NT-MPICH Quickstart-Guide

1. **Installation**

   Start the installation of NT-MPICH with the executable nt-mpich_setup.exe. Windows installer will now install NT-MPICH. You can choose different installation types „Complete Installation", „Cluster Frontend", „Cluster Node" and „User Defined".

   a) **Complete Installation**

   Choose this installation type on your development computer. If you want to develop your own MPI-programs it is necessary to choose this installation type on at least one of your machines.

   b) **Cluster Frontend**

   This installation type is included in the „Complete Installation" and is needed at least once. The cluster frontend tool RexecShell is installed and mpiexec and mpirun are available.

   c) **Cluster Node**

   When you choose this installation type solely the cluster manager service is installed. This service has to be installed on all machines which are to be act as a cluster node. If your nodes are not part of a domain but of a workgroup you have to set the following registry key:

   ```
   [HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\Lsa]
   "forceguest"=dword:00000000}
   ```

2. **Installing the NT-MPICH libraries**

   Make sure that each host can reach the NT-MPICH DLLs (`NT-MPICH\lib`). You can copy the DLLs to a system library path (like `C:\WINDOWS\system32`) on each host. Alternatively you can add the path of the DLLs to the system environment variable PATH on each host. As a last possibility, you can put the libraries into the directory containing the executable to run (this is usually located on a network drive).

3. **Specifying the hosts to use**

   If your network consists of a large number of hosts create a file machines.txt in the directory of RexecShell.exe. This file contains a list of all hosts you want to use separated by <CR>. When starting RexecShell choose „yes" if asked whether you want to use „machines.txt". Otherwise RexecShell will test for each host in your network if the Cluster Manager Service is running and this can take a long time.

4. **Launching a MPI program using RexecShell**

   Now Start RexecShell by doubleclicking it. Open the configuration dialog by pressing F2. The distribution contains a precompiled example MPI program named

cpi.exe (located in NT-MPICH\bin). Choose it as the actual program. Make sure that each host can reach cpi.exe at the specified path. Choose ch_wsock as active plug-in. Select the hosts to compute on. On the tab 'Account', enter your username, domain and password which need to be valid on each host chosen. Press ok to confirm your selections. The Start Button is now enabled and can be pressed to start cpi.exe on all chosen hosts. The output will be displayed in separate windows.

Congratulations, you are ready to run MPI programs on your Windows-Cluster!

5. **Launching a MPI program using mpiexec**

   If you want to use a console-based application to start your nt-mpich programs you can use mpiexec instead of RexecShell. Open a console window in the „bin“ directory of nt-mpich and type in `mpiexec -?` to gather information about possible parameters. For example to start cpi.exe twice type

   ```
   mpiexec -n 2 -m <nodename> <path>cpi.exe
   ```

   Be sure to use either a network path for cpi.exe or to copy it to a similar path on all nodes.

6. **Running detailed tests**

   If you want to run detailed tests you can use the program runtests.exe (located in NT-MPICH\bin). An example command line to start all tests would be:

   ```
   C:\nt-mich\bin\runtests -eachexe
                           -wdirtests C:\nt-mpich\examples\test\context
                           -account lfbs/user
                           -showpassed
                           -delequal -n 2 -host p4-01,p4-02
   ```

   For usage instructions refer to runtests_readme.txt (located in NT-MPICH\doc).

If you are unable to run MPI processes using this quickstart guide please read the FAQsection (3.12) of the MP-MPICH manual. Now that you have successfully run your first MPI programm with NT-MPICH, we recommed that you read the complete MP-MPICH manual (mp-mpich_manual.pdf located in NT-MPICH\doc).