Riverware

License Server
Administration Guide

September 30, 2020

**Center for Advanced Decision Support
for Water and Environmental Systems**

UNIVERSITY OF COLORADO **BOULDER**

Contents

Preface

Note: This guide applies to RiverWare version 6.x and later.

About This Guide

This guide is for RiverWare license server administrators. It describes how to install, configure, and monitor the RiverWare floating license server on a Windows host.

Related Documentation

RiverWare documentation is available at the RiverWare site:

riverware.org

RiverWare Installation and License User's Guide

For RiverWare users. It describes how to install RiverWare on a Windows computer and how to start RiverWare using a node-locked license, floating license, or license dongle.

RLM License Administration Manual

For RiverWare license server administrators. This guide is published by Reprise Software, and it provides generic information about configuring and managing the RLM License Server. Some information in this guide may not apply to the RiverWare license server. Available at the following site:

http://www.reprisesoftware.com/admin/software-licensing.php

Support Information

For help with RiverWare installation and licensing, email RiverWare Installation Support.

installsupport@colorado.edu

After RiverWare is successfully installed, for help-desk type support, email RiverWare Technical Support.

riverware-support@colorado.edu

Support time can be purchased from CADSWES. See the RiverWare licensing page for more information.

http://riverware.org/riverware/LicensingRW/index.html

About the RiverWare License Server

Note: Starting with RiverWare 8.0, 32-bit support for the RiverWare application and the RiverWare RLM license server has been discontinued.

Floating Licenses

A RiverWare floating license is a network license that allows one or more computers connected to a network to share from a pool of available licenses managed by a license server. To obtain a floating license, the user's computer must be connected to the same network as the license server.

The maximum number of licenses, or *seats*, in the pool is defined in the license certificate file provided by RiverWare Installation Support. Each license seat allows a user to run any number of RiverWare instances on their computer.

When a user closes all instances of RiverWare on their computer, the floating license is returned to the license pool and becomes available for another user. See How RiverWare Obtains and Retains a Floating License on page 22 for details.

A RiverWare roaming license is a special instance of a floating license that has been checked out from the license pool to a specific computer that will be disconnected from the network. The roaming license allows a user to run RiverWare on that computer while not connected to a network, and it is valid for a specified number of days, up to 30.

When the roaming license expires or is manually checked in by the user, it is returned to the license pool and can be served to another user as a floating license. See How Roaming Licenses Work on page 23 for details.

License Server Processes

Note: It is strongly recommended that the license server be installed on a computer that does not run the RiverWare application. The license server uses very little CPU time and memory; therefore, the computer does not need to be powerful, and it can also run other applications and services, as necessary.

RiverWare floating licenses are managed by the license server, which is installed on the license server host. The license server receives license requests over TCP/IP from the RiverWare application running on client computers. The license server includes the following processes.

RLM license server

This is the generic license server that starts and administers the RiverWare license server process. This server is assigned the name "rlm", and this name should not be changed.

The RLM license server listens on its assigned port for license requests from the RiverWare application and directs them to the RiverWare license server.

It also initiates a reread of the RiverWare license files at midnight local time every night to ensure all licenses are valid and current.

RiverWare license server

This is the RiverWare-specific license server that provides RiverWare license key validation and authorizes and tracks floating and roaming license usage. This server is assigned the name "cadswes", and the name cannot be changed.

When the RiverWare license server receives a license request from RiverWare, it verifies the license file on the client computer and assigns it a license if one is available.

Periodically, RiverWare contacts the license server to verify the floating license in use is still valid. Therefore, to run RiverWare with a floating license, client computers must have continual network access to the license server.

RLM web server

The RLM web server is an embedded web server that provides the RLM Web Server Administration tools. These tools allow you to view and administer the license server from any computer on your network. The web server is started automatically by the RLM license server.

Port Number Assignments

To obtain floating licenses, RiverWare clients must communicate with both the RLM server and the RiverWare license server processes on their assigned ports. If your organization has an internal firewall, you must ensure these ports are accessible to RiverWare clients on the network. If the firewall requires the use of specific ports, you can specify those assignments; see Assign License Server Port Numbers on page 5 for details.

> **Note:** See your network administrator for assistance with port number assignments.

Table 1. provides details about the default port numbers.

Table 1. Server port number assignments

Process	Protocol	Default Port	How to Assign a Different Port Number
RLM license server	TCP/IP	5053	HOST line in the cadswes.lic license certificate file
RiverWare license server; assigned automatically by the RLM server	TCP/IP	random available port	ISV line in the cadswes.lic license certificate file
RLM embedded web server for the RLM Administration Tools	HTTP	5054	-ws argument on the rlm command

RiverWare License Certificate File

The RiverWare license certificate file specifies the configuration of the RiverWare license server and all license rights granted to your organization. RiverWare Installation Support emails the file to you upon request. The license certificate file is a simple ASCII text file with the name "cadswes.lic"; it is recommended that this file name be preserved.

> **Note:** Beginning March 1, 2012, all RiverWare floating license certificate files are issued with the roaming capability enabled. If your license certificate file was issued before March 1, 2012, e-mail RiverWare Installation Support to request a new one: installsupport@colorado.edu

Figure 1. shows a sample license certificate file as delivered from RiverWare Installation Support. This sample license provides authorization for RiverWare floating and roaming licenses.

