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## 3 Licensing

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This chapter describes the OPNET analysis software licensing infrastructure, providing an overview of licenses, the licensing system, and the components of the licensing system. OPNET analysis software licensing includes two major components:

- License Manager is the graphical user interface (GUI) that allows you to interact with License Servers and license files. The License Manager can be used to manage License Servers and license files on local and remote computers.
- License Server is an application running in the background on a computer.

## The Licensing System

The License Manager can oversee multiple license servers in a network. Each license server allocates licenses to one or more clients. Any authorized user who can access the license server can use any free license. Licenses are not pre-assigned to a specific user. By default all users are authorized to obtain licenses. See Restricting License Users on page AG-3-30 for information on how to restrict the use of licenses.

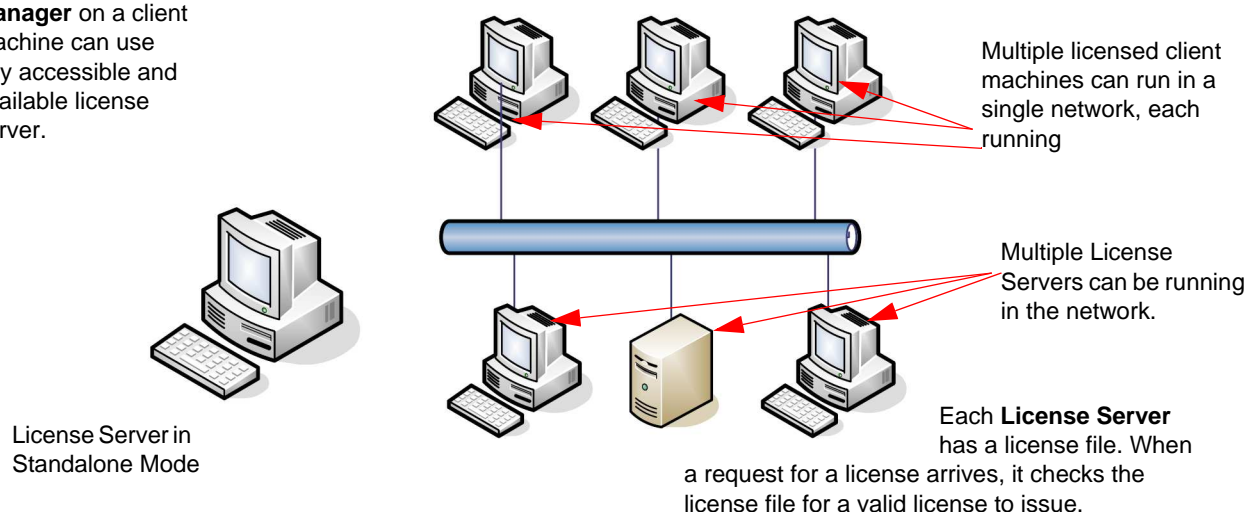
The licensing system consists of these parts:

- **License Servers**—One or more computers, each running one license server. The license server is a service (on Windows platforms) or a daemon process (on Solaris and Linux platforms). Each computer has its own file of licenses, called `license_file`.
- **Client machines**—Clients request and are granted licenses from a particular license server. See Set as Default Server (button) on page AG-3-11 for more information.
- **Licenses**—Licenses allow a user to use specific applications (such as SP Guru Transport Planner) and functionalities (such as eXpress Data Import). See About Licenses on page AG-3-3 for details.

Figure 3-1 shows an example of a licensing system.

**Figure 3-1 License Manager Components**

The **License Manager** on a client machine can use any accessible and available license server.



## About Licenses

A license conveys the right to use an application. A license may be a single permit or a bundle of permits. A license typically bundles one or more applications (such as SP Guru Transport Planner), the simulation program, and one or more modules. Licenses are allocated on a per-permit basis. This means that a component that is part of a license (perhaps a module such as ACE) may be free and can be given to any requester, even if another component of the same license (most likely an application program) is in use.

### License Files

Licenses are stored in a file named `license_file`. There can be only one license file on a machine. The file is stored in one of the following directories:

- Windows: `<primary_hard_drive>:\OPNET_license`

The `<primary_hard_drive>` is the first drive letter (usually C:) that names a non-removable, non-network, local drive partition.

- Solaris: `/opt/OPNET_license` or `/var/adm/OPNET_license`

The default directory is `/opt/OPNET_license`, which must be a local directory (that is, not a symbolic link or mounted across a network). If `/opt` is not local, the license server will look in the `/var/adm/OPNET_license` directory. You cannot switch between these directories or specify which one will be used; the software will first try `/opt/OPNET_license` and only if that directory is not usable will it try `/var/admin/OPNET_license`.

## License Manager

The License Manager is the first component you encounter during installation. There are two ways to configure the licensing system during installation:

- Standalone mode—This allows you to run OPNET analysis software only on the machine on which the license is installed.
- Floating mode—This allows the license server to issue licenses to run applications on multiple computers.

Regardless of the type of license installation, you can use the License Manager to administer application licenses. Typical license operations are

- Selecting a default license server
- Adding a license to the license file
- Extending the expiration or maintenance date of a specific license
- Starting or stopping a license server
- Reviewing usage statistics

## Using the License Manager

This section includes Starting the License Manager and performing License Manager Operations.

### Starting the License Manager

To start the License Manager from the Windows Start menu, perform the following procedure:

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#### Procedure 3-1 Starting the License Manager From the Start Menu (Windows)

1 .

- ➔ The License Manager opens in one window. The program opens in another window but has limited functions.

#### End of Procedure 3-1

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To start the License Manager with a script command, perform the following procedure:

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#### Procedure 3-2 Starting the License Manager With a Script Command (Solaris or Linux)

1 Enter the following command:

```
op_license_manager
```

- ➔ The License Manager opens in one window. The program opens in another window but has limited functions.

#### End of Procedure 3-2

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To start the License Manager from a command line, perform the following procedure:

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#### Procedure 3-3 Starting the License Manager From a Command Line

1 Launch the program (for example, spgtranplan) with the `manage_licenses` preference:

```
<program> -manage_licenses
```

- ➔ The License Manager opens in one window. The program opens in another window but has limited functions.

#### End of Procedure 3-3

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To start the license manager from within SP Guru Transport Planner, perform the following procedure:

### Procedure 3-4 Starting the License Manager from Within SP Guru Transport Planner

- 1 Launch spgtranplan.
  - 2 Choose License > License Management.
- ➔ The License Manager opens.

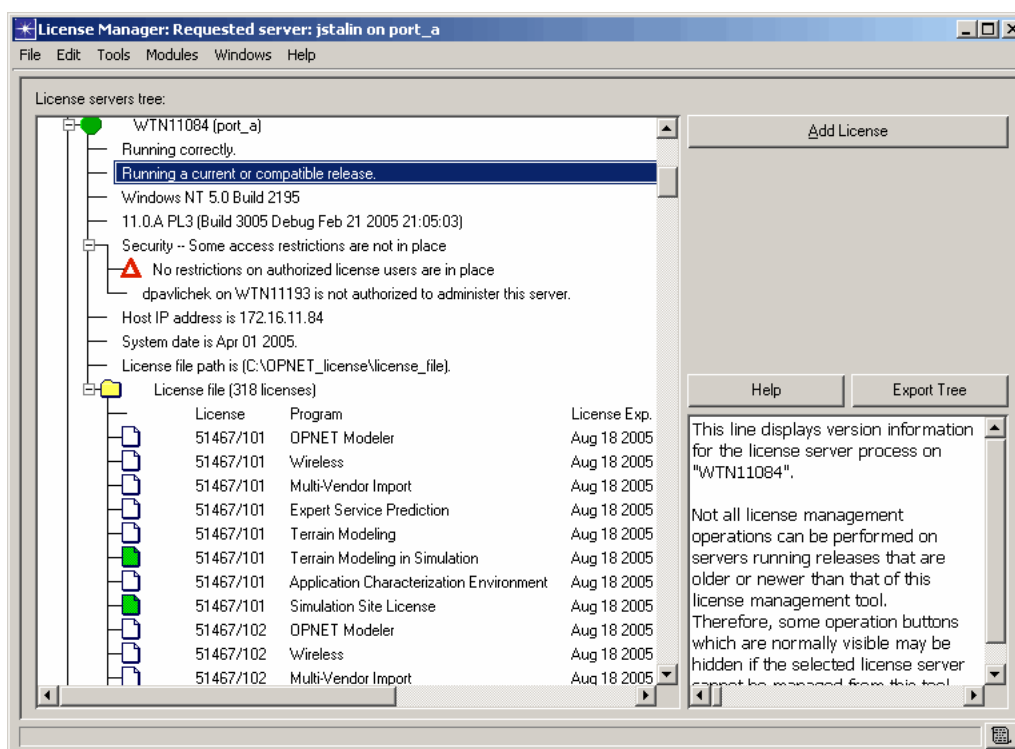
**Note**—At least one license in the license file will be in use.

### End of Procedure 3-4

### About the License Server Tree

The License Manager shows information about the license servers in the network in a treeview.

**Figure 3-2 License Manager Window**



Click on the “Help” button to see a legend and description, shown in Figure 3-3, of the icons shown in the License Manager window.

