# Priority 2: Fast track

- **Low Staff Time**, Low CPU, Low Storage
  - Easy Installation, Running, Maintenance
  - Clear Installation Documentation
  - Clear Running Documentation (Input, Output)
  - Test Input, Test Output
  - Fewer 3rd Party Requirements (licenses, etc.)
  - **Docker** Containers (serial models)

# Guaranteed Fast Track: Docker

## *www.docker.com*

| Source (tars) | Installation_Settings.txt | Dockerfile |
|---|---|---|

Docker build -t "model_image" .

model_image

Docker run –name model_container model_image

model_container

# How do we "dockerize" a model?

- Try to follow installation instructions
- Fix compile errors, script errors by installing more stuff that were not documented in instructions, figure out version conflicts, why hdf4 is refusing to install??? Figure out other dependencies that were not listed in instructions, environment vars, …
- ask model provider for help along the way
- **Write the installation steps in a Dockerfile**

```
FROM debian:jessie

RUN mkdir -p /usr/local
WORKDIR /usr/local

# INSTALL EXTRAS required for ps_ext_deps
RUN apt-get update
RUN apt-get install -y apt-utils
RUN apt-get install -y make
RUN apt-get install -y gcc
RUN apt-get install -y g++
RUN apt-get install -y gfortran
RUN apt-get install -y bison
RUN apt-get install -y flex
# INSTALL EMACS (not required by useful for me)
RUN apt-get install -y emacs
```

```
# INSTALL ps_ext_deps
COPY ps_ext_deps.tar .
RUN tar xvf ps_ext_deps.tar
RUN ps_ext_deps/install.sh -deps
"zlib,jpeg,hdf4,hdf5,cfitsio,silo,libpng,netcdf,libconfig,openmpi" -prefix /
usr/local/ps_ext_deps/deps -nprocs 1

# SETUP ENV for ps_ext_deps
COPY setup_bashrc /root/.bashrc
ENV PS_EXT_DEPS_HOME="/usr/local/ps_ext_deps/deps"
ENV LD_LIBRARY_PATH="/usr/local/ps_ext_deps/deps/openmpi/lib:$
{LD_LIBRARY_PATH}"
ENV PATH="/usr/local/CORHEL-6.0.0-dev/bin:${PATH}"
ENV PATH="/usr/local/CORHEL-6.0.0-dev/tools/ps_fortran/bin:${PATH}"
ENV PATH="/usr/local/CORHEL-6.0.0-dev/tools/ps_csh/bin:${PATH}"
```

```
# INSTALL CORHEL-6.0
COPY CORHEL-6.0.0-dev.tar .
RUN tar xvf CORHEL-6.0.0-dev.tar
COPY corhel.conf CORHEL-6.0.0-dev/.
RUN /bin/bash -c "CORHEL-6.0.0-dev/configure.sh CORHEL-6.0.0-dev/corhel.conf"
RUN CORHEL-6.0.0-dev/install.sh
```

# Image/Container Benefits

- Ease of installation
  - Self documenting installation instructions

  Dockerfile

- Easy to maintain different versions
  - Repository of dockerfiles and repository of images

  model_image_v1   model_image_v1.1   model_image_v2.0

- Easy to spin-up new containers when demand increase