

LICMAN
Version 1.2.10
Installation Manual



Titel **LICMAN Installation Manual**

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1. General Remarks

1.1. Purpose

This manual describes the installation and functions of the T-Systems license manager product LICMAN.

1.2. Installation Procedure

The installation includes the copying of data from installation medium, and a few other steps. Perform the installation by the following steps:

1. Familiarize yourself with the prerequisites (chapter 2)
2. Prepare the installation (chapter 3)
3. Perform the installation (chapter 4)
4. Start License Manager LICMAN (chapter 5)

1.3. Conventions

Bold Courier font indicates program or file names and commands that you enter.

Variables are embraced in pointed brackets (<variable>).

2. Prerequisites

2.1. Operating System Versions

LICMAN is currently available for following platforms:

AIX: AIX 4.3.3

HP-UX: HP-UX 10.20, HP-UX 11.00

IRIX: IRIX 6.5

SunOS: SunOS 5.7

Linux: Linux with kernel 2.2.16 (e.g. SuSE 7.0)

Windows: Windows NT 4.0 Service Pack 6, Windows 2000

2.2. Disk Requirements

LICMAN requires approximately 2,5 MB disk space.

3. Preparing the Installation

3.1. Definition of the Installation Directory

LICMAN can be read into any directory in your file system, if sufficient free disk space is available in that file system. The installation directory is queried during the installation.

3.2. Reading the LICMAN installation medium

Unix:

The LICMAN installation medium is written with the command `tar` and contains the following files:

<code>./tmplic/inst</code>	installation script
<code>./tmplic/<os>/bin/licman12_gld</code>	load module GLD (Global Licenses Daemon)
<code>./tmplic/<os>/bin/licman12_lld</code>	load module LLD (local Licenses Daemon)
<code>./tmplic/<os>/bin/licman12_appl</code>	test program for GLD and LLD
<code>./tmplic/<os>/bin/licman12_id</code>	LICMAN Id program
<code>./tmplic/bin/licman12_chk</code>	script for checking license files
<code>./tmplic/doc/licman.pdf</code>	this manual (pdf file)

where `<os>` stands for the corresponding operation systems.

To read the data the following steps are to be carried out:

1. Change to any temporary directory with enough disk space:
`cd <temp_directory>`
2. Read the data from the installation medium with the command:
`tar -xvf <device_name>`

The temporary directory now contains following files and directories:

<code>./tmplic/bin:</code>	csh scripts
<code>./tmplic/<os>/bin:</code>	load modules
<code>./tmplic/inst:</code>	csh installation script
<code>./tmplic/doc:</code>	containing this manual

Windows:

The LICMAN installation medium contains the installation package files and the installation startup script `setup.exe`.

3.3. Stopping the License Manager

If you want to replace LICMAN Version 1.2 modules with new ones make sure that the old license daemons LLD and possibly GLD were stopped.

Unix:

Use the `kill` command for stopping the old license daemons `licman12_lld` and possibly `licman12_gld`.

Windows:

Login as administrator for stopping the services `Licman LLD` (and possibly `Licman GLD`).

4. Performing the Installation

Performing a LICMAN installation requires the following steps:

1. Execute the installation startup script `setup`
(refer to section 4.1 "Running the Unix Installation Startup Script `inst`"
resp. to section 4.2 "Running the Windows NT Installation Startup Script
`setup`")
2. Get the LICMAN System Id
(refer to section 4.3 "Getting the LICMAN System Id")
3. Get a license from T-Systems delivery department
4. Make the license available
(refer to section 4.4 "Making a LICMAN License available")
5. Verify the installation:
(refer to section 4.6 "Verifying the LICMAN Installation")
6. Start LICMAN
(refer to section 4.5 "Starting LICMAN")

Remark:

LICMAN is part of several T-Systems product distributions. The installation scripts of those products may include installing LICMAN. In this case, skip section 4.1 "Running the Unix Installation Startup Script `inst`" and 4.2 "Running the Windows NT Installation Startup Script `setup`".

4.1. Running the Unix Installation Startup Script `inst`

The installation of LICMAN is performed by the install script `inst`. This install script puts the files of LICMAN to be installed into the desired directory.