**Figure 3-3 License Manager Help Screen**

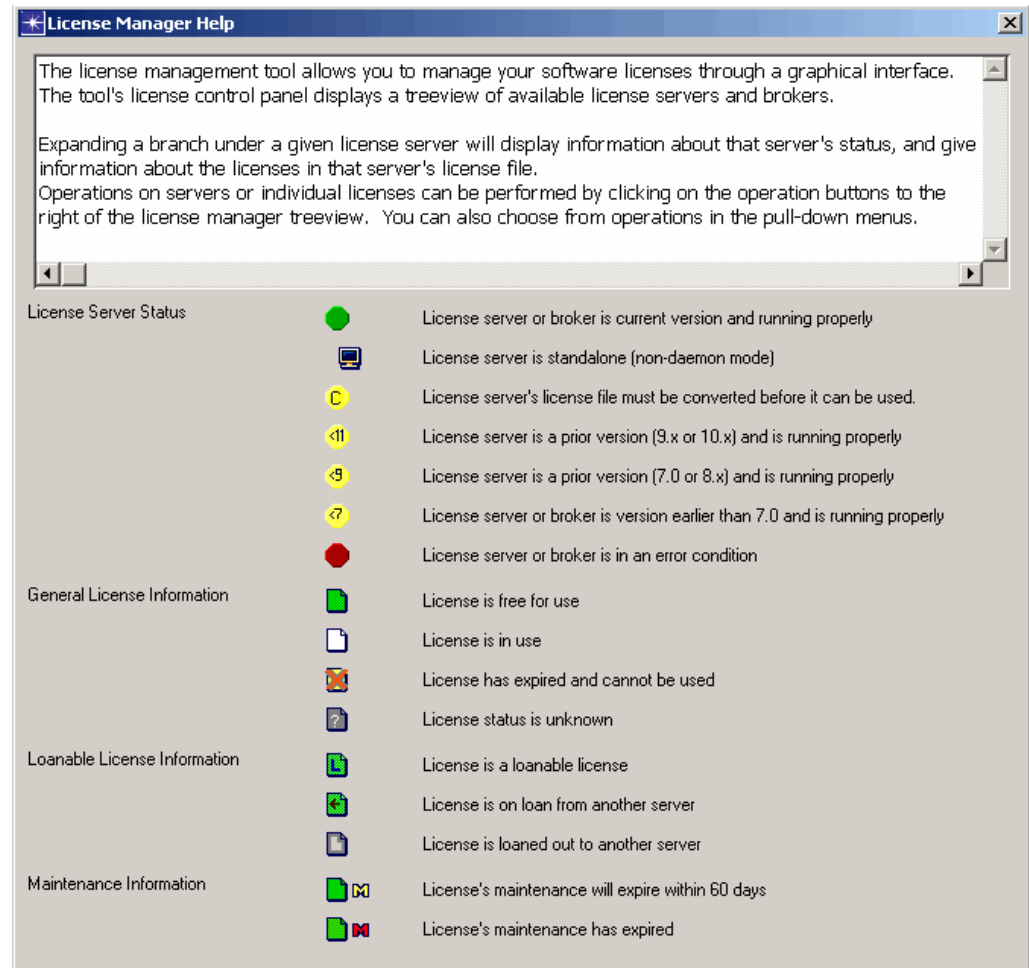


Table 3-1 lists the elements of the license servers displayed in the License Manager window.

**Table 3-1 License Server Elements**

Field	Description
Requested Server	This branch shows the server from which the SP Guru Transport Planner program can request and be issued licenses. You specify this server during SP Guru Transport Planner installation, by selecting it from within the License Server tree, or by listing the server name and port in your Preferences file in the <code>license_server</code> and <code>license_port</code> preferences, respectively.
Operating System	The OS version of the License Server is displayed in the tree.
OPNET Build	The OPNET analysis software version and build installed on the license server are displayed in the tree.
Security	Shows whether there is an <code>admin_auth</code> or <code>user_auth</code> file in place to control license management and usage.  For more information, see Restricting License Server Administration on page AG-3-27.
Host IP Address	The “Host IP address” given for each server is the return address of the IP packet received by the License Manager. This is not necessarily the actual IP address of the license server but could be the address of the firewall port through which the license server is accessed, for example.
System Date	The system date of the License Server is displayed.
License File Path	The full path of the license file location is displayed in the tree.
License File	Shows the number and type of licenses installed on the server.  For more information about license attributes, see Table 3-2.
Local Servers	Shows other license servers running on your computer.
Other Servers on this IP Network	Shows other license servers running on your IP network segment.
<b>End of Table 3-1</b>	

A license has several associated attributes, as listed in Table 3-2.

**Table 3-2 License Attribute Definitions**

Attribute	Description
Status	<p>This icon identifies the state of the license:</p> <ul style="list-style-type: none"> <li>• A <i>free license</i> (shown in green) is available to the next user who requests it.</li> <li>• An <i>in use license</i> (shown in white) is unavailable.</li> <li>• An <i>expired license</i> (shown as yellow with red X) is no longer valid.</li> </ul>
License number	A unique pair of numbers that identifies the license. A license may bundle several programs. This means that a single license (for example, 100/1) that includes the programs SP Guru Transport Planner and eXpress Data Import is shown as two separate lines in the License Manager interface.
Program name	Controls which products or modules the license can run (such as SP Guru Transport Planner or the ACE module).
License expiration	Controls how long you can use the license. After a license expires, it no longer runs OPNET analysis software products.
Maintenance expiration	Controls which releases of the OPNET analysis software can be run.
User	If the license is in use, this attribute shows the name of the user who checked out the license.
Host	If the license is in use, this attribute shows the machine where the license is being used.
Time in Use	If the license is in use, this attribute shows the days, hours, minutes, and seconds elapsed since the start of use.
<b>End of Table 3-2</b>	



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## Operations

Operations fall into one of three broad groups:

- License Manager Operations (which are always available)
- Server Operations (the server of interest must be selected)
- License Operations (apply to a specific license or license file)

License operations are available from the drop-down menu. Many License Manager operations can also be accessed from a pop-up menu by right-clicking on a server, license file, or license icon in the treeview.

### License Manager Operations

**Export Tree (button)** The license tree can be exported to a tab-delimited text file using the Export Tree feature. This feature is useful for troubleshooting.

**Convert License File (File menu, button)** Converts a pre-11.0 license file to a format the License Manager can use. After conversion, older license servers can use the license file, but you should only use the latest release of License Server to add or deregister licenses from the license file. You should convert the license file after the 11.0 installation process.

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**Note**—The button to convert the license file is “Convert pre-11.0 License File”.

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**Note**—If a license file is in an old format and needs to be converted, all operations except Stop Server, Start Server, and Convert License File are disabled. See License File Format Conversion on page AG-3-30 for more information.

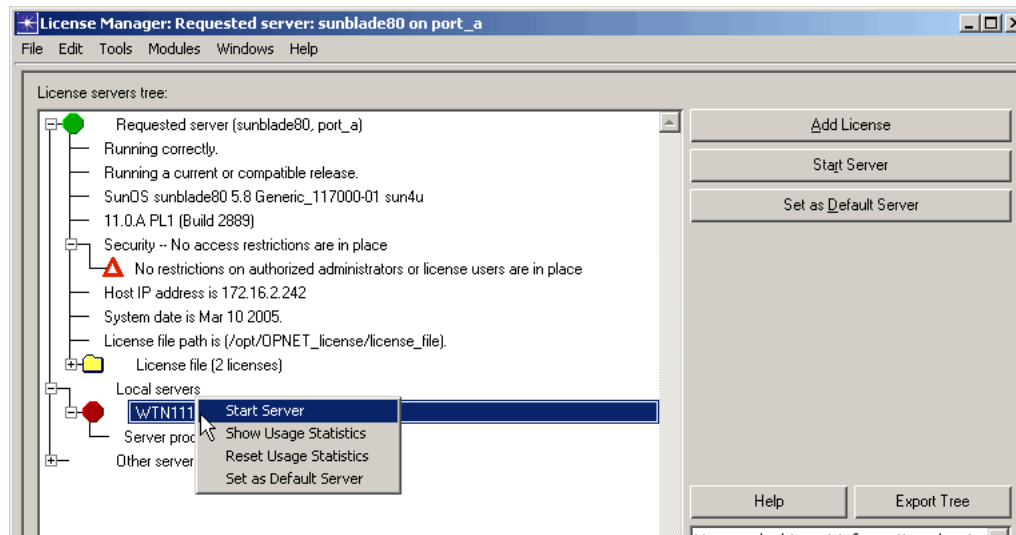
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**Product Modules (Modules menu)** Lets you specify which product options to use. Only the product options for which you have purchased licenses can be selected from the list. (Specialized model licenses are not listed here, but will be used when discrete event simulations are run.)