Figure 1. Sample cadswes.lic license certificate file

```
 1  ###########################################################
 2  #             University of Colorado Boulder
 3  # Center for Advanced Decision Support for Water and
 4  # Environmental Systems (CADSWES)
 5  #
 6  # User name  : Hermione
 7  # Host ID    : MYSERVERHOST disksn=DB4E2_0E_05052F_70_2E2443_0D_000000_00.1
 8  # Issue Date : 7/30/2020
 9  #
10  HOST MYSERVERHOST disksn= DB4E2_0E_05052F_70_2E2443_0D_000000_00.1
11  ISV cadswes
12  LICENSE cadswes riverware 100.0 31-mar-2021 3 share=uh issuer=CADSWES
13    customer=MYORGANIZATION _ck=64d8ee7d6c sig="60PG454033GECWH91EAX6XGEBD
14    UTD8KABC1233XMFU9U2HD6PXER6AH4ST7W4DVKYMY1GG"
15  LICENSE cadswes rlm_roam 100.0 31-mar-2021 uncounted hostid=ANY
16    _ck=43123c2561 sig="789123T8PAH59H6YAB694NMD6R619GSJRN7W022M0DAU30
17    2395ABC5STST8X8BB0C86MSH13KAG"
18  #
19  # CADSWES, University of Colorado Boulder
20  # 1777 Exposition Dr. Suite 113
21  # 421 UCB
22  # Boulder, CO 80301-2628
23  # U.S.A.
24  # https://www.colorado.edu/cadswes/
25  # https://www.riverware.org/
26  # License/Install support: installsupport@colorado.edu
27  # Technical support      : riverware-support@colorado.edu
28  # RiverWare is a trademarked name.
29  # Copyright (C) 1997-2020 University of Colorado Boulder,
30  # All rights reserved.
31  ###########################################################
```

Item	Description	Changes Allowed
1	Comment lines providing descriptive information about the license.	You can change these lines as needed; they do not affect the license key.
2	HOST line. Specifies the host name and host ID of the license server host.	Following are the only changes allowed on this line; any other changes will invalidate the license. • If the RLM license server does not use the default port number, you can specify the port number to use; see Assign License Server Port Numbers on page 5 for details. • If the license server host is assigned a new host name, you can update the host name on this line; the host name on this line must match the name assigned to the host.
3	ISV line. Specifies the name of the RiverWare license server. This is always "cadswes" and should not be changed.	Following is the only change allowed on this line; any other changes will invalidate the license. • If the RiverWare license server does not use the default port number, you can specify the port number to use; see Assign License Server Port Numbers on page 5 for details.

Item	Description	Changes Allowed
4	LICENSE lines. Specifies the license rights granted to your organization.	Any changes to these lines will invalidate the license.

Installing the License Server

Before performing these procedures, locate the following information, which you should have received from RiverWare Installation Support:

- License certificate file for your organization; see RiverWare License Certificate File on page 2.

- Login information for the RiverWare installation download

    Note: Depending on access restrictions at your site, you may need Windows Administrator privileges to perform these procedures or to write to some folders.

Download the RiverWare License Server Files

Note: It is recommended to always use the latest license server files to run the RiverWare license server.

Use this procedure to download the RiverWare license server files as part of the regular installation of RiverWare 6.x or later.

1. Log in to the license server host, as Windows Administrator if necessary.

2. Open a web browser and go to the RiverWare download site:

    http://cadswes2.colorado.edu/downloads/riverware/releases/index.html

3. In the "Current RiverWare Releases" section, select the version of RiverWare to download.

4. In the Authentication Required dialog box, enter the **User Name** and **Password** provided by RiverWare Installation Support.

5. In the Download dialog box, select the **Save File** option, then **OK**.

6. In the File Chooser dialog box, enter or navigate to the location where you want to save the file, then select **Save**.

    The RiverWare installer .zip file is downloaded to the host in the designated location. For example:

    C:\Downloads\RiverWare81setup.exe

7. Run the RiverWare installation program to install RiverWare on the host. For complete details, see the *RiverWare Installation and License User's Guide* on the RiverWare site.

    www.riverware.org/users

    When the installation completes, the license server files are included in the LMrlm\ subfolder of the RiverWare installation folder. For example:

    C:\Program Files\CADSWES\RiverWare 8.1\LMrlm\

Install the RiverWare License Server Files

Use this procedure to install the RiverWare license server files on the license server host. This procedure is required before you can start the license server.

1. Log in to the license server host, as Windows Administrator if necessary.

2. Create the RiverWare license server folder on a local drive. For example:

   C:\rwlicserver\

3. Optionally, create a subfolder for the license server logs. The user name that starts the license server must have write permission to this folder. For example:

   C:\rwlicserver\logs\

4. Locate the license server files in the LMrlm\ subfolder of the RiverWare installation folder. For example:

   C:\Program Files\CADSWES\RiverWare 8.1\LMrlm\

5. Copy or extract the all the files to the RiverWare license server folder created in Step 2.

6. Locate the license certificate file, cadswes.lic, you received from RiverWare Installation Support. Move it to the license server folder created in Step 2.

7. Verify the contents of the license server folder, as follows:

   – cadswes.lic—license certificate file for your organization

   – cadswes.set—custom license server for RiverWare

   – rlm.exe—generic RLM license server

   – rlm.opt—options file controlling aspects of RiverWare operation

   – rlmutil.exe—RLM utilities

8. Proceed as follows:

   – If you must assign specific port numbers for the license server processes, proceed to Assign License Server Port Numbers, below.

   – If you will use the default port number assignments, you can start the license server and verify the configuration. See Start the License Server From a Command Prompt Window on page 6 for details.

