML files at the same time:

1. Select the XML files you want to import.
2. Convert these files to a zip file, using your preferred tool.

3. When you are prompted to select or drag and drop the file you want to upload, select the zip file.

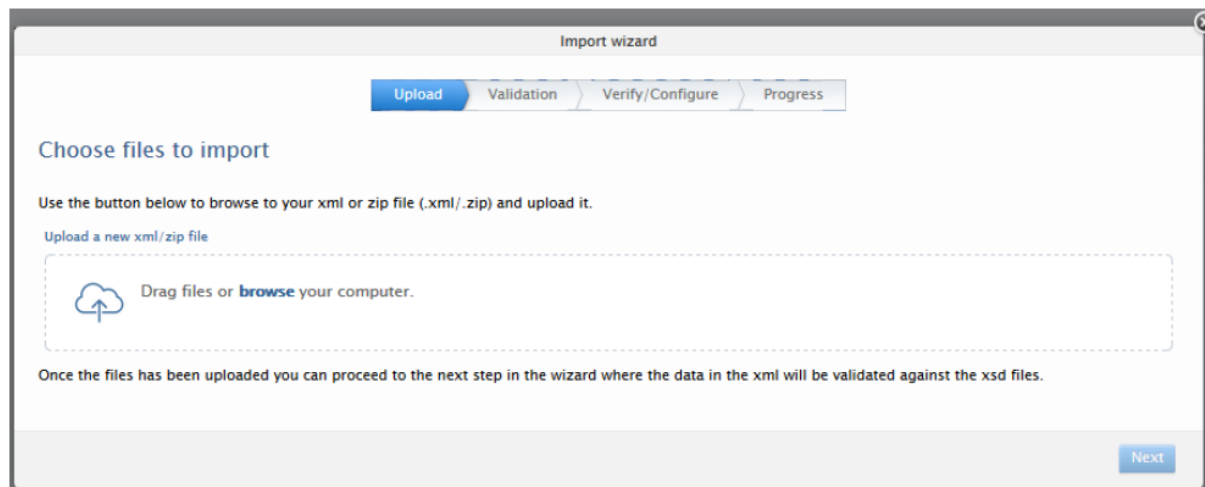


Figure 15: Upload screen of the Bulk Import Wizard.

The bulk import process is very similar to the process of data synchronisation. The differences are:

- The XML files are not to be stored on an intermediate storage, instead you can 'drag and drop' or browse to upload your file in Pure.
- Instead of a synchronisation job, the Bulk Import has a wizard, guiding you step by step on the import of the content of the XML file.
- Data already imported will not be updated by a subsequent import. Exception: Research output where during import you can select to update existing Research output as well.
- Data imported with Bulk Import is to be managed in Pure afterwards. It is also possible to delete this content in Pure.
- Often, during an implementation, synchronisations are tested using Bulk Import first as it is easier to delete them in bulk and start over again, compared to synchronisations.

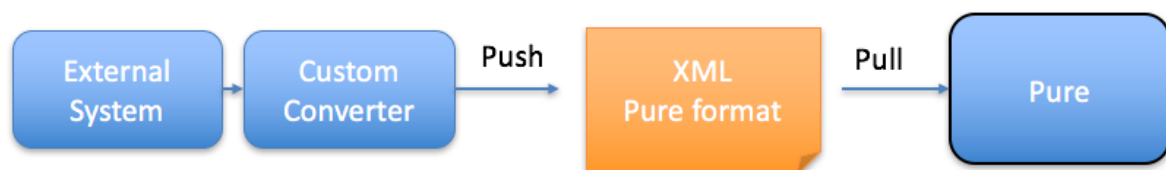


Figure 16: Process for Bulk Import.

4.3 File import

If Research outputs are available in an online source or other database that does not have a web services API for Pure to connect to, you can download these records via a standard file format relevant to each entity and import them into Pure. If Research output records are available in BibTeX, RIS or CERIF format, you can import them into Pure by either pasting them directly or uploading a file.

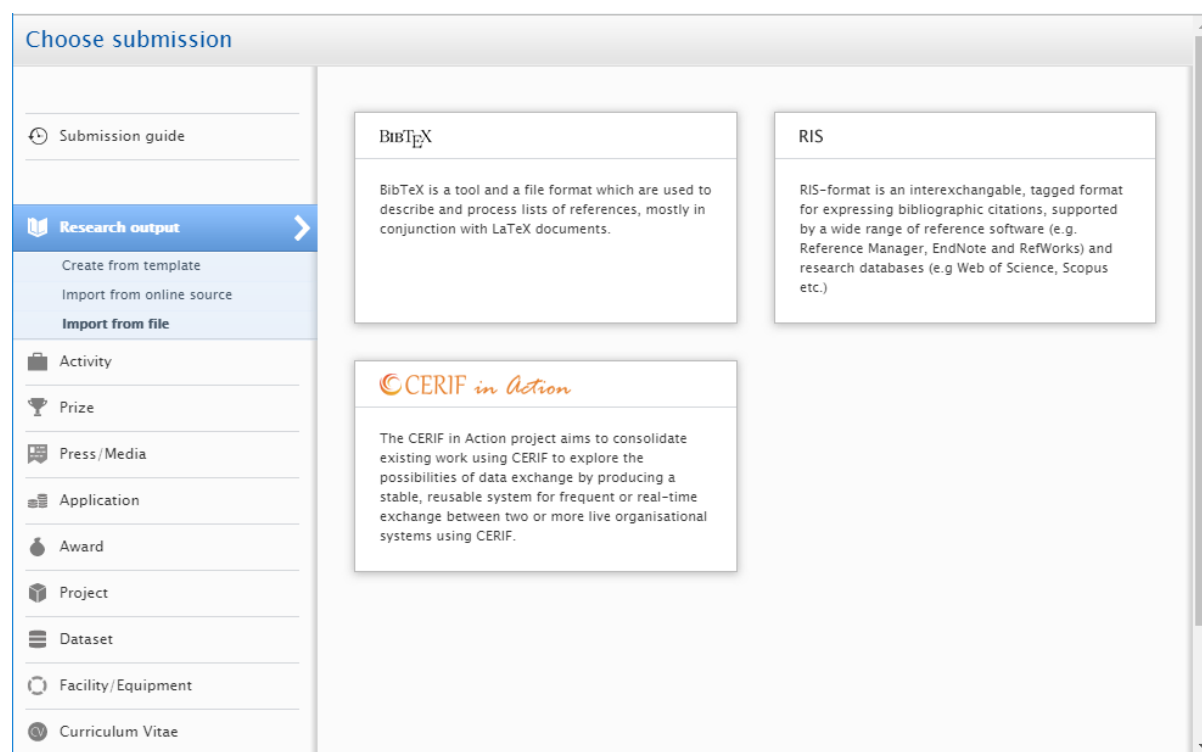


Figure 17: Screen in Pure where you can import records in BibTeX, RIS or CERIF formats.

4.4 Web Services

Pure contains three open interfaces: SOAP, REST and OAI.

SOAP and REST services are available via the Pure Web Service API, which allows authorised users to query and extract data in XML or JSON formats.

Pure also has an OAI service for harvesting data based on the OAI-PMH protocol. External systems can harvest output data, such as publications, from Pure. We have SwePub support via OAI

4.4.1 Pure Web Service API

The Pure Web Service API is available as a SOAP or REST service and allows authorised users to query and extract data from Pure in XML or JSON formats. The extracted data is typically used in data analytics services or for providing dynamic content to university CMS systems.

The Pure Web Service API has endpoints available for most content types in Pure. Access is controlled using API keys: the endpoints available are tied to your API key which is managed in the Administrator tab of Pure. Note that not all endpoints will be available: the number of endpoints available depends on your API key and how Pure is configured. For users to access all data, you can create an API key with the Administrator account setting selected. When this is enabled all endpoints are available, and all requests are performed as an administrator, i.e. if content with backend visibility is exposed through the web service then confidential content is also exposed for this API key.

With each new major version of Pure, we release a corresponding new version of the Pure Web Service API which includes support for any new additions to the data model in that release.

Our development team is currently working on a Write API for Pure, which we expect to be available in 2020. The Pure Write API is an evolution of the existing REST web services, to support a backward-compatible read and write REST JSON endpoint for using and managing research information data in Pure. As part of our 5.17 Pure release, we are making an early access version of the External organisations endpoint available for all Pure customers to enable.

