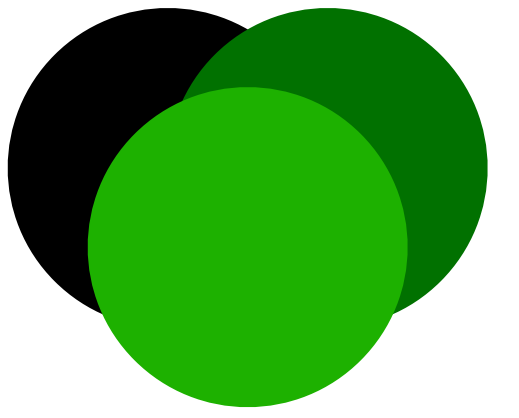


Spack based FairSoft

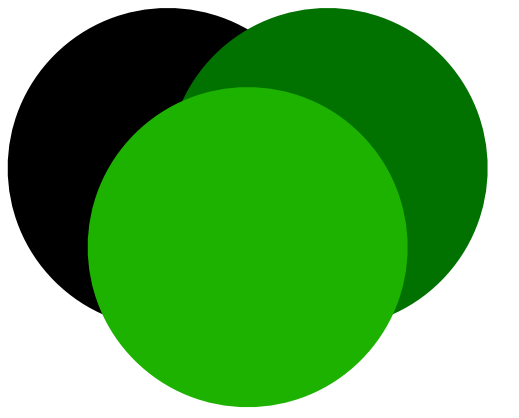
D. Kresan for the SDE Group, IT
GSI

FairSoft as you know it



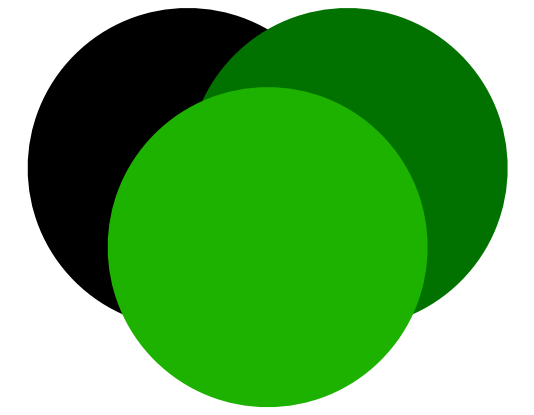
- Software installation based on sequence of bash scripts
- Interactive menu allows some customisation
- Very simple principle, but successfully applied for many years

Why something new?



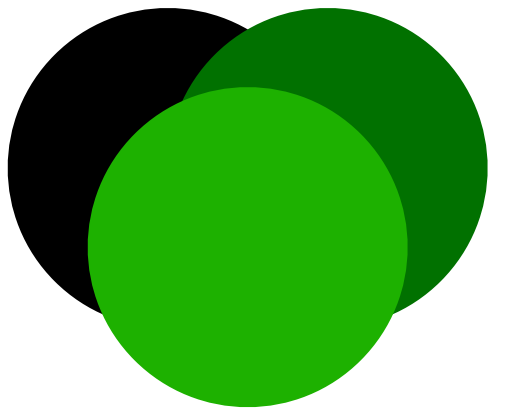
- Single version and single configuration installation
- Package is not rebuild if it's dependency changed
- Change of version of single package - rebuild all
- Can not easily re-use external FairSoft installation

What is Spack?



- Multi-platform package manager
- Written in python
- Installs multiple versions and configurations of software
- Developed by ~400 contributors
- <https://github.com/spack/spack>

package.py file



```
from spack import *

class Fairmq(CMakePackage):

    homepage = "https://github.com/FairRootGroup/FairMQ"
    url      = "https://github.com/FairRootGroup/FairMQ/archive/v1.2.3.tar.gz"
    git      = "https://github.com/FairRootGroup/FairMQ.git"

    version('1.4.3', '6659f281bdf07158935a878b34457466')
    version('1.2.3', '53f0d597d622eeb2b3f50a16d9ed7bbe')

    # add correct version info for FairLogger from github tarball
    patch('correct_version_info_1.2.3.patch', when='@1.2.3', level=0)
    patch('correct_version_info_1.4.3.patch', when='@1.4.3', level=0)

    # Fix dependencies for FairMQ 1.2.3
    depends_on("googletest@1.7.0:", when="@1.2.3")
    depends_on("googletest@1.8.1", when="@1.4.3")

    depends_on("boost@1.67.0 cxxstd=11", when="@1.2.3")
    depends_on("boost@1.68.0 cxxstd=11 +container", when="@1.4.3")

    depends_on("fairlogger@1.2.0", when="@1.2.3")
    depends_on("fairlogger@1.4.0", when="@1.4.3")

    depends_on("zeromq@4.2.5", when="@1.2.3")
    depends_on("zeromq@4.3.1", when="@1.4.3")

    depends_on("msgpack-c@2.1.5", when="@1.2.3")
    depends_on("msgpack-c@3.1.1", when="@1.4.3")

    depends_on("dds@2.1-1-g181b66a", when="@1.2.3")
    depends_on("dds@2.2", when="@1.4.3")

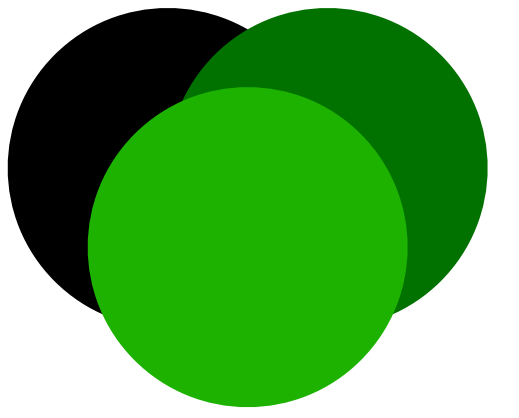
    depends_on("nanomsg@1.0.0", when="@1.2.3")
    depends_on("nanomsg@1.1.5", when="@1.4.3")

    def cmake_args(self):
        spec = self.spec
        options = []
        options.append('-DGTEST_ROOT={0}'.format(
            self.spec['googletest'].prefix))
        options.append('-DBOOST_ROOT={0}'.format(
            self.spec['boost'].prefix))
        options.append('-DFAIRLOGGER_ROOT={0}'.format(
            self.spec['fairlogger'].prefix))
        options.append('-DZEROMQ_ROOT={0}'.format(
            self.spec['zeromq'].prefix))
        options.append('-DMSGPACK_ROOT={0}'.format(
            self.spec['msgpack-c'].prefix))
        options.append('-DDDS_ROOT={0}'.format(
            self.spec['dds'].prefix))
        options.append('-DBUILD_DDS_PLUGIN=ON')
        options.append('-DNANOMSG_ROOT={0}'.format(
            self.spec['nanomsg'].prefix))
        options.append('-DBUILD_NANOMSG_TRANSPORT=ON')

    return options
```

