# Customization of the Xeon Phi environment in the CSC Prototype System

The way things are demonstrated in the slides and hands-on instructions is the "guaranteed to work" on the default MIC configuration and should work with the standard Xeon Phi MPSS installation. We have made some adjustments to customize the software stack for cluster users.

Below is a list of how these changes affect the hands-on work:

## General differences

- The Intel software development tools are in **/share/intel,** not **/opt/intel**
  - MIC system software (MPSS etc) are in /opt/intel
  - No need to copy the files between host and MIC with **scp**. Directories /home, /share, /usr/local are NFS mounted on the MIC.
  - Avoid copying files to the MIC /tmp as it consumes precious memory.
    - If you do copy to /tmp, please clean up afterwards
- Always use SLURM for jobs that consume large amounts of resources (time, CPU, memory)
- You can use the **module** command to manage the environment instead of the scripts (compilervars etc.)
- Test sending jobs to compute nodes using SLURM in addition to running them directly on the command line of the head node
- User guide is located in**: https://confluence.csc.fi/display/HPCproto**

## Lesson 1

- Set up the compiler environment, you can use **module load intel** instead of the **compilervars.sh** script.
  - You can make this persistent by doing
    - **echo "module load intel" >> ~/.profile**
  - After adding this, you can add further modules by using
    - **module initadd <modulename>**
    - For example:

      **module initadd intel impi totalview itac vtune**

## Lesson 2

- No need to escalate to root to run the monitoring commands
- Test some SLURM monitoring commands
  - **sinfo**
  - **squeue**
  - **scontrol show nodes**
  - **…**

## Lesson 3

- The **libiomp5.so** and other libraries are linked to **/lib64** on the MIC and need not be copied or set using **LD_LIBRARY_PATH**
    - By default these linkse points to the newest Intel compiler version. If you want to use older versions, you need to set the **LD_LIBRARY_PATH** manually.

## Lesson 9

- Load the Intel VTune environment with **module load vtune**.
    - This way you don't need to supply full paths to **amplxe-cl** etc

## MPI Lessons

**MPSS Gold Update 2** is installed on the system.

You should use **mpiexec.hydra** instead of **mpiexec**.

No need to copy anything on the MIC with **scp**. **$HOME** is equivalent to **$MICHOME** environment variable because of the NFS mount.