RAYPACK® STUDIO

Enterprise Software Packaging

RayPack Studio Floating License Server Implementation Guide 6.5

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RayPack Studio Floating License Server Implementation Guide

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Introduction

RayPack Studio Floating License Server is a component of RayPack Studio that dispatches pool licenses between users. The terms "floating" (or "concurrent" as it is often referred to) comes from the fact, that the dispatching is happening in the background for each user accessing the license, and once the user is done the license is returned to the pool. This is allowed to a certain degree, limited by the maximum number of concurrent licenses checked out by users. There is no limit imposed on the number of devices and installation on which the product is installed.

The infrastructure requires the following components:

- A central dispatching server (RayPack Studio Floating License Server)
- Clients connecting to the server to acquire their licenses

RayPack Studio Floating License Server works as a standard Windows Service running on a host that should be accessible from all machines. This Windows Service set up a communication channel by listening on incoming request on a port specified during the installation using TCP/IP. Service dispatches licenses from the pool of available licenses based on requests from clients. RayPack Studio Floating License Server does not require any external connection and can be installed in private networks. However, the server must be available to every device in that network, that runs a software configured to use floating licenses.

Installation and Configuration

Prerequisites

Both, server and client require the Microsoft .NET Framework 4.5. Additionally, client applications may have their own software and / or hardware requirements.
For more information on the requirements, refer to our user documentation of the specific products.

Server Set-up

RayPack Studio Floating License Server is provided as a separate MSI installer that you receive from Raynet when purchasing any floating (concurrent) license. You must download it and install it on the machine that will act as a license service. The machine itself may run any version of Windows (both Desktop and Server are supported).

The server must be accessible to all machines that use floating license service. Because the floating license delivered by Raynet is bound to a single machine, you can only install a single instance of the server.

Installation

1. Launch the `FloatingLicenseService_<version>.msi`.
2. Provide a port number which the service will be listening to when asked. The port number that is provided must be an unique number denoting a port that is not used by any other application.
   It is possible to use a checkbox to control whether a Windows Firewall rule automatically created to allow the communication through this port or not. The default port is `26627`.
3. If the customized installation mode is selected, it is possible to change the user name and the credentials which will be used by the service (by default this is NetworkService).
4. Activate the Floating License Service by either using a license file that has been provided by Raynet or by using the order number for online activation.
5. The Floating License Service is being installed as a Windows Service that communicates with the clients using the specified port using a TCP/IP connection. The service will be started automatically after the machine has been rebooted.

Note:
If there is no valid license available, the service will stop itself.

The service is configured to automatically start on a Windows operating system. After the installation has been finished, either reboot the machine to start the service automatically or use the Services Management to start the RayPack Studio Floating License Service manually.

Note:
RayPack Studio Floating License Server uses a special hardware-bound license. Classic Raynet licenses are incompatible with RayPack Studio Floating License Server.

Client Configuration

When installing products using the RayPack Studio Installer, select SKIP when asked for a license and then follow the steps listed below. When installing a single RayPack Studio product, skip the license activation during the installation of this product.

Before executing these steps, ensure that the Floating License Service is installed and up and running. Make sure that the machine name and the IP address including the port that has been configured during the installation of the Floating License Service are available.

Note:
If more than one RayPack Studio product has been installed, the following steps have to be executed separately for each of the products.

1. Start the product. The license activation tool will be shown.
2. Select ACTIVATE NOW.
3. Select Use Floating License Service.
4. Enter the name of the host or its IP address and the port that has been configured during the installation of the Floating License Server.
5. Press the SAVE button.
6. Close the license activation tool and start the activated product.

After pressing the SAVE button, the wizard checks for availability of the license server. You will be prompted to confirm the correctness of entered data if the service does not exist, does not respond or the machine is not accessible at that moment.

Technical Description

The infrastructure requires the following components:

- A central dispatching server (Floating License Server)
- Clients connecting to the server to acquire their licenses

The **Floating License Service** works as a standard Windows Service running on a host that needs to be accessible from all machines. This Windows Service sets up a communication channel which is listening for incoming requests using TCP/IP on a port that needs to be specified during the installation. The service is dispatching licenses based on requests from the clients. These licenses are taken from a pool that is specified by the license that was used to activate the Floating License Server.

