

# Terminal Emulation

## Wavelink Terminal Emulation License Server Reference Guide

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# Chapter 1: Introduction

This introduction gives an overview of the Wavelink Terminal Emulation (TE) License Server and provides information about document conventions.

## About the License Server

The Wavelink TE License Server is an application that provides licenses to mobile devices that are using the TE Client. The License Server stores those licenses at a central location and automatically distributes the licenses to mobile devices that request them.

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**NOTE** Licenses can also be manually added to individual mobile devices.

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TE Client licenses are distributed to mobile devices in the following manner:

- 1 When the TE Client application is first activated on a mobile device, the mobile device broadcasts a request for a license.
- 2 The License Server responds to the mobile device by sending a license. If the Client on the mobile device has a Site ID configured in the emulation parameters, the License Server will only assign it licenses that have the same Site ID.
- 3 The mobile device accepts the license and responds to the License Server verifying that it received the license.
- 4 Once a mobile device obtains a license, it keeps the license until one of the following criteria are met:
  - The license expires.
  - The TE Client discovers that another mobile device is using the same license.
  - The user manually deletes the license from the device.

When any of these criteria are met, the TE Client discards the license and requests a new license from the License Server.

## Document Conventions

The following table describes the conventions that are used in this manual:

`courier new` Any time you interact with the physical keyboard or type information into a text box that information appears in the `Courier New` text style. This text style is also used for any file names or file paths listed in the text.

For example:

The default location is C:\Program Files\Adobe\Framemaker7.1.

Type CTRL+ALT+DELETE.

**bold** Any time this document refers to an option, such as descriptions of different options in a dialog box, that option appears in the **Bold** text style. This is also used for tab names and menu items.

For example:

Click **Open** from the **File** Menu.

*italics* Italicized text is used to indicate the name of a window or dialog box.

For example:

The *Profile Manager* dialog box.

## Chapter 2: Installing the License Server

This chapter provides information about requirements for the system that will host the License Server as well as installation information for each environment.

### Installation Requirements

Requirements are listed by the OS type where the License Server will be installed:

- Windows Requirements
- Linux Requirements
- AIX Requirements

#### Windows Requirements

The host system should meet the following requirements:

- Microsoft Windows 2000, XP, Vista or Server
- 50 MB disk space

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**NOTE** You must be logged into the computer on an account with administrative privileges to run the installer.

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#### Linux Requirements

The host system should meet the following requirements:

- Linux kernel 2.6 or later
- 512 MB RAM
- 50 MB disk space

#### AIX Requirements

The host system should meet the following requirements:

- 50 MB disk space

## Installing the License Server on Windows

When you install the TE License Server, it runs as a dedicated Windows service on the host system. This allows the License Server to automatically start every time the host system is rebooted. It also allows the License Server to operate without requiring a Windows login. Additional information about starting and stopping the Windows version of License Server is included in this section.

To install the License Server:

- 1 Double-click the License Server installation file.

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**NOTE** You can obtain the file from Wavelink Customer Service or the Wavelink Web site.

---

The *Wavelink Client License Server Setup* Wizard appears.

- 2 Click **Next**.

The *License Agreement* dialog box appears.

- 3 Review the License Agreement and click **I Agree** to continue.

---

**NOTE** You must accept the License Agreement to install the License Server.

---

The *Choose Install Location* dialog box appears.

- 4 Select the folder in which you want to install the License Server.

- 5 Click **Install**.

The License Server will install on your machine.

- 6 If you want to view information about the License Server, enable the **Show Readme** checkbox.

- 7 Click **Finish**.

The License Server is installed and the service is started. You can control the service from the Windows Services Manager or by running `LicenseServer.exe` and using command-line flags. For command line information, refer to *Configuring the License Server from a Command Line* on page 20.

To start or stop the License Server service in a Windows environment:

- 1 From the Windows main menu, select **Start > Settings > Control Panel**.

The *Control Panel* dialog box appears.

- 2 Double-click on **Administrative Tools** and then **Services**.

