THOROUGHBRED®
SOFTWARE INTERNATIONAL, INC.

THOROUGHBRED LICENSE MANAGER™

Install/Reference Manual

Version 8.9.1

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INTRODUCTION

The Thoroughbred License Manager is available on Linux and some UNIX distribution starting with version 8.8.3. It allows for the physical separation between the Basic executable and the security file. Simply put, this allows for the Basic executable and what was stored in the tbredbas.88 file to reside on different physical systems. This provides flexibility with your configuration especially when deploying your application on Virtual Machines or using Containers. When using the License Manager, Basic is no longer installed or branded. Basic can be moved or copied to a new virtual instance and/or Container image without disrupting the security file. The only new caveat is that the License Manager Basic will only start when it can successfully connect to a License Manger.

Installation

The License Manager install consists of just a cpio file – TSI_LIC. It includes everything you need to install a Basic License. The License Manager does not need to be installed on the same server where you plan on running your Basic application. The License Manager should be installed on a static stand-alone server that is accessible to the Basic application server. Login as root and follow these steps:

```
# cd /usr/lib/basic
# cpio -ivdumB <TSI_LIC
```

The cpio file includes:
install, tslicmgr.uni, tslicact, tslicadm, service files and a default LICENSE.INI file.

```
# ./install
```

This will prompt for the software serial number (license).
If this server can access the Thoroughbred Activation Server, you will be prompted:

Internet Activation is available. Have you read and do you accept the License Agreement?
Enter **Y** if Yes, or 'S' to skip Internet Activation

If your server does not display the above prompt, or you enter **S** to skip the activation, you can complete it later using the 'tslicact' executable. Just note: unlike Basic, you will not be able to start the License Manager without a valid activation.

Installing the License Manager Service

To install the License Manager service, the *loadservice.sh* script will copy the service file from the TSLICMGR directory to the appropriate system directory or the service files can be loaded manually.

To install the License Manager service via the script, run the following as root:

```
# cd /usr/lib/basic/TSLICMGR
# ./loadservice.sh
```


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To manually install the License Manager service:

```
# cp /usr/lib/basic/TSLICMGR/tslicmgr.systemd /etc/systemd/system/ tslicmgr.service
# systemctl daemon-reload
```

The service file defaults to running the License Manager from the /usr/lib/basic directory, listening on port 5621. If the License Manager has been installed into a different directory or needs to listen on a different port, change the tslicmgr.systemd file before installing the service.

These service files are available starting with release level 8.9.0.

Starting the License Manager

If you did not activate the license during the install, you will need to run:

./tslicact.

You can have an Activation key emailed to you by visiting www.tbred.com/activate.html .

Once the License Manager is installed and activated, it can be started as a service or it can be started manually by:

./tslicmgr

By default, the License Manager will listen for Basic connections on port 5621. You need to ensure all systems running Basic have access to this server and port. It may require a firewall setting.

You can also start the License Manager on a different port if necessary.

./tslicmgr -p5400 (notice no space between -p and the port numbers)

When the manager successfully starts, you will see the following message in the LICENSE.LOG file:

06/26 13:30:00 (B) Starting UC=0 UL=64 GC=0 GL=62 226000002

The values for above:

UC – current number of users connected to this manager

UL – total user count for this license

GC – current number of ghost tasks connection to this manager

GL – total number of ghosts allowed with this license

Thoroughbred also recommends creating a LICENSE.LOG file to help reconcile which users (and servers) are starting and releasing Basic. More details on the LICENSE.LOG contents can be found below. To create a LICENSE.LOG file:

umask 0; touch /usr/lib/basic/LICENSE.LOG

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Setting up the Application Server

Note: Basic and the License Manager are meant to be run on different servers, but they can also run on the same server.

Follow the standard Basic installation by unbundling the cpio file (either TSI_ENV or TSI_OW). You do not have to install Basic (so don't execute ./install). Your cpio file will include 2 new files: basic.lic and tslicuhb.

basic.lic is a License Manager Basic. It can be copied/renamed to Basic. It can be copied to other Virtual machines (make sure you have the correct Linux kernel compile).

This Basic executable will not start without a /usr/lib/basic/LICENSE.INI file. If you try to start Basic without that file, you'll get a simple error message preventing you from starting Basic.

The BASIC section of the LICENSE.INI will tell Basic where to find a License Manager. The entry can be either an IP address or host name. If the License Manager startup is using a different port than the default (5621), you need to include that in LICENSE.INI. This file must be in /usr/lib/basic.

[BASIC]
192.168.24.29
192.168.25.41:5400
tally

These are all valid entries assuming 'tally' is a valid host name on your network.

To confirm that the Basic will be able to connect to a License Manager, perform a reverse name lookup of the system running the License Manager from the system running Basic:

$ nslookup 192.168.24.29

$ nslookup 192.168.24.41

$ nslookup tally

If the nslookup command returns a "** server can't find" message, the system running the License Manager will need to be added to the DNS or the /etc/hosts file on the system running Basic.

Basic does not require a persistent connection to the License Manager. Basic will communicate with the License Manager when it starts and when it releases.

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Multiple Application Servers

You can configure multiple application servers to share the same License Manager. Follow the steps above to setup a second, third, etc. application server.
Note: each Basic server will get its SSN from the License Manager. Everything else is done local including determining task ids. So, it is possible (and likely) that if you have more than 1 application server, both systems could have a T0 task. If you have multiple application servers sharing one License Manager, they will share the user count. If the License Manager is 64-users, that is 64 Basic tasks shared between the application servers.

