1 Overview ......................................................................................................................... 1

2 Workflow for License Management and Product Installation .................................... 3
  2.1 How Licensing Works .................................................................................................. 3
    2.1.1 Types of Workstation License ........................................................................... 4
        Node-locked License (NL) .................................................................................... 4
        Floating License (FL) ......................................................................................... 4
        Named-User License (NU) ................................................................................... 4
  2.2 Installation and Licensing Tasks for License Servers .............................................. 5
    Additional Licensing Tasks ....................................................................................... 6
  2.3 Installation and Licensing Tasks for Workstations .................................................. 7

3 Obtaining Server License Files ...................................................................................... 9
  3.1 Before You Begin ....................................................................................................... 9
  3.2 What Is a License Server? .......................................................................................... 9
    3.2.1 Do You Need to Install a License Server? ....................................................... 9
  3.3 Obtaining Server License Files ................................................................................. 10
  3.4 License Maintenance and Management Tasks .......................................................... 13
    Single License Server .............................................................................................. 13
    Multiple License Servers ....................................................................................... 14

4 Obtaining Workstation Licenses .................................................................................... 15
  4.1 Obtaining a Node-Locked License File .................................................................... 15
  4.2 Obtaining a Floating or Named-User License File .................................................... 18
    Preliminary Tasks .................................................................................................... 18
    Obtaining a License File ......................................................................................... 19
5 Installing Wind River Products ................................................................. 21

5.1 Before You Begin ....................................................................................... 21
  5.1.1 Choose Your Installation Method ......................................................... 21
  5.1.2 Gather Materials and Resources .......................................................... 23
  5.1.3 Prepare the Computer .......................................................................... 23

5.2 Method 1: An Administrator Installs the Products on Each Workstation ....... 24

5.3 Method 2: An Administrator Installs the Products on Workstations through a
  Command-Line Sequence .............................................................................. 25

5.4 Method 3: Developers Install the Products on Their Workstations .............. 25

5.5 Method 4: An Administrator Installs the Products on a Shared File Server ...... 27
  5.5.1 Network and File System Considerations ............................................. 27
  5.5.2 Installing a Product for Shared Use ...................................................... 27

5.6 Using the Installer Program ......................................................................... 28

5.7 Post-Installation Tasks ............................................................................... 37
  Convert Temporary Activations to Permanent ............................................. 37
  Restart Your License Server ......................................................................... 37
  Failed Installation ............................................................................................ 37
  Adding to Your Installation ............................................................................ 37
  Uninstallation .................................................................................................. 38
  Moving an Installation .................................................................................... 38

5.8 Atypical Installations .................................................................................. 38
  5.8.1 Downloading Products for Later Installation ........................................ 38
  5.8.2 Cross-Host Installation ......................................................................... 40
  5.8.3 Incremental Installation ......................................................................... 40
  5.8.4 Revision-Controlled Installation ........................................................... 40
  5.8.5 Installing Multiple Products ................................................................. 41
  5.8.6 Keyboard-Only Installation ................................................................... 42

6 Maintaining Your Wind River Product Installation ....................................... 43

6.1 The Product Maintenance Tool .................................................................... 43
  6.1.1 Launching the Maintenance Tool ......................................................... 43

6.2 Installing Product Updates ......................................................................... 45
  DVD .............................................................................................................. 45
  Download ..................................................................................................... 45
  About Legacy Products ................................................................................. 47

6.3 Applying Software Patches ........................................................................ 48
Examining the Contents of a Patch ................................................................. 49

6.4 Adding Board Support Packages ................................................................. 50
  6.4.1 Installation through ESD ........................................................................ 50
  6.4.2 Installation by Download ....................................................................... 51

6.5 Removing Wind River Products ................................................................. 52
  About Modified Files ..................................................................................... 52
  6.5.1 Removing Products through the Maintenance Tool .............................. 53
  6.5.2 Removing a Service Pack ..................................................................... 53
  6.5.3 Removing Patches ................................................................................ 54
  6.5.4 Removing a Development Workstation License File ............................ 54

6.6 Reviewing the Contents and History of Your Installation ........................ 54

6.7 Reviewing Your License Configuration ...................................................... 55
  Viewing Your Current Configuration ......................................................... 55
  Changing Your License Configuration ...................................................... 56
  Diagnosing License Issues ........................................................................ 57

6.8 Configuring the Maintenance Tool ............................................................. 57
  Update Location Settings ........................................................................... 58
  Network Settings ....................................................................................... 60

7 Permanently Activating a Temporary License ............................................. 61

7.1 Introduction ................................................................................................ 61

7.2 Activating Temporary Licenses ................................................................. 61
  7.2.1 Distributing License Files ..................................................................... 62
  7.2.2 Setting an Environment Variable to Access a License Server .............. 62
  7.2.3 Reinstalling the Product .................................................................... 62

7.3 Finding Your Computer’s Host ID ............................................................. 63
  7.3.1 To find a host ID on a computer running a Windows operating system: . 63
  7.3.2 To find a host ID on a computer running a Linux operating system: ...... 63

8 Installing the License Administration Tools ................................................. 65

8.1 Overview of License Server Tasks ............................................................. 65

8.2 Prepare ....................................................................................................... 66
  Hardware and Software Requirements ....................................................... 66

8.3 Installing the License Administration Tools .............................................. 67
  What Tools Are Installed? ........................................................................ 68
9 Controlling Access to Products with the User Options File ............... 71
  9.1 Introduction .................................................................................................................. 71
      Do You Need to Configure a User Options File? ....................................................... 72
  9.2 Identifying Software Packages in Your License File ................................. 72
  9.3 Creating a User Options File ......................................................................................... 73
  9.4 Specifying Users for Each Licensed Package ......................................................... 73
      Adding Names to the User Options File ..................................................................... 73
      Case Sensitivity ........................................................................................................ 74
  9.5 Defining User Groups .................................................................................................... 75
  9.6 Controlling Access with the INCLUDE and EXCLUDE Keywords .................. 75
      9.6.1 Restricting Access to a Single Product ........................................................... 76
      9.6.2 Restricting Access to a Single License Type .................................................. 76
  9.7 Controlling Access with PROJECT and LM_PROJECT ........................................... 77
  9.8 Additional Allocation Methods .................................................................................... 78
  9.9 Rereading the Updated User Options File ................................................................. 78
  9.10 Debugging with the User Options File ....................................................................... 78
  9.11 Sample User Options File ........................................................................................... 79
10 Starting Your License Server ................................................................. 81
  10.1 Before You Begin ........................................................................................................ 81
  10.2 Starting a License Server ........................................................................................... 81
      10.2.1 Starting the License Server Using the LMTOOLS Utility (Windows Only) 82
      10.2.2 Starting the License Server from the Command Line .................................. 83
      Re-starting the License Server with a Startup Script ............................................. 84
11 License Usage Logging and Reporting ............................................... 85
  11.1 Do You Need to Track License Usage? ................................................................. 85
  11.2 Before You Begin ...................................................................................................... 86
  11.3 Logging License Usage ............................................................................................... 86
      Viewing the Current Settings for Usage Logging ....................................................... 87
      Customizing the Filenames of Usage Logs ............................................................ 87
      Configuring the Location of Logfiles ......................................................................... 88
      Controlling Which License Events Are Logged .................................................... 88
      Rotating Logfiles .................................................................................................... 89
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>B.2.3 Type Specification</td>
<td>143</td>
</tr>
<tr>
<td>B.2.4 Order of Precedence in the User Options File</td>
<td>144</td>
</tr>
<tr>
<td>B.3 Action Keywords</td>
<td>145</td>
</tr>
<tr>
<td>BORROW_LOWATER</td>
<td>145</td>
</tr>
<tr>
<td>DEBUGLOG</td>
<td>145</td>
</tr>
<tr>
<td>EXCLUDE</td>
<td>145</td>
</tr>
<tr>
<td>EXCLUDE_BORROW</td>
<td>146</td>
</tr>
<tr>
<td>EXCLUDEALL</td>
<td>147</td>
</tr>
<tr>
<td>GROUP</td>
<td>147</td>
</tr>
<tr>
<td>HOST_GROUP</td>
<td>147</td>
</tr>
<tr>
<td>INCLUDE</td>
<td>148</td>
</tr>
<tr>
<td>INCLUDE_BORROW</td>
<td>148</td>
</tr>
<tr>
<td>INCLUDEALL</td>
<td>149</td>
</tr>
<tr>
<td>MAX</td>
<td>149</td>
</tr>
<tr>
<td>MAX_BORROW HOURS</td>
<td>150</td>
</tr>
<tr>
<td>NOLOG</td>
<td>151</td>
</tr>
<tr>
<td>RESERVE</td>
<td>151</td>
</tr>
<tr>
<td>C FLEXlm Command Reference</td>
<td>153</td>
</tr>
<tr>
<td>C.1 What Does This Reference Cover?</td>
<td>153</td>
</tr>
<tr>
<td>C.2 License Manager Daemon Command-Line Syntax</td>
<td>153</td>
</tr>
<tr>
<td>lmgrd Command-Line Options</td>
<td>153</td>
</tr>
<tr>
<td>C.3 License Administration Tools</td>
<td>154</td>
</tr>
<tr>
<td>lmutil Universal Command-Line Options</td>
<td>155</td>
</tr>
<tr>
<td>lmborrow</td>
<td>155</td>
</tr>
<tr>
<td>lmdown</td>
<td>157</td>
</tr>
<tr>
<td>lmnewlog</td>
<td>157</td>
</tr>
<tr>
<td>lmremove</td>
<td>158</td>
</tr>
<tr>
<td>lmreread</td>
<td>158</td>
</tr>
<tr>
<td>lmstat</td>
<td>159</td>
</tr>
<tr>
<td>lmswitchr</td>
<td>159</td>
</tr>
<tr>
<td>D Glossary</td>
<td>161</td>
</tr>
</tbody>
</table>
This document guides you through the process of installing Wind River products and managing your licenses for those products.

This guide is designed for system and license administrators, or for users who fill those roles in their organization. It outlines advanced configuration tasks for managing product licenses and installations for a workgroup. For a guide designed for developers, see the *Wind River Product Installation and Licensing Developer’s Guide*.

The tasks described in this guide include:

- Obtaining a license file for a license server.
- Obtaining a license file for a developer workstation.
- Installing Wind River products on a single developer’s workstation, a group of workstations, or a shared file server.
- Installing patches, service packs, and BSPs.
- Removing Wind River products.
- Installing and configuring a license server.
- Reporting license usage.
- Setting up license borrowing.
- Configuring a user options file to control workgroup members’ access to products.
- Using a single license server for multiple Wind River products.

**Additional Documentation**

Once you have installed your Wind River products, consult the getting started guide, release notes, and other documentation for your product. These are available within the installed products and on the Web at

www.windriver.com/support
2

Workflow for License Management and Product Installation

2.1 How Licensing Works

Many Wind River products are license-managed. This means that your organization buys a license that allows your developers to run a certain number of copies (also known as seats) of a Wind River product simultaneously.

When a developer launches a license-managed product, the product requests a license. If the computer is configured to use a node-locked license, the license request and allocation all transparently happen on the local computer (node). If the computer is configured to use floating or named-user licenses, the product requests a license, and that request is transmitted (through a TCP/IP network) to a license server. If that license server has available seats for the requesting product, it allocates a seat for the requesting node, and sends it to the node over the network.

The license server runs as a daemon process on the network, listening for license requests from development workstations. This means that a workstation configured for a floating or named-user license must be connected to the network in order to retrieve a license. Licenses can be borrowed so that the product can be used while the workstation is disconnected from the network.

For information on license servers, see 8. Installing the License Administration Tools. For instructions on license borrowing, see 14. Configuring Borrowing of Wind River Product Licenses.
2.1.1 Types of Workstation License

There are three different types of workstation license:

Node-locked License (NL)

Node-locked licenses are best for products installed on a single development workstation. The products are not shared over the network, but they can be used by anyone with physical access to the workstation. The products can function when the workstation is disconnected from the network.

NOTE: You do not have to report node-locked license usage to Wind River.

Floating License (FL)

Floating licenses allow you to share a pool of license seats among a group of users. For example, suppose 30 developers use Wind River Workbench, but only ten copies of Workbench are running at any given time. In this scenario, you only require ten floating license seats of Workbench. When all ten seats are allocated, no other instances of Workbench can start.¹

Your organization buys a specific number of seats for each product, and when they are all in use, no other developers can use that product until someone else finishes. The development workstation must be connected to the network to request a license from the license server.

NOTE: You do not have to report floating license usage to Wind River.

Named-User License (NU)

Named-user licenses are development seats that are licensed to a specific user. The software seat (including development tools, OS, and middleware) can be used only by the designated user from one computer at a time.

This kind of license cannot “float” among different users, and cannot “straddle” computers. That is, it does not allow a single user to run the software on different computers simultaneously.

For example, in the foo_NU workgroup there are two named-user license seats. The designated users of these seats are userA and userB. userA can run Wind River Workbench on an office PC, then move to a lab workstation and run Workbench again. However, in doing this, userA is occupying both named-user licenses. Therefore, when userB tries to run Wind River Workbench, requiring a third seat, his license request is denied, and he cannot use the product.¹

To avoid license conflicts such as this, the license administrator can configure the user options file to restrict license usage by user, group, or product. For details on configuring the user options file, see 9. Controlling Access to Products with the User Options File.

¹ Under certain conditions, Workbench can be used without consuming a license seat. For details, see the Wind River Workbench User’s Guide.
With named-user licenses, the license server generates a usage report, which you send to Wind River each quarter. Wind River then reviews the usage reports for adherence to your license agreement.

NOTE: You must report named-user license usage to Wind River on a quarterly basis. For more information, see 11. License Usage Logging and Reporting.

2.2 Installation and Licensing Tasks for License Servers

Before you can get a license server up and running, you must complete several tasks, described briefly in this section. For more details, see the sections referenced in each topic.

Step 1: Obtain a server license.
Log in to the Wind River licensing Web site, add a license server to your account, and download a server license. For detailed instructions on this step, see 3. Obtaining Server License Files.

Step 2: Install the license server software.
Once you have a server license in hand, you must install the tools and utilities for running a license server. For details, see 8. Installing the License Administration Tools.

Step 3: Provision your licenses.
If your organization has purchased any named-user (NU) licenses, you can control users’ access to these products by writing a user options file. For more information on the user options file, see 9. Controlling Access to Products with the User Options File.

Step 4: Start your server.
You can start the server from the command line or, if your license server is a Windows system, you can use the LMTOOLS utility. For instructions, see 10. Starting Your License Server.

Step 5: Log and report license usage.
If your organization has purchased any named-user (NU) licenses, you must gather data on their use and report this to Wind River each quarter. For instructions on how to configure logging and how to generate reports, see 11. License Usage Logging and Reporting.
Additional Licensing Tasks

In addition to the minimum steps above, you may need to do some of the following tasks to maintain your license server and to ease your developers’ use of Wind River products.

- **Keep your server healthy and current.**
  
  You can
  - Update your license file (such as when your organization has purchased additional seats or products). *Changing Your Server License File*, p.102.
  - Stop and restart the server (in order to force a reread of the license file or server configuration, for example). *Stopping a License Server*, p.103.
  - Diagnose issues with your license server. *Troubleshooting License Server Problems*, p.104.

- **Set up borrowing of license files.**
  
  If your developers will use license-managed products while travelling or otherwise disconnected from the network, you must configure their computers to borrow a license for a set period of time. For details about borrowing, see *14. Configuring Borrowing of Wind River Product Licenses*.

- **Manage license files.**
  
  If your organization uses more than one license-managed Wind River product, or FLEXlm-managed products from other vendors, you may find it convenient to merge the server licenses so that one license server can assign licenses for all products. For more information about how to merge license files, see *15. Setting Up a Single License Server for Multiple Products*.

- **Rehost product seats on a different development workstation or license server.**
  
  After you remove a product from a workstation, you can reassign its license to another workstation (for a node-locked license) or back to the pool of seats to be allocated by a license server (for floating and named-user licenses). For details about rehosting and obtaining new licenses, see *Rehost*, p.14.

- **Uninstall a license server.**
  
  You may discover that you must uninstall a license server from its host computer, for example if the computer is being decommissioned and you want to move the license server to a new system. For instructions on how to uninstall a license server, see *Removing the License Administration Tools*, p.105.
2.3 Installation and Licensing Tasks for Workstations

Once your license server is set up, you must complete several tasks to allow developers to use Wind River license-managed products.

**Step 1: Generate product activation files.**

Your organization may have purchased any of the three license types (or some combination thereof), and you generate product activation files differently depending on the type of license you have. Instructions for obtaining workstation licenses are located in 4. Obtaining Workstation Licenses.

**Step 2: Install Wind River products on development workstations.**

Your developers can wait for you to give them a product activation file before installing, or they can install and register for a temporary license. For instructions on the various methods of installation, see 5. Installing Wind River Products.

**Step 3: Activate workstation licenses.**

If your developers installed their license-managed products using a temporary license (also known as temporary activation), you or they must permanently activate those products. For more information about the ways to activate a workstation license, see 7. Permanently Activating a Temporary License.
Obtaining Server License Files

3.1 Before You Begin

Before starting, locate the License Administrator Essentials sheet that came in your Wind River product box. It contains a code you will need in order to create and manage licenses on the Wind River licensing Web site.

3.2 What Is a License Server?

A license server is an application made up of two processes: a FLEXlm-based license manager daemon and a vendor-specific daemon. The license server runs on a computer that is accessible to your developers over a network (ideally on the same subnet as the development workstations), and it grants them permission to run specific Wind River products.

This granting of permission is based on the contents of the server’s license file, which describes how many seats of each product can be used simultaneously.

3.2.1 Do You Need to Install a License Server?

Whether or not you must install a license server depends on the type of license(s) your organization purchased for its Wind River products.

- If your organization purchased floating (FL) or named-user (NU) licenses, you must set up a license server to allocate those licenses to your developers.
- If your organization has purchased only node-locked (NL) licenses, you do not need to set up a license server. However, you must obtain node-locked license files for each development workstation. Skip the remainder of this section and go on to 4. Obtaining Workstation Licenses.

3.3 Obtaining Server License Files

Complete the following steps to obtain a license file for the computer that will act as your license server.

1. Log in to the Wind River licensing Web site and create your account.
2. Activate your license.
3. Add your license server as a new host.
4. Activate your products and get a license file for your license server.

These tasks are described in greater detail in the following sections.

Step 1: Log in to the Wind River licensing Web site and create your account.

1. Locate your License Administrator Essentials sheet, as in Figure 3-1. You will need information from it to complete this task.

Figure 3-1 Sample License Administrator Essentials Sheet

3. Check the list of products that can be activated from this site to be sure your product appears here. If it appears in the list, click Login.

   **NOTE:** Some older products cannot be activated from the licensing Web site; to activate those products, see the installation information that was included with the products. If you do not have access to installation instructions for an older product, contact Wind River Customer Support or e-mail to license@windriver.com.

4. Click Log In to the Product Activation Portal and log in to the site:
   - If you already have a Wind River User ID and Password (for example because you previously logged in to this site or the Wind River support site), type them and click Login.
   - or
   - If you are not yet a registered user on any Wind River site, click Register for a User ID and Password. Type your user profile information, including your license number from the License Administrator Essentials sheet. Type a password, confirm it, then click Submit.

**Step 2: Activate your license.**

1. Click Activate your products to open the Add Licenses screen. Type in your License Number and License Administrator Token from the License Administrator Essentials sheet.

   If you expect to eventually manage several licenses, also type in a label (for example, VxWorks GPP 3.9 or Alameda Campus) to make it easier to identify this particular license in the future.

2. Click Submit. On the Add Licenses Confirmation screen, check to be sure all the information is correct.

Your license has now been added to your account. If you order additional Wind River products in the future, click Manage Licenses and then click Add New License to add the new products to your account.

**Step 3: Add your license server as a new host.**

Once your license has been activated, use the Manage Hosts screen to add information about the computer that will act as your license server. If you have any license server hosts already defined, they appear on this screen.

1. To add a host, click Add New Host.

2. On the Create Host screen, enter the host computer’s name, host ID, and other requested information.

   **NOTE:** For descriptions of the fields, including instructions for finding your host ID, click More information.

3. When you have filled in all required fields, click Create.

   Your new host appears on the Create Host Confirmation screen.
Step 4: Activate your products and obtain a license file for your license server.

1. After you have added a license server host to your account, click Manage Licenses to activate the products you have purchased.

2. From the drop-down list next to the license on the Manage Licenses screen, select Activate Products.

From this screen you can activate all or some of your available seats for a particular product. For information on the other actions available on the Manage Licenses screen, see 3.4 License Maintenance and Management Tasks, p.13.

3. To activate a product, select the check box next to the product code and click Next.

4. In the Quantity field, type the number of seats to allocate.

> NOTE: If you are activating a node-locked license, you can choose 0 or 1 from the drop-down list.

5. From the Host Label drop-down list, select the computer to which these seats should be assigned. If you defined only one host, that appears by default.
   - If you defined more than one host and you want to distribute the available seats between them, assign some seats to the first computer, then click Add Row and assign others to another computer.
   - If you want to add another license server host computer to your account now, click Create New Host.

> NOTE: Server licenses are cumulatively generated, which means that as you assign new products to this host, the license file will include the previous products along with the new ones.

   To get a license file that lists only the new product you are assigning in this session, select Do not generate cumulative licenses.

6. When you have finished assigning seats, click Next.

7. On the Verify/Generate screen, confirm that you have allocated the correct number of seats to the correct computer(s), then click Next.

8. On the Download/E-mail Licenses screen, enter an e-mail address for the person who should receive the summary of allocations.

9. Click Download if you want to download the server license file now. If you would prefer to have it e-mailed to you or to someone else, fill in the form and click Send.

> NOTE: You can both download the license file and receive it in e-mail.

If you chose to send licenses by e-mail, the E-mail Licenses Confirmation screen displays to whom they were sent.

Once you have the server license file (WRSLicense.lic), see 8. Installing the License Administration Tools for instructions on how to use it.
3.4 License Maintenance and Management Tasks

The following additional actions are available from the drop-down list next to each license on the Manage Licenses screen.

- **Installation Keys**
  
  This screen shows the installation keys associated with the products covered by this license. You can use these installation keys to install license-managed products on the appropriate workstations.

- **View Products**
  
  Use this screen to see information such as how many seats of a particular product were purchased under a license, the support status of that product, and the expiration date of the license.

- **View Temporary Activations by Users**
  
  This screen shows which developers (if any) have installed a license-managed product and requested temporary activation. For instructions on how to permanently activate these products, see 7. Permanently Activating a Temporary License.

  **NOTE:** This option is available only if one or more of your developers has requested a temporary license to activate a license-managed product.

- **License Info**
  
  Use this screen to view contact information for the person responsible for this license. This information is only available if it was entered when the license was activated.

**Single License Server**

**Merging License Files for Wind River Products**

Wind River recommends that whenever possible, you put each Wind River license file on a separate license server. This is the simplest approach because you eliminate the need to merge license files, or to control access to products by specifying user inclusions and exclusions. In this case, the only action you must perform is to install the product on a development computer or a file server, then point to the license server from the development computer’s license file.

However, if you must use one license server to distribute licenses for more than one Wind River product, you can merge the license information into one file. For instructions on how to do this, see 15.3 Merging License Server Files, p.117.
Multiple License Servers

If you have more than one license server defined, the following actions are available on the Manage Licenses screen.

- **License Files by Host**
  
  Click the appropriate host name to view the active seats assigned to that host for a particular license and product.

  You can also download the server license file associated with that host.

  **NOTE:** This option is available only if you have more than one license server defined.

- **Rehost**
  
  Use this screen to remove seats of a product from the pool allocated by a particular license server and assign them to a different license server.

  a. From the Select server for rehost drop-down list, select the license server from which you want to remove product seats, then click Rehost.

  b. From the Rehost screen, select the reason for rehosting from the drop-down list, then type the number of seats you want to reallocate in the Rehost Qty field for each product and type of license. Click Next.

  c. Click Return the seats to pool if you do not want to reassign them now, or type the number of seats and select the host to which you want to assign the product seats.