Invoke `inst` with the command `<temp_directory>/tmplic/inst`

The installation process is interactive and occurs in the following steps:

1. Specify operating system:
Modules are available for the following operating systems :
`<os> <os> <os> ... <os>`
Specify operating system identifier [`<current_operating_system>`] ?
2. Specify installation directory:
Specify installation directory [`<current_directory>`] ?
3. Installing the software
Using installation directory `<inst_directory>` ...
or
Creating installation directory `<inst_directory>` ...
Installing shell scripts ...
Installing modules for operating system `<operating_system>` ...
Installing documents ...
4. Remove the installation directory (optional)
Remove temporary installation directory `tmplic` (y/n) [n] ? n

Keeping installation directory `tmplic` ...

Installation finished.

Note:

One call of `inst LICMAN` can only install one operating system. You should not delete the installation directory `tmplic` until LICMAN has been installed for all operating systems needed.

4.2. Running the Windows NT Installation Startup Script `setup`

The installation of LICMAN for Windows NT is performed by the install script `setup`. To start `setup`, login as administrator and doubleclick on the file `<Install-medium Drive>:\setup.exe`.

During the installation of LICMAN, you have to specify the license file directory. After setup has finished, you have to provide the license(s) file and possibly the clients file in this directory (see Section 4.4 "Making a LICMAN License available").

The LICMAN Setup will install the LLD (Local Licenses Daemon) and the GLD (Global License Daemon). LLD and possibly GLD will run as Windows services. During LICMAN Setup you can specify the starting mode of LLD and GLD. The standard setting - if the workstation is no license server - should be 'AUTO START' for LLD and "DISABLED" for GLD. If the workstation should be licenses server, use the settings 'AUTO START' for LLD and GLD.

4.3. Getting the LICMAN System Id

You get the LICMAN System Id by running the `licman Id` program

Unix: `<inst_directory>/licman12_id`

Windows: program files -> T-Systems -> licman 12 -> Licman Id.

The LICMAN System Id is required by the T-Systems delivery department for creating a valid license file for the desired Workstation.

Alternatively, the LICMAN System Id can be determined on Unix operating systems as follows:

IBM / AIX	<code>uname -m</code>
Hewlett Packard / HP-UX	<code>uname -i</code>
SiliconGraphics / IRIX	<code>sysinfo -s</code>
Sun Microsystems / SunOS	<code>hostid</code>

4.4. Making a LICMAN License available

Unix

1. Create a directory with write access for anybody. This directory contains all data files used by LICMAN. Some T-Systems products create a default license directory during their installation process. For example, the T-Systems product MEDINA uses the default license directory `<inst_directory>/cae/prod/data/licman`.
2. Copy your license file(s) into this directory (pay attention to access rights, the LICMAN license daemons LLD and possibly GLD should have write permissions, T-Systems applications should have read permission). The main license file has to be named `licenses`, additional license files

`licenses.<suffix>`, where `suffix` is an unsigned positive number. Suffix numbers are not necessarily one after another. Licenses contained in the main license file are allocated first, licenses in a license file with a lower suffix number are allocated before licenses contained in a license file with higher suffix number.

3. If your license is a network license:
provide a clients file in the license directory (refer to section 5.2.2 "Client/Server File").
4. Set the environment variable `$debisLICDIR` to the license file directory path name (refer to section 5.2 "License Manager Files").

A new shipped license file for an existing LICMAN installation simply has to replace an existing file or has to be added to the set of existing license files. Pay attention to access rights, the LICMAN license daemons LLD and possibly GLD should have write permissions, T-Systems applications should have read permission.

Consider the following:

- Once LICMAN is started, the license file `licenses` gets updated by LICMAN.
- The contents of a new file will get active within two minutes without restarting the license daemons LLD and possibly GLD.

Windows

1. Copy your license file(s) into the license files directory (the directory you have specified during the LICMAN Setup. The main license file has to be named `licenses`, additional license files `licenses.<suffix>`, where `suffix` is an unsigned positive number. Suffix numbers are not necessarily one after another. Licenses contained in the main license file are allocated first, licenses in a license file with a lower suffix number are allocated before licenses contained in a license file with higher suffix number.
2. If your license is a network license:
provide a clients file `clients` in the license file directory (refer to section 5.2.2 "Client/Server File").

If you received a new license file for an existing LICMAN installation you simply have to replace the file `licenses` in the license files directory by the shipped license file.

