



## Research Software Program

### Accelerating Canadian Research

As we move further into the era of big data and e-research, scientists and researchers are increasingly dependent on Canada's digital infrastructure to do their work. The Canadian digital infrastructure for research and innovation comprises high performance computing resources and research-level storage, distributed across the country, and all connected via CANARIE's ultra-high speed data network. Through its Research Software Program, CANARIE is supporting and promoting the development of software tools that simplify access to this digital infrastructure.

These tools allow researchers from all disciplines to concentrate on their research rather than on the digital infrastructure, ensuring that more funding dollars go directly towards discovery-related activities. Software tools provided under CANARIE's Research Software program are designed to be modular and re-usable, so once the tools are created, they may be used by many researchers at no additional cost.

CANARIE draws on its deep connections in the Canadian research and education communities to ensure that these tools bring real value to the community, and to those who invest in their development. CANARIE's Research Advisory Committee (RAC) - composed of research leaders from a wide range of disciplines - guide the program from a research perspective. The Software Technical Advisory Committee (STAC) - composed of experienced Canadian research software developers - guide the technical and implementation aspects of the program.

Unleashing the power of software to accelerate discovery.

### Here's How it Works

CANARIE's Research Software Program invests in and supports both *Research Platforms* and *Research Software Services*.

**Research Platforms** are complete software applications that fully support research activities and workflow. They are usually discipline-specific and often include a collaborative component.

**Research Software Services** are software components that contribute individual pieces of functionality to *Research Platforms*.

If a *Research Platform* were a Swiss army knife, the Research Software Services would be the individual blades.

CANARIE's research software portal, located at [science.canarie.ca](https://science.canarie.ca), provides a central location to allow researchers and research software developers to discover and learn about contributed Research Platforms and Services.



## For Researchers

For some research, using an existing Platform may be the best solution. CANARIE encourages this by ensuring that all Platforms contributed under the Research Software Program are free to use for researchers with the appropriate credentials. Research in new disciplines or research that involves new methodologies may require development of a new Research Platform.

Traditionally, research teams in this situation have had to build research platforms from the ground up. Research Platforms are usually very large, complex pieces of software that can take a year or more to develop, even for a team. This is time that could be better spent on the actual research.

CANARIE's Research Software Program changes this paradigm by allowing Research Platforms to be built from proven Software Services, which in turn enables research to be done faster and more efficiently. Researchers are able to spend more time, resources and effort on what really matters to them: the research.

## For Research Software Developers

Research software developers are the people who design and build software Research Platforms. Sometimes, the developers and researchers are one in the same. Frequently, however, research software developers are software professionals with a specialization in the scientific discipline in which they work. In any case, these developers may not be experts in digital infrastructure management or in some of the non-scientific support software common to most Research Platforms. Nor should they be - their time is much more valuable in developing the complex, research-facing software.

CANARIE's Research Software program allows research software developers to create effective Research Platforms without having to first become experts in software disciplines unrelated to their research. Implementing such capabilities becomes a matter of integrating a service developed by others who are experts in these areas. To ensure quality, Research Services available under the program must be in active use in at least one Research Platform and are monitored for reliability by CANARIE.

All Software Services are free to use for research purposes, and many are open source. Developers can pick and choose the services that suit their needs when developing Platforms. They can also benefit from CANARIE's Research Software developers' workshops, where opportunities to explore collaboration and provide input regarding the future of the program abound.

And they're not only taking - they're giving: participants contribute platforms and services back to the program, thereby strengthening the development ecosystem and creating an environment of constant improvement.

## For Research Funding Bodies

For funders and organizations that support research, it's all about driving discovery. By directing funded researchers and developers to CANARIE, investors and institutions can help researchers and developers avoid repetition and duplication of effort. **This means funding can be better spent on the research and developments that make discovery possible.**

Learn more:  
[canarie.ca/software](https://canarie.ca/software)

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## The Bottom Line

The CANARIE Research Software Program is all about discovery:

- > Researchers get to discovery faster.
- > Developers invent tools for discovery more efficiently.
- > Research funding bodies drive discovery more effectively.