

License your first application

Now that you have defined a license policy, you need a license template to integrate LM-X with your application.

License file

To generate an XML license template:

1. Create a template of the license you are interested in.
2. Run the license generator provided with LM-X, `xmlicgen`, as described in [Generating licenses](#).

In the following example we assume the license will expire on January 1, 2018. This license defines one feature with version 1.0.

```
<?xml version="1.0" encoding="UTF-8"?>
<LICENSEFILE>
  <FEATURE NAME="feature">
    <SETTING MAJOR_VERSION="1" />
    <SETTING MINOR_VERSION="0" />
    <SETTING END="2018-01-01" />
  </FEATURE>
</LICENSEFILE>
```

Run `xmlicgen` to convert the above LM-X license template to a license file.

On Unix:

```
# xmlicgen license.xml
```

On Windows:

```
# xmlicgen.exe license.xml
```

The resulting file will be `license.lic`. `Xmlicgen` will automatically replace your `.xml` extension with `.lic` and save the license next to your template.

Source code

Header file

First of all, you must include the required header, `lmx.h`, located in the include directory of your SDK.

```
#include "lmx.h"
```

If your project and LM-X SDK are in separate directories, remember to specify the include directory for your compiler. For example:

GCC:

```
gcc -I /usr/lmx-sdk-4.6.1/include/
```

MSVC:

```
cl.exe /I "C:\Program Files\X-Formation\LM-X SDK v4.6.1 win64_x64\include\"
```

Commonly used functions

In the following examples we will present five commonly used [LM-X API](#) functions.

LMX_Init

The [LMX_Init](#) function initializes the protection system. This function creates a handle needed to use other LM-X API functions. It returns `LMX_STATUS` variable that indicates initialization status.

```
LMX_HANDLE LmxHandle;

if (LMX_Init(&LmxHandle) != LMX_SUCCESS)
{
    printf("Unable to initialize!\n");
    return 1;
}
```

LMX_SetOption

The [LMX_SetOption](#) function sets up flags that change licensing behavior prior to license checkout. This function returns LMX_STATUS variable that indicates the status of initialization.

In the following example LMX_SetOption is used to set the license path to the current path.

```
LMX_SetOption(LmxHandle, LMX_OPT_LICENSE_PATH, ".");
```

LMX_Checkout

The [LMX_Checkout](#) function is one of the most important LMX API functions, because it checks out one or more licenses for a specific feature. This function requires that the feature name, version and the count of the features be defined as shown below.

```
if (LMX_Checkout(LmxHandle, "feature", 1, 0, 1) != LMX_SUCCESS)
{
    printf("Unable to checkout\n");
    LMX_Free(LmxHandle);
    return 1;
}
```

LMX_Checkin

The [LMX_Checkin](#) function returns the licenses for a single checked out feature or all checked out features.

```
LMX_Checkin(LmxHandle, "feature", LMX_ALL_LICENSES);
```

LMX_Free

The [LMX_Free](#) function, which has an inverse effect to [LMX_Init](#), frees any allocated memory used by the licensing system and closes any open connection to a license server.

```
LMX_Free(LmxHandle);
```

Making it work

The following example illustrates a complete, compiled example that includes source code necessary to license your application using LM-X License Manager.

```

#include <stdio.h>

#include "lmx.h"

int main()
{
    LMX_HANDLE LmxHandle;

    if (LMX_Init(&LmxHandle) != LMX_SUCCESS)
    {
        printf("Unable to initialize!\n");
        return 1;
    }

    // Look for licenses in current directory.
    LMX_SetOption(LmxHandle, LMX_OPT_LICENSE_PATH, ".");
    if (LMX_Checkout(LmxHandle, "feature", 1, 0, 1) != LMX_SUCCESS)
    {
        printf("Unable to checkout!\n");
        LMX_Free(LmxHandle);
        return 1;
    }
    // Here you are safe to run your licensed features
    printf("Here you can run your features\n");

    LMX_Checkin(LmxHandle, "feature", LMX_ALL_LICENSES);
    LMX_Free(LmxHandle);
    return 0;
}

```

If you decide to copy and paste the above code block, save it as an `example.c`.

Compilation

Let's assume you saved your program source code as an `example.c` and installed your LM-X SDK in the default directory.

To compile your first program run the following:

GCC:

```

gcc -c -pthread -fPIC -Wall -Werror -fno-strict-aliasing -m64 -Wfatal-errors -Wno-unused-local-typedefs -Wno-
vla -Wno-attributes -O2 -c -O2 -I/usr/lmx-sdk-4.6.1/include/ example.c

gcc -static-libgcc -o example example.o /usr/lmx-sdk-4.6.1/linux_x64/liblmxclient.a -pthread -lrt -ldl

```

MSVC:

```

cl /WX /MT /c /O2 -D_CRT_SECURE_NO_DEPRECATED /I "C:\Program Files\X-Formation\LM-X SDK v4.6.1
win64_x64\include\" example.c

link /WX /opt:noref example.obj "C:\Program Files\X-Formation\LM-X SDK v4.6.1
win64_x64\win64_x64\liblmxclient_mt.lib"

```

Running your application

Your current directory should include the files listed in the table below.

File	Description
license.xml	Your license template.
license.lic	Ready to use license, generated with <code>xmllcgen</code> .
example.c	Your first program source code.
example/example.exe	Your program executable.

Now run your first LM-X licensed application.