CLC **License Server**

Administrator Manual

User manual for

CLC License Server 2.4

Windows, Mac OS X and Linux

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Contents

Chapter 1

Introduction

This manual describes the installation, configuration and maintenance of CLC bio's License Server. It is written for system administrators and thus assumes some degree of familiarity with standard concepts on the platform used for the server.

If certain parts of the manual are unclear, please do not hesitate to contact us on support@clcbio.com.

1.1 Overview

The CLC license server enables you to host a set of licenses for CLC Workbench applications on a central license server. These licenses can then be checked out from any client computer on your network allowing a Workbench to be started. When the Workbench is closed, the license will be returned to the server and become available for checkout by another user.

For a Workbench to get a license, it has to have access to the license server. For users with a need to use the Workbench while off line, it is possible to *borrow* a license for a certain period of time.

Throughout this manual, the term *feature* refers to the type of Workbench in question.

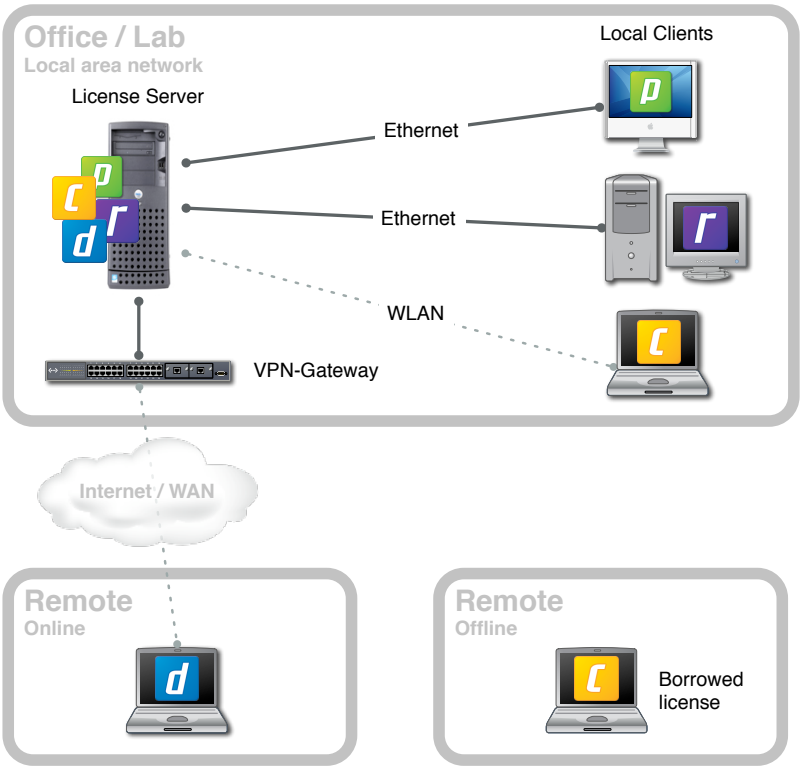

Figure 1.1: *Diagram of a license server setup.*

1.2 Server requirements

The license server does not require much in terms of processing power and it only consumes a few megabytes of memory. This means that if you are putting together a dedicated server specifically for use as a license server, a modestly powered system equipped with a high number of redundant components will probably be a better investment than a system which is faster, has more memory, etc.

The license server is available for the following operating systems:

- Microsoft Windows XP
- Microsoft Windows Server 2003
- Mac OS X 10.3
- Mac OS X 10.4
- Mac OS X 10.5
- Red Hat Linux
- Fedora Core Linux
- SUSE Linux

The license server works - or can be made to work - on many other linux distributions as well. If you are interested, please contact support@clcbio.com.

1.3 Network requirements

In order to check out a license from the server your client needs to establish a TCP-connection to the license server program running on your server. This means that your server will have to be reachable on the LAN or WAN network from your clients.

Clients working from remote locations will also be able to contact the license server if they are connected to your network through a VPN gateway or a similar solution.

1.4 Firewall settings

Your server is probably running some kind of local firewall to protect it against unauthorized access and other security hazards. To allow your clients to connect to the license server you will have to allow incoming TCP-traffic to the port that the server is listening on. The default port-number used by the license server is 6200, but you can configure the server to use a different port as described in section 2.6.1.

If you wish to use the auto-discovery feature of the license server, you will also have to allow incoming broadcast UDP-traffic to port number 6200. Because of the zero-configuration usage of this port, the port number is fixed and can not be changed through the configuration file.

Please consult your operating system and/or firewall documentation for instructions on how to allow incoming traffic on specific TCP and UDP ports.

Chapter 2

License server

This first sections of this chapter describe how to install and run the license server on the supported operating systems. The license server can be installed as a service on Microsoft Windows, as a daemon on Mac OS X and Linux, or it can be run directly from the command line. There are three different versions of the license server distribution - one for each operating system.

The remaining part of the chapter describes how to monitor and control a running server and finally how to configure the license server by editing the config file.

2.1 Command usage

The license server is delivered as a simple command line executable. The server program can be started with the command line options described in the table below.