Assign License Server Port Numbers

> **Note:** This procedure should be performed only if your organization's firewall configuration requires port number assignments; see Port Number Assignments on page 2 for details about the default assignments.

Use this procedure to assign specific port numbers for the RLM server and RiverWare license server processes.

> **Note:** See your network administrator for assistance with port number assignments.

> **Note:** Optionally, you can specify a different port number for the embedded web server when you start the license server; see Start the License Server From a Command Prompt Window on page 6 for details.

1. Make a copy of the cadswes.lic license certificate file, in case you make an error and need to restore the original.

2. Open the cadswes.lic file in a text editor, such as Notepad.

3. Modify the file as follows.

   Caution: Take care to make only the changes specified. Any other changes will invalidate the license certificate. See RiverWare License Certificate File on page 2 for details about the file format and the changes you can make.

   a. To configure the RLM server to start on a specific port, add the port number to the HOST line, as follows:

      `HOST` *hostname hostid* **port_number**

      For example:

      `HOST rwserver 123456ABCDEF 8080`

   b. To configure the RiverWare license server to start on a specific port, add the port number to the ISV line, as follows:

      `ISV cadswes` **port=***port_number*

      For example:

      `ISV cadswes port=8081`

4. Save the file as an ASCII file and exit.

   Caution: Do *not* save the file in any other format.

Figure 2. License certificate file with port number assignments

```
 1  ###########################################################
 2  #           University of Colorado Boulder
 3  # Center for Advanced Decision Support for Water and
 4  # Environmental Systems (CADSWES)
 5  #
 6  # User name  : Hermione
 7  # Host ID    : MYSERVERHOST disksn=DB4E2_0E_05052F_70_2E2443_0D_000000_00.1
 8  # Issue Date : 7/30/2020
 9  #
10  HOST MYSERVERHOST disksn= DB4E2_0E_05052F_70_2E2443_0D_000000_00.1 8080
11  ISV cadswes port=8081
12  LICENSE cadswes riverware 100.0 31-mar-2021 3 share=uh issuer=CADSWES
13    customer=MYORGANIZATION _ck=64d8ee7d6c sig="60PG454033GECWH91EAX6XGEBD
14    UTD8KABC1233XMFU9U2HD6PXER6AH4ST7W4DVKYMY1GG"
15  LICENSE cadswes rlm_roam 100.0 31-mar-2021 uncounted hostid=ANY
16    _ck=43123c2561 sig="789123T8PAH59H6YAB694NMD6R619GSJRN7W022M0DAU30
17    2395ABC5STST8X8BB0C86MSH13KAG"
18  #
19  # CADSWES, University of Colorado Boulder
```

Start the License Server From a Command Prompt Window

Use this procedure to start the license server from a Command Prompt window on the license server host. This procedure is useful for performing a quick verification of the license server configuration. It is not recommended for normal operations, however, because the license server is immediately shut down if the Command Prompt window is closed. To keep the license server running continuously, install it as a Windows service; see Administering the License Server as a Service on page 15 for instructions.

1. Log in to the license server host and start a Command Prompt window.

2. Change to the RiverWare license server folder. For example:

```
cd c:\rwlicserver
```

3. Start the license server using one of the following commands, depending on whether you need to assign a port number to the RLM web server. See [Port Number Assignments](#) on page [2](#) for details.

   - Use the default port assignment for the RLM embedded web server:

     ```
     rlm -c C:\license_file_path\cadswes.lic -dlog C:\log_file_name
     ```

   - Assign a port to the RLM web server:

     ```
     rlm -c C:\license_file_path\cadswes.lic -dlog C:\log_file_name -ws port_number
     ```

   The RLM license server is started. It then starts the RiverWare license server and the RLM web server.

4. You can verify the operation of the license servers using the RLM Administration Tools; see [Display RiverWare License Server Status](#) on page [9](#) for details.

Example 1. Sample license server startup commands

Using the default web server port, 5054
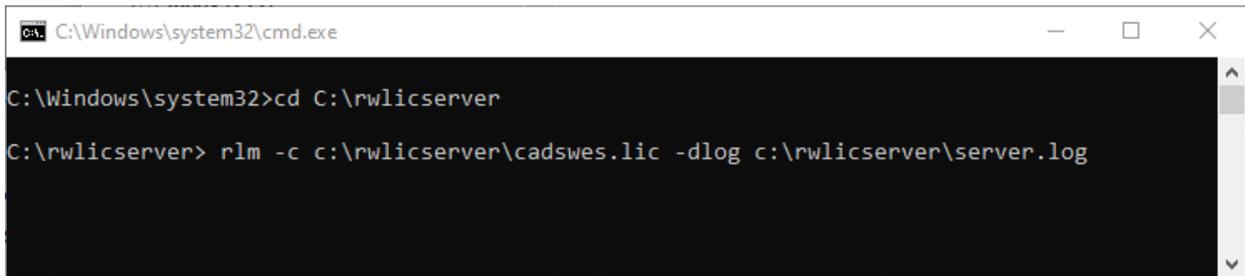

```
C:\Windows\system32\cmd.exe                              —    □    ×

C:\Windows\system32>cd C:\rwlicserver

C:\rwlicserver> rlm -c c:\rwlicserver\cadswes.lic -dlog c:\rwlicserver\server.log
```

