



Installation and License User's Guide

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Center for Advanced Decision Support
for Water and Environmental Systems
UNIVERSITY OF COLORADO BOULDER

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Contents

Preface	V
About This Guide	V
Related Documentation	v
RiverWare Resources	V
Support Information	v
Tutorials and Training	vi
RiverWare Help Files	vi
Installing RiverWare	1
About the RiverWare Installation Program	1
Required Permissions	1
Download the RiverWare Installation Program	2
Install RiverWare	2
Starting RiverWare	8
About the RiverWare License	9
License File Location on Your Computer	9
License Types	9
Display Information About Your License	10
Running RiverWare With a Node-locked License	11
Running RiverWare With a Floating License	11
How RiverWare Obtains and Retains a Floating License	11
License Validation During a Simulation Run.....	11
Using a Roaming License	12
Check Out a Roaming License.....	13
Delete the RLM_ROAM Environment Variable.....	14
Check in a Roaming License Before It Expires.....	15
Release a Roaming License Unconditionally.....	16
Running RiverWare With a License Dongle	17
License Dongle Process Summary	17
Required Port Access	17
Setting Up Additional Computers	18
Installing the Dongle Device Drivers Manually	18
Download the Dongle Driver Files	18
Install Dongle Drivers With the GUI Installer	20
Install Dongle Drivers With the Command Line Installer.....	22
Troubleshooting	23
RiverWare Startup Errors	23
License Errors	24

Verify the License Dongle Host ID	30
Uninstalling RiverWare	31
Uninstall Using Windows Installer	31
Uninstall Using the RiverWare Installation Program	31

Preface

Note: This guide applies only to RiverWare 9.x and later and to 64-bit computers running Windows 8.1 and later.

About This Guide

This guide is for RiverWare users, and it provides information to perform the following activities.

- Download and install RiverWare on a Windows computer.
- Install the RiverWare license file, cadswes.lic.
- Run RiverWare using a node-locked license.
- Run RiverWare using a floating license and check out a roaming license to use RiverWare when a computer is not connected to the network.
- Set up a Windows computer to run RiverWare using a license dongle.
- Uninstall RiverWare from a Windows computer.
- Troubleshoot common license errors.

Note: The screenshots in this guide may vary slightly from the display on your computer depending on the versions of RiverWare and Windows you are running.

Related Documentation

RiverWare Floating License Server Administration Guide

For RiverWare floating license server administrators, the document located at <https://riverware.org/guides/RWLicenseServerAdmin.pdf> describes how to install, configure, and monitor the RiverWare floating license server on a Windows host.

RiverWare Resources

Support Information

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

installsupport@colorado.edu

After RiverWare is successfully installed, for application and modeling related 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>

Tutorials and Training

The following resources are available to help you get started using RiverWare.

- On the RiverWare Tutorials page, you can view videos of RiverWare functionality and features.
<http://riverware.org/tutorials/index.html>
- In the RiverWare documentation, the *Model Building Quick Start* provides information on building your own model.
https://www.riverware.org/HelpSystem/9.0-Help/#page/ModelBuilding/ModelBuilding_TitlePage.html#ww1214642
- In RiverWare, you can open an existing model by selecting **File**, then **Open Model**.

CADSWES also offers training classes on using RiverWare. Go to the following page for descriptions.

<http://riverware.org/riverware/training/index.html>

RiverWare Help Files

All RiverWare documentation is available at the RiverWare site:

riverware.org

You can display RiverWare Help by selecting one of the following options on the RiverWare workspace menu.

- Select **Help**, then **Documentation**—displays the HTML-based documentation in a web browser, such as Google Chrome or Firefox.
- Select **Help**, then **Documentation PDFs**—displays the PDF-based help with Adobe Acrobat Reader or other PDF application.

Note, the content is identical, just the formats are different.

Downloading and Installing RiverWare

This section provides information about downloading and installing the RiverWare application on your computer.

About the RiverWare Installation Program

The RiverWare installation program is available for download from the RiverWare site. The download is password protected with an authorized username and password that are sent in each RiverWare release notification email. If you do not have access to the email notification, you can email RiverWare Installation Support to request the login information:

installsupport@colorado.edu

The installation program includes three separate but related applications:

- RiverWare – The main river and reservoir hydro-policy basin modeling application.
- RiverSMART- The RiverWare Study Manager and Research Tools – This tool is used to create, execute, and archive comparative RiverWare planning studies. It is included in the installation as the RiverWare and RiverSMART versions must be the same, thus they are installed together. For more information on RiverSMART, see <https://riverware.org/tutorials/RiverSmart/index.html> or the RiverSMART documentation.
- RiverWISE – The RiverWare Interactive Scenario Explorer is a standalone application for viewing and exploring alternatives of certain specially configured models generated in the RiverWare software. This application is included in the installation package so that model developers can set up RiverWISE files. A separate application for stakeholders is available at: <https://riverware.org/RiverWISE/index.html>

In this document, we use the term RiverWare to mean the individual application, but when describing the installation process, it also includes RiverSMART and RiverWISE as well. They are all included unconditionally and cannot be separated.

The installation program name uses the format: RiverWare_*n.n.n*_setup.exe

where *nnn* is the two- or three-digit version number. Examples:

- RiverWare_9.1_setup.exe is the installation program for RiverWare 9.1
- RiverWare_9.0.5_setup.exe is the installation program for RiverWare 9.0.5

The installation program installs a full release of RiverWare in a single folder. The installation includes all the files you need to run RiverWare, except the required RiverWare license file. With this approach, it is possible to have many versions of RiverWare installed on a machine. They can be run independently of one another.

As part of the the installation, you can choose to have a shortcut icon placed on the Windows Desktop, and the applications are added to the CADSWES folder in the Windows Start menu.

Required Permissions

Windows Administrator privileges are not required to perform the installation or install the RiverWare license file. However, depending on access restrictions set up by your organization, you may need Administrator privileges to perform some tasks or write to some folders—for example: C:\Program Files\

If you run the RiverWare installation program as a Windows Administrator, the default installation folder is: C:\Program Files\CADSWES\

If you run the installation program as a regular user, the default installation folder is a subfolder of your Program Files folder, typically: C:\Users\username\AppData\Local\Programs\CADSWES\

During the installation process, you can optionally change the installation location to any folder for which you have write permission.

Download the RiverWare Installation Program

1. On the computer where you want to install RiverWare, open a web browser and go to the following page.

<https://cadswes2.colorado.edu/downloads/riverware/releases/index.html>

2. Select the version of RiverWare to download.
3. In the Authentication Required dialog box, enter the authorized username and password provided by RiverWare Installation Support and select **OK**.

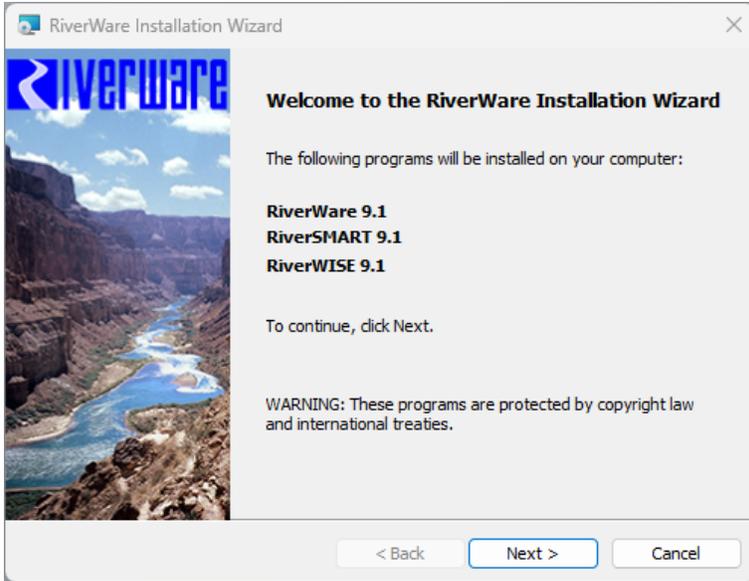
Note: The username and the password are delivered to you by email.

4. Save the download to your computer.

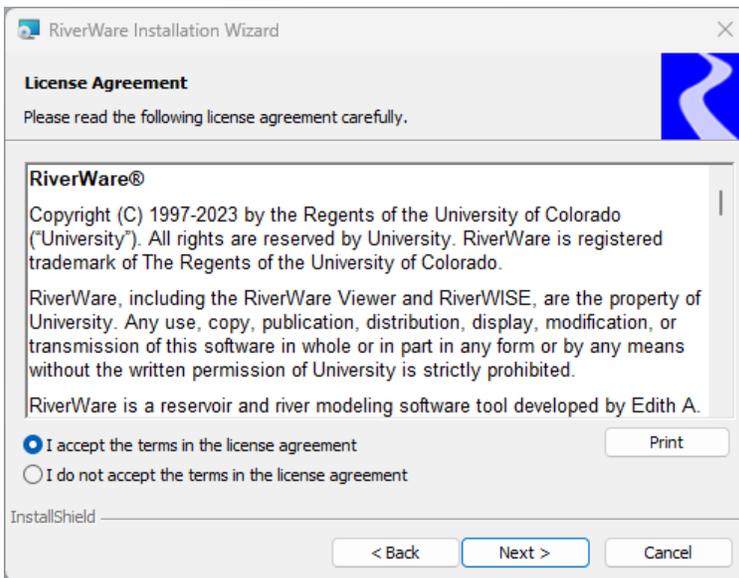
Install RiverWare

Note: The screenshots in this section show the installation of RiverWare 9.1 on Windows 11. They may vary slightly from the display on your computer depending on the versions of RiverWare and Windows you are using.

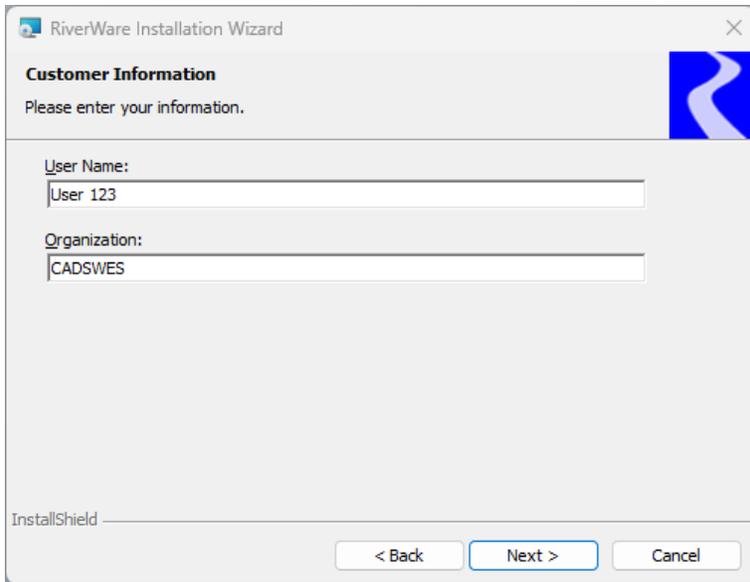
1. Use one of the following methods to start the RiverWare installation.
 - To run the installation as a regular user, log in as a regular user and open the RiverWare Installation program.
 - To run the installation as Windows Administrator, do one of the following.
 - Log in as a regular user, then right-click the RiverWare Installation program icon and select **Run as administrator**.
 - Log in as Windows Administrator and run the RiverWare Installation program.
2. Review the information in the Welcome window and select **Next**.