4.5 Other Elsevier solutions

Pure synchronises with other Elsevier solutions, including SciVal, Scopus and Mendeley Data. Institutions with a SciVal subscription can use its benchmarking capabilities from within Pure. This includes the ability to select any group of Pure articles and analyse them in SciVal. To save time, you can bulk select the records that you want to analyse. You can also use scheduled jobs in Pure to import citations, field weighted citation impact, author count from SciVal into Pure. By integrating Pure and SciVal, institutions can better use SciVal to understand global trends and Pure for insights on operational efficiency.

Institutions using Scopus can search for import candidates to automatically import into Pure. Scopus is also used for synchronising journal lists. You can keep these import records automatically up to date by running scheduled jobs within Pure to update Research outputs imported from Scopus with citation information, metrics, publisher, titles, ASJC subject areas, and ISSNs. Pure uses Scopus ID as the primary ID of the Research output record. You can synchronise Scopus author ID mappings from SciVal into Pure or synchronise Scopus author IDs from Scopus by querying the Scopus API with a Person's ORCID.

Pure also integrates with Mendeley Data, used by institutions to manage research data. Datasets can be shared privately among individuals, as well as published to share with the world. Mendeley Data automatically captures dataset metadata, which institutions can import directly into Pure in order to enhance their reporting and showcasing.

5. Data integrity

Pure ensures a high level of data integrity in a number of ways, including field validation, mandatory fields, claim and disclaim authorships, and duplication handling. Furthermore, workflows can also be used to help with data quality assurance.

5.1 Validation workflows

Pure allows institutions to set up workflows as needed per content type and per Organisational unit. It also ensures that different users are assigned with the tasks of correcting, adding, or approving records by different guidelines and policies. Institutions only need to have an idea of what these needs and policies are, and they will be able to have workflows in Pure support and enforce them.

5.2 Field validation

A basic example of field validation is making the title field on publications mandatory, but more advanced field validation can also be used. Validation is specific for different content types; making the title field mandatory for publications does not mean it must be mandatory on book contributions, for example.

Field validation also works on related content types. For example, you can create a Person without their academic title, but if an academic title is mandatory for authors of publications, the Person without the title cannot be added as an author on any publication until a title has been added.

The table below shows commonly used opportunities for field validation in Pure:

Type	Example
Simple validation of field value types	Only numerical values in number-fields.
Simple validation of field value types	Email addresses must contain one @ character and at least one dot.
Validation of field utilisation by content type	Title is required on a publication.
Validation of field utilisation by content type	There must be at least one Author on a publication.
Conditional field validation	If a publication is classified as "External", at least one author must be internal.
Conditional field validation	A classification on a classification scheme must be formatted as a content-type URI if the classification scheme is of the type "Content type classification scheme"

5.3 Claim and disclaim content

If a co-author of an item of Research output has already entered the item into Pure but has forgotten to associate you with the item, you can claim that you should also be associated

with (i.e. added to) this content. If you are added to a record, you can also make changes to the record depending on its workflow state.

Similarly, if someone associates you with an item of Research output and this is incorrect, you can disclaim the record.

5.4 Duplication handling

Pure offers both preventive measures to avoid creation of duplicate records and corrective measures to merge existing duplicate records.

For publications (and other content types), duplicate checks are performed upon manual entry or import — based on a fuzzy title or name match, for publications also based on DOI or ISBN — and flagged on the user interface. If duplicates are still created, they are automatically identified and shown on the main screen for relevant users. Users with appropriate rights can then merge found duplicates.

For duplicate publications, a special user interface is provided where the user can choose which parts of each duplicate will be retained. For example, the author list from one duplicate, the abstract from the other. Upon executing the merge, also all links and metrics are placed on the record that is the result of the merge.

6. Navigate and search

Both Pure and the Pure Portal provide comprehensive search capabilities which make it easy for your institution's end users to easily find records or experts.

6.1 Search in Pure

You can search across all records in Pure from the header of the Pure interface. This text search ranges across the metadata of all records and content types available in Pure. You can also search contextually within a certain content type (for example, grant applications). Our search is Unicode compliant and supports UTF-8 characters, including Swedish characters.

To narrow down your results, you can add multiple filters to a search query. Filters are a structured way of defining a subset of the available results to display using a record's metadata. For example, you can use a Period filter to refine your results to records with a date within a certain range or a Workflow filter to refine your results by workflow state such as validated. Classifications defined by your institution will appear in the list of filters that can be applied to your search.

You can order your list of search results based on a number of parameters, e.g. content types or by year being searched. You can also use Boolean operators, such as AND, OR, NOT, or Lucene Query Syntax by typing ^ at the start of your search. For efficiency, you can save your search to use again in the future.

Once you have narrowed your search, Pure gives you the possibility to export the list in a variety of formats, including PDF, Excel, HTML, RIS, Word and BibTeX. If applicable, rendering formats, such as Harvard, MLA or Vancouver, can be selected for your list.

6.2 Search in the Pure Portal

Visitors to an institution's Pure Portal can search for key words or phrases globally across all content. To support visitors who are not familiar with Boolean operators or Lucene Query syntax, the Pure Portal offers visitors an advanced search form which allows them to easily include or exclude exact words and phrases in their search. Visitors can also filter their search results.

In addition, the Pure Portal comes with Elsevier's Fingerprint Engine as standard functionality. The Fingerprint Engine uses Natural Language Processing (NLP) techniques to extract information from unstructured text. It allows visitors to an institution's Pure Portal to search for concepts, which are search words that are then queried against other concepts in the thesauri used in the Elsevier Fingerprint Engine. The Pure Portal will return a list of similar concepts for the visitor to choose from.

Elsevier's Fingerprint Engine also allows visitors to an institution's Pure Portal to copy and paste a text (like an abstract) into the Portal's search field, which Pure will then analyse and return a list of suggested researchers with a matching profile. This allows for precise matching of profiles when visitors to the Pure Portal are searching for collaboration partners.

7. Notifications and messages

7.1 Emails from Pure

The email address that Pure sends emails to is defined when your user credentials are created. Emails are sent from Pure when the relevant email jobs are run, or instantly if you have decided to do so in your user profile. See [9. Jobs in Pure](#).

You can control whether you receive email notifications when certain events occur in Pure. You can also control how often these notifications are sent to you. This is done from your user settings in Pure.

7.2 System messages

You can create customised system messages to communicate important information to users. The most common use of system messages is to inform users about deadlines for adding new content, system downtime for upgrades, or other messages relevant to their use of Pure. You can select which roles to target your system messages to.

You can select whether your message should be:

- Displayed as a pinned task in Pure
- Displayed as dialog next time user logs into Pure
- Sent as an email. This option overrides users' email settings and send emails to all users with at least one of the affected roles.

You can also configure system messages to be sent immediately or at a scheduled time, and if a message should be deleted after a certain date.

Users can choose which system-generated messages they want to receive from the message settings in their user profile. For example, notifications about whether they are added to a content type in Pure. They can also opt out of any system messages they do not want to receive.

7.2.1 Message about a record

If you want to contact someone about a record in Pure, you can send them a message from that record. For example, if you want to confirm a detail with other authors or alert an editor or Pure administrator that there is an error you do not have permissions to fix.

Your ability to send a message about a record depends on how workflows have been configured at your institution.

7.2.2 Terms of agreement

You can also configure Pure to display a terms of agreement message as a pop-up dialog at login. This can be displayed at every login, or just until the user has accepted the terms of agreement.

You can add additional "Terms of agreement" if your institution updates its terms, and then the user will be prompted to accept the new terms as well. Pure logs in the audit log when users have accepted the terms.

7.3 Tasks in Pure

Depending on your role within Pure, you may be assigned tasks. Tasks are divided into two groups:

- Personal tasks concerning information about yourself.
- Editorial tasks concerning information you maintain about others.

Tasks are displayed in the task pane on the right side of the Pure interface. You can click on a task in this pane to navigate directly to it. Once you complete the task, it disappears from your list.

