

Towards seamless Python package installation on riscv64

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Packaging difficulties recap

- Multiple wheels required
 - There are 54 numpy 2.2.2 wheels on PyPi
- New GCC/old glibc
- Dependencies

Building binaries wheels for distribution

Problems	Upstream Solutions	riscv64 support
Distribution	pypi (warehouse)	✗
Old glibc, new compiler, new build tools, multiple versions of Python	manylinux images	✗
Binary dependencies	auditwheel, maturin	✓
Build for multiple python versions, architectures and OSes	cibuildwheel	✗
Runners	Github runners	✗
Testing	CI of individual projects	✗ (mostly)
Upload and Installation	twine, maturin, pip, uv	✓

RISE's wheel_builder project

We've built the wheels so you don't have to!

- https://gitlab.com/riseproject/python/wheel_builder
- Distributes pre-built manylinux_2_35_riscv64 (rv64gc) wheels via gitlab's package registry
- Wheels are built in the same way as the wheels available on PyPi for other architectures, using patched versions of manylinux and cibuildwheel
- Wheels are tested (mostly)
- Patches to work around riscv64 specific issues sent upstream
- Packages are kept up to date
- 30 packages are available including numpy, scipy, pandas, pillow, matplotlib, maturin
- More packages planned

Installing wheel_builder packages

Simply set your index-url and go!

```
pip install --upgrade pip
```

```
export PIP_INDEX_URL=https://gitlab.com/api/v4/projects/56254198/packages/pypi/simple
```

```
pip install numpy
```

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