  To allocate seats between more than one server, select a server in the drop-down list and assign the correct number of seats, then click Add Row to select another existing server or Create New Host to define a new server and assign an appropriate number of seats.

  d. On the Rehost Verification screen, make sure that product seats are now assigned to the correct license server. Read the text on the screen, select I agree with the Software License Agreement, and then click Next.

  e. The Confirmation screen displays the completed reallocation.

  **NOTE:** The rehost option is available only if you have more than one license server defined.
4.1 Obtaining a Node-Locked License File

Node-locked licenses are for products that are installed on a single development workstation, and not shared over a network. (See 2.1.1 Types of Workstation License, p.4, for descriptions of all license types.)

Complete the following steps to obtain a node-locked license file for a development computer.

1. Log in to the Wind River licensing Web site and create your account.
2. Activate your license.
3. Add your development computer as a new host.
4. Activate your products and get a license file for the development computer.

These tasks are described in greater detail in the following sections.

**Step 1:** Log in to the Wind River licensing Web site and create your account.

1. Locate your delivery communications from Wind River:
   - If you received your products through electronic software delivery (ESD), the email you received from Wind River acknowledging your order.
   - If you received physical media (discs), the License Administrator Essentials sheet, as in Figure 4-1. You will need information from it to complete this task.

3. Check the list of products that can be activated from this site to be sure your product appears here. If it appears in the list, click Login.

NOTE: Some older products cannot be activated from the licensing Web site; to activate those products, see the installation information that was included with the products. If you do not have access to installation instructions for an older product, contact Wind River Customer Support or e-mail to license@windriver.com.

4. Log in to the site:
   - If you already have a Wind River User ID and Password (for example because you previously logged in to this site or the Wind River support site), type them and click Login.
   
or
   - If you are not yet a registered user on any Wind River site, click Register for a User ID and Password. Type your user profile information, including your license number from the License Administrator Essentials or the Developer Essentials sheet. Type a password, confirm it, then click Submit.
Step 2: **Activate your license.**

1. Click **Activate your products** to open the **Add Licenses** screen. Type in your **License Number** and **License Administrator Token** from the **License Administrator Essentials** sheet.

   If you expect to eventually manage several product licenses, also type in a label (for example, *VxWorks GPP 3.9* or *Alameda Campus*) to make it easier to identify this particular license in the future.

2. Click **Submit**. On the **Add Licenses Confirmation** screen, check to be sure all the information you typed in is correct.

   Your license has now been added to your account. If you order additional Wind River products in the future, click **Manage Licenses** and then click **Add New License** to add the new products to your account.

Step 3: **Add your development computer as a new host.**

Once your license has been activated, use the **Manage Hosts** screen to add information about the development computer. If you have any hosts already defined, they appear on this screen.

1. To add a host, click **Add New Host**.

2. On the **Create Host** screen, enter the host computer’s name, host ID, and other requested information.

3. When you have filled in all required fields, click **Create**. Your new host appears on the **Create Host Confirmation** screen.

   **NOTE:** For descriptions of the fields, including instructions for finding your host ID, click **More information**.

Step 4: **Activate your products and obtain a license file for the development computer.**

1. After you have added the development computer to your account, click **Manage Licenses** to activate the products you have purchased.

2. From the drop-down list next to the license on the **Manage Licenses** screen, select **Activate Products**.

3. Select the product you want to allocate to this development computer (look for **NL** in the **License Type** column). Click **Next**.

4. From the **Host Label** drop-down list, select this development computer, then click **Next**.

5. Confirm that you selected the correct host, then click **Next**.

6. Click **Download** to download the license file immediately, or enter an e-mail address if you want the license file to be sent to the person responsible for this host computer. If you entered an e-mail address, click **Send**.

**NOTE:** If you do not have your *Essentials* sheets, but do have an existing Wind River Workbench installation of version 3.3 or higher, you can find your license number by launching Workbench and selecting **Help > About Wind River Workbench**.
7. If you chose to send licenses by e-mail, the E-mail Licenses Confirmation screen displays to whom they were sent.

Once you have the node-locked license file, see 5. Installing Wind River Products, for instructions on how to use it.

### 4.2 Obtaining a Floating or Named-User License File

#### Floating Licenses (FL)

Floating licenses allow you to share a pool of license seats among users. Any user can take a license, up to the number of seats licensed. With floating licenses, you must set up a license server, and the development workstations must be connected to it over the network.

#### Named-User Licenses (NU)

Named-user licenses are assigned to a specific user. The license administrator controls license access by configuring a user options file. With named-user licenses, you must set up a license server, and the development workstations must be connected to it over the network. Node-locked licenses are for products that are installed on a single development workstation, and not shared over a network.

See 2.1.1 Types of Workstation License, p.4, for descriptions of all license types.

### Preliminary Tasks

Before obtaining a floating or named-user license, you should have completed these tasks:

1. Create an account on the Wind River licensing Web site and get a license file for your license server computer, as described in 3. Obtaining Server License Files.

2. Install and configure the license server, as described in 8. Installing the License Administration Tools.

3. For named-user licenses, configure your license server for license usage reporting, as described in 11. License Usage Logging and Reporting.
Obtaining a License File

Obtaining a floating or named-user license consists of two tasks: allocating the appropriate product seat(s) to a specific license server, and creating a license file for the development computer by extracting information from the server’s license file.

Step 1: Log in to the Wind River licensing Web site.
Go to http://www.windriver.com/licensing and log in as described in Step 1 under 4.1 Obtaining a Node-Locked License File, p. 15.

Step 2: Assign floating or named-user seats to a license server
1. Click the Manage Licenses tab, and from the drop-down list next to the appropriate license, select Activate Products.
2. Select the product for which you want to get a license (look for FL or NU\(^1\) in the License Type column), then click Next.
3. Type the number of seats you want to allocate, select the license server to which you want to allocate them, and click Next.
4. Verify the number and type of seats that are assigned to the listed license server, then click Next.
5. Click Download to download the new server license file immediately, or enter an e-mail address if you want the license file to be sent to the person responsible for this computer. If you entered an e-mail address, click Send.

NOTE: You must be sure to preserve the .lic ending on the license file or the file will not work properly. On Windows systems, you can do this by selecting All Files rather than Text Document from the Save as type drop-down list.

6. Replace the existing license server file with this new file, which contains the newly allocated seat(s) along with any previously assigned seats.

Step 3: Create a product activation file from a server license file.
There are two types of product activation file: install.txt and WRSLicense.lic. Both are created by extracting information from the server license file, and both permanently activate products so that developers can begin using them.

1. In your server license file, near the bottom, you will see lines similar to the following:

```
# Begin: client license  ---------------------
# For developer(s) using LAC: ####### ###### send the contents between
# Begin: install.txt and End: install.txt below.
# In case of a new install ask the developer to paste this content into
# an install.txt file and run setup using this file.
# In case of an existing install requiring a permanent activation, ask
# the developer to paste this content into
# <InstallDir>/license/WRSLicense.lic file.

# Begin: install.txt
# Serial Number: ####### ####### #######
# Uncomment the next 2 lines before use.
# SERVER servername hostID portnumber
# USE_SERVER
#--# Keys
#---#CDR-firstProductInformation
```

1. In older licenses, NU (named user) may appear as UU (unique user).
2. Copy the lines that appear in bold above, and paste them into a text file named install.txt or WRSLicense.lic:

- Create an install.txt file if the license-managed products have not yet been installed.

or

- Create a WRSLicense.lic file and copy it into the installDir/license directory of an already-installed product.

**NOTE:** The lines are not bold in the server license file itself.

**NOTE:** On Linux and Solaris hosts, ensure that the license file is in a usable format. You may need to perform a dos2unix conversion.

3. Uncomment these two lines:

# SERVER servername hostID portnumber
# USE_SERVER

4. Save the file, then use it or distribute it to your developers.

For more information about installing products on development computers, see 5. Installing Wind River Products.

For more information about permanently activating products, see 7. Permanently Activating a Temporary License.
5.1 Before You Begin

5.1.1 Choose Your Installation Method

As administrator, you have several options in deciding how to deploy Wind River products in your organization. You can choose from the methods described below.

**Method 1: An administrator installs the products on each workstation.**

With this method, you install Wind River products for your workgroup members on their individual workstations.

This option is useful if

- You want to limit the possibility of installation errors and user errors.
- You have a relatively small workgroup.
- Some of your workgroup members require a different installation than others (such as different product features or a node-locked license).
For detailed instructions on this method, see 5.2 Method 1: An Administrator Installs the Products on Each Workstation, p.24.

**Method 2: An administrator installs the products on each workstation through a command-line sequence.**

With this method, you install Wind River products on each workstation silently, through a pre-defined command-line sequence.

This option is useful if

- You want to limit the possibility of installation errors and user errors.
- You want to achieve identical installations across the workgroup.

For detailed instructions on this method, see 5.3 Method 2: An Administrator Installs the Products on Workstations through a Command-Line Sequence, p.25.

**Method 3: Developers install the products on their workstations.**

With this method, you must distribute the installation media (or images) to your workgroup, and provide them with instructions and the product activation file.

This option is useful if some of your workgroup members require a different installation than others (such as different product features, a different installation directory, or a node-locked license).

For detailed instructions on this method, see 5.4 Method 3: Developers Install the Products on Their Workstations, p.25.

**Method 4: An administrator installs the products on a shared file server.**

With this method, you make the Wind River products available to your workgroup by installing them on a file server. Developers will then run the products remotely from their workstations.

This option is useful if you have

- a fast network
- limited disk space on individual workstations
- a large workgroup

Also, having only one installation can save you time with maintenance tasks, such as installing patches.

**NOTE:** This method works best when your server hardware and network environment can provide speedy performance.

For detailed instructions on this method, see 5.5 Method 4: An Administrator Installs the Products on a Shared File Server, p.27.
5.1.2 Gather Materials and Resources

Once you have chosen your installation method, make sure you have the following required materials and resources:

- If you used electronic software delivery (ESD) to obtain your products, the email you received from Wind River announcing the release.
- If you received physical media, your product box, which includes:
  - installation media (discs or image files)
  - the Developer Essentials sheet
- Several gigabytes (GB) of disk space on your development workstation for standard installations.
  The amount of disk space required varies for each product. The Installer reports the product’s disk space needs as well as how much space is available.
- Write permissions to your installation directory.
- Administrator or power user privileges (Windows hosts).
- For installation on Linux and Solaris hosts, it is recommended that you install from an account other than root.
- For typical installations, one of the following:
  - For RPM-based products, the username and password that your product repository requires.
  - A product activation file to permanently activate your products during installation (see 4. Obtaining Workstation Licenses).
  - A license authorization code (LAC) and Internet access to temporarily activate your products.

NOTE: You can install Wind River products before or after generating a product activation file. Your developers can wait for you to give them a product activation file before installing, or they can install using installation keys from the Developer Essentials sheet and receive a temporary license.

- For atypical installations, installation keys (printed on your Developer Essentials sheet).

5.1.3 Prepare the Computer

Close Wind River Programs

Before installing new products, you must close any Wind River programs or tools that may be running, including the Wind River registry. If the Installer is blocked by a process, it displays an error, showing the process ID.

Locked and Modified Files

If the Installer encounters a locked file (such as if an external editor has locked a source file that must be updated), it saves it as fileName.new in the same directory as the original.
If the Installer encounters any user modifications to a file that it needs to update, it creates a `fileName.wrsav` file in the `installDir/maintenance/backup` directory.

If any problems were found in creating `.new` files, these issues are logged in the `installDir/setup.log` file; any user modifications are listed in `installDir/modifiedfiles.log`.

**Disable Virus Scanners**

Virus scanners can interfere with software installation, locking files that the Installer must update. Wind River recommends shutting down virus scanner applications before installing products or product updates.

### 5.2 Method 1: An Administrator Installs the Products on Each Workstation

In this method, you install the software for your workgroup members on their individual workstations.

**Step 1:** Generate a product activation file or files.

Follow the instructions in 4. Obtaining Workstation Licenses to create a product activation file or files for your workgroup (usually called `install.txt` and located in the product’s installation directory):

- For workgroup members who will use floating (FL) or named-user (NU) licenses, you can use the same product activation file.
- For workgroup members who require node-locked licenses, you *must* either:
  - Create a unique product activation file for each node (workstation).
  - Install on a developer’s workstation with a temporary license, then provide him or her with a unique license file later. (For details, see 7. Permanently Activating a Temporary License.)

**Step 2:** Install the products on each workstation.

- For GUI installation, see 5.6 Using the Installer Program, p. 28.
- For installation from the command line, see A. Command-Line Installation.

**NOTE:** For best performance and to achieve uniformity across installations, make sure that all content you want to install is located locally.
5.3 Method 2: An Administrator Installs the Products on Workstations through a Command-Line Sequence

In this method, you install the software on each workstation silently, using a command-line sequence. This method is similar to 5.2 Method 1: An Administrator Installs the Products on Each Workstation, p.24, except that it results in identical installations on all workstations.

Step 1: Generate a product activation file or files.
Follow the instructions in 4. Obtaining Workstation Licenses to create a product activation file or files for your workgroup (usually called install.txt and located in the product’s installation directory):

- For workgroup members who will use floating (FL) or named-user (NU) licenses, you can use the same product activation file.
- For workgroup members who require node-locked licenses, you must either:
  - Create a unique product activation file for each node (workstation).
  or
  - Install on a developer’s workstation with a temporary license, then provide him or her with a unique license file later. (For details, see 7. Permanently Activating a Temporary License.)

Step 2: Install the products on each workstation.
Determine the options and arguments you want to specify in the command-line sequence. See A. Command-Line Installation for the complete list of options.

Then, on each development computer, run the same command sequence to install the products.

5.4 Method 3: Developers Install the Products on Their Workstations

In this method, users install the software on their own workstations individually.

Step 1: Generate a product activation file or files for your workgroup.
Follow the instructions in 4. Obtaining Workstation Licenses to create a product activation file or files for your workgroup (usually called install.txt and located in the product’s installation directory):

- For workgroup members who will use floating (FL) or named-user (NU) licenses, you can distribute the same product activation file to all users.
- For workgroup members who require node-locked licenses, you must either:
  - Create a unique product activation file for each node (workstation).
  or
– Instruct workgroup members to install with a temporary license, then provide him or her with a unique license file later. (For details, see 7. Permanently Activating a Temporary License.)

Step 2: Make the installation media accessible to workgroup members.
You can do this by either

- Uploading the media images to a shared network directory.

  or

- Creating enough physical media to distribute to workgroup members.

⚠️ CAUTION: If your workgroup members will install the product from a shared network directory, ensure that the directory name and path do not include any of the following characters:

  [space character] ! # % < > ?

Note in particular that space characters (such as in the directory name Documents and Settings) are not permitted. If there is a space character anywhere in the absolute path, some elements of the installed products will not be available.

NOTE: Installing a Wind River product from a shared network directory is slower than from a local directory or physical media. Performance can vary greatly, depending on several factors, including file system performance. For convenience, the Installer displays your copy speed during the installation process.

Step 3: Distribute materials to the developers.
Provide workgroup members with

- the product activation file

- the installation media or a pointer to the uploaded images

- installation instructions:

  – For GUI installation, the instructions in 5.6 Using the Installer Program, p.28.

    or

  – For command-line installation, the instructions in A. Command-Line Installation, or a specific command sequence that you have determined.

1. As mentioned above, if you have workgroup members who require node-locked installations, you can instruct them to follow the Temporary activation option, then provide them with license files later. For details, see 7. Permanently Activating a Temporary License.
5.5 Method 4: An Administrator Installs the Products on a Shared File Server

This method involves installing a Wind River product on a file server for remote (client-side) execution. In this scenario, you will install the product on a file server, and members of your workgroup will run the software from their own workstations.

**NOTE:** Shared installations in which the software is being run on the server, but viewed remotely (such as VNC or remote desktop), are not currently supported.

5.5.1 Network and File System Considerations

If you are planning to install on a file server, consider that performance can vary greatly when running applications from a file-server-mounted drive. At a minimum, you should have a 100 Mbit network, and a high-performance file server.

5.5.2 Installing a Product for Shared Use

**Step 1:** Generate a product activation file.

A shared file server installation requires that your users have floating (FL) or named-user (NU) licenses. You cannot use a node-locked license with a shared installation.

When you generate your product activation file, it will contain information about which license server will allocate licenses to the users of this installation.

**Step 2:** Install the product.

To install a Wind River product on your file server, follow the instructions for either GUI or command-line installation:

- For GUI installation, see 5.6 Using the Installer Program, p.28. When you are prompted to choose temporary or permanent activation, choose the **Permanent activation** option and provide the product activation file you generated in **Step 1**.
- For installation from the command line, see **A. Command-Line Installation**.

**NOTE:** If your organization’s environment includes more than one host OS type, use the instructions at 5.8.1 Downloading Products for Later Installation, p.38. When you download products and updates, you can choose from all available host OSes. The resulting downloaded materials will be installable on the OSes you selected.

**Step 3:** Verify the installation.

Inspect the file `installDir/setup.log` and verify that it does not contain any errors.

Also, you can run the following from the command line:

```
cd installDir
wrenv -o validate
```

If your installation was successful the command-line sequence above returns **okay**.
If your installation has errors, contact Wind River Customer Support and provide the following files:

- `installDir/setup.log`
- `installDir/install.log`
- `installDir/maintenance/wrInstaller/Host/configuration/*.log`
- `installDir/productDir/install-productName.log`

**Step 4:** Notify your workgroup of the location of the product installation.

Installation is complete, and the products are ready for use.

### 5.6 Using the Installer Program

To install a Wind River product on your development workstation, complete the following steps.

**Step 1:** Launch the Installer.

Launch the Installer in one of the following ways:

- Put the disc into your drive.
  
  If your product includes more than one disc, begin with the disc labeled **Install First**.

- Navigate to the product image, and run
  - `setup.exe` on Windows
  - `setup_linux` on Linux
  - `setup_solaris` on a Solaris system

**NOTE:** If the DVD contains `<order_number>.zip` files, unzip the files and then run the `setup` program.

**NOTE:** When you are prompted to choose an installation directory, ensure that the directory name and path you choose do not include any of the following characters:

[space character] ! # % < > ?

Note in particular that space characters (such as in the directory name **Documents and Settings**) are not permitted. If there is a space character anywhere in the absolute path, some elements of the installed products will not be available.

**NOTE:** If you are installing a product suite that includes more than one product (such as a Wind River Platform), be sure to choose the same installation directory for all products.

Read each Installer screen and provide the requested information, then click **Next**.
If you encounter problems during the installation process, click the **Help** button in the Installer program. The Installer’s Help system offers screen-by-screen instructions in greater detail than what is described here.

**Step 2: Configure online update settings.**

On the **Online Update Settings** screen, you can choose whether to do the following:

- Look for updates to the Installer program itself.
- Look for updates to your Wind River products.
- Check the sources that the Installer is drawing from to find Wind River software.
- Use a proxy server to connect to the Internet, in order to find Installer updates and product updates.

> **CAUTION:** Any changes you make to this screen are saved when you click **Next**. To cancel your changes, click **Cancel** and exit the Installer.

> **NOTE:** When you choose to update your products or the Installer, please be patient as the Installer checks for updates online. The process of fetching a list of available content can take some time.

**Installer Updates**

When Wind River makes changes to the Installer program, it makes the latest version available to you on an update server. If you select the option to update the Installer, and if there is an updated version available, the Installer program updates itself, and then restarts itself.

> **NOTE:** For some Wind River products, the Installer-update option on this screen may be disabled. When this option is disabled, it is a measure to ensure the repeatability or certification of a product installation.

Wind River recommends you update the Installer program when possible. If you wish to skip these updates, you can clear this option, but you may encounter installation problems that are resolved in an updated version.

> **NOTE:** In order for the Installer program to update itself, your computer must have access to the Internet.

**Product Updates**

Just as with updates to the Installer, Wind River makes product updates available on an update server. Updates to products are typically placed in an update repository.

> **NOTE:** For some Wind River products, the product-update option on this screen may be disabled. When this option is disabled, it is a measure to ensure the repeatability or certification of a product installation.

If you select the product-update option, and if an updated version of your product is available, you can install it as part of the current installation process (a later
screen in the Installer will display product updates to install). Doing so can save you time: rather than installing the older version and then running the Installer program again to update your products, you simply install the updated version the first time.

If you do not select this option, you can update your products later, in a separate installation process, using the Product Maintenance Tool. For information on the Maintenance Tool, see 6. Maintaining Your Wind River Product Installation.

NOTE: In order to install product updates, your computer must have access to the Internet.

Software Sources

This area of the screen offers advanced options for configuring the locations that the Installer program draws from to find Wind River products and updates.

- **Set default authentication information**

  If the product update locations listed in the Software Sources area require authentication, type the required **Username** and **Password**.

  If your update location(s) require authentication and you leave these fields blank, you (and any user who subsequently uses this instance of the Installer program) will be prompted to enter the correct credentials before the content can be installed.

  If you enter a username and password and select **Save password**, the Installer retains this authentication information in an encrypted form and will use it for future installation actions.

  NOTE: In addition to this default authentication, you can also give inputs for repository-specific authentication. See Edit, p.31 below.

- **Set locations the installer should use to search for content**

  This table lists the locations known to the Installer program for finding Wind River products and product updates.

  NOTE: Tip: If the path to a particular location is longer than can be displayed in the table, hover over it to see the untruncated path.

Review the list and change it if necessary:

- **Add**

  You might add a location if, for example, your site administrator has configured a local server for product updates, or if Wind River has directed you to use an alternate location.

  In the **Add Repository** dialog, do the following, then click **OK**:

  - Select the type of repository you are adding:
    
    **Yum Repository** (for a repository that contains yum metadata and RPM-based content)

    or
5 Installing Wind River Products
5.6 Using the Installer Program

Wind River Repository (for a repository that contains either a Wind River-proprietary sdf.xml file or a .repo file)

- Type a name for the repository, and either type its location or click Local to browse to it if it resides on your host.

- If the repository you are adding requires its own authentication, you can select Use repository-specific authentication and type the required Username and Password. This means that when the Installer contacts this repository for products or updates, it already has the correct login credentials, so users won’t be prompted for them.

These credentials are specific to this repository; they are distinct from any default authentication that other repositories might require. For information on entering default authentication information, see Set default authentication information.

- Import

To import an existing repository (for example, if you or your administrator has already created a repository for product updates), click Import and browse to its location. Imported repositories must have the file extension .repo.

- Edit

To change the properties of a location, select it and click Edit to

  - Change the name of a location.
  - Change the update repository it points to.

The Local button lets you browse to it if it resides on your host.

- Enter repository-specific authentication information.

If the repository you are editing requires its own authentication, you can select Use repository-specific authentication and type the required Username and Password. This means that when the Installer contacts this repository for products or updates, it already has the correct login credentials, so users won’t be prompted for them.

If you do this, after you click OK, notice that in the Software Sources table the location’s entry in the Authentication column has changed.

These credentials are specific to this repository; they are distinct from any default authentication that other repositories might require. For information on entering default authentication information, see Set default authentication information.

- Remove

To remove an update location, select its name and click Remove.

- Enable or disable a location.

To change the availability of a listed location, simply select or clear its checkbox.

Disabling a location in this way serves the same function as Remove, but with the added convenience that the location can be easily re-enabled without browsing.

- Filter the list.
You can use the textbox above the list of locations to filter for, say, a product name that you do not want to update (and would therefore disable); or for a custom location that your organization has created; or for Wind River Linux 4.x prebuilt components, for example.

**Network Settings**

In this section of the screen you can test your Internet connection and configure how you want to handle parallel download connections and whether to use a proxy server.

- **Internet Connection**

  Updating the Installer and your Wind River products requires a connection to the Internet. You can click the **Test Internet Connection** button to ensure that the computer you’re installing on can contact the Wind River cloud.