Option	Shorthand	Argument	Description
`-config`	`-c`	/path/to/server.cfg	Specify which config file to use
`-licpath`	`-l`	/path/to/license.lic	Specify optional license file
`-logfile`	`-lf`	/path/to/log.txt	Specify optional logfile
`-background`	`-b`		Run license server in background
`-install_service`	`-i`		Install the license server as a service (Windows only)
`-uninstall_service`	`-u`		Uninstall the license server as a service (Windows only)
`-service_name`	`-n`		Specify an optional name for the service to override the default (Windows only)

2.2 Installation on Microsoft Windows

On Microsoft Windows the license server can be installed as a so called *Service*. This is the standard way of running server tasks on Windows machines, and it is highly recommended that you use this technique to run your license server. The service can be created and installed either from the command line or by using the *LM-X End User Configuration Tool*. Both methods are described in the following sections.

2.2.1 Downloading and extracting

The license server is distributed as a zip-file containing the license server directory. Once you have downloaded the file, extract it to a suitable location on your computer.

The resulting directory contains the following files:

- The license server executable (lmx-serv-clcbio.exe)
- An empty log-file (licenseserver.log)
- A sample config-file (licenseserver.cfg)
  The config-file also contains instructions on how to changing the options.
- The LM-X End User Utility (lmxendutil.exe)
  Command line tool for monitoring and controlling a license server.
- The LM-X End User Configuration Tool (LMX Configuration Tool.exe)
  Graphical tool for installing and monitoring a license server.
- The license server manual (manual.pdf)

2.2.2 -dup20btaining your license file

The license file which contains the workbench licenses will be locked to your server computer. Because of this you must use the LM-X End User Configuration Tool to retrieve the *hostid* information of your server computer. Once you have opened the Configuration tool, select the *Hostid* tab in the top of the window as shown in figure 2.1.

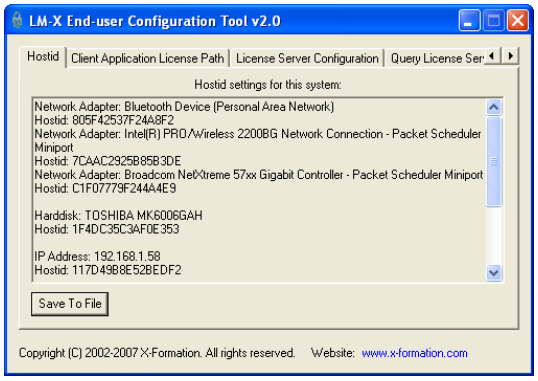

Figure 2.1: *Creating a new license server.*

Save this output to a file by clicking the *Save To File* button or copy it directly to an email and send it to license@clcbio.com. A license file will then be generated and delivered to you. Once you have received the license file, place it in the license server installation directory.

Alternatively you can use the command line utility. To do this, run the following command from your license server installation directory.

```
lmxendutil.exe -hostid
```

Save the output from the command to a file or copy it directly to an email and send it to license@clcbio.com. A license file will then be generated and delivered to you.

2.2.3 -dup2Editing the configuration file

Once the distribution has been unzipped, you should edit the configuration file. To do this open the file in a text editor like Notepad or Wordpad. Many different configuration options are available. Please see section 2.6 for detailed descriptions about these.

As a minimum you should define the password which must be entered when the license server is controlled remotely. Do this by locating the option line `REMOTE_ACCESS_PASSWORD` and change the default value.

2.2.4 Installing the service with the Configuration Tool

The easiest way to install a simple license server as a service on a Windows machine is to use the LM-X End User Configuration Tool, which is included with the distribution.

Installation is performed by following the steps described below. In the example the license server distribution is placed in the directory `c:\lic\`. If you have chosen to place your distribution elsewhere, simply use this path instead.

1. Open the LM-X End User Configuration tool located in the license server distribution directory and choose the *License Server Configuration* tab in the top of the window.
2. Click the *New Server* button in the bottom of the window. A New License Server dialog will appear similar to the one shown in figure 2.2.

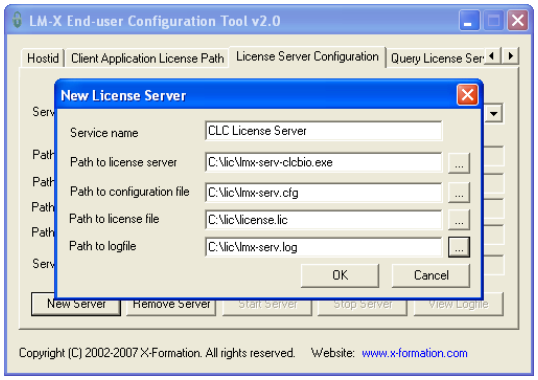

Figure 2.2: *Creating a new license server.*

3. Specify the name of the service, for example "CLC License Server"
4. Specify the path to the license server program. You can browse to the location of the program by clicking the button marked "..." to the right of the field.
5. In a similar way, specify the path to the configuration file, the license file and the log file.
6. Click OK to install the service. You are now returned to the Configuration tool window showing the status of the license server as shown in figure 2.3
7. If the *Service Status* label reads "Server stopped" you can start the service by clicking the *Start Server* button.