Using web server port 6003
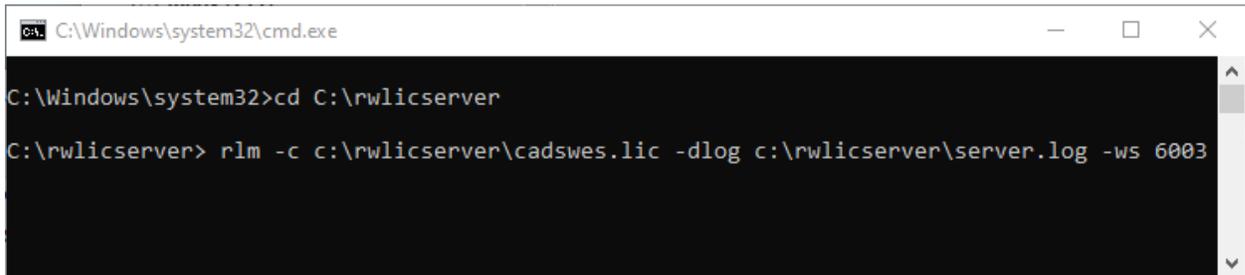

```
C:\Windows\system32\cmd.exe                              —    □    ×

C:\Windows\system32>cd C:\rwlicserver

C:\rwlicserver> rlm -c c:\rwlicserver\cadswes.lic -dlog c:\rwlicserver\server.log -ws 6003
```

rlm Command Syntax

-c *license_certificate_file*

Required. Full path to the cadswes.lic license certificate file. If no path is specified, the file is assumed to be in the current folder. The entry must be enclosed in double quotes if it includes blanks.

-dlog *log_file*

Optional. Full path to the server debug log file. If no path is specified, the file is created in the current folder. To append to an existing log file, use the + prefix; otherwise, the file is overwritten. The entry must be enclosed in double quotes if it includes blanks.

Note: Both the RLM server and the RiverWare license server write to this file.

-ws *port_number*

Optional. Port number for the embedded RLM web server. Default is 5054.

-install_service

Optional. Used to install the RLM server as a Windows service.

-service_name *service_name*

Optional. User-defined name for the installed service. The entry must be enclosed in double quotes if it includes blanks. Default is "rlm".

> **Note:** It is recommended to assign a unique user-defined name to the service so it is easy to identify.

Monitoring the License Server

The RLM embedded web server provides web-based administrative tools for administering the license server and monitoring license usage. You can perform these procedures using a web browser on any computer on your network.

> **Note:** For complete details on using the RLM Web Server Administration tools, see the "RLM Web Server" chapter in the *RLM License Administration* manual at the following site:
>
> http://www.reprisesoftware.com/admin/software-licensing.php

Start the License Server Administration Tools

To start the RLM Web Server Administration tools, open a browser window, and enter the hostname and port number of the RLM web server. The default web server port is 5054; if the web server was started on a different port, enter that number.

`http://server_hostname:port_number`

For example:

`http://myserverhost:5054`

The RLM License Server Administration page is displayed.

Display RiverWare License Server Status

Use this procedure to display the current status of the RiverWare license server and license usage.

1. Open a web browser and start the RLM Administration Tools. For example:

   `http://myserverhost:5054`

2. In the menu bar, select **Status**.

   The screen displays summary status information for all active license servers on the server host. "cadswes" is the RiverWare license server.

Reprise License Server Administration

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Logins disabled

RLM Administration Commands

Choose a command from the list below

Status

Shutdown

Reread/Restart Servers

Switch Reportlog

New Reportlog

Switch Debuglog

Edit License Files

Activate License

Diagnostics

RLM Manual...

System Info

About...

Status for "rlm" on MYSERVERHOST (port 5053)

RLM software version	v12.3 (build:3)
RLM comm version	v1.2
debug log file	c:\rwlicserver\Startup1.log
license files	c:\rwlicserver\cadswes.lic

rlm Statistics	Since Start	Since Midnight	Recent
Start time	07/31 08:56:51	07/31 08:56:52	07/31 09:57:51
Messages	0 (0/sec)	0 (0/sec)	0 (0/sec)
Connections	0 (0/sec)	0 (0/sec)	0 (0/sec)

EDIT rlm Options

SHOW rlm Debug Log

ISV Servers											
Name	port	Running	Restarts	Server Status	License Usage	Debug Log	REREAD	OPTIONS	TRANSFER	SHUTDOWN	ACTIVATE
cadswes	52815	Yes	0	cadswes	cadswes	cadswes	cadswes	cadswes	cadswes	cadswes	cadswes

3. To display current status of the RiverWare license pool, select **cadswes** in the Server Status column.

License pool summary information is displayed in the License pool status section. See Sample Status Displays for Floating and Roaming Licenses on page 12 for annotated examples.

Reprise License Server Administration

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Logins disabled

RLM Administration Commands

Choose a command from the list below

Status

Shutdown

Reread/Restart Servers

Switch Reportlog

New Reportlog

Switch Debuglog

Edit License Files

Activate License

Diagnostics

RLM Manual...

System Info

About...

ISV cadswes status on MYSERVERHOST (port 50731)

cadswes software version	v12.3 (build:3)
cadswes comm version	v1.2
debug log file	_stdout_
report log file	_n/a_

cadswes Statistics	Since Start	Since Midnight	Recent
Start Time	07/31 12:30:10	07/31 12:30:12	07/31 12:30:12
Messages	2 (2/sec)	2 (2/sec)	2 (2/sec)
Connections	1 (1/sec)	1 (1/sec)	1 (1/sec)
Checkouts	0 (0/sec)	0 (0/sec)	0 (0/sec)
Denials	0 (0/sec)	0 (0/sec)	0 (0/sec)
License Removals	0 (0/sec)	0 (0/sec)	0 (0/sec)
Current Connections	0		

License pool status

Product	Pool	Ver	Expires	count	soft lim	inuse	res	hostid	timeout	share	checkouts	Show Usage
riverware	1	100.0	31-mar-2021	3	3	1	0		0	User&Host	43	usage...
rlm_roam	2	100.0	31-mar-2021	Uncounted	0	0	0	ANY	0	None	0	usage...

