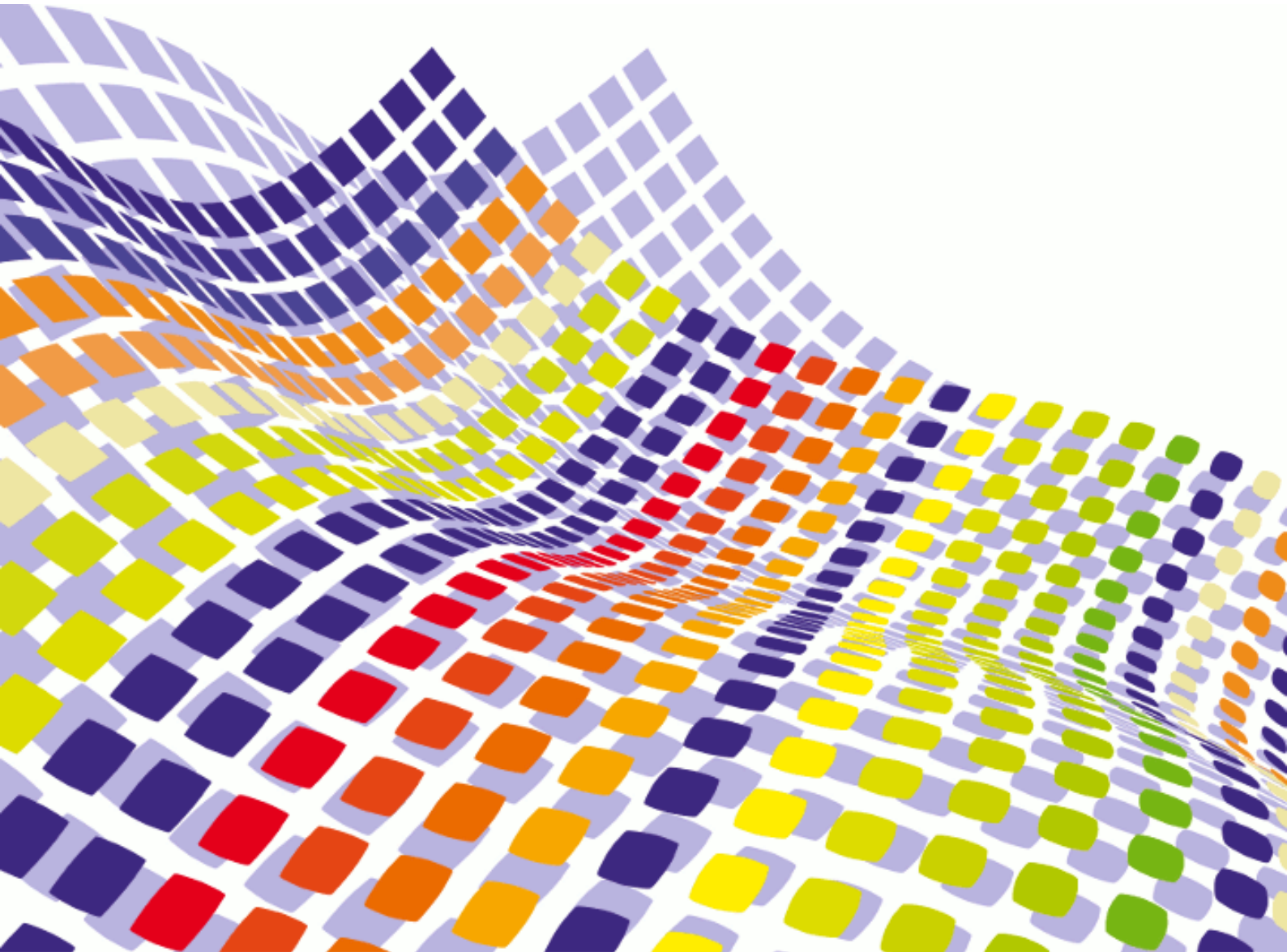
CAPS

hmpp

License Installation Guide

HMPP Workbench 3.1



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1. Introduction

1.1. Revisions history

Version	Date	Writer	Modified sections	Revision object
V2.4.0	15/11/2010	CAPS entreprise	All	Creation
V2.4.3	04/03/2011	CAPS enterprise	§3.2	Clarification on the use of a floating license server in an environment combining Windows and Linux users
V2.5	16/06/2011	CAPS entreprise	§2.1.1	Update information concerning the installation of an HMPP floating license server
V2.5.1	07/07/2011	CAPS entreprise	§2.1.1	Correction on path
V3.0.0	16/12/2011	CAPS entreprise	All	Update
V3.1.0	24/04/2012	CAPS entreprise	§1.2, §1.3	Add reference to OpenACC support