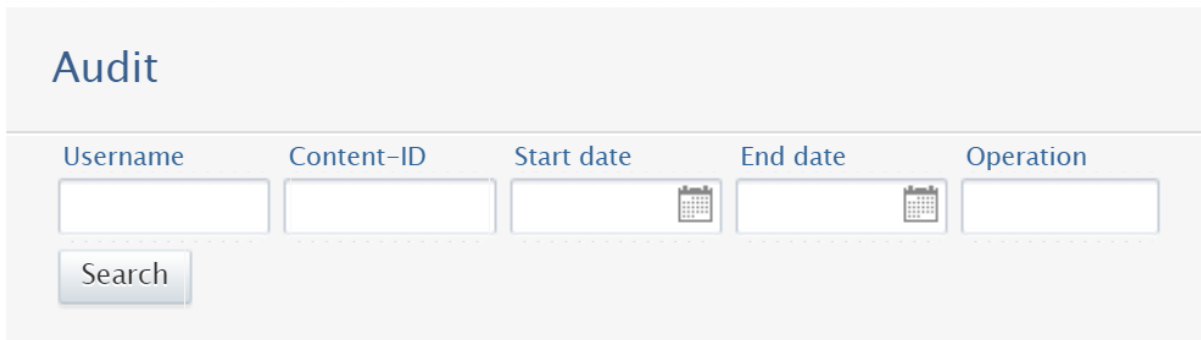
You can select the type of tasks you want displayed from the Task settings page of your user profile.

8. Audit and log

Pure comes with an in-built logging and auditing feature. The audit trail stored in Pure shows you:

- All successful and unsuccessful access attempts. If a user was unsuccessful logging in, the audit log can show if this was due to invalid credentials or if their user account was locked.
- Events by all users, including any creation, retrieval, changes, deletions, views, and reporting on content that users have done.
- The difference between content before and after it was changed; hence, even information that is deleted can be found in the audit trail.
- Assignment of rights to users.
- Data coming from external sources such as citations or impact factors are logged with a source ID and import date.

The entire history of each individual data item in Pure is systematically logged, securely stored, and made available for system administrators. You can use search and filter operations to perform lookups in Pure's audit log.



A screenshot of the 'Audit' interface in the Pure system. The interface has a light gray background. At the top left, the word 'Audit' is displayed in a blue font. Below this, there are five input fields arranged horizontally: 'Username', 'Content-ID', 'Start date', 'End date', and 'Operation'. The 'Start date' and 'End date' fields include small calendar icons. Below the 'Username' field is a 'Search' button. The entire interface is enclosed in a light gray border.

Figure 18: The Audit log in Pure, where you can search based on parameters such as time and/or the time frame a user made the change.

In addition to Pure's audit log, you can go to the Usage analytics tab for an overview of log ins and content added. This is presented in tabular format and can be downloaded to CSV file.

Usage analytics

Explore usage data using the interactive dashboards

Overview

Logins

Content

	Aug 2019	Sep 2019
Active user logins by role		
Administrator	20	2
Administrator of research output	0	1
Elsevier support	5	1
Personal user (staff)	2	2
Content added		
Activities	0	0
Applications	0	0

Figure 19: Usage analytics tab of Pure.

9. Jobs

You can configure and plan a range of jobs in Pure. Jobs can be divided into two categories: Cron jobs or Single run jobs.

Cron jobs refer to tasks executed upon your instance of Pure that import or export data, send messages, make bulk changes, clean up the database etc. Cron jobs are generally scheduled to be run at regular intervals, though you can also run them once-off.

Single run jobs cannot be scheduled. This category of jobs typically includes jobs related to data conversion and clean-up, and do not need to be repeated.

9.1 Configuring and managing jobs

Jobs are needed to synchronise or import content from your external system into Pure. Depending on how your institution plans to integrate Pure with other campus systems, you will need to set up multiple jobs; one synchronisation job for each integration. Typically, institutions set up around 5 to 10 integration jobs in Pure.

You can manage these jobs from the Jobs section of the Administrator tab of Pure, where you can start and schedule jobs, update run schedules, check that jobs ran as expected, check alerts, and stop running jobs.

Pure also provides you with an overview of all jobs in the Job management section. You can filter this list by job status: Running, Queued, Done, and All. The job name, user running it, job status, and job start date and time are displayed for each job.

Overview	Job management				
Jobs					
Cron Job Scheduling					
Single Run Jobs					
Job management					
Job log					
System settings					

Running Queued Done All				
Job	User	Status	Date	Actions
IndexMessages Task	root	Done	30. Jan 2020 11:15 CET	
EmailQueueRec urringJobCallab leImpl	root	Done	30. Jan 2020 11:15 CET	

Figure 20: Job management section in Pure.

To go into more detail for each job, you can use the Job log in Pure. The Job log displays all previously run jobs and allows you to drill down into detailed log information for each job. If you click a job's name in the log, Pure displays a complete list of time-stamped log entries for that particular job, with information about the time, duration, and the results of each previous run.

Overview	Job log				
Jobs	46 results ▼				
Cron Job Scheduling					
Single Run Jobs					
Job management					
Job log					
System settings					
	Name	Start	Duration (hours)	User	Status
	updatePersonU serRolesCronJo b	30. Jan 2020 02:00	0:00:07	root	Success
	preservedRend eringRepository Job	30. Jan 2020 01:00	0:00:02	sync_user	Success

Figure 21: Sample Job log in Pure.

10. Pure Portal

The Pure Portal is a cloud-hosted, easy-to-use web interface for researcher profiling and research networking capabilities. It opens up the aggregate of information stored within your institution's Pure to a wider audience, and allows potential collaborators, policymakers, journalists, the public, and other interested stakeholders to easily search for content. This helps maximise the impact of your academic activities and key research assets.

10.1 Managing Portal content

The Pure Portal is populated with content from your institution's Pure database, though you can control the content displayed both internally and externally. Content must successfully pass through a series of filters which consider the workflow step of the content and any visibility/confidentiality settings before it appears on the Pure Portal. You can select the following visibility types:

Visibility status	Description
Public	No restriction on visibility. All users of Pure can see this content and it may be displayed on your Pure Portal.
Campus	When viewed on the Pure Portal, visibility is restricted to viewers with a specific IP range set to reflect being on-campus at your institution. All users of Pure at your institution can see this content from within Pure.
Backend	Restricted to Pure users. This content is only visible within Pure.
Confidential	Highly restricted visibility. Only visible from within Pure to general administrators and (those acting on behalf of) users that have been explicitly added to the record or have a role approving/validating the record.

10.1.1 Researchers in the Pure Portal

Information displayed on the Pure Portal reflects information about a researcher in Pure. Researchers can customise aspects of their profile on the Pure Portal such as:

- Content type visibility and whether they want a record to appear on the Pure Portal.
- Publications they want to highlight on their profile in the Pure Portal. By default, their newest content will appear first, but researchers can choose which items they want to show here.
- Their CV in PDF format for visitors to download. This CV is automatically generated by the optional Pure CV Module. If their institution does not have the CV Module,

researchers can add free text to the Curriculum and research description area of their personal profile in Pure, for display on the Pure Portal.

- The addition or removal of concepts from their Fingerprint.
- The option to display a collaboration map.
- Whether they want to display metrics for their content types.

Depending on whether their institution permits them, researchers can also change their contact information and photos. Some institutions keep this information as read-only in Pure because it is synchronised from an external system of record, such as HR or finance.

10.2 Viewing Portal content

Visitors to your institution's Pure Portal can view a list of content and then select a record to view it in more detail. Once a record is selected, the portal displays metadata for it. For example, abstract, original language, publication status, etc. Links to other related records in your Pure Portal are also displayed, including Organisational unit and co-author from within your institution. Visitors can select a related record to navigate directly to it in the portal.

You can also configure content types that appear in your institution's Pure Portal to meet the needs of your project partners. This includes the ability to make full-text versions of publications available for download, complying with publisher mandates, in support of open access goals.