The *Services* console appears.

- 3 From the list of services, select **Wavelink Client License Server**.

- 4 In the left pane of the *Services* console, select the appropriate link to **Start**, **Stop**, **Pause**, or **Restart** the service.

-Or-

Right-click **Wavelink Client License Server** and select **Start**, **Stop**, **Pause**, or **Restart** from the menu that appears.

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**NOTE** If you stop the service, you must restart it before you can launch the web console.

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## Installing the License Server on Linux

This section contains information about one method for installing the License Server on a Linux operating system. You must have root user privileges to install or run the License Server.

If you plan to install on a Debian Linux system, you should have Alien installed. To install Alien, use the following command:

```
sudo apt-get install alien
```

---

**NOTE** There are alternative methods for installing the License Server on Linux. You may use a different installation method if desired.

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To install on a Debian Linux distribution:

- 1 Copy the package to your Linux machine.
- 2 Enter the following commands at the terminal:

```
sudo alien -d -c -k wlcls-4.0-2.i386.rpm
```

```
sudo alien -i -c wlcls_4.0-2_i386.deb
```

The License Server is installed on the host system.

- 3 To start the License Server, use the following command:

```
sudo /etc/init.d/wlcls start
```

- 4 To stop the License Server, use the following command:

```
sudo /etc/init.d/wlcls stop
```

To install on a Non-Debian Linux distribution:

- 1 Copy the package to your Linux machine.

- 2 Enter the following command at the terminal:

```
sudo rpm -i wlcls-4.0-2.i386.rpm
```

The License Server is installed on the host system.

- 3 To start the License Server, use the following command:

```
sudo /etc/init.d/wlcls start
```

- 4 To stop the License Server, use the following command:

```
sudo /etc/init.d/wlcls stop
```

## Installing the License Server on AIX

This section contains information about one method for installing the License Server on an AIX operating system. You must have root user privileges to install or run the License Server.

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**NOTE** There are alternative methods for installing the License Server on AIX. You may use a different installation method if desired.

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To install on AIX:

- 1 Copy the .rpm package to your Linux machine.

- 2 Enter the following command at the terminal:

```
rpm -i wlcls-4.0-2.aix5.3.ppc.rpm
```

The License Server is installed.

## Uninstalling the License Server

If you no longer need the License Server, you can uninstall it. This section provides information about how to uninstall from Windows, Linux and AIX systems.

To uninstall from Windows:

- 1 From the **Start** menu, select **Programs > Wavelink Client License Server > Uninstall License Server**.

A dialog box appears asking you to confirm that you want to uninstall.

- 2 Click **Yes**.

The License Server and all of its components are removed.

To uninstall from Linux:

- Use the following command to uninstall the `.rpm` file:

```
sudo rpm -e --allmatches wlcls
```

The License Server is removed from the host system.

To uninstall on AIX:

- Use the following command to uninstall the `.rpm` file:

```
rpm -e --allmatches wlcls
```

The License Server is removed from the host system.

## Chapter 3: Using the License Server Browser

This chapter provides information about the tasks you can perform using the License Server web browser. For information about managing the License Server from a command line console, refer to *Command Line Options* on page 20.

The following information is included in this chapter:

- Launching the License Server Browser
- Overview of the Browser
- Managing Licenses
- Updating Logging Levels
- Changing License Server Settings
- Restarting the License Server

### Launching the License Server Browser

Access the License Server web browser to manage your licenses and update configuration settings.

To launch the License Server browser:

- For all operating systems, open a web browser and type the address and port of the License Server web interface. The default is:

`http://localhost:4420/`

-Or-

- From the Windows **Start** menu, select **Programs > Wavelink Client License Server > License Server**.

If the license server is running, the License Server web browser will appear.

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**NOTE** If a user name and password were configured for the browser, you will have to enter this information before the browser will launch. User names and passwords are configured in the configuration file. For more information, refer to *Changing License Server Settings* on page 16.