### Server Operations

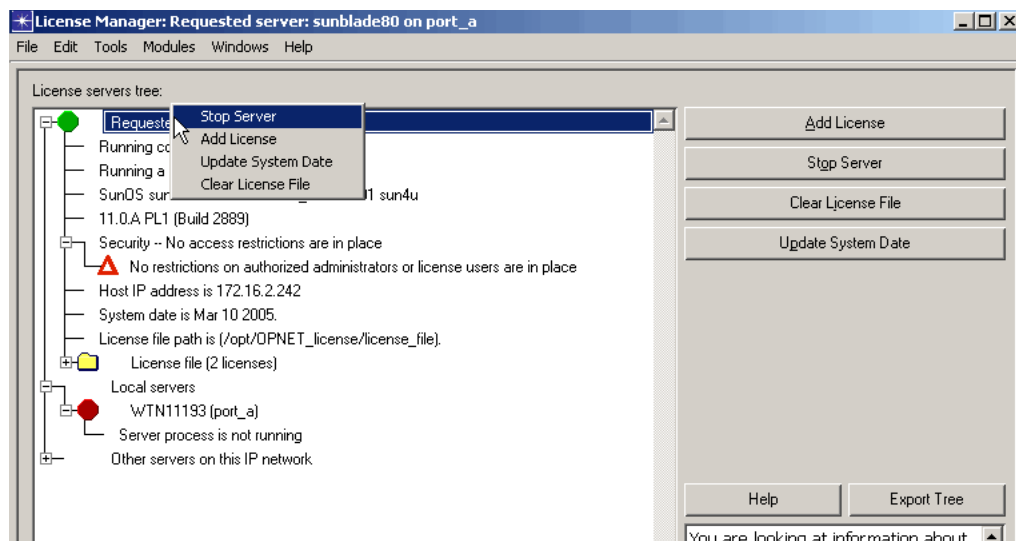
**Start Server (button)** Starts the selected server, allowing it to issue licenses and perform other license server functions. This button is active only when the selected server is your own (local) machine. To determine if a machine is local, type `hostname` in a shell window. See Procedure 3-5 on page AG-3-19 for details. You can also right-click on the server, and select “Start Server” from the pop-up menu. If the selected license server is already running, this button is not visible.

Figure 3-4 Right-Click Server Operations



**Stop Server (button)** Stops the selected server. A server can be stopped even if running on a remote machine. See Procedure 3-10 on page AG-3-22 for details. You can also right-click on the server and select “Stop Server” from the pop-up menu, as shown in Figure 3-4. If the selected license server is not running or is in standalone mode, this button is not visible.

Figure 3-5 Right-Click Server Operations



**Update System Date (button)** Allows you to reset the license server's date, shown in the System Date field as described in Table 3-1, to the current date. Resetting the date requires that you contact technical support via either the Internet, e-mail, or phone/fax. You can also right-click on the server, and select "Update System Date" from the pop-up menu, as shown in Figure 3-5.

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**Note**—You might need to perform this operation because the server's date is not the current date. This can occur even if the computer running the license server is set to the current date.

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**Set as Default Server (button)** Sets user preferences so that the selected server is the default server. This server will be the requested server the next time you start SP Guru Transport Planner, and the values of the `license_server` and `license_port` preferences will correspond to this server. You can also right-click on a server other than the server you are currently using, and select "Set as Default Server" from the pop-up menu.

**Refresh Server Information (File menu)** Scans your network for license servers and rebuilds the tree.

**Show Local Server's Usage Statistics (Tools menu)** Shows usage statistics for the local server.

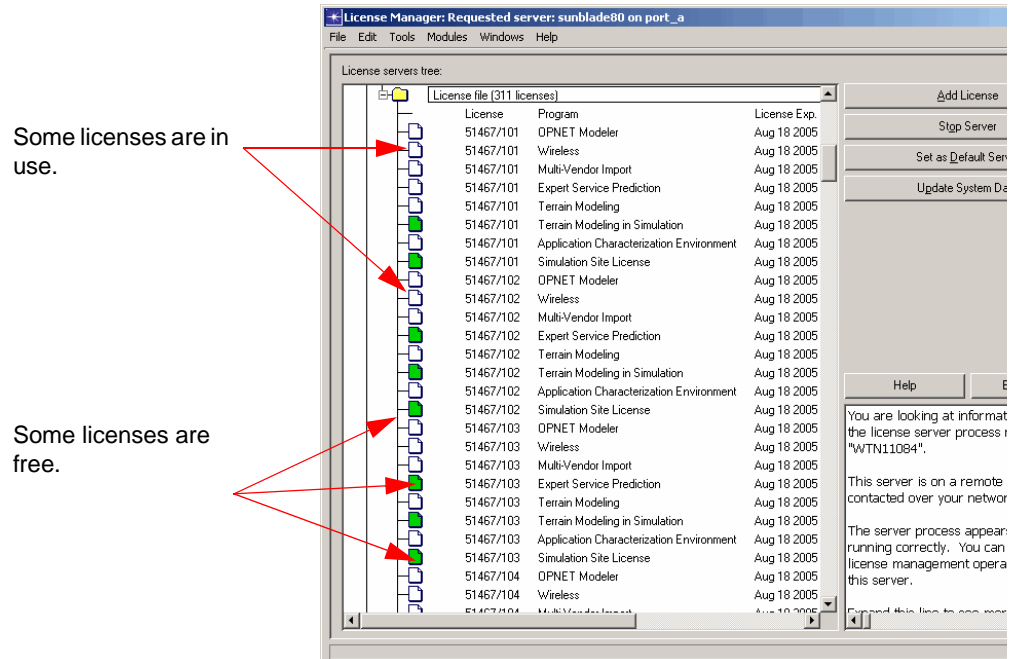
**Reset Local Server's Usage Statistics (Tools menu)** Resets the usage statistics for the local server.

**Create License File (Button)** This button appears only if there is no license file on the computer where the license server is running. When you click this button, a new license file is created. It will not have any licenses in it. Use the Add License (button) to add licenses.

## License Operations

The contents of the License file are displayed when you expand the License file folder under a selected server. You can right-click on a license file (when it is expanded to show the individual licenses) and sort the licenses for that server by license number, product type, status, or user.

Figure 3-6 Example License File

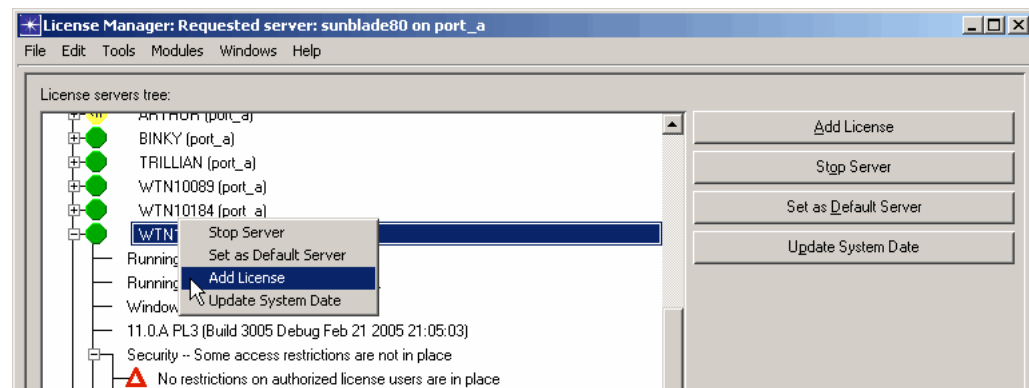


You can restrict who has access to the following operations by creating an `admin_auth` file. If you do not create such a file, any user has access to these operations from any machine. See *Restricting License Server Administration* on page AG-3-27 for details. License operations are as follows.

**Add License (button)** Allows you to add one or more licenses to a server. Requires that you contact technical support by Internet, e-mail, or telephone (voice or fax). You can also right-click on a server to add a license from the pop-up menu, as shown in Figure 3-7.

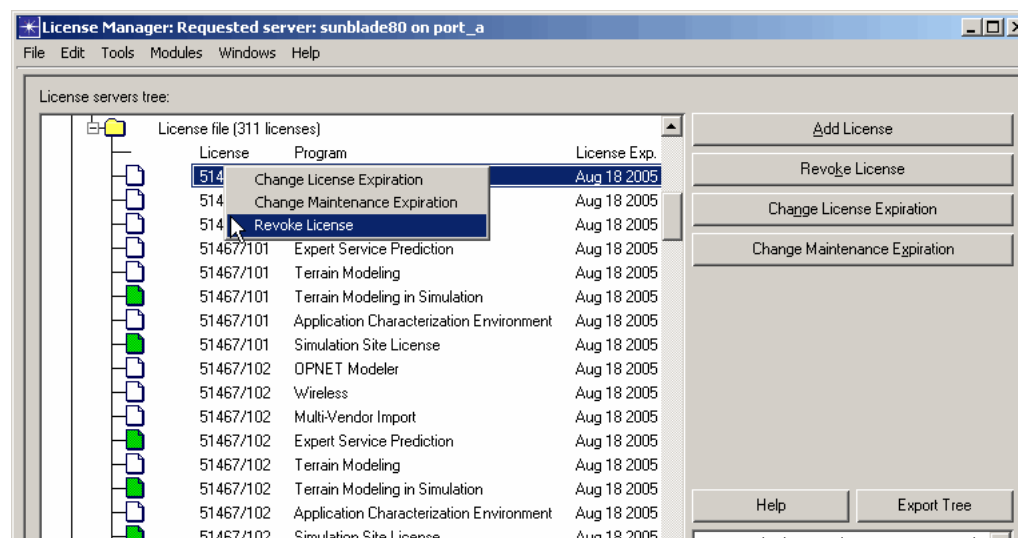
For detailed instructions on adding licenses, go to <http://www.opnet.com/support> and follow the "License Registration" link.