10.3 Discovering content

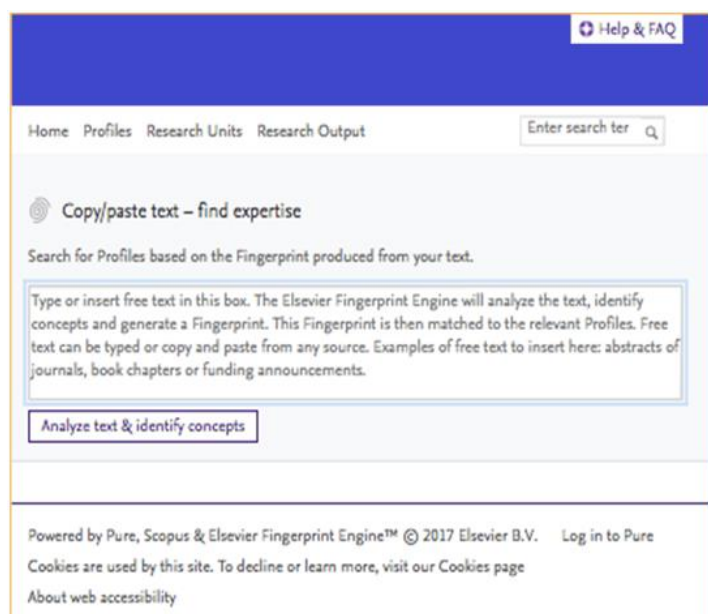


Figure 22: Fingerprint search from free text

The Pure Portal is optimised for search engines, including Google Scholar, and provides a high level of discoverability in comparison to similar researcher profiling systems such as VIVO¹. Visitors to your Pure Portal can easily search for content using either the simple or advanced search functionality. Results can be organised either by research concept or via free text indexing.

The Portal supports concept searching, making use of Elsevier's proprietary Fingerprint Engine to create and visualise a collection of relevant concepts covered in the work of a researcher, or group of researchers (e.g. department). The fingerprint is based on language used in the full-text of their publications. This helps portal users identify relevant expertise for potential collaboration and partnership opportunities,

¹ RNS SEO 2016: How 90 research networking sites perform on Google — and what that tells us

<https://biomed20.ucsf.edu/2016/08/18/rns-seo-2016/>

either by viewing the concept associations on a record, or by allowing the portal user to copy and paste a block of text relating to the subject into the free-text search box (Figure 15). Pure will process this text using the Fingerprint Engine and rank the search results based on how closely this text's concepts match the concepts that researchers are working on.

10.4 Usage and metrics

Cookies are used for a range of purposes supporting functionality and performance of the Pure Portal, as well as targeting. They also provide analytics about visitors to your Portal and how they interact with the site using Adobe Analytics and Google Analytics. The Adobe Analytics account is managed by the Pure team and informs future developments to the Pure Portal, while Google Analytics is managed by your institution by adding a Google Analytics Tracking ID to the Portal configuration settings in the Pure backend. You can then log into your Google Analytics account to see details about the usage of the Pure Portal.

Visitors can access information about cookies from the footer of your institution's Pure Portal. This links to a static webpage from Elsevier which describes in more detail how the Portal uses cookies.

In addition to site usage, the Pure Portal provides metrics about content types that are visible on the portal. It records download statistics for full-text materials, allowing users to review and report on the extent to which content is being used.

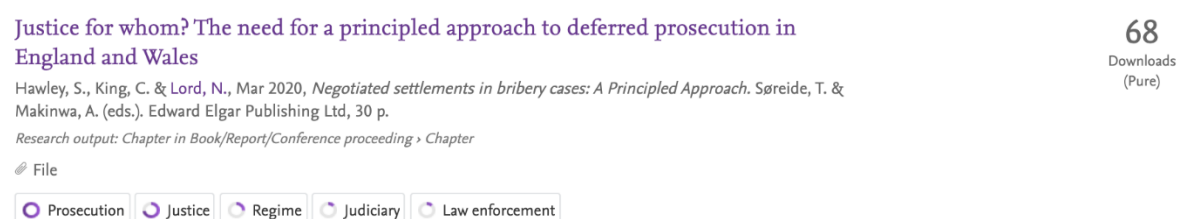


Figure 23: Download statistics for an article displayed on the Pure Portal..

Additional metrics for content types in the Pure Portal are available via an embedded Plum Print from Elsevier's PlumX Metrics, or via embedded Altmetric Attention Score and donut.



Figure 24: The PlumX Plum Print and Altmetric Attention Score and donut. Both are embedded on the Pure Portal and provide portal visitors with further details of an article's usage.

Elsevier's PlumX Metrics provide insights into the ways people interact with individual pieces of Research output, such as articles, conference proceedings, book chapters, and more. PlumX Metrics capture traditional metrics like citation counts, alongside non-traditional metrics, such as usage, social media, captures and mentions, from more than 50 sources (including PLOS, PubMed, impact Scopus, DynaMed Plus and YouTube).

10.5 Configuration and branding

You can configure various aspects of the appearance of your Pure Portal in line with your university's branding.

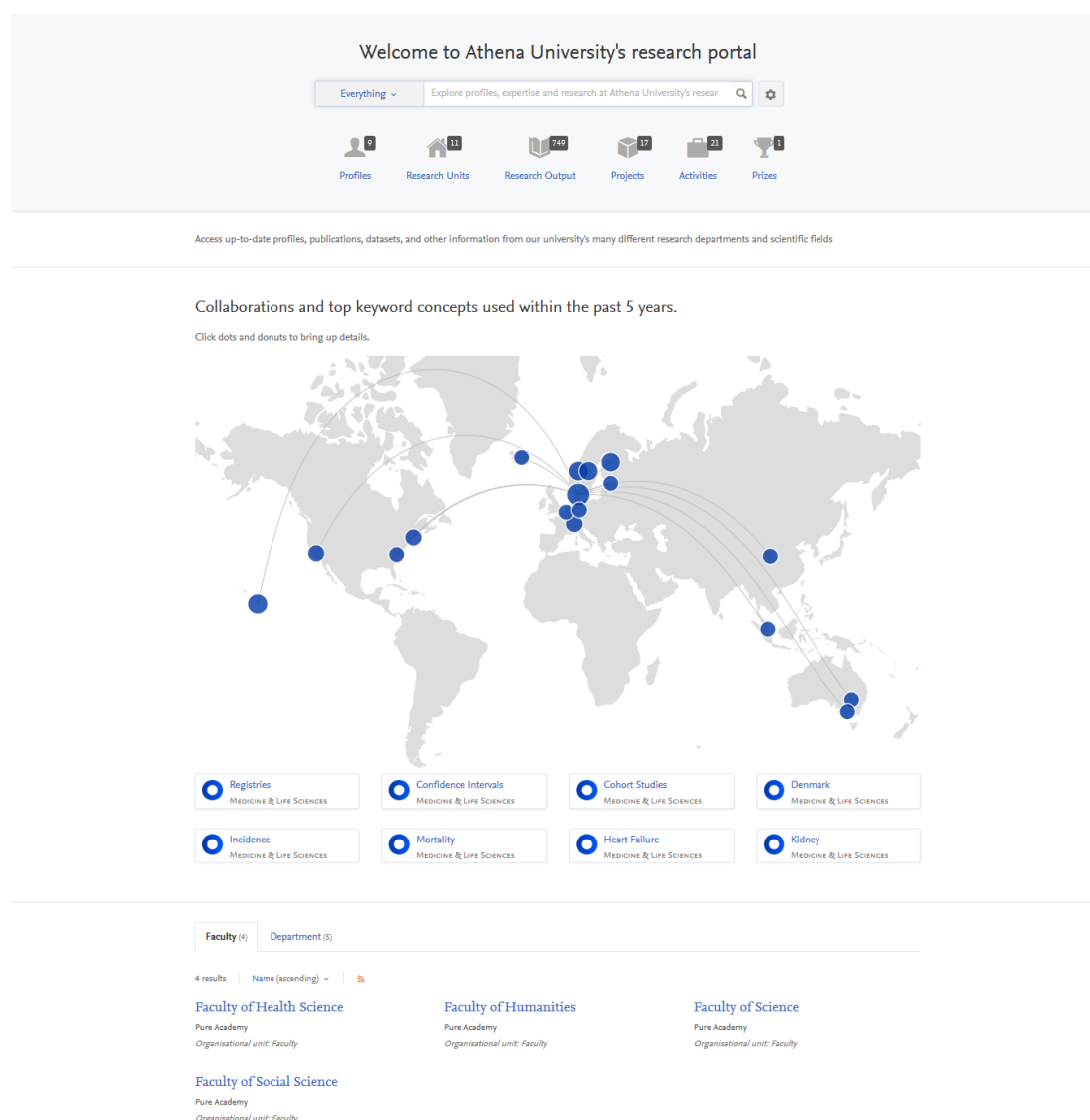


Figure 25: Example Pure Portal homepage. You can configure the homepage of your Pure Portal to suit your institution. For example, you can add your institution's logo or colours.