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## Overview of the Browser

The License Server Browser consists of several pages allowing you to perform different tasks. When first launched, the **Status** page appears. Use the navigation links across the top to access the following pages:

- **Status.** Check the status of the License Server. For details on the information presented on this page, refer to *Viewing License Server Status* on page 10.
- **Licenses.** View, add, disable and delete licenses. For more information, refer to *Managing Licenses* on page 12.
- **Logging Level.** Update the logging level temporarily. For more information, refer to *Setting Temporary Logging Levels* on page 16.
- **Configuration.** Access the configuration file and change License Server settings. For more information, refer to *Changing License Server Settings* on page 16.
- **Restart Server.** From this page you can perform a restart of the License Server. For more information, refer to *Restarting the License Server* on page 19.

From any page in the License Server web browser, you can access the following information:

- **License Server Log** lists the events and actions of the License Server.
- **Readme Text** contains information about the License Server, logging levels and command line options.
- **Release Notes** detail the changes between versions of the License Server.

---

**NOTE** When you click to view these options, the information will launch in a new window or tab.

---

- **Refresh Rate** which allows you to set the rate at which the web page refreshes.

## Viewing License Server Status

A general overview of the License Server can be viewed from the **Status** page. The following information is available:

- **Computer.** The name of the machine running the License Server.
- **Software Version.** The version of the License Server.
- **Site ID.** The site ID associated with the License Server. This is set using the `ServerSiteId` property in the **Configuration** page. XXX
- **Uptime.** How long the License Server has been up and running.
- **Time Since Last Restart.** The length of time the license server has been running since the last restart.
- **License Confirmations.** The number of times that devices have confirmed they are using their assigned licenses.
- **New License Assignments.** The number of new licenses the License Server has distributed since it started running.
- **License Conflicts Detected.** The number of devices that have license problems. For example, if a mobile device claims it has a license, but that license is currently issued to another mobile device, then the first mobile device is reflected as having a conflict.
- **License Requests Rejected.** The number of licenses requests from mobile devices that have been rejected due to lack of available licenses.
- **Total Licenses.** The total number of licenses available.
- **Licenses Assigned.** The total number of licenses that are currently assigned and the percent that those licenses make up of your total license pool.
- **Unlicensed Devices.** A list of unlicensed devices. For each device you will see the IP address, the MAC address, and the license platform version requested.
- **Other License Servers.** A list of other license servers on your network. For each server, you will see the IP address, the version, the Site ID, the last time that the other server made contact with your License Server, and whether your License Server is synchronized with that server. License Servers that have the same user name and password will automatically sync. If the servers are not on the same subnet, you can configure them to sync in the **Configuration** page.

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**NOTE** The status of the license confirmations, new license assignments, license conflicts detected and license requests rejected will all persist through a restart.

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## Managing Licenses

From the License Server web browser, you can view and configure the licenses managed by the License Server. This section provides information about performing the following tasks:

- Adding a License
- Viewing Specific License Information
- Disabling a License
- Deleting a License

### Adding a License

You can add licenses for the License Server to distribute to mobile devices running the TE Client. Before attempting to add a license, ensure you have the license information that you received upon purchasing the licenses. For information about purchasing licenses, contact Wavelink Customer Service.

To add a license:

- 1 Launch the License Server web browser and click the **Licenses** link.
- 2 Click **Add New License**.

The Add New License screen appears.

- 3 In the text boxes, input the information for the license, where:
  - **Licensee Name** is the name of the party to which the license was distributed.
  - **Platform Version** is the list of emulation types that the license supports.
  - **Serial Number** is the serial number of the license.
  - **User Limit** is the number of users that the license supports.

- **Expiration Date** is the expiration date of the license in the format MMDDYYYY.
- **Authorization Code** is the authorization code for the license.
- **Site ID** is the site ID you want associated with this license. When a license has a site ID associated with it, the licenses may only be distributed to Clients with a matching site ID.