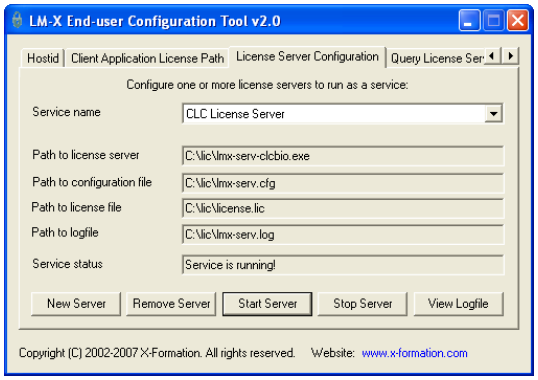

Figure 2.3: *License server status.*

8. Once the service has been started, click the *View Logfile* to make sure that everything is working as expected. The last lines of the log file should look something like this:

```
[2007-12-13 10:29:39] LM-X License Server v2.0 on server-1 (Linux x86)
[2007-12-13 10:29:39] Copyright (C) 2002-2007 X-Formation. All rights reserved.
[2007-12-13 10:29:39] Website: http://www.lm-x.com http://www.x-formation.com
[2007-12-13 10:29:39] License server has pid 31571.
[2007-12-13 10:29:39] Serving licenses for CLCBIO.
[2007-12-13 10:29:39]
[2007-12-13 10:29:39] License server using TCP IPv4 port 6200.
[2007-12-13 10:29:39] License server using TCP IPv6 port 6200.
[2007-12-13 10:29:39] License server using UDP IPv4 port 6200.
[2007-12-13 10:29:39] Logfile path: lmx-server.log
[2007-12-13 10:29:39] License file(s):
[2007-12-13 10:29:39] lic/staff.lic
[2007-12-13 10:29:39] Serving following features:
[2007-12-13 10:29:39] PROTEIN (v3.0) (2 licenses) license type: exclusive
[2007-12-13 10:29:39] DNA (v3.0) (5 licenses) license type: exclusive
[2007-12-13 10:29:39] RNA (v2.0) (2 licenses) license type: exclusive
[2007-12-13 10:29:39] COMBINED (v3.0) (25 licenses) license type: exclusive
[2007-12-13 10:29:39]
[2007-12-13 10:29:39] Minimum user remove time set to 120 seconds.
[2007-12-13 10:29:39] Ready to serve...
```

   Indicating that your license server was started correctly and serving is the features shown in the list. In the output you can also see which network ports are used and which license file(s) were read during startup.

9. That's it, your license server is now running.

2.2.5 Installing the service from the command line

Installing and uninstalling the server from the command line can be done using the -install_service and -uninstall_service options to the license server program. The simplest way to install a service is to run the following command from the directory in which you have installed your license server program.

```
> lmx-serv-clcbio.exe -config c:\path\to\lmx-serv.cfg -install_service
```

If you like, you can specify additional parameters. For example installing the license server as a service called *CLC License Server* with a log-file located at `c:\path\to\log.txt` can be achieved with the following command:

```
> lmx-serv-clcbio.exe -c c:\path\to\lmx-serv.cfg -lf c:\path\to\log.txt
-n "CLC License Server" -i
```

The command above uses the shorthand notation for specifying the configuration file, log file, service name and for telling the program to install a service.

Once the service has been installed it can be started and stopped on two ways. You can use the LM-X End User Configuration Tool as described in the previous section or you can use the built-in control panel called *Services*. The Services control panel shown in figure 2.4 is located in the *Administrative Tools* group in the Windows Control Panel.

In the services control panel you can start, stop or restart the license server service by right-clicking on it and choosing the appropriate action from the menu.

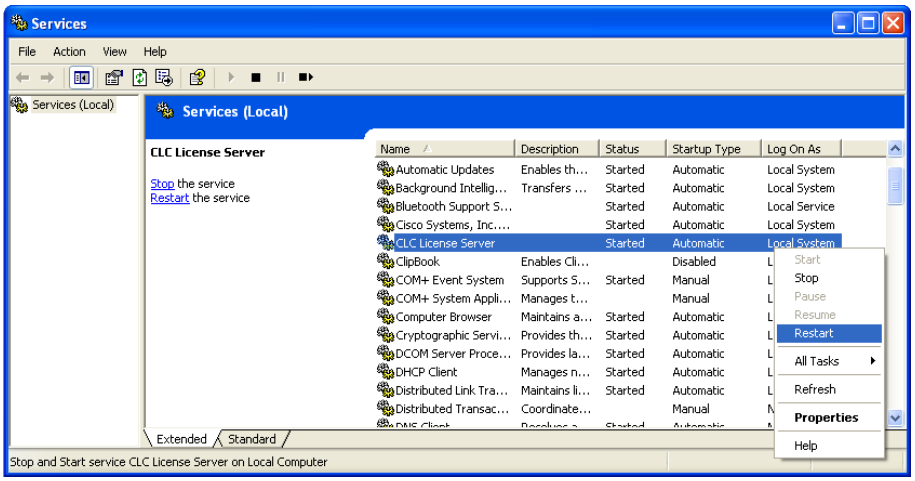

Figure 2.4: *The license server in the Services control panel.*

2.3 Installing the server on Mac OS X

2.3.1 Downloading and installing

The license server is distributed as a package installer for Mac OS X. Once you have downloaded the file double-click it to begin the installation and follow the instructions on the screen.