Below are some examples of what can be configured:

Front page

The following elements shown on the front page of the Pure Portal can be configured:

- Institution name
- Institution logo
- Front page title
- Front page welcome text
- Organisation types to show on the front page
- Show collaboration with unknown country on the front map
- Configuration of fingerprints (contextual menus and search results by concept). For more details on fingerprints, see [6.2 Search in the Pure Portal](#) and [10.3 Discovering content](#).

Banner

The appearance of the banner on your Pure Portal can be configured. The banner is shown on every page of the Portal. You can update:

- **Help & FAQ link at the top right of the banner:** Enable or disable this link. You can also control the URL that it directs users to.
- **Header image:** This image is placed at the left of the banner (left-aligned with the content below due to the resizeable nature of the banner). A padding of 20px and 25px is applied above and below this image, respectively.
- **Header background image:** This image is shown behind the other images displayed on the banner. If no image is supplied, the Primary colour is used as the background colour of the banner.
- **Header right image:** This image is fixed to the top right of the main column (which is a maximum of 1120px in width).
- Primary, link and visited link colours.

Footer

The appearance of the footer on your Pure Portal can be configured. The footer is shown on every page of the Portal. You can update:

- Footer image
- Data protection policy link
- Contact details and information that will be visible to visitors of the Portal, including email address, phone, additional information

General appearance

The following general aspects of your Pure Portal which are shown on every page can be configured. You can also edit the text.

- **Favicon:** This is a small icon shown on browser tabs to visually identify the site.
- **Languages:** Control the user interface language options available in your Pure Portal. Once you have enabled a language option, visitors can switch interface language by choosing their preferred language from the language dropdown that

appears on each page of the portal. If their preferred language is unavailable, the portal displays text in whatever fallback language you defined in the Pure backend. When researchers register details about their content in the Pure backend in multiple languages, the language dropdown controls which language these details are displayed in the portal. Note that if a record has been submitted in only one language, but visitors are viewing the Pure Portal in a different language, the portal will still show the record in its original language.

Aspects of individual content types

Various aspects of how individual content types, such as Research output, equipment or projects, are displayed on the Pure Portal can be configured:

- The email addresses and personal info shown on the Portal are related to persons' Organisational unit associations.
- Enabling this setting displays all email addresses where the Organisational unit affiliations are not hidden from the Portal by another setting such as “Only show active organisation associations”.
- Later in 2020, the 5.18 release of Pure will enable you to add images to landing pages in the Portal. For example, you will be able to add images of organisations or equipment.

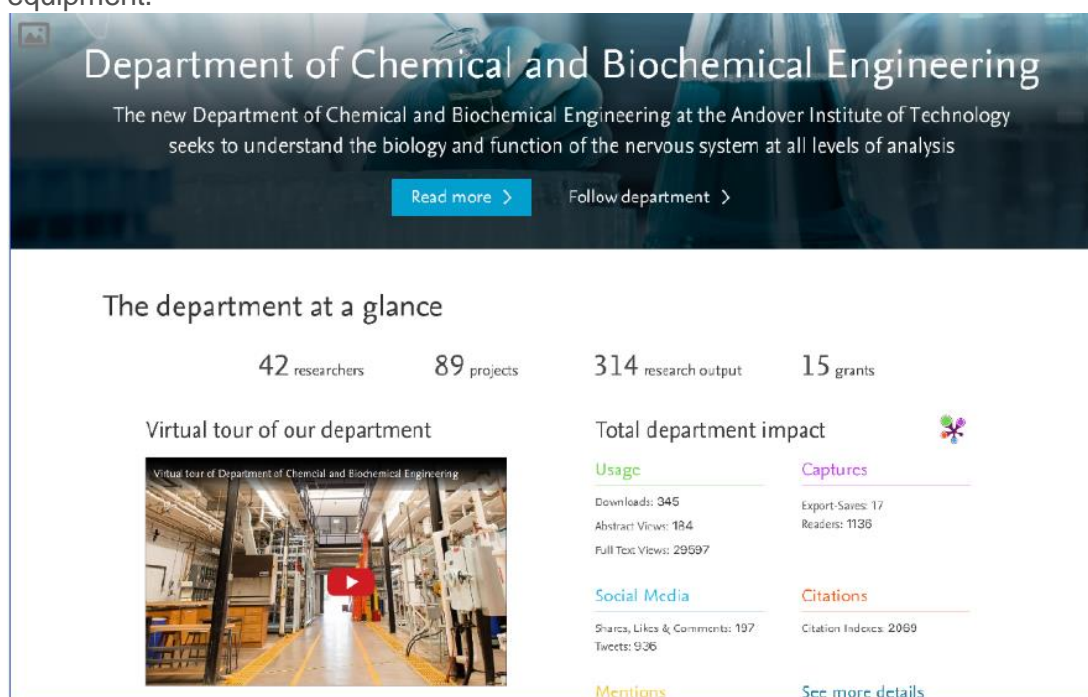


Figure 26: From the 5.18 release of Pure, we will provide support for video and images on landing pages. For example, homepage, department pages, project pages, etc.

Organisational units displayed on the portal

The Pure Portal can be configured to show:

- The hierarchy view of your institution's Organisational units by default on the main tab for this content type on the Pure Portal, rather than the Grid view.

- Active organisations in the portal
- Metrics (where available) by default in the header of the Organisational unit's profile.

11. Reporting

Pure has a fully integrated reporting engine that sits directly on top of the data model, thus enabling access to all data for reporting purposes.

You can use the Reporting module to answer questions about and drive insights in your institution based on the content in Pure. The data you analyse can include all the content types in Pure (such as Research output, Activities, Persons etc.), including content which is synchronised from external sources, as well as the relationships between different types of content.

Access to the Reporting module is controlled by user role. The roles that have access are:

- Administrator
- Administrator of [content type], e.g. Administrator of Press/Media.
- Reporter
- Reporter of Applications
- Reporter of Awards
- Reporter of Projects
- Reporter of Research Output

The Reporter roles are limited on an organisational basis.

You must have permission to view a content type in Pure, in order to report on it.

Note: As part of the ongoing development of Pure, we are working on a new Reporting module which is currently in beta release status. The new Reporting module will replace the current Reporting module, once all functionality from the current version is available in the new version.

11.1 Creating a report

11.1.1 Current Reporting Module

To view a report in Pure, you can either open a report which has already been defined, or create a new report definition that captures the information you are interested in.

Figure 27 shows the layouts that you can choose for your report, or sections of your report. To use several different layouts together in the same report, you can select the layout called combined content.

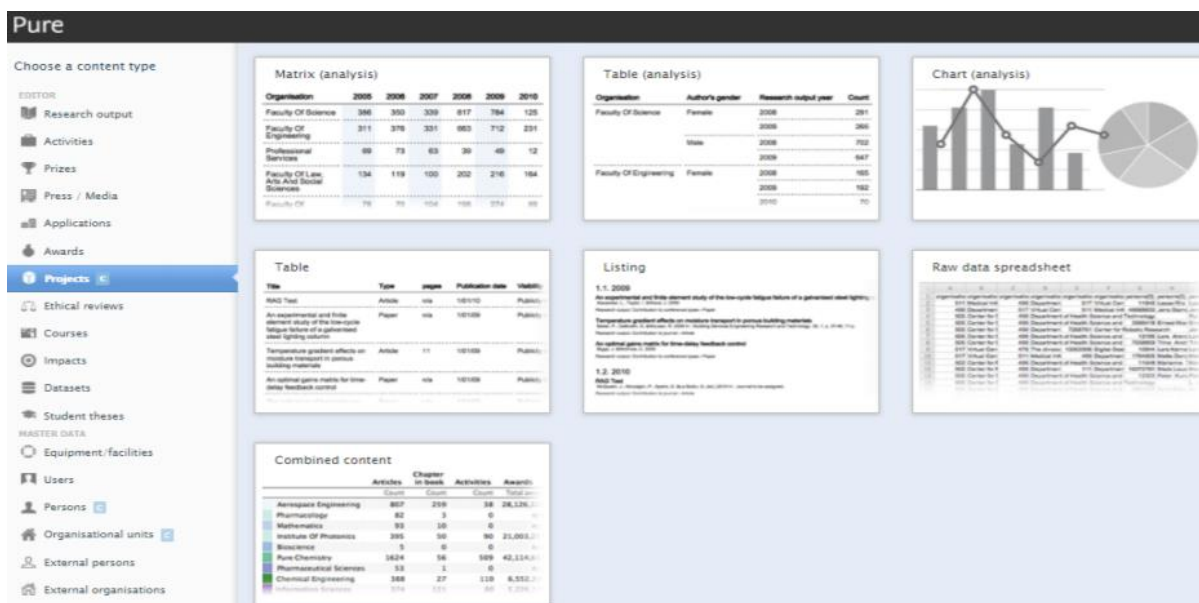


Figure 27: Selecting a report layout and content type.

