

What is RSpace ELN?

RSpace is an enterprise Research Data Management (RDM) platform made up of an Electronic Lab Notebook (ELN), an innovative inventory system, and a variety of optional integrations with third-party tools, repositories and digital identity tools. RSpace is designed to catalyze research efficiency and provide data integrity, paperless data storage, IP protection, seamless collaboration, managed data access and long-term traceability. RSpace supports FAIR data principals, NIH data sharing requirements, and similar open-science initiatives with good ability to optionally publish work and associate universal digital identifiers with people, organizations and samples. RSpace acts like a digital hub and data conduit that facilitates your organization's RDM strategy, protecting your data throughout its lifecycle, from lab bench to publication or long-term archive. RSpace integrates with commercial file stores like Box, Dropbox, Google Drive, MS OneDrive and Egnyte, and repositories such as Protocols.io, DMPTool, Omero, Mendeley, Dataverse, Figshare, Zenodo and others. The use of digital Identifiers such as ORCID, ROR ID, and IGSNs are supported, and ResearchSpace is the co-recipient of two recent NSF grants that will allow us to expand the use of internationally recognized digital identifiers throughout the product. RSpace also helps you reference verbose data held in external SMB / SFTP or IRODs file stores, and can send selected cohorts of data directly to popular repositories. To help with communication, RSpace also integrates with communication tools like Slack, MS Teams, and your institutional email account. RSpace is extremely flexible, can be used in any research sector and can be configured to balance your precise security, privacy, data access and collaboration requirements so that you can choose to keep data entirely internal, or encourage FAIR data principles according to your needs. RSpace works well in research, teaching and business environments, or indeed anywhere that collaboration, content creation, resource oversight, and a full audit trail is required. A modern set of APIs is also available to let you create your own integrations with any other systems you might use.

See: <https://community.researchspace.com/public/apiDocs> for API details.

Additionally, as of July 2024, **RSpace is a fully open-source product**, allowing for additional deployment options, accelerated customizations and the peace of mind that comes with a product built in cooperation with the international scientific community. Learn more about the RSpace open source community here:

<https://github.com/rspace-os>

The key to the system's security and collaborative features is the fact that research data is not stored on the user's local device (where it is vulnerable and insecure), but on the secure RSpace server. The server can be installed at your site, or on a cloud host of your choice, or you can opt to have us host your server for you on a private Amazon Web Services (AWS) instance. The server includes a secure, expandable file store (where raw data files are kept in their native format) and a database that records all data transactions and ties the system and your research provenance together. Any HTML5 browser-equipped device can be used to create, read and

edit content, including Mac, Linux and Windows workstations, as well as any browser equipped smartphone or tablet. There is nothing to install for the users, they simply open a browser, log in to your institution's specific server and get to work. Licensing is based on "seats". You pay for access by specific named users. If a user leaves your organization, the vacated seat becomes available to a new user.

Some of the many features and benefits of RSpace include:

- Streamline record-keeping by replacing paper lab notebooks with a flexible, searchable, secure and easy to use electronic lab notebook.
- Organize, manage, version, and share documents. Old versions of documents are never deleted or overwritten and the full history of the document is easy to access.
- Import of MS word files that can then be edited inside the system makes initial setup fast and efficient.
- High speed rendering and in-line viewing of most common document types and in-line viewing and annotating of image files, including even your large, high resolution images.
- Ensure proper role-based access to data that balances the needs of privacy and security with the benefits of collaboration and oversight.
- Establish dynamic, easy to manage, hierarchic sub-populations of scientists with role-based access to specific features and subsets of data. These can be structured around the conventions of a traditional academic lab led by a Principal Investigator or can be more focused on more ad-hoc, project-based collaborations.
- Use a simple directory to locate colleagues and understand whom they work with, and what they are working on.
- Protect your IP, but simultaneously promote useful collaborations with scientists inside or outside your organization.
- Create, manage, and access data and lab records across any platform (PC's, Macs, tablets and smartphones). Collaborate with anyone, and send data to RSpace from any location with network access.
- Obviate the inefficient, unregulated and potentially insecure use of external thumb-drives, email, or outdated methods of sharing files between and communicating among colleagues or collaborators.
- Connect to popular commercial tools like Box, Dropbox, MS OneDrive and others to unify diverse data sources you already work with and bring them together in a single system. On-site

installations can even be configured to connect to your university's enterprise filestores or iRODS storage.