In order for options to appear in the drop-down box, you must add the site IDs on the **Configuration** page. Or, if the current License Server is set to sync with another License Server configured with the Site IDs, it will receive that information when the servers synchronize.

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**NOTE** All license information is case and space sensitive. The information must be exact for the license to be added successfully.

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- 4 After you have input the license information, click **Add New License**.

The page will refresh to indicate that the license was successfully added.

- 5 To view information about the license, expand the **[+]** option.

### Viewing Specific License Information

View specific information about each license from the License Server web browser.

To view information about a license:

- 1 Launch the License Server web browser and click the **Licenses** link.
- 2 From the list of installed licenses, expand the license that you want to view.
- 3 To see additional information, expand the **Details** option.

The license information expands to display the details of the license.

### Disabling a License

From the License Server web browser, you can disable licenses and make them unavailable for distribution.

To disable a license:

- 1 Launch the License Server web browser and click the **Licenses** link.
- 2 Expand the license list to locate the license you want to disable.
- 3 Click **Disable**.

The status for that license will indicate that it is currently disabled.

- 4 To re-enable any disabled license, locate the license and click **Enable**.

### Deleting a License

If a license has expired or is no longer needed, you may remove it from the License Server.

To delete a license:

- 1 Launch the License Server web browser and click the **Licenses** link.
- 2 On the list of licenses that are installed, find the desired license.
- 3 Click **Delete** to the right of the license name.

The *License Server* dialog box appears and requests confirmation of the deletion.

- 4 Click **OK**.

The license is deleted from the License Server and removed from the list in the browser.

## Updating Logging Levels

The License Server maintains a log file named `LicenseServer.log` in the current working directory. The events written to the log file allow you to evaluate errors, server functionality, and information about client connections.

The amount of detail that is recorded to the log file is user-configurable. You can specify the logging level to determine the type of information recorded to the log file.

License Server will automatically open a new log file when the current one meets the size specified in the configuration file. These new log files are named `LicenseServer.log.1`, `LicenseServer.log.2`, etc.

You can configure logging through the configuration file or on the **Logging Levels** page of the License Server web browser. The changes you make in the **Logging Levels** page are not written to the configuration file and will be reset if you restart the server. For permanent changes, ensure you update the configuration file.

## Setting Logging Levels for the License Server

You can use the following values to configure the log settings for the License Server:

- **loglevel** is the amount of information to include in the log file. Valid values are:
  - 4 or SEVERE. Errors only.
  - 3 or WARNING. Warnings and errors.
  - 2 or INFO. Information, warnings and error messages. This is the default setting.
  - 1 or VERBOSE. Everything except network licensing packets.
  - 0 or EVERYTHING. Log everything. Performance may be impacted.

Example: `loglevel = INFO`

- **logsize** is the maximum size of the log files generated, in bytes. After the file exceeds this size, a new log file will be generated and the current log file will become a backup log file. The default is 1000000 bytes.

Example: `logsize = 1000000`

- **logbackups** is the number of backup log files that will be kept. The default is 3 backup files.

Example: `logbackups = 3`

To modify the logging level in the License Server configuration:

- 1 Launch the License Server web browser and click the **Configuration** link.

The **Configuration** page appears.

- 2 In the text box, modify the logging settings.
- 3 Click **Validate** to ensure your changes are valid.

- 4 Click **Save and Restart** to save your changes and restart the License Server.

The configuration file is updated.

- 5 View the log by clicking **View Log** from any page in the browser.

### Setting Temporary Logging Levels

Changes made in the **Logging Levels** page are temporary and will be reset to the configured values (in the configuration file) after a restart. The logging level can be changed permanently on the **Configuration** page.

The following logging levels can be selected:

- SEVERE - Errors only.
- WARNING - Warnings and errors.
- INFO - Information, warnings and error messages. This is the default setting.
- VERBOSE - Everything except network licensing packets.
- EVERYTHING - Logs everything. Performance may be impacted.

To modify the **Logging Levels** page:

- 1 Launch the License Server web browser and click the **Logging Levels** link.
- 2 From the options available on the page, enable the level.
- 3 Click **Apply Changes**.