1.2. Introduction


Warning: In this document we assume that the reader knows HMPP concepts introduced in the HMPP Workbench reference manual.

The Hybrid Multicore Parallel Programming workbench (HMPP) provides developers with a set of tools dedicated to build parallel hybrid applications running on many-core systems. These architectures combine general purpose cores with hardware accelerators (HWAs) such as GPUs or SIMD computing units. HMPP allows the programmer to write hardware independent applications where hardware specific codes are dissociated from the legacy code as additional software plug-ins.

The present document introduces the license policy implemented with HMPP and describes how to set a HMPP license on a customer's system:

This document comes in addition to the following manuals:

- `HMPP Basics` (**`Erreur ! Source du renvoi introuvable.`**). This document introduces the main HMPP concepts.
- `HMPP Directives, Reference Manual ([R2])`. This manual introduces the main HMPP concepts and describes the HMPP directives. This document is the main document for people who want to discover HMPP;
- `HMPP Codelet Generator Directives, Reference Manual ([R3])`. This manual describes how to enhance your codelet generation by using HMPPCG directives. An HMPP preprocessor allowing users to factorize HMPP directives is also described;
- `HMPP Linux Manual ([R4])`. This manual describes how to compile and run your application on Linux platforms. It also introduces the compilers and Operating Systems supported.
- `HMPP OpenACC reference Manual ([R5])`. This manual describes the OpenACC directives support bringing by HMPP Workbench 3.1.

1.3. What is subject to license?

The compilation of an application using HMPP requires a license delivered by CAPS entreprise. This license takes the form of a "`xxxxx.lic`" file provided on demand by CAPS entreprise.

It should be noted that only the compilation step requires a license. An application generated by HMPP can be used on any system without any license, while respecting the terms of the End User License Agreement.

HMPP Workbench supports HMPP directives ([R2]) as well as OpenACC directives ([R5]).

2. HMPP Floating License Model

HMPP is commercialized only with floating licenses. This kind of license defines a number of tokens that allows a similar number of developers to use HMPP concurrently. Tokens are distributed by a floating license server that can be installed on any computer.

When a developer uses HMPP to compile an application, he requests a token from the license server.

If a token is available, it is checked out from the license server and **locked for one hour, reserved for the only use of this user.**

If no token is available (i.e., the maximum number of tokens allowed by the floating license has already been checked out) the compilation aborts and the user has to wait for a token to become available to use HMPP.

To obtain a floating license, please execute the following procedure:

1. Install HMPP on the system hosting the license server
2. Execute the command "`hmpp --licenses`" in a console
3. Complete the missing information (see Figure 1):
   - First Name
   - Name
   - Company
   - E-mail
   - Phone number

   This information is required by CAPS entreprise. The others fields are automatically filled by the script.
4. Send to CAPS entreprise (licenses@caps-entreprise.com) or to your reseller the corresponding result
   - CAPS entreprise or your reseller will send back to you the corresponding license file.

It should be noted that in an environment where you have Windows and Linux users:

- you may only have one HMPP license server which may be installed either on a Windows system or on a Linux system;
- two distinct HMPP products will be purchased: one for Windows, one for Linux according to the number of tokens required for each platform;
- For each product, CAPS will deliver a HMPP license file which will be able to be installed on the same HMPP license server.

2.1.1. Installing the License Server on Linux

The following procedure will be executed on the node that will host the license server. We consider that HMPP has already been installed on this node.