Figure 3-7 Add License from Pop-Up Menu



**Revoke License (button)** Immediately revokes a license in use. The user of the license receives a warning and has two minutes to save files and exit the application.

**Figure 3-8 Revoke License from Pop-Up Menu**



**Change Maintenance Expiration (button)** Lets you set a new maintenance expiration date. You can change maintenance expiration from the pop-up menu by right-clicking on the license. The maintenance expiration date determines

- The time period for which you have access to OPNET Technical Support.
- Which release of an application you can run. For example, suppose you have installed the newest version of SP Guru Transport Planner, which has a release date later than the maintenance expiration of a particular license. That license will not run the new release, though it will run earlier versions of SP Guru Transport Planner. Licenses with a later maintenance expiration can run the new release.

You can find detailed instructions on changing the maintenance expiration date on the Technical Support website. Go to <http://www.opnet.com/support> and follow the "License Registration" link.

**Change License Expiration (button)** This button appears only if you select a permit that has an expiration. You cannot perform this function on a permanent permit. You can also right-click on a license and change its expiration.

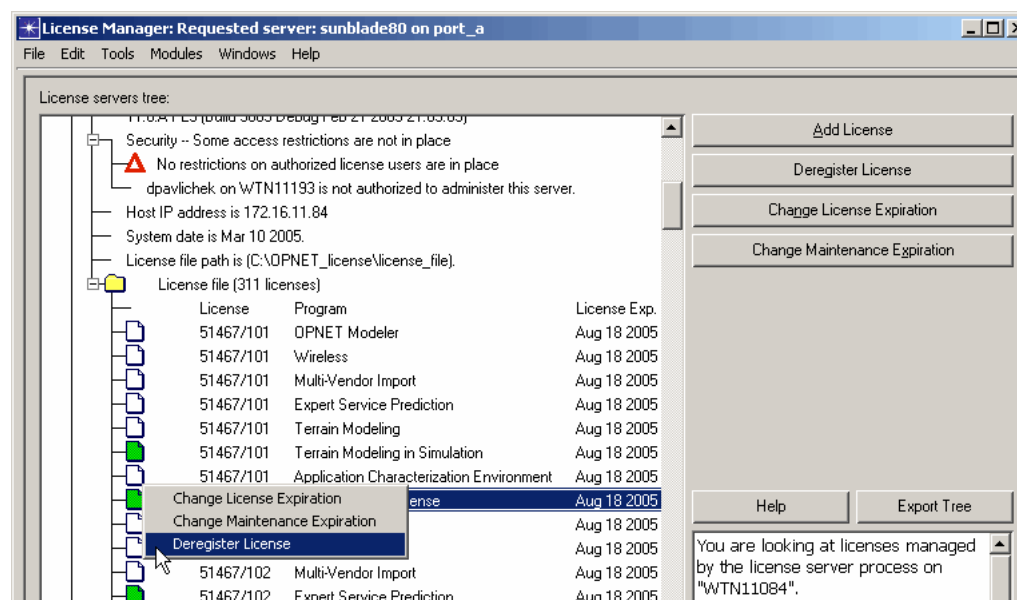
You can find detailed instructions on changing the expiration date for a license on the OPNET Technical Support website. Go to <http://www.opnet.com/support> and follow the "License Registration" link.

**Note**—You can move a license from one license file to another. To do this you must first deregister the license from one license file, then add the license to the target license file. You can only deregister a license a certain number of times each year, as specified in your agreements with OPNET.

**Deregister License (button)** This button removes a license from your computer. Typically, you will use this if the computer is about to be reformatted or decommissioned, or if you want to move the license to another license file. The button does not appear if you have selected a permit that is in use. You can also right-click on a license and deregister it from the pop-up menu, as shown in Figure 3-9.

You can find detailed instructions on license deregistration on the OPNET Technical Support website. Go to <http://www.opnet.com/support> and follow the "License Registration" link.

**Figure 3-9 Deregister License from Pop-Up Menu**



**Clear License File (button)** This operation deregisters all licenses from the license file in a single operation. This button appears only if no licenses in the file are in use. The choice also appears on the pop-up menu when you right-click on a license file, if no licenses in the file are in use. You should contact OPNET Technical Support by e-mail, phone, or fax before performing this operation.

**When should you use “Deregister License” or “Clear License File”?** These two choices perform the same operation but on a different scale.

- If you want to deregister all of your licenses in a single operation, use Clear License File. This deregisters all licenses in the license file at once, regardless of their contract number range. You must contact OPNET Technical Support by e-mail, phone, or fax before proceeding.
- If you want to deregister a selected license use the Deregister License operation and select which licenses will be removed from your license file. You do not need to contact technical support before performing this operation.

Deregister License is the recommended method, because you do not need to contact technical support. Select the license of interest, click on the Deregister License button, and then click Express. Follow the prompts to remove the licenses from your license file.

**Register New License (Tools menu)** Same as the Add License button.

**Validate License File (Button)** This button only appears in rare circumstances in which a license file has become invalid. An invalid license file cannot be used to issue licenses. You must contact technical support to use this operation.

## License Server

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**WARNING**—Your license server should run the latest OPNET analysis software release. A newer version of the license server can always serve licenses to earlier versions of the product.

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License Server (`op_license_server`) is the application that issues licenses to licensed applications, when you use workgroup licensing. You may not need to directly invoke this application at all, because the graphical License Manager allows you to perform most common operations, including starting and stopping the license server. However, you may want to use the command line operations offered by `op_license_server`, perhaps by including commands in a script file.

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**Note**—If you are using standalone licensing, SP Guru Transport Planner accesses the license file locally and does not use `op_license_server`.

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`op_license_server` runs as a service (on Windows platforms) or as a daemon process (on Solaris and Linux platforms), issuing licenses to licensed applications. A daemon process is one that executes continuously without being attached to a user shell. Applications send messages to `op_license_server` by referencing its host (the workstation on which it runs) and its port (a unique identifier of a communications port on that host).

You can restrict who has access to certain server operations by creating an `admin_auth` file. If you do not create such a file, any user has access to any license operations on any server. See Restricting License Server Administration on page AG-3-27 for information.

You can restrict who can obtain licenses from a particular server by creating a `user_auth` file. See Restricting License Users on page AG-3-30 for details.



## Licensing Schemes

When you install SP Guru Transport Planner, you are asked to choose a licensing scheme. Table 3-3 lists the use cases for each type of licensing.

**Note**—To change licensing schemes, you must reinstall the latest SP Guru Transport Planner version from your product CD or from a downloaded version obtained from technical support. Normally this is all that is required to change the licensing scheme. However, if you previously used Edit > Preferences in SP Guru Transport Planner to change the value of the `license_server_standalone` preference, you must manually set `license_server_standalone` to the correct value after reinstalling the software.

**Table 3-3 Licensing Schemes**

Licensing Scheme	Use Case
Standalone Licensing	<ul style="list-style-type: none"> <li>• OPNET analysis software products will be used only on the computer where the license is installed.</li> <li>• All discrete event simulations (DES) will be launched from the SP Guru Transport Planner GUI, rather than from a command line or from a script.</li> <li>• Report Server, 3DNV, or VNE Server applications are not used.</li> </ul>
Workgroup Licensing	<ul style="list-style-type: none"> <li>• You want to share a license among several users in the same IP network.</li> <li>• You want to run DES from command line, script, or batch file (outside the context of the SP Guru Transport Planner GUI).</li> <li>• A VNE Server application will obtain its license from this License Server.</li> </ul>
End of Table 3-3	

### Standalone Licensing

In the standalone configuration SP Guru Transport Planner acts as its own License Server, accessing the license directly without any intermediary program. When you use standalone mode, SP Guru Transport Planner may only be run on the computer where the license is installed.

## Workgroup Licensing

In the workgroup, or “floating”, configuration, `op_license_server` executes on a host computer that is on the same classful IP network as the clients it serves.

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**Note**—The license server and clients must be in the same classful IP network. Therefore, unless the license server and the client have the same network address, licenses cannot be issued.

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Within the local area network (LAN), multiple executing instances of `op_license_server` can coexist, but duplicate licenses (licenses with the same identification numbers) are not allowed. For example, if one license server allocates licenses 100-1 through 100-10, another license server cannot allocate those same licenses.

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## Starting the License Server

There are several ways to start the License Server. `op_license_server` is typically started by one of the boot scripts of the host operating system. See section Stopping the License Server on page AG-3-22 for methods of stopping `op_license_server`.

When you invoke a licensed application (such as SP Guru Transport Planner), the application sends a request for a license to `op_license_server`. This license server examines the license file and, if a license is free, sends a reply granting the licensed application permission to run. If all licenses are in use, `op_license_server` sends a reply denying permission and the application notifies you.

Procedure 3-5 describes the preferred way to start the License Server. The remaining procedures in this section describe alternate methods for specific operating systems.