Consider the following:

- Once LICMAN is started, the license file `licenses` gets updated by LICMAN.
- The contents of a new license file will get active within two minutes without restarting the license service `licman LLD` and possibly `licman GLD`.

4.5. Starting LICMAN

Unix

4.5.1. Starting the Global License Daemon (GLD)

One GLD can run per workstation. The GLD is started by calling
`<inst_directory>/licman12_gld.`

In case of an error, an error message is written into the log file `messages` (see chapter „License Manager Files“) and displayed in the terminal window or in an Xterm window for X11 environments.

For network licenses, a licensed CPU is required to start a GLD successfully. Nodelocked licenses do not require a GLD to be started. If no GLD is running for network licenses no license will be available.

4.5.2. Starting the Local License Daemon (LLD)

One LLD can run per workstation. The LLD is started by calling
`<inst_directory>/licman12_lld.`

In case of an error, an error message is written into the log file `messages` (see chapter „License Manager Files“) and displayed in the terminal window or in an Xterm window for X11 environments.

For nodelocked licenses, a licensed CPU is required to start a LLD successfully.

If no LLD is running some T-Systems products will start a LLD by themselves. Those products expect LICMAN to be installed in product specific default directories. If your LICMAN installation uses another directory, you should specify your LICMAN installation directory for those products.

Please refer to the respective installation manual in this case.

Important note:

When starting GLD or LLD some small files are created in the directory `/tmp/debisCAE-lic` (approx. 20 bytes) which are required for the communication between the components: UNIX sockets, etc.. If these files are deleted during operation communication errors may occur. (LLD or GLD will try to create new ones if necessary.)

Windows

After restarting the computer the services `Licman LLD` (and possibly `Licman GLD`) will run. Login as administrator for stopping or restarting these services.

4.6. Verifying the LICMAN Installation

You can verify the LICMAN installation by executing the LICMAN test utility:

UNIX: Execute `<inst_directory>/licman12_appl.`

Windows: Execute **Program Files -> T-Systems -> Licman 12 -> Licman Test**

The LICMAN test utility will ask you for free/alloc/query (0/1/2). In case of free/alloc you will be asked for the module index you want to free/alloc. Enter a licensed module index as contained in your license file(s) (e.g. 101 for MEDPRE).

The LICMAN installation has been verified, if LICMAN test utility returns an "alloc license return code" of 0.

Otherwise, check the error message returned by `licman12_appl` and the error messages in the `$debisLICDIR/messages` file, solve the problem causing the error message (among others by referring section 4.7 "Troubleshooting") and retry verifying the LICMAN installation.

The query function of the LICMAN test utility may be used to show a list of all currently allocated licenses.

Enter "X" to stop the LICMAN test utility.

For a detailed description of the LICMAN test utility refer to chapter 6.1 "LICMAN Test Utility".

4.7. Troubleshooting

This section tries to explain some of the most frequent error messages and to help solving the problem. The LICMAN test program may report error messages. Additional error messages may be found in the messages file in the license files directory.

`Can't change to license directory <directory>`

Meaning:

- license directory does not exist
- no read permission for license directory

Solution:

- create license directory with write access for anyone

`Can't open license file <path>`

Meaning:

- license file does not exist
- no write permission for license file

Solution:

- correct access rights of license file

`Can't open clients file <path>`

Meaning:

- clients file does not exist
- no read permission for clients file

Solution:

- create clients file or correct access rights of clients file

`Can't open messages file <path>`

Meaning:

- no write permission for messages file

Solution:

- correct access rights of messages file

Can't open requests file <path>

Meaning:

- no write permission for requests file

Solution:

- correct access rights of requests file

Connecting output socket for server <hostname_GLD> failed

Meaning:

- LLD cannot talk to GLD

Reason:

- GLD is not reachable

Solution:

- check if server host is reachable
- restart GLD

Current date before start of license file <path>

Meaning:

- starting date of license file is later than current time

Solution:

- check if system clocks is correct
- remove license file from directory until starting day of license file has reached

System time on server <hostname_GLD> differs more than 24 hours

Meaning:

- the system clock of LLD and GLD host differ by more than 24 hours

Solution:

- check the system clocks using the „date -u“ command. In case of difference, set the system clock of LLD or GLD host

Global license daemon on server <hostname_GLD> communication error

Meaning:

- broken communication between LLD an GLD

Solution:

- make sure that LLD and GLD have equal software versions
- restart the GLD, restart the LLDs

License file <path> contains invalid checksum

Meaning:

- the license file contains incorrect data

Solution:

- Compare the contents of the license file `licenses` with the contents of the license file you got via fax, email, diskette etc.