Enter license password to select license results. Only licenses with matching passwords (or with no passwords) will be displayed above.

License Password: [＿＿＿＿＿＿＿＿]

Refresh

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4. To display details for the floating license pool, select **usage** in the riverware row of the license pool status section.

The page displays details about all licenses in use. If no licenses are in use, the following message is displayed.

No Licenses in use for ISV cadswes for product riverware, user[any], host[any]

Reprise License Server Administration

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Logins disabled

RLM Administration Commands

Choose a command from the list below

Status

Shutdown

Reread/Restart Servers

License status for ISV cadswes

Product	Pool	Ver	user	host	PID	req ver	# lic	# res	Out time	Click to REMOVE
riverware	1	100.0	user1	hermione	10628	8.1	1	0	07/31 15:00	Remove

Refresh

Back

Sample Status Displays for Floating and Roaming Licenses

Example 2. Floating license summary and detail views

Summary display shows 3 floating licenses in the pool, 1 is currently in use, and 43 total license checkouts have been performed since the RiverWare license server was last started.

License pool status

Product	Pool	Ver	Expires	count	soft lim	inuse	res	hostid	timeout	share	checkouts	Show Usage
riverware	1	100.0	31-mar-2021	3	3	1	0		0	User&Host	43	usage...
rlm_roam	2	100.0	31-mar-2021	Uncounted	0	0	0	ANY	0	None	0	usage...

Detail view shows 1 floating license for RiverWare version 8.1 is in use by user1.

License status for ISV cadswes

Product	Pool	Ver	user	host	PID	req ver	# lic	# res	Out time	Click to REMOVE
riverware	1	100.0	user1	hermione	10628	8.1	1	0	07/31 15:00	Remove

Example 3. Roaming license summary and detail views

Before a roaming license is checked out, the summary display shows 5 seats in the license pool. 2 floating licenses are in use, none of which is roaming.

License pool status

Product	Pool	Ver	Expires	count	soft lim	inuse	res	hostid	timeout	share	transactions	Show License Usage
riverware	1	100.0	31-dec-2020	5	5	2	0		0	None	2	usage...
rlm_roam	2	100.0	31-dec-2020	Uncounted	0	0	0	ANY	0	None	0	usage...

Detail display shows floating licenses are in use by user2 and user3.

License status for ISV cadswes

Product	Pool	Ver	user	host	PID	req ver	# lic	# res	Out time	Click to REMOVE
riverware	1	100.0	user2	bluedell	3404	8.1	1	0	02/23 15:00	Remove
riverware	1	100.0	user3	hagrid	5148	8.1	1	0	02/23 15:02	Remove

After user2 checks out a roaming license, the summary display still shows 5 seats in the license pool. 2 licenses are in use, 1 of which is roaming.

License pool status

Product	Pool	Ver	Expires	count	soft lim	inuse	res	roam	hostid	timeout	share	transactions	Show License Usage
riverware	1	100.0	31-dec-2020	5	5	2	0	1		0	None	1	usage...
rlm_roam	2	100.0	31-dec-2020	Uncounted	0	0	0	0	ANY	0	None	0	usage...

Detail display shows 1 roaming license checked out to user2 on 02/23 at 15:08 and expiring on 02/26 at 00:00.

License status for ISV cadswes

Product	Pool	Ver	user	host	PID	req ver	# lic	# res	Out time	In (hold) time	Click to REMOVE
riverware	1	100.0	user2	bluedell	0	8.1	1	0	02/23 15:08	02/26 00:00	Remove
riverware	1	100.0	user3	hagrid	4952	8.1	1	0	02/24 12:16	None	Remove

View the License Server Debug Log

Use this procedure to display the license server debug log, which provides details about license server operation and errors.

1. Start the RLM Administration Tools; see Start the License Server Administration Tools on page 8 for details.

2. In the menu bar, select **Status**.

   The screen displays summary status information for all active license servers on the server host.

3. To display the debug log for the RLM server, select **SHOW rlm Debug Log** in the "rlm" section.

   The last 20 lines of the debug log is displayed.

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Recent Debug Log Entries

RLM Debug Log, last 20 lines

```
08/17 08:45 (rlm) RLM License Server Version 12.3BL3

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08/17 08:45 (rlm) License server started on MYSERVERHOST
08/17 08:45 (rlm) Server architecture: x64_w4
08/17 08:45 (rlm) License files:
08/17 08:45 (rlm)      c:\rwlicserver\cadswes.lic
08/17 08:45 (rlm)
08/17 08:45 (rlm) Using options file rlm.opt
08/17 08:45 (rlm) Web server starting on port 5054
08/17 08:45 (rlm) Using TCP/IP port 5053
08/17 08:45 (rlm) ... adding UDP/IP port 5053
08/17 08:45 (rlm) Starting ISV server cadswes on port 57371
08/17 08:45 (rlm) New thread created to watch ISV cadswes
```

Refresh

BACK

4. To display the debug log for the RiverWare license server, in the ISV Servers section, select **cadswes** in the Debug Log column.