Initial Server Activation

The server must be activated by a hardware-bound license. This is a one-time process which requires an internet connection. If the server has no access to internet, then it has to be activated manually by our support. The activation ensures that purchased license is indeed of a floating type, and locks it to the device on which the activation is running. The license is then not-transferable to other license servers. If more than one license server is required (for example for geographically separated sites) then more server licenses have to be purchased.

Once activated, a file containing unique hardware-signature is generated and save in `c:\Program Data\Raynet\Licenses` folder, with extension `.rsfl`. This is the same location where seat-licenses can be saved, but the extension is different to distinguish floating and non-floating licenses. RayPack Studio Floating License Server supports `.rsfl` files only.

Scope of a Single License

Every floating license may contain one or more products (like *RayPack*, *RayEval* etc.) and every single one can have a different number of floating license. For example, a license containing 10 *RayPack* floating uses and 2 *RayEval* instances is valid and can be purchased from RayPack Studio Floating License Server.

A single license acquired by a client can be used for more processes (for example two copies of program running on the same machine) as long requester name and machine are the same. For example, in the following scenario, 3 floating licenses for *RayPack* and 1 floating license for *RayEval* will be used:

USER A / MACHINE 1	USER B / MACHINE 1	USER C / MACHINE 2
RayPack.exe RayPack.exe	RayPack.exe	RayPack.exe RayPack.exe

USER A / MACHINE 1	USER B / MACHINE 1	USER C / MACHINE 2
RayEval.exe		RayPack.exe RpCMD.exe (command line)
= RayPack: 1 license = RayEval: 1 license	= RayPack: 1 license	= RayPack: 1 license

Once the client request is accepted, the server returns a license from its pool (it subtracts one from list of available licenses) and a contract which dictates maximum time interval after which the license is invalidated. The client has to then reply no later than the time given (see chapter Reclaiming licenses for more information).

If upon start of application there are no free licenses, then the product will not be started and user has to wait until a free license is returned to the pool.

RayPack Studio components are separate in terms that you may purchase different number of licenses for all of its components. This rule has two exceptions:

- *RayPack* and *PackBench* share the same license
- *RayQC* and *RayQC* Advanced share the same license

This means, that if user starts both *RayPack* and *PackBench* on his machine, only one license will be required from the license pool. Similarly, running both *RayQC* and *RayQC Advanced* on the same machine count as one use.

Reclaiming Licenses

The license are automatically collected and go to the pool without any user interaction. The license is returned if any of the following happens:

- All instances of product running on the same machine and the same user account are closed
- The client did not reply to a server for a longer time

The first scenario means that closing of the product (provided there are no other open instances on the same machine run by the same user) automatically signals to the server that the license is not anymore in use and can be
returned to the pool so that someone else can pick it up.

The second scenario is more complex and has been designed to prevent lock-up of licenses should client be either disconnected or in case product processes are killed or forcefully terminated. Every time when a license request is accepted by the floating license server, the server initiates a data contract with a certain validity period (by default 1 minute). The server requires that the client responds to the server in order to extend its license life time for another two minutes. If there is no contact in the given time, then after waiting for 50% of original interval time (by default 30 seconds) the license is recollected. So, if the client cannot reply in 90 seconds because of any of following reasons:

- The network connection is down
- The client has been disconnected from company network
- The connection is blocked by firewall
- The process has been terminated instead of normal closing