Connecting output socket failed

Meaning:

- Application cannot talk to LLD

Reason:

- directory `/tmp/debisCAE-lic` has been deleted
- no write permission for directory `/tmp/debisCAE-lic`

Solution:

- avoid deleting `/tmp/debisCAE-lic`
- restart LLD

Global license daemon communication error

Meaning:

- the LLD daemon cannot communicate with the GLD daemon

Reason:

- no LLD is running
- the LLD is busy, i.e. the LLD is trying to connect to an unreachable GLD.

Solution:

- make sure that
 - a GLD is running
 - the GLD host defined in the client/server file `clients` is reachable
- restart the GLD, restart the LLDs

Local License Daemon communication error

Meaning:

- the application cannot communicate with the LLD daemon

Reason:

- no LLD is running
- the LLD is busy, i.e. the LLD is trying to connect to an unreachable GLD.

Solution:

- make sure that
 - a LLD is running
 - in the case of a network license, a GLD is running
 - in the case of a network license, the GLD host defined in the client/server file `clients` is reachable
- restart the LLD

No client entry for this workstation

Meaning:

- assignment client – server(s) entry in clients file missing

Solution:

- add an assignment line to the clients file for this workstation (refer to chapter 5.2.2 "Client/Server File")

No server assigned to client

Meaning:

- assignment client – server(s) entry in clients file incomplete

Solution:

- correct assignment line in the clients file for this workstation (refer to chapter 5.2.2 "Client/Server File")

Stop process id <Pid> before starting license daemon

Meaning:

- LLD process was stopped and restarted while a license is used by an application

Solution:

- stop all applications using a license before starting the LLD

4.8. Compatibility Aspects of LICMAN

Unix

Enhancements in communication between LLD and GLD have forced **incompatibility between Licman 1.2 and Licman 1.1**. In other words `licman12_lld` cannot talk to `licman11_gld` and `licman11_lld` cannot talk to `licman12_gld`. However this incompatibility concerns only communication between GLD and LLD components of LICMAN, existing applications may communicate to either `licman12_lld` or `licman11_lld`. Existing license files are still valid.

What do I have to do with my existing installations using LICMAN ?

If the license file of an existing installation using Licman 1.1 has the same **non-null** communication port numbers (refer to chapter 5.2.1) as a license file of a new installation using Licman 1.2 **and** both installations are to be used concurrently, the existing installation has to be upgraded to Licman 1.2. Upgrading means replacing any Licman 1.1 file (named `licman11...`) by its equivalent Licman 1.2 file (named `licman12...`) preserving the Licman 1.1 filename, i.e. renaming the replaced Licman 1.1 files to `licman11...`

Windows

Please replace older Windows beta versions of LICMAN 1.2 by LICMAN 1.2.10. Current Versions of T-Systems programs, e.g. MEDINA 7.1.3 and up, will not work with Windows versions of LICMAN older than 1.2.10.

5. Description of LICMAN

Following T-Systems products are controlled by the license manager LICMAN:

- MEDINA
- VAMOS
- COM-STEP, COM-VDAFS
- NIS-CAD
- CATIA IUA macros
- ...

In a heterogeneous workstation network, LICMAN maintains two different license types:

- Network licenses
- Nodelocked licenses

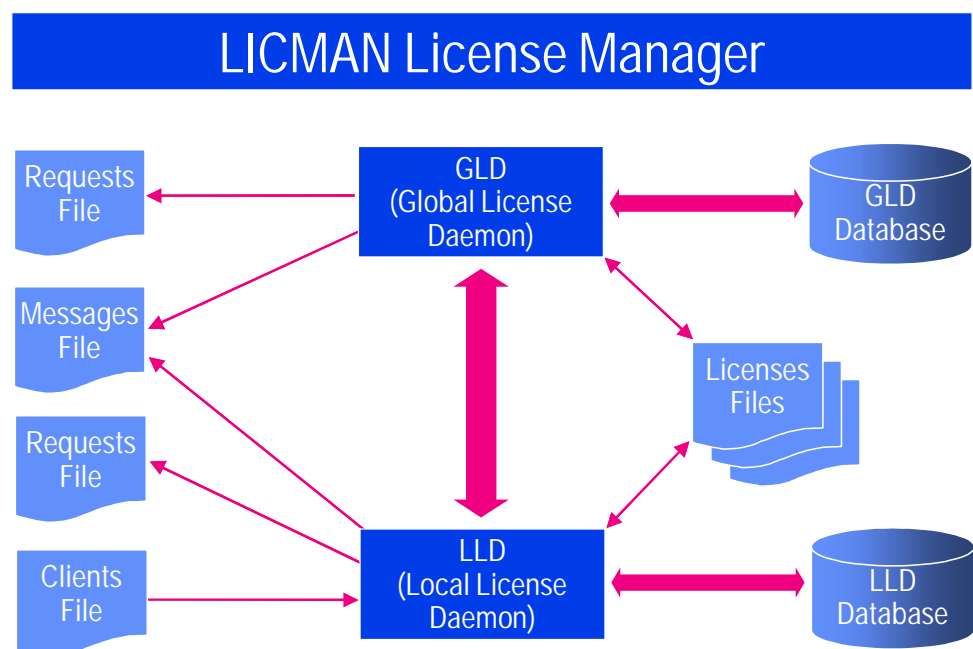
5.1. License Daemons

LICMAN consists of the following two components:

- "Global License Daemon" (GLD)
- "Local License Daemon" (LLD)

For network licenses, both components are required. For nodelocked licenses, no GLD is needed.

Licenses are requested by the application via LLD. In case of a nodelocked license, the LLD performs the allocation of licenses. In the network case, the request is transferred to the GLD(s).



5.2. License Manager Files

LICMAN uses 4 types of files:

- license files
- client/server file (not required for nodelocked licenses)
- log file
- requests files (optional)

The access permissions for these files must be defined as readable for all program modules. The license file and the requests file must have write-access for GLD and LLD and the log file must have write-access for all program modules.

Unix

LICMAN expects all files to be found in the directory defined by the environment variable `$debisLICDIR`.

For the T-Systems product MEDINA, the variable is only required if the directory is not the default directory

```
<inst_directory>/cae/prod/data/licman.
```

Windows

LICMAN expects all files to be found in the directory specified during LICMAN setup.

5.2.1. License Files

Each license file of a license directory contains either network or nodelocked licenses. Nodelocked license files contain GLD port number 0 (see example below). Several license files of different types may be contained in one directory with following restrictions:

- All license files contain identical LLD communication port numbers (see example below)
- All network license files contain identical GLD communication port numbers (see example below)
- If for a specific module more than one nodelocked license entry is found with the same LLD system ID, only the first one in license file priority order will be used.
- If for a specific module more than one network license entry is found with the same GLD system ID, only the first one in license file priority order will be used.

Important note:

If you intend to migrate to Licman 1.2 make sure that your license files are conform to the above restrictions. When ordering new license files, please ask for Licman 1.2 license files. If your existing license files are not conform to the above restrictions, please contact your T-Systems sales representative.

The main license file is named `licenses`. Additional license files are named `licenses.<suffix>`, where `suffix` is an unsigned positive number. Suffix numbers are not necessarily one after another, gaps are allowed.

The suffix number controls the allocation priority order. Licenses contained in the main license file are allocated first, licenses in a license file with a lower suffix number are allocated before licenses contained in a license file with higher suffix number. It is recommended nodelocked license files to have higher priority than network license files.

A license file consists of several lines of variable length, as shown in the following example:

```
Comment line
checksum (80 characters)
dd.mm.yy                # Creation date
dd.mm.yy                # Last update date
dd.mm.yy                # Expiration date
ppppp 0                 # Port numbers LLD and GLD
cpuid1 cpuid2           # CPU IDs
101    1    MEDPRE       # MEDINA PreProcessing
102    1    MEDPOST      # MEDINA PostProcessing
103    0    CROSS        # Computing Cross-sections
104    0    GRAF         # Diagramm display
200    *    DSMON        # Databus Monitor
201    1    ABAQUS       # ABAQUS Interface
202    0    ANSYS        # ANSYS Interface
204    0    DYNA3D       # DYNA3D Interface
205    0    NASTRAN      # NASTAN Interface
206    0    PAMCRASH     # PAMCRASH Interface
207    0    STARCD       # STARCD Interface
208    0    UNIVERSAL    # Universal File Interface
209    0    VDA          # VDA Interface
210    0    PATRAN       # PATRAN Interface
211    0    MARC         # MARC Interface
212    0    STEP         # STEP Interface
551    0    CATIA        # CATIA Interface
```

The first line is a comment line. It is used to label the license file, e.g. by specifying the customer for whom the file was created, and may be changed by the customer.