The screen displays the last 20 lines of the debug log.

Administering the License Server as a Service

RLM license server can be installed and run as a Windows service process. When administered this way, the license server starts automatically at boot time and remains running as long as the server host is up. The service can also be started manually without rebooting the host.

> **Note:** Depending on access restrictions at your site, these procedures may require special privileges to manage Windows services.

> **Note:** Because the Windows Service Controller invokes services under a special user account in a special default directory, you must always enter full paths when configuring the license server service.

Install the RLM Service

Use this procedure to install the RLM license server as a Windows service on the license server host. The service remains installed until it is explicitly deleted as a service.

1. Log in to the license server host.

2. On the license server host, open a Command Prompt window and change to the license server folder. For example:

    ```
    c:\rwlicserver\
    ```

3. Install the service using the following command. See [rlm Command Syntax](#) on page [7](#) for details.

   `rlm -install_service -service_name` *name* `-c` *license_certificate_file* `-dlog` *log_file*

4. Do either of the following to start the service:

   - Reboot the license server host. The service will start automatically. See [Display the Status of the RLM Service](#) on page [17](#) to verify successful initiation.

   - Start the service manually; see [Start the RLM Service Manually](#) on page [16](#) for details.

Example 4. License server service installation

Install the service with the name "rwlicserv"; embedded web server uses default port.
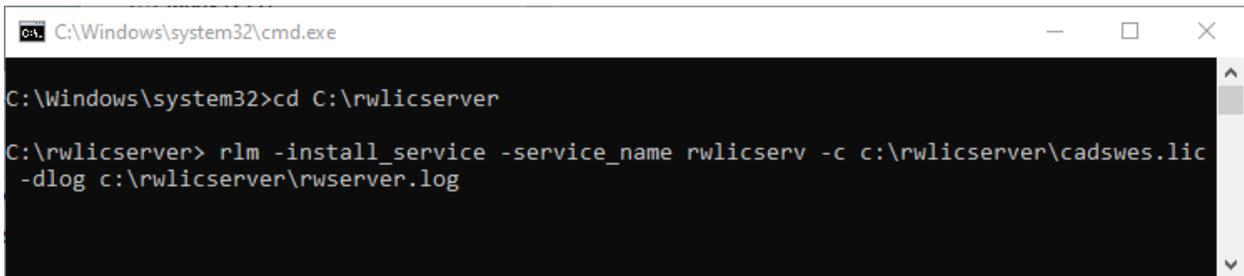
```
C:\Windows\system32\cmd.exe                              —    □    ✕

C:\Windows\system32>cd C:\rwlicserver

C:\rwlicserver> rlm -install_service -service_name rwlicserv -c c:\rwlicserver\cadswes.lic
 -dlog c:\rwlicserver\rwserver.log
```

Install the service with the name "rwlicserv"; embedded web server uses port 6003.
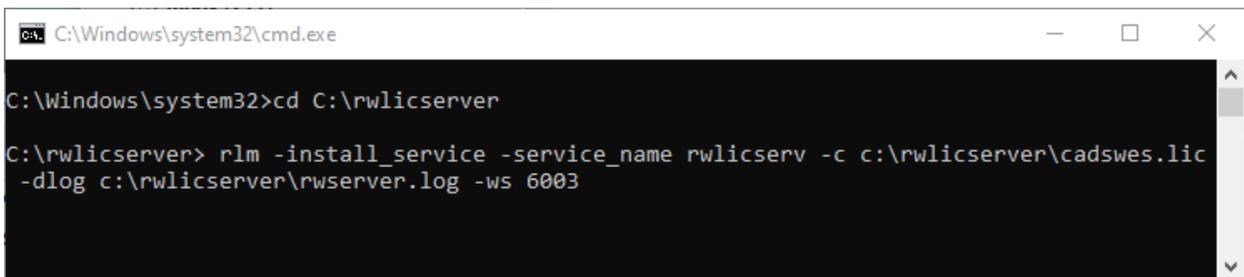
```
C:\Windows\system32\cmd.exe                              —    □    ✕

C:\Windows\system32>cd C:\rwlicserver

C:\rwlicserver> rlm -install_service -service_name rwlicserv -c c:\rwlicserver\cadswes.lic
 -dlog c:\rwlicserver\rwserver.log -ws 6003
```

Start the RLM Service Manually

Use this procedure to start the RiverWare license server service manually on the license server host. Once the service is started, it will remain running until it is manually stopped or the license server host is shut down. The service will restart automatically whenever the license server host is rebooted.

1. Log in to the license server host.

2. In the **Windows** menu, select **Start**, then **Control Panel**, then **Administrative Tools**, then **Services**.

3. In the Services (Local) list, select the installed RiverWare license service.

4. Select **Start Service**.

   The service starts in the background. The Status column on the page displays "Running".
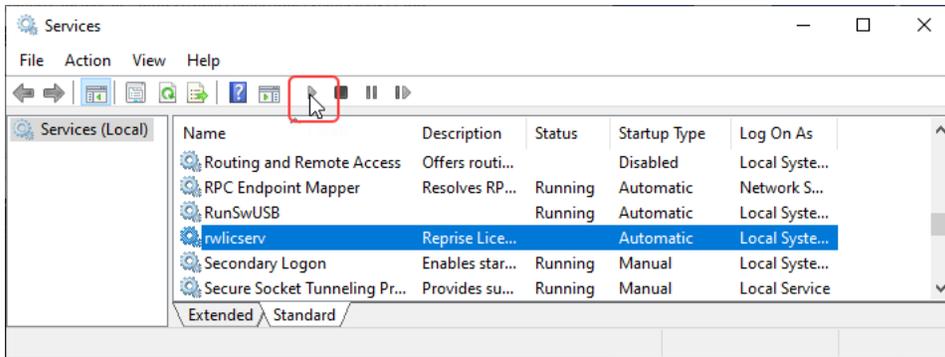
Display the Status of the RLM Service

Use this procedure to display the status of the RLM service. This procedure does *not* require special privileges.