Regardless of the method you use, you should note these considerations:

- You can only start the local License Server (the one for the computer into which you are logged in).
- The License Server (`op_license_server`) must have read/write permissions on the license file to work correctly.
- If you installed SP Guru Transport Planner in standalone licensing mode, it will obtain licenses on its own. There is no need to start the license server in this case.

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### Procedure 3-5 Starting the License Server (Preferred Method)

- 1 Run the License Manager (as in Starting the License Manager on page AG-3-4).
- 2 Select the License Server for your computer in the License Manager treeview. (It will have a red dot in front of its name, indicating that it is not running.)
- 3 Click the Start Server button.

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### End of Procedure 3-5

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## Windows

There are two alternate ways to start the license server on Windows:

- Manually
- Automatically

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**Procedure 3-6 Starting the License Server on Windows (Manually)**

- 1 Start the Services application (in the Administrative Tools section of the Windows Control Panel).

**Note**—Your path to the Services application depends on your version of the Windows operating system. Please consult your Microsoft manual for assistance.

- 2 Locate License Server in the scrolling list of available services. If the Status column entry for this service does not read “Started”, select it and click the Start button.
- 3 The Startup column entry should read “Automatic”, which indicates that `op_license_server` will be started automatically whenever Windows is restarted. If this is not the case, change the Startup Type property to “Automatic”.

**End of Procedure 3-6**

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If you want the License Server to start automatically whenever the computer is rebooted, follow Procedure 3-7.

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**Procedure 3-7 Starting the License Server on Windows (Automatically)**

- 1 Install or reinstall SP Guru Transport Planner.
- 2 Select “Floating: Serve licenses from this computer” as your licensing scheme.
- 3 Complete the installation.

**End of Procedure 3-7**

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## Solaris and Linux

There are two alternate ways to start the license server on Solaris and Linux:

- Manually, from the command line
- Automatically, using auto-boot commands typically located in the `/etc/rc` file

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**Procedure 3-8 Starting the License Server on Solaris and Linux (Manually)**

- 1 Log into the host computer where `op_license_server` is running.
- 2 Navigate to the binary directory (`<bindir>`) for your OPNET analysis software release and architecture.
- 3 Type the following command.

```
./op_license_server -license_port <port>
```

**Note**—If you do not know which port is available for `op_license_server`, enter “port\_a”. If that port is unavailable, an error message will tell you which ports are available and you can re-enter the command with the correct port.

#### End of Procedure 3-8

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#### Procedure 3-9 Starting the License Server on Solaris or Linux (Automatically)

**Note**—Root permissions are usually required for this procedure.

- 1 Create the following file: `/etc/rc3.d/S999_opnet_lic_server`.
- 2 Insert the following auto-boot commands into the file you created:

```
# OPNET License Server
echo 'starting OPNET License Server...'
<bindir>/op_license_server -license_port <port>
```

- 3 (Linux only) Copy the same script to `/etc/rc5.d` using the following command:

```
cp /etc/rc3.d/S999_opnet_lic_server /etc/rc5.d
```

#### End of Procedure 3-9

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## Stopping the License Server

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**WARNING**—Do not stop the License Server while any licensed application is running, unless you will bring the license server back up within 15 minutes. For best system behavior, ask users to stop using the software or revoke all in-use licenses with the License Manager before stopping the License Server.

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Procedure 3-10 describes the preferred way for stopping the License Server. You can also use one of the alternate methods given for specific OS platforms.

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### Procedure 3-10 Stopping the License Server (Preferred Method)

- 1 Run the License Manager (as in Starting the License Manager on page AG-3-4).
- 2 In the License Manager treeview, select the license file of the server you intend to stop, and verify that no licenses are in use.
  - If any licenses are checked out, you can forcibly revoke them. To do so, select and revoke those licenses. The user receives a warning message and a short grace period, allowing time to save files and exit the application. If the user does not exit, the application will quit.
  - You can choose not to revoke any checked-out licenses if you will bring the license server back up within a few minutes.
- 3 Click the Stop License Server button.

#### End of Procedure 3-10

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### Procedure 3-11 Stopping the License Server on Windows (Alternate Method 1)

- 1 Invoke the License Manager program from the command line in the stop server mode:

```
op_license_util -license_server_kill -license_server <server> \  
-license_port <port>
```

For information about `op_license_util`, see the *Program Descriptions* chapter of your product documentation.

#### End of Procedure 3-11

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## Windows

In addition to the preferred method, you can stop the License Server on Windows by starting the Windows “Services” application. Select OPNET License Manager from the list of available services, and click the Stop button to stop the supervisor service. You can also use Procedure 3-11.

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## Solaris and Linux

Procedure 3-12 describes an alternate way to stop the license server on Solaris or Linux.

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### Procedure 3-12 Stopping the License Server on Solaris or Linux (Alternate Method)

**WARNING**—Use this procedure only when other methods do not work.

- 1 Determine the process id (pid) of `op_license_server` by logging into the process' host and using the `ps` command.
- 2 Execute the `kill` command from the command line:

```
kill <pid>
```

**End of Procedure 3-12**

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## License Server Reporting

The license server can track license usage statistics and produce statistical reports upon request. When tracking is enabled on the license server, you can generate reports from the license manager console, using two commands, from any client. Either command lets you specify a number of days on which to report.

- `fldb_stats`—Produces a usage report for the license server.
- `license_stats`—Produces a usage report for individual licenses.

The report displays on the screen, and a time-stamped .csv copy of the file is placed in the local `<user_home>\op_admin\tmp` directory.

## Enable License Tracking

Use one of the following procedures, depending on your platform, to enable license tracking.

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### Procedure 3-13 Enable License Tracking (Windows)

- 1 Navigate to Windows Services.
- 2 Right-click on the OPNET License Server service, and select Properties.
- 3 Click the Stop button on the General tab under Service Status.

- 4 Type `-license_usage_tracking_enable` `[-license_usage_tracking_history_days <number of days>]` in the start parameters box.

**Note**—If you do not use the `-license_usage_tracking_history_days <number of days>` parameter, tracking is automatically enabled for a 30 day history.

- 5 Click the Start button, and click OK to exit Properties.

**Note**—If you stop and restart the License Server from the License Manager, tracking is disabled.

#### End of Procedure 3-13

---

---

#### Procedure 3-14 Enable License Tracking (Solaris or Linux)

- 1 Modify the auto-boot scripts as described in Procedure 3-9 to include `"-license_usage_tracking_enable"`. The entire command will appear as follows:

```
<bindir>/op_license_server -license_port <port_name> -license_usage_tracking_enable
```

Tracking information is retained for 30 days, by default. To modify this period, append the following when using the command shown above:

```
-license_usage_tracking_history_days <number_of_days>
```

- 2 Save the changes to the auto-boot script.
- 3 Stop the license server, using Procedure 3-10 or Procedure 3-12.
- 4 Run the auto-boot script to restart the license server with the new changes.

#### End of Procedure 3-14

---

### Obtaining License Server Statistics

Once license tracking is enabled, you can generate statistical reports about license usage. Use one of the following procedures, depending on your platform, to generate a report.



---

## License Server Usage Reports

A license server usage report provides license file statistics, including license ID (license number, contract number and program name), total time in use, average checkout time, number of checkouts, number of unique users who accessed the file, and user IDs of those who accessed the file.

---

### Procedure 3-15 Generate License Usage Reports per Server (Windows)

- 1 Choose Start > Programs > 12.0 > OPNET Console 12.0, to open a console window.

**Note**—You can generate the reports from any client machine that has access to the license server.

- 2 Type `op_license_util -license_server <license_server_name>`.

➡ A license server prompt displays.

- 3 Type `flldb_stats` to print a usage report for the license server.

- 4 Enter the number of days for which you wish to report.

- 5 Obtain a .csv copy of the report from the local `<user_home>\op_admin\tmp` directory.

**Note**—The naming convention of the file is `license_usage_report_MM-DD-YYYY_HH:MM:SS`.

### End of Procedure 3-15

---

---

### Procedure 3-16 Generate License Usage Reports per Server (Solaris or Linux)

- 1 Open a shell.

**Note**—You can generate the reports from any client machine that has access to the license server.

- 2 Type `op_license_util -license_server <license_server_name>`.

➡ A license server prompt displays.

- 3 Type `flldb_stats` to print a usage report for the license server.

- 4 Enter the number of days for which you wish to report.

- 5 Obtain a .csv copy of the report from your <user\_home>/op\_admin/tmp directory.

**Note**—The naming convention of the file is  
license\_usage\_report\_MM-DD-YYYY\_HH:MM:SS.

#### End of Procedure 3-16

### License File Usage Reports

A license file usage report provides license server statistics, including maximum number of concurrent users, maximum number of concurrent licenses in use, and average number of concurrent licenses in use. Figure 3-10 shows an example of the .csv file that is produced.

**Figure 3-10 License File Usage Report**

	A	B	C
1	Report Date	Jun 28 2005	
2	Report Time	15:39:27	
3	Number of Days	65.57	
4			
5	Maximum number of distinct users at one time	10	
6	Maximum number of licenses in use at one time	100	
7	Average number of licenses in use (time average)	5.700047	
8			
9			
10			
11			
12			
13			

#### Procedure 3-17 Generate License Usage Reports per License File (Windows)

- 1 Choose Start > Programs > SP Guru Transport Planner 12.0 > OPNET Console 12.0, to open a console window.