3. Review the license agreement and select **I accept the terms in the license agreement**, then select **Next**.



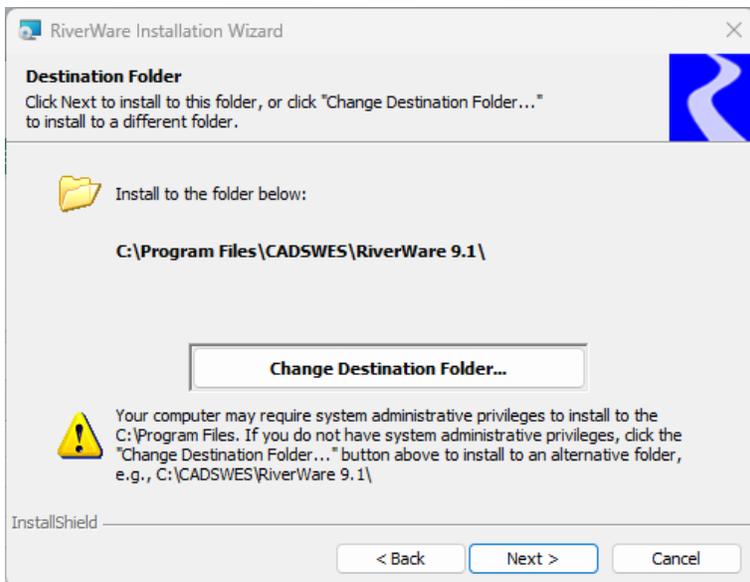
4. In the Customer Information window, enter your **User Name** and **Organization**, then select **Next**.



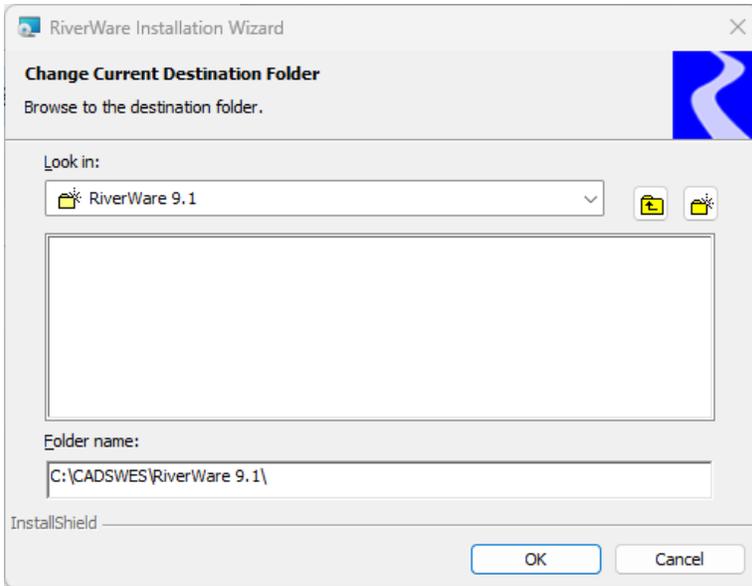
5. The Destination Folder screen allows you to accept or override the default installation folder, which is determined by the type of user running the RiverWare installation program; see [Step 1](#).
 - If you are running the installation program as Windows Administrator, the default installation folder is: `C:\Program Files\CADSWES\RiverWare version\`
 - If you are running the installation as a regular user, the default installation folder is: `C:\Users\username\AppData\Local\Programs\CADSWES\RiverWare version\`

Review the information and proceed as follows.

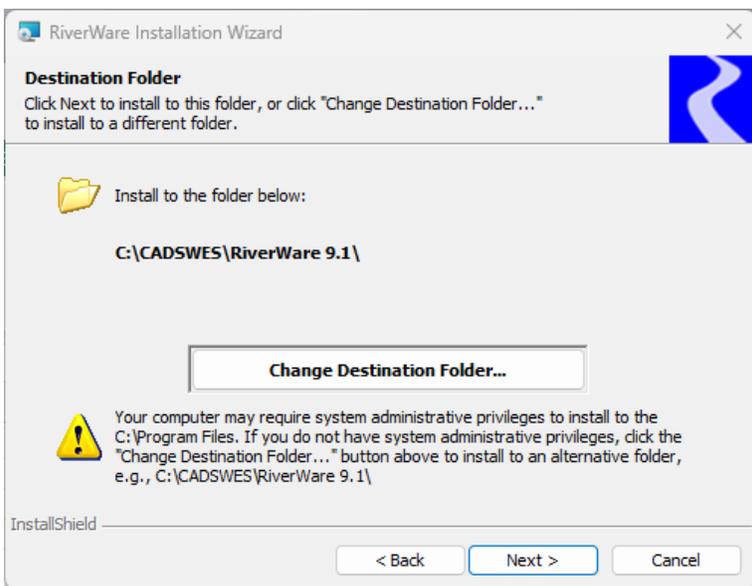
- To accept the default installation folder, select **Next**; proceed to [Step Error! Reference source not found.](#)
- To install to a different folder, select **Change Destination Folder**; proceed to [Step 6](#).



6. In the Change Current Destination Folder window, specify the full path to the folder where you want to install RiverWare, then select **OK**.

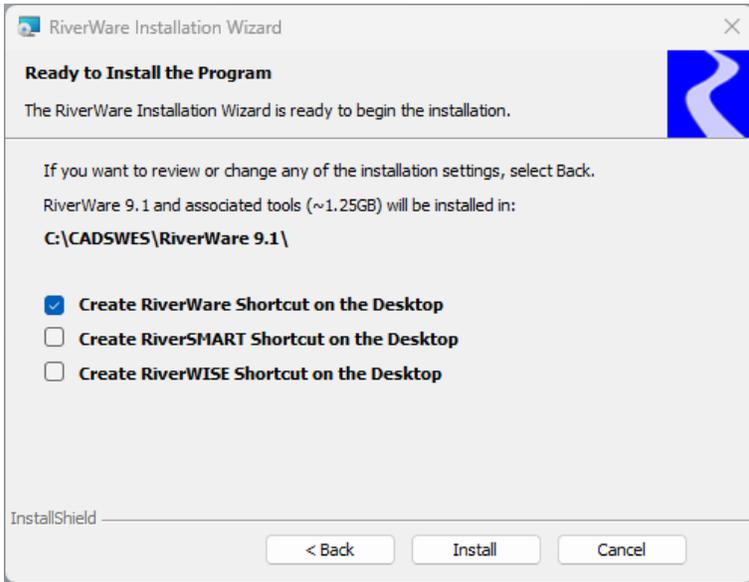


The Destination Folder window reopens, displaying the updated location. Review the information and select **Next** to confirm.



7. The Ready to Install the Program window allows you to choose which users will be able to run RiverWare on this computer.

On Windows 11:

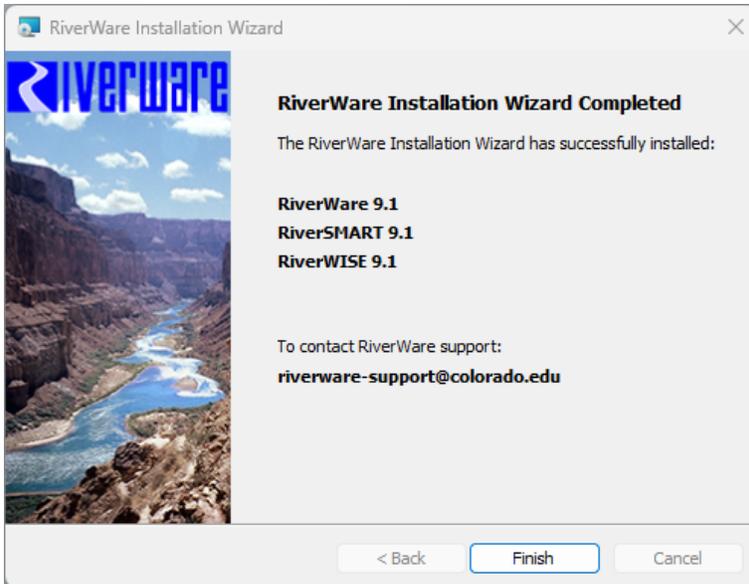


You have the option to create a shortcut for RiverWare on the Desktop on this computer. Options will show for RiverWare, RiverSMART, and RiverWISE, and each can be selected or deselected as desired.

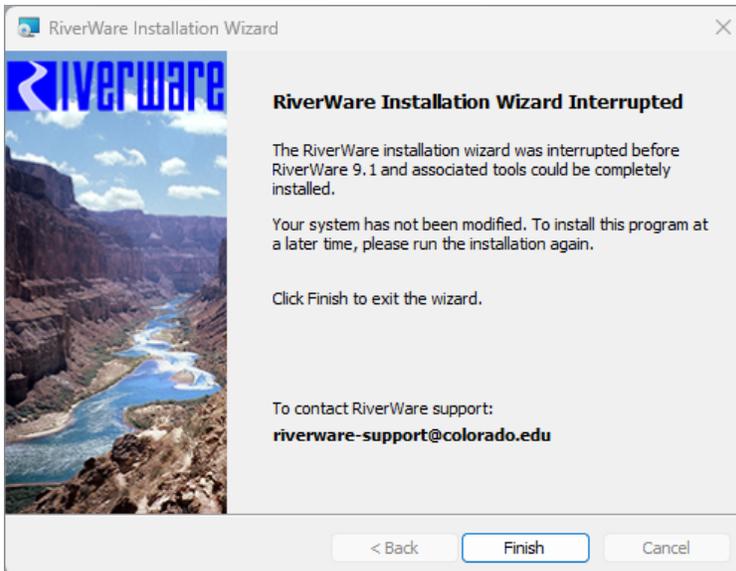
The RiverWare installation starts immediately, and the screen displays the progress.