Filters are used to narrow down the data to specific criteria. They allow you to:

- Restrict your report to content that is related to the correct organisation
- Hide content that does not meet other criteria that you define from appearing in the report.

The most important (and default) filter is the Organisational unit filter. Setting up this filter ensures that you get report results containing only content related to the Organisational units or persons that are relevant. You can add other filters beyond an organisation or Person filter. These filters narrow down the reportable content to content with specific characteristics, or that meet some criteria. The filters available mirror almost all data properties in Pure, so you can filter content on both bibliographical metadata as well as other properties like workflow step, creation date etc.

Groupings define which data you want to expose in the report, and how you want to display this data. For example, if your report is about staff members, you could group them by the Organisational unit they fall under, then by job title by defining a grouping for job title and a grouping for Organisational unit.

11.1.2 New Reporting Module

You can create a report in Pure from a workspace in the Reporting module. You can build a report from scratch, or from a report that was previously saved or shared with you. When building a report, you must first select your driver variable. This is the content type that sets the starting point for the report.

You can then add columns for each piece of information you want to include in your report. Column headers can be dragged and dropped to a different position to move the column.

If your report has a number of rows that match the same criteria, you can add a filter to make your results more specific. If you are applying a filter to a column, you can only filter based on metadata fields of the entity in that column.

You can also add a data story to your report. A data story comprises a series of text and graphics that communicate insights about information in a data table. These may be used, for example, to:

- Analyse the data in your Pure and investigate trends at your institution with the help of visual aids.
- Illustrate insights to other stakeholders at your institution.

Data stories are also shared when workspaces are shared, giving other staff members at your institution easy access to the underlying data.

The expand and split features help you zoom in and out of the data in your reports. Expand allows you zoom in to see details on each separate entity: when expand mode is off, numbers are aggregated and you see an overview of counts. When it is on, you see one row for each entity, allowing you to read details individual to an entity which cannot easily be summed or summarised.

Split lets you see a quick breakdown of how many entities fall into a certain bucket, whether this is a year, having a certain type, or having a specific value, while still maintaining the easy-to-scan structure of your data table.

11.2 Sharing reports

11.2.1 Current Reporting Module

Once a report is ready, you can generate it in four different output formats:

- PDF
- DOCX
- XLS
- HTML

You can also choose to:

- Share a report (if you have an administrator role) so that your colleagues can run the report too.
- Schedule a report so it is generated automatically.
- Import a report from and export to XML files.

11.2.2 New Reporting Module

You can share reports that you have created with other users with access to Pure. They can then see your report and save a copy. While they have access to the structure of your workspace and any text elements in a data story, they can only see rows that reflect the

values they have permission to access (and any associated graphics will reflect the numbers in their version of the workspace).

You can also share insights from your workspace by exporting its data. To do so, you can select Export from the reporting workspace, and choose either to download your report to the following formats:

- XLSX format to download the workspace data as an Excel spreadsheet.
- CSV format to download it as a CSV format.

You can use the Share button in the header of the Reporting module workspace to share a report with co-workers at your institution who use Pure.

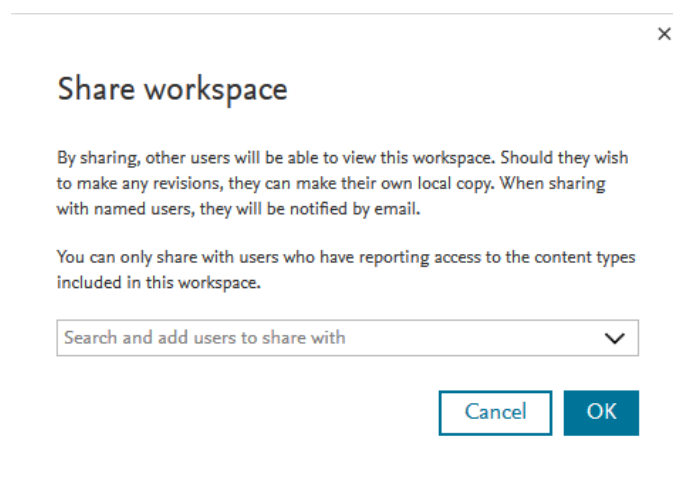


Figure 28: When sharing a workspace, you are prompted to choose who will receive access. The list of recipients is limited by their role.

When the recipient receives a shared workspace, both the data table and data story only reflect data that they have access to based on their own roles.

For example, if a user with the Global reporter role shares a workspace with 1000 rows in the data table (reflecting the whole institution) with a user with the role Reporter of Research output at the Faculty of Science, this user may only see 300 rows as their permissions do not allow them to report on content outside their own Organisational unit.

12. Award management

With Pure's Award management module, you can track, monitor and manage the entire research life cycle, from current funding opportunities, applications and their success rates, to awards and the related projects, as well as their outputs.

This functionality is generally used by researchers, research administrators and research development professionals.

There are two distinct phases of the research life cycle addressed by the Award Management module:

- The pre-award functionality is mostly concerned with internal approval of grant applications before submission to a funding body.
- The post-award functionality concerns tracking output and outcomes related to awards, and managing other funder requirements such as time tracking or report submissions.

Using standard workflows in Pure, known as application approval routes, clients keep track of funding opportunities throughout the entire grant application process.

Pure tracks calls for different grant opportunities using the Funding Opportunities content type. Clients create funding opportunity data in Pure either manually or via subscription Elsevier's Funding Institutional solution.

Once clients are ready to apply for funding, application information is held in the Application content type in Pure. Clients synchronise application information into Pure through integration with external award management or finance systems, or they use Pure as the main aggregating system for applications and awards. Clients can also add an ethical review to their application and this is held in the Ethical Review content type.

If a grant application is successful, details about the award are held in the Awards content type. Clients create the award manually in Pure, while a synchronisation between Pure and an external system, such as a finance, automatically populates budgets and expenses for the award. Clients can also add milestones to an award, such as deadlines for submitting documentation about the achievements in the past year.

13. CV management

The Pure CV module allows you to create multiple CVs for different purposes. Using the data that is already captured in the system, the Pure CV Module helps users generate CVs in a variety of standard formats. It supports rule-driven automatic updates, so that the CV is updated when new content is added to Pure.

The two main types of CV that Pure can generate are:

- **Public CV:** Use this format to generate a CV that is publicly available from your profile on the Pure Portal. It is only possible to have one public CV at a time. Note that a Public CV will not be visible to others until you publish it.
- **Private CV:** Use this format to generate a CV to easily export your data to other formats (e.g. PDF/Word) from Pure. You can have as many private CVs at a time as you like, so it is possible to generate different CVs for different purposes. Private CVs are confidential in Pure and can only be reached by the users themselves or by users with appropriate rights.

Customisation options for both public and private CVs include choosing the content types to include and displaying publication data in selected citation formats, such as Harvard and APA.

Pure also comes with three predefined CV templates for Europass CV, NIH BioSketch, and Canadian Common CV. These CV templates are structured to meet the requirements of the organisation behind each one, and populated automatically with content related to the researcher creating the CV. Note that you might have some manual editing to complete after generating each CV, as Pure might not hold all of the required information for each template.

