SPRNT on HPC

What is SPRNT?

SPRNT is a river dynamics simulation software package designed for researchers and engineers in the field of hydrology and water resources engineering. It is a fully dynamic solver for the Saint Venant equations, which describe the flow of water in rivers and other open channels.

SPRNT allows users to model and analyze the behavior of water in real time, accounting for changes in flow rate, water depth, and other factors that can affect the movement of water. It provides a wide range of tools for modeling river systems and analyzing the results, including graphical displays, statistical analysis, and data visualization.

The software is designed to be user-friendly, with a clear and intuitive user interface and extensive documentation and support materials. It supports a wide range of input formats, allowing users to import data from a variety of sources, including GIS data and survey data.

SPRNT is a powerful tool for analyzing the behavior of rivers and other water systems and can be used for a variety of applications, including flood forecasting, river management, and environmental impact assessments. With its advanced modeling capabilities and user-friendly interface, SPRNT is an essential tool for any researcher or engineer working in the field of hydrology and water resources engineering.

Links:

GitHub

Versions Available:

The following versions are available on the cluster:

- SPRNT

How to load SPRNT?

To load SPRNT, use the following commands:

```
#Load the SPRNT module
module load physical/sprnt
```

To verify if the module is loaded correctly, use the following command,

```
# List all the module loaded in the environment
module list
```

In a fresh environment, this should show just SPRNT module loaded.

How to use SPRNT?

Here are a few steps for running SPRNT:

1. Define the model domain: Define the physical domain of the river system you want to model, including its length, width, and any other relevant physical features.
2. Define the boundary conditions: Specify the boundary conditions of the river system, including inflow and outflow rates, water levels, and other relevant factors.
3. Set the simulation parameters: Define the simulation parameters, including the time step size, the total simulation time, and any other relevant simulation parameters.

4. Run the simulation: Run the simulation and analyze the results using the software's graphical displays, statistical analysis, and data visualization tools.
5. Validate the results: Validate the results of the simulation against observed data or other relevant criteria to ensure that the model accurately represents the behavior of the river system.
6. Modify the model: Modify the model as needed to improve its accuracy or to investigate different scenarios.

Users can find examples test case on the GitHub manual in the following link.

Where to find help?

If you are confused or need help at any point, please contact OIT at the following address.

https://ua-app01.ua.edu/researchComputingPortal/public/oitHelp