



Introduction

HPC environments provide powerful computation but remain difficult to access for non-expert users due to complex configuration, scripting and resource management requirements.

Users must deal with:

- Complex job scripts
- Cluster configurations
- Manual orchestration

This work presents a visual workflow builder application designed to simplify the creation and deployment of HPC workflows through an intuitive drag-and-drop interface.

Objective

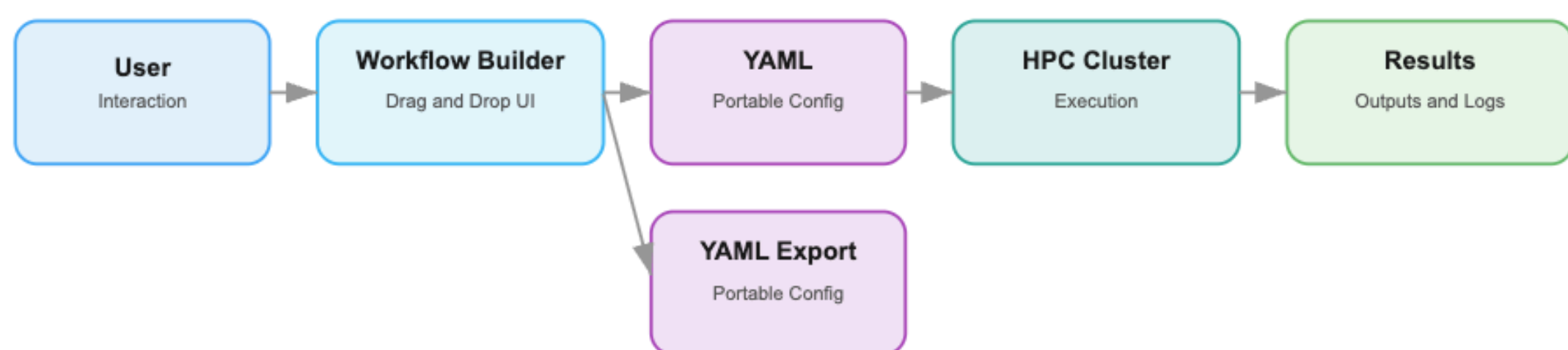
The platform enables users to construct their own workflows using a drag-and-drop interface from a list of components such as HPC_JOB, Input, and Output nodes. Users can configure these nodes and connect them together.

The platform automatically translates the designed graph into a YAML file or deploys it directly to the **LEXIS Platform**.

