Linux Essential Environment Variables

Linux Environment Variables

- We went through several linux application installations throughout last few sessions. Following are the libraries that we installed:
  ZLIB
  SZIP
  HDF5
  PNETCDF
  NETCDF-C
  NETCDF-FORTRAN
  BLAS
  LAPACK
  FFTW3

Linux Environment Variables

- Apart from the generic steps that we say in earlier session, here are the list of steps that we followed while installation of the libraries:

  1) Download archive
  2) Extract archive
  3) Change directory
  4) Run configure script -> Configure the settings of the library and test the system
  5) Run make -> For compilation of source code
  6) Run make check -> To check if the compiled code indeed runs on the system
  7) Run make install -> To place the binaries libraries and headers to the intended path

Linux Environment Variables

- Here are a list of essential environment variables that we used throughout the process:

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  PATH
  PATH system variables indicates the path of the **binary** files available on the system.
  Without this variable, the system won't be able to identify the location of the binary files

  To set the path variable, we used the below command.
  This prepends our custom path to the standard PATH variable.

```
$ MY_PREFIX=/path/to/installation/directory/
$ export PATH=${MY_PREFIX}/bin:$PATH
```

Linux Environment Variables

- Here are a list of essential environment variables that we used throughout the process:

  LD_LIBRARY_PATH
  LD_LIBRARY_PATH system variables indicates the path of the **library** files available on the system.Typically the library directory contains files with an extension '**.a**' or '**.so**'.

  To set the library path variable, we used the below command.
  This prepends our custom path to the standard LD_LIBRARY_PATH variable.

```
$ MY_PREFIX=/path/to/installation/directory/
$ export LD_LIBRARY_PATH=${MY_PREFIX}/lib:$LD_LIBRARY_PATH
```

Linux Environment Variables

- Here are a list of essential environment variables that we used throughout the process:

  LDFLAGS
  LDFLAGS variable is used to indicate the path of the **installation directory for library** files available on the system during compilation.
  The '**-L**' symbol is used at the command line during the compilation.

  Following is an example usage of LDFLAGS variable:

```
$ export LDFLAGS="-L/path/to/my/library/lib/directory/"
$ gcc -O2 ${LDFLAGS} filename.c -lm
```

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- Here are a list of essential environment variables that we used throughout the process:

  CPPFLAGS
  CPPFLAGS variable is used to indicate the path of the **installation directory for header** files on the system during compilation. It is also used to specify MACROS used in compilation.
  The '**-I**' (for ice-cream) and '**-D**' symbols are used at the command line during the compilation.

  Following is an example usage of CPPFLAGS variable:

```
$ export CPPFLAGS="-I/path/to/my/library/include/directory/"
$ gcc -O2 ${CPPFLAGS} -DMACRO=5 filename.c
```

Linux Environment Variables

- Here are a list of essential environment variables that we used throughout the process:

  HOME
  The HOME variable indicates the path of the user's **home directory**.
  We also used an alternative for the home directory which was "~"

  Following is an example of check and list the contents of the home directory:

```
$ ls ${HOME}/
$ ls ~/
```

Linux Environment Variables

- Here are a list of essential environment variables that we used throughout the process:

  PWD
  The PWD variable indicates the path of the user's **present working directory**.
  We also used an alternative command to retrieve the present working directory which was "pwd"

  Following is an example of check and list the contents of the home directory:

```
$ echo ${PWD}/
$ pwd
```

Thanks!

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