Describe homepage and source location,
versions, patches, dependencies,
version conflicts, build options,
options for dependencies,
environment

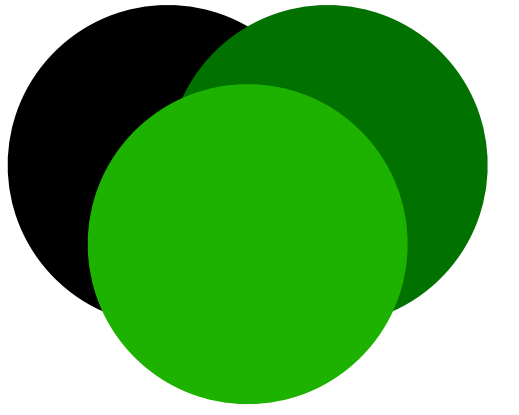
Transition period



Next release of FairSoft will offer 2 parallel options

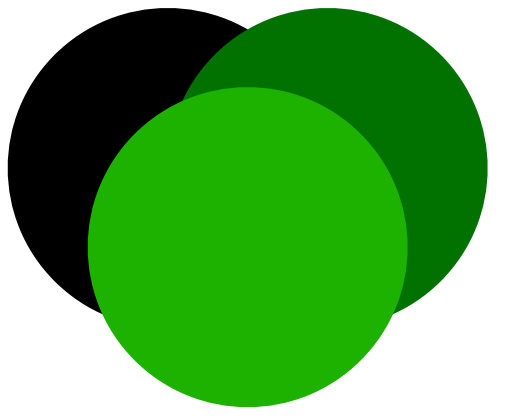
- Spack
- Script-based “legacy”

Interface remains



- Execute configure script with interactive menu

Spack option for advanced users



Packaging:

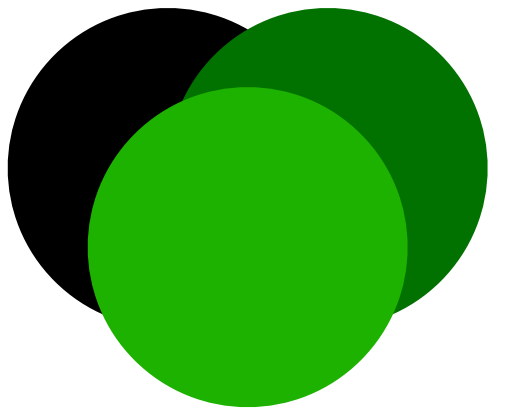
Create package

```
spack create URL_OF_TAR_BALL | URL_OF_REPO
```

Edit package (dependencies, versions, build options, etc.)

```
spack edit package_name
```


Spack option for advanced users



Installation:

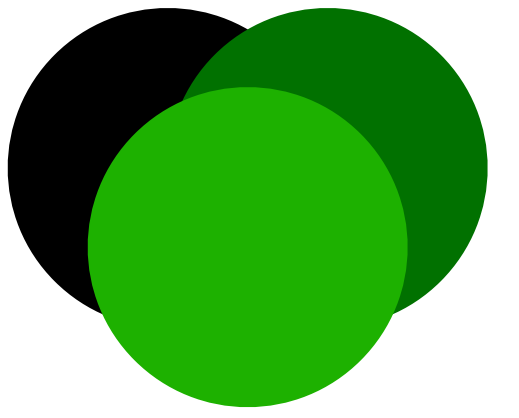
Display specifications (including dependencies)

```
spack spec package_name
```

Build and install package

```
spack install package_name
```

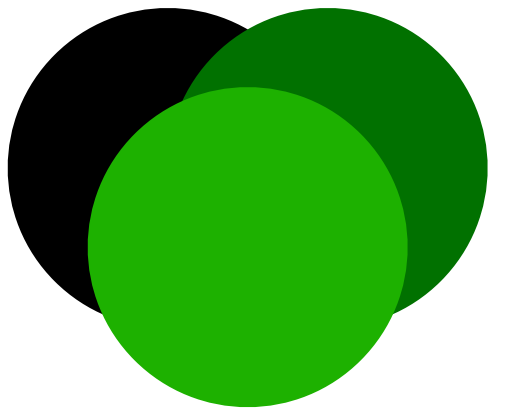
Next steps



- Distributing FairSoft using Spack is only first step

```
spack install pandaroot
```

Links



- FairSoft repository: <https://github.com/FairRootGroup/FairSoft> branch “dev_proposal”
- Readme: https://github.com/FairRootGroup/FairSoft/blob/dev_proposal/README.md
- Spack repository: <https://github.com/FairRootGroup/spack>