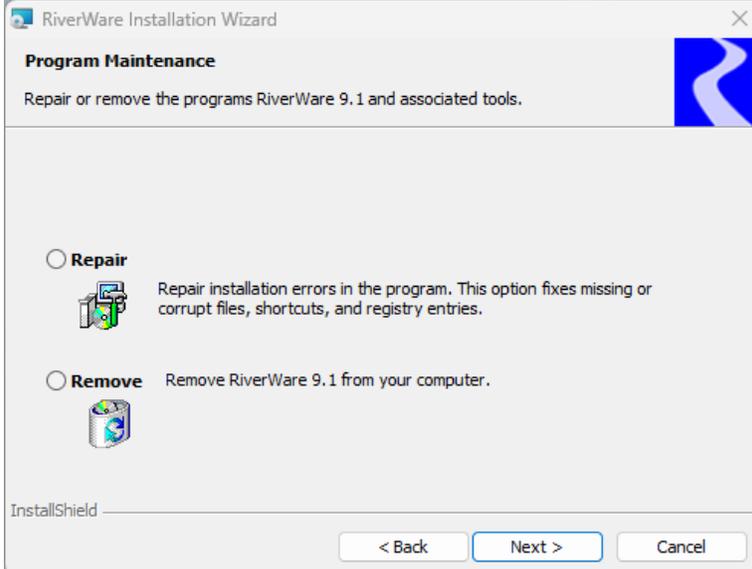
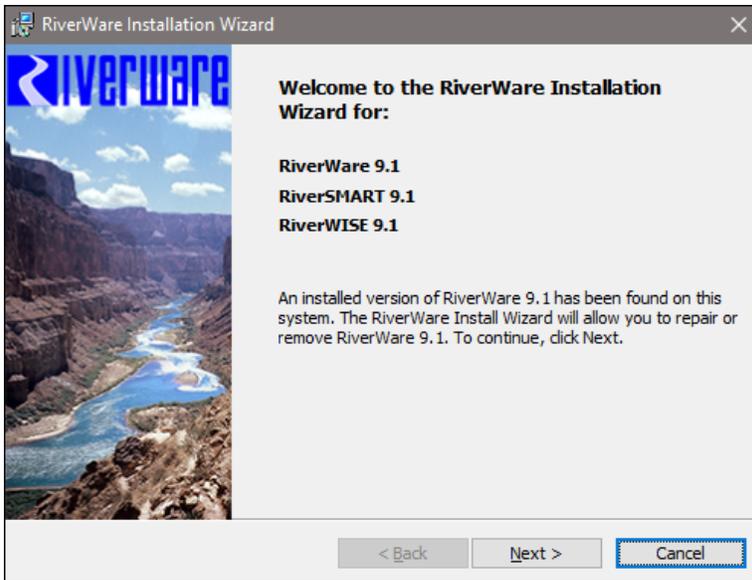
8. If the installation is successful, the RiverWare Install Wizard Completed window opens. Select **Finish** to exit. RiverWare is added to the CADSWES folder in the Windows Start menu. If selected in the previous step, a shortcut is also created on the desktop.



If the installation failed or was interrupted before it completed, the RiverWare Install Wizard Interrupted window opens, indicating no updates have been made to your computer. Select **Finish** to exit. You must repeat the installation process to install RiverWare.



9. If you run the installation file while the version has already installed, you are given the option to repair or remove the already installed version.



Select Repair, the installation program checks the old installation and then try to run the installation program again.

Select Remove, the installation program uninstalls the version.

Starting RiverWare

For RiverWare to start, a valid license file must be installed in the proper location on your computer; see [License File Location on Your Computer](#) on page 9 for details. To request a license file, email RiverWare Installation Support:

installsupport@colorado.edu

You can use either of the following methods to start RiverWare.

- Open RiverWare by selecting the icon on the Windows Desktop.
- Open the Windows **Start** menu, select **CADSWES**, then select the RiverWare version to run.

For help with errors when starting RiverWare, see [Troubleshooting](#) on page [233](#).

About the RiverWare License

When RiverWare starts, it automatically locates and validates the license file. The file is assigned the name “cadswes.lic”, and CADSWES recommends preserving this file name.

Caution: The cadswes.lic file is a simple text file. Do *not* save it in any other format.

License File Location on Your Computer

For RiverWare to find and validate the license file, the file must be located in the parent folder of the RiverWare installation folder—that is, one level directly above the installation folder. For example, if RiverWare 9.1 is installed in: C:\Program Files\CADSWES\RiverWare 9.1\, the license file must be located at: C:\Program Files\CADSWES\cadswes.lic

Note: Be sure there are no other files with a .lic extension in the same folder.

The license file authorizes all versions of RiverWare. Because you may want to run multiple versions of RiverWare, it is recommended to install all versions of RiverWare in subfolders under a single parent folder, and to locate the license file in the parent folder. By using this folder organization, you only need to maintain one copy of the license file. For example:

```
C:\Program Files\CADSWES\cadswes.lic
C:\Program Files\CADSWES\RiverWare 9.0\
C:\Program Files\CADSWES\RiverWare 9.1\
```

License Types

A RiverWare license allows you to run any number of RiverWare instances, in any versions, on your computer. The following types of licenses are available for RiverWare.

Node-locked license

A license that is locked to a specific computer, enabling you to run RiverWare on that computer only. See [Running RiverWare with a Node-locked License](#) on page [11](#) for details.

Floating license

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 end user’s client computer must be connected to the same network as the license server. See [Running RiverWare with a Floating License](#) on page [11](#) for details

A *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 enables you to run RiverWare for a limited time on that computer while not connected to a network. See [Using a Roaming License](#) on page [122](#) for details.

Dongle license

A license that is locked to a portable USB hardware key, not to a specific computer, enabling you to easily change computers for running RiverWare. See [Running RiverWare with a License Dongle](#) on page [17](#) for details.

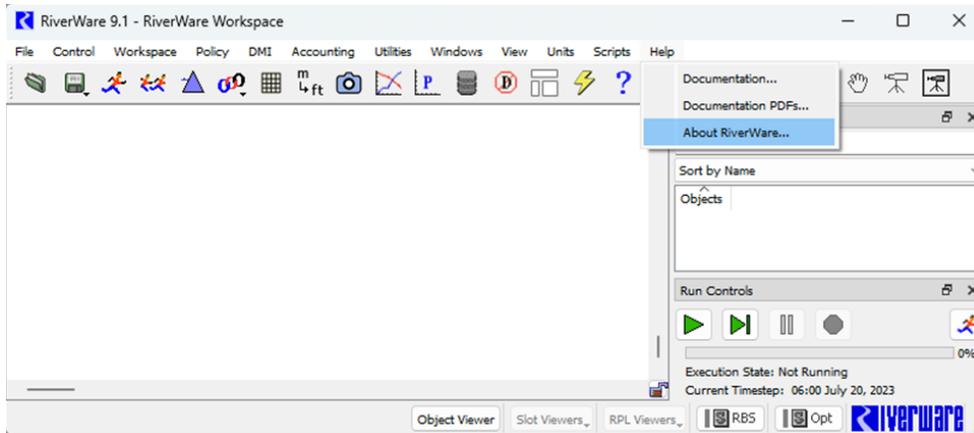
Display Information About Your License

After starting RiverWare successfully, you can use this procedure to display details about your license. This procedure applies to all license types.

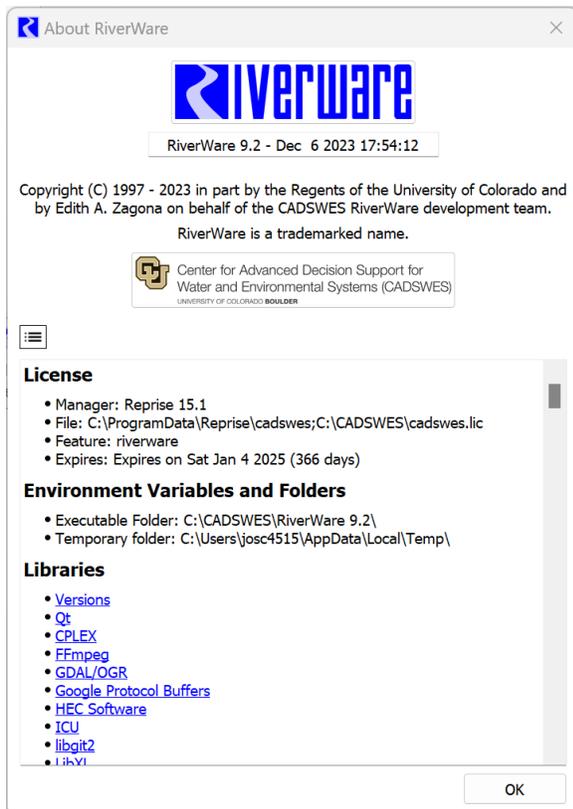
1. Start RiverWare on your computer.

RiverWare validates the license file on your computer. For floating licenses, RiverWare automatically contacts the RiverWare license server and obtains a floating license, if available.

2. In the RiverWare workspace menu, select **Help**, then **About RiverWare**.



The License Information section displays the license manager version, the location of your license file, the features authorized by the license, and the number of days until the license expires along with the expiration date.



Running RiverWare with a Node-locked License

A RiverWare node-locked license is locked to a specific computer, meaning the license is valid only for the computer for which the license is issued. With a node-locked license, you can run any number of RiverWare instances on your computer with or without being connected to a network.

The only requirement for starting RiverWare with a node-locked license is for a valid node-locked license file to be installed in the proper location on your computer; see [License File Location on Your Computer](#) on page 9 for details.

Running RiverWare with a Floating License

A RiverWare floating license is a network license that allows one or more computers connected to a network to run RiverWare. Floating licenses require a network *license server*, which manages the pool of available licenses, or *license pool*. Your computer must be connected to the network to request and obtain a RiverWare license from the server. With a floating license, you can run any number of RiverWare instances on your computer.

The license server serves available licenses to the client computers from the license pool. The maximum number of licenses in the pool is defined in the license certificate file on the license server. When you close all instances of RiverWare on your computer, the floating license is returned to the license pool and becomes available for another user. When you restart RiverWare, it must obtain a new floating license from the license server.

How RiverWare Obtains and Retains a Floating License

When you start RiverWare on your computer, RiverWare automatically contacts the license server and requests a floating license; therefore, to obtain a floating license, your computer must be connected to the network where the RiverWare license server is running. In addition, a valid floating license file must be installed in the proper location on your computer.

Note: See your license server administrator for assistance in obtaining a floating license file for your 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.

License Validation During a Model Run

RiverWare does not validate a license *during* a model run, but once the run finishes, it performs the validation check within two minutes. The details of this process are as follows.

1. Within two minutes of a run completion, RiverWare contacts the license server to validate the license.
2. If RiverWare is not able to contact the license server, or if it detects the license has been lost or is no longer valid, a dialog box is displayed indicating the license has been lost.
3. Once the dialog box is closed, you have ten minutes to use RiverWare to save your work and exit. During this time, the workspace status bar displays a countdown timer.