- RSpace includes a flexible, modern, full featured sample / inventory / materials tracking system that builds upon a well-known predecessor called eCAT. The RSpace inventory system includes many revolutionary features and uses principles from cognitive science to help users draw on their visual memory and build mental maps of item locations and container hierarchies. The system also includes powerful import and export capabilities and full support for use with modern mobile devices.
- Reduce search times by associating free form, controlled vocabulary or key-value pair tags and captions with your files and resources. Use full text search, metadata search, Boolean logic and structured queries to easily locate a single document, experiment or piece of data from amongst years of diverse research assets.
- Categorize your work using industry standard metadata drawn from sources such as bioportal to label your work with key terms, along with corresponding URIs that show where your choices originated. You can also apply the same industry standard terms automatically or manually to data bundles you send directly and seamlessly to long-term repositories, providing consistent metadata within and between different institutions
- Give rich searchable meaning to data that is otherwise hard to search for. Add tags and captions to images and verbose data that can tend to lose their significance or overwhelm a downstream audience not present during the original research. Avoid duplication and reinvention by providing better location and comprehension of data today and far into the future.
- Link resources together in logical ways and allow them to be used in multiple contexts, See quickly how different experiments, literature and documents are related, and how your data has evolved or spawned new lines of research over time
- Enjoy piece of mind, knowing that all of your data is safe, secure and can be instantly exported in standard formats that will be supported for the indefinite future, regardless of trends in technology, or the RSpace product itself. None of your data will mysteriously vanish from your lab or organization ever again. Data stays safe and ownership is clear, despite staff turnover, computer replacements and institutional reorganizations.
- Export some or all of your RSpace data at any time, either as PDFs, industry standard XML .ZIP (ideal for moving resources between servers or archiving data to your existing archive system) or human readable native files and browser-viewable HTML. We can even help you with total or configurable archiving of lab data directly to your existing DSpace, Dataverse or other institutional repository, along with appropriate metadata your librarians can use to categorize work precisely. RSpace excels at data export where many other ELN solutions fail to deliver. This should be a key deciding factor for adoption by scientists and institutions who are concerned about getting locked into a particular system or who are worried that their data will

be trapped in an ELN that they cannot easily export their data from in a structured and usable way. RSpace solves this problem completely.

- Use flexible real-time collaboration features to find information and expertise in your lab, department or entire organization. Know instantly who has worked on related subjects or with specific protocols in the past, and which samples have been used in which experiments.
- Configure the system to match your needs by developing and sharing structured data forms that help maintain consistent workflow conventions and adherence to protocols.
- Convert your work into a template that can save everyone time. Templates can include workflows for experiments, supporting literature, protocols, forms, or indeed anything you do frequently, no matter how specialized. We can show you how to turn almost any workflow into a template or form that will make your lab more efficient.
- Recycle any content as quick and easy to use “snips”. Snips are combinations of images, text, tables or anything you can create in a notebook. Store and organize any number of snips to help you save time and be more efficient. Share snips with colleagues to make your whole lab more efficient.
- Drag and drop simplicity. You can drag any file in any format from any source directly to RSpace, or use copy and paste to insert rich content as needed.
- Administrators and PIs have instant, granular control of all RSpace server behaviors. View data and monitor server status, user logins, and access data from anywhere. PIs can even send feedback and requests to their researchers in real time and oversee every aspect of their lab personally or delegate tasks to trusted managers.
- RSpace features flexible implementation models and simple infrastructure needs. We will work with your IT staff to make sure that installation and deployment goes smoothly and makes your IT department and managers happy. LDAP and SAML2 single user sign on are supported, as well as efficient bulk provisioning options. RSpace requires almost no IT maintenance from the customer and Research Space provides all necessary help, documentation and support.
- Research Space was designed by researchers. Our professional support team can assist you with every stage of the deployment and the simple, fast GUI will assure rapid adoption. Responsive, ongoing, committed vendor support is a key element of any large-scale data management project and its importance should never be underestimated.
- Key architecture features include the fact that RSpace is a modular, extensible product based on open industry standards. Available API and code access make RSpace easy to connect to other systems and ensure that the product is highly sustainable. RSpace has a clear update path linked to industry trends. Modules and IT technologies that become outdated can be updated and modules incorporating new technologies can be easily added. Our ongoing transition to

fully open source will bring additional peace of mind to large institutions who need to create highly specialized customizations.

- Since all data in RSpace stays in its original, native file format in the secure file store, your data is not tied to this solution, or any particular database company or technology. Your valuable data can always be extracted in the future, regardless of your organization's future data management strategy, database technologies or vendor decisions.
- New features, modules and plug-ins are being added by our world-class engineers all the time. As well as being the best ELN your organization can buy, RSpace is also the fastest evolving, with new features added every month and rapid responses to users' requests for changes to functionality. If you utilize a workflow, software product or data type that is not currently tightly integrated with RSpace, tell us about it. In many cases we can quickly extend our product to meet your specific needs.