- **Enable parallel downloading up to 4 HTTP connections**

  This option is enabled by default. It directs the Installer to download content as efficiently as possible using up to four parallel HTTP connections.

  To disable parallel downloads, clear the checkbox.

- **Proxy Server**

  If your computer connects to the Internet through a proxy server, select the **Connect to Internet using proxy server** option. When you select this option, additional fields appear on this screen. Use these fields to enter the type of proxy server (Web proxy or SOCKS proxy), IP address, and port. The Installer program does not support NTLMv2 proxy servers.

  If your proxy server is set up to require login information, select **Requires Authentication** and enter your username and password in the additional fields that appear.

  If you do not have Internet access, Wind River can make the Installer updates and product updates available on physical media. Contact Wind River Customer Support for assistance.

  Alternatively, if the development computer does not have Internet access but another computer in your organization does, you can use that computer to download the products and online updates, and then install them on the development computer. For detailed instructions, see 5.8.1 Downloading Products for Later Installation, p.38.

**Step 3: Typical or Custom**

On this screen you can choose whether to install your Wind River product by following a typical or a custom workflow.

**Typical**

If you choose this workflow, the Installer program installs the standard features, all target architectures, and all start menus and desktop shortcuts, for your product. The Installer program opens the End User License Agreement and when you accept its terms, the Installer performs the installation without showing any further options or screens until the installation is complete.
Custom

To tailor your installation and install only the features, architectures, and RPMs you select in the following screens, choose the custom installation workflow.

Step 4: Decide whether to install the content or to create a local download.

On the **Install or Download** screen, direct the Installer either to install the Wind River content right away, or to create a local copy of it for future installation.

- Select **Install** to continue the installation process.
  
  or
  
- Select **Local download** if you want to create a copy of the content on this host, to be installed later (on this or any other host). The content will be saved to the `installDir/download` directory.

**NOTE:** This step describes capabilities that are not available for installation operations that use WindShare.

Step 5: Choose your activation type.

On the **Choose Activation Type** screen, select the type of installation you want:

- **Use your existing product activation (install.txt) file**

  **NOTE:** This option appears only if you have previously installed Wind River products.

  If you have previously installed Wind River products, you may already have a product activation file (`install.txt`) that you used for those products. In some cases, you can use the same product activation file for your current installation.

  If you received a new product activation file for the products you are currently installing, Wind River recommends you use the most recent file. To do so, select **Permanent activation**.

- **Temporary activation**

  Select this option if you wish to install and use the products right away, but for a limited time (usually 31 days).

  To continue using them beyond that period, you must eventually perform a permanent activation. The permanent activation allows you to use the same installation; you will not need to re-install your Wind River products. For details on converting a temporary installation to a permanent one, see **7. Permanently Activating a Temporary License.**

  If you select the **Temporary activation** option, another screen appears where you will enter the license authorization code (LAC) and some other user information. The Installer program will then retrieve your temporary license.

**NOTE:** If you are installing Wind River Linux 7, you will see an extra screen that runs the Git-based installation process for that product. Click **Help** on the **Run Wind River Linux 7 installation** screen for more information.

**NOTE:** This step describes capabilities that are not available for installation operations that use WindShare.
Because of this retrieval process, you must have Internet access in order to use this method.

- **Permanent activation**
  
  Select this option if you have a product activation file for this installation.
  
  To use this option, click **Browse** and navigate to the directory location of your product activation file.
  
  You do not need Internet access to install and activate Wind River products using this option.

- **Manually enter all installation keys**
  
  This method is used only in rare cases. If you need to use this option, contact Wind River Customer Support.

**Step 6:** Select the target architectures to install.

If the products you are installing have any architecture-specific content, the **Choose Installation Filters** screen appears. Use this screen to refine your installation by selecting the particular target architectures for which to install.

If you are not sure, you can accept the default setting, which is to install for all architectures. However, clearing unneeded architectures reduces the size of your installation, and can also avoid confusion over extraneous components or files.

If you do not select any target architectures, the Installer warns you that only architecture-independent features will be installed.

**Step 7:** Select host types.

If you selected **Local download** in **Step 4**, the **Choose Installation Filters** screen also includes host OSes. Select the host types that your Wind River products will be installed on.

**Step 8:** Select the products to download or install.

On the **Select Products** screen, you can

- Choose the specific products to download or install.
- Review the installation directory and disk space that the products will use.
- Set options for how to start your programs.

**Selecting Products to Download or Install**

The list shows all products and features that your license entitles you to, and according to any architecture-specific filters you may have specified.

Review the product list on this screen carefully. If it does not show the products you intend to install, this means that the Installer has not detected the new product activation file. In this case, click **Back** to return to the **Choose Activation Type** screen.

You can expand the nested items in the list, and select just the products and features you want to install.

⚠️ **CAUTION:** Use caution when clearing (de-selecting) features, as failing to install critical features can prevent the products from functioning properly.
The icons in the product list use the following symbols:

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>![Folder]</td>
<td>A category of installable content, such as a group of related RPMs.</td>
</tr>
<tr>
<td>![Folder]</td>
<td>A category of installed content, such as a group of installed and related RPMs.</td>
</tr>
<tr>
<td>![Plugin]</td>
<td>Installable Wind River proprietary content.</td>
</tr>
<tr>
<td>![Plugin]</td>
<td>Wind River Proprietary content that is already installed.</td>
</tr>
<tr>
<td>![Remote]</td>
<td>Wind River Proprietary or RPM content that is an update of features already installed.</td>
</tr>
<tr>
<td>![Remote]</td>
<td>Remote content overlay (content located outside your host, such as on the Web).</td>
</tr>
<tr>
<td>![RPM]</td>
<td>RPM (singleton—cannot coexist with other versions of itself) content that can be installed and updated.</td>
</tr>
<tr>
<td>![RPM]</td>
<td>RPM (singleton—cannot coexist with other versions of itself) installed content.</td>
</tr>
<tr>
<td>![RPM]</td>
<td>RPM (non-singleton—can be installed alongside different versions of itself) content that can be installed.</td>
</tr>
<tr>
<td>![RPM]</td>
<td>RPM (non-singleton—can be installed alongside different versions of itself) installed content.</td>
</tr>
<tr>
<td>![Info]</td>
<td>Additional information is available about this content. Mouse over the symbol to see the information.</td>
</tr>
</tbody>
</table>

**NOTE:** These symbols can be combined in an icon so that you might see, for example:

- an information symbol over a plugin symbol—meaning installable content that has additional information
- or
- a plugin symbol over a globe symbol over a folder symbol—meaning a group of installable content pieces that come from a remote source

### About Singleton Packages

Some content units are created as singletons, meaning that they cannot coexist with other versions of themselves. A singleton package, in other words, can be updated or removed, but there can only be one version of it in your installation.

Other packages, designated as non-singleton, can be installed in parallel in different versions. For example, if fooPkg is non-singleton, you could update your
existing installation of fooPkg 1.0 with fooPkg 1.0.1 without overwriting the
fooPkg 1.0 installation. Conversely, if barPkg is singleton, your existing
installation of barPkg 3.1 will be replaced by barPkg 3.2 when you update that
package.

About Dependencies
The Installer calculates dependencies among products, and includes whatever
packages are necessary to produce a viable installation.

If, for example, you select only a subset of the products listed on this screen, some
additional pieces that you did not select may be included for installation. These
pieces are marked with (required) after the package name.

Installation Directory
The products you select on this screen will be installed (or downloaded) into the
directory named here. This directory path is the one you specified at the very
beginning of the installation process.

If you want to change the installation directory, restart the Installer and specify the
new directory in the first Wind River Installer dialog.

Disk Space Information
This screen shows the total disk space required for the products and features listed,
as well as the amount of disk space available.

In calculating available disk space, the Installer also takes into account any quota
restrictions in place.

If you do not have sufficient disk space for the installation, the Installer shows an
error message. In order to continue installing, you must free enough disk space for
the installation.

Shortcut Options
Use these options to set how you will launch your Wind River products once they
are installed. You can create a desktop shortcut and specify a Start menu entry.

NOTE: On UNIX systems, the Installer creates Start menu entries and desktop
shortcuts according to the free desktop entry specification. Desktop managers
supporting this mechanism are available for all supported UNIX and Linux
systems. If you have configured your system to use a different desktop manager,
or only a window manager, these shortcuts and menu entries may not be
accessible.

Step 9: Install (or download).
After you have accepted the license agreement(s), check over the list of content
once more. When you are ready to launch the installation, click Install (or
Download if you selected Local download in Step 4). The last screens offer a
summary of your installation and a link to product information.

2. This feature is similar to the installonlypkgs option in the yum tool.
NOTE: If you are installing Wind River Linux 7, you will see two extra screens that check preconditions and run the Git-based install process for that product. Click Help on these screens for more information.

Step 10: Follow up.

Now that you have finished this process, take stock of any additional tasks. For example, if you created a local download for later installation, repeat these steps to install the material. Or you may need to convert a temporary product activation to permanent, or install a BSP. Some follow-up actions are described in 5.7 Post-Installation Tasks, p.37.

5.7 Post-Installation Tasks

Convert Temporary Activations to Permanent

If you installed using a product activation file, your Wind River products are now installed, activated, and ready for you to begin working with them.

However, if you installed using a license authorization code or installation keys, you may use your products now, but eventually you must permanently activate them to continue working with them. For instructions on how to do this, see 7. Permanently Activating a Temporary License.

Restart Your License Server

If you installed new products (rather than updates to existing installed products), and your organization uses a license server to manage Wind River software licenses, you must restart the license server after product installation, in order for workgroup members to use the new licenses.

Failed Installation

If you were not able to install, contact Wind River Customer Support and be ready to provide the following files:

- installDir/setup.log
- installDir/maintenance/wrlInstaller/hostType/configuration/*.*.log.

Additionally, see 16. Troubleshooting for help with some of the more common issues that can arise during installation.

Adding to Your Installation

For information on installing a service pack, patch, or BSP, see 6. Maintaining Your Wind River Product Installation.
Uninstallation

For instructions on removing Wind River products, see 6.5 Removing Wind River Products, p.52.

Moving an Installation

If you want to produce an identical installation in a different location, Wind River recommends that you simply re-install into the second location. The method described at 5.8.1 Downloading Products for Later Installation, p.38, is particularly useful in such cases.

While it is possible to move, copy, or relocate a Wind River product installation, there are some caveats. Some products may not support moving the original installed location because of host-specific actions performed by post-installation scripts that link your computer to the product.

Specific cases in which moving the installation breaks products or functionality include registering the Wind River Probe to Windows; and copying DLLs into the System folder.

5.8 Atypical Installations

This section describes atypical installation scenarios. You may not need the instructions in this section, depending on the products you have already installed, and the specific constraints of your workgroup’s environment.

5.8.1 Downloading Products for Later Installation

For many products, the Wind River Installer provides a download-before-installing capability, in which you follow the same process as you would for a standard installation, but the installable material is copied to the host, rather than actually installed.

This capability is particularly useful for sites where the development workstation is not connected to the Internet. In these cases, the download action can be performed on a different, Internet-connected computer; and the files can be moved to the unconnected workstation, where they are then installed.

NOTE: The download-before-installing method can only be used for content that can be installed. For example, you cannot download a service pack or other update to a product if you have not installed the base product that the update applies to.

Downloading Through the Installer’s GUI

1. On an Internet-connected computer, launch the Installer. See Step 1 for specific instructions.
2. Proceed through the screens of the Installer, with the following particular selections:
   a. On the **Install or Download** screen, select **Local download**.
   b. On the **Choose Activation Type** screen, Wind River recommends that you select either **Use your existing product activation file** or **Permanent activation**. When you are creating a local download to be installed later, **Temporary activation** is likely not a wise choice, because with that kind of activation, the software components are licensed for only 30 days.

   For detailed instructions, see 5.6 *Using the Installer Program*, p.28, or the Help system within the Installer program.

3. At the final screen, click **Download**.

   When the download operation is complete, a new directory named **download** appears in your **installDir**. The **download** directory contains the downloaded content.

4. When you are ready to install the downloaded material, go to **installDir/download** (or move the contents of **installDir/download** to the intended computer).

5. Install the downloaded material. For detailed instructions, see 5.6 *Using the Installer Program*, p.28.

**Downloading from the Command Line**

1. On an Internet-connected computer, type the following command sequence:

   ```
   % setupHostType -silent -nosplash -download [path] -installKeys path
   ```

   - In the **setup** command, **HostType** can be **.exe**, **_linux**, **_linux32**, or **_solaris**.
   - For **-download**, specifying a path to your installation directory is optional.

     If **path** is not specified, the products are downloaded into your existing installation directory, or into a new **WindRiver** directory if no Wind River products have been installed.

     In either case, the download operation creates a new directory named **download**, containing the downloaded material.

   - For **-installKeys**, **path** is the absolute path to the location of the **install.txt** file.

   See *A. Command-Line Installation* for details on command-line arguments to the Installer.

2. When you are ready to install the downloaded material, go to **installDir/download** (or move the contents of **installDir/download** to the intended computer).

3. Install the downloaded material. For detailed instructions, see *A. Command-Line Installation*. 
5.8.2 Cross-Host Installation

The Wind River Installer detects the operating system (Linux, Solaris, or Windows) of the host you install products onto. By default, it installs only that version of the product. For example, if you insert the DVD for the Wind River VxWorks Platforms product into a Linux host computer, only the Linux version of that product will be installed.

The Installer does not support installing products on one host type, to be run on a different host type.

However, if you need to do a cross-host installation, consider using the download-before-installing method (described in 5.8.1 Downloading Products for Later Installation, p.38). This method can be used to download Wind River products on one computer for eventual installation on another. When you use this process, you can select the OS of the eventual host.

5.8.3 Incremental Installation

An incremental installation adds to an existing product installation. An incremental installation can be performed in situations such as the following:

- You installed only certain features of a Wind River product (by selecting only certain architectures or features during installation) and now wish to add the excluded features.
- You are installing complementary Wind River products (for example, adding On-Chip Debugging to your existing installation of Wind River Workbench).

When you do an incremental installation, you can again choose target architectures and features. However, you cannot reinstall products and features that are already installed. The Installer program offers only those products or features that are not yet present in your installation. If you wish to reinstall, you must first remove the product. For information on removing products, see 6.5 Removing Wind River Products, p.52.

5.8.4 Revision-Controlled Installation

You can use Wind River products in a source-controlled environment. However, you cannot install the products directly into a source control system or link the Installer program to it. You must first perform the installation; then apply configuration management.

Typically, organizations that use a CM system with Wind River products first perform the installation, then contribute it to their system as version one. Any product updates subsequently installed then become version two.

There are some caveats to consider if you will use revision control:

- Because of the size of Wind River products, you must be prepared that a source-controlled Wind River software repository will necessarily be quite large.
- With most source control systems, you lose write permissions to the files being managed. In order to update Wind River products, the installation must be writable.
5.8.5 Installing Multiple Products

You can install multiple Wind River products on the same host computer. Keep in mind the following supported and unsupported variations:

- **Multi-Product Installation**

  Multiple products can co-exist in the same directory, but must have different version numbers. For example, the same location can house a Workbench 3.1, Workbench 3.2, and Workbench 3.3 installation.

  **NOTE:** Some combinations of products, while technically possible through the Installer program, are not supported by Wind River. For information on compatibility restrictions, see the release notes for your product.

  During the installation process, you can opt to create Start menu entries. In cases of multiple products and versions, you may want to create Start menu entries with customized names, in order to more easily identify them when you run the programs or perform maintenance on them.

  - **Windows Hosts**
    
    Without customized Start menu entry names, the Installer program creates entries such as the following:
    
    **Start > Wind River > Workbench 3.1 > Workbench 3.1**
    **Start > Wind River > Workbench 3.2 > Workbench 3.2**
    **Start > Wind River > Workbench 3.3 > Workbench 3.3**
    **Start > Wind River > Product Maintenance**
    **Start > Wind River > Product Maintenance~0**
    **Start > Wind River > Product Maintenance~1**

  - **UNIX Hosts**
    
    On UNIX systems, if you do not customize the Start menu entry names, they appear identical:
    
    **Start > Wind River > Product Maintenance**
    (points to the Maintenance Tool for the Workbench 3.1 installation)
    **Start > Wind River > Product Maintenance**
    (points to the Maintenance Tool for the Workbench 3.2 installation)
    **Start > Wind River > Product Maintenance**
    (points to the Maintenance Tool for the Workbench 3.3 installation)

- **Multiple Installations of the Same Product and Version**

  You can install multiple instances of the same product and version number, but you must choose separate installation directories for each instance. For example, if you have an existing installation of Wind River Workbench 3.3 at C:\WindRiver and want to install another instance of Workbench 3.3 for a particular task, you would install the second instance into, say, C:\WindRiver_task.

  In this case, if you opt during installation to create a Start menu entry, take care to give a descriptive name (such as **Wind River task**) so that when you run
products or the Maintenance Tool from the Start menu, you can choose the correct instance.

- **Parallel Installation**
  
  You can run two or more installation processes simultaneously. Each process must be performed by a separate instance of the Installer program, and must install into a separate directory.

  However, note that because you are likely to face disk I/O and network performance issues with this kind of simultaneous parallel installation, there is little or no benefit to it. The Installer performs best when it is allowed to create a single installation at a time.

- **Merging Split Installations**
  
  If you have installed products into separate locations—for example, Wind River Workbench in one location and VxWorks in another—you cannot later combine them. The Installer does not support merging installations in this way.

### 5.8.6 Keyboard-Only Installation

You can use the GUI mode of the Installer without a mouse. Simply press the **TAB** key to move through the options on a screen; then press **ENTER** to register your selections for that screen.
6.1 The Product Maintenance Tool

The Wind River Product Maintenance Tool is provided with products from Wind River Workbench 3.1 forward. It is a special mode of the same Installer program you used to install your products in 5. Installing Wind River Products. You can use the Maintenance Tool to do the following:

- Update your installed products.
- Verify and apply patches.
- Install board support packages (BSPs).
- Remove products.
- View your installation history and the current contents of your installation.
- Investigate your license configuration.

6.1.1 Launching the Maintenance Tool

Close Wind River Programs

Before using the Maintenance Tool, it is recommended that you exit any Wind River programs or tools that may be running, including the Wind River
registry. If the Maintenance Tool is blocked by a process, it displays an error, showing the process ID.

Locked and Modified Files

If the Installer encounters a locked file (such as if an external editor has locked a source file that must be updated), it saves it as fileName.new in the same directory as the original.

If the Installer encounters any user modifications to files it needs to update, it creates a fileName.wrsav file in the same directory as the original.

If any problems were found with the .new files, these issues are logged in the installDir/setup.log file; user modifications are listed in installDir/modifiedfiles.log.

Start the Maintenance Tool

To start the Maintenance Tool, do the following:

Windows

- From the Windows GUI

  Select Start > All Programs > startMenuEntry > Product Maintenance.

  The startMenuEntry name is either Wind River or the custom string you gave when you created a Start menu entry during product installation.

  Alternatively, navigate to installDir/maintenance/wrInstaller/hostType and double-click wrInstaller.exe.

- From the Windows command line

  On Windows, execute the following commands from a command prompt:

  ```
  cd installDir/maintenance/wrInstaller/hostType
  wrInstaller.exe
  ```

Linux and Solaris

- From the Linux and Solaris GUI

  Select Applications (the main menu on the panel) > startMenuEntry > Product Maintenance.

  The startMenuEntry name is either Wind River or the custom string you gave when you created a menu entry during product installation.

- From the Linux and Solaris command line

  On Linux and Solaris, execute the following commands from the command shell:

  ```
  cd installDir/maintenance/wrInstaller/hostType
  wrInstaller
  ```

Wind River Workbench

You can start the Maintenance Tool from inside Workbench by selecting Help > Update Wind River Products. You must close Workbench and any other Wind River applications before installing product updates.
6.2 Installing Product Updates

A product update (such as a service pack) adds new features or functionality to a Wind River product that you have already installed. If an update is available for your installed products, you can install it with one of the methods below.

DVD

If you have received the product update on a disc, launch the Installer by putting the disc into your drive, or by navigating to the product image, and running the setup program appropriate to your host OS. This is the same installation program you used to install your products in 5. Installing Wind River Products.

With this method, you can install an update without Internet access.

NOTE: If the DVD contains <order_number>.zip files, unzip the files and then run the setup program.

Download

To download product updates, you can either

- Search for the update on the Wind River Web site.
  (Described below in Search Online, p.46.)
  or
- Run the Maintenance Tool and let it find updates for you.
  (Described below in Run the Maintenance Tool, p.46.)

Both methods allow you to save the downloaded material and install it at a later date. This can be useful when you want to roll out an identical installation across multiple hosts, or need to restore a damaged installation to a known baseline.

NOTE: Both download methods require access to the Internet. If your computer does not have access to the Internet, Wind River can make the update available to you on physical media. Contact Wind River Customer Support for assistance.

NOTE: Both methods also require that the base product for the product update already be installed. That is, for example, you must already have VxWorks 6.9 installed in order to download the service pack that is VxWorks 6.9.1.
Search Online

Download the update from the Wind River Online Support site at http://www.windriver.com/support. Unzip the zip file into your installation directory and run the setup program appropriate to your host type.

Run the Maintenance Tool

To download a product update in this way, do the following:

1. Launch the Maintenance Tool as described in 6.1.1 Launching the Maintenance Tool, p.43.

2. On the Choose Maintenance Task screen, select Online content.

   When Wind River releases updates, such as service packs, for its products, it makes the latest version available to you on an update server. When you select Online content, the Installer program searches the specified server for any available updates to the products you have installed.

   If updates are available, a later screen lets you select the ones you want to install.

3. [Optional] Click Configure to set how the Maintenance Tool contacts the Internet, and where it looks for updates.

   This is appropriate when, for example:
   • Your organization uses a proxy server to connect to the Internet.
   • You have configured a local server for product updates.
   • Wind River has directed you to use an alternate location.

   For detailed instructions on configuring the Maintenance Tool, see the Help system within the Installer program.

4. On the Choose Maintenance Task screen, click Next.

5. On the Install or Download screen, decide whether or not you want to install the downloaded material right away:

   • Select Install to download the content and install it.

   or

   • Select Local download if you want to fetch the available content but install it later.

   Click Next.

6. On the Choose Activation Type screen, select one of the following:

   • Use your existing product activation (install.txt) file

   NOTE: This option appears only if you have previously installed Wind River products.

   If you have previously installed Wind River products, you may already have a product activation file (install.txt) that you used for those products. In some cases, you can use the same product activation file for your current installation.
If you received a new product activation file for the products you are currently installing, Wind River recommends you use the most recent file. To do so, select **Permanent activation**.

- **Temporary activation**
  Select this option if you wish to install and use the products right away, but for a limited time (usually 31 days).
  
  To continue using them beyond that period, you must eventually perform a permanent activation. The permanent activation allows you to use the same installation; you will not need to re-install your Wind River products. For details on converting a temporary installation to a permanent one, see [7. Permanently Activating a Temporary License](#).

  If you select the **Temporary activation** option, another screen appears where you will enter the license authorization code (LAC) and some other user information. The Installer program will then retrieve your temporary license.

  Because of this retrieval process, you must have Internet access in order to use this method.

- **Permanent activation**
  Select this option if you have a product activation file for this installation.
  
  To use this option, click **Browse** and navigate to the directory location of your product activation file.
  
  You do not need Internet access to install and activate Wind River products using this option.

- **Manually enter all installation keys**
  This method is used only in rare cases. If you need to use this option, contact Wind River Customer Support.

7. On the **Choose Installation Filters** screen, you can refine what is downloaded by selecting
  - The particular target architectures for which you want content.
  - The host OSes on which you will install the downloaded updates.
  
  Click **Next**.

8. On the **Select Products** screen, you can further refine the download.
  
  You can expand the nested items in the list, and select just the products and features you want to install.