1. Open the Windows Task Manager.

2. Select the **Services** tab.

3. In the Services (Local) list, locate the RiverWare license service.

    The Status column indicates whether it is Running or Stopped.
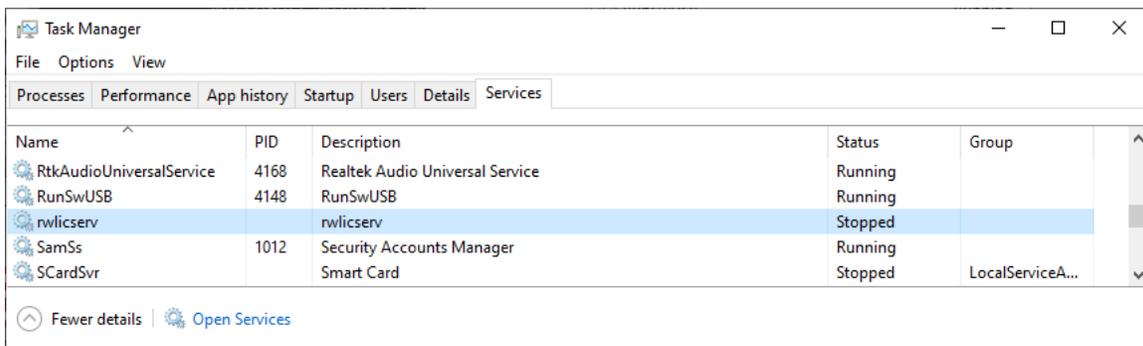
Stop the RLM Service

Use this procedure to stop the RLM service gracefully on the license server host. You must perform this procedure before deleting the service.

1. Log in to the license server host.

2. In the **Windows** menu, select **Start**, then **Control Panel**, then **Administrative Tools**, then **Services**.

3. In the Services (Local) list, select the installed RiverWare license service.

4. Select **Stop Service**.

    The service is stopped.
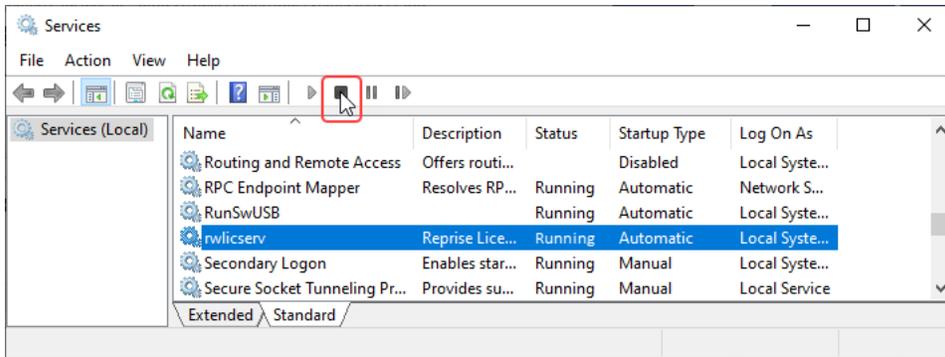
Delete the RLM Service

Use this procedure to delete the RLM service. This procedure must be performed from a Command Prompt window.

> **Note:** Before performing this procedure, you must stop the RLM service; see Stop the RLM Service on page 17 for details.

> **Note:** Deleting RLM service only deletes it from the Windows services database; it does not delete the RLM executable or associated license files.

1. Open a Command Prompt window.

2. Change to the license server directory.

3. Delete the service using the following command. See rlm Command Syntax on page 7 for details.

   rlm -delete_service -service_name *name*

   The service is deleted from the Task Manager Processes and Services tabs. It is removed the Services tool (you may need to close and reopen the tool to see this update).

Example 5. License server service deletion

   >rlm –delete_service –service_name rwlicserv

Shutting Down the License Server

Use the following sequence to shut down the license server gracefully.

1. Shut down the RiverWare license server, using one of the following procedures:

   – Shut Down the RiverWare License Server From the RLM Administration Tools, below

   – Shut Down the RiverWare License Server From a Command Prompt Window, page 21

2. Shut down the RLM license manager; see Shut Down the RLM License Server on page 22.

Shut Down the RiverWare License Server From the RLM Administration Tools

Use this procedure to shut down the cadswes license server from any computer on the network using the RLM Administration tools.

Note: This procedure shuts down the RiverWare license server (cadswes) only. To shut down the RLM license server, see Shut Down the RLM License Server on page 22.

1. Start the RLM Administration Tools; see Start the License Server Administration Tools on page 8 for details.

2. In the menu bar, select **Shutdown**.

    The Shutdown License Server page is displayed.

3. In the **ISV** menu, select **cadswes**.

    Caution: The default menu selection is **-all-**. If you leave the selection as is, all ISV servers on this server host will be shut down.