14. Usability and display

Pure is supported on the latest stable versions of:

- Microsoft Edge
- Firefox
- Chrome
- Safari

The interface is designed to be simple, flexible, and consistent, for ease of use by researchers and administrators. This is reflected by the following key design features:

- Continuity of design
 - Consistent UI, regardless of user roles in Pure.
 - Rather than building separate screens and functions for different workflows, we integrate the necessary workflow facilities in the normal editors and lists that users already know.
- Efficiency
 - Users can create lists of content, add filters and then download their lists to formats including BibTex, RIS, MS Word, and Excel.
 - Jobs in Pure can be configured to increase automation of tasks and save time for users.
 - Users can add certain content types as favourites, so they are pinned to the side menu and are easier to access.
 - The task pane in the side menu of Pure reminds users of any outstanding tasks they need to complete.
 - The “My history” section in the side menu of Pure shows researchers the recent records they viewed.
- Classifications
 - Classifications can be configured to suit your needs.
 - Custom classifications can be added.
- Text resources
 - Labels can be configured to align with your naming conventions.
 - ‘Help/information boxes’ can be configured by your team to ensure pop-ups contain relevant explanations for your users.
- Messaging
 - Pure has an internal messaging system, but simultaneous emails are also sent.
 - Settings about for example frequency are controlled by the users.
 - Messages/emails to alert that content has been added, a job has to be done, full text is missing, and more.
- Manuals
 - Online links to manuals for personal users and other roles in Pure.
- Formatting functionality
 - Basic formatting functionalities (bold and italic), and symbols (e.g. mathematical symbols) are supported by the title, sub-title and abstract fields on a Research Output in Pure.
 - More advanced formatting (such as text alignment, bullet points, font size, and more) can be added by Researchers when they add profile information to their Personal Profiles in Pure.

- User-centric
 - Pure remembers researchers' previous co-authors and presents them in a dedicated look-up table in the interface for easy addition to new content.
 - Users see records and other information that are only relevant to them and their roles. For example, researchers will see the Personal tab, while a system administrator will see additional tabs including Master data and Administrator.
 - Users with certain roles have additional interfaces available to assist them with their tasks. For example, records that are up for revalidation are presented to the validator in a special user interface that shows only change made since validation, or a special user interface to help merge duplicate records.
 - Although Pure comes with a wide range of different content types, institutions can choose the specific content types they make available to their users. This is done by configuring which roles should have access to certain content types in Pure. This is usually done for new content types as well. In addition, when adding new content types, you have the option to decide if new content types should be enabled or not, and when.
- Profiles
 - Pure does not require users to manually key in co-author/collaborator names and profiles. Existing profiles are presented in a lookup list and with a single click all the information is included. For new External Persons/Organisation, facilities exist for quick profile creation that can be re-used.

Pure is form based, which means that adding data is done via form templates. These are simple to use and have only a few mandatory fields (critical ones for the Pure relational database). We have learnt that too many mandatory fields result in Researchers not completing the data forms for Research outputs, and this is a critical component for success.

14.1 Design at Elsevier

Pure currently has five full-time educated and trained UX professionals employed. They are embedded in the various development teams for Pure, and all larger redesigns and new designs go through them.

In addition, the User Centered Design group within Elsevier conducts an accessibility review with each major update of the Pure Portal. Findings from these reviews are implemented in the Pure Portal and form part of the release. As part of this, we have created a Voluntary Product Accessibility Template (VPAT) for the Pure Portal stating how, and to which degree the Pure Portal meets accessibility standards (Section 508 & W3C-WAI WCAG).

Accessibility is a high priority on our development team's roadmap and we hope to achieve full WCAG 2.1 AA compliance by February 2021.

15. Multilingual support

As part of our multilingual strategy, we aim to make researchers comfortable when using Pure, whether this is in English or the preferred language of their institution, and we actively respond to any suggestions for how we can improve our terminology and translations.

15.1 Supported languages

The Pure user interface is currently translated into 10 languages, including Swedish, German, Russian and Chinese. Once an institution has installed their required languages in Pure, you can select your preferred UI language the first time you log into the system or change it at any time in the user settings.

In addition to the 10 languages currently supported by Pure, the Pure Portal supports 6 extra languages, including Japanese and Turkish. In the Pure Portal, visitors can switch interface language at any stage by choosing their preferred language from the language dropdown that appears on each page. If their preferred language is unavailable, the portal displays text in the fallback language you have defined in the Pure backend.

Pure allows you to enter metadata about content indicating its original language and providing translations of free text fields.

15.2 Text resources

Text resources refer to the way that we store the text strings separately to the functionality of Pure. This means we can reuse the one translation (or English text) in many places. For example, the text and the translation of "Save" which is defined once and used many times.

You can make changes to these text resources in the Administrator tab of Pure. Changes you make here are saved locally and are preserved when you update Pure. You can export text resources to Excel for future reference.

Most of the text resources in Pure can be edited by your institution. However, not all text in Pure is necessarily controlled by text resources — where the text is a particular value a field can take (for instance, a dropdown menu), these are often maintained as Classifications, and can be changed (if available, some classifications are read-only). For more details, see [2.3 Classifications](#). For all other translations which cannot be changed by text resources or classifications, see [15.3 Managing translations](#) below.

15.3 Managing translations

Note: This applies to translations that cannot be changed using text resources and classifications.

Translations of Pure are managed by Elsevier and are conducted by a third-party translation office. We engage professionals in software translation and endeavour (as much as possible when dealing with new features in our software) to provide detailed background information so that the translators understand the context of their material.

We perform translations in various rounds leading up to new releases, to capture the newest features as they evolve.

15.3.1 Providing feedback

If you have feedback on translations that you think could be improved, you can suggest your changes in one of the following ways. We will pass this information back to our translators to continuously improve the text shown in Pure.

You can suggest improvements by:

- **Editing text resources in Pure:** If you have already changed some text resources, or want to suggest specific changes yourself, then you can send them to us.
- **Creating a support ticket with a screenshot attached:** If you find an error in the context of the text, please send our support team a screenshot with an explanation.
- **If the translation of a module/screen is poor,** please let us know by giving as much detail as possible. We will then make a complaint to our translation partners and (at intervals for each language) organise review.

15.4 Other localisation

In addition to language, you can change the following settings based on your local region:

- **Currency:** You can change this from the System currency & country settings in the Administrator page of Pure. If the currency of your institution's country does not appear in the default options, you can enable it from the "Subset of ISO-4217 currencies" classification scheme.
- **Date and time formats:** You can change various date and time formats from the Localisation settings in the Administrator page of Pure.
- **Year start:** You can configure the start of various years, including academic, calendar and fiscal, from the Configuration of years settings in the Administrator page of Pure.

16. Authentication

To log in to Pure, users submit a web form and authentication happens locally. This is known as a Normal Pure login.

If you are using locally authenticated user accounts (i.e. a Normal Pure login), you can configure a password policy to be applied to these users. You can configure the required minimum password length, and whether lowercase characters, uppercase characters, numbers and symbols are required.

16.1 External authentication

You can also configure Pure to authenticate users with federated identity solutions, including SAML2, WAYF, Shibboleth, ADFS and CAS. Pure also supports Active Directory authentication using the LDAP protocol. Users log into Pure by entering their credentials at Pure's login screen, which is then authenticated by the central authentication system.

17. Installation and security

Our standard solution is cloud hosting. However, we understand that some institutions want to manage the underlying infrastructure themselves, therefore in exceptional circumstances we offer the ability to host locally.

17.1 Cloud hosting

In case of cloud hosting, we host Pure on the Amazon Web Services (AWS) platform. AWS is the market leader in cloud computing, offering the following advantages:

- **Secure:** Comprehensive security capabilities and services to meet the requirements of the most security-sensitive organisations. Multiple layers of physical and operational security ensure the safety and integrity of your data.
- **Reliable:** Designed for optimal performance with redundancy and failover options around the world. Mitigates against infrastructure or service disruptions and keeps your system running without downtime.
- **Compliant:** Compliant in a broad number of global assurance programs, including ISO27001.