4. After ten minutes, RiverWare displays a second dialog box warning that the license has been lost and it must exit. You must select one of the following buttons:
 - **Exit**—exit RiverWare without saving the model file.
 - **Save and Exit**—save the model file *only* and exit; associated files, such as rulesets and SCTs, are not saved.

When running in batch mode, RiverWare checks for a license after completing the batch model script, rather than right after the run finishes. Since the batch mode script can include saving results, the model, and other associated files, there is no risk of running out of time to save everything in the ten-minute time limit.

Example 1. Floating license lost during an overnight run.

You start a model execution that runs overnight. When the simulation finishes, RiverWare attempts to validate the license and detects it has lost the license and is not able to obtain a new one.

When you check RiverWare the next day, the first dialog box is displayed, indicating the license has been lost and you must exit RiverWare within ten minutes of closing the dialog box. During this ten-minute period, you can use RiverWare to save the results and associated files, export data, and so on.

If you are not able to finish within the ten-minute limit, the second dialog box is displayed, and you must exit RiverWare without performing any additional actions. You can save the model file when you exit, but no other unsaved files can be saved.

Using a Roaming License

A RiverWare roaming license is a floating license that has been checked out from the license pool to a client computer that will be disconnected from the network. A roaming license allows you to run any number of RiverWare instances on your computer while disconnected from the network. The roaming license is valid for a specified number of days, up to 30.

For you to check out a roaming license, your computer must be connected to the network where the RiverWare license server is running, and at least one license must be available in the floating license pool. In addition, a valid floating license file must be installed in the proper location on your computer; see [License File Location on Your Computer](#) on page 9 for details.

Note: See your license server administrator for assistance in obtaining a license file for your computer.

A roaming license is valid for a specified number of days. The license is valid until midnight of the last day of the roaming period; for example, if the roaming period is two days, the license is valid until midnight of the second day. When RiverWare starts on your computer, it opens a License Notification window displaying the days remaining in the roaming period. Optionally, you can check in a roaming license early.

At the end of the roaming period, the license expires, and you must reconnect to the network to obtain a floating license or check out a new roaming license.

While a roaming license is checked out, it is not available to other RiverWare users on the network. The license is returned to the license pool when the license expires or you check it in manually, and it can then be served to another user as a floating or roaming license.

Check Out a Roaming License

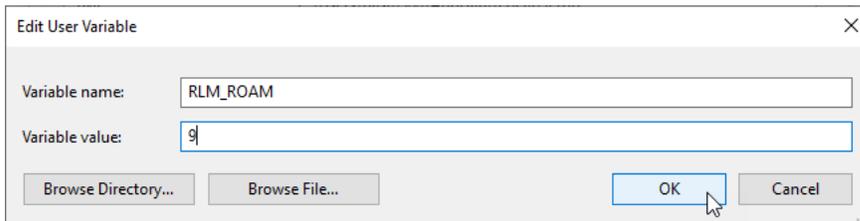
Use this procedure to check out a roaming license from the license pool.

1. Connect your computer to the network where the license server is running.
2. Verify your computer can access the license server by starting RiverWare with a regular floating license.
3. Close all RiverWare sessions on your computer.
4. Use the following steps to define the RLM_ROAM environment variable.
 - a. On the Windows **Start** menu, select **Control Panel**, then **User Accounts**.
 - b. In the User Accounts window, select **Change my environment variables**.
 - c. In the User variables section of the Environment Variables window, select **New**.

Note: If the environment variable already exists, you should delete it and restart this procedure from the beginning; see [Delete the RLM_ROAM Environment Variable](#) on page [144](#) for details.

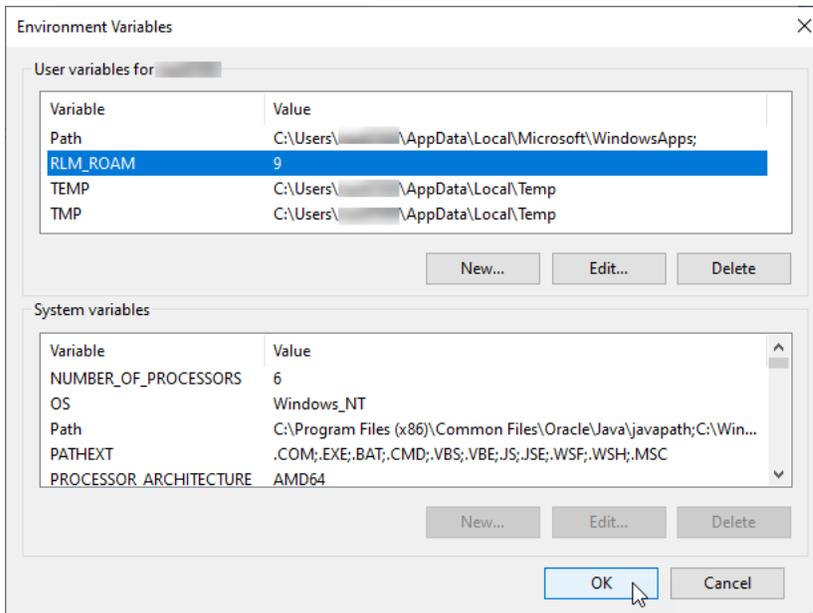
- d. Complete the New User Variable window as follows, then select **OK**.
 - **Variable name:** RLM_ROAM
 - **Variable value:** number of days the roaming license can be used, up to a maximum of 30. For example, enter 9 for nine days.

Note: If you enter a number greater than 30, RiverWare will not be able to start.



The screenshot shows the 'Edit User Variable' dialog box. The 'Variable name' field is filled with 'RLM_ROAM' and the 'Variable value' field is filled with '9'. There are buttons for 'Browse Directory...', 'Browse File...', 'OK', and 'Cancel'. The 'OK' button is highlighted with a mouse cursor.

- e. Select **OK** in the Environment Variables window to apply your changes and close the window.



The screenshot shows the 'Environment Variables' dialog box. It has two sections: 'User variables for' and 'System variables'. The 'User variables for' section contains a table with the following data:

Variable	Value
Path	C:\Users\... \AppData\Local\Microsoft\WindowsApps;
RLM_ROAM	9
TEMP	C:\Users\... \AppData\Local\Temp
TMP	C:\Users\... \AppData\Local\Temp

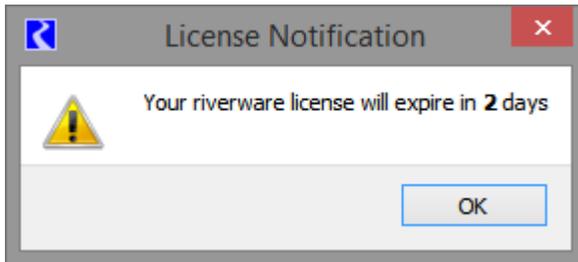
The 'System variables' section contains a table with the following data:

Variable	Value
NUMBER_OF_PROCESSORS	6
OS	Windows_NT
Path	C:\Program Files (x86)\Common Files\Oracle\Java\javapath;C:\Win...
PATHEXT	.COM;.EXE;.BAT;.CMD;.VBS;.VBE;.JS;.JSE;.WSF;.WSH;.MSC
PROCESSOR_ARCHITECTURE	AMD64

Buttons for 'New...', 'Edit...', and 'Delete' are present below each table. The 'OK' button is highlighted with a mouse cursor.

5. Start RiverWare and then close it immediately.
6. Disconnect your computer from the network.
7. Start RiverWare to start using the roaming license.

If the roaming license has been checked out successfully, RiverWare starts with the roaming license. A License Notification window appears displaying the number of days left on your license.



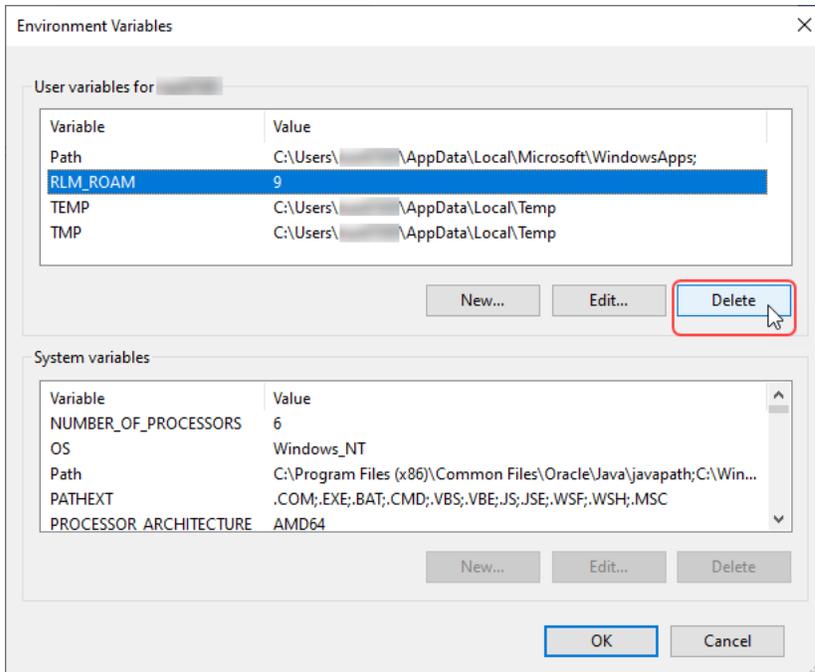
Note: You can also check the number of days remaining on the roaming license at any time; see [Display Information About Your License](#) on page 10.

8. It is recommended that you delete the RLM_ROAM environment variable from your computer to prevent inadvertent changes or rename it to something else if you want to retain it for future use; see [Delete the RLM_ROAM Environment Variable](#) on page 14 for details.

Delete the RLM_ROAM Environment Variable

Use this procedure to delete the RLM_ROAM user environment variable from your computer. It is recommended that you perform this procedure after successfully checking out a roaming license to prevent license issues that may occur if your computer is reconnected to the same network as the license server. Alternatively, you can rename it temporarily to something else if you want to retain it for future use.

1. On the Windows **Start** menu, select **Control Panel**, then **User Accounts**.
2. In the User Accounts window, select **Change my environment variables**.
3. In the User variables section of the Environment Variables window, select the **RLM_ROAM** variable, then select **Delete**.

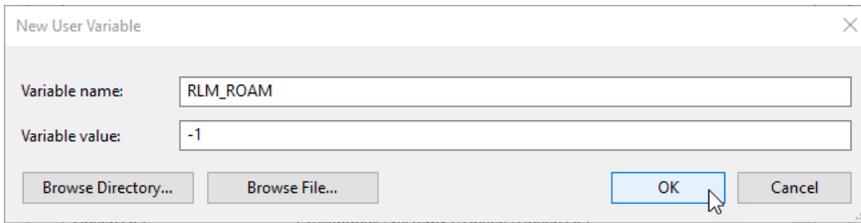


4. Select **OK** in the Environment Variables window to apply your changes and close the window.
The variable is deleted.