**Note**—You can generate the reports from any client machine that has access to the license server.

- 2 Type `op_license_util -license_server <license_server_name>`.  
➔ A license server prompt displays.
- 3 Type `license_stats` to print a usage report for the license server.  
➔ The report displays and scrolls on the screen.
- 4 Enter the number of days for which you wish to report.

- 5 Obtain a .csv copy of the report from your `\op_admin\tmp` directory.

**Note**—The naming convention of the file is  
`license_file_usage_report_MM-DD-YYYY_HH:MM:SS`.

#### End of Procedure 3-17

---

---

### Procedure 3-18 Generate License Usage Reports per License File (Solaris or Linux)

- 1 Open a shell.

**Note**—You can generate the reports from any client machine that has access to the license server.

- 2 Type `op_license_util -license_server <license_server_name>`.

➡ A license server prompt displays.

- 3 Type `license_stats` to print a usage report for the license server.

➡ The report displays and scrolls on the screen.

- 4 Enter the number of days for which you wish to report.

- 5 Obtain a .csv copy of the report from your `<user_home>/op_admin/tmp` directory.

**Note**—The naming convention of the file is  
`license_file_usage_report_MM-DD-YYYY_HH:MM:SS`.

#### End of Procedure 3-18

---

## Restricting License Server Administration

You can restrict access to server administration operations by creating an administration authorization file (`admin_auth`) that is stored on a specific license server. This file specifies machines and users: only the users listed, when logged into the machines listed, can perform server administration operations on that server.

The following operations are restricted:

- Add License
- Revoke License (however, users who are already using licenses can always revoke their own licenses)
- Change Maintenance Expiration

- Change License Expiration
- Deregister License
- Clear License File
- Update System Date
- Start Server
- Stop Server

---

**WARNING**—If you do not create an administration authorization file, any user from any machine has access to these operations.

---

The administration authorization file is a text file with the following format:

```
<machine> <user>
...
<machine> <user>
```

You can use a plus sign (+) to mean any user or any machine, as shown in the following example.

```
engineering1 root
js_pizza_box jsmith
ww_NT wwilson
+ hhooover
engineering_test +
```

This example file shows that:

- any user logging in as `root` on `engineering1` can perform server administration operations
- `jsmith` can perform operations when logged into `js_pizza_box`
- `wwilson` can perform operations when logged into `ww_NT`
- `hhooover` can perform operations when logged into any machine
- any user can perform operations when logged into `engineering_test`

Name the administration authorization file as `admin_auth` and place it on the license server for which you want to control administration operations, in the same directory as the license file:

Windows: `<primary_hard_drive>:\OPNET_license\`

Solaris: `/opt/OPNET_license/` or  
`/var/adm/OPNET_license/`

Linux: `/opt/OPNET_license/`

After adding or editing an administration authorization file, you must do one of the following things to make it take effect:

- In the License Manager, choose Tools > Refresh Server Authorization Files.
- Stop and restart the license server.

## Restricting License Users

You can restrict the users of a particular license server by creating a user authorization file (`user_auth`). In this file you list machine-user pairs that are allowed to receive licenses from that server. A license server with a `user_auth` file will grant licenses only to those machine-user pairs listed in the file.

---

**WARNING**—If you do not create a user authorization file, any user from any machine can obtain licenses and run applications.

---

A user authorization file is a text file with the same format as an administration authorization file (see Restricting License Server Administration on page AG-3-27 for details). Name the user authorization file as `user_auth` and place it on the license server for which you want to specify users, in the same directory as the license file:

Windows: `<primary_hard_drive>:\OPNET_License\`

Solaris: `/opt/OPNET_license/` or  
`/var/adm/OPNET_license/`

Linux: `/opt/OPNET_license/`

After adding or editing a user authorization file, you must do one of the following things to make it take effect:

- In the License Manager, choose Tools > Refresh Server Authorization Files.
- Stop and restart the license server.

---

## License File Format Conversion

The format of the license file changed from release 10.5 to 11.0. Because of this, license files from pre-11.0 installations must be converted before the OPNET analysis software 11.0 license server can use them. After installing the 11.0 software, you must convert your license files by doing Procedure 3-19.

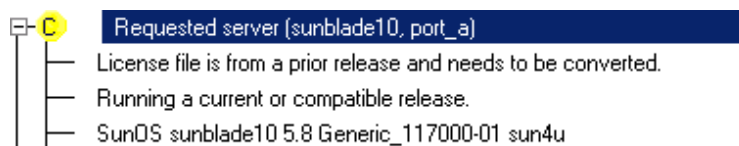
Until the license file is converted, the 11.0 license server will be unable to provide licenses to any 11.0 clients. (However, it can provide licenses to pre-11.0 clients.) After the license file is converted, 11.0 license servers will be able to serve licenses to both 11.0 and older license clients.

---

### Procedure 3-19 Converting Pre-11.0 License Files

- 1 Start the 11.0 License Manager (as in Starting the License Manager on page AG-3-4).

- 2 In the License Manager treeview, select the server whose license file you want to convert. Servers with unconverted license files are marked by a yellow dot with a C, as shown in the following figure.



- 3 Click the Convert Pre-11.0 License File button and follow the on-screen prompts.

**Note**—More detailed instructions on how to convert a license file are posted at the OPNET Support Center ([www.opnet.com/support](http://www.opnet.com/support)); follow the License Registration link to the Instructions section.

### End of Procedure 3-19

---

## Troubleshooting

This section contains information intended to help you troubleshoot common problems, decipher licensing errors, and debug licensing operations:

- Diagnose Mode
- License Server Log
- Common Problems and Solutions

### Diagnose Mode

This section provides a description of the diagnose mode available for License Server and procedures specific to your operating system.

Diagnose mode is not often used, because it is very verbose and creates large log files. However if you are debugging licensing behavior or looking for specific information about when and by whom licenses are checked out, then you can use diagnose mode.

The information generated by running the license server in diagnose mode is recorded to a file called `license_server_log`, which is located in

Windows: `<primary_hard_drive>:\OPNET_license`

Solaris: `/opt/OPNET_license/` or  
`/var/adm/OPNET_license/`

Linux: `/opt/OPNET_license/`

This is the same directory where the `license_file` is located.

---

**Note**—The diagnose mode of the License Server writes verbose information to this file that will eventually create a large `license_server_log`. This file must be deleted occasionally.

---

To use the diagnose mode, follow the appropriate procedure:

- Procedure 3-20—Describes how to use diagnose mode on an ad hoc basis on Windows, Solaris, and Linux platforms.
- Procedure 3-21—Windows: Describes how to configure diagnose mode to start automatically when the computer is restarted.
- Procedure 3-5—Solaris and Linux: Describes how to configure diagnose mode to start automatically when the computer is restarted.



**Procedure 3-20 Starting the License Server in Diagnose Mode (Ad Hoc)**

- 1 Log in to the machine where the License Server is running.
- 2 Shut down the License Server. See Stopping the License Server on page AG-3-22 for more information.
  - 2.1 Start the License Manager.
  - 2.2 Locate and select the License Server of interest from the left side of the License Manager window.
  - 2.3 Click the Stop button on the right side of the License Manager window.
    - ➔ After a moment, the license server stops.
- 3 Start the License Server in diagnose mode:

*Windows*

- 3.1 Select OPNET License Server from the Services control panel:

Windows 2000, XP: Start > Programs > Administrative Tools > Services

Windows NT: Start > Settings > Control Panel > Services

- Right-click on the OPNET License Server service and choose Properties.
- Add `-diagnose` to the Start Parameters.
- Click on the Start button to start the License Server in diagnose mode.

*Solaris or Linux*

- 3.1 Open a c-shell.

Type the command `op_license_server -diagnose &`

**Note**—Make sure the path to is in your shell PATH.

- 4 Inspect the `license_server_log` for the information you desire.
- 5 To disable diagnose mode:
  - 5.1 Stop the License Server.
  - 5.2 Select the License Server of interest (in red).
  - 5.3 Click “Start” to start the License Server in the normal mode.

**End of Procedure 3-20**

---

**Procedure 3-21 Starting in Diagnose Mode for Windows (Recurrent)**

- 1 Log in to the machine where the License Server is running.

- 2 Shut down the License Server. See Stopping the License Server on page AG-3-22 for more information.

- 2.1 Start the License Manager.

- 2.2 Locate and select the License Server (indicated by the green dot) of interest from the left side of the License Manager window.

- 2.3 Click the Stop License Server button on the right side of the License Manager window.

➡ After a moment, the license server stops.

**Note**—You may need administrator privileges to perform these actions.

- 3 Modify the system registry.

**Note**—Since you are editing your system's registry, you should make a backup copy in case you need to recover.

- 3.1 Select Start > Run > "regedit".

- 3.2 Navigate to the following key: `\\My Computer\HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\OPNET License Server`.

- 3.3 Double-click on "ImagePath", in the right pane.

➡ The ImagePath value appears in quotes.

- 3.4 Add the argument `-diagnose` to the end of the value (outside the quotation marks).