9. Continue through the remaining screens of the Maintenance Tool to finish downloading product updates.
  
  If you opted to download the updates but install later, the downloaded material is saved to the `installDir/download` directory.

### About Legacy Products

As a general guideline, you should install and maintain a product using the installation tool included with it. Details are listed below.
Service Packs
Newer versions of the Installer program cannot be used to install service packs for older products.

Patches
Newer versions of the Installer program can be used to install patches for older products, but you must have the 1.4.2 JRE in place.

Removing Older Products
Newer versions of the Installer program can be used to remove older products.

6.3 Applying Software Patches

A software patch typically fixes one feature or adds or replaces a small number of files in your existing installation. To install a patch, first download it, then run the Maintenance Tool to install it.

CAUTION: Take care in applying patches. Because patches are likely to overwrite files in your existing product installation, they are not separately removable, and because combinations of different patches are not necessarily verified together, applying patches can break your installation.

Wind River strongly recommends you consider carefully before installing patches. Read the installation instructions for each patch thoroughly. Contact Wind River Customer Support if you are unsure of the stability of a particular combination of patches.

To install a patch, do the following:
1. Log in to the Wind River online support Web site:
   http://www.windriver.com/support
2. Select the Downloads tab, then use the filter fields to find available patches for your product.
3. Unzip the patch’s zip file into your installDir/updates directory.
4. Launch the Maintenance Tool as described in 6.1.1 Launching the Maintenance Tool, p.43.
   Alternatively, you can install a patch in command-line mode. For details, see A. Command-Line Installation.
5. On the Choose Maintenance Task screen, select Patch and click Next.
   On a subsequent screen, the Installer program displays any patches present in the installDir/updates directory. If the installDir/updates directory contains
patches that you have already installed, these patches are listed, but by default are not selected.

In the patch list, you can perform the following actions:

- Select a patch to install.
- Repair a patch, if it is already installed.

Repairing a patch undoes any changes that might have been made to the patched files.

If there are no patches in the `installDir/updates` directory, you can click Back to perform another task in the Maintenance Tool, or Finish to close the Installer program.

NOTE: If you have multiple, parallel Wind River product installations (independent products in separate installation directories), take note of the `Installation Directory` displayed on the Apply Patches screen. If it does not show the desired directory, close the Maintenance Tool and restart it. When you start the Maintenance Tool the second time, take care to select the correct installation directory. You may also need to move your patch files if they are not in the `updates` directory of the correct installation.

6. Select the patches you want to install or repair, and click Install.

When the installation is complete, click Finish.

Examining the Contents of a Patch

If you want to verify the contents of a patch before applying it—because, say, you are close to the end of development and must be particularly cautious about changing your installation—you can view a list of its contents; or you can extract its contents to a temporary directory. You can then compare the list or the contents with your current installation, to see which files will change if you apply the patch.

To do either of these things, do the following:

1. Launch the Maintenance Tool as described in 6.1.1 Launching the Maintenance Tool, p.43.
2. On the Choose Maintenance Task screen, select Patch and click Next.
3. Select the patch or patches that you would like to examine. Right-click and choose one of the options from the context menu:
   - Export content list to file...
     When you select this option, the Installer writes a list of the contents of the patch to the file you specify.
   - Extract patch contents to...
     With this option, the contents of the patch are extracted into the directory you specify.
4. Review the results.

Alternatively, you can examine a patch in command-line mode. For details, see A. Command-Line Installation.
6.4 Adding Board Support Packages

Most Wind River product shipments provide board support packages (BSPs) directly on the product installation media. You select and install those BSPs as part of the overall product installation.

However, to support customers’ development needs, Wind River continually releases new BSPs for additional boards and processor families.

If the BSP you need is not included on your installation media, you may wish to add a BSP after you have installed your products. This section covers that process.

Compatibility

The Wind River installation program does not verify version compatibility between your Wind River products and BSPs. For compatibility information, see the documentation that accompanies the individual BSP.

Installation Methods

There are two main methods for adding a BSP:

- Electronic software delivery (ESD)
  In this method, you run the Installer program to find and install available BSPs. See 6.4.1 Installation through ESD, p.50.

- Download
  In this method, you find the BSP on Wind River’s Online Support site, download it, and install it as a patch. See 6.4.2 Installation by Download, p.51.

NOTE: For both of these methods, your computer must have access to the Internet. If you do not have Internet access, Wind River can make BSPs available to you on physical media. Contact Wind River Customer Support for assistance.

6.4.1 Installation through ESD

Some Wind River BSPs are made available through electronic software delivery (ESD). To install a BSP through ESD, you simply run the Installer program and allow it to fetch product updates.

1. Launch the Installer program in maintenance mode, as described in 6.1.1 Launching the Maintenance Tool, p.43.

2. On the Choose Maintenance Task screen, select Online Content.
   The Maintenance Tool assembles a list of available content from online repositories, and checks your license entitlement.

3. On the Select Products screen, scan the list for your desired BSP.
   Using the nested checkboxes, you can install all available updates, or just the BSP content you want.

4. Complete the rest of the Maintenance Tool screens to finish your BSP installation.
NOTE: If other workgroup members will also use the new BSP, each member must install the BSP individually.

6.4.2 Installation by Download

NOTE: This section provides detailed instructions for downloading and installing BSPs for products from Wind River Workbench 3.1 forward.

The process described in this section does not apply to Wind River Linux 4.x BSPs. For Wind River Linux 4.x BSP installation instructions, see the release notes for your product.

1. Go to Wind River’s Online Support site.
2. Find your BSP.
3. Download it and unzip it into your installDir/updates directory.
4. Run the Maintenance Tool, treating the BSP as a patch.

Step 1: Go to the BSP Web site.

The Wind River public Web site provides you with access to a listing of all available Wind River BSPs. The BSP main page is:

http://www.windriver.com/products/bsp_web/

You can also navigate to this page from the Wind River Web site home page by selecting Products > Board Support Packages.

NOTE: This Web page is publicly accessible, but you must have an Online Support login and a valid maintenance contract in order to download a BSP.

Step 2: Find Your BSP.

From the BSP main page, you can choose to locate a specific BSP by any of the following criteria:

Architecture
This is the generic processor family to which the desired CPU belongs. For example, ARM or PowerPC. If you know the architecture family for your development processor, use this category.

Hardware Vendor
This is a list of hardware vendors for the development boards that are supported by the Wind River BSPs. If you know the manufacturer of the development board for the BSP you wish to use, use this category.

Market
This is the general market targeted by the development board or processor. For example, processors that are targeted for use in medical equipment are
grouped into one category while processors targeted for the automotive market are grouped into that category.

Platform
This is a list of available Wind River products that include BSP support. You can use this category to see a list of all BSPs available for your specific Wind River product and version.

Step 3: Download the BSP.
Once you have located your desired BSP, you must download and install the associated .zip file.

Find the correct entry in the BSP list and click More. (This button appears at the far right end of the specific BSP entry line.) This link brings you to the BSP technical details page.

If a version of the BSP is available for download, a link to a downloadable .zip file appears at the top of the page under the BSP Sales Contact field. Certain BSPs are only available as part of a product distribution. If this is the case, the Product Availability field indicates that the BSP is available on CD-ROM (or DVD-ROM). If you do not have the product CD (or DVD) for the BSP, contact Wind River Customer Support for assistance.

To download the BSP .zip file, click on its filename near the top of the technical details page. This link brings you to the BSP’s download instructions page. Follow the instructions appropriate to your host type and base Wind River product version.

Step 4: Install a BSP with the Maintenance Tool
Many Wind River BSPs are generated as patches to an installed product. Therefore, the installation process for a BSP is the same as for a patch. For installation instructions, see 6.3 Applying Software Patches, p.48.

Furthermore, like patches, BSPs are not separately uninstallable. To remove or repair a BSP, see 6.5.3 Removing Patches, p.54.

6.5 Removing Wind River Products
This section describes the process for removing Wind River products from a system.

About Modified Files
If you direct the Maintenance Tool to remove Wind River products and it encounters any user modifications to a file that it needs to remove, it does the following:

- Creates a fileName.wrsav file in the installDir/maintenance/backup directory.
- Logs the issue in the installDir/modifiedfiles.log file.
6.5.1 Removing Products through the Maintenance Tool

To remove Wind River products, it is recommended that you use the Maintenance Tool provided with your product. The Maintenance Tool can uninstall many products at the same time.

To remove a product, follow the steps below.

1. Launch the Maintenance Tool as described in 6.1.1 Launching the Maintenance Tool, p.43.

2. Select Remove and click Next.

   The Choose Products to Remove screen shows a nested list of products and features that can be removed. You can click on an item in the list to see its component features.

   **NOTE:** This list shows the current contents of your installation. To see how your installation has changed over time, use the Maintenance Tool’s About This Installation option. See 6.6 Reviewing the Contents and History of Your Installation, p.54.

3. Select the products or features you want to remove, and click Remove.

   **NOTE:** The Installer calculates dependencies among products. For the installation process, this means that the Installer pulls in whatever packages are necessary to produce a viable installation. When you remove products, the Installer likewise removes any packages that were dependent on the products you are removing.

   If this is the case, the Installer prompts you to confirm before removing these additional packages.

4. Complete the uninstallation manually.

   Some files are not removed in the uninstallation process. The following types of files are not removed automatically:

   - object files
   - the product activation file
   - any file, workspace, or project that the user has added to the installation
   - any component of the product that has been modified from its original timestamp
   - the installation directory itself
   - downloaded third-party plug-ins

   If you want to remove these files, you must do so manually.

6.5.2 Removing a Service Pack

Service packs are uninstalled the same way a standard release is uninstalled. Follow the instructions in 6.5.1 Removing Products through the Maintenance Tool, p.53, to uninstall the product(s) you no longer want to use.
NOTE: Keep in mind that service packs are not separately removable from their underlying base product. That is, when you remove a service pack, you are also removing the parent product.

For example, if you had installed VxWorks 6.9, then installed a service pack to upgrade to VxWorks 6.9.1, you cannot remove just the service pack to return to VxWorks 6.9. Uninstallation removes the product outright.

### 6.5.3 Removing Patches

When you install a patch, it overwrites existing files in your product installation. Therefore, if you were to remove the patch, it would leave behind an incomplete installation.

For this reason, patches are not separately uninstallable. If you have a damaged installation, you must do one of the following:

- Repair the patch.
  
  To do this, follow the instructions in 6.3 Applying Software Patches, p.48, and either repair or update the patch in question. When you repair a patch, all its files are restored to their original content. To update a patch means that the patch was reissued, and its files will be updated.
  
  or

- Remove the product as a whole and reinstall.
  
  To do this, follow the steps in 6.5.1 Removing Products through the Maintenance Tool, p.53, to remove the product, and then reinstall it as described in 5. Installing Wind River Products.

### 6.5.4 Removing a Development Workstation License File

If you are removing a Wind River product from a development workstation, the uninstallation process described in 6.5 Removing Wind River Products, p.52, does not remove the license file.

You must manually remove it by navigating to the installDir/license directory and deleting the file, usually named WRSLicense.lic.

NOTE: If the product you are removing was listed in a merged license file that resides in the product’s installation tree, removing the license file affects all products whose licenses are also under the file’s control.

Wind River recommends that you back up the file, delete the entry for the product(s) you are uninstalling, then save the file. The remaining products on the development workstation (and listed in the license file) should work as before.
6.6 Reviewing the Contents and History of Your Installation

You can use the Maintenance Tool to view the current contents of your Wind River product installation, as well as how it has changed over time.

**Current Contents**

To see the current contents of your installation, do the following:

1. Launch the Maintenance Tool as described in [6.1.1 Launching the Maintenance Tool, p.43](#).
2. Select **About This Installation** and click **Next**.
3. The **Installed Content** screen shows a nested list of products and features.

**Installation History**

You can also see how your Wind River product installation has changed over time. This can be particularly helpful if you want to know when, say, a particular service pack was installed, or in what order a set of patches were applied.

To explore your installation history, launch the Maintenance Tool and select the **About This Installation** option as described above. Use the **Show installation snapshot by date** field at the top left of the screen to see changes in the installation.

Click **Finish** to close the Maintenance Tool.

6.7 Reviewing Your License Configuration

You can use the Maintenance Tool to view and adjust your license configuration.

This is primarily an informational capability, designed to show you the elements (license files or servers) that make up the license configuration for your Wind River installation. But you can also use this feature to add, edit, or remove the elements in your configuration.

**Viewing Your Current Configuration**

1. Launch the Maintenance Tool as described in [6.1.1 Launching the Maintenance Tool, p.43](#).
2. On the **Choose Maintenance Task** screen, select **License configuration** and click **Next**.
3. On the **Configure License Setup** screen, examine the **Current license configuration** area in the top half of the screen.

   This area lists the elements—license files or license servers—that together constitute your license setup for this installation. That is, when a user runs a license-managed Wind River product, FLEXlm consults the elements listed here, in the order shown here.
4. At this point, you can
   - Quit if you have enough information. Click Finish.
   - Change your configuration by adding, editing, or removing an element. See Changing Your License Configuration, p.56.
   - Get detailed diagnostic information about an element or the whole configuration. See Diagnosing License Issues, p.57.

Changing Your License Configuration

1. Follow the steps in Viewing Your Current Configuration, p.55, to get to the Configure License Setup screen.
2. Examine the Current license configuration list in the top half of the screen.
3. If you want to add a license element to your configuration, click Add.
   In the fields that appear, specify either a license file or license server:
   - For a license file, either enter or browse to the location of the license file you want to add.
     When you click Browse, the Maintenance Tool searches for *.lic files only. Therefore, if you want to add a directory rather than a single license file, you must browse to and select a file within that directory; click Open; then edit the path in the Path to license file or folder textbox.
   - For a license server, enter the server’s IP address or port number (or both). The default port range is 27000-27009.
     If you are adding license servers that are members of a redundant configuration (such as a server triad), select Redundant license server configuration.
   Click Apply.
   Your added elements appear at the top of the Current license configuration list.
   
   NOTE: Because this list represents the sequence that FLEXlm uses to serve license tokens, take care around the order in which you add elements to your configuration.

4. If you want to edit an element in the list, select it and click Edit.
   In the fields that appear, make any necessary changes and click Apply.
5. If you want to remove an element from the list, select it and click Remove.
   Wind River recommends that you remove outdated elements that you are confident are no longer in use, or for which you have received a warning about slow performance. Clearing out old elements of your license configuration usually results in improved performance.

1. Wind River recommends using server port number when possible, as this results in faster performance.
Diagnosing License Issues

1. Follow the steps in Viewing Your Current Configuration, p.55, to get to the Configure License Setup screen.
2. Examine the Current license configuration list in the top half of the screen.
3. To look further into one of the elements, select it.
   The Selection area in the lower part of the screen shows information about the element you have selected, including a summary of any warnings or errors.
4. If you want to drill down even further into the selected element, click Diagnose.
   The window that opens displays full diagnostic information about the element. This is the same output as you would see by running lmutil lmdiag at the command line.
5. To see diagnostic information about all elements in your license configuration, click Export.
   The Maintenance Tool creates a logfile named diagnostics_timeStamp.log in the license directory of the installation from which you launched the Maintenance Tool.
   This logfile contains full diagnostic information about your license configuration. This is the same output as you see with the Diagnose button, but for all elements in your current configuration.

   NOTE: The diagnostic logfile can be useful in rooting out license problems in your installation, such as expired features or slow server performance. Wind River Customer Support may ask you to create one to help in troubleshooting your installation.

6. If you have made any changes on this screen, click Finish to put them into effect.

6.8 Configuring the Maintenance Tool

You can configure how the Maintenance Tool contacts the Internet, and where it looks for updates.

NOTE: Some elements, specifically those configured through the environment variables WRSD_LICENSE_FILE and LM_LICENSE_FILE, cannot be removed in this way. To change these elements, you must edit the environment variable directly.
1. Launch the Maintenance Tool as described in 6.1.1 Launching the Maintenance Tool, p.43.

2. On the Choose Maintenance Task screen, select Online content. The Configure button appears.

3. Click Configure.

   The Configure the Maintenance Tool screen appears.

   This screen lets you set up how the Maintenance Tool contacts the Internet, and where it looks for updates.

### Update Location Settings

On the Update Location Settings tab, you can view and change the online locations where the Installer will search for product and Installer updates, and enter any authentication information those locations might require.

> **NOTE:** If you make any changes to the settings on this tab, they are saved for the duration of the current Maintenance Tool session. If you want your settings on this tab to be saved for future runs of the Maintenance Tool, you must click **Apply**.

#### Set default authentication information

If the product update locations listed on this screen require authentication, type the required **Username** and **Password**.

If your update location(s) require authentication and you leave these fields blank, you (and any user who subsequently uses this instance of the Installer program) will be prompted to enter the correct credentials before the content can be installed.

If you enter a username and password and select **Save password**, the Installer retains this authentication information in an encrypted form and will use it for future installation actions.

> **NOTE:** In addition to this default authentication, you can also configure repository-specific authentication. See **Edit** below.

#### Set locations the installer should use to search for content

This table lists the locations known to the Installer program for finding Wind River products and product updates.

> **NOTE:** Tip: If the path to a particular location is longer than can be displayed in the table, hover over it to see the untruncated path.

Review the list and change it if necessary:

- **Add**

   You might add a location if, for example, your site administrator has configured a local server for product updates, or if Wind River has directed you to use an alternate location.

   In the Add Repository dialog, do the following, then click **OK**:

   - Select the type of repository you are adding:
- **Yum Repository** (for a repository that contains yum metadata and RPM-based content)
  
  or

- **Wind River Repository** (for a repository that contains either a Wind River-proprietary `sdf.xml` file or a `.repo` file)

- Type a name for the repository, and either type its location or click **Local** to browse to it if it resides on your host.

- If the repository you are adding requires its own authentication, you can select **Use repository-specific authentication** and type the required **Username** and **Password**. This means that when the Installer contacts this repository for products or updates, it already has the correct login credentials, so users won't be prompted for them.

  These credentials are specific to this repository; they are distinct from any default authentication that other repositories might require. For information on entering default authentication information, see **Set default authentication information**, p. 58.

- **Import**

  To import an existing repository (for example, a repository of third-party products, or a repository that you or your administrator has already created for product updates), click **Import** and browse to its location.

  Imported repositories can be either `sdf.xml` or `.repo`.

- **Edit**

  To change the properties of a location, select it and click **Edit** to

  - Change the name of a location.

  - Change the update repository it points to.

    The **Local** button lets you browse to it if it resides on your host.

  - Enter repository-specific authentication information.

    If the repository you are editing requires its own authentication, you can select **Use repository-specific authentication** and type the required **Username** and **Password**. This means that when the Installer contacts this repository for products or updates, it already has the correct login credentials, so users won't be prompted for them.

    If you do this, after you click **OK**, notice that in the **Software Sources** table the location’s entry in the **Authentication** column has changed.

    These credentials are specific to this repository; they are distinct from any default authentication that other repositories might require. For information on entering default authentication information, see **Set default authentication information**, p. 58.

- **Remove**

  To remove an update location, select its name and click **Remove**.

- **Enable or disable a location.**

  To change the availability of a listed location, simply select or clear its checkbox.
Disabling a location in this way serves the same function as **Remove**, but with the added convenience that the location can be easily re-enabled without browsing.

- **Filter the list.**

You can use the textbox above the list of locations to filter for, say, a product name that you do *not* want to update (and would therefore disable); or for a custom location that your organization has created; or for Wind River Linux 4.x prebuilt components, for example.

### Check for Installer Updates

When Wind River makes changes to the Installer program, it makes the latest version available to you on an update server.

If you want to fetch Installer updates during your next installation process, select the **Check for installer updates during startup** checkbox.

By default, the checkbox is selected or cleared according to whether you opted for Installer updates during your most recent installation.

### Network Settings

Updating the Installer and your Wind River products requires a connection to the Internet. On the **Network Settings** tab, you can

- **Test your Internet connection.**

  To ensure that the computer you’re installing on can contact the Wind River cloud, click **Test Internet Connection**.

- **Configure a connection through a proxy server.**

  If your computer can only reach the Internet through a proxy, select **Connect to the Internet using a proxy server**. In the additional fields that appear,
  
  - Choose the proxy type (Web or SOCKS proxy).
  
  - Enter the proxy server’s IP address and port.

  If your proxy server is set up to require login information, select **Requires Authentication** and enter your username and password in the additional fields that appear.

  Once you have configured your proxy settings, you can verify them with the **Test Internet Connection** button.

**NOTE:** If you make any changes to the settings on this tab, you must click **Apply** to put them into effect.

**NOTE:** If you do not have Internet access, contact Wind River Customer Support for assistance.
7

Permanently Activating a Temporary License

7.1 Introduction

If you or the members of your workgroup used a product activation file (install.txt) when installing Wind River products, those products are permanently activated and require no further action.

If you used a license authorization code (LAC) or installation key to temporarily activate your products, you can use those products for a limited time, but you must obtain a license file to permanently activate your products.

**NOTE:** The length of a temporary activation varies by product, but is typically no less than 30 days. Wind River license-managed tools display a warning as they approach expiration.

*Permanent activation* means that a product may be used to the fullest extent of its license.

7.2 Activating Temporary Licenses

There are two ways to permanently activate Wind River products that were issued temporary licenses:

- You can create and distribute license files for each development workstation.
  or
On each development workstation, you can set an environment variable to access a license server.

7.2.1 Distributing License Files

The easiest (and recommended) way to activate temporary licenses is to make a license file available to each member of your team.

1. Follow the instructions in 4. Obtaining Workstation Licenses to create the appropriate license file(s).
2. Name the new file WRSLicense.lic.
3. Copy the file into the installDir/license directory of each development system.
   or
4. Place the license file on a server and make it available for your development team to download onto their workstations. Be sure to instruct them to copy the file to their installDir/license directory.

NOTE: Each node-locked development workstation requires a separate license file, generated using that workstation’s host ID.

7.2.2 Setting an Environment Variable to Access a License Server

The second way to permanently activate temporary licenses is to set an environment variable to point to a license server.

NOTE: In order to use this method, you must first obtain a server license file and install a license server.

1. Create, or instruct each member of your workgroup to create, an environment variable on the workstation called WRSD_LICENSE_FILE.
2. Set the value of this variable to the port@servername indicated in the SERVER line of the product activation file you downloaded from the licensing Web site.

For example, the SERVER line may look like the following:

```
SERVER jupiter hostID 27000
```

In this example, the server name is jupiter and the port number is 27000, so you would set the variable to 27000@jupiter.

Once the variable is set, this permanently activates the temporary licenses.

7.2.3 Reinstalling the Product

When you go from temporary to permanent activation, you do not typically need to remove and then reinstall the product. However, if you do reinstall, note that the uninstallation process does not remove the license file. You must remove the old license file manually, by navigating to the installDir/license directory and deleting the file, usually named WRSLicense.lic.
7.3 Finding Your Computer’s Host ID

A host ID is a string of numbers and characters that identifies a physical Ethernet Network Interface Card (NIC) on a computer. Wind River license-managed products use the host ID to identify the machine associated with a particular license file.

7.3.1 To find a host ID on a computer running a Windows operating system:

1. Click Start->Run.
2. In the Run dialog, in the Open field, type cmd.
3. In the Command Prompt window, type the following command:
   
   C:\>ipconfig -all

   This results in the following system output:
   
   Ethernet adapter Local Area Connection:

   Connection-specific DNS Suffix . . :
   Description . . . . . . . . . . . . . . . : 3Com 3C920 Fast Ethernet
   Physical Address. . . . . . . . . . . . . : 00-06-5A-21-95-44
   
   The host ID in this example is 00065A219544 (after removing the dashes from the physical address).

7.3.2 To find a host ID on a computer running a Linux operating system:

Run the following command:

   % /sbin/ifconfig -a | grep -i hwaddr

   This results in the following system output:

   eth0... Hwaddr 00:06:5B:82:F4:5A

   The host ID in this example is 00065B82F45A (after removing the colons from the physical address).