Check in a Roaming License Before It Expires

Use this procedure to check in a roaming license to the license pool before the license expires. This procedure assumes you have deleted the RLM_ROAM environment variable from your computer, after you have checked out your roaming license.

1. Close all RiverWare sessions on your computer.
2. Reconnect your computer to the network where the license server is running.
Note: If the license server is not running, you cannot check in the roaming license. You can wait for the license server to restart, or you can release the license unconditionally; see [Release a Roaming License Unconditionally](#) on page 166.
3. Use the following steps to define the RLM_ROAM environment variable.
 - a. From the Windows **Start** menu, select **Control Panel**, then **User Accounts**.
 - b. In the User Accounts window, select **Change my environment variables**.
 - c. In the User variables section of the Environment Variables window, select **New**.
 - d. Complete the New User Variable window as follows:
 - **Variable name:** RLM_ROAM
 - **Variable value:** -1
 - e. Select **OK** to close the New User Variable window.



- f. Select **OK** in the Environment Variables window to apply your changes and close the window.
4. Start RiverWare and then close it immediately.

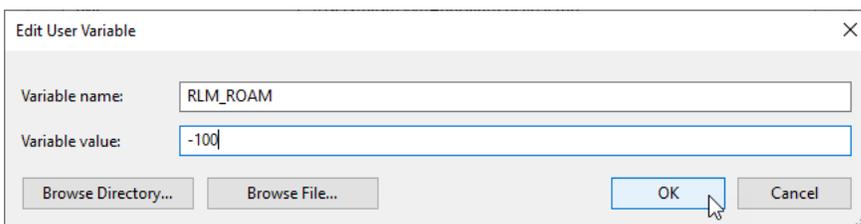
The roaming license is returned to the floating license pool.

5. To convert to a floating license, you must delete the RLM_ROAM environment variable from your computer or rename it for later use before starting RiverWare again; see [Delete the RLM_ROAM Environment Variable](#) on page 14 for details.

Release a Roaming License Unconditionally

Use this procedure to remove a roaming license from your computer if you are not able to check it in early.

1. Close all RiverWare sessions on your computer.
2. Use the following steps to define the RLM_ROAM environment variable.
 - a. From the Windows **Start** menu, select **Control Panel**, then **User Accounts**.
 - b. In the User Accounts window, select **Change my environment variables**.
 - c. In the User variables section of the Environment Variables window, select **New**.
 - d. Complete the New User Variable window as follows:
 - **Variable name:** RLM_ROAM
 - **Variable value:** -100
 - e. Select **OK** to close the New User Variable window.



- f. Select **OK** in the Environment Variables window to apply your changes and close the window.
3. Start RiverWare and then exit RiverWare immediately.

The roaming license information is removed from your computer.
4. Delete the RLM_ROAM variable from your computer before reconnecting to the network and starting RiverWare again; see [Delete the RLM_ROAM Environment Variable](#) on page 14 for details.

Running RiverWare with a License Dongle

Note: The license dongle is available for RiverWare version 6.x and later only.

A RiverWare *license dongle* is a USB hardware key that enables portable licensing for the RiverWare application. The RiverWare license file is locked to the internal host ID of the dongle, not to a specific computer. This allows you to easily change computers for running RiverWare, as your needs require. Using an authorized license dongle, you can run any number of RiverWare instances on a computer, with or without a network connection.

The unique host ID of the license dongle is printed on the outside of the device. For example:

```
rlmid1=00b8e321
```

The RiverWare license dongle is manufactured by Thales SafeNet and can only be purchased directly from CADSWES. USB devices obtained from any other sources will not work with RiverWare.

When you renew your RiverWare license, you do not need to obtain a new dongle, but you do need to obtain a new license file for the dongle.

License Dongle Process Summary

Following is the process for starting RiverWare on your computer using a license dongle.

1. Request a RiverWare license file and license dongle from RiverWare Installation Support. The license file is sent by email, and the dongle is shipped by a postal or courier service.
2. Save the RiverWare license file to the proper location on your computer; see [License File Location on Your Computer](#) on page 9 for details.
3. Insert the license dongle in a USB port on your computer.
 - If your computer has an internet connection, the first time you insert the license dongle in a USB port, the Windows Found New Hardware Wizard detects the new device and automatically downloads and installs the required device drivers.
 - If your computer is not connected to the internet, or there is an issue with the automatic download, you must install the dongle device drivers manually before starting RiverWare; see [Installing the Dongle Device Drivers Manually](#) on page 18.
4. Open RiverWare on your computer.

RiverWare matches the host ID in the license file with the ID of the license dongle and starts.

Required Port Access

The Sentinel LDK License Manager installed with the dongle device drivers uses communications port 1947 on your computer. If your organization uses a firewall or antivirus software, it must not block this port. See your network administrator for assistance.

Additional technical information about port connections is available in the readme.html file included in the device driver download; see [Installing the Dongle Device Drivers Manually](#) on page 18 for details.

Setting Up Additional Computers

All computers used to run RiverWare with the license dongle must have the RiverWare license file, dongle drivers, and RiverWare application installed. To facilitate this, you may want to copy the following files to a USB flash drive, which can be used to transfer the files to additional computers:

- RiverWare license file for the license dongle
- Dongle device driver installer; see [Installing the Dongle Device Drivers Manually](#) on page 188 for details.
- RiverWare installation program; see [Download the RiverWare Installation Program](#) on page 2 for details.

Installing the Dongle Device Drivers Manually

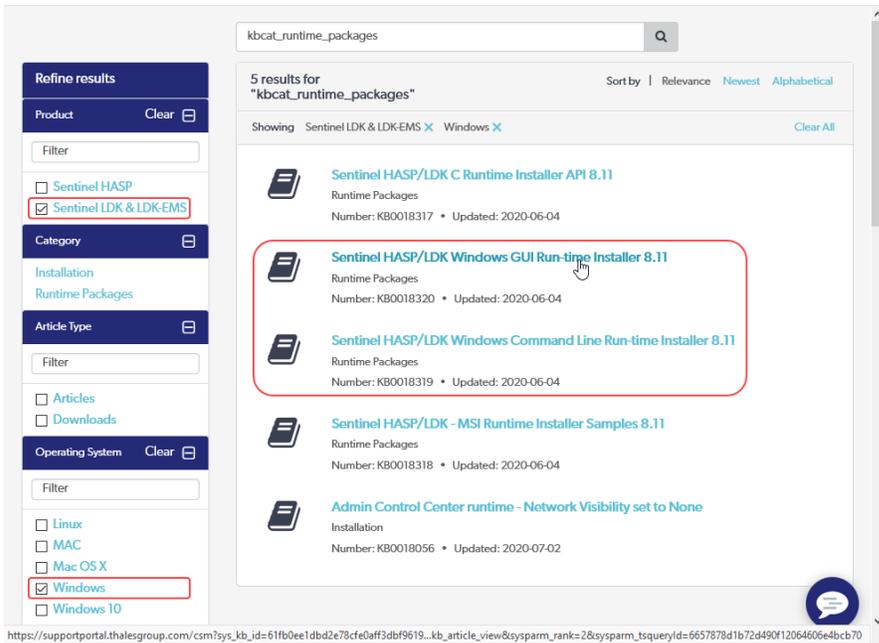
The procedures in this section are required *only* if Windows did not automatically download and install the dongle device drivers on your computer. The drivers must be installed on your computer before you can start RiverWare using the license dongle. Typically, the drivers are installed automatically the first time you insert the dongle into a USB port on your computer. If your computer is not connected to the internet, or there is an issue with the automatic download, you must use these procedures to install the device drivers manually.

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

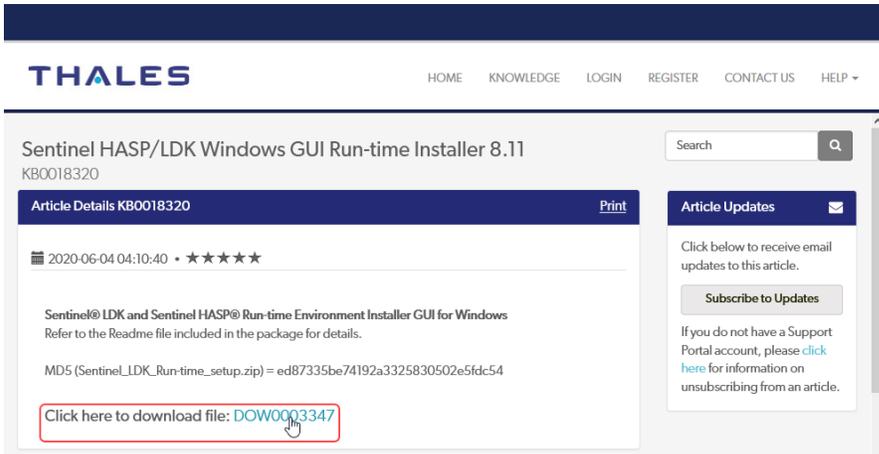
Download the Dongle Driver Files

Use this procedure to download the driver files from the vendor site.