- 3.5 Exit the registry.

- 4 Start the License Server. See Starting the License Server (Preferred Method) on page AG-3-19.

- 4.1 Navigate to the Services panel.

**Windows 2000, XP:** Start > Programs > Administrative Tools > Services > OPNET License Server.

**Windows NT:** Start > Settings > Control Panel > Services > OPNET License Server.

- 4.2 Right-click on the OPNET License Server service, and select Start.

- 5 Close the Services panel.

#### **End of Procedure 3-21**

---

---

#### **Procedure 3-22 Starting in Diagnose Mode for Solaris or Linux (Recurrent)**

- 1 Modify the auto-boot scripts as described in Starting the License Server on page AG-3-19.
- 2 Append the "-diagnose" flag to the command line as shown below:

---

```
<bindir>/op_license_server -license_port <port_name> -diagnose
```

**Note**—Fill in your own installation directory for <bindir>; substitute the port (which defaults to “port\_a”) for <port\_name> in the example.

### End of Procedure 3-22

---

## License Server Log

The license server application (`op_license_server`) writes messages and errors to a log file. The log file, named `license_server_log` is located in the following directory:

Windows: `<primary_hard_drive>:\OPNET_License\`

Solaris: `/opt/OPNET_license/` or  
`/var/adm/OPNET_license/`

Linux: `/opt/OPNET_license/`

If the log file grows too large, you can remove it even when the license server is running.

The type and quantity of information written to the log file varies depending on whether the license server is operating in normal or diagnose mode.

In normal mode, the following events are logged:

- Start up and termination of the License Manager
- Arrival of an unexpected or invalid packet from a requesting application
- Inability to read from or write to the license database
- Use of an invalid license file
- Expiration of a license

In diagnose mode, the license server logs information on the following additional events:

- Requesting client is not on the same IP network as the license server
- License freed due to time-out
- License issued or refused
- Arrival of a continuation request from an application
- Arrival of a quit request from an application
- Arrival of a request to use a revoked or reissued license

## Common Problems and Solutions

### ***Cannot Find License Server You Wish to Use***

- If you cannot see the license server you want in the license treeview, you can add it to your `license_managed_servers` preference. (See Licensing Preferences on page AG-3-43). After editing the preference, click on File > Refresh Server Information in the License Manager.
- If the above method is problematic, you can also set the default license server by directly changing the `license_server` preference to the hostname or IP address of the computer that has the licenses you want to use.
- For standard workgroup licensing, the license server you choose must be in the same classful IP network as the computer on which you are running OPNET analysis software products.
- For loanable licensing, make sure you set the requested server to be a local License Server.

### ***License Not Obtained***

---

If you see a dialog box telling you that a license was not obtained, consider the following possible solutions for each type of problem. The type of problem is described in the “What Happened?” section of the dialog box.

- There was no response from the license server.
  - Are `license_server` and `license_port` set to the correct value, and are they spelled correctly? Use the “hostname” command to determine the exact spelling and capitalization.
  - Is the specified license server running?
  - Can the client ping the server? Can the server ping the client? This applies even if the server is the client. TCP/IP must be installed and running, even in standalone mode.
  - Is the license server an older release of SP Guru Transport Planner? Run the latest release of the License Server.
  - Rarely this may be accompanied by errors saying the `op_models` directory does not exist. It could be the case that changes to the preferences cannot be stored because SP Guru Transport Planner cannot write to the home directory. This can be due to permissions or because the directory does not exist.
- There are no licenses in the server's license file.
  - Set the `license_server` preference to a host with available licenses.
  - Use the Add Licenses button in the License Manager to add licenses to the server's license file.

- The license server did not grant your request for licenses.
  - You may be running a License Server that is too old for your licenses. In that case upgrade to the latest available License Server.
  - In the case of the “11.0 License Not Obtained” error message, perform the “Convert pre-11.0 License File” operation described in Procedure 3-19.
  - Set the `license_server` preference to a computer with available licenses.
  - Use the Add Licenses button in the License Manager to add licenses to the server's license file.
  - Deselect any product modules that are not in use.
- The only available license has expired or The only available license's maintenance has expired.
  - Perform the Change Maintenance Expiration operation if the current authorized maintenance date is not reflected in the license file.
  - Perform the Change License Expiration operation if the current authorized expiration date is not reflected in the license file.
  - Be sure to use Select Product Modules to deselect product modules that are unavailable.
  - In rare instances you may need to perform the Update System Date operation, if License Server date is too far in the future.
- The requested license was found in the license server's license file but it is in use.
  - The most common cause of this message is that the license is in use by another user.
  - If SP Guru Transport Planner exited ungracefully, select the license in the License Manager, then click on the Revoke License button to revoke the permits that are erroneously listed as “in use”.  
(SP Guru Transport Planner will automatically recover from this situation after no more than one hour without intervention).

---

**Note**—VNE Server licenses are not recovered in the one hour time period. A license may not be automatically revoked for several days.

---

- The license server is a “standalone” license server. A standalone license server cannot issue licenses to other applications.
  - An obvious remedy is to make sure you are selecting a License Server that is not in standalone mode.
  - If you are certain you have selected the correct default server, switch the License Server to server mode. Stop the license server and (re)install the latest software patch level (on the server machine). During the installation, choose Floating: Serve licenses from this computer.

- Your machine's IP network address is different from the IP network address of the license server.
  - You must use a License Server on your local IP network. Check to be sure you are using a License Server on your local IP network.
  - This error can also occur if the computer running the License Server received a new IP address after the License Server was started. The solution is to restart the License Server by stopping it, then starting it again in the License Manager.
- The license server cannot write to its license file. A license server cannot give licenses unless it can write to its license file.
  - Make sure the owner of the License Server process/daemon has permissions to write to the license file.
- The license server cannot lock its license file. A license server cannot give licenses unless it can lock its license file.
  - Make sure the owner of the License Server process/daemon has permissions to create/delete files and directories in the `OPNET_license` directory.
  - Make sure enough disk space is available to create a small file or directory in the `OPNET_license` directory.

---

**Note**—A standalone License Server has the same permissions as the user logged in, while a License Server running in server mode typically has root or Administrator privileges.

---

- The license server's license file is invalid. A license server cannot give licenses from an invalid file.
  - Make sure you are running the latest version of License Server. If you are not running the latest version of License Server, you may encounter problems when adding, deregistering, or obtaining licenses.
  - If you receive this error, refer to Validate License File (Button) on page AG-3-15.
- A license server's license file does not exist. A license server cannot give out licenses without a license file.
  - The license file may have been deleted, or the license server does not have permissions to create a new license file upon startup. If the license server should have a license file, check to see if it was deleted.
  - Otherwise, select a different license server.
  - If necessary, refer to Create License File (Button) on page AG-3-11.

- Your username/hostname is not authorized to obtain licenses from the license server.
  - The user account or computer from which you are trying to access the license server is not authorized in the `user_auth` file. Check the `user_auth` file on the computer where the license server is running.
  - For more information, refer to Restricting License Users on page AG-3-30.
  - Try to login from an authorized account or computer.

**No licenses in file**

If there are no licenses in your license file, you may need to sign your Electronic Licensing Agreement (ELA). To do this

- 1) Point your browser to the OPNET Support Center  
<http://www.opnet.com/support>.
- 2) Click on the License Registration link. When prompted, log in with your OPNET username and password. The License Registration page appears.
- 3) Click on the View Electronic License Agreements link. The OPNET License Agreement Review page appears in a separate browser window.
- 4) Find the agreement that you are interested in signing. On the left side of this agreement, click on the Sign link.
- 5) Read the license agreement, then click on the Continue button at the bottom of the page.
- 6) The next page asks if you are authorized by your organization to sign the license agreement. Read the page, and if you agree, click the I Agree button.
- 7) The next page is the actual acceptance of the legal agreement. Read the page, and if you agree, click on the I Agree button.

**Note**—Each set of licenses has two agreements: Usage and Maintenance. You need to sign both agreements before your licenses are available for use.

**Error: A "SERVERS" license is required to use the "server\_definer" process model**

The SERVERS license, also called Server Specialized Model (SSM) is used for studying advanced server characteristics, such as the effect of disk access time, CPU usage, and other detailed aspects of server usage.

- If you intended to use this feature, but don't have access to a server license, contact [info@opnet.com](mailto:info@opnet.com) or your OPNET sales account manager.

- If you did NOT intend to use this feature, you can fix the problem by
  - making sure that the "Server: Modeling Method" on all nodes is set to "Simple CPU", and
  - removing any "Server Definition" utility nodes from the network

You may see a similar error for other specialized models, including those in the following table:

**Table 3-4 Specialized Models**

Model	License
Server	SERVERS
Circuit Switched	CIRCSW
GPRS	GPRS
PNNI	PNNI
UMTS	UMTS
DOCSIS	DOCSIS
IPv6	IPV6
MPLS	MPLS
Mainframe	MFRAME
<b>End of Table 3-4</b>	

---

**Error: License  
Invalid with code=4**

An invalid license file with code = 4 indicates that an OPNET analysis software 10.5 (or previous) License Server was used to add licenses to a license file that is in the 11.0 (or later) format.