   **NOTE:** Use the 12-character Ethernet address. The Linux `hostid` command results in a 6- or 8-character address that is not valid as a host ID.
8.1 Overview of License Server Tasks

To run a license server that distributes Wind River software licenses to your workgroup, you must perform the following steps:

1. Obtain a license file for your server.
   See 3. Obtaining Server License Files.

2. Gather the materials that you will need.
   See 8.2 Prepare, p.66.

3. Install the License Administration Tools.
   See 8.3 Installing the License Administration Tools, p.67.

4. If your organization has named-user licenses, specify named users and apportion licenses in a user options file.
   See 9. Controlling Access to Products with the User Options File.

5. Configure and start the license server.
   See 10. Starting Your License Server.

6. If your organization has named-user licenses, configure how license usage is logged, and generate reports from these usage logs.
   See 11. License Usage Logging and Reporting.

7. Finally, perform any necessary maintenance tasks on your license server.
8.2 Prepare

Before you can install and configure a license server, you must have the following available:

- A server license file (see the instructions in 3. Obtaining Server License Files).
- The Wind River License Administration Tools disc, or its downloaded equivalent.
- The License Administrator Essentials sheet from the product box.
- Hardware and software that meet the requirements listed below.

Hardware and Software Requirements

This section discusses minimum hardware and software requirements for the computer(s) on which you will install the License Administration Tools. They do not take into consideration any other software you are running on this computer.

Windows License Server

- One of the following operating systems:
  - Windows XP Professional, Service Pack 3 (32-bit)
  - Windows 7, Service Pack 1 (32- or 64-bit)
- Administrator rights.
- Intel Pentium 4-class processor minimum, 1GHz minimum.
- 270 MB of disk space for a complete installation.

If you have named-user licenses, make sure any license server machines you use have available disk space (1-2.5 GB) to hold the intermediate license-usage logs as they are rotated and transferred.

- A local DVD drive or access to network for installation.
- An active Internet connection is recommended during initial installation to access patches, documentation, and other important information from the Wind River Online Support Web site.

Solaris License Server

NOTE: After this release of the License Administration Tools, Solaris will no longer be supported for license servers for Wind River products.

- Solaris 10.
- A Blade 150 workstation with a 500 MHz processor, or a server or workstation with higher performance.
- 270 MB of disk space for a complete installation.

If you have named-user licenses, make sure any license server machines you use have available disk space (1-2.5 GB) to hold the intermediate license-usage logs as they are rotated and transferred.

- A local DVD drive or access to network for installation.
- 32-bit application support.
8 Installing the License Administration Tools

8.3 Installing the License Administration Tools

- An active Internet connection is recommended during initial installation to access patches, documentation, and other important information from the Wind River Online Support Web site.

**Linux License Server**

- One of the following operating systems:
  - Red Hat Enterprise Linux Workstation 4.0, Update 9 (32-bit)
  - Red Hat Enterprise Linux Workstation 5.0, Update 7 (32- or 64-bit)
  - Red Hat Enterprise Linux Workstation 6.0, Update 1 (32- or 64-bit)
  - Ubuntu 10.04 (32- or 64-bit)
  - Fedora 13 (32- or 64-bit)
  - SUSE Linux Enterprise Desktop 11.0 (32- or 64-bit)
  - openSUSE Linux 11.2 (32- or 64-bit)

- 32-bit application support.

- Intel Pentium 4-class processor, 1 GHz minimum

- A DVD drive or networked CD-ROM for installation.

- 270 MB of disk space for a complete installation.

  If you have named-user licenses, make sure any license server machines you use have available disk space (1-2.5 GB) to hold the intermediate license-usage logs as they are rotated and transferred.

- An active Internet connection is recommended during initial installation to access patches, documentation, and other important information from the Wind River Online Support Web site.

---

**8.3 Installing the License Administration Tools**

The tools for running and controlling a license server are contained on the Wind River License Administration Tools disc. To install the tools, do the following:

1. Put the disc into your drive.

2. Navigate to that drive, and run the Setup program appropriate for your OS:
   - `setup.exe` for Windows (normally this will run automatically when the disc is inserted)
   - `setup_linux` for Linux
   - `setup_solaris` for Solaris

3. When prompted, select the desired installation directory.
NOTE: If you have an existing, older installation of the License Administration Tools, you can use the same installation directory in this step, or select a new directory if you prefer. In either case, the new tools will be created in a separate, parallel directory, and will not overwrite the older version.

However, Wind River recommends that you remove the old versions of the tools, to avoid confusion—particularly in generating reports, as the reporting utility has changed. For uninstallation instructions, see Removing the License Administration Tools, p.105.

Proceed through the screens of the Installer program.

4. At the Choose Activation Type screen, accept the default setting of Use your existing product activation (install.txt) file and click Next.

5. Finish the installation process and examine the results.

The tools are installed at installDir/licadmintools-1.3/hostType. For a description of the installed tools, see What Tools Are Installed?, p.68.

If at some point you need to remove the License Administration Tools, see Removing the License Administration Tools, p.105.

What Tools Are Installed?

Your installed License Administration Tools include the following elements:

- **the license server application**

  The license server application consists of two processes that work together:

  - **wrsd**

    The Wind River vendor daemon. It tracks how many of the available seats of a particular product have been assigned, and to whom.

    For an overview of the functions of **wrsd**, see What Happens When You Start the License Server, p.81.

  - **lmgrd**

    The FLEXlm license manager daemon. When a development workstation requests a license, **lmgrd** routes the request to the correct vendor daemon.

    For detailed information on **lmgrd** options and syntax, see C. FLEXlm Command Reference.

- **tools and utilities**

  - **wrsd_util**

    The Wind River utilities program for license server management and administration. It allows you to configure the log settings that **wrsd** uses.

    For examples and detailed information on **wrsd_util**, see 11.3 Logging License Usage, p.86.

  - **lmutil**

    The FLEXlm utility for license server management and administration. It allows you to query a license server for information.
For detailed information on `lmutil`, see *C. FLEXlm Command Reference*.

- **wrsd_report**
  
The Wind River report generator. It produces plain-text license usage reports based on the binary logs that `wrsd` creates.
  
  For full instructions on generating reports with `wrsd_report`, see *11.4 Reporting License Usage*, p. 92.

- **lmtools.exe**
  
  A GUI-based tool for configuring the license server (Windows hosts only).
  
  For examples of `lmtools.exe` use, see *10. Starting Your License Server*, and *13. Maintaining a License Server*. 
9

Controlling Access to Products with the User Options File

9.1 Introduction 71
9.2 Identifying Software Packages in Your License File 72
9.3 Creating a User Options File 73
9.4 Specifying Users for Each Licensed Package 73
9.5 Defining User Groups 75
9.6 Controlling Access with the INCLUDE and EXCLUDE Keywords 75
9.7 Controlling Access with PROJECT and LM_PROJECT 77
9.8 Additional Allocation Methods 78
9.9 Rereading the Updated User Options File 78
9.10 Debugging with the User Options File 78
9.11 Sample User Options File 79

9.1 Introduction

This chapter describes how to set up and configure your license server’s user options file to manage how your Wind River software licenses are used—which products, where, when, and by whom.

⚠️ CAUTION: If your organization has purchased named-user licenses, you must list usernames in the user options file. Without this action, these licenses cannot be used.
Do You Need to Configure a User Options File?

Because the user options file resides on your license server, it pertains to the named-user (NU) and floating (FL) license types, not to the node-locked (NL) license type. If your organization has node-locked licenses only, you do not need a user options file. (For definitions of these license types, see 2.1.1 Types of Workstation License, p.4.)

For named-user licenses, the user options file is mandatory. Wind River software under this license type can only be run by users who are specified in the user options file.

For floating licenses, the user options file is optional, but can be useful in restricting which users can access which products, to avoid software access problems. For example, for a license server that manages both named-user and floating licenses, the server might allow access to named-user licenses when it should be allocating floating licenses—resulting in developers being blocked from running Wind River products. You can avoid issues like this by configuring a user options file.

9.2 Identifying Software Packages in Your License File

The license file that you received from Wind River (see 3.3 Obtaining Server License Files, p.10 and 4. Obtaining Workstation Licenses) contains a list of licensed software packages. To find the list, open the license file. Each software package is listed after the keyword INCREMENT. For example:

INCREMENT UU_VDT_Cfg25 wrsd 2.21 18-jun-2008 9 DDFD83C3DC8F \

The line above includes the following elements:

- The package designator (in this case, UU_VDT_Cfg25)
- The number of seats licensed (in this case, 9)

For named-user licenses, the package designator is prefixed with UU. For floating licenses, the package designator is prefixed with FL.

In the user options file, you will use the package designator as a feature that can be allocated to or restricted from users.

---

1. The named-user license type was formerly called unique user.
9.3 Creating a User Options File

First, check whether your license server has a user options file already defined. The file is called `wrsd.opt`. The user options file is in plain text, and should be located in the same directory as your license file.

If the location of the user options file has been changed, you can find this information in the license file, in the `VENDOR` line:

```
VENDOR wrsd pathToDaemon options=pathToUserOptionsFile
```

If you do not have an existing user options file, create a file named `wrsd.opt` with any text editor, in the same directory as the license file that the server will use.

The following sections describe various license allocation methods. For detailed information on user options file syntax and keywords, see B. FLEXlm User Options File Reference.

9.4 Specifying Users for Each Licensed Package

To create the list of licensed users, you will need the desktop login names of the people who are to use the various software packages that your organization has licensed.

**NOTE:** The named-user license type does not allow sharing of licenses within a group of users. The number of login names you list in the user options file may not exceed the number of seats shown in the license file’s `INCREMENT` line for a given software package. (See 9.2 Identifying Software Packages in Your License File, p.72.)

Adding Names to the User Options File

To add login names to the user options file, open the file `wrsd.opt` in a text editor. For every user that you want to include, add the following line:

```
INCLUDE packageDesignator USER userLoginName
```

For information on determining the correct package designator, see 9.2 Identifying Software Packages in Your License File, p.72.

**CAUTION:** For named-user licenses, you must add at least one name, and you may not list more names than the number of seats licensed. If both of these requirements are not met, the license server will not allow access to the software package, and will issue an error.

Everything in a user options file is case-sensitive. Be sure that usernames and feature names, for example, are entered correctly. For details and a workaround, see Case Sensitivity, p.74.

The license server’s log file will indicate the number of seats licensed and the number of users you have entered.
Case Sensitivity

For Windows users in particular, the notation of upper- and lower-case characters can be inconsistent. As a result, you may experience license apportionment issues, or logging and reporting errors. For example:

- The user options file lists both username `userA` and username `usera`. Because the user options file is case-sensitive, the two spellings are treated as distinct users, and each consumes a license.
- You have only one named-user license for a package, and your user options file lists both `userA` and `usera` for that package. The server will deny access because the number of users listed is greater than the seat quantity.

The best way to avoid conflicts like these is to name users precisely in the user options file, using consistent case and spelling. If the precise username is not clear in your site configuration, you can check the server debug log for errors. A license denial message, for example, shows the correct user login name; you can copy it from the server debug log to your user options file.

For information on the location and uses of your server debug log, see Troubleshooting License Server Problems, p.104.

Disregarding Case in the User Options File

If you need user- and hostnames to be read without regard to case settings (so that, in the examples above, userA and usera are treated as the same user), include the GROUPCASEINSENSITIVE keyword at the beginning of your user options file:

```
GROUPCASEINSENSITIVE ON
```

**NOTE:** The GROUPCASEINSENSITIVE ON declaration must be made before any INCLUDE or EXCLUDE statements.

The GROUPCASEINSENSITIVE keyword directs the `wrsd` daemon to read user- and hostnames without regard to case, while still preserving any case differences in your user options file and usage logfiles. Thus, this information is not lost, but does not cause errors.

Disregarding Case in License Usage Reports

If you want case-insensitivity to extend to the usage reports that you send to Wind River, take care to use the -i option when you generate your report. For details on the -i option to `wrsd_report`, see Generating Reports, p.92.
9.5 Defining User Groups

If you have a large number of seats to allocate, it is useful to create groups of users organized by, for example, project or location. To create a group, add the following lines to the user options file:

```
GROUP myGroupName userName1 userName2 userName3
INCLUDE packageDesignator GROUP myGroupName
```

Each group must be defined on a separate line. There is no limit to the number of groups you can create. Users may also belong to multiple groups.

For example, the following lines define two groups of included users:

```
GROUP WB_USERS_1 george paul john ringo
GROUP WB_USERS_2 peter paul mary
```

There is a limit of 2048 characters per line in the user options file. Therefore, it can be advantageous to define multiple groups so that you can add to the lists of users as the groups grow.

You can also define a group of development workstations (rather than users). For information on this method of license allocation, see 9.7 Controlling Access with PROJECT and LM_PROJECT, p.77.

9.6 Controlling Access with the INCLUDE and EXCLUDE Keywords

The user options file’s INCLUDE and EXCLUDE keywords allow you to restrict a developer’s access to license-managed products; for example, to a single product or to a single license type.

- Use INCLUDE when you want to provide access only to specific users; any user not on the list is excluded.
- Use EXCLUDE when you want to deny access only to specific users; everyone not on the list is allowed to use the feature.

You should not need to use both INCLUDE and EXCLUDE in the same user options file, but you can. If your user options file has both INCLUDE and EXCLUDE statements for the same package, rules of precedence take effect: the EXCLUDE list is checked before the INCLUDE list. Thus, someone appearing on both lists for the same product is not allowed to use it.

**NOTE:** If you rely on user lists to restrict access, you must modify the user options file to reflect personnel changes, such as new hires, employee resignations, or project re-assignments (when a user might require access to different products).
9.6.1 Restricting Access to a Single Product

The following example illustrates how to use the INCLUDE keyword to restrict access to a single product.

NOTE: The examples assume that the PATH environment variables have been set to `installDir/licadmintools-1.3/hostType` to allow access to the utilities.

1. Decide who is to use this version of the product.
2. Define your users as described in 9.4 Specifying Users for Each Licensed Package, p.73, or user groups as described in 9.5 Defining User Groups, p.75.
3. Add the action lines.

   Create an INCLUDE line for each user or group of users to be given access to the product or feature. The syntax is as follows:

   `action packageDesignator type name`

   For instructions on determining the package designator, see 9.2 Identifying Software Packages in Your License File, p.72.

   For example:

   `INCLUDE UU_WORKBENCH_SUBSCRIPTION_CFG1 GROUP WB_USERS_1`
   `INCLUDE UU_WORKBENCH_SUBSCRIPTION_CFG1 GROUP WB_USERS_2`

   In this example, only users in these two groups will have access to licenses for this instance of Wind River Workbench.
4. Save the file. Make sure to maintain the `.opt` file extension.
5. Reread the modified user options file, as described in 9.9 Rereading the Updated User Options File, p.78.

9.6.2 Restricting Access to a Single License Type

If your organization has purchased both named-user and floating license types, you can use the INCLUDE action keyword to restrict access for a group of users to one license type or another.

Follow the steps below to restrict access for a particular group of users.

1. Decide who is to use the named-user licenses and who is to use the floating licenses.
2. Define your users as described in 9.4 Specifying Users for Each Licensed Package, p.73, or user groups as described in 9.5 Defining User Groups, p.75.
3. Add the action lines.

   Create an INCLUDE line for each product or feature name, and associate the feature with the appropriate user or group. The syntax is as follows:

   `action packageDesignator type name`

   For instructions on determining the package designator, see 9.2 Identifying Software Packages in Your License File, p.72.
For example:

```
INCLUDE UU_WORKBENCH_SUBSCRIPTION_Cfg1 GROUP WB_NU
INCLUDE FL_WORKBENCH_SUBSCRIPTION_Cfg1 GROUP WB_FL
```

In this example, the user groups correspond to the type of license they are permitted to use.

The included users will be able to check out these feature names.

4. Save the file. Make sure to maintain the `.opt` file extension.

5. Reread the modified user options file, as described in 9.9 Rereading the Updated User Options File, p.78.

**NOTE:** If you use `INCLUDE` and `EXCLUDE` to limit access, you must maintain the user lists to reflect personnel changes. For example, if Barry V. leaves the company and Emma N. replaces him, the group, `WB_NU`, as defined in the user options file, must change. Or if Dave H. shifts from developing with a floating license to using a named-user seat, group membership as defined in the user options file must be modified to reflect that change.

### 9.7 Controlling Access with PROJECT and LM_PROJECT

Setting a development workstation’s `LM_PROJECT` environment variable to match a `PROJECT` type defined in a license server’s user options file identifies that workstation as a member of a particular group with restricted access to licenses.

This restriction might be useful, for example, if a single license server handles multiple products and you want certain workstations to have access to one product or another. Or you might use this restriction if a single license server handles two instances of Wind River Workbench with different license types and you want to restrict access for certain workstations to one license type or the other.

If you have a merged license file (see 15.3 Merging License Server Files, p.117), you can use `PROJECT` to define a group associated with each license type. You then set the workstation’s `LM_PROJECT` environment variable to point to one of the two group names, which restricts access for that workstation to the associated license type.

**NOTE:** This method differs from the `INCLUDE/EXCLUDE` method described in 9.6.2 Restricting Access to a Single License Type, p.76, because it does not require the creation of user lists.
9.8 Additional Allocation Methods

In addition to INCLUDE/EXCLUDE and PROJECT/LM_PROJECT, you can configure the user options file with any of the available keywords to fine-tune your license allocation. For example, you can reserve licenses for critical groups, or set limits on licenses for certain software packages. You can set a maximum number of hours during which a feature can be borrowed; or set a “lowwater” number for licenses to be borrowed. For detailed information on these methods, see B. FLEXlm User Options File Reference.

9.9 Rereading the Updated User Options File

In order for the license allocations you have made in the user options file to take effect, the file must be registered with the license server. When the license server starts or restarts, it automatically reads the user options file and puts into effect any license restrictions you have specified.

- If your server is not yet running:
  Start the server (see 10. Starting Your License Server).

- If your license server is already running:
  You must stop and restart it in order to force the user options file to be reread. For instructions on stopping and restarting the license server, see Stopping a License Server, p.103, and 10. Starting Your License Server.

**NOTE:** For named-user licenses, the user options file *must* be reread in order for developers to use the product.

9.10 Debugging with the User Options File

In the user options file, you can use the action keywords DEBUGLOG and NOLOG to help control output to a run-time debug log. This log tracks checkins, checkouts, and error messages associated with the wrsd daemon, as distinct from the regular debug log that tracks data for all vendor daemons on any one license server.

For syntax and additional information about these keywords, see B. FLEXlm User Options File Reference.
9.11 Sample User Options File

The text below is an example of a user options file that uses keywords to restrict access to products.

```
#---------- Sample User Options File for Wind River Packages --------------
# This file shows how to manage named-user licenses and allocate them to named users.
# Consult the resources on Wind River Online Support at www.windriver.com/support/support_login.html
#
#
#-- Allocating two users, Matt Williams and Henry Vu, to the GPP-VE package.
#-- Note that the usernames should match their desktop login names, which are case-sensitive.
INCLUDE UU_SE_GPP_VE_Cfg22 USER mwilliams
INCLUDE UU_SE_GPP_VE_Cfg22 USER henry.vu

#-- Creating logical groups for allocation.
#-- This also helps when you have a large number of users to manage across different projects.
GROUP project_phoenix mbrown swang henry.day liang.li
INCLUDE UU_VDT_Cfg25 GROUP project_phoenix

#-- Preventing workgroup members from grabbing more named-user licenses from the pool.
#-- This may happen if a named user logs on from different desktops at the same time.
MAX 1 UU_VDT_Cfg25 GROUP project_phoenix

#-- Excluding a particular user or group of users from accessing some floating licenses.
EXCLUDE FL_P_WB_4OCD_Cfg1 USER steve.li
```
10 Starting Your License Server

10.1 Before You Begin

The instructions in this chapter assume that you have already done the following:

1. Installed the License Administration Tools.
   See 8. Installing the License Administration Tools.

2. If your organization has named-user licenses, configured a user options file, including specifying named users.
   See 9. Controlling Access to Products with the User Options File.

10.2 Starting a License Server

Before any workstations on the network can request licenses, you must configure and start the license server. You can do so either at the command line, or through the GUI-based LMTOOLS utility (Windows only).

What Happens When You Start the License Server

When you start the lmgrd daemon, a series of actions follows:

1. lmgrd starts the Wind River daemon, wrsd.

2. When a developer launches a license-managed Wind River product, his or her host sends a request to the license server.

3. Receiving this license request, wrsd checks its license file and user options file wrsd.opt.
(For information on the user options file \texttt{wrsd.opt}, see \textit{9. Controlling Access to Products with the User Options File}.)

4. If the settings in those files permit it, \texttt{wrsd} issues a license token to the requesting host. Now the developer can get to work.

(If the license request was denied, this event is logged in the server debug log. For information on the debug log, see \textit{Changing Your Server License File}, p.102.)

5. \texttt{wrsd} finds or creates a log options file.

(For information on the log options file, see \textit{The Log Options File (wrsdlog.opt)}, p.90.)

6. Per the settings in the log options file, \texttt{wrsd} creates a logfile and starts to log license usage.

For details on logging, see \textit{11.3 Logging License Usage}, p.86.

\subsection*{10.2.1 Starting the License Server Using the LMTOOLS Utility (Windows Only)}

During installation, the license manager utility LMTOOLS and other FLEXlm utilities are copied into \texttt{installDir\licadmintools-1.3\hostType}. The LMTOOLS utility is available only on Windows hosts.

1. Start LMTOOLS by double-clicking \texttt{installDir\licadmintools-1.3\hostType\lmtools.exe}.

2. To configure a new server or make changes to an existing one, select the \textbf{Config Services} tab.

On the \textbf{Config Services} tab:

a. In the \textbf{Service Name} field, type the desired service name.

b. In the \textbf{Path to the lmgrd.exe} file field, either enter the path to the \texttt{lmgrd} executable or click \textbf{Browse} and navigate to it. By default, it is at \texttt{installDir\licadmintools-1.3\hostType}.

c. In the \textbf{Path to the license file} field, either enter the path to the server license file or click \textbf{Browse} and navigate to it. By default, it is at \texttt{installDir\license\WRSLicense.lic}.

d. In the \textbf{Path to the debug log file} text box, enter the path to a debug log file that will record operating data for the license server. If the debug log file does not exist yet, it will be created according to the value you enter in this field.

\begin{itemize}
  \item \textbf{NOTE:} If there are multiple license file paths, you must type them in individually, you cannot browse to them. Use a semi-colon (;) to separate filenames.

  \item \textbf{NOTE:} It is a wise practice to create a server debug log. The debug log is often your first resource on the health and functioning of your server, providing status information and aiding in troubleshooting server issues. For more information about the server debug log, see \textit{Troubleshooting License Server Problems}, p.104.
\end{itemize}
10 Starting Your License Server

10.2 Starting a License Server

e. Once the debug log file has been created, you can return to the Config Services tab and click View Log to see the contents of the log. Then click Close Log to close the window.

f. Select Use Services if you want the license server to act as a service (recommended). This is the default, so the box may already be checked.

g. Select Start Server at Power Up if you want to start the server automatically with each reboot.

h. Click Save Service to save any new values; then Yes in the pop-up dialog box.

Your license server is now configured and ready to be started.

3. Select the Start/Stop/Reread tab, as shown in Figure 10-1. If no license servers have been configured, the display box is blank. If you have previously configured a server, its name appears in the display box.

![Start/Stop/Reread Tab (LMTOOLS)](image)

4. Make sure that the correct license server for your product is selected; then click Start Server.

If you see Server Start Successful at the bottom of the window, the server is running and is available to allocate licenses to your developers.

If the server fails to start, troubleshoot the issue by checking the server debug log for error messages. See The Server Debug Log, p. 104.

10.2.2 Starting the License Server from the Command Line

Follow the steps below, substituting for `installDir` the directory where you installed the License Administration Tools.