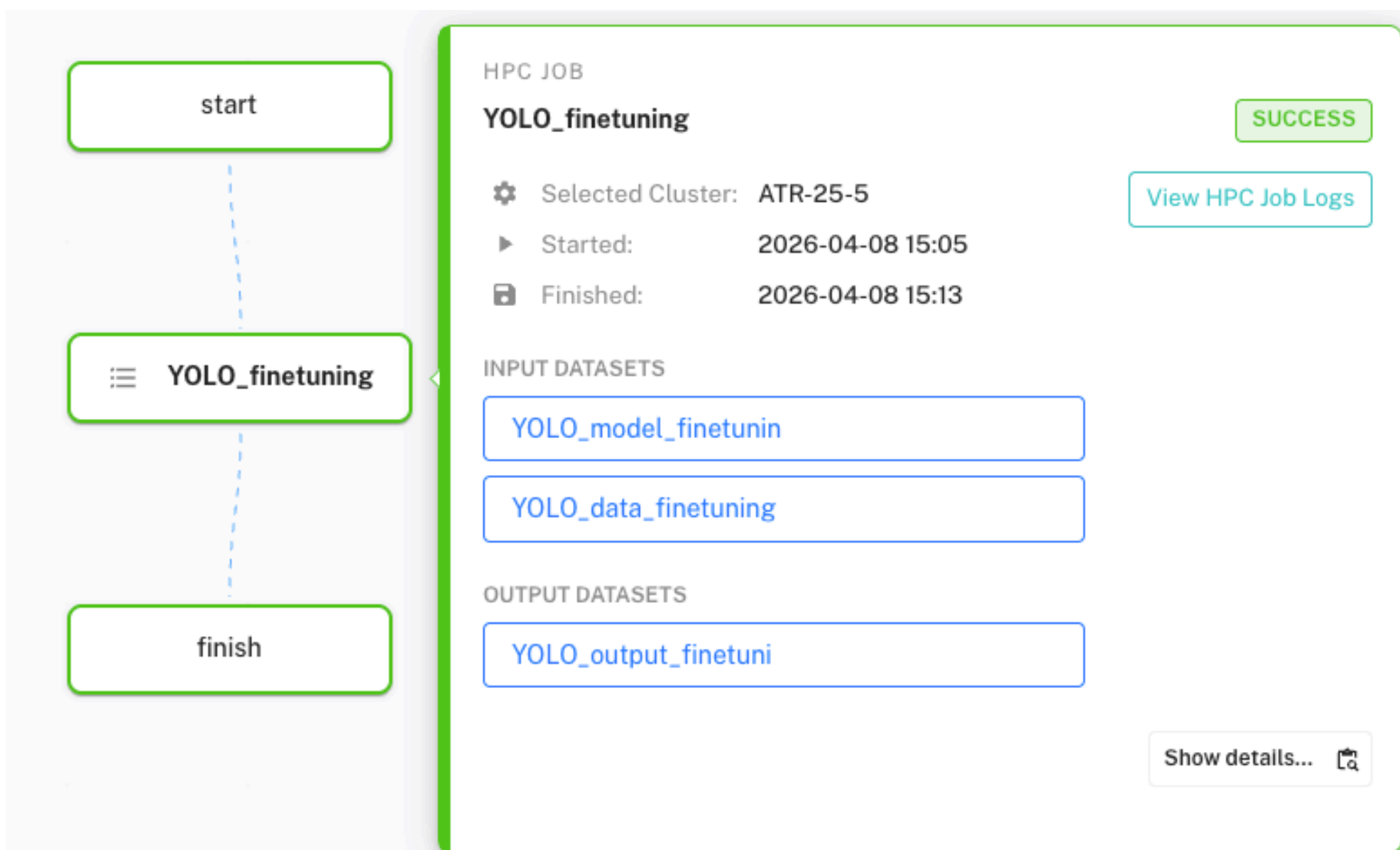
Key Features:

- Node-based workflow creation
- YAML export for orchestration
- Integration with HPC systems
- Deployment to **LEXIS Platform**