Resolve by deregistering all licenses from the file using the 10.5 License Server, then use 11.0 License Server to add them back.

Avoid this problem by always using the latest available version of the License Server and License Manager to perform license operations.

---

**Error: License  
Server's IP Address  
Does Not Match the  
IP Address of  
Co-Located  
Workstation**

When you install a license server on your computer, the license is manipulated by a system service: `op_license_server`. If your computer's IP address changes (due to a dial-up or VPN connection, for example) between the time the License Server started and the time SP Guru Transport Planner is launched, the License Server process does not pick up the change. Restarting the license server will refresh its awareness of its IP address.



- 1) - Run the License Manager
- 2) - Choose the local license server process (green dot) from the server treeview
- 3) - Click the Stop Server button. After a moment, the license server stops.
- 4) - Click the Start Server button. After a moment, the license server starts.

---

**Error: Bad  
checksum [error  
-16111]**

The "bad checksum" error during license registration usually indicates one of two things:

- The Transaction Code was mistyped. Make sure that the complete Transaction Code was entered and that it doesn't have extra spaces or characters.
- The hostname was mistyped. Make sure you used the correct capitalization--this field is case-sensitive. Also check for extra spaces or characters.

---

**Entries in License  
Server Authorization  
Files Do Not Work**

- Make sure your license authorization files contain the correct format. A '+' may replace either or both fields to indicate that you want to allow all.  
  
    hostname username
- After making any necessary changes to the authorization files, use the License Manager menu item Tools > Refresh Server Authorization Files, so the License Server uses the latest changes. For releases of License Manager 10.5 and earlier, you must stop and restart the License Server for the changes to take effect.

---

**When Entering  
Approval Code on  
the Web, Receive  
Error: "Multiple  
Decryption Choices"**

This message is most common with older releases of SP Guru Transport Planner. Older versions of the licensing system generated Transaction Codes that were less specific than they are now. Therefore, many times a Transaction Code made from either version could be confused with transaction codes from the other. That is what is meant by "Multiple Decryption Choices." To avoid this problem

- If you are using the Express method, simply try the operation again.
- If you are using the Browser method to perform a license operation, discard the Transaction Code that caused this error message, and try again with a new Transaction Code.

---

**Lost Confirmation  
Code during  
Registration**

If you lost your Confirmation Code during a registration, you may see the error, "This license has a pending registration". Confirmation codes are stored in the session log of the machine running the License Server.

You can view the session log by choosing Help > Session Log > Open.

---

**Note**—Confirmation codes are not necessary with the Express method of license registration.

---

**Potential Server or  
DNS Configuration  
Error**

If you receive an error similar to this, there is usually not a true problem:

```
<<< Diagnostic Error >>>
* Package: Vos (Virtual Operating System)
* Function: Vos_Sec_Fl_Dmn_Versioned_Ping
* Error: Potential server or DNS configuration error:
License server (X) returned (Y) as its host name.
```

This means that your preference settings for the License Server differ from what the server reports. This can happen when the server has multiple hostnames or interfaces.

To prevent the message

- Refer to the server in your preferences by the correct hostname or IP address.
- Suppress this and other diagnostic error messages by setting the `diag_enable` preference to FALSE.

## Licensing Preferences

Licensing preferences are supported by any licensed application, such as SP Guru Transport Planner and `op_runsim`. Preferences enable you to configure various aspects of program operation.

### **license\_group**

Specifies your group ID number, the number assigned to you by OPNET when you purchased the software. To find your group ID, choose About This Application from the Help menu. Your group ID is used for express license registrations through technical support on the technical support web site.

<b>Data Type</b>	string
<b>Default Value</b>	""

### **license\_http\_proxy\_password**

Specifies a password to use when authenticating to an HTTP proxy server. If your site controls access to the Internet with an HTTP proxy server, you should set this preference to allow express licensing transactions to take place. This preference is stored in encrypted format.

<b>Data Type</b>	password
<b>Default Value</b>	""

### **license\_http\_proxy\_port**

Specifies an HTTP proxy server port to be used for express license registrations.

<b>Data Type</b>	integer
<b>Default Value</b>	80

### **license\_http\_proxy\_server**

Specifies an HTTP proxy server to be used for express license registrations.

<b>Data Type</b>	string
<b>Default Value</b>	""

**license\_http\_proxy\_user**

Specifies a user name to use when authenticating to an HTTP proxy server. If your site controls access to the Internet with an HTTP proxy server, you should set this preference to allow express licensing transactions to take place.

<b>Data Type</b>	string
<b>Default Value</b>	""

**license\_http\_server**

Specifies the web server the License Manager uses when performing license transactions via the OPNET web site.

<b>Data Type</b>	string
<b>Default Value</b>	"licenses.opnet.com"

**license\_http\_use\_proxy**

Specifies whether to use an HTTP proxy server for express license registrations.

<b>Data Type</b>	boolean
<b>Default Value</b>	FALSE

**license\_managed\_servers**

Specifies a space-separated list of <server>, <port> pairs to be explicitly contacted by the License Manager. This preference causes license servers that are not in the same IP network segment as the License Manager to appear in the license server treeview. If <port> is not specified, "port\_a" is assumed. For example: `iasimov,port_a sunblade11,port_b sunblade10`.

<b>Data Type</b>	string list
<b>Default Value</b>	<empty>

**license\_password**

Specifies the password used for authentication before beginning an express license registration through technical support on the OPNET Technical Support web site. This is typically the same password you use when entering the User Community section of the OPNET web site. This preference is stored in encrypted format.

<b>Data Type</b>	password
<b>Default Value</b>	""

**license\_ping\_old\_servers**

Specifies whether the License Manager should try to locate servers from pre-7.0 releases of SP Guru Transport Planner. If TRUE, the License Manager will take longer to start up as it looks for old license servers on the network.

<b>Data Type</b>	boolean
<b>Default Value</b>	FALSE

**license\_port**

Specifies the name of the communication port. This preference can have one of three possible values: `port_a`, `port_b`, or `port_c`. This preference is used in conjunction with `license_server` to uniquely identify a server running the licensing process and must be assigned a value.

To determine which ports are available for use by `op_license_server`, run `op_license_util` in port check mode on the machine where a license server is to be run (`op_license_util -port_check`). The licensing system uses UDP ports for communication. Each port corresponds to a UDP port (`port_a` is 2047, `port_b` is 2123, and `port_c` is 2345).

On Solaris or Linux platforms, you can change this preference by stopping `op_license_server`, then re-starting it with the new `license_port` value.

<b>Data Type</b>	string
<b>Default Value</b>	"port_a"

**license\_server**

Specifies the name of a server that has a license file and can allocate licenses to clients requesting them. The server name is a string that follows the naming conventions supported by the TCP/IP protocol suite. This means that simple names (such as `cbanana`) and dot-separated addressing domains

(athena.mit.edu) are supported. This preference is used with `license_port` to uniquely identify a server running the licensing process. An error will occur if a licensing process is not running on the specified host computer or if the host computer is not found. This preference must be assigned a value.

<b>Data Type</b>	string
<b>Default Value</b>	"localhost"

#### **license\_server\_standalone**

Specifies that spgtranplan will run in stand-alone licensing mode. In this mode, the program acts as its own license server. Other machines cannot get licenses from this server. Only this single instance of the application will launch.

This preference can be used with spgtranplan or op\_runsim, but not with op\_license\_server. When this preference is TRUE, the license\_server and license\_port preferences are ignored.

<b>Data Type</b>	boolean
<b>Default Value</b>	FALSE

#### **license\_server\_standalone\_diagnose**

Specifies that spgtranplan will run in stand-alone licensing mode and will send diagnostic information to the license log. In this mode, the program acts as its own license server. Other machines cannot get licenses from this server. Only this single instance of the application will launch.

This preference can be used with spgtranplan or op\_runsim, but not with op\_license\_server.

<b>Data Type</b>	boolean
<b>Default Value</b>	FALSE

#### **license\_simple\_loanable\_enable**

Specifies whether the license manager supports simplified loanable licensing.

<b>Data Type</b>	boolean
<b>Default Value</b>	TRUE

**license\_username**

Specifies the user name that will be sent to the web server during express license transactions. Used with `license_password` to authenticate yourself to the web server.

<b>Data Type</b>	string
<b>Default Value</b>	""

**mtn\_warn\_int**

Specifies the interval in days between maintenance expiration warnings. These warnings are automatically displayed when you exit a program that requires a license, beginning 60 days before expiration and ending when maintenance is renewed. The warning appears every *n* days, where *n* is the value of this preference, except for the period beginning 7 days before expiration and ending 7 days after expiration, when the warning appears every day.

<b>Data Type</b>	integer
<b>Default Value</b>	3

**op\_license\_server Preferences**

`op_license_server` supports the following preference sets:

- Standard preferences
- Diagnostics preferences
- Licensing preferences (`license_port` only)

`op_license_server` also supports the following additional preference:

**diagnose**

This preference specifies that `op_license_server` run in diagnose mode, writing detailed information to the log file `license_server_log`. For more information, refer to License Server Log on page AG-3-35.

Run `op_license_server` in diagnose mode only when troubleshooting the license server.

<b>Data Type</b>	boolean
<b>Default Value</b>	False