1. Open a UNIX shell window or Windows command prompt and change to the directory where you installed the license utilities, as appropriate for your host OS:

   % `cd installDir/licadmintools-1.3`
or

C:\> cd installDir\licadmin\tools-1.3

2. Start the lmgrd daemon:

% ./lmgrd -c license_file -l \+debug_log_path

For example:

% ./lmgrd -c installDir/license/WRSLicense.lic -l \+installDir/license/lmgrd.log

3. Verify that the license server has started correctly:

% ./lmutil lmstat -c path_to_license_file

If the status information includes lines that say license server UP and wrsd: UP, then the license server and Wind River vendor daemon are functioning properly.

For full details on the options and syntax of the lmgrd and lmutil commands, see C. FLEXlm Command Reference.

Re-starting the License Server with a Startup Script

Once you have started the license server manually at least once, you can write a startup script that automatically initiates the server after rebooting.

Linux and Solaris License Server Lock File Permission Issues

By default, the license server uses a lock file created in /var/tmp. For example, the file listing appears as follows:

% ls -l /var/tmp/lockwrsd
-rw-r--r--  1 workbench other  0 Sep 12 18:16 /var/tmp/lockwrsd

When the license manager (lmgrd) is started for the first time, the lock file is created with the permissions of the user starting the daemon. You may need to modify the file permissions to ensure that other users can start the server.
11.1 Do You Need to Track License Usage?

The information in this chapter is required only if your organization has named-user (NU) licenses. With that license type, you must log the usage of Wind River product licenses and report that usage quarterly to Wind River.

For floating (FL) licenses, logging and reporting are not required; however, the information that usage reports provide often proves helpful in apportioning licenses of that type as well.

Node-locked (NL) licenses are not logged by the License Administration Tools. For definitions of these license types, see 2.1.1 Types of Workstation License, p.4.
11.2 Before You Begin

The instructions in this chapter assume that you have already done the following:

1. Installed the License Administration Tools.
   See 8. Installing the License Administration Tools.

2. Configured a user options file, including specifying named users.
   See 9. Controlling Access to Products with the User Options File.

3. Configured and started the license server.
   See 10. Starting Your License Server.

11.3 Logging License Usage

Recording who is using what software when is an important function of your license server. This section describes tasks around the logging of license usage. For information on generating reports to send to Wind River, see 11.4 Reporting License Usage, p.92.

⚠️ CAUTION: For named-user licenses, in addition to the optional tasks described in this section, you must name individual users in the user options file in order to correctly log usage. For detailed information, see 9. Controlling Access to Products with the User Options File.

The wrsd_util Utility

Wind River provides a command-line tool, wrsd_util, for interacting with a running wrsd license daemon. The wrsd_util utility allows you to change certain aspects of the daemon’s behavior without stopping the daemon or the server.

NOTE: With some of these changes to the logging configuration, you must start a new log in order for those changes to take effect. Starting a new log does not require restarting the daemon itself, but simply rotating the logfiles. The changes that require log rotation include changes to

- the filename of logs
- the directory where logfiles are created
- the log mode (controlling which license server events are logged)

See Table 11-1 for details.

Once the wrsd process is running, you can query and configure the license server from the command line using the tool wrsd_util. With wrsd_util, you can do the following, without stopping the daemon:

- View the current log settings.
- Change which license usage events are logged.
- Control the name and location of license usage reports.
License Usage Logging and Reporting
11.3 Logging License Usage

- Rotate the logfile.
- Set the license file that wrsd uses.

For full reference information on the syntax and options for `wrsd_util`, see Reference: `wrsd_util`, p.89.

Viewing the Current Settings for Usage Logging

To begin with, you may simply want to find out what the existing configuration is that controls license usage logging. To view the current settings, enter the following at the directory where you installed the license utilities, as appropriate for your host OS:

```
% wrsd_util -l licenseFile -i
```
or

```
C:\> wrsd_util.exe -l licenseFile -i
```

In the command-line sequence above, the `-l` option ensures that you are retrieving information about the correct daemon.

Customizing the Filenames of Usage Logs

**Default Filenames**

By default, license usage logfiles are named

```
log_directory/log_prefixYYYYMMDD_hhmmss.log
```

where

- `log_directory` is the directory location of the logfile. You can accept the default location of `installDir/license/wrsd_logs_serverHostName` or specify a different location (see Configuring the Location of Logfiles, p.88).
- `log_prefix` is a prefix for the filename. The default prefix is `wrsd_log_`.
- `YYYYMMDD` is the current date.
- `hhmmss` is the current time.

For example, a typical logfile might be named `installDir/license/wrsd_logs_serverHostName/wrsd_log_20120208_114612.log`.

**Custom Filenames**

To add a custom prefix to this filename enter the following:

```
% wrsd_util -p prefixString -r
```
or

```
C:\> wrsd_util.exe -p prefixString -r
```

**NOTE:** In the command-line sequence above, the `-r` option ensures that your customization takes effect right away. Without the `-r` option, wrsd will start using your custom prefix when it opens the next usage logfile.
The prefix string may contain only the following characters:

- `a-z`
- `A-Z`
- `0-9`
- `, . _ #`

The complete path, including directory names, prefix string, and the rest of the filename, must not exceed 2047 bytes.

### Configuring the Location of Logfiles

Just as you can change the name of the logfile, you can change the directory location where it is created and saved. By default, usage logs are placed in the `installDir/license/wrsd_logs_serverHostName` directory, or in a `wrsd_logs_serverHostName` directory under the directory holding the license file that the server has been instructed to use.

To change where the logfiles are saved, enter the following:

```bash
% wrsd_util -d absolutePathToDirectory -r
```

or

```bash
C:\> wrsd_util.exe -d absolutePathToDirectory -r
```

**NOTE:** In the command-line sequence above, the `-r` option ensures that your customization takes effect right away. Without the `-r` option, `wrsd` will start using your custom location when it opens the next usage logfile.

### Controlling Which License Events Are Logged

By default, the `wrsd` daemon logs license errors and the use of named-user license seats. If you want to change this default (for example, so that floating license usage is also logged), enter the following:

```bash
% wrsd_util -m logMode -r
```

or

```bash
C:\> wrsd_util.exe -m logMode -r
```

**NOTE:** In the command-line sequence above, the `-r` option ensures that your customization takes effect right away. Without the `-r` option, `wrsd` will start using the new setting when it opens the next usage logfile.

The value for `logMode` must be a bitwise combination of the following:

- `1` — Log named-user (NU) licenses.
- `2` — Log floating (FL) licenses.
- `4` — Log license errors.

The allowed values are

- `1`
- `3`
- `5` (the default)
- `7`
Because named-user license logging is mandatory, the `wrsd` daemon does not accept even-numbered values for `logMode`.

**NOTE:** If you want to use the logging and reporting tools to gather information on floating license usage, note that you must change the default `logMode` setting.

### Rotating Logfiles

To *rotate* a logfile is to close the current logfile and open a new one. Rotating logfiles is a good practice for a server that handles heavy traffic, or that for any other reason must control the size of logfiles. Logfile rotation is also practical for license usage reporting, since a report generated from an *open* logfile will show an error. Furthermore, as noted above, changes to the logging configuration require a restart of logging—in other words, the rotation of logfiles—in order to take effect.

To rotate the current logfile, enter the following:

```
% wrsd_util -r
```

or

```
C:\> wrsd_util.exe -r
```

### Automating Rotation

You may want to set up an automated task to rotate the logfile at a regular interval—say, at the end of each week or quarter, depending on the volume of server traffic. In addition to the reasons listed above, logfile rotation is advisable because if you generate a usage report from an open (still in use; not yet rotated) log, the report will show an error.

You can automate logfile rotation with `crontab`, the Windows Task Scheduler, or many other standard tools.

**Reference: wrsd_util**

The `wrsd_util` tool is installed at `installDir/licadmintools-1.3/hostType` when you install the License Administration Tools.

**Syntax**

Use `wrsd_util` at the command line with the following syntax:

```
wrsd_util[.exe] [options]
```

**Options**

`wrsd_util` takes the options described in Table 11-1.

**Table 11-1 Options for the wrsd_util Tool**

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>-d <code>directory</code></td>
<td>Set the location for license usage logfiles to the specified directory.²</td>
</tr>
<tr>
<td>-h</td>
<td>Print usage information, and exit.</td>
</tr>
</tbody>
</table>
The Log Options File (wrsdlog.opt)

The log options file serves as a configuration file to the `wrsd` daemon, controlling how it logs license usage.

The file, called `wrsdlog.opt`, is created automatically when you start your license server. It is located in a `wrsd_logs_serverHostName` directory under the directory holding the license file that the server has been instructed to use.

**NOTE:** In most cases, there is no need to alter the default settings in the automatically created log options file. If you do want to change the default configuration, it is recommended that you use the `wrsd_util` tool to do so, rather than manually editing the file.

See Reference: `wrsd_util`, p.89, for the syntax and options of `wrsd_util`.

For the default settings of the log options file, see Syntax of the Log Options File, p.91.
Syntax of the Log Options File

The log options file is a plain-text file that stores settings in the following format:

\[ \text{option_name} = \text{option_value} \]

The \text{option_name} string must not contain any space characters.

The file may also contain comment lines, prefixed by the \# character. \nTable 11-1 lists the options that can be defined in the log options file.

<table>
<thead>
<tr>
<th>Table 11-1: Options for the Log Options File</th>
</tr>
</thead>
<tbody>
<tr>
<td>Option</td>
</tr>
<tr>
<td>-----------------</td>
</tr>
</tbody>
</table>
| **log_directory** | The path to the directory where logfiles will be written. The directory must exist, and must be writable.  
The default value is the first writable directory in the list of license directories known to \text{wrsd}. (You specify a license directory or list of license directories when you start \text{lmgd}. See 10.2 Starting a License Server, p.81.)  
If no such directory can be found, \text{wrsd} displays an error message and fails to start. If you used the command-line method to start the license server (10.2.2 Starting the License Server from the Command Line, p.83), the error message is displayed to stdout. If you used the Windows-only GUI tool LMTOOLS (10.2.1 Starting the License Server Using the LMTOOLS Utility (Windows Only), p.82), the message is visible in the server debug log. |
| **log_mode**   | This option defines what kinds of license usage information are logged.  
\text{log_mode} must be a bitwise combination of the following:  
1 Log named-user (NU) licenses.  
2 Log floating (FL) licenses.  
4 Log license errors.  
The minimum value is 1. The default value is 5. |
| **log_prefix** | A customizable prefix for the filenames of usage logs.  
The default value is \text{wrsd_log}.  
If this option is empty, no string is prepended to the filenames of usage logs.  
A custom value may contain only the following characters:  
\begin{itemize}  
\item a-z  
\item A-Z  
\item 0-9  
\item _ #  
\end{itemize} |

Editing the Log Options File

If you change any of the options defined in the log options file (see Table 11-2), your changes will only take effect when the next logfile is created. Therefore, in
order to make your changes effective immediately, also rotate the logfiles (see *Rotating Logfiles*, p.89).

**Moving the Log Options File**

If you move or rename the log options file, you must also direct `wrsd` to the new location or name. To do this, use the environment variable `WRSD_REPORT_LOG_OPTIONS_FILE`. (There is no need to set this environment variable if you keep the default name and location of the log options file.)

---

**NOTE:** On Windows hosts, the operating system caches the settings for environment variables until the system is rebooted. Therefore, if you must reset `WRSD_REPORT_LOG_OPTIONS_FILE` on Windows, take care to reboot the server computer so that your changes take effect.

---

### 11.4 Reporting License Usage

If your organization has named-user licenses, you must send Wind River either your encrypted usage logs (preferred) or a report based on those logs, every quarter. (For a definition of the named-user license type, see 2.1.1 Types of Workstation License, p.4.)

The Wind River license management daemon `wrsd` logs license usage in binary, non-human-readable logfiles. To generate the reports that you submit to Wind River, you must process these logfiles through the `wrsd_report(.exe)` utility. The generated reports are plain-text files.

**Before You Begin**

Before you can generate a license usage report, you must have configured your license server to correctly track named-user licenses. This involves the following tasks:

1. *Installing the License Administration Tools.*
2. *Controlling Access to Products with the User Options File.*
3. *Starting Your License Server.*
4. *Logging License Usage.*

**Generating Reports**

When you are ready to generate a usage report, do the following:

1. Make sure your license server is running version 1.3 of the License Administration Tools.

   To find the version, navigate to the installation directory of your License Administration Tools and type the following at a command prompt:

   ```
   % lmutil lmver wrsd
   ```

   If the version is lower than 1.3, download and install version 1.3:
2. Rotate the logfile.
   % wrsd_util[.exe] -r

   Effectively, this closes the current log and opens a new one. You must close the current log because if you run the report generator on an open log, the report will show an error.

3. Identify the logs that were created during the reporting time period (typically, a quarter). By default, usage logfiles are located at installDir/license/wrsd_logs_serverHostName.

   CAUTION: Wind River recommends that you not open the logfiles, as this can corrupt them. For example, some programs such as Wordpad can insert a different end-of-line character into the file. Any change to the logfile makes it invalid and unusable for reporting.

4. Run wrsd_report(.exe) on the relevant logfiles. The command syntax is as follows:

   % wrsd_report[.exe] [options] pathToLogfile1/logfile1 [pathToLogfile2/logfile2...] -o outputFilename

   For example:

   C:\licadmintools-1.3\x86-win32\wrsd_report.exe -p UHPFNVI \C:\licadmintools-1.3\license\wrsd_log_20111109_144520.log -o report.txt

   For full details on the options you can use with wrsd_report, see Syntax and Options for wrsd_report, p.93.

5. Examine the resulting report (the outputFilename you gave in Step 4). The usage reports that wrsd_report generates are plain-text files, so they can be viewed in any text editor.

   In particular, look to see if the number of licenses cited in the report matches the numbers in your contract with Wind River.

   NOTE: If the report shows errors or warnings, you can still submit it to Wind River. These messages can provide useful information about your organization’s usage, logging configuration, and other factors that Wind River’s compliance team can use to help troubleshoot the issue.

   Do not alter the report. The file contains an error-detecting code to ensure consistency.

6. Send the generated report by email to reports@windriver.com.

   You do not need to send the logfiles from which you generated the report.

7. After you have submitted the report, you will receive a confirmation from Wind River. Once you have this confirmation, you can delete or archive the old logfiles as you see fit.

Syntax and Options for wrsd_report

The command syntax is as follows:

% wrsd_report[.exe] [options] pathToLogfile1/logfile1 [pathToLogfile2/logfile2...] -o outputFilename
The reports that you generate through the `wrsd_report` utility are customizable in various ways. The options you can use with `wrsd_report` are described in Table 11-3.

<table>
<thead>
<tr>
<th>Option</th>
<th>Mnemonic</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>-h</td>
<td>(h)elp</td>
<td>Print the help about <code>wrsd_report</code>, and exit.</td>
</tr>
<tr>
<td>-s date</td>
<td>(s)tart <code>date</code></td>
<td>Use <code>date</code> as the start date for the report. Log entries before the specified date are ignored. <code>date</code> must be of the form <code>YYYY/MM/DD</code>.</td>
</tr>
<tr>
<td>-e date</td>
<td>(e)nd <code>date</code></td>
<td>Use <code>date</code> as the end date for the report. Log entries after the specified date are ignored. <code>date</code> must be of the form <code>YYYY/MM/DD</code>.</td>
</tr>
<tr>
<td>-f</td>
<td>(f)ull</td>
<td>Generate a full report. That is, the report will display all entries rather than a summary.</td>
</tr>
<tr>
<td>-p format</td>
<td>(p)rint <code>format</code></td>
<td>Generate a summary report that shows specific information. In the <code>format</code> value, you specify which information you want the report to include, in what order. <code>format</code> may consist of any combination of the following uppercase characters:</td>
</tr>
<tr>
<td>U</td>
<td>(U)ser</td>
<td>Show the username in the summary.</td>
</tr>
<tr>
<td>H</td>
<td>(H)ost</td>
<td>Show the hostname in the summary.</td>
</tr>
<tr>
<td>P</td>
<td>(P)ackage</td>
<td>Show the package name in the summary.</td>
</tr>
<tr>
<td>F</td>
<td>(F)eature</td>
<td>Show the feature name in the summary.</td>
</tr>
<tr>
<td>D</td>
<td>(D)etails</td>
<td>Show the feature details in the summary.</td>
</tr>
<tr>
<td>V</td>
<td>(V)ersion</td>
<td>Show the feature version in the summary.</td>
</tr>
<tr>
<td>R</td>
<td>(R)oject</td>
<td>Show the project name in the summary.</td>
</tr>
<tr>
<td>N</td>
<td>(N)umber</td>
<td>Show the number of checkouts in the summary.</td>
</tr>
<tr>
<td>E</td>
<td>(V)endor</td>
<td>Show the vendor string in the summary.</td>
</tr>
<tr>
<td>A</td>
<td>(D)ate</td>
<td>Show the checkout date in the summary.</td>
</tr>
<tr>
<td>I</td>
<td>(I)nterval</td>
<td>Show the checkout time intervals in the summary.</td>
</tr>
</tbody>
</table>

The default value of `format` is `PUHIN`.

- i      | (i)nsensitive | Treat user- and hostnames as case-insensitive. |

See `Case Sensitivity`, p.95 for more information.

- a      | (a)ctual | Show the real usernames and hostnames, rather than anonymized values. |

- o `filename` | (o)utput `filename` | Send the generated report to an output file, rather than to stdout. The `filename` you specify must be a valid filename. The output file you specify as `filename` is the license usage report that you must send to Wind River. |
Case Sensitivity

For Windows users in particular, the notation of upper- and lower-case characters can be inconsistent. As a result, user- and hostnames can be listed more than once in a report. To control case sensitivity in your report, you can specify or omit the -i option.

For example, for a username userA and another username usera:

- If you specify -i when you generate your report, the license usage of userA is combined with that of usera.
- If you omit the -i option, userA and usera are listed separately in the report.

You can also control case-sensitive behavior in license apportionment—for example, so that userA and usera do not both consume a license if they are the same person. For details, see Case Sensitivity, p. 74.

Generating Usage Reports for Information Only

If your organization does not have named-user licenses, a license usage report can nevertheless provide useful information on how your workgroups are using Wind River software. Besides named-user licenses, you can also gather data on floating license usage. Node-locked licenses are not logged.

For definitions of these license types, see 2.1.1 Types of Workstation License, p. 4.

If you plan to track floating license usage, you must do the following in addition to the standard steps for installing the License Administration Tools and starting your server:

```bash
% wrsd_util -m logMode -r
```

or

```bash
C:\> wrsd_util.exe -m logMode -r
```

where logMode has one of the following values:

3  Log named-user\(^a\) and floating license use.

7  Log named-user\(^a\) and floating license use, and license errors.

\(^a\) Even if your organization does not have named-user licenses, the daemon requires that named-user logging be enabled.

For details on -m logMode, see Controlling Which License Events Are Logged, p. 88.

After you have adjusted the logMode, you can generate plain-text reports, as described in Generating Reports, p. 92.
Introduction 97

Example: A Typical Report for Submission to Wind River 97

Example: Output-Format Variations for the Same Input 98

Example: Generating Reports to Resolve a License Conflict 98

Introduction

This chapter offers some examples of license usage reports generated with the wrsd_report tool.

For information on creating the logs from which reports are generated, see 11.3 Logging License Usage, p. 86.

For details on how to run wrsd_report, see 11.4 Reporting License Usage, p. 92.

Example: A Typical Report for Submission to Wind River

Command

C:\wrAdminTools\licadmintools-1.3\x86-win32> wrsd_report.exe -p UHPFNVI \ 
C:\wrAdminTools\license\wrsd_log_20111109_144520.log -o report.txt

C:\wrAdminTools\licadmintools-1.3\x86-win32> type report.txt

Output

Wind River Usage Report
wrsd_report version: 1.0 - 20111103-1509
Reporting period start date: not set.
Reporting period end date: not set.

Processing log: C:\wrAdminTools\license\wrsd_log_20111109_144520.log

Server information
Host OS and version: Microsoft Windows XP Professional
Host name: ALA-JDOE-D3
Host architecture: 32-bit
Host ID: 0023ae6d2743
wrsl version: 1.3 - 20111103-1509
User, Host, Package, Feature, Checkout Count, Version, Time Interval
user_f9b317a8, host_c14d3f27, UU_SE_PXX_VE_Cfg1, WR_WORKBENCH, 1, 3.3, 14:00-15:00
------------------------------------------------------------------
End of Report: DD791F2847B964EE

Example: Output-Format Variations for the Same Input

You can control the visual display of your report with the -p format option. This example shows several output variations from the same logfile input.

- Output with -p PUHIN:

  Package, User, Host, Time Interval, Checkout Count

  WB33_FALL_DEV, user_352a76d3, host_a7659234, 10:00-11:00, 101
  WB33_FALL_DEV, user_352a76d3, host_a7659234, 11:00-12:00, 123
  WB33_FALL_DEV, user_352a76d3, host_a7659234, 12:00-13:00, 119
  WB33_FALL_DEV, user_db20fcf9, host_d9955ae6, 13:00-14:00, 87
  WB33_FALL_DEV, user_db578b59, host_a7659234, 10:00-11:00, 107
  WB33_FALL_DEV, user_db578b59, host_a7659234, 11:00-12:00, 113
  WB33_FALL_DEV, user_db578b59, host_a7659234, 12:00-13:00, 127
  WB33_FALL_DEV, user_db578b59, host_a7659234, 13:00-14:00, 89

- The same input file, processed with -p UHN:

  User, Host, Checkout Count

  user_352a76d3, host_a7659234, 430
  user_db20fcf9, host_d9955ae6, 1
  user_db578b59, host_a7659234, 436

  In this output, note that entries are combined. For example, where there had been several rows for user user_352a76d3, host_a7659234, in this format, those rows are combined.

  Note also that the value you give for format controls the sort order.

- The same input file, processed with -p NU to show which user had the most checkouts:

  Checkout Count, User

  1, user_db20fcf9
  430, user_352a76d3
  436, user_db578b59

Example: Generating Reports to Resolve a License Conflict

In this scenario, some members of a workgroup have been blocked in their work because of license checkout errors. The administrator runs usage reports to diagnose the problem.

From the first report, you find which software component is failing. The second report narrows the output and shows you which users have accessed which components.
Step 1: Search for checkout errors in the period of November 1-30, 2012.

```
installDir/licadmintools-1.3/hostType/% wrsd_report -s 2012/11/01 -e 2012/11/30 -f logs_2012*.*
```

This command sequence specifies the date range (-s 2012/11/01 -e 2012/11/30) and requests a full report (-f), rather than a summary. For a complete list of the options to `wrsd_report`, see Syntax and Options for `wrsd_report`, p. 93.

In the resulting report, scan the date-sorted entries for occurrences of “ERR.” For example:

```
16:30:12, out, DIAB_RESTRICTED, WR_COMPILER_PPC, user_db578b59, host_c41dce8e, 1/1
16:30:18, ERR, DIAB_RESTRICTED, WR_COMPILER_PPC, user_db578b59, host_a7659234, (-6306328), Licensed number of users already reached (-4,342)
16:30:31, in, DIAB_RESTRICTED, WR_COMPILER_PPC, user_db578b59, host_c41dce8e, 1/1
```

In this example, you learn that the origin of the license shortage is in the software package DIAB_RESTRICTED’s feature WR_COMPILER_PPC: more users have requested that component than there are license seats.

Step 2: List the users who have accessed features in the period of November 1-30, 2012.

```
% wrsd_report -s 2012/10/01 -e 2012/11/30 -p FU -o feature_users.log logs_2012*.*
```

This command sequence specifies that the output should be limited to feature and usernames (-p FU), and should be saved into a file (-o feature_users.log). For a full list of the options to `wrsd_report`, see Syntax and Options for `wrsd_report`, p. 93.