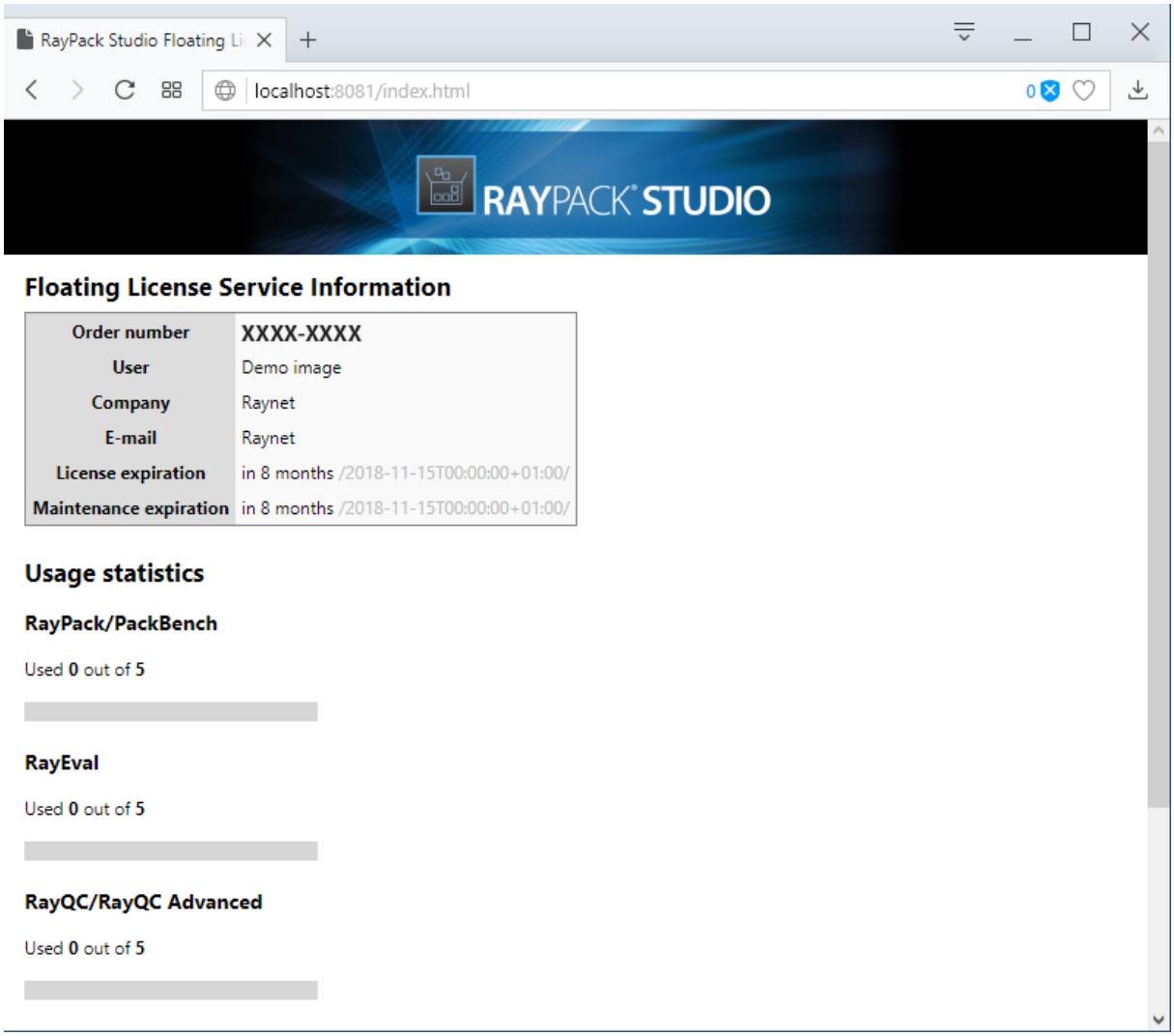
Then the license will be reclaimed and returned back to the pool.

If the client loses its license and then reconnects to the server, another license is taken from the pool – this behavior is fully transparent and the only way to see it is that there is no more pop-ups shown. However, if there are no free licenses anymore (for example some other user took it in-between), the client would display a message informing about the problem. User is able to dismiss the dialog, for example to save or back-up his work, but the popup will continue to be shown each 15 seconds, and require a few seconds delay before dismissing it. This way a client that was once activated but lost his license can still be used to save the current progress before closing the application.

How to Check the Availability of Licenses

It is possible to manually check how many licenses of the pool that is available on the Floating License Server. This can be done by opening the page shown in the screenshot below in a web browser.

Note:
The page `localhost:8081/index.html` can only be accessed locally. It is not reachable by external users, but needs to be opened on the host on which the Floating License Service is running.



In the **Usage statistics** the used and the available licenses for each of the products are shown.

Portability

Once the license has been configured for an application, the application is portable. The information about the server and the port number is stored in a configuration file that is saved in the root directory of the main executable. The content of the application (including the configuration file) can be copied to an USB stick or simply put on a shared location. All clients starting the products from any of these will be able to pick up the address of the floating license server without any further configuration.

Advanced Topic: Configuration of the License Service

The license server settings are being stored in an XML file. The FloatingLicenseService.exe.xml located in the root installation folder. The following settings are available:

Name	Description
`FloatingLicenseUrl`	The URI of the license server.
`FloatingInterval`	The interval (in milliseconds) in which each client has to respond to the floating server so that the license is not deactivated from the pool.