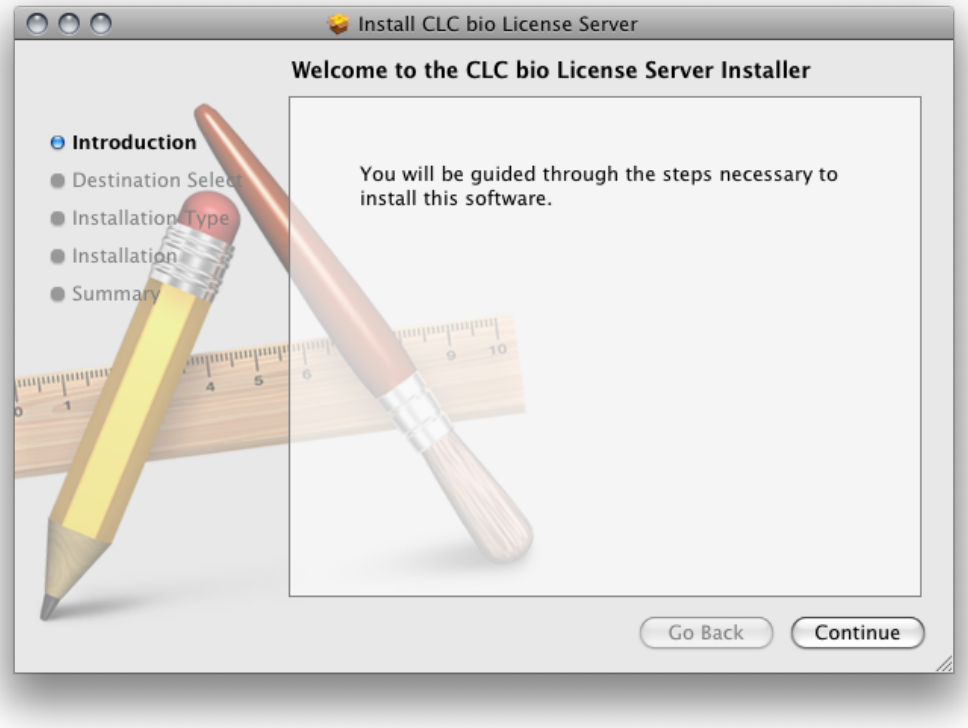

Figure 2.5: *The Mac OS X package installer*

After the installation is complete the license server can be found in a new folder called *CLCLicenseServer* located within the *Applications* folder. The installer also installs a *Launch Daemon*, which automatically runs the License Server if your Mac is restarted.

2.3.2 -dup1Obtaining your license file

The license file which will contain the workbench licenses to be hosted on your server must be locked to the machine used as a server.

To do this locate the file called hostid.txt in the *CLCLicenseServer* folder in the *Applications* folder and send it in an email to license@clcbio.com. A license file will then be generated and delivered to you.

2.3.3 Using your license file

Once you have received your license file from the CLC bio Support Team you have two choices for how to use it with the License Server.

If you only need to use a single license file and want to get started quickly, simply rename the file to *license.lic* and place in the CLCLicenseServer folder. Restart your Mac and the server will

be started automatically.

If you need to use more than one license file you will need to register them in the server configuration file. This is done in the following way:

1. Copy the license file to the CLCLicenseServer folder
2. Locate the file *licenseserver.cfg* in the CLCLicenseServer folder
3. Open the file with a text editor (e.g. the built in TextEdit)
4. Scroll down and locate the section:

```
#*********************************************
# Set a license file path:
#
# On Windows: If no file is set then the license server
#             will look for <vendor>.lic in same directory as license server.
# On Unix: If no file is set then the license server will look for
#          /usr/x-formation/<vendor>.lic
#
# In both cases the filenames must be lowercase.
#
# You can specify one or multiple paths as needed.
#
#*********************************************
# Examples:
# LICENSE_FILE = d:\server\network.lic
# LICENSE_FILE = c:\extra_file.lic
# LICENSE_FILE = /home/user1/floating_license.lic
# LICENSE_FILE = /home/user1/floating_license2.lic

LICENSE_FILE = license.lic
```

5. Change the default line, or add additional lines with the name if your license file.
   For example, if your license file is called *clcmainwb4x25-company-name.lic* you will need to change the default line to:

```
LICENSE_FILE = clcmainwb4x25-company-name.lic
```

6. Restart your Mac **or** follow the instructions in section 2.3.4 or 2.5.1.

2.3.4 Starting, stopping and managing your license server

The CLC License Server is started and stopped through Mac OS X's built-in service infrastructure called *launchd*.