17.1.1 Security and responsibility

We host Pure within an AWS data centre which operates in alignment with the Uptime Institute's Tier III+ guidelines. Data centre security is managed by AWS. Your data in Pure is stored and processed at physically secure AWS data centres that are protected by perimeter controls including walls, fencing, security staff, video surveillance, intrusion detection systems, as well as other electronic means. Physical access to data centres is strictly controlled by additional security staff, intrusion alarms, video surveillance and two-factor authentications to access data centre floors.

Only authorised Elsevier employees can access the AWS infrastructure. All access control is reviewed regularly, and system access is audited. Our Central Security and Operations teams continuously monitor server access for suspicious activity 24/7.

Access to application level data is allocated on the principle of least privilege. Authorised Elsevier employees access customer environments via two-factor authentication. We maintain a full audit trail of Elsevier staff logins to customer environments and review this log regularly.

Access to customer data is heavily restricted. Awareness training covering the importance of and best practices for handling customer data is provided on an ongoing basis to Elsevier employees.

Security of your data in AWS is a shared responsibility. Elsevier is responsible for security in AWS. This includes your applications, your data, and access to the virtual servers and databases. We use a defence in depth strategy which includes:

- **Network Security:** The AWS infrastructure is protected by several layers of network security controls which are aligned with internal infrastructure best practices.

- **Application Security:** Application design and secure coding best practices are followed throughout the software development lifecycle of Pure.
- **Encryption:** Industry standard encryption technologies for data at rest and data in transit.
- **Access Management:** Tightly controlled access, limited to key people. Robust procedures for provisioning, removing, and reviewing access to systems and applications. Central audit trail of all server access.
- **Authentication:** Two-factor authentication requirements for server and console access.
- **Log Management:** In-depth logging which captures usage data, application, and system logs.

Customers retain ownership of their data in Pure and are responsible for data stewardship. As a Pure customer, you are responsible for:

- **User access:** Approving user access to Pure and preventing misuse or unauthorised access.
- **Compliance:** Ensuring that data going into Pure complies with all applicable laws.

We encourage customers to report any unauthorised access or malicious behaviour our Elsevier Information Security & Data Protection (ISDP).

17.1.2 Compliance

GDPR

All data input into Pure will be controlled and managed by your institution. Our goal is to ensure that the right tools are available in Pure to ensure that you can be GDPR compliant. For example, when you create API keys, your Pure admin will define the data that each key can be used to extract. Additionally, we have technical and organisational measures in place, e.g. physical security measures, in all Elsevier locations as well as technical access restrictions on any data shared by clients.

Clarifying Lawful Overseas Use of Data (CLOUD) Act

In the case of the CLOUD Act, data can be handed over to US agencies only if there are any reasonable suspicions to help with an investigation. This is not something that happens easily, or without prior notifications to us and your institution. All data we host in AWS is encrypted, and only we have access to the keys. For more details on AWS and the CLOUD Act, see: <https://aws.amazon.com/compliance/cloud-act/>

17.2 On-premise hosting

Physical installation in an institution's own hosting environment or in third-party hosting environments is usually done by the institution's own IT staff, with help from the Pure team if needed. We provide detailed installation documentation to clients, which covers hardware and software requirements, configuration and set up activities.

In addition to a production environment, we recommend that you set up a test environment for Pure. This allows you to test new versions before upgrading your production system. For

testing purposes, the system can be installed on multiple instances and there are procedures to migrate data from one environment to another.

Upgrade packages are available via distribution files and can be installed with a script. After upgrade, it is possible to recover to an earlier state by restoring from a backup taken before you upgrade. For efficiently collecting debug data and routines for debugging, we use Jira and WebDAV, in collaboration with our routines for creating and working with client data dumps.

Although it is possible for clients to restrict access by IP address, we do not recommend using IP restriction as it can hinder researchers access from non-campus as well as Elsevier's access to support Pure issues.

17.2.1 Software requirements

The following software is needed to install Pure:

Required	Supported Platforms	Supported Versions	Recommended Version	Notes
Java Developers Kit (JDK) installed on the server.	<ul style="list-style-type: none"> Oracle JDK (all versions of Pure) OpenJDK (Pure 5.14 or later) 	<ul style="list-style-type: none"> Java 8 	<ul style="list-style-type: none"> OpenJDK 1.8.0_201 	<ul style="list-style-type: none"> Java version 1.8.0_162 or higher is required.
Tomcat servlet container installed on the server	<ul style="list-style-type: none"> Apache Tomcat 	<ul style="list-style-type: none"> 8.5.20 to 8.5.47 <p>(8.5.48 and newer not supported until Pure 5.17.0)</p>	<ul style="list-style-type: none"> Tomcat 8.5.47 	<ul style="list-style-type: none"> We currently do not support Tomcat 9.x.x.
Operating System	<ul style="list-style-type: none"> Microsoft Windows 			<ul style="list-style-type: none"> Pure will work on any version that supports the required Java and Tomcat versions
	<ul style="list-style-type: none"> Unix (Linux / Solaris / etc) 			<ul style="list-style-type: none"> Pure will work on any version that supports the required Java and Tomcat versions

Database	<ul style="list-style-type: none"> • Oracle 	<ul style="list-style-type: none"> • 19c (12.2.0.3) • 18c (12.2.0.2) • 12.2.0.1 		<p>The underlying database needs to be PostgreSQL.</p> <p>Other database systems (Oracle, SQL Server) may be supported at additional cost.</p>
	<ul style="list-style-type: none"> • PostgreSQL 	<ul style="list-style-type: none"> • 11 • 10 • 9.6 • 9.5 • 9.4 	<ul style="list-style-type: none"> • PostgreSQL 10.6 	
	<ul style="list-style-type: none"> • SQLServer 	<ul style="list-style-type: none"> • 2017 • 2016 SP1 • 2014 SP2 		

17.2.2 Hardware recommendations

CPU

Pure's performance is directly linked to CPU performance. Our current recommendation is at least dual Intel Westmere X5670 (2×6 cores + HT = 24 CPU's for the OS, 2.93 GHz). We do not recommend SPARC.

Our experience with SPARC hardware is that it is optimised for running applications where the work can be cut up into relative small "work units", these work units can then be executed in parallel on the many cores provided by the SPARC CPU. In Pure our work unit is a page request by the end user, and unfortunately our experience is that this is too large to provide really good performance on SPARC CPUs.

Memory

We recommend a minimum of 8 GB memory for a server running Pure. We recommend 16 GB memory for large installations.

If you plan on running the database on the same server as Pure you should give it at least double the memory of a server running only Pure.

Disk storage

We recommend minimum 70 GB disk storage for Pure's system data. The storage needed for full-text files depends very much on your organisation's full-text file deposit policy, so we recommend storing full-text data on an expandable file system; e.g. a SAN.

The database will in most cases use from 5 GB to 30 GB, mostly depending on how long you choose to keep the Pure job logs in the database.

The SQL Server transaction log can become very large, we have seen a few instances with a transaction log close to 100 GB size.

Server example

Please see below an example of a recommended server configuration for running Pure. This will be able to run both the database and Pure on the same server. The example here is a Dell server, but hardware from any vendor will suffice.

Module	Description
Base	Dell PowerEdge R630
Chassis configuration	Chassis with up to 8, 2.5" Hard Drives, up to 2 PCIe Slots
Configuration of RAID	RAID 10
RAID-controller	PERC H730 RAID Controller, 1GB NV Cache
Processor	Intel® Xeon® E5-2667 v3 3.2GHz,20M Cache,9.60GT/s QPI,Turbo,HT,8C/16T (135W) Max Mem 2133MHz
Extra processor	Intel® Xeon® E5-2667 v3 3.2GHz,20M Cache,9.60GT/s QPI,Turbo,HT,8C/16T (135W) Max Mem 2133MHz
Memory	4 x 16GB RDIMM, 2133MT/s, Dual Rank, x4 Data Width
Hard disks	8 x 300GB 15K RPM SAS 6Gbps 2.5in Hot-plug Hard Drive
Price	~70.000 DKK ex. VAT

Virtualisation

Pure runs in virtualised environments. We use VMware, but other platforms are also supported.

17.2.3 Security and responsibility

The underlying platform on which Pure sits is the responsibility of your institution. This includes:

- Physical and logical security
- Network security
- Patching of all infrastructure components
- Monitoring of all infrastructure components
- Infrastructure resiliency
- User Access

We are responsible for the underlying application security and will work with your institution to define a robust access management policy.