

How to Install FSindo

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NOTE

- FSindo is a command line based program. This manual assumes that you are familiar with the commands in UNIX, and that you are working on Bourne Shell (bash).
- “/path/to/sindo” indicates the absolute path of your installation directory. For example,

```
/path/to/sindo -> /home/yagi/pgm/sindo-4.0_220312
```

0. Prepare LAPACK and BLAS libraries

- NETLIB: <http://www.netlib.org/lapack/>
- Intel Math Kernel Library

1. Download sindo-4.0_xxxx.zip from our website
<https://tms.riken.jp/en/research/software/sindo>

2. Unzip (double click) the file, and configure

```
> cd sindo-4.0_xxxx/FSindo
> ./configure
(See the next page)
```

3. Build

```
> cd src
> make >& make.log
```

- When successful, an executable file will be created in “FSindo/bin/sindo”.

4. Edit “sindovars.sh” and set “/path/to/sindo” to the name of install directory.

```
#!/bin/bash

export sindo_dir=/path/to/sindo
export CLASSPATH=${CLASSPATH}:${sindo_dir}/JSindo/jar/JSindo-4.0_fat.jar
export PATH=$PATH:$sindo_dir/script:$sindo_dir/FSindo/bin
export SINDO_RSH=ssh
```

```
/// Welcome to SINDO ///
Running Configuration program

-----
Press any key to continue: ← +Enter to continue
-----
Detecting the system ...

    - Detected GNU Fortran (gfortran)

Select the compiler [ gfortran/gfortranI8 ] ← List of available compilers
Default=gfortranI8 : ← Enter your choice.

    o Operating System = Mac OS
    o Fortran Compiler = Gfortran
    o Default integer   = 8-byte

Provide the path for BLAS and LAPACK libraries:
example) -L/usr/local/lib -llapack -lblas
-L /Users/kyagi/lib/lapack-3.7.1 -llapack -lblas ← Enter your LAPACK/BLAS
Make config is written to src/make.inc

===== NOTICE =====
Compiler options are written in this file. Feel free to
change them as you like. I must say there is still a
high possibility that an optimal choice improves the
efficiency. Your report on better working option(s) is
greatly appreciated!
===== NOTICE =====

Press any key to continue:
```

If the compilation failed, please inspect “src/make.inc”. Many problems come from wrong path for lapack/blas libs (“LAPACK”) and/or from fortran options (F90OPT, F77OPT).

Example for gfortran/netlib

```
SINDO_ROOT = /Users/kyagi/Work/devel/sindo/sindo.master/Fsindo
TARGET = gfortranI8
LAPACK = -L/Users/kyagi/Work/lib/lapack-3.7.1 -llapack -lblas
RM = rm
```

⋮

```
# Fortran77 compiler & option with and without optimization
F77C = gfortran
F77OPT= -fdefault-integer-8 -O2 -funroll-loops -fomit-frame-pointer
F77NOOPT= -fdefault-integer-8 -O0

# Fortran90 compiler & option with and without optimization
F90C = gfortran
F90OPT= -fdefault-integer-8 -O2 -funroll-loops -fomit-frame-pointer
F90NOOPT= -fdefault-integer-8 -O0
```

Example for intel/MKL

```
SINDO_ROOT = /Users/kyagi/Work/devel/sindo/sindo.master/Fsindo
TARGET = ifortI8_MKL_sequential
LAPACK = $(MKLROOT)/lib/intel64/libmkl_blas95_ilp64.a ¥
          $(MKLROOT)/lib/intel64/libmkl_lapack95_ilp64.a ¥
          -Wl,--start-group ¥
          $(MKLROOT)/lib/intel64/libmkl_intel_ilp64.a ¥
          $(MKLROOT)/lib/intel64/libmkl_sequential.a ¥
          $(MKLROOT)/lib/intel64/libmkl_core.a ¥
          -Wl,--end-group ¥
          -lpthread -lm
RM = rm
```

⋮

```
# Fortran77 compiler & option with and without optimization
F77C = ifort
F77OPT= -i8 -w -cm -static -O3 -funroll-loops
F77NOOPT= -fdefault-integer-8 -O0

# Fortran90 compiler & option with and without optimization
F90C = ifort
F90OPT= -i8 -w -cm -static -O3 -funroll-loops
F90NOOPT= -fdefault-integer-8 -O0
```