The license server URI must include a scheme (`net.tcp`), the name of the host, and the port. The default value is `net.tcp:localhost:26627` which means that the service listens on port `26627`. Only a TCP/IP connection is supported.

The default value of the interval is 30000 (30 seconds). By default, this value is not present in the `.xml` file. It has to be added manually. This value can be adjusted within the following range:

- Minimum: 5000 (5 seconds)
- Maximum: 300000 (5 minutes)

The higher the assigned value, the less frequent is the communication between client and server. On the other hand, specifying higher values means that it will take more time for the server to cleanup unused licenses in case that the connection between server and client has been lost or the client has prematurely exited without releasing its license.

Example:

```
<?xml version="1.0" encoding="utf-8"?>
<configuration>
     <configSections>
          <!-- cut for brevity -->
     </configSections>
     <appSettings>
          <add key="FloatingLicenseUrl" value="net.tcp://localhost:26627"/>
          <add key="FloatingInerval" value="10000"/>
     </appSettings>
     <!-- cut for brevity -->
</configuration>
```

Troubleshooting

Perform the following steps to troubleshoot problems with the Floating License Service.

- Analyze the log of the product (for example `%appdata%\RayPack\logs` folder). The log may contain important information that will reveal a potential cause of the issue.
- Analyze the Event Viewer logs on the server machine. The **Floating License Service** writes events into this log.
- Check if the connection to the server is not blocked by a firewall.
- Check if the **Floating License Server** license is valid.

Frequently Asked Questions (FAQ)

Can I use floating licenses on "disconnected" devices?

- No, this is not supported. The client must be able to see the Floating License Server. This is necessary to enable the server to calculate the number of users that are currently using the product.

What is the default port used by the Floating License Server?

- The default port that is used is 26627.

Should I use the Floating License Server DNS name or its IP address when configuring the client options?

- It is recommended to use a fixed IP address, although DNS names are also supported.

Does the Floating License Server support differing numbers of maximum concurrent users for each of the products?

- Yes, this is supported.

Do I have to activate my Floating License Server?

- Yes, it has to be activated by either using online activation or by contacting our Support using our Support Panel.

How do I activate my portable instance?

- Just start its activation tool (it should be located in the same folder where the main executable is) and select **Activation by Floating License Server**. The information will be written into the root configuration file which is located in the application folder. Therefore, it will be applicable for all users accessing this shared location or running it from an USB stick.

I bought RayPack Studio. Do I have to activate each product separately?

- Yes, unlike a seat license of RayPack Studio, floating license licenses have to be activated separately for each product. For example, if your RayPack Studio license contains RayPack and RayQC, the activation using the Floating License Server needs to be done once for each of the products.

The machine has been shutdown prematurely without closing the Raynet product. How can the license be returned to the pool?

- Just wait. The license will be reclaimed automatically after a few minutes (by default 90 seconds, but the configuration can be changed by the administrator from just 8 seconds to up to 8 minutes). In order to return a license when a program is closed, use the standard Windows methods of closing an application (X butt, ALT+F4 hot key, Exit option of the application, etc.).

Additional information

Visit https://raynet.de/en/products/rayflow/ for further information regarding the product and current community incentives.
Raynet is looking forward to receiving feedback from your RayPack Studio Floating License Server experience. Please contact your Raynet service partner or use our Support Panel to add your ideas or requirements to the RayPack Studio Floating License Server development roadmap!

We welcome suggestions and input on the various documentation resources available for RayPack Studio Floating License Server and its componets. Feedback and other concerns can be forwarded through your local Raynet support representative.

Need Help?

Request RayPack Studio Floating License Server Support

Our Raynet support team gladly assists you on any question or issue you encounter regarding RayPack Studio Floating License Server. Feel free to sign in and open incidents via our Raynet support panel, please open an incident using the Raynet Support Panel.

Join the RaySuite Community

The RaySuite community resides within our KnowledgeBase: https://raynet.de/Support/. Once you have signed up for access to the Raynet support panel, you automatically have access to the KnowledgeBase, too. You will surely come to a point where you would love to suggest a new feature for the future development of RayPack Studio Floating License Server. Maybe you need to find some tips and tricks to hit your target right. the RaySuite community is your place for discussing such topics, for sharing and expanding your own experience.

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