The second line contains a checksum based on the contents of all subsequent lines. The checksum line may be split into several lines by using the continuation character `\` as end-of-line. `Licman12` has a new checksum formula using only uppercase characters A-Z. However `licman11` license files containing old style checksums are still valid.

Line 3 and subsequent lines contain all information required to license T-Systems product modules.

When calculating the checksum

- Any leading and/or trailing space/tab characters in a line are ignored
- Multiple contiguous space/tab characters in a line are treated as one single space character
- Carriage return characters at the end of a line are ignored
- Empty lines are ignored
- Continued lines ending with a \ character are treated as one single line
- Trailing comments starting with a # character are ignored

Please note that additional empty lines as well as special characters like carriage-return are still considered by `licman11`.

The example above shows a nodelocked license (GLD port number is 0) which allows MEDINA PreProcessing and PostProcessing running once on `cpuid1` and once on `cpuid2` and DSMON running on `cpuid1` and on `cpuid2` without limitations.

The system IDs of all licensed workstations are required for a nodelocked license. For a network license, the system ID of the workstation is required where the license server GLD should run.

If a network license file contains more than 1 server system ID (up to 5), these GLDs define a redundant server system. Each of them is queried for allocation of a license. An allocation is successful if more than half of the servers are reachable and all responding servers are granting the license.

After replacing a license file its new contents will get active within two minutes without restarting the license daemons `licman12_11d` and possibly `licman12_gld` (Windows: Services `Licman LLD` and possibly `Licman GLD`)

5.2.2. Client/Server File

The client/server file is named `clients`.

It contains an assignment table of LLDs to their GLDs.

Lines may be continued. Continued lines ending with a \ character are treated as one single line

Each line has the following structure:

```
<hostname_LLD> <hostname_GLD1>[:<systemID_GLD1>] \
                <hostname_GLD2>[:<systemID_GLD2>] ...
```

where `<hostname_LLD>` defines the hostname or the internet address of a workstation where an application and a LLD may run. `<hostname_GLD>` defines a hostname or internet address of a workstation where an assigned GLD runs.

`<systemID_GLD>` is the corresponding system ID of the GLD host as contained in the license file. The specification of the corresponding system IDs is optional but recommended for performance reasons. An enumeration of GLD hosts is required in case of multiple system IDs in one or more license files.

For subsequent lines, the second information may be omitted if it does not change. In the last line a * as hostname for application/LLD is allowed, i.e. all workstations not explicitly mentioned above are assigned to the GLDs specified previously.

If your client/server file contains only a line

* <hostname_GLD>[:<systemID_GLD>]

all workstations are assigned to the GLD running on <hostname_GLD>.

When a client/server file is replaced by a new one the contents of the new file will get active within two minutes without restarting the license daemons **licman12_lld** and possibly **licman12_gld** (Windows: Services **Licman LLD** and possibly **Licman LLD**).

If one or more GLD hosts become permanently unreachable, it is recommended to remove their entry from the client/server file for performance reasons.

Note: It is the customer's responsibility to create the client/server file.

5.2.3. Log File

The log file is named **messages**.

It contains a protocol of all errors and messages written by LLD and GLD. Occasionally the log file should be reviewed and its contents deleted.

5.2.4. Requests Files

A requests file is named **requests.lld.<hostname_LLD>** or **requests.gld.<hostname_GLD>**. Each GLD and LLD may keep track of its own allocation and free requests.

A requests file will only be created and updated if the environment variable **debisLICFLG** is set to 1 before starting the license daemon **licman12_lld** (in case of a nodelocked license) or **licman12_gld** (in case of a network license) (Windows: Services **Licman LLD** or **Licman LLD**).

If the requests file cannot be created or accessed by the appropriate license daemon the license daemon will abort.