To start the license server run the following command:

```
sudo launchctl start com.clcbio.licenseserver
```

To stop the license server run the following command:

```
sudo launchctl stop com.clcbio.licenseserver
```

You will be asked for your password when running either of these commands.

2.4 Installing the server on Linux

2.4.1 Downloading and unpacking

The license server is distributed as a zip-file containing the license server directory. Once you have downloaded the file, extract it to a suitable location on your computer.

The resulting directory contains the following files:

- The license server executable (lmx-serv-clcbio)
- An empty log-file (licenseserver.log)
- A sample config-file (licenseserver.cfg)
  The config-file also contains instructions on how to changing the options.
- The LM-X End User Utility (lmxendutil)
  Command line tool for monitoring and controlling a license server.
- The license server manual (manual.pdf)

Where on your file system the license server directory is placed is really up to you. If you are running the license server from a dedicated user account you could simply place the license server distribution within the home directory of this user account. You can also choose a more central location like `/usr/local/clclicenseserver` or `/opt/clclicenseserver/` if you wish.

2.4.2 -dup30btaining your license file

The license file which will contain the workbench licenses to be hosted on your server must be locked to the machine used as a server. To do this you must use the LM-X End User Utility to retrieve a so called *hostid* of your machine.

To optain the hostid of your server, run the following command from your license server installation directory.

```
./lmxendutil -hostid
```

The output of the command will look something like this:

```
LM-X End-user Utility v1.41
Copyright (C) 2002-2007 X-Formation. All rights reserved.

Network adapter: eth0
Hostid: XXXXXXXXX
...
...
```

Save this output to a file or copy it directly to an email and send it to license@clcbio.com. A license file will then be generated and delivered to you.

Once you have received the license file, place it in the license server installation directory.

2.4.3 -dup1Editing the configuration file

Once the directory has been extracted you should edit you configuration file. To do this open the file in a text editor like vi or emacs. Many different configuration options are available. Please see section 2.6 for detailed descriptions about these.

As a minimum you should define the password which must be entered when ever the license server is controlled remotely. Do this by locating the option line `REMOTE_ACCESS_PASSWORD` and change the default value.

2.4.4 Running the server

On Linux or Mac OS X the license server should be started as a daemon (background) process.

As is good practice with daemon process that communicate with the network, it is not recommended to run the license server directly from the root account. Instead you are encouraged to create a separate user account (for example *licuser*) and run the server with a command similar to the following:

```
sudo -u <user> /path/to/lmx-serv-clcbio -background -config /path/to/licenserver.cfg
```

Depending on your setup, you will probably want the server to be started every time your system is booted. The simplest way to accomplish this is to add the command to one of your startup scripts (for example */etc/rc.boot* or */etc/rc.local*).

Once the server is running it can be monitored, restarted and stopped by means of the End User Utility as described in the following section.

2.5 Monitoring and controlling the license server (all platforms)

There are a number of different ways you can monitor and control a running license server using the command line *LM-X End-user Utility* which is available for all platforms. Please note that you can monitor a license server running on one platform (e.g. Linux) from another computer running a different operating system (e.g. Windows).

2.5.1 Using the End User Utility

The LM-X End User Utillity is a command line tool for querying and controlling the license server. The relevant commands are described below.

In all the commands the arguments enclosed in angle-brackets < and > must be replaced an actual argument. If you are running the End User Utility on the same machine as the server and on the standard port (6200) you can omit the `-host` and `-port` options from the commands.

If you omit the `-password` option from the command, you will be prompted for it when executing the command. An additional advantage of entering your password in this way is that a person standing next to will not be able to read it.

To display the current status of the license server use the command:

```
lmxendutil -licstat -host <server host> -port <port>
```

To restart the license server use the command:

```
lmxendutil –restartserver –host <server host> –port <port> –password <password>
```

To shut down the license server use the command:

```
lmxendutil –shutdownserver –host <server host> –port <port> –password <password>
```

To remove a user from the license server (i.e. retrieve the license checked out for this user and thereby interrupt the user's Workbench session) use the command:

```
 lmxendutil –removeuser –clientusername <user>
–clienthostname <host> –host <host>
           –port <port> –password <password>
```

2.5.2 XML output

If you would like to process the license server status output in some programmatic way, you can use the End User Utility to extract the status in XML format. Contrary to the log, the XML output displays the *current status* of the server. The syntax for displaying the license statistics in XML format is:

```
/lmxendutil –licstatxml –host <server host> –port <server port>
```

The output produced is in the format:

```
<?xml version="1.0" encoding="UTF-8"?>
<LM-X STAT_VERSION="2.0" SERVER_VERSION="2.0" VENDOR="CLCBIO" UPTIME="6 hour(s) 21 min(s) 22 sec(s)">
   <FEATURE NAME="DNA" VERSION="3.0" END="2008-01-01" USED_LICENSES="1" TOTAL_LICENSES="5">
   </FEATURE>
   <FEATURE NAME="COMBINED" VERSION="3.0" END="2008-01-01" USED_LICENSES="12" TOTAL_LICENSES="25">
   </FEATURE>
</LM-X>
```

Depending on how this output is processed you can use this functionality for many different purposes including:

- Automatic monitoring of license server health and usage
- Generating statistics about license usage
- Presenting the status of the license server in some other way (for example on a web page)

2.6 Configuring the license server

Changing the configuration of the license server is accomplished by editing the server.cfg file and subsequently restarting the license server process. By editing this file you can change many different aspects of the license server, including paths to various files and access restrictions.

