

PVM

1 Information

- For general information on PVM, there are man files in `/usr/local/pvm3/man`.
 - If this is in your MANPATH then you can use `man pvm`, `man pvm_intro`, `man pvmd3`, `man libpvm`.
 - You can also use `man pvm` routine, like `man pvm_parent`.
- Information can also be found at <http://www.netlib.org/pvm3/>.
- Example code can be found in `/usr/local/pvm3/examples`.

2 The PVM environment

- On the command line write:

```
/home/pedja-> mkdir ~/pvm3 ~/pvm3/bin ~/pvm3/bin/SUN4 ~/pvm3/bin/SUNMP
/home/pedja-> ln -s /usr/local/pvm3/* ~/pvm3
```

- Add the following to your `.cshrc` file

```
setenv PVM_ROOT $HOME/pvm3 setenv PVM_ARCH '$HOME/pvm3/lib/pvmgetarch'
set path=($path $PVM_ROOT/lib $PVM_ROOT/bin/$PVM_ARCH $PVM_ROOT/lib/$PVM_ARCH )
setenv MANPATH $MANPATH:/usr/local/pvm3/man
```

or, if MANPATH is not defined,

```
setenv MANPATH /usr/openwin/share/man:/usr/share/man:/usr/local/gnu/man:
/opt/SUNWspro/man:/usr/man:/usr/local/man:/usr/dt/man:/usr/local/pvm3/man
```

you will, of course, have to do the following to make these changes effective:

```
/home/pedja-> source ~/.cshrc
/home/pedja-> rehash
```

- Create a PVM hostfile. The PVM hostfile lists the nodes which you will be using in your Parallel Virtual Machine. More information about the syntax of the hostfile can be found by `man pvmd3`. Mine (called `/home/bblais/hostfile`) looks like:

```
# cns3
128.148.60.114
#
# some engin machines
128.148.54.27 lo=blaisbs
128.148.54.28 lo=blaisbs
```

- Make hosts in hostfile accessible. On each machine, create a `.rhosts` file which contains the machine name and your username for each machine in the hostfile.

3 Compiling and running PVM code

- A minimal makefile.

```
#
# Set PVM_ROOT to the path where PVM includes and libraries are installed.
# Set PVM_ARCH to your architecture type (SUN4, HP9K, RS6K, SGI, etc.)
# Set ARCHLIB to any special libs needed on PVM_ARCH (-lrpc, -lsocket, etc.)
# otherwise leave ARCHLIB blank
#
BDIR    =      $(PVM_ROOT)/bin
XDIR = $(BDIR)/$(PVM_ARCH)

SUN4LIB = -lnsl
SUNMPLIB = -lsocket -lnsl -lthread

CC = gcc
OPTIONS = -O2
CFLAGS = $(OPTIONS) -I$(PVM_ROOT)/include $(ARCHCFLAGS)
LIBS = -L/usr/local/gnu/lib/gcc-lib -lpvm3 $(ARCHLIB) $($ (PVM_ARCH)LIB)
GLIBS = -lgpvm3
LFLAGS = -L$(PVM_ROOT)/lib/$(PVM_ARCH)
```

```
hello: hello.c $(XDIR)
$(CC) $(CFLAGS) -o hello hello.c $(LFLAGS) $(LIBS)
mv hello $(XDIR)
```

- Another Makefile is in the pvm3 directory. There is a make program, aimk, which is used to portably select options to build PVM and PVM applications on various machines.

- To start the PVM daemons

```
/home/pedja-> pvmd3 ~/hostfile &
```

- To check the PVM daemons

```
/home/pedja-> pvm
pvm> conf
pvm> quit
```

- Running your program

```
/home/pedja-> cd ~/pvm3/bin/SUNMP
/home/pedja-> hello
```

- Stopping the daemons, and looking at the log files

```
/home/pedja-> pvm
pvm> halt
/home/pedja-> id pedja
uid=129(pedja) gid=129
/home/pedja-> ls /tmp/pvm*.129
```