1. Copy `HMPP_PATH/licenses/caps-licserver-run.sh` to `/etc/init.d`
2. In `/etc/inid.d/caps-licserver-run.sh`, update the variable USER to specify the user that will execute the license server (it is not recommended to use root). Other variables can keep their default values
3. Verify that `caps-licserver-run.sh` can be run as root (mode 740)
4. Copy the license file to `HMPP_PATH/licenses`

5. Then launch the license server:

```
/etc/init.d/caps-licserver-run.sh start
```

Then you can check on your compilation node that the license server is properly setup by running "`hmpp --licenses`" again.

Remark:

In the event that the floating license server is installed on the same machine as HMPP and that the license file is installed in `HMPP_PATH/licenses directory`, an error message may appear. This message is generated by HMPP which first interprets the license file before contacting the license server. This message can be ignored if it is immediately followed by information about valid floating license.

This message can also be removed by installing the license file in another directory and by updating the `caps-licserver-run.sh file` in consequence .

```
mysystem: opt/HMPPWorkbench-2.4.4/bin # ./hmpp –licenses
  License 1: /opt/HMPPWorkbench-2.4.4/licenses/HMPP-CF-OCL-T1.lic
  License type: local
  Invalid license: Feature does not support network licensing



License 2: 127.0.0.xxx
  License type: floating
  Product Name: HMPP
  …
```

Figure 1 – "hmpp --licenses" result correct

2.1.2. Installing the License Server on Windows

The following procedure will be executed on the node that will host the license server. We consider that HMPP has already been installed on this node.

In this section, we will consider that the license file has been copied in `C:\licenses`.

The HMPP license server can be installed as a Windows service.

Before installing the service, it is advised to run the license server manually once, to ensure that no problem will occur silently.

To start the license server manually, open a Windows console as Administrator (see Figure 2), and execute the following command:

```
lmx-serv-caps.exe -licpath C:\licenses
```

At the first start, a pop-up can warn you that the Windows Firewall as detected that `lmx-serv-caps.exe` was blocked (see Figure 3). You will need to allow this program to access to your network.

On Figure 4, you can see an expected result of the license server execution. A warning message will inform you if the firewall still blocks some required ports (`UDP 6200` is used for automatic server discovery whereas `TCP 6200` is used for client connection).

A correct log should mention the name of the license file and inform you that the HMPP feature is available.