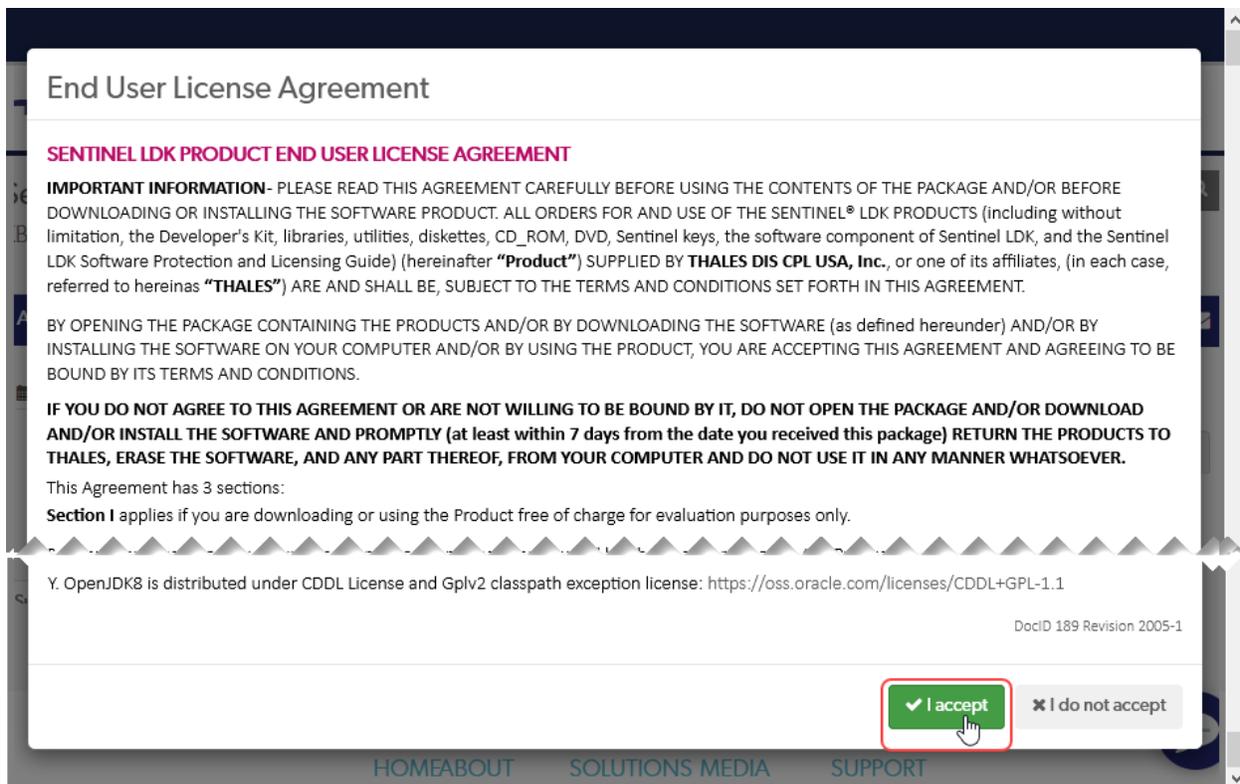
1. On your computer, open a browser window and go to the Thales download site.
<https://cpl.thalesgroup.com/software-monetization/sentinel-drivers>
2. Select **Sentinel LDK**.
3. Select **Drivers & Runtime Packages**.
4. Select one of the following links, depending on the type of installer you want to use:
 - **Sentinel HASP/LDK Windows GUI Runtime Installer**
 - **Sentinel HASP/LDK Windows Command Line Runtime Installer**



5. In the Article Details page, select the file link.



6. Review the End User License Agreement and select **I accept**.



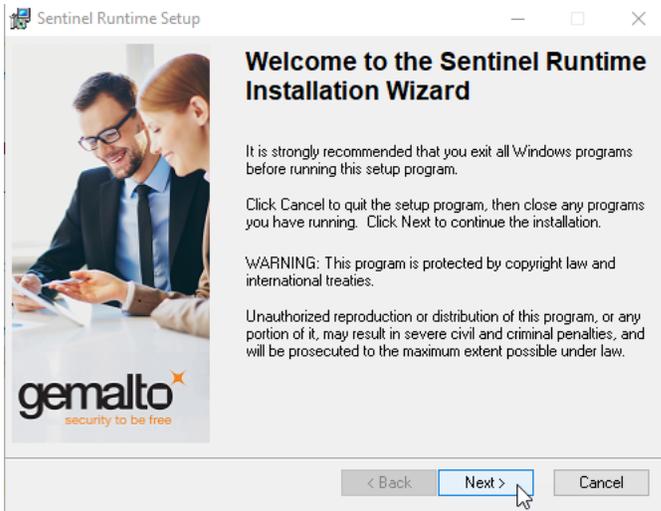
7. Save the download to a selected location on your computer. For example:
 - C:\Downloads\Sentinel_LDK_Run-time_setup.zip, or
 - C:\Downloads\Sentinel_LDK_Run-time_cmd_line.zip
8. Extract the .zip file to a selected location on your computer.
9. Use one of the following procedures to install the drivers:
 - [Install Dongle Drivers with the GUI Installer](#), page [20](#)
 - [Install Dongle Drivers with the Command Line Installer](#), page [222](#)

Install Dongle Drivers with the GUI Installer

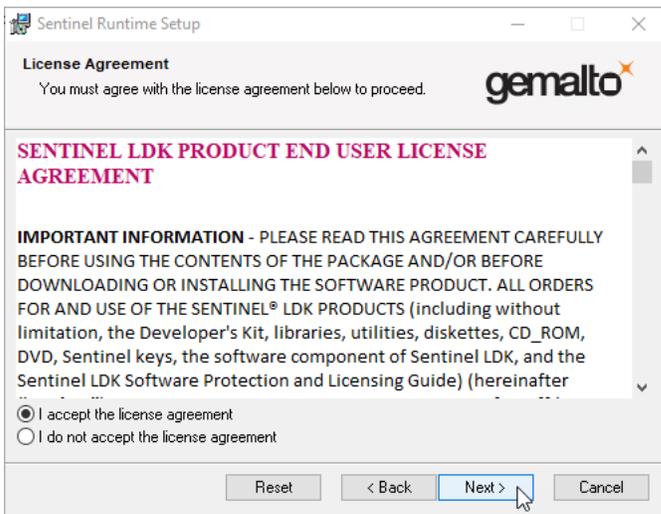
Use this procedure to install the dongle device drivers on your computer using the GUI installer.

Note: It is recommended that you exit all other programs on your computer before starting this procedure.

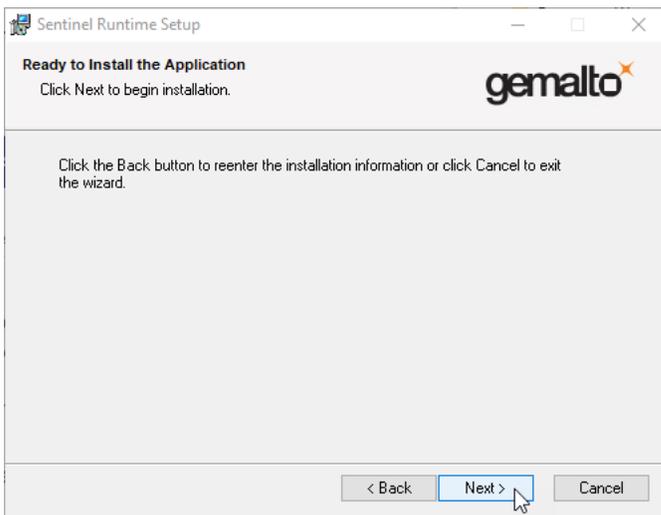
1. Open the folder where the extracted GUI installer files are located. For example:
 - C:\Downloads\Sentinel_LDK_Run-time_setup\
2. Open the HASPUserSetup.exe file, as Windows Administrator if necessary, to start the installer.
3. Review the information on the Welcome screen and select **Next**.



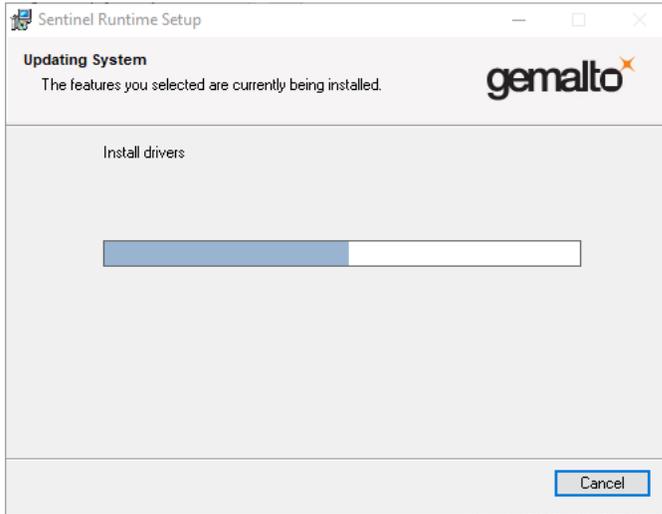
4. Review the license agreement. Select the **I accept the license agreement** option and select **Next**.



5. In the Ready to Install the Application screen, select **Next** to confirm.

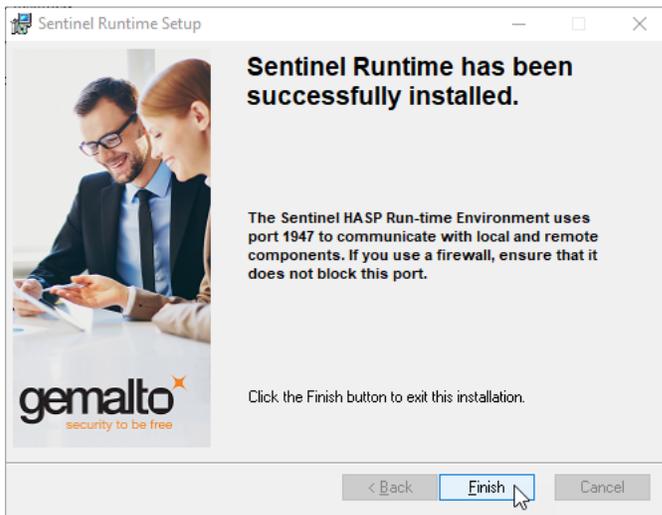


The Updating System screen displays progress as the drivers are installed to the proper location on your computer.



6. A message is displayed when the installation completes. Review the information and select **Finish** to exit the installer.

Note: If the installation was not successful, see the readme.html file in the driver installer folder for troubleshooting information.



Install Dongle Drivers with the Command Line Installer

Use this procedure to install the dongle device drivers on your computer using the command line installer.

Note: It is recommended that you exit all other programs on your computer before starting this procedure.

1. Open a Command Prompt window, as Windows Administrator if necessary.
2. Change to the folder where the extracted command line installer files are located. For example:

```
cd c:\%HOMEPATH%\Downloads\Sentinel_LDK_Run-time_cmd_line
```

3. Enter the following command to start the installer.

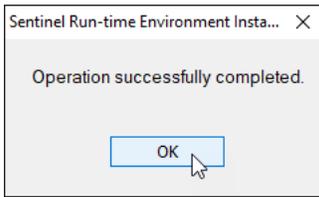
```
haspdinst -install
```

A Sentinel Run-time Environment Installer window opens and displays progress as the drivers are installed to the proper location on your computer.



4. A message is displayed when the installation completes. Select **OK** to close the window.

Note: If the installation was not successful, see the readme.html file in the driver installer folder for troubleshooting information.