2.6.1 General configuration

Below are descriptions of the various configuration options which specify the environment of the license server, paths to various files, and the administration password.

TCP_LISTEN_PORT

This option defines the TCP-portnumber that the license server will use to listen for connections. The TCP port is used for data traffic protocol. A separate UDP port is used for automatic server discovery protocol.

The default TCP port is 6200, but can be changed to any port you may desire. The UDP port is fixed to 6200 and cannot be changed.

Example:

```
TCP_LISTEN_PORT = 6200
```

LICENSE_FILE

Specify the path to a license file which will be read by the server. The filenames must be lowercase. You can specify one or multiple paths as needed.

Examples:

```
LICENSE_FILE = d:\server\network.lic
LICENSE_FILE = c:\extra_file.lic
LICENSE_FILE = /home/licserver/floating_license.lic
LICENSE_FILE = /home/licserver/floating_license2.lic
```

REMOTE_ACCESS_PASSWORD

Specify the remote administration password which is used when remotely stopping and restarting the license server and removing users from it.
The password is case-sensitive.

Example:

```
REMOTE_ACCESS_PASSWORD = MyPassword123
```

LOG_FILE

Set the logfile path. It is recommended to specify the absolute path to the log file.

Example:

```
LOG_FILE = c:\program files\lmx-server.log
LOG_FILE = /var/log/lmx-serv.log
```

LOG_EXCLUDE

Exclude specific messages from the log. The following messages can be excluded: CHECKOUT, CHECKIN, STATUS, BORROW, BORROW_RETURN, REMOVE_USER, REMOTE_RESTART and REMOTE_SHUTDOWN.

Example:

```
LOG_EXCLUDE = CHECKOUT, CHECKIN, STATUS
```

2.6.2 Access restrictions

This section describes various configuration options which can be used to grant or deny access for specific clients or groups of clients. You can for example use these options to limit access to a department or group of users. Access limitations can be specified based on ip-addresses, host names or user names.

Restrictions are specified as a sequence of rules which are used in the following way:

- Rules are attempted to be matched in the order that they are written.
- If no rule matches the specific client, then that client is allowed.

An overview of the possible rules are presented in the following table.

Option	Argument	Description
ALLOW_IPADDR_ALL	One or more IP-addresses	Allow access to all features for the specified IP-addresses.
ALLOW_IPADDR_<feature>	One or more IP-addresses	Allow access to a specific feature for the specified IP-addresses.
DENY_IPADDR_ALL	One or more IP-addresses	Deny access to all features for the specified IP-addresses.
DENY_IPADDR_<feature>	One or more IP-addresses	Deny access to a specific feature for the specified IP-addresses.
ALLOW_HOST_ALL	One or more host names	Allow access to all features for the specified host names.
ALLOW_HOST_<feature>	One or more host names	Allow access to a specific feature for the specified host names.
DENY_HOST_ALL	One or more host names	Deny access to all features for the specified host names.
DENY_HOST_<feature>	One or more host names	Deny access to a specific feature for the specified host names.
ALLOW_USER_ALL	One or more users	Allow access to all features for the specified users
ALLOW_USER_<feature>	One or more uses	Allow access to a specific feature for the specified users
DENY_USER_ALL	One or more users	Deny access to all features for the specified users
DENY_USER_<feature>	One or more users	Deny access to a specific feature for the specified users

All arguments must be specified as a space-separated list. IP-addresses must be specified as specific addresses with the form: A.B.C.D or with wildcards A.*.B.*

Example 1:

```
ALLOW_IPADDR_ALL = 192.168.1.* 192.168.2.*
ALLOW_USER_ALL = alice bob
DENY_IPADDR_ALL = *.*.*.*
```

This configuration in this example will:

- Allow access to clients on 2 subnets (perhaps a specific lab or class room)
- Allow access to the two users *alice* and *bob* from any host
- Deny access for everyone else.

The restrictions will apply to all features available on the license server.

Example 2:

```
DENY_HOST_MAIN = lab1 office1
ALLOW_IPADDR_MAIN = 192.168.*.*
DENY_IPADDR_MAIN = *.*.*.*
```

This configuration will deny the machines with hostname 'lab1' and 'office1', allow clients on the internal network, and deny everyone else. This applies to the feature called MAIN, which corresponds to the CLC Main Workbench.