Each allocation and release request creates one record which will be appended at the end of the requests file. All records of the requests file are in chronological order.

Each record has a length of 80 characters and holds the following information:

Column	Key word	Description
01-08	Date	Current date, format dd.mm.yy
10-17	Time	Current time, format hh:mm:ss
19-33	Host	Hostname or IP address of the requesting host
35-35	Type	Request type (0: license freed/ 1: license allocated / 2: allocation denied)
37-44	User	User name of the requesting user
46-53	Pid	Process number of the requesting process
55-62	Module	Module number of the requested license according to the license file
64-71	Total	Total number of licenses for this module (-1: unlimited number)
73-80	Used	Number of licenses used after allocation/free event

6. LICMAN Utilities

6.1. LICMAN Test Utility

The LICMAN test utility can be used to verify a LICMAN installation and to list all currently used licenses.

Unix: Execute `<inst_directory>/licman12_appl`

Windows: Execute **Program Files -> T-Systems -> Licman 12 -> Licman Test**

Following dialog appears:

```
LICMAN test utility
```

```
0 Free license
1 Alloc license
2 Query licenses
X Quit
```

```
Menu option ?
```

Option 0:

Use option 1 to allocate a license. Enter a module index you had allocated with option 1 of this test program.

Option 1:

Use option 1 to allocate a license. Enter a licensed module index as contained in your license file(s) (e.g. 101 for MEDINA PreProcessing).

The alloc license return code will be 0 if the LICMAN test utility got the license.

Otherwise, check the error message returned by the LICMAN test utility and the error messages in the `messages` file and solve the problem causing the error message (among others by referring section 4.7 "Troubleshooting").

Option 2:

Option 2 lists all currently allocated licenses, i.e. licenses you had allocated using this test utility, as well as nodelocked or floating licenses allocated by applications using LICMAN. Per allocated license you get a line with following information:

Date	licenses allocation date
Time	licenses allocation time
User	user name
Module	allocated module index
Userid	User id
Procid	process id of the application program using this allocated module
Seq	GLD sequence number if redundant GLDs are used. Will be 0 if no redundant GLDs are used.

Client/Server client host name / server host name

UNIX

If you are interested in `licman12_app1` producing option 2 output without any dialog, use a script like the following:

```
#!/bin/csh -f
<inst_directory>/licman12_app1 <<@@ 1>/dev/null
2
x
@@
```

6.2. LICMAN License File Check Utility

The LICMAN License File Check Utility creates checksums of the licenses file lines. The output of this utility can be used to verify data entry errors or errors caused by corrupt license files.

Unix

Run the script for checking license files

```
<inst_directory>/licman12_chk <license_file>
```

The `licman12_chk` script output may look like this:

```
Licman12 Check Utility
-----

License File 'licenses'

Total No. of Lines = 14
Total No. of Words = 35
Total No. of Chars = 295
Overall Checksum   = 61229

Line   Words   Chars   Checksum
2      1       80     34010
3      1        8     59710
.....
```

done.

Note that `licman12_chk` and `licman11_chk` may produce different output.

Make sure, that the output equals the one you got joint to your license file.

Windows

The LICMAN License Check Utility is not available for Windows.

7. LICMAN Change Log

7.1. Version 1.2.4

18-Jul-2000

- Windows Version of LICMAN added
- Linux Version of LICMAN added

7.2. Version 1.2.6

04-Sep-2000

- Windows: SystemID retrieval improved
- Windows: working directory changed
- compatibility mode for licenses and clients file added

7.3. Version 1.2.9

11-Sep-2000

- Windows: Output of WSA Error messages supported
- Windows: memory leaks fixed
- Windows: Blocking/Nonblocking I/O for Windows NT and Windows 2000 changed
- Linux: Timeout problem fixed

7.4. Version 1.2.10

30-Jul-2001

- LLD and/or GLD ignore incorrect licenses files continue
- LLD ignores an incorrect clients file and continues
- licman12_appl (UNIX) or "Licman Test" (Windows NT): option menu improved
- UNIX: licman12_appl output changed: dialog ist written to stdout, query option output is written to stderr
- LICMAN12 default installation directory changed to program files -> T-Systems -> licman 12 -> Licman Id
- Windows NT Installation of LICMAN improved.
Please refer to chapter 4.8 "Compatibility Aspects of LICMAN"

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