Troubleshooting

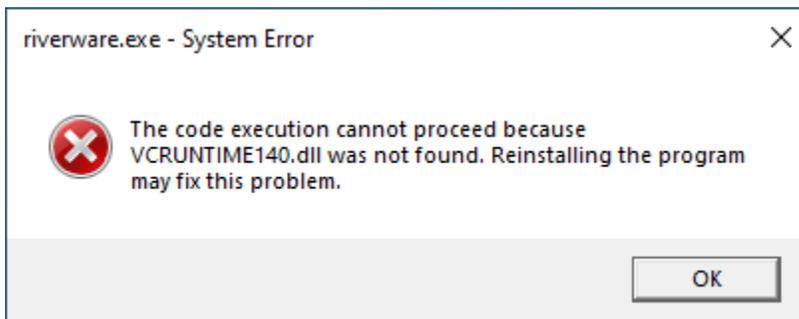
This section provides guidance on troubleshooting common RiverWare startup and licensing errors. For assistance with an error, copy the error message and email RiverWare Installation Support:

installsupport@colorado.edu

RiverWare Startup Errors

RiverWare requires some dynamic-link library (DLL) files included in the Windows 11 Universal C Runtime (CRT) component. This component is included with Windows 11; for older versions of Windows, it is available in a Windows Update package.

If RiverWare cannot locate the required DLL files on startup, it exits with an error message displayed in a System Error window, like the following.



Following are some error messages you might see on RiverWare startup.

The application was unable to start correctly (0xc000007b). Click OK to close the application.

This application has failed to start because VCRUNTIME140.dll was not found. Reinstalling the application may fix this problem.

The program can't run because VCRUNTIME140.dll is missing from your computer. Try reinstalling the program to fix this problem.

Cause

A required DLL is missing or corrupted on your computer.

Solution

Use the following steps to download and install the Microsoft Visual C++ Redistributable package on your computer. RiverWare requires the 2017 or later versions, which are included in the package.

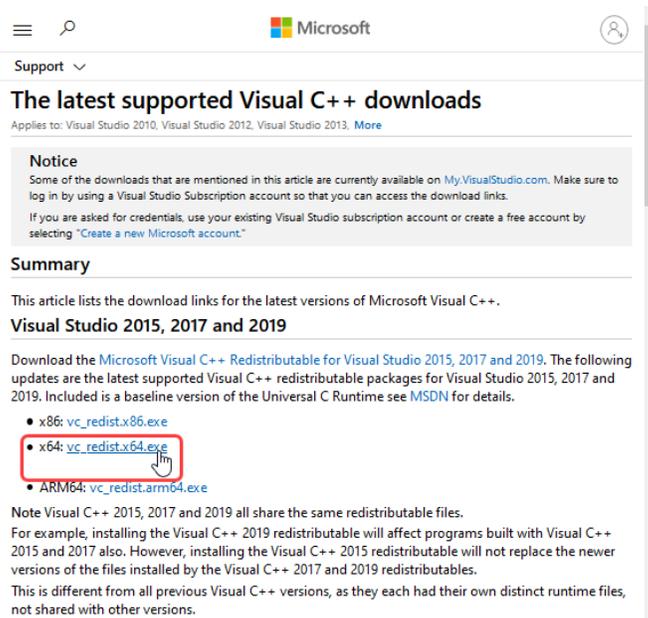
1. In a browser, go to the Microsoft Visual C++ downloads page:

<https://support.microsoft.com/en-us/help/2977003/the-latest-supported-visual-c-downloads>

2. Go to the Visual Studio 2015, 2017, 2019 and 2022 section.
3. Select **vc_redist.x64.exe** and save the file to your computer.
4. Open the vc_redist.x64.exe file to install the package.

Note: Depending on access restrictions set up by your organization, you may need Administrator privileges to install the package.

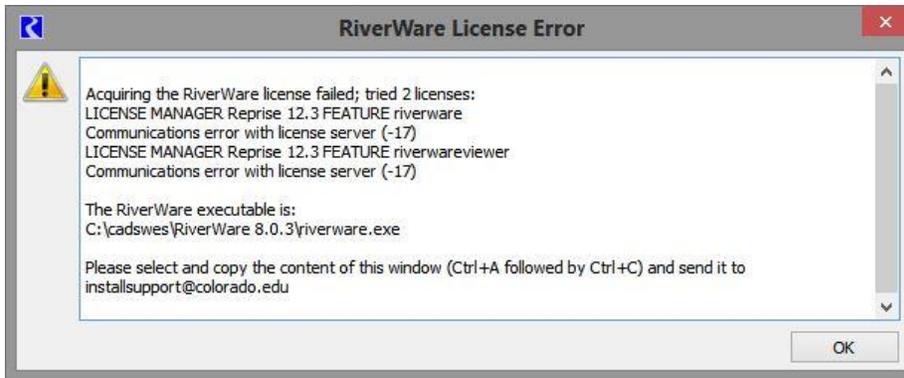
5. Restart your computer, then restart RiverWare.



License Errors

License error messages are displayed as follows, depending on RiverWare version.

- For RiverWare 7.2.5 and later, license errors are displayed in a RiverWare License Error window, like the following. Follow the instructions in the window to copy the message.



- For RiverWare 7.2.4 and earlier, license errors are displayed in a Command Prompt window. Use one of the following methods to copy the error message.
 - Copy the error text file. The file location is displayed after the line “This message has been written to the file:”
 - Resize the Command Prompt window to display the entire message, then make a screen shot of the window.

To help troubleshoot a license issue, RiverWare Installation Support may ask you to open your cadswes.lic file with a text editor and verify there are no special characters in the file.

Caution: The cadswes.lic file is a plain text file; do not save it in any other format, and do not make any changes to its contents.

Following are some license errors you might see when starting RiverWare, and specific actions you can take.

No license for product (-1)

Cause

- This error indicates that RiverWare found the license file but cannot find a valid license key from the license file.
- You were using a roaming license that has been returned to the license pool, but the RLM_ROAM environment variable has not been deleted from your computer and is set to a negative number.

Solution

Open your cadswes.lic file with a text editor and verify that there are no special characters in the file. cadswes.lic is a plain ASCII file. Do not save it in any other format, and do not make any changes to its contents. If your cadswes.lic file looks normal, email a copy of your cadswes.lic file to installsupport@colorado.edu for further assistance.

- The cadswes.lic file must be in the parent folder (one level up) of the RiverWare installation folder; see [License File Location on Your Computer](#) on page 9 for details.
- If you were using a roaming license, delete the RLM_ROAM variable on the system and connect your computer to the network to obtain a floating license or check out a roaming license. See [Delete the RLM_ROAM Environment Variable](#) on page 15 for details. If this does not resolve the error, restart your computer to clean up any roaming data that may be left on it.

License has expired (-3)

Cause

The license file found by RiverWare has expired.

Solution

Contact RiverWare Installation Support for assistance:

installsupport@colorado.edu

Wrong host for license (-4)

Cause

This error applies to node-locked licenses or license dongles only.

- For node-locked licenses, the host ID in the license file does not match the host ID of the computer on which RiverWare is running.
- For license dongles, one of the following may be at fault:
 - The license dongle is not attached to the computer.
 - The host ID in the license file does not match the host ID of the dongle.

Solution

- For either type of license, verify the correct `cadswes.lic` file is installed on your computer. If necessary, contact RiverWare Installation Support for assistance.

installsupport@colorado.edu

- For license dongles, verify the dongle is securely seated in the USB port on your computer.

Bad signature in license (-5)

Cause

The signature in the license line is not valid; that is, it does not match the remainder of the data in the license.

Solution

It is possible the license file was altered in the email transmission or when it was saved to your file system. The most common cause is that white space was inserted in the license key where it has broken to a new line. Although this error does not mean the license key is not valid, it may be necessary to issue a new license file. Contact RiverWare Installation Support for assistance:

installsupport@colorado.edu

Communications error with license server (-17)

Cause

This error applies to a floating license only. It indicates RiverWare on the client computer is unable to communicate with the license server. Typically, it means the license server is not running, or a firewall is blocking the connection to the license server.

Solution

Connect your computer to the network where the license server is running.

If you still get this error, contact your license server administrator. Following are some troubleshooting guidelines for the administrator; see the *RiverWare License Server Administration Guide* for details.

- Verify the license server is running on the server host. Start the license server, if necessary.

- If the license server is running, verify there is no firewall blocking the communication ports. The firewall may be on the client or the server host; check both ends for a firewall. If the license server is on a different network, there may be other firewalls in between. Most systems allow outbound traffic, so it may be something being blocked by the VPN and not on the machine itself. If the server machine been updated recently, like a hardware or a Windows OS update, sometimes that resets the default setting, therefore resetting the firewall settings.
- On the client machine, check that cadswes.lic is the same as the host server used to start the license server. It may help to check if any other client machine runs into the same problem. Sometimes restart the client machine would fix the connection problem.
- To check if your license server is running on the server machine, use one of the following tests.
 - Start a RiverWare instance on the server
 - On the server machine, try to launch a RiverWare instance. The server is running properly if RiverWare can launch.
 - Verify from Task Manager
 - On the server machine, open a Task Manager window. Find if the license server program (rlm.exe) is running.
 - Verify from the web server
 - Start a browser on the server machine. Enter the following in the address bar:
 <SERVER_NAME> : 5054
 For example, `rwlicserver:5054`
 (Assuming your web server is using the default port 5054.)
- If you see an error like "Unable to connect" or "This site can't be reached," the license server is not running. If the Reprise License Server Administration page is displayed, the rlm license server has started.
- Select "Status" from the command list on the left. Then select cadswes tab under Server Status column. If you see "ISV cadswes status on <SERVER_NAME> (port #####)" page displayed, the license server has started.
- Identify the 3 ports that were used when the license server was launched.
 The license server is configured to run on three ports by default. One runs the generic RLM server, one runs the CADSWES server, and one runs the RLM web server. Each of the three ports can be assigned a specific port number. If no port number is assigned, the default port number will be used. The communication ports for the RLM server and the CADSWES server must be accessible for client machines to obtain a license from the license server.
 - #1 RLM server port
 - If not specified in the cadswes.lic file, it is default to use 5053.
 - If you use default port, the HOST line in your cadswes.lic file will look like this:
 HOST <hostname> <MAC address>
 - If you assigned an RLM server port, the HOST line in your cadswes.lic file will look like this:
 HOST <hostname> <MAC address> <port#>
 - #2 CADSWES server port
 - When launching the RLM license server, if the CADSWES server port is not specified in the cadswes.lic file, the RLM server selects an open port at random to

run the CADSWES server. In the debug file, the selected CADSWES port number is printed on the line: Starting ISV server cadswes on port #####

- If you use the default port, the ISV line in your cadswes.lic file will look like this:
ISV cadswes
- If you assigned an CADSWES server port, the ISV line in your cadswes.lic file will look like this:
ISV cadswes port=<port#>
- #3 RLM web server port
 - The port number for the RLM web server can be assigned on the command line with the option -ws when you start the server with the rlm command. (Unlike the RLM and CADSWES servers, it is not specified in the cadswes.lic file.)
 - If it is not specified when the license server is started, the default number is 5054.
 - To assign a web server port, use the following command line syntax:
rlm -c <license-file> -dlog <log-file> -ws #####
 - For example:
rlm -c C:\rwlicserver\cadswes.lic -dlog
C:\rwlicserver\debug.log -ws 8531

All licenses in use (-22)

Cause

This error indicates that all available licenses are currently in use. Each checked-out license is locked to a single user per machine. Before another RiverWare user can run RiverWare, one of the RiverWare users must close all RiverWare sessions on the user's computer to release the license.

