

# Managing Software Licenses



By Jeff Simon

*License Use Management (LUM) is an easy-to-use license management system that provides customers with a centralized method for managing software licenses.*

**L**icense Use Management (LUM) is an easy-to-use license management system that provides customers with a centralized method for managing software licenses. The tools within LUM can manage access and usage of software products.

LUM enables large enterprises to collect use statistics for their software, monitor use levels, and provide overall management for their software usage. System administrators who manage systems in a heterogeneous network environment will appreciate its ability to run on multiple platforms (see Figure 1). In addition, software vendors that require their products to be license enabled will benefit. LUM provides the flexibility for try-and-buy or per-use licenses, or licenses with a specific time duration.

LUM consists of two products: License Use Management Application Developer's Kit and License Use Runtime. The Developer's Kit contains tools that allow vendors to code application programming interface (API) calls in their products and embed the code that services these calls. Vendors who purchase the Developer's Kit also receive a copy of the License Use Runtime, which contains the tools needed to manage the licenses. The vendors also get royalty-free rights to redistribute the License Use Runtime within the license-enabled application.

LUM, based on the LicensePower/iFOR™ technology, was developed at the Tivoli® Laboratory in Rome, Italy. This technology provides a client/server scheme for License Use Management. The client is the LUM-enabled product and the server is the license server.

## License Use Runtime Platforms

AIX® Versions 4.1, 4.2, and 4.3  
Windows NT™ Versions 3.51 and 4.0  
Windows 95  
OS/2 Warp™ Versions 3 and 4  
Sun® Solaris® 2.5.1  
HP/UX Versions 10.10 and 10.20  
SGI (IRIX®) 6.2

Figure 1. Platforms that support License Use Runtime

## The License Management System

The License Management System consists of a license server, runtime client code, and the associated license database. The server maintains the license database and a variety of information about license activity. The client is the LUM-enabled product, which has embedded calls that determine whether a license is available and what action the product must take based on information from the License Management System.

License Use Runtime monitors license agreements by tracking software usage. Figure 2 shows the contents of the runtime environment.



Jeff Simon

License Use Runtime Agreements	
bos.net (*)	Contains NCS 1.5.1 fileset (prerequisite)
ifor_ls.base	License Use Management Runtime base code
ifor_ls.libraries	License Use Management Runtime libraries (only needed if installing on AIX Versions 4.1 and 4.2)
ifor_ls.compat	Compatibility package (only needed if running products using nodelocked and/or concurrent nodelocked licenses, enabled with previous LUM versions)
ifor_ls.msg.*	Messages for the supported languages

Figure 2. Runtime environment

Fileset	Description
ifor_ls.ipf.*	IPF/X online documentation for the supported languages
ifor_ls.html.*	HTML documentation for supported languages
lumusg.ps	Using License Use Management Runtime Version 4 for AIX (PostScript®)
lumusg.pdf	Using License Use Management Runtime Version 4 for AIX (Adobe Acrobat®)

Figure 3. LUM filesets

The License Use Runtime software is available to download from the following ftp site: <ftp://ftp.software.ibm.com/software/lum>. Figure 3 shows filesets that are also available from this ftp site.

### License Types

Software vendors can deliver to customers encrypted licenses that allow a product to be enabled for a nodelocked or network license. A nodelock license generally targets a specific node. It is typically used on a stand-alone system rather than in a client/server environment.

Nodelocked licenses can be either runtime based or non-runtime based. For the non-runtime based license, the product itself, not the License Use Runtime, manages the nodelocked license. The nodelocked license server manages the runtime-based enabled license. A product that is network license-enabled uses licenses that are stored on one or more network license servers. When a licensed program is started, License Use Runtime at the license server determines whether or not a license is available.

There are several different types of licenses available:

**Nodelocked:** Requires each workstation (the node) on which the license-enabled

product runs to have license enrollment information (license password) locally installed

**Simple nodelocked:** Allows an unlimited number of simultaneous uses of the licensed application on the local machine

**Use-once nodelocked:** Permits a single use of a particular licensed product on a specific machine within the period for which the license is valid. Each time the product is started, one license is consumed

**Concurrent nodelocked:** Allows a limited number of simultaneous uses of the licensed application on the node where the application has been installed

**Per server:** Acts exactly like concurrent nodelocked licenses except that at any time it is possible to change into per-seat licenses

**Trial period:** Provides for an evaluation period that starts either when the product is enrolled or when the product is run for the first time