The logging level is set until the server is restarted. At that time, the logging level will revert to the settings in the configuration file.

- 4 View the log by clicking the **View Log** link in the upper right on any page in the browser.

## Changing License Server Settings

You can determine the number of days an unused license can be assigned to a mobile device before it becomes available for redistribution by configuring the following settings in the configuration file:

- **licenseaddress.** The license address is the address and port on which the license server listens for license requests from Clients. The default is `0.0.0.0:1820` to access UDP traffic on port `1820` for all network interfaces. If the port value is changed, the TE Clients must be configured to use the different port.

Example: `licenseaddress = 0.0.0.0:1820`

- **httpaddress.** The http address is the address and port of the License Server for the web browser. The default is `0.0.0.0:4420`, which would mean a web browser address of `http://[your computer name]:4420/`. You should either change the http address to `localhost` (the loopback address) so the browser would need to be running on the same computer as License Server to access it, or make sure you specify an http filter and/or username and password to restrict access.

Example: `httpaddress = localhost:4420`

- **username and password.** The username and password can be used to restrict access to the web browser interface. Both must be specified for the access to be restricted. If you are running multiple license servers, the username and password values on all the servers must be identical for data synchronization to occur.

Example: `username = "admin"`

Example: `password = "mypasswordgoeshere"`

- **httpfilter.** The httpfilter can be used to limit the IP addresses that are allowed to access the web interface to License Server. You can have multiple httpfilter value entries; access will be allowed if any of the entries match. If no httpfilter values are configured, access is allowed from any IP address that can access the specified http address of the License Server. In addition to standard IP addresses, the IP addresses can be of the format `x.x.x.x/y` to specify a entire subnet.

Example: `httpfilter = 127.0.0.0/8` (This will allow access from 127.0.0.0 to 127.255.255.255)

Example: `httpfilter = 10.20.0.0/14` (This will allow access from 10.20.0.0 to 10.23.255.255)

Example: `httpfilter = 192.168.3.87` (This will allow access only from 192.168.3.87)

- **otherserver.** The otherserver lines allow you to specify the addresses of other license servers. These servers can be synchronized if they have the same username and password specified. You can use multiple otherserver lines if you have

multiple license servers. Use the format `otherserver = address:port` for each line. If the port value is not specified, port 1820 is assumed. The License Server will always try to detect other servers on the same network section. This option is only needed in order to synchronize with other license servers on a different subnet.

Example: `otherserver = corporateserver7:1820`  
`otherserver = 10.1.2.3`

- **SiteId.** SiteId lines allow you to associate names with the site ID numbers assigned to Clients in the emulation parameters. Adding the site IDs here also populates the site ID drop-down boxes. If you have synchronized license servers, they will share site ID information, so you only have to enter the information at one location.

Example: `SiteId = "100,Corporate Headquarters"`

- **ServerSiteId.** ServerSiteId is the site ID for this license server. This is the site ID that will be reported to other license servers. This setting does not affect how licenses are distributed; licenses with different site IDs will still be assigned to devices assigned those site IDs. A value of "0" should be used if you are not using the Site ID feature, or for License Servers that will be supporting multiple sites.

Example: `ServerSiteId = 100`

- **ShowAllLicenses.** ShowAllLicenses determines which licenses are displayed in the list of licenses. A TRUE value will cause all licenses to be displayed. A FALSE value will cause only those licenses with a site ID of 0 or a site ID matching the Server site ID to be displayed.

Example: `ShowAllLicenses = TRUE`

- **SiteIdForUnassignedDevices.** SiteIdForUnassignedDevices determines the site ID to use for devices with a site ID value of 0 (unassigned). This includes devices that don't have a Site ID configured, and older clients that do not support the configuration of site IDs. A value of 0 will allow only unassigned licenses to be distributed to devices with a Site ID value of 0.