In the resulting report, scan the “Usage statistics” section for the feature name you discovered was oversubscribed:

```
Usage statistics:
    Feature, User
    [...
    WR_COMPILER_PPC, amanda
    WR_COMPILER_PPC, bill
    WR_COMPILER_PPC, carole
    WR_COMPILER_PPC, dave
    WR_COMPILER_PPC, erik
    [...
```

Now you can take action to resolve the license shortage. For example, you can adjust the settings in the user options file to exclude user **erik** from using the package DIAB_RESTRICTED. For details, see 9. Controlling Access to Products with the User Options File.
13.1 Before You Begin  101
13.2 Maintaining a License Server  101

13.1 Before You Begin

The instructions in this chapter assume that you have already done the following:

1. Installed the License Administration Tools.
   See 8. Installing the License Administration Tools.

2. If your organization has named-user licenses, configured a user options file that specifies named users.
   See 9. Controlling Access to Products with the User Options File.

3. Configured and started the license server.
   See 10. Starting Your License Server.

13.2 Maintaining a License Server

In most cases, the license server itself does not require changes to its configuration once it is running. However, you may want to adjust some settings, or simply view the current ones. This chapter describes some common interactions with the license server.

For many of these tasks, there is both a command-line method and a method using the Windows-only, GUI-based utility LMTOOLS. For more information about the the lmgrd and lmutil commands, see C. FLEXlm Command Reference.

For configuration tasks relating to license apportionment, usage logging, and reporting, see 9. Controlling Access to Products with the User Options File and 11. License Usage Logging and Reporting.
Viewing the Status of the License Server

In LMTOOLS (Windows Only)

To verify the status of the license server with LMTOOLS, do the following:

1. Start LMTOOLS by double-clicking `installDir\licadmintools-1.3\hostType\lmtools.exe`.
2. Select the Server Status tab.
   On this tab, you can query the server by daemon, by individual feature name, or by server name if you have multiple license servers.
3. In the Individual Daemon field (for example), type `wrsd` and click Perform Status Enquiry.
   The daemon's status is displayed in the lower part of the LMTOOLS window.
   In addition to the up or down status of the daemon, you can review the output to see information such as the number of licenses issued for a particular feature, and the number that are currently in use.
   The very bottom of the Server Status tab displays the license file that the license server is using. If this is not the correct license file, change the license file as described in Changing Your Server License File, p. 102.

At the Command Line

To display the status of the license server, so that you can tell if it is running, type the following:

```bash
%/lmutil lmstat -c path_to_license_file
```

For more information about using the `lmgrd` and `lmutil` commands, see C. FLEXlm Command Reference.

In the Server Debug Log

In addition to the methods described above, you can verify the server's status by examining the debug log. The location and name of the debug log depend on what you specified when you started the server (see 10. Starting Your License Server). The debug log can provide much useful information about the status and functioning of your license server. For more information on the server debug log, see Troubleshooting License Server Problems, p. 104.

Changing Your Server License File

At some point in the life of your license server, you may need to direct it to a new license file—for example, in any of the following cases:

- You have renewed a license.
- Your organization has purchased additional products or licenses.
- A workgroup is moving to a new product version or release.
- You are rehosting seats to a different license server.

To ensure that a running server reads the new or updated license file, follow the instructions in this section.
1. If your organization has named-user (NU) licenses, you must first adjust your user options file.
   a. Open your user options file. Usually, this file is located at `installDir/license/wrsd.opt`.
   b. Open your old and new license files side by side, and compare the configuration numbers in both.
      The configuration number is part of the package descriptor, which can be found in the license file after the keyword `INCREMENT`. For example:
      
      `INCREMENT UU_VDT_Cfg25 wrsd 2.21 18-jun-2008 9 DDFD83C3DC8F`
      
      In this example, the configuration number is 25.
   c. If the configuration numbers differ, copy the configuration number from the new license file. Find where its old equivalent appears in the user options file, and overwrite the old with the new.
   d. Save and close the user options file.
      You should not need to make any changes to any version of the license file in this step.

2. Point the server to the new license file. To do this, bring down the server and restart it, pointing to the new license file. See Stopping a License Server, p.103, and 10.2 Starting a License Server, p.81.

**Stopping a License Server**

To stop a license server, you must stop not only the `lmgrd` process, but any subordinate daemons spawned by `lmgrd`, such as `wrsd`. If you are working with a merged license file and other third-party vendor daemons are present, those daemons must also be stopped.

**Stopping the License Server Using the LMTOOLS Utility**

If you started the server from LMTOOLS, you can stop it as follows:

1. If it is not already running, start LMTOOLS by double-clicking `installDir\licadmin\tools-1.3\hostType\lmtools.exe`.
2. Select the Start/Stop/Reread tab.
3. Make sure the license manager appropriate to your product is highlighted.
4. Select Stop Server.

**Stopping the License Server from the Command Line**

**On Windows**

To stop the license server, you must stop each process individually.

1. Open the Windows Task Manager (CTRL+ALT+DEL).
2. Choose the Processes tab.
3. Select the `lmgrd` process.
4. Click End Process.
5. Select the **wrsd** process.
6. Click **End Process**.
7. If any other vendor daemons are running, select them and click **End Process**.

**On UNIX**

To stop the license server, issue the following shutdown command:

```
% lmutil lmdown -c license_file_list
```

For the options and syntax of the *lmgrd* command, see *C. FLEXlm Command Reference*.

---

**NOTE:** If you used `-x lmdown` when starting the license server, determine the process ID *(pid)* of the license manager process and any other processes it spawned, such as *wrsd*:

```
% ps -e | grep wrsd
```

Then kill the processes:

```
% kill pid1 pid2
```

---

**Deactivating a License Server**

To prevent a license server from responding to license requests, you can simply stop the license server as described in *Stopping a License Server*, p.103. Alternatively, you can deactivate the license server by moving the **WRSLicense.lic** file:

1. Navigate to the `installDir/license` directory.
2. Move **WRSLicense.lic** to a different directory, such as your home directory.

This is sufficient to deactivate the license server. To reactivate it in the future, you can move **WRSLicense.lic** back to `installDir/license`; or, if **WRSLicense.lic** has expired, you can obtain a new server license file as described in *3. Obtaining Server License Files*. Then start the license server according to the steps described in *10. Starting Your License Server*.

---

**Troubleshooting License Server Problems**

**The Server Debug Log**

A server debug log records operating data for the license management and vendor daemons (*lmgrd* and *wrsd*, respectively). It is a wise practice to create a server debug log. The debug log is often your first resource on the health and functioning of your server, providing status and event information, and aiding in troubleshooting server issues.

**NOTE:** The server debug log is not the same file as the usage log required of named-user licensees.

**Creating a Debug Log (Windows Servers)**

To create a server debug log, you must specify one when you start your server. If you started your server without a debug log and would like to create one, you
must stop your server (see *Stopping a License Server*, p.103) and restart it with a debug log configured (see *10. Starting Your License Server*).

**Creating a Debug Log (UNIX Servers)**

You create a server debug log when you start your server with the -l *pathToDebugLogFile* option. If you did not use that option, the debug log appears in the console window. Therefore, to save this information for its troubleshooting uses, it is recommended in this case that you stop your license server (see *Stopping a License Server*, p.103) and restart it with a debug log specified (see *10.2.2 Starting the License Server from the Command Line*, p.83).

**Viewing the Debug Log**

You can view the debug log in any text editor. In the Windows-only UI-based LMTOOLS utility, you can also view the log by selecting the **Config Services** tab and clicking **View Log**... Then click **Close Log** to close the window.

**Filtering the Debug Log**

When you start your server with a debug log configured, by default the debug log contains information for *all* vendor daemons running on that server.

You can make the debug log more useful by filtering its data. You can send data about a specific vendor daemon (such as the Wind River daemon *wrsd*) to a different logfile by using the **DEBUGLOG** action keyword in the user options file.

Data accumulates very quickly, and depending on the number of users, can consume large amounts of disk space. You can turn off the debugging feature using the **NOLOG** action keyword in the user options file.

For details about using these keywords, see *9.10 Debugging with the User Options File*, p.78, and *B. FLEXlm User Options File Reference*.

**License Usage Log**

The most common problem that occurs with the usage log is that the file can grow quickly and become too large. To control the size of your license usage log, rotate your logfiles—that is, close the current logfile and open a new one. For details on logfile rotation, see *Rotating Logfiles*, p.89.

As a further (but less powerful) control on logfile size, you can limit the types of license events that are logged. See *Controlling Which License Events Are Logged*, p.88.

**Removing the License Administration Tools**

If for any reason you need to remove the License Administration Tools from the server computer, you can do so through the Maintenance Tool:

1. Stop the license server according to the instructions in *Stopping a License Server*, p.103.
2. Go to the *installDir/maintenance/wrInstaller/hostType* directory and run *wrInstaller[.exe]*.
   This launches the Product Maintenance Tool.
3. At the first screen, **Choose Maintenance Task**, select **Remove** and click **Next**.
4. At the next screen, **Choose Products to Remove**, select the items you want to remove (for example, an older version of the Wind River License Administration Tools) and click **Remove**.

5. When the Maintenance Tool has completed uninstallation, click **Finish**.

**After Uninstallation**

After you have removed the License Administration Tools, your `installDir/license` directory is intentionally left behind. If you want to remove this directory as well, you must do so manually.
14.1 Understanding Borrowing

Many Wind River products are license-managed, which means that when you start the product, it checks for a valid license. If a product installation is configured to use a license from a pool of floating or named-user licenses, the development workstation must be connected to the network in order to retrieve a license from the license server.

Borrowing is a feature that allows you to retrieve a license and continue to use it after disconnecting from the network, essentially turning a floating or named-user license into a node-locked license for a defined period of time (for more information on types of licenses, see 2.1.1 Types of Workstation License, p.4).

For example, if you are planning to travel with a laptop and want to use a license-managed product while in-flight or after you arrive at your destination, you must borrow a license before you leave. However, if you plan to use the product only from a computer that is always connected to the network, then you do not need to use this feature.

A single Wind River product—such as Wind River Workbench—may actually contain a group of separately licensed features, not all of which permit borrowing. In the license server’s license file, any feature string that contains the keyword BORROW indicates that the feature permits borrowing.
14.2 Do You Need to Configure Borrowing?

If your system includes floating or named-user licenses for Wind River products, and your developers intend to use those products while disconnected from the network, you must configure your development workstations to borrow the appropriate license.

If your system includes only node-locked licenses, then your developers can freely use Wind River products as soon as their installations are permanently activated. For information on permanent and temporary activation, see 7. Permanently Activating a Temporary License.

14.3 Setting Up the License Server for Borrowing

You do not have to do anything to enable a license server for borrowing, other than ensuring that it has enough floating or named-user licenses to allocate.

⚠️ CAUTION: If your license server is running an old version (prior to FLEXlm 8.3b) of the wrsd daemon, your developers cannot borrow licenses. To find the version of a running wrsd daemon, navigate to the installation directory of your License Administration Tools and type the following at a command prompt:

```
% lmutil lmver wrsd
```

However, if necessary, you can set who can borrow what products for how long, using the FLEXlm BORROW keywords in your user options file. For details, see the sections below.

14.3.1 Allowing or Restricting Borrowing

You can allow or restrict borrowing by specifying a particular user, or a group of users, or several other type designations.

For example, to allow only certain users to borrow licenses, add a line to your options file of the following form:

```
INCLUDE_BORROW feature type name
```

For example, if you want to allow Tom to borrow Wind River Workbench, type the following, substituting the correct feature name for WORKBENCH:

```
INCLUDE_BORROW WORKBENCH USER tom
```
Likewise, you can prevent certain groups from borrowing particular features by adding two lines to the options file of the following form:

```
GROUP   groupName user1 user2 user3
EXCLUDE_BORROW feature type groupName
```

For example, to exclude the members of team1 from borrowing Workbench, type the following:

```
GROUP   team1 joe bill susan
EXCLUDE_BORROW WORKBENCH GROUP team1
```

For detailed information on setting up a user options file to provision product licenses, see 9. Controlling Access to Products with the User Options File.

For details on INCLUDE_BORROW and the other keywords used in this section, see B. FLEXlm User Options File Reference.

### 14.3.2 Restricting the Number of Licenses That Can Be Borrowed

You can set aside a certain number of licenses that cannot be borrowed. This can help prevent a situation in which you have a limited number of seats of a particular product and all seats are tied up for an extended period of time.

To do this, add a line to your user options file of the following form:

```
BORROW_LOWWATER feature num_licenses
```

For example, if you have a certain number of licenses of Workbench, and you want to specify that three cannot be borrowed, type the following:

```
BORROW_LOWWATER WORKBENCH 3
```

For detailed information on setting up a user options file to provision product licenses, see 9. Controlling Access to Products with the User Options File.

For details on the BORROW_LOWWATER keyword, see B. FLEXlm User Options File Reference.

### 14.3.3 Changing the Borrow Period

**Borrow Period: In the License File Versus in the User Options File**

When you generated a server license file on the Wind River licensing portal (see 3. Obtaining Server License Files), that license file included a maximum borrowing period. By default, the maximum period is seven days (168 hours).

Because that value is encrypted in the license file, in order to change the absolute borrowing period, you must regenerate the license file. However, you can also change the borrowing period at a lower level, in the user options file.

This works a bit like federal laws and state laws in the United States: the state laws are usually applied first, but the federal laws are the final authority. For borrowing, this means that the limit defined in the user options file applies first, as long as it does not exceed the limit defined in the license file.

**One Strategy for Setting the Borrow Period**

As an administrator, it is likely that you want *most users* to be limited *most of the time*. You want to allow a developer to, say, take a Wind River product on a laptop to another location for a demo; but you do not want other users to be blocked...
because of overlong or forgotten borrows. However, in an emergency, you may need to grant someone a longer borrowing period.

To do this, you regenerate the license file with a longer borrowing period - say, 30 days. Then set limits in the user options file so that users can normally borrow for a shorter period - say, seven days.

To take this approach, do the following:

**Step 1:** Regenerate the license file with a longer borrowing period.

2. Log in with your Wind River user ID and password.
3. Click the Manage Hosts tab.
4. On the Manage Hosts page, click the Label of the server you want to modify.
5. In the Modify Host form, in the Borrow Period field, enter the desired value in days (for example, 30).
6. When you are finished, click Modify and then click Yes.
7. Back in the Manage Hosts tab again, locate the server you have just modified and click Regenerate.
8. On the Regenerate License File page, review the information and click Regenerate.
9. Click the Manage Hosts tab again. Locate the server for which you have just regenerated the license, and click Download.
10. Copy the new license to the license server that you have set up for your Wind River products.

**Step 2:** Configure the user options file with a shorter borrowing period.

1. Open the user options file wrsd.opt.
2. Add lines to it of the following form:
   
   ```
   MAX_BORROW_HOURS feature num
   ```
   
   For example, to set the borrowing period for Wind River Workbench to seven days, type the following:

   ```
   MAX_BORROW_HOURS WORKBENCH 168
   ```

3. Save the file.

**Step 3:** Make your changes take effect.

Because you have updated the server license file and user options file, you must stop and restart your license server in order for your changes to take effect.

For instructions on stopping and restarting the license server, see Stopping a License Server, p.103, and 10. Starting Your License Server.

For detailed information on setting up a user options file to provision product licenses, see 9. Controlling Access to Products with the User Options File.

For details on the MAX_BORROW_HOURS keyword, see B. FLEXlm User Options File Reference.
14.4 Setting Up a Workstation for Borrowing

You, or your developers, must configure development workstations for borrowing before they are ready to run license-managed products while disconnected from the network.

**NOTE:** The developer must have administrator privileges to be able to borrow on Windows, because borrowing information is written to the registry.

14.4.1 Configuring Borrowing Using the Command Line

License management utilities are not part of a default workstation installation, so you must make them accessible to your developers if you want them to borrow licenses using this method.

**Step 1:** Connect the workstation to the network.

The workstation must have access to a running license server.

**Step 2:** Specify the path to the server license file.

1. Create an environment variable called **WRSD_LICENSE_FILE**.

2. Set the value of this variable to the full path to the **WRSLicense.lic** file on the server (if you know it), or to the **port@servername** indicated in the **SERVER** line of the server license file.

   If the workstation has a floating or named-user license file (usually **installDir/license/WRSLicense.lic**), it will contain the port and server values for the license server regularly used by that computer. Read the contents of this file and find the string that looks like this:

   ```
   SERVER myserver hostID 27000
   ```

   In this case, the server name is **myserver** and the port is **27000**, so the value of **WRSD_LICENSE_FILE** should be **27000@myserver**.

**Step 3:** Specify a borrow period.

You can configure the borrow period using the FlexLM utility **lmborrow**, or by creating an environment variable, **LM_BORROW**.

**lmborrow**

1. Navigate to the license management tools directory and type the following:

   ```
   \% lmutil lmborrow wrsd dd-mmm-yyyy:hh:mm
   ```

   *wrsd* is the Wind River vendor daemon, and *dd-mmm-yyyy:hh:mm* is the end date and time of the borrow period.

   For example, **lmutil lmborrow wrsd 10-aug-2006:17:00**.

   Details of **lmutil** options and syntax are located in C. FLEXlm Command Reference.

**LM_BORROW**

1. Create an environment variable named **LM_BORROW**.
2. Set the value of this variable to `dd-mmm-yyyy:wr/sd:dd-mmm-yyyy:hh:mm`

The first date string is the starting date of the borrow period; `wr/sd` is the Wind River vendor daemon; and the second date string specifies the end date and time of the borrowing period.

For example, `07-may-2006:wr/sd:18-may-2006:17:00`.

**NOTE:** Setting the end time is optional. If you do not specify a time, the borrow period expires at 23:59 hours on the end date.

---

**Step 4: Borrow a license.**

While the computer is still connected to the network, launch the license-managed product; for example, Wind River Workbench.

At this point, the borrow is complete, and the license will remain checked out and available for use on this workstation until the borrow period expires.

---

### 14.4.2 Configuring Borrowing Using the Windows LMTOOLS Graphical Utility

This method is convenient if your developers are using Windows development workstations and prefer a graphical interface to the configuration tool.

License management utilities are not part of a default development computer installation, so you must make them accessible to your developers if you want them to borrow licenses using this method.

1. Launch the `lmtools` utility from the development workstation by selecting **Start > Run**, then enter `lmtools.exe` and click **OK**.

2. Specify the license file of the license server that will allocate their licenses.

   a. Click the **Service/License File** tab.

   ![Specify the License File](image)

   b. Select **Configuration Using License File**.
14 Configuring Borrowing of Wind River Product Licenses

14.5 Initiating Borrowing

To borrow a license for a Wind River product, you must do the following:

1. Configure the development workstation as described in 14.4 Setting Up a Workstation for Borrowing, p. 111.

2. Ensure that all products and features that will be borrowed have been checked out at least once.

Figure 14-2 Set the Borrow Return Date

![Set the Borrow Return Date](image)

- Enter the vendor name **wrsd**.
- Specify a return date (the end of the borrowing period).
- If necessary, adjust the return time.
  - The default maximum borrowing period is seven days.
- Click **Set Borrow Expiration**.

4. Exit the **lmtools** utility.

5. While the workstation is still connected to the network, launch the license-managed product; for example Wind River Workbench.

At this point, the borrow is complete, and the license will remain checked out and available for use on this workstation until the borrow period expires.
3. On the workstation that will host the borrowed product, run the product that the developer wants to borrow.

NOTE: Keep the workstation connected to the network (with access to the license server) while initiating borrowing.

The license will be borrowed, and will remain allocated until the return date you specified, even if you reconnect the workstation to the network before the borrow return date.

4. Repeat the steps above for any number of borrow periods and features.
   When you have finished, you can disconnect the development workstation from the network.

14.6 Returning Borrowed Licenses Early

Once the development host is re-connected to the network and can access the license server from which the features were borrowed, you can return licenses early (prior to the end of the borrow period) if desired.

NOTE: Early return of borrowed licenses is possible for FLEXlm versions 9.2-11.3. For other FLEXlm versions, early return may not work correctly.

To return a license before the borrow period end date, follow these steps:

1. Run the following command:

   % lmutil lmborrow -return feature-name

   where feature-name is the name of the licensed feature you wish to return early.
   You must do this for each feature borrowed that you wish to return early.

2. Verify the license return with the following command:

   % lmutil lmborrow -status

   The output from this command should indicate no borrowed features.
15.1 Should You Use a Single Server for Multiple Products?

As a matter of convenience, you may prefer to use a single license server to allocate licenses for multiple Wind River products. However, Wind River recommends that whenever possible, you put each Wind River license server file on a separate license server computer as described in Chapter 8, Installing the License Administration Tools. This is because of the way that FLEXlm searches license files for product feature names.

15.1.1 Understanding How FLEXlm Searches License Files

When FLEXlm receives a license request for a particular product, it searches for the corresponding feature name among license files associated with the product’s vendor daemon.

For example, if FLEXlm receives a request for Wind River Workbench, it looks for the WR_WORKBENCH feature name in Wind River license files. FLEXlm then authorizes use of the first product with a matching feature name.

This means that if a license server controls licenses for two Wind River Workbench products (such as one named-user license and one floating license, both of which have WR_WORKBENCH components), FLEXlm draws licenses only for the first WR_WORKBENCH encountered, regardless of whether the request is intended for that product or not.

FLEXlm cannot differentiate between the features, which are identical. So it continues to draw licenses associated with the first product until it exhausts available licenses, then begins to draw licenses associated with the second product.
This can lead to reporting inaccuracies when named-user licenses share a license server with floating licenses.

**NOTE:** You can force the daemon to search license files in a particular order (see 15.2 Keeping License Server Files Separate, p. 116) or you can establish a natural search order from top to bottom in a merged license file (see 15.3 Merging License Server Files, p. 117).

However, you are still constrained by FLEXlm’s limitation that it cannot differentiate among identical feature names and will check out a license for the first feature match it encounters, regardless of whether the license request is for that item or not.

### 15.2 Keeping License Server Files Separate

If you decide to keep the license server files separate, you must also have separate server hardware for the separate license files. This is because only one Wind River vendor daemon can run on a given server system at a time.

With separate license server files, you can use the `lmgrd` command or the LMTOOLS utility to specify the license file search order.

**Using lmgrd to Specify Search Order**

To direct the `lmgrd` daemon, in conjunction with the `wrsd` daemon, to look for feature names among multiple license files, type the following command at a Windows command prompt or in a UNIX shell window. Substitute the appropriate path to the license files in place of `installDir`.

```
% lmgrd -c "installDir/NU/WRSLicense.lic;installDir/FL/WRSLicense.lic" -l installDir/logs/lmgrd.log
```

This command starts `lmgrd` and instructs it to read `FEATURE` or `INCREMENT` lines from two license files: first, the `WRSLicense.lic` file in the NU directory; second, the `WRSLicense.lic` in the FL directory. The command also initiates recording of debug run-time data in a log file, `lmgrd.log`.

**Using LMTOOLS**

On Windows, you can achieve the same effect using LMTOOLS by following these steps:

1. If it is not already running, launch the `lmtools` utility from the development workstation: select **Start > Run**, then enter `lmtools.exe` and click **OK**.
2. Go to the **Config Services** tab.
3. Modify the **Path to the License File** text box. Use semi-colons to separate license file entries, as above.
4. Switch to the **Start/Stop/Reread** tab and re-read the license files. Or stop the license server and restart it.

Now, when the developer launches a license-managed product (initiating a license request), `lmgrd` searches the files in the order you specified.
15.3 Merging License Server Files

If you decide to merge license server files together, keep these things in mind:

- You can merge floating licenses, named-user licenses, or a combination of the two.

- You can only merge license files in which the SERVER lines are identical, so you must choose the same license server host when obtaining the licenses on the Wind River licensing Web site. For more information about that process, see 3. Obtaining Server License Files.

- You must be careful when merging license files that contain the same feature name (for details, see 15.1.1 Understanding How FLEXlm Searches License Files, p.115).