Multiple License Managers

You can also define more than one License Manager. This is useful when the License Manager is not accessible or if user-count is maxed out.

The BASIC section of the LICENSE.INI can have multiple entries. Basic will always attempt to connect to the License Manager defined by the first entry. If it is not responding or if it returns too many users already running, Basic will then use the next entry in LICENSE.INI.

[BASIC]
192.168.24.29
192.168.25.47

If the BASIC section of the LICENSE.INI had these two entries, Basic will first try to connect to 192.168.24.29. If that failed for any reason, it would then try to connect o 192.168.25.47.

These two License Managers would likely have different licenses (i.e. one could be 64-users and the other 32-users). So, it is possible that different Basic processes on the same server could have different SSN.

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LICENSE.LOG

As noted earlier, if this file exists on the License Manager server in /usr/lib/basic, the manager will record statistics for every session that starts and stops. Below is an example:

06/26 17:54:14 (B) Activate UC=14 GC=0 192.168.24.29 49859 16998
06/26 17:54:22 (B) Activate UC=15 GC=0 192.168.24.129 34086 29393
06/26 18:11:31 (B) Release UC=14 GC=0 192.168.24.129 34086 29393
06/26 19:02:58 (B) Release UC=13 GC=0 192.168.24.29 49859 16998

The first two entries are users starting Basic (Activate). The first entry is the 14th user running Basic. It connected from ip address 192.168.24.29. Since multiple Virtual Machines and Containers can have the same IP address, the License Manager captures a node name CRC value. This node name CRC value is a new string function in the 8.8.3 Basic: INF(2,3). The first entry above has a node name value of 49859. The last value 16998 is the Linux process id.

The second entry is another Basic connection coming from another IP address (with a different node name value).

The third and fourth entries (Release) are Basic sessions releasing. Notice the UC count drops 1 each time.

Other values not as common include: Vanished, *Version, and *Denied*. See Recovering User Counts for Vanished.

06/26 18:31:58 (B) *Denied* UC=64 GC=0 192.168.24.29 49859 31306

This indicates the Basic connection was denied access. This is usually because the user count is maxed out. Notice the UC count is 64.

06/26 19:23:08 (B) *Version UC=12 GC=0 192.168.24.129 00000 28997

This indicates there was a Version mismatch between Basic and the License Manager.

Starting with release level 8.9.0, the License Manager will log the Heartbeat process if the License Manager was started with the -l argument.

02/02 17:10:33 (B) Heartbeat UC=0 GC=0 192.168.24.129 34086

Restarting the License Manager

If for some reason the License Manager needs to be restarted (i.e. after a reboot), it will inherit it's last state of known connections. Instead of seeing a Starting message, you will see a Recovery message.

./tslicmgr

06/26 17:15:33 (B) Recovery UC=13 UL=64 GC=2 GL=62 226000002

Notice the UC and GC values (number of users and ghosts in use) are not 0.

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Recovering User Counts

It is possible while the License Manager was not accessible, a Basic tasked released and could not update the License Manager. When the License Manager recovers, the count of active users will be off.

It is also possible that a Basic process goes away without going through RELEASE (i.e. kill). That also will not be counted.

The Basic cpio file includes a heartbeat monitor. You can control how often it sends a heartbeat to the License Manager (i.e. every 5 minutes). The heartbeat monitor will prompt the License Manager for a list of Basic process ids from that IP address and node name. The heartbeat monitor will then verify each of those process ids are still running Basic. If any process is not still active, the heartbeat monitor will send a Vanished record to the License Manager. The heartbeat monitor runs on the Basic application server. To manually start it:

./tslicuhb -d 5

In this example the heartbeat monitor will check every 5 minutes. The heartbeat monitor will send a Vanished status for any process that is not running. You will see the following entry in LICENSE.LOG on the License Manager server.

06/26 18:31:58 (B) Vanished UC=4 GC=0 192.168.24.29 49859 31306

Installing the License Manager Heartbeat Service

Starting with release level 8.9.0, the Basic cpio file will include files for installing the License Manager Heartbeat as a service.

To install the License Manager Heartbeat service, the *loadservice.sh* script will copy the service file from the TSLICUHB directory to the appropriate system directory or the service files can be loaded manually.

To install the License Manager Heartbeat service via the script, run the following as root:

```
# cd /opt/tbred/basic/TSLICUHB
# cp tslicuhb /usr/lib/basic
# ./loadservice.sh
```

To manually install the License Manager Heartbeat service:

```
# cp /opt/tbred/basic/TSLICUHB/tslicuhb.systemd /etc/systemd/system/ tslicuhb.service
# systemctl daemon-reload
```

The service file defaults to running the License Manager Heartbeat program from the /usr/lib/basic directory with a 5-minute heartbeat interval. If the License Manager Heartbeat program has been installed into a different directory or needs to run with a different interval, change the tslicuhb.systemd file before installing the service.

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Ghost Tasks

The License Manager by default can support up to 62 ghost tasks just like a standard Basic license. If you have multiple application servers, they will share the 62 ghosts. Their combined total number of ghost task will be 62. Since the application server controls the task ids, it is possible for multiple application servers to have G0, G1, G2, G3, etc.

It is possible to increase the number of total supported ghost tasks across multiple application servers. Each application server will still be limited to 62 (G0-G9, GA-GZ, Ga-Gz).

To increase the number of supported ghosts you will need to contact your Thoroughbred Sales rep to license additional Ghost Licenses and receive a new Activation Code. You will use the License Manager Activation program to add additional ghosts.

./tslicact -g

You will be prompted to enter the new number of ghost tasks and an Activation Code supplied by Thoroughbred.

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