2.6.3 Borrow restrictions

A set of rules for restricting access to borrowing licenses are also available. The available rules are almost identical to the rules used to restrict overall access to the license server described in the previous section.

An overview of the possible rules are presented in the following table.

Option	Argument	Description
ALLOW_BORROW_IPADDR_ALL	One or more IP-addresses	Allow all features to be borrowed for the specified IP-addresses.
ALLOW_BORROW_IPADDR_<feature>	One or more IP-addresses	Allow the specific feature to be borrowed for the specified IP-addresses.
DENY_BORROW_IPADDR_ALL	One or more IP-addresses	Deny all features to be borrowed for the specified IP-addresses.
DENY_BORROW_IPADDR_<feature>	One or more IP-addresses	Deny Allow the specific feature to be borrowed for the specified IP-addresses.
ALLOW_BORROW_HOST_ALL	One or more host names	Allow all features to be borrowed for the specified host names.
ALLOW_BORROW_HOST_<feature>	One or more host names	Allow the specific feature to be borrowed for the specified host names.
DENY_BORROW_HOST_ALL	One or more host names	Deny all features to be borrowed for the specified host names.
DENY_BORROW_HOST_<feature>	One or more host names	Deny the specific feature to be borrowed for the specified host names.
ALLOW_BORROW_USER_ALL	One or more users	Allow all features to be borrowed for the specified users
ALLOW_BORROW_USER_<feature>	One or more uses	Allow the specific feature to be borrowed for the specified users
DENY_BORROW_USER_ALL	One or more users	Deny all features to be borrowed for the specified users
DENY_BORROW_USER_<feature>	One or more users	Deny the specific feature to be borrowed for the specified users

The rules are written and used in the same way as the access restriction rules described in the previous section.

If you wish to disable borrowing for all users, put this into the config file:

```
DENY_BORROW_IPADDR_ALL = *.*.*.*
```

2.6.4 Borrow limits

Two limits are available which can be used to prevent clients from borrowing all the available licenses for a given feature, or from borrowing a feature for an unreasonable long time.

BORROW_LIMIT_COUNT

Imposes a limit on the number of licenses which can be borrowed to prevent all licenses from being borrowed at the same time. Borrow limits are configured separately for each feature.

The syntax is:

```
BORROW_LIMIT_COUNT_<feature name> = <limit count>
```

Where `<limit count>` is number from 1 to the number of available licenses for the given feature. If you wish to restrict the feature from being borrowed completely you should specify a restriction as described in the previous section.

Example:

```
BORROW_LIMIT_COUNT_PROTEIN = 1
BORROW_LIMIT_COUNT_RNA = 5
```

The configuration in the example above will allow one license for the CLC Protein Workbench to be borrowed and five licenses for the CLC RNA Workbench.

BORROW_LIMIT_HOURS

Limit the number of hours which licenses can be borrowed to prevent licenses from being borrowed too long. Borrow limits are configured separately for each feature.

The syntax is:

```
BORROW_LIMIT_HOURS_<feature name> = <limit hours>
```

Where `<limit hours>` is a number between 1 and the maximum borrow period imposed by the license. Setting the limit to a value higher than the limit imposed by the license will result in an error when starting the license server.

Example:

```
BORROW_LIMIT_HOURS_PROTEIN = 48
BORROW_LIMIT_HOURS_RNA = 12
```

The configuration in the example above will allow licenses for the CLC Protein Workbench to be borrowed and for 48 hours and licenses for the CLC RNA Workbench to be borrowed for 12 hours.

Chapter 3

Clients

To use a floating license, select **Configure license server connection** in the dialog shown in figure 3.1.

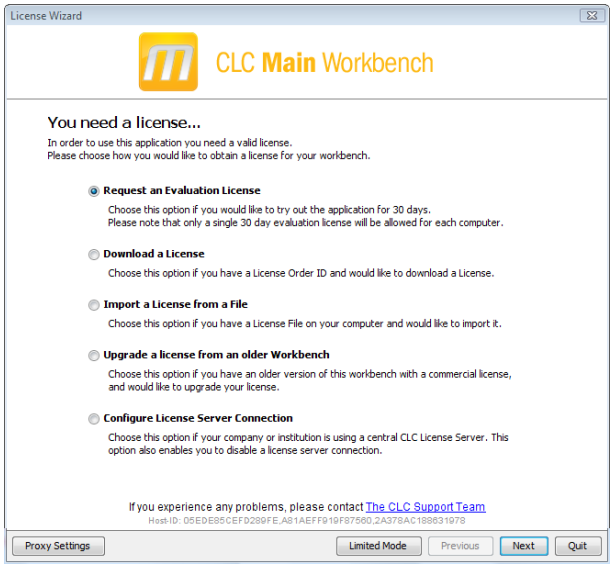

Figure 3.1: *Select "Configure license server connection".*

When you have selected this option and click **Next**, you will see the dialog shown in figure 3.2.