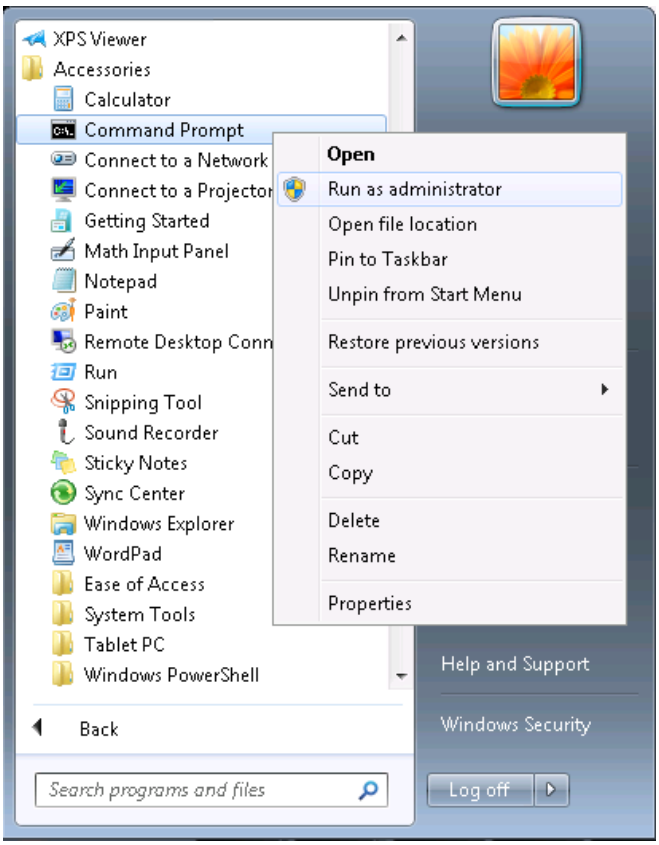

Figure 2: Start a Windows console as Administrator

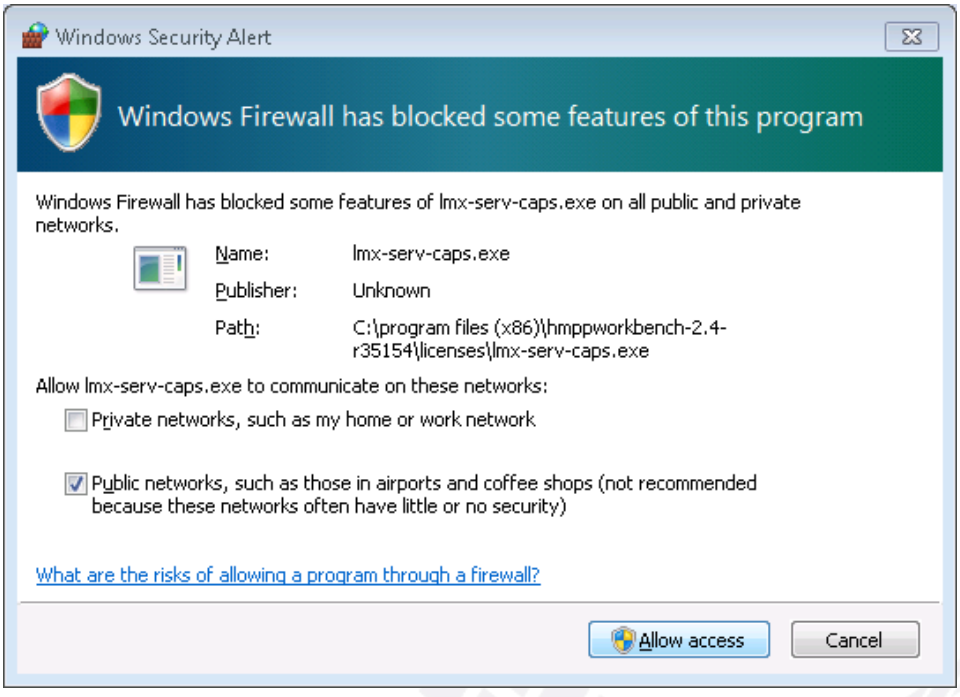

Figure 3: Firewall Alert

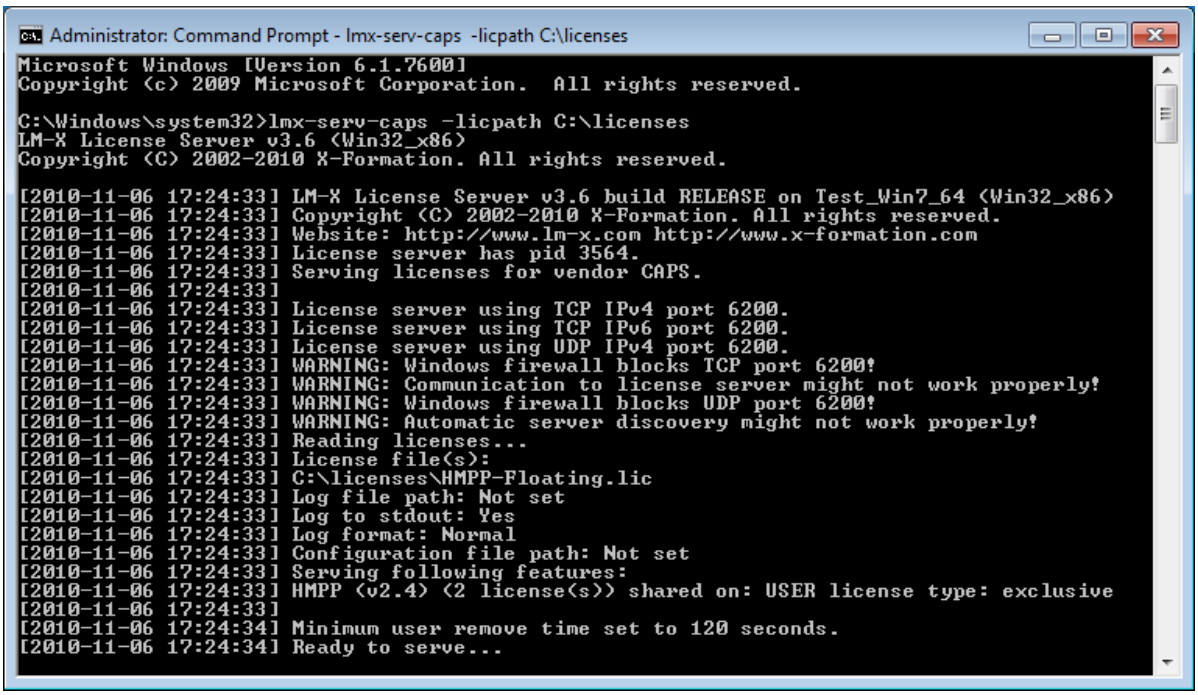

Figure 4: Manual start of the license server

You can stop the server using the `CTRL-C key`.

Now you can register a Windows service that will automatically start the license server at the system startup.

In the same administrator console, execute the command[1]:

```
sc create "CAPS License Server" binPath= "\"C:\Program Files\HMPPWorkbench-2.4.0\licenses\lmx-serv-caps.exe\" -b -lf c:\licenses\log.txt -licpath C:\licenses"
```

Then you can start the service with:

```
net start "CAPS License Server"
```

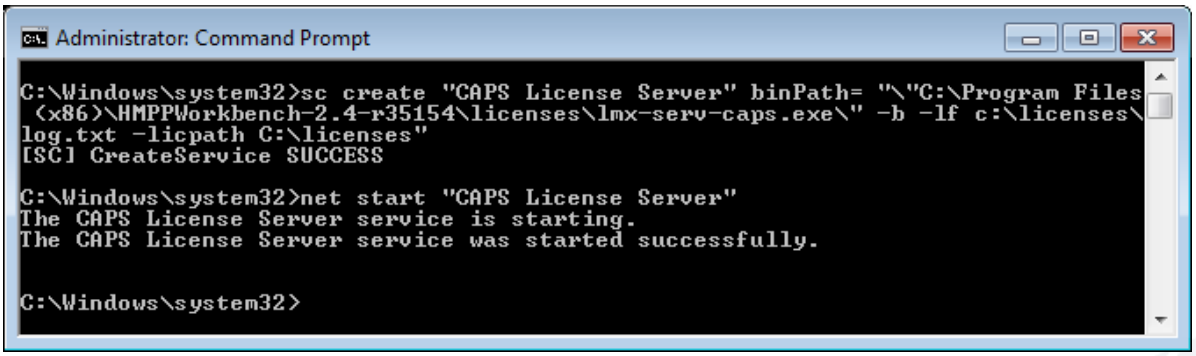

Figure 5: Register and start service

[1] The command describes below must be adapted according to the HMPP version that you use as well as your local installation which may differ.

The license service can be stopped using:

```
net stop "CAPS License Server"
```

The license service can be unregistered using:

```
sc delete "CAPS License Server"
```

2.1.3. Troubleshooting

If HMPP cannot find the license server, you can force the automatic license server discovery by setting `CAPS_LICENSE_PATH=6200@licserver`.

If it is still failing, a firewall on the license server may block the connection from the compilation node. The license server is listening on TCP and UDP port 6200. You can check that the compilation node can connect to the license server by executing "`telnet licserver 6200`" or by launching a web browser with the following address http://licserver:6200.

3. Annexes

Annex 1. Bibliography

[R1]	HMPPWorkbench-3.1_Basics.pdf, CAPS entreprise
[R2]	HMPPWorkbench-3.1_HMPP_Directives_ReferenceManual.pdf, CAPS entreprise.
[R3]	HMPPWorkbench-3.1_HMPPCG_Directives_ReferenceManual.pdf, CAPS entreprise
[R4]	HMPPWorkbench-3.1_Linux_Manual.pdf, CAPS entreprise
[R5]	HMPPWorkbench-3.1_OpenACC_ReferenceManual.pdf, CAPS entreprise