4. Select **SHUT DOWN SERVER**.

The following message is displayed and the license server is shut down immediately—there is no confirmation.

```
Shutdown message sent for cadswes
```

The following messages are added to the server log.

```
07/31 13:04 (cadswes) Shutdown request by webuser@myserverhost.myorg.com
07/31 12:52 (rlm) cadswes - SHUTDOWN
```

5. In the menu bar, select **Status** to display the updated status.

    The Server Status for the cadswes server is "Server Down".

Reprise License Server Administration

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Status for "rlm" on MYSERVERHOST (port 5053)

RLM software version	v12.3 (build:3)
RLM comm version	v1.2
debug log file	c:\rwlicserver\Startup1.log
license files	c:\rwlicserver\cadswes.lic

rlm Statistics	Since Start	Since Midnight	Recent
Start time	07/31 12:30:09	07/31 12:30:10	07/31 13:00:39
Messages	0 (0/sec)	0 (0/sec)	0 (0/sec)
Connections	0 (0/sec)	0 (0/sec)	0 (0/sec)

EDIT rlm Options
SHOW rlm Debug Log

ISV Servers											
Name	port	Running	Restarts	Server Status	License Usage	Debug Log	REREAD	OPTIONS	TRANSFER	SHUTDOWN	ACTIVATE
cadswes	50731	No	0	Server Down	Server Down	Server Down	cadswes	Server Down	Server Down	Server Down	Server Down

RLM Administration Commands

Logins disabled

Choose a command from the list below

- Status
- Shutdown
- Reread/Restart Servers
- Switch Reportlog
- New Reportlog
- Switch Debuglog
- Edit License Files
- Activate License
- Diagnostics
- RLM Manual...
- System Info
- About...

Shut Down the RiverWare License Server From a Command Prompt Window

Use this procedure to shut down the cadswes license server from a Command Prompt window. This procedure must be performed on the license server host by the same user that started the server.

1. Log in to the license server host as the same user that started the server .

2. Open a Command Prompt window and change to the license server folder.

3. Enter the following command to perform the shutdown. Confirm the shutdown when prompted.

   ```
   rlmutil rlmdown cadswes
   ```

Example 6. cadswes license server shutdown

```
>cd c:\rwlicserver
>rlmutil rlmdown cadswes
rlmutil v12.3
Copyright (C) 2006-2017, Reprise Software, Inc. All rights reserved.

shutting down cadswes - are you sure? [y/n]: y

>
```

Shut Down the RLM License Server

Use this procedure to shut down the RLM license server. This procedure also shuts down the RiverWare license server if it is still running. This procedure does not require Windows Administrator privileges.

> **Note:** This procedure must be done from a Command Prompt window.

1. Log in to the license server host.

2. Open a Command Prompt window and change to the license server folder. For example:

   `cd c:\rwlicserver`

3. Shut down the RLM license server using the following command. Confirm the shutdown when prompted.

   `rlmutil rlmdown RLM`

   > **Note:** "RLM" must be in all capital letters.

Example 7. Example RLM license server shutdown

```
>cd c:\rwlicserver

>rlmutil rlmdown RLM
rlmutil v12.3
Copyright (C) 2006-2017, Reprise Software, Inc. All rights reserved.

shutting down RLM - are you sure? [y/n]: y

>
```

The following messages are added to the license server log file.

```
07/31 14:52 (cadswes) Shutdown request by user@myserverhost
07/31 14:52 (rlm) Shutdown request by user@myserverhost
07/31 14:52 (rlm) Sending shutdown msg to cadswes (pid: 10748)
07/31 14:52 (rlm) cadswes - SHUTDOWN
07/31 14:52 (rlm) Shutting down rlm
```

Floating and Roaming License Operations

This section summarizes RiverWare license operations for license server administrators. See the *RiverWare Installation and License User's Guide* for usage details.

How RiverWare Obtains and Retains a Floating License

When a user starts RiverWare on a client computer, RiverWare contacts the license server on the network and requests a floating license. If the client's RiverWare license is valid and a floating license is available in the pool, the RiverWare license server issues a license for use on the client computer.

While RiverWare is running, it periodically contacts the license server to verify the license is still valid. If RiverWare is not able to validate the license, it assumes the license has been lost and requests a new one. If RiverWare is not able to obtain a new license, it must shut down.

RiverWare *does not validate a license during a simulation run*, but once the simulation finishes, it performs the validation check within two minutes. See the *RiverWare Installation and License User's Guide* for details on this process.

How Roaming Licenses Work

A roaming license is a special instance of a floating license that allows a user to run RiverWare on a computer that is disconnected from the network. Checking out a roaming license reduces the number of licenses available in the license pool by one. The license server tracks the users and time periods for all roaming licenses.

To request a roaming license, the user must create the RLM_ROAM user environment variable on their computer and set the value equal to the number of days the license can be used, up to a maximum of 30. To check out the license, the user's computer must be connected to the network so it can contact the license server.

Once the roaming license is checked out and the client computer is disconnected from the network, the license behaves as a node-locked, uncounted license on the disconnected computer, allowing the user to run an unlimited number of RiverWare sessions on that computer. The license is valid until midnight of the last day of the roaming period.

It is recommended that users delete the RLM_ROAM user environment variable from their computers after checking out a roaming license. This is because the roaming period could be extended inadvertently if the value of the RLM_ROAM variable is increased and the computer is reconnected to the network. Deleting the variable ensures the roaming end date remains as originally defined.

The roaming license is automatically checked in to the license pool at the end of the roaming period, even if the client computer is not connected to the network. Optionally, the license can be checked in early by the user.

If your organization's license certificate expires before the roaming license is checked in to the license pool, the roaming license expires on the same day as the license certificate.