**Network:** Allows products to be stored on a network license server and shared among multiple network license clients

## Steps to Reconfigure NetLS

1. `lssrc -g ncs // Let's see which daemons are running`  
`// (llbd, glbd, nrglbd.)`

### 2. Stop the daemons:

```
stopsrc -s netlsd
stopsrc -s glbd
stopsrc -s llbd
```

### 3. Remove these files:

```
/tmp/llbdbase.dat
/usr/lib/netls/conf/cur_db      **!
/usr/lib/netls/conf/lic_db     !-- Make a backup copy of
/usr/lib/netls/conf/lic_db.bak **! these files, since they
                                contain your password.
                                Hence, you will need
                                to restore them or
                                get new passwords.

/etc/ncs/glb.e      ***!---these 2 are your GLB data bases
/etc/ncs/glb.p      ***!
/etc/ncs/glb_log
/etc/ncs/glb_obj.txt
/etc/ncs/glb_site.txt ***! this identifies a specific server
                        (usually a faster machine)
                        in your cell that you want
                        your password from.
```

**Note:** All of the above files should normally be readable by others.

### 4. Run the following:

```
/etc/ncs/lb_admin
lb_admin: use global
lb_admin: clean
lb_admin: quit
```

5. Remove `netls_first_time`. Run `/usr/lib/netls/conf/netls_config`.  
(This is not necessary because `netls_config` re-creates `netls_first_time`.)

### 6. Select the default cell.

7. Run `/usr/lib/netls/conf/netls_first_time`  
(This should restart the three daemons (`glbd`, `llbd`, and `netlsd`) in sync.)

8. Verify that the system date is correct.

Figure 5. Reconfiguring NetLS

**Reservable:** Allows the license to be reserved for the exclusive use of a user, a group, or a node—generally for a specified time

**Use-once:** Allows the single use of a particular licensed product within the period for which the license is valid; each time the product is started, one license is consumed

Per seat: Allows the server of a licensed client/server application to request licenses on behalf of its clients without the need for the application clients to be license enabled

### License Administration Tool

The Basic License Tool (BLT) enables you to view and update information about the licenses and obtain reports about their use. The BLT has both a graphical interface and a command-line interface. `i4blt` starts the License Use Runtime Basic License Tool interactive interface.

### Potential Issues in Using LUM

Since LUM and Network Computing Services (NCS) are components of a distributed network system, location broker databases may become corrupt. A location broker provides information about the network or Internet resources to clients.

Resolving NetLS problems generally requires several approaches to analyze and isolate any problems. In some cases, trial and error may be the only way to determine the real problem. That could require rebooting license servers, reconfiguring NetLS, or perhaps even upgrading the software. In general, NetLS problems are caused by the replicated data files not being in sync, corrupted license-database files, or an expired license.

For corrupted files or data files out of sync, reconfiguring from scratch may be the best option. The concept of stopping daemons, flushing out corrupted database files, and restarting NetLS is the same concept used in other technologies, such as the Distributed Computing Environment (DCE). Figure 5 shows the steps to reconfigure NetLS.

The following are some general suggestions for addressing licensing problems:

- ◆ Know which levels of `*ifor*` that you are running.

```
lslpp -l bos.rte.ifor_ls
lslpp -l ifor_ls.base.cli
lslpp -l ifor_ls.base.gui
lslpp -l *ifor*
```

- ◆ Check the expiration date of your licenses (including the system date).
- ◆ Run `i4cfg-list` to determine which daemons are running.
- ◆ If you are using a nodelocked license and no daemons are running or something other than `i4llmd` is running, then enter `i4cfg-stop`, run `i4cfg-script`, and respond with the following: 2, 1, return, n, y, y. This should start the `i4llmd` daemon.
- ◆ `i4blt -r ...` can be used to generate reports to monitor compiler usage.
- ◆ If C Set++ 3.1.4 was previously installed on a system that coexists with another C or C++ compiler that does not work, it may be necessary to run `/usr/vac/bin/replaceCSET` to establish the symbolic links.

### Known Fixes

LUM requires the following fixes:

- APAR IX64408 for AIX Version 4.1
- APAR IX64105 for AIX Version 4.2
- APAR IX74933 for AIX Version 4.3

### Conclusion

For more detailed information about the License Use Management, see the License Use Management white paper on the Web at <http://www.software.ibm.com/is/lum/>.



*Jeff Simon, IBM Corporation, 11400 Burnet Road, Austin, TX 78758. Mr. Simon has worked in AIX technical support since 1990 and currently works as a technical lead and system administrator for a series of technical Web sites. He has a BS in Computer Science from Southwest Texas State University and certification in AIX support.*