This dialog lets you specify how to connect to the license server:

- **Connect to a license server**. Check this option if you wish to use the license server.
- **Automatically detect license server**. By checking this option you do not have to enter more information to connect to the server.
- **Manually specify license server**. There can be technical limitations which mean that the license server cannot be detected automatically, and in this case you need to specify more options manually:
  - **Host name**. Enter the address for the licenser server.

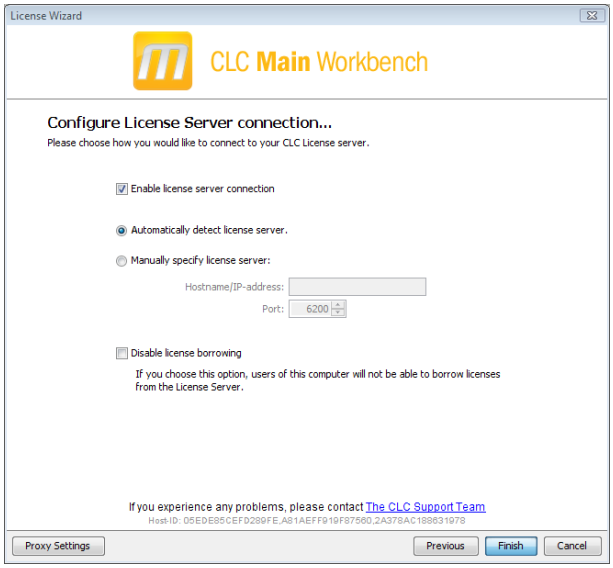

Figure 3.2: *Connecting to a license server.*

  - **Port**. Specify which port to use.

- **Disable license borrowing on this computer**. If you do not want users of the computer to borrow a license (see section 3), you can check this option.

Borrow a license

A floating license can only be used when you are connected to the license server. If you wish to use the CLC Workbench when you are not connected to the server, you can *borrow* a license. Borrowing a license means that you take one of the floating licenses available on the server and borrow it for a specified amount of time. During this time period, there will be one less floating license available on the server.

At the point where you wish to borrow a license, you have to be connected to the license server. The procedure for borrowing is this:

1. Click **Help** | **License Manager** to display the dialog shown in figure **??**.
2. Use the checkboxes to select the license(s) that you wish to borrow.
3. Select how long time you wish to borrow the license, and click **Borrow Licenses**.
4. You can now go offline and work with CLC Workbench.
5. When the borrow time period has elapsed, you have to connect to the license server again to use CLC Workbench.
6. When the borrow time period has elapsed, the license server will make the floating license available for other users.

Note that the time period is not the period of time that you actually use the Workbench.

Note! When your organization's license server is installed, license borrowing can be turned off. In that case, you will not be able to borrow licenses.

No license available...

If all the licenses on the server are in use, you will see a dialog as shown in figure 3.3 when you start the Workbench.

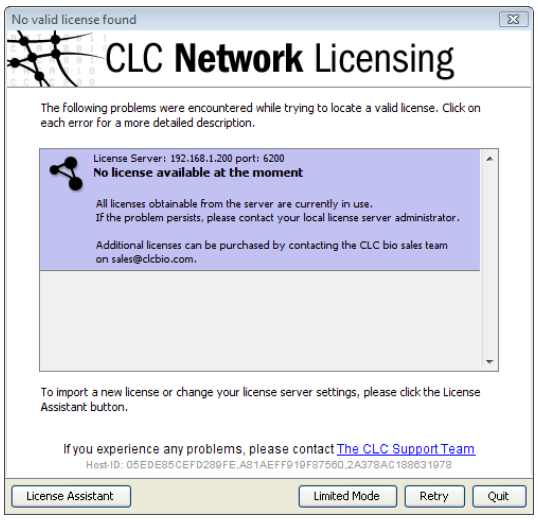

Figure 3.3: *No more licenses available on the server.*

In this case, please contact your organization's license server administrator. To purchase additional licenses, contact sales@clcbio.com.

You can also click the **Limited Mode** button (see section **??**).

If your connection to the license server is lost, you will see a dialog as shown in figure 3.4.

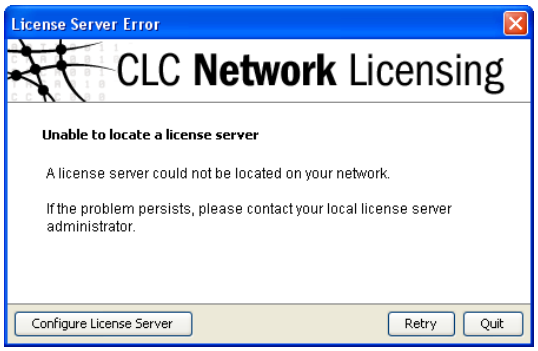

Figure 3.4: *Unable to contact license server.*

In this case, you need to make sure that you have access to the license server, and that the server is running.

The information about how to connect to the license server is stored in a file called *license.properties* in the installation directory of the Workbench under settings (e.g. C:\Program Files\CLC Main Workbench 4\settings\license.properties).

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