Example: `SiteIdForUnassignedDevices = 0`

- **ReassignDays.** ReassignDays sets the number of days a license goes unused before it is allowed to be redistributed to a different device. This is useful if, for example, you get a replacement device and want the replacement device to be able to access the previous device's license(s). Valid values are 5 - 365 days, with the default

being 14 days. A value of 0 can also be used if you never want unused licenses to be redistributed.

Example: `reassigndays = 14`

- **Logging Settings.** Refer to *Updating Logging Levels* on page 14 for details about these settings.

To change the settings:

- 1 Launch the License Server web browser and click the **Configuration** link.
- 2 Modify the code in the text box as desired. If the line begins with `#` then the line is considered a comment and will not affect the behavior of the license server.
- 3 Click **Validate** to ensure your changes are valid.
- 4 When you are finished, click **Save and Restart** to restart the server and update the settings.

## Restarting the License Server

When you restart the license server, any active emulation session will close.

To restart the server:

- 1 Launch the License Server web browser and click the **Restart Server** link.
- 2 Click **Restart**.

A message will appear indicating that the License Server is restarting. Once the restart is complete, the browser will display the **Status** page.

## Chapter 4: Command Line Options

This chapter provides the following additional information about configuring and running the License Server from a command line:

- Configuring the License Server from a Command Line
- Running the License Server as a Console Application

### Configuring the License Server from a Command Line

You can use the following command line options to configure and interact with the License Server.

- **-c <configfile>** Specifies which configuration file to use. The default is `LicenseServer.cfg`.
- **-d** Configures the License Server to run as a daemon (Linux and UNIX only).
- **-h** Lists the available commands.
- **-l <loglevel>** Sets the logging level (0 = everything, 1 = verbose, 2 = informational, 3 = warnings 4 = severe errors only). The default is set at 2.
- **-n** Configures the License Server to run as a console application, not as a service (Windows only).
- **-p <user> <pass>** Sets the HTTP service user name and password.
- **-t** Terminates the running service or daemon.
- **-u** Uninstalls the License Server service (Windows only).
- **-v** Displays the version of the License Server.
- **-w <homedir>** Sets the home directory to use.

To configure:

- 1 From a command line, navigate to the location of the License Server.
- 2 Use the commands to configure the License Server.

## Running the License Server as a Console Application

If you want to run the License Server as an application instead of a service in a Windows environment, run `LicenseServer.exe` with the `-n` option. This will stop the service (if it is running) and start an interactive version of `LicenseServer.exe`.

If you are running Linux or AIX operating system, you can run the License Server console without the `-n` option.

From this console, you can perform the following tasks:

- **View license details.** Type `[d]` to view the license details from the command line. Details include the platform version of the licenses, the serial number, the user limit, the expiration date, the license assignments and the number of licenses available.
- **Toggle the logging level.** Type `[l]` to toggle the log levels. When you type `l`, you will see receive a message stating the new level you set.
- **Restart the server.** Type `[r]` to restart the license service.
- **Shut down the server.** Type `[q]` or `[x]` to close the program. This will stop the License Server service and close the console.

Type `[h]` when you are working in the License Server command shell to see a list of these options. Command-line settings only apply until the application exits. Settings are not preserved.

To use the interactive console:

1 From a command line:

- If you are using Windows, navigate to the location of the License Server and type `LicenseServer.exe -n`
- If you are using any other operating system, navigate to the location of the License Server and type `LicenseServer`

The License Server console starts.

2 Type `[h]` to view a list of commands.

3 Perform the desired tasks.

## Appendix: Wavelink Contact Information

If you have comments or questions regarding this product, please contact Wavelink Customer Support.

E-mail Wavelink Customer Support at: [CustomerService@wavelink.com](mailto:CustomerService@wavelink.com)

For customers within North America and Canada, call the Wavelink Technical Support line at 801-316-9000 (option 2) or 888-699-9283.

For international customers, call the international Wavelink Technical Support line at +800 9283 5465.

For Europe, Middle East, and Africa, hours are 9 AM - 5 PM GMT.

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