Solution

One of the RiverWare users must exit all their RiverWare sessions to release their floating license before you can obtain a license.

If you have a floating license, you can find out who is using it by doing the following:

- 1) Start the RLM Web Server. You should be able to do this from any computer as long as it is on the same network as ###ServerName###. Point your browser to:
<http://hostname:5054>
Note that the above assume the web server is running on the default port 5054.
- 2) From the Reprise License Server Administration page:
 - Select "Status" from the command list on the left.
 - From the "Status for "rlm" on hostname (port #####)" page, select cadswes under License Usage column.
 - In the Get License Usage page, cadswes is entered for ISV by default. Select the GET License Usage tab.
 - The status of the license usage will be displayed on the top of the page under "License status for ISV cadswes." The users and hosts who have the license checked out are displayed. If no license is checked out, the message "No Licenses in Use for ISV Cadswes for product [any], user [any], host [any]" will appear.

If you have a cloud license, you can find out who is using it by doing the following:

- 1) Log on to your Customer Portal account webpage.
https://ls45.rlmcloud.com/rlmcloud/
- 2) Select the tab Dashboard → Usage.
- 3) Select "Show Users" tab on the riverware line. The users and hosts who have the license checked out are displayed. If no license is checked out, the message "No Users" will appear.

Roam time exceeds maximum/expiration (-27)

Cause

The RLM_ROAM variable, which specifies the number of days the roaming license is valid, has been set to a number greater than 30. This value cannot exceed 30.

Solution

Set the RLM_ROAM variable to a positive number less than or equal to 30; see [Check Out a Roaming License](#) on page [131](#) for details.

License start date in the future (-37)

Cause

This error indicates that a start date is specified in the license. As a result, the license cannot be used prior to the specified date.

Solution

Wait until the specified date to start using RiverWare.

Bad server hostname in license file or port@host (-43)

Cause

The host name of the license server cannot be resolved by the name server. This typically indicates the client computer cannot connect to the license server. If this is a roaming license and your computer is not connected to the network, the roaming license may have expired.

Solution

- 1) Confirm that the name of the licensing server computer matches the name on the HOST line in your cadswes.lic file.
- 2) Check the connectivity of your client computer to the license server machine, and the communication ports on the client computer are not blocked.
- 3) In the cadswes.lic file, replace the name of the server machine with its Fully Qualified Domain Name (FQDN).
 - Open your cadswes.lic file in a text editor, such as Notepad or WordPad. (Save a copy of the original file first.)
 - Modify the HOST line as below:
From: HOST ### ###MACAddress###
To: HOST <FQDN> ###MACAddress###
where <FQDN> is the complete domain name of ###.
For example, rwhost.colorado.edu
 - Save your change and try launching RiverWare.

- 4) In the cadswes.lic file, substitute the name of the Server machine with its IP address.
 - Open your cadswes.lic file in a text editor, such as Notepad or WordPad. (Save a copy of the original file first.)
 - Modify the HOST line as below:


```
Change: HOST ### ##MACAddress###
To: HOST <IP address> ##MACAddress###
where <IP address> is the IP address of ###.
For example, 123.45.6.7
```
 - Save your change and try launching RiverWare.

When editing the cadswes.lic file, change only the host name to its FQDN or IP address on the HOST line. Do not alter anything else. Use only a plain text editor; avoid using Word or other programs for creating documents because they might add formatting characters that will invalidate the license.

- 5) Contact your network administrator.

If your roaming license has expired, reconnect to the network where the license server is running to obtain a floating license or check out a new roaming license.

Can't read license data (-102)

Cause

RiverWare cannot find the license file in the expected location on your computer.

Solution

The cadswes.lic file must be in the parent folder (one level up) of the RiverWare installation folder; see [License File Location on Your Computer](#) on page 9 for details.

Verify the License Dongle Host ID

Use this procedure to verify that the internal host ID on the license dongle matches the host ID specified in the RiverWare license file on your computer. This procedure is used only in special circumstances, such as troubleshooting license errors or at the request of RiverWare Installation Support.

1. Insert the license dongle in a USB port on your computer.
2. Open a Command Prompt window and change to the RiverWare installation folder. For example:


```
cd c:\Program Files\CADSWES\RiverWare 9.1\
```
3. Change to the LMr1m\ subfolder. For example:


```
cd LMr1m
```
4. Enter the following command to display the internal host ID on the license dongle.


```
r1mutil r1mhostid r1mid1
```

The host ID is displayed. For example:

```
Hostid of this machine: r1mid1=00b8e321
```
5. Change to the folder where the cadswes.lic file is located. This should be the parent folder of the RiverWare installation folder; see [License File Location on Your Computer](#) on page 9 for details. For example:


```
cd c:\Program Files\CADSWES
```

6. Enter the following command to display the contents of the cadswes.lic file.

```
more cadswes.lic
```

The contents of the file are displayed.

7. In the display, locate the Host Name line. For example:

```
# Host Name:MYCOMPUTER : r1mid1=00b8e321
```

The r1mid1 value should match the value on the dongle.

Uninstalling RiverWare

Caution: Do not uninstall RiverWare by deleting the installed RiverWare files directly from the file system.

To uninstall RiverWare, you must log in as the same user that installed RiverWare (regular user or Windows Administrator). CADSWES recommends using one of the following procedures.

Uninstall Using Windows Installer

1. On your Desktop, select **Start**, then **Control Panel**, then **Programs and Features**.
2. Select the version of RiverWare you want to delete and select **Uninstall**.

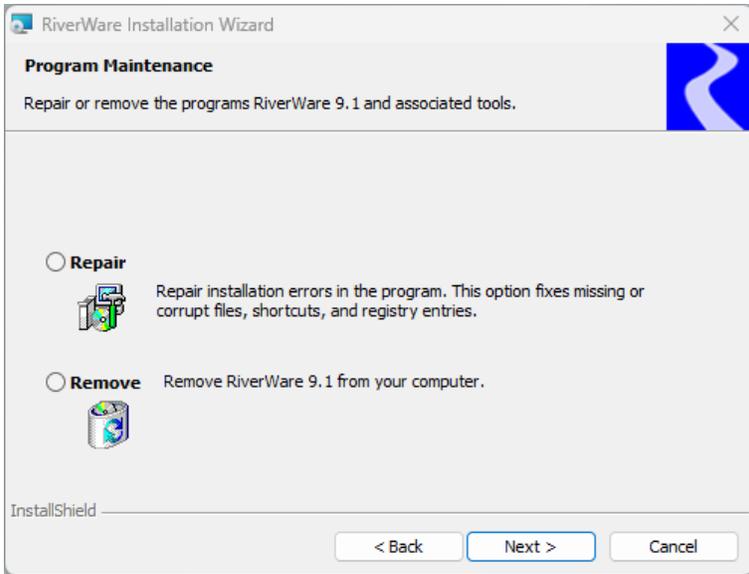
Uninstall Using the RiverWare Installation Program

Note: You must use the *exact same* RiverWare installation program that was used to install the version you want to uninstall.

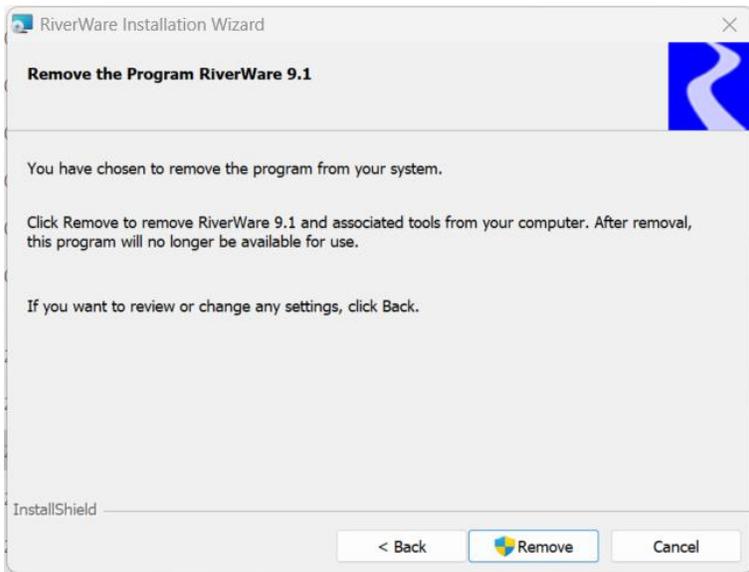
1. Start the RiverWare installation program, as Windows Administrator if necessary.
2. Review the information on the Welcome screen, then select **Next**.



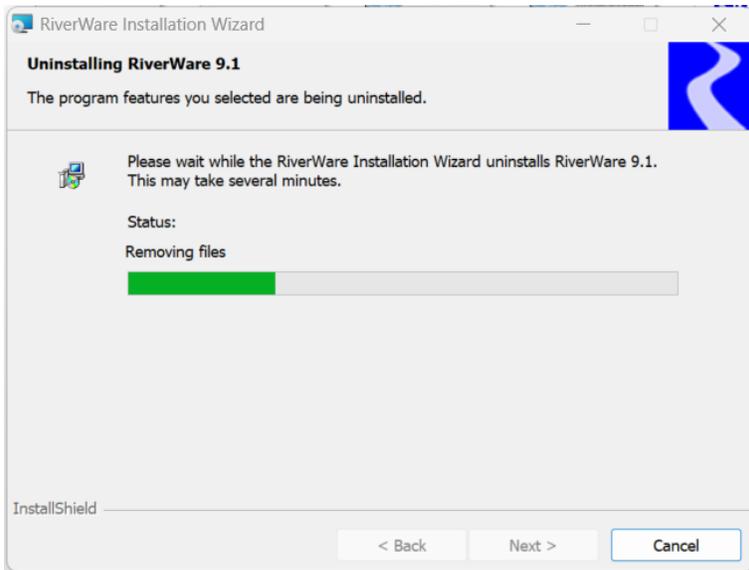
3. On the Program Maintenance screen, select the **Remove** option, then **Next**.



4. Review the information on the Program Maintenance screen, then select **Remove** to begin the uninstall immediately.



The Uninstalling screen displays progress as RiverWare is removed from your computer.



5. Review the information on the RiverWare Install Wizard Completed screen and select **Finish** to exit the program.