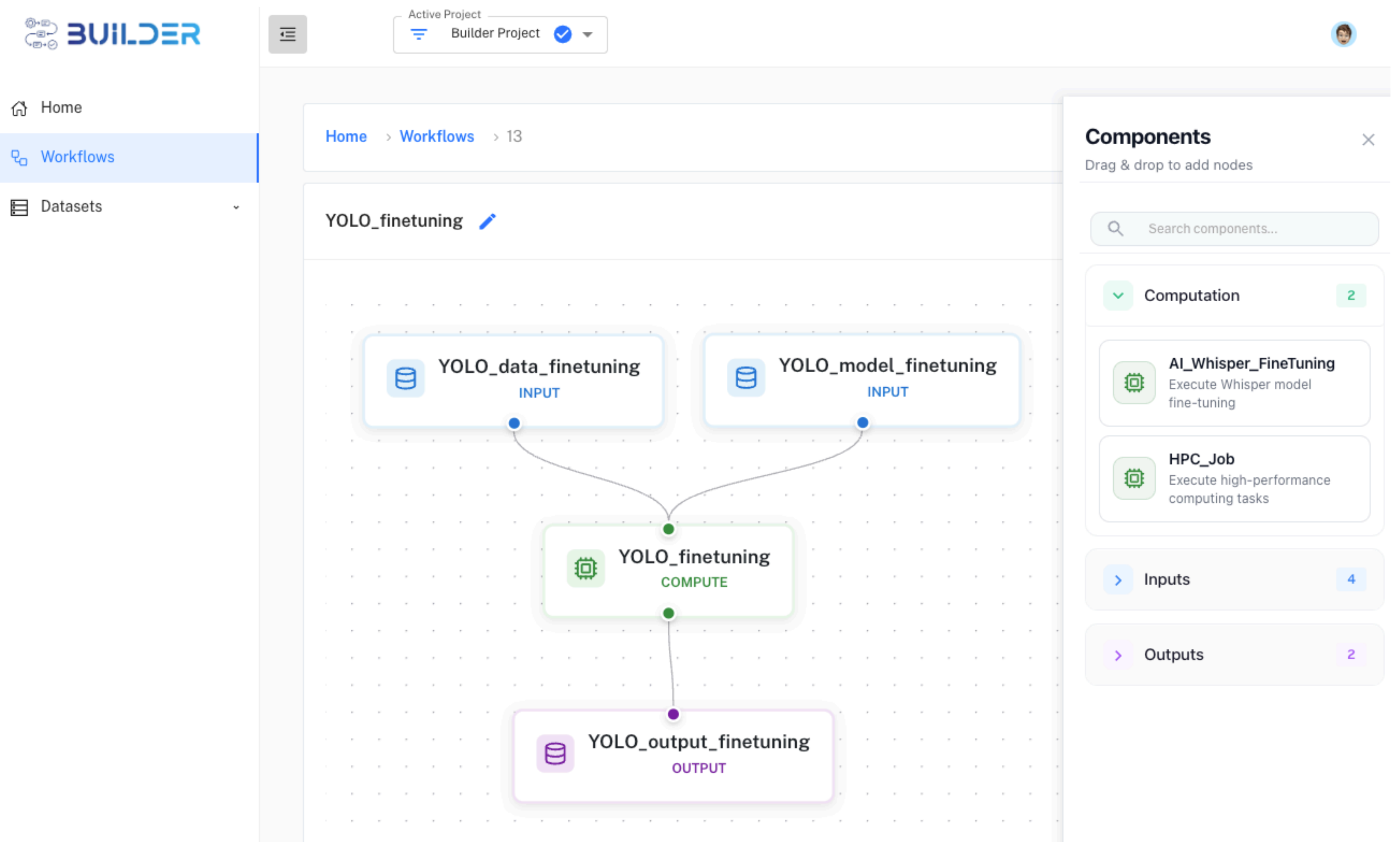
How Does it Work



Visual workflows are converted into YAML and executed on HPC via the LEXIS platform, enabling scalable processing, monitoring, and reproducible results.



Building a Workflow



- 1 Click Create New Workflow to open the workflow designer
- 2 Drag nodes from the sidebar onto the canvas to create your workflow components.
- 3 Connect nodes by dragging from one node's handle to another.
- 4 Click on any node to edit its properties and configure its behavior.
- 5 Save your workflow and deploy it directly to the **LEXIS Platform**, or export it as a YAML file for seamless deployment across other environments.
- 6 Run workflow execution directly from the workflow after deployment.

Results

The platform significantly reduces the barrier to entry for HPC usage, enabling researchers, SMEs, and industry users to leverage advanced computational resources efficiently.

- Faster workflow creation
- No HPC expertise required
- Reproducibility via YAML
- Easy deployment to LEXIS
- Scalable to large datasets

Future Work

Future work will introduce reusable such as:

- Workflow templates library
- Model Integration as Nodes
- Custom Nodes and Components
- Monitoring and Visualization

Conclusion

Visual workflow tools simplify access to HPC by reducing complexity and lowering the barrier for non-expert users. The platform bridges intuitive user interfaces with the power of HPC systems.

- Visual tools democratize HPC
- UI simplicity
- HPC power

Try it here

<https://builder.lexis.tech>

SCAN ME

