

# Using CPU cores

Specifying CPU cores for node-locked or floating licenses can be useful in cases such as high-tech computing and application virtualization. This license model enables you to base licensing on your customer's computing resource requirements, increasing the pricing depth for your software offerings. For example, since a 4-CPU machine is double the speed of a 2-CPU machine, licensing the 4-CPU machine would be double the cost of licensing the 2-CPU machine.

Detailed instructions for using CPU cores for both node-locked and floating licenses are described in the following sections.

## Using CPU cores for node-locked licenses

To base node-locked licensing on CPU cores (example is for a Windows environment):

1. Start a new project in your IDE. Base your code on the example in *LM-X\_installation\_directory\examples\local\local.c*.
2. Include the LM-X library into your application (see [License your first application](#) for more information).
3. [Generate a node-locked license file using xmllicgen](#), located in *LM-X\_installation\_directory\platform-specific\_directory*; for example, C:\LM-X\Win32\_x86.
4. Using the [OPTIONS setting](#), specify the number of processor cores that the license will be limited to. For example, "CPU=1" limits the license to one processor core, "CPU = 2" limits the license to two processor cores, etc. (We are using the syntax "CPU=x," but you may use different syntax if desired.)

An example [XML template](#) for a node-locked license looks like the following:

```
<?xml version="1.0" encoding="utf-8"?>
<LICENSEFILE>
<FEATURE NAME="F1">
<SETTING MAJOR_VERSION="1" />
<SETTING MINOR_VERSION="0" />
<SETTING END="2015-01-01" />
<SETTING OPTIONS="CPU=1" />
<CLIENT_HOSTID>
<SETTING ETHERNET="D71D90A3763DD3BF" />
</CLIENT_HOSTID>
</FEATURE>
</LICENSEFILE>
```

5. To take the number of cores into account in your code (based on the local.c example), change the checkout parameter using [LMX\\_Checkout](#):

```
LMX_Checkout(LmxHandle, "F1", 1, 0, 1)
```

For processor-based licensing that sets the count to the number of logical CPUs, change the checkout parameter to:

```
LMX_Checkout(LmxHandle, "F1", 1, 0, LMX_LOGICAL_CPU_COUNT)
```

For processor-based licensing that sets the count to the number of physical CPUs, change the checkout parameter to:

```
LMX_Checkout(LmxHandle, "F1", 1, 0, LMX_PHYSICAL_CPU_COUNT)
```

6. To access the license setting OPTIONS "CPU=1" use `Fl.szOptions`, which is available after calling [LMX\\_GetFeatureInfo](#)(LmxHandle, "F1").

Retrieve the integer from string `Fl.szOptions` and compare it with `Fl.nUsedLicCount`, which is the actual number of CPUs. If the comparison does not match your limitation, you can force the program to exit (remember to use [LMX\\_Free](#)(LmxHandle) upon exit to free allocated memory). Otherwise, license restrictions are fulfilled and you can continue.

7. Compile and run your application to test that it works as expected.

## Using CPU cores for floating licenses

To base floating licenses on CPU cores (example is for a Windows environment):

1. Start a new project in your IDE. Base your code on the example in *LM-X\_installation\_directory\examples\network\network.c*.
2. Include the LM-X library into your application (see [License your first application](#) for more information).

3. [Generate a floating license file using xmllicgen](#), located in *LM-X\_installation\_directory\platform-specific\_directory*; for example, C:\LM-X\Win32\_x86.

An example [XML template](#) for a floating license looks like the following:

```
<?xml version="1.0" encoding="utf-8"?>
<LICENSEFILE>
<SETTING END="2015-01-01" />
<FEATURE NAME="F1" />
<SETTING MAJOR_VERSION="1" />
<SETTING MINOR_VERSION="0" />
<SETTING COUNT="5" />
<SERVER_HOSTID>
<SETTING ETHERNET="C8A516AD01AFC9FA" />
</SERVER_HOSTID?>
</FEATURE>
</LICENSEFILE>
```

4. To take the number of cores into account in your code (based on the local.c example), change the checkout parameter using [LMX\\_Checkout](#):

```
LMX_Checkout(LmxHandle, "F1", 1, 0, 1)
```

For processor-based licensing that sets the count to the number of logical CPUs, change the checkout parameter to:

```
LMX_Checkout(LmxHandle, "F1", 1, 0, LMX_LOGICAL_CPU_COUNT)
```

For processor-based licensing that sets the count to the number of physical CPUs, change the checkout parameter to:

```
LMX_Checkout(LmxHandle, "F1", 1, 0, LMX_PHYSICAL_CPU_COUNT)
```

5. Compile your application and [start the license server](#) to test that your application works as expected.