15.3.1 Creating a Merged License File

Follow these steps to create a merged license file:

1. Open the license files in a text editor. Use one of the license files as your base, into which to copy and paste text from the second license file.

2. Copy the PACKAGE, INCREMENT, and FEATURE lines of the second license file and paste them after the final line of the first file. Wind River no longer uses the FEATURE type for license file features, but you may see it in existing license files.

   The resulting license file should look similar to the following:

   ```
   SERVER servername hostID portnumber
   VENDOR wrsd
   PACKAGE UU_WORKBENCH_SUBSCRIPTION_Cfg1 wrsd 2.0 C7F901C9DB56
   COMPONENTS="WR_DEBUGGER:2.0 WR_TOS_LX_2.4:2.0"
   WR_TS_MPC82XX:2.0 WR_WORKBENCH:2.0* OPTIONS=SUITE
   SIGN=13B8CA28C770
   INCREMENT UU_WORKBENCH_SUBSCRIPTION_Cfg1 wrsd 2.0 30-jun-2004 1
   AB453A501AD8 VENDOR_STRING="<ln>221073</ln> <flt>2</flt><ps>1157-1</ps>
   SUPERSEDE=WORKBENCH_SUBSCRIPTION_Cfg1 DUP_GROUP=UH
   SUITE_DUP_GROUP=UH ISSUED=24-May-2004 SIGN=DF0B491B60DAC
   
   PACKAGE WORKBENCH_SUBSCRIPTION_Cfg1 wrsd 2.0 G798BAC900V6
   COMPONENTS="WR_DEBUGGER:2.0 WR_TOS_LX_2.4:2.0" OPTIONS=SUITE
   SIGN=13B8CA28C770
   INCREMENT WORKBENCH_SUBSCRIPTION_Cfg1 wrsd 2.0 30-jun-2004 1
   K953PC910AL0 VENDOR_STRING="<ln>221073</ln>"
   SUPERSEDE=WORKBENCH_SUBSCRIPTION_Cfg1 DUP_GROUP=UH
   SUITE_DUP_GROUP=UH ISSUED=24-May-2004 SIGN=DF0B491B60DAC
   
   Package WORKBENCH_SUBSCRIPTION_Cfg1 wrsd 2.0 G798BAC900V6
   COMPONENTS="WR_DEBUGGER:2.0 WR_TOS_LX_2.4:2.0"
   WR_TS_MPC82XX:2.0 WR_WORKBENCH:2.0* OPTIONS=SUITE
   SIGN=13B8CA28C770
   INCREMENT WORKBENCH_SUBSCRIPTION_Cfg1 wrsd 2.0 30-jun-2004 1
   K953PC910AL0 VENDOR_STRING="<ln>221073</ln>"
   SUPERSEDE=WORKBENCH_SUBSCRIPTION_Cfg1 DUP_GROUP=UH
   SUITE_DUP_GROUP=UH ISSUED=24-May-2004 SIGN=DF0B491B60DAC
   
   Package WORKBENCH_SUBSCRIPTION_Cfg1 wrsd 2.0 G798BAC900V6
   COMPONENTS="WR_DEBUGGER:2.0 WR_TOS_LX_2.4:2.0"
   WR_TS_MPC82XX:2.0 WR_WORKBENCH:2.0* OPTIONS=SUITE
   SIGN=13B8CA28C770
   INCREMENT WORKBENCH_SUBSCRIPTION_Cfg1 wrsd 2.0 30-jun-2004 1
   K953PC910AL0 VENDOR_STRING="<ln>221073</ln>"
   SUPERSEDE=WORKBENCH_SUBSCRIPTION_Cfg1 DUP_GROUP=UH
   SUITE_DUP_GROUP=UH ISSUED=24-May-2004 SIGN=DF0B491B60DAC
   ```

3. Save the merged license file to the directory path mentioned in the license files of the workstations that need to use the listed products.

For detailed information about merging license files, see the FLEXlm End User’s Guide.
For detailed instructions on controlling users’ access to licensed products through the options file, see 9. Controlling Access to Products with the User Options File.

⚠️ CAUTION: You must be sure to preserve the .lic or .opt ending on the license file; otherwise, the file will not work properly. On Windows systems, you can do this by selecting All Files rather than Text Document from the Save as type drop-down list.

15.4 Removing Wind River Products from Merged License Files

If you delete a merged license file, your developers will no longer be able to access any of the products listed in that file. Therefore, if you must remove a particular license-managed product, do not simply delete the license file along with the product.

To remove a product from a merged license file, follow these steps:

1. Make a backup copy of the license file.
2. Using a text editor, open the file and remove the PACKAGE and INCREMENT lines (and FEATURE lines, if they exist) of the product you are uninstalling.
3. Save the file, being sure to preserve the .lic file extension.
4. Delete the backup of the original file if you like.
“Bad Interpreter” Error on Linux Hosts  
Older Versions of the Installer Crash During Entitlement Process  
The Maintenance Tool Starts Slowly or Hangs  
Installation Process Is Slow or Times Out  
The setup.log File Shows “Dependency Issues”  
Expected Software Was Not Installed  
Start Menus Do Not Appear as Expected in GNOME  
The Installer Reverts to Text Mode (Solaris Hosts)  
License Overdraft Needed  
Slow Performance Due to License Configuration  
License Denial with Multiple VNC Sessions  
License Denial with a Dummy Username  
Build Farm’s Dummy Username Not Working as Expected  
Error=-84  
License Denial Although Named Users Are Listed  
Named Users Are Occupying Floating License Seats  
Logfiles Are Too Large  
Borrowing Not Working as Expected
16.1 Introduction

This chapter describes some common problems seen in installing, licensing, and maintaining Wind River products.

If you are facing an issue that is not listed here, use the following resources:

- Documentation on installation and licensing, including:
  - this guide
  - the Installer program’s Help system
    To open the Installer Help, launch the Installer or Product Maintenance Tool and click Help. The Help system offers screen-by-screen instructions.
  - the getting started guide and release notes for your product
- Wind River Customer Support at www.windriver.com/support

When you contact Customer Support, be ready to provide the following files:

- installDir/setup.log
- installDir/maintenance/wrInstaller/hostType/configuration/*/*.log

16.2 Troubleshooting the Installation and Maintenance Processes

“Bad Interpreter” Error on Linux Hosts

Problem

On certain Linux hosts, when you run the Installer (the setup_linux* application), the following error message may appear:

/bin/sh: bad interpreter: Permission denied

Explanation

The source of this problem is in the GNOME desktop environment on Red Hat hosts (specifically, Red Hat Enterprise Linux versions 5: 2.6.18-128.e15). In the DVD mount process, GNOME uses default attributes that make the DVD mount non-executable. Then, because the DVD is mounted without execution permissions, this error is triggered.

Solution

There are two ways to solve this issue:

1. Change the default settings for gnome-mount so that the mounted DVD is executable.
2. Edit /etc/fstab to override the gnome-mount process entirely.
Older Versions of the Installer Crash During Entitlement Process

**Problem**
If you run an older (<2.0) version of the Installer program, it can fail either after you have specified a product activation file (install.txt file) or after you have entered a valid license authorization code (LAC).

**Explanation**
The reason for this failure is that some entitlement information is too long for the older Installer program to accommodate. If the entitlement takes the form of a string longer than 50 characters, the pre-2.0 Installer crashes.

**Solution**
As a workaround for this issue, simply remove the overlong lines from your install.txt file or LAC, and restart the Installer program.

(WIND00161540)

The Maintenance Tool Starts Slowly or Hangs

**Problem**
After launching the Product Maintenance Tool, the tool can be slow to start up, or may appear to run in an endless loop.

**Explanation**
In some cases if your organization uses a firewall, the firewall can drop the connections that the Maintenance Tool uses to, for example, find updates to your installed products.

**Solution**
Check the setup.log file, located at the root of your installation directory, for errors indicating that the connection has timed out. To avoid this kind of disruption, configure the Maintenance Tool to use a proxy server. For details on how to specify proxy settings, see nProxy Server, p. 32.

Installation Process Is Slow or Times Out

**Problem**
You’re trying to install a product or an update, but the installation process quits.

**Explanation**
The response times on your network are slower than what the Installer is set to tolerate.

**Solution**
Adjust the Installer’s timeout settings so that it can accommodate slower network performance. To do so, edit the .ini file:
1. Go to `installDir/maintenance/wrInstaller/hostType` and open `wrInstaller.ini` in an editor.

2. Quadruple the timeout values by appending the following lines to the `.ini` file:
   
   ```
   -Dorg.eclipse.ecf.provider.filetransfer.retrieve.readTimeout=4000
   -Dorg.eclipse.ecf.provider.filetransfer.httpClient.retrieve.readTimeout=4800
   ```

3. Retry the installation process.

The setup.log File Shows “Dependency Issues”

**Problem**

The Installer program creates a log file of the installation process, called `setup.log`, at the root of your installation directory. After launching the Installer, you may see the following message in `setup.log`:

```
Pre-installation checks found products that cannot yet be installed due to dependency issues.
```

**Explanation**

In the installation process, the Installer program checks for inter-product dependencies. If it finds that a particular product is available but cannot be installed because a product that it depends on is absent or lacks entitlement, it logs the failure and disables the product. The `setup.log` file records the name of the online repository that contains the product at issue. Note that in this case, not all products in that repository are disabled, but only the ones that would fail.

In the course of installation, you can see which products have been disabled: At the **Confirm and Install** screen, expand the hierarchical list of products; disabled products are grayed out.

**Solution**

The following are the most common solutions to dependency issues:

- You may have installed an update before that update’s base product was installed. To avoid this, ensure that you install the base product before installing additions to it. For example, install a Platform product first; then install a service pack that updates the Platform. Use the same installation keys for both pieces.

- If you copied the product media, the copy operation may have failed and left you with an incomplete DVD. To check the integrity of the media, use the **-validate** option described in **Table A-1**.

Expected Software Was Not Installed

**Problem**

You have completed installation of Wind River products, but a particular software product, component, or feature that you were expecting to find in the installation is not present.

For example, you are expecting to use Wind River On-Chip Debugging, but it is not available in your installation.
**Explanation and Solution**

Most likely, the missing software was not installed because the installation keys (in the `install.txt` file) that you used during installation do not include entitlement for that piece.

Confirm that the missing software was not installed. To do so, examine your installation keys as follows:

1. Navigate to the `images` directory of your installation DVD (or other installation media).
2. Within that directory, find the `mediaID` file in each CDR-*- directory.
3. Check each `mediaID` file for its description of what software is included in that CDR grouping.

If there is no CDR directory for the missing software, this confirms that it was not installed.

You may need to retrieve an updated product activation file; or you may need to contact Wind River to discuss your entitlement.

**Start Menus Do Not Appear as Expected in GNOME**

**Problem**

In the GNOME desktop environment, Wind River product entries may not appear in your Start menus even if you opted during the installation process to create them.

**Explanation**

This can happen if you had a previous Wind River installation and manually removed its entry from the GNOME Start menus. In this situation, GTK unfortunately stores that removal for all future installations; hence, new installations’ Start menu entries do not appear.

**Solution**

You can undo the removal by editing the affected files in one of these locations:

- `~/.config/menus/applications.menu`
- `~/.local/share/desktop-directories/*`

**The Installer Reverts to Text Mode (Solaris Hosts)**

**Problem**

When you run the Installer in its default GUI mode on Solaris hosts, it may switch to text mode and the following error message may appear:

```
The installer program cannot run in GUI mode on this host type. Switching to text-based mode...
```
Explanation and Solution

Possible reasons for this event:

a. You do not have the GTK 2.0 library installed on this host.
   In this case, you can either
   – Install the necessary GTK library.
   or
   – Continue to run the Installer in silent (command-line) mode. For
     information on using the Installer in silent mode, see A. Command-Line
     Installation.

b. The DISPLAY environment variable is not set. This is particularly likely if you are using telnet, putty, or another tool to log in to the host system remotely, or if for some other reason the X Window System has not been started on this host.

   You can use xterm to see whether DISPLAY is set.

16.3 Common Licensing Issues

License Overdraft Needed

Problem

Your organization needs more license seats than are listed in your license agreement—perhaps because engineers have been added to a workgroup.

Solution

By default, Wind River allows a 20% overdraft of license usage, for a set fee. That is, you can automatically use 20% more seats than you purchased.

⚠️ CAUTION: Overdraft usage is logged and reported to Wind River in your regular license report, and Wind River will invoice your organization for the additional use.

If you need special overdraft arrangements, such as more than the 20% default, contact Wind River.

Slow Performance Due to License Configuration

Problem

Your developers are experiencing slow performance of Wind River software, particularly during demanding operations such as builds.
16.3 Common Licensing Issues

**Explanation**

Slow performance can be due to an inefficient license configuration.

For example, when a compiler is invoked, it issues a license request. If your license configuration is less than optimal, that request takes longer to be granted, resulting in a slow build time.

**Solution**

Examine your license configuration to ensure that it is arranged for the best performance.

For a quick way to visualize your configuration, do the following:

1. Launch the Maintenance Tool. Go to `installDir/maintenance/wrInstaller/hostType` and double-click the `wrInstaller` application.
2. On the **Choose Maintenance Task** screen, select **License configuration** and click **Next**.
3. On the **Configure License Setup** screen, examine the **Current license configuration** area in the top half of the screen.

   This area lists the elements—license files or license servers—that together constitute your license setup for this installation. That is, when a user runs a license-managed Wind River product, FLEXlm consults the elements listed here, in the order shown here.

   Pay particular attention to any environment variables your system may have set for licensing. These may include `WRSD_LICENSE_FILE` and `LM_LICENSE_FILE`.

At this point, you can

- Quit if you have enough information. Click **Finish**.
- Change your configuration by adding, editing, or removing an element. See **Changing Your License Configuration**, p.56.
- Get detailed diagnostic information about an element or the whole configuration. see **Diagnosing License Issues**, p.57.

**License Denial with Multiple VNC Sessions**

**Problem**

If you use multiple VNC sessions to access the server where the License Administration Tools are installed, you may not always be granted a license token.

**Explanation**

Working from multiple VNC sessions is similar to working from multiple development computers, though virtually. Because the license server treats these VNC sessions as different development hosts, it checks out a token for each one. If all tokens have already been granted, the license server denies your token request.
Solution

See your license administrator about your organization’s license allocation policy and how tokens can be made available.

License Denial with a Dummy Username

Problem

If a shared, dummy username is used (for example, in a lab) for access to Wind River products, some users may be denied access.

Explanation

The named-user license type is assigned to a single specific user. Using a dummy or name or a name in common shares a license among several users—a violation of this kind of license. So the license server denies access in these cases, to prevent your license from being violated.

Solution

For named-user licenses, you must have an individual desktop login name for each user.

For more information on the named-user license type, see 2.1.1 Types of Workstation License, p. 4.

Build Farm’s Dummy Username Not Working as Expected

Problem

A set of build servers that had been using a single, “dummy” username no longer work.

Explanation

Using a shared name for build servers is not allowed under a named-user license. A named-user license is assigned to a single specific user, not to a build farm.

Solution

Named-user build farms should not use a dummy username. See your Wind River representative for information on adding licenses or changing the licensing of your products.

Error=-84

Problem

The following message appears:

Error=-84
16 Troubleshooting
16.3 Common Licensing Issues

Explanation

This error number indicates that either the options file does not contain any usernames, or it lists a larger number of users than you have licensed seats. In either case, no license tokens can be issued. All users will see Error=-84 until the issue is corrected.

Solution

You must correct the options file.

The options file, `wrsd.opt`, is located by default in the same directory as your license server’s license file. For each software package that is licensed with a named-user license, the options file must list the login names of the users who are designated to use that package.

1. Use the license file to find the package designator. Here is a sample line from a license file:

   ```
   INCREMENT UU_SE_GPP_VE_Cfg22  wrsd  3.4  18-jun-2009  4  55D698123CBA \
   ```

   The package designator appears after the keyword `INCREMENT` or `PACKAGE`. In the example above, the package designator is `UU_SE_GPP_VE_Cfg22`.

   The number of licensed seats appears after the datestamp. In the example above, there are four seats.

2. To add named users in the options file, open the `wrsd.opt` file and add a line with the following syntax:

   ```
   INCLUDE packageDesignator USER userLoginName
   ```

   You must add at least one name, and you may not list more names than the number of seats licensed.

   For detailed information on configuring the options file to allocate licenses, see 9. Controlling Access to Products with the User Options File.

License Denial Although Named Users Are Listed

Problem

Named users are listed correctly in the user options file, but the license server still cannot issue licenses.

Explanation

You may have listed the same user under more than one username. For example, workgroup member Mary Gaines might be listed as both `maryG` and `maryg`.

Usernames are read as case-sensitive in the user options file; so in the example, `maryG` and `maryg` are two distinct named users.

Solution

Either remove case sensitivity by including the `GROUPCASEINSENSITIVE` keyword at the beginning of your user options file, or correct the usernames so that they use a consistent case in their spelling.

For a more detailed discussion of case-sensitivity in the user options file and in license usage reporting, see Case Sensitivity, p.74, and Generating Reports, p.92.
Named Users Are Occupying Floating License Seats

Problem
If your organization has both named-user licenses and floating licenses, users who are designated for named-user license seats may accidentally occupy floating license seats.

Explanation
The license server grants access to products based on the contents of the options file. You can use the options file to exclude one or more users, or a group of users, from using a particular package.

Solution
Edit the options file to exclude named users from floating-licensed software packages.
1. Use the license file to find the package designator. Here is a sample line from a license file:
   
   `INCREMENT UU_SE_GPP_VE_Cfg22 wrsd 3.4 18-jun-2009 4 55D698123CBA \`

   The package designator appears after the keyword `INCREMENT` or `PACKAGE`. In the example above, the package designator is `UU_SE_GPP_VE_Cfg22`.

   2. Edit the options file (`wrsd.opt`) to add a line using the `EXCLUDE` keyword:

   `EXCLUDE packageDesignator USER userLoginName`

   For detailed information on configuring the options file to allocate licenses, see 9. Controlling Access to Products with the User Options File.

Logfiles Are Too Large

Problem
The server debug log and license-usage log increase in size.

Explanation
Like any other logs on a server, the size of these logfiles must be controlled, or they can grow to be quite large.

Solution
You can back up the current log by renaming it with a timestamp. When you do this, the server starts a new logfile.

Borrowing Not Working as Expected

Problem
You have configured both your license server and a workstation for borrowing, but cannot successfully borrow a product license.
Explanation

Most Wind River products are made up of several licensed features. Borrowing is done at the feature level. Therefore, the borrow attempt may have failed because not all licensed features in the product have been checked out.

Solution

Ensure that all features in the package (product) have been checked out before initiating borrowing.

For more information on borrowing a product license, see 14. Configuring Borrowing of Wind River Product Licenses.
Command-Line Installation

In addition to using the Installer’s GUI, you can also install and maintain products in non-GUI mode. To do so, run the version of the `setup` program appropriate to your host, with the `-silent` option.¹

This appendix lists the options for the `setup` command.

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>-add</code></td>
<td>Install all products and product updates that your license entitles you to.</td>
</tr>
<tr>
<td><code>-applyUpdates</code></td>
<td>Update your installation to the latest available version permitted by the terms of your license.</td>
</tr>
<tr>
<td><code>-archs archsToInstall</code></td>
<td>Install for the specified target architectures. The allowed values for <code>archsToInstall</code> are</td>
</tr>
<tr>
<td></td>
<td>- all</td>
</tr>
<tr>
<td></td>
<td>- 68K</td>
</tr>
<tr>
<td></td>
<td>- ARM</td>
</tr>
<tr>
<td></td>
<td>- ColdFire</td>
</tr>
<tr>
<td></td>
<td>- Intel</td>
</tr>
<tr>
<td></td>
<td>- M32R</td>
</tr>
<tr>
<td></td>
<td>- M-CORE</td>
</tr>
<tr>
<td></td>
<td>- MIPS</td>
</tr>
<tr>
<td></td>
<td>- PowerPC</td>
</tr>
<tr>
<td></td>
<td>- SPARC</td>
</tr>
<tr>
<td></td>
<td>- SuperH</td>
</tr>
<tr>
<td></td>
<td>- TriCore</td>
</tr>
<tr>
<td></td>
<td>- XScale</td>
</tr>
</tbody>
</table>

If you do not specify an architecture or architectures with the `-archs` option, your installation will include everything that the installation key enables, including all BSPs present on the product media.

To specify multiple architectures, separate the values by a comma.

---

¹ On Windows, Wind River recommends you use `cmd.exe`. On Linux and Solaris, you can use any shell variant.
Table A-1  **Options for the setup Command** (cont'd)

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
</table>
| -download [path]      | Create a local copy of the products you are entitled to, for later installation.  
If *path* is not specified, the products are placed under your existing installation directory.  
The -download operation creates a new directory named download. To install the products after downloading them, run setup in the new download directory. |
| -extract dir          | Extract into the specified directory the contents of all patches located in installDir/updates.  
This is useful when you want to examine the contents of a patch before applying it. |
| -help                 | Print the command-line help.                                                                                                                |
| -installerUpdateURLS url | Install updates to the Installer program from the specified URL or URLs.  
*url* points to the Installer update server (the server that provides updates of the Installer program).  
If you explicitly do not want to retrieve updates to the Installer, specify none for the *url* parameter.  
To specify multiple Installer update locations, separate the URLs by a comma. |
| -installKeys path     | The full path to the product activation file.a                                                                                                                                                  |
| -installPath path     | The full path to the target installation directory.b                                                                                                                                              |
| -patch                | Install all patches found in the installDir/updates directory.                                                                                                                                   |
| -print_toc [dirPath/filename] | Print the file list of a patch to the console, or save it to a file if a filename is specified. Applies to all patches found in the installDir/updates directory.  
This is useful when you want to see which files a patch will alter before applying it. |
| -productUpdateURLS url | Install product updates from the specified URL or URLs.  
*url* points to the product update server (the server that provides updates of installed products).  
If you explicitly do not want to retrieve product updates, specify none for the *url* parameter.  
To specify multiple product update locations, separate the URLs by a comma. |
Table A-1  Options for the setup Command (cont’d)

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
</table>
| -proxy  serverIpAddress:portNumber:proxyType [username:password] | Use a proxy server to connect to the Internet. The allowed values for proxyType are HTTP and SOCKS. For example:  
  -proxy 127.0.0.1:8080:http  
  -proxy 127.0.0.1:8081:socks  
  With username/password authentication:  
  -proxy 127.0.0.1:8080:http:johndoe:myPassw0rd |
| -recipe path | Installs products with an existing recipe file that specifies RPM content. Takes as argument, the absolute path to the installation recipe file (can also be log files obtained from Wind River Workbench, Help->Collect Log Files):  
  setup -recipe path  
  Used primarily to reproduce a specific installation. An Enterprise Administrator might use this option, for example, to create a single default installation and distribute it to multiple users. This option puts the Installer program into a special ‘sync’ mode that is designed to recreate exactly the same set of RPMs as specified in the recipe file.  
  CAUTION: Trying to reproduce an installation on a Windows host if the original was Linux, will produce a warning that not all RPMs were found. The same warning is shown when RPMs are missing. In both cases, the Installer program asks if you want to continue. |
| -remove      | Remove all Wind River products.                                                |
| -repousername and -repopassword | For a content source that requires authentication, specify the default username and password credentials. A content source can also be set to require repository-specific authentication, other than these default credentials. For more information on both default and repository-specific authentication, see Set default authentication information, p.58. If you do not use these options and you have not stored your credentials (in the .repo file, for example), the Installer will prompt you for your user name and password. |
| setup.exe -rpm --help | Print an RPM-specific help page. |
| (or setup.exe -rpm -?) | Run the Installer program non-interactively and without the Installer GUI. |
| -silent      | Skip the disk space quota check.                                              |
| -skipQuota   |                                                                                   |
-validate [validationLevel]
Validate the product media and report potential problems.
The allowed values for validationLevel are as follows:

- 5 (Validates suite definition files [SDFs].)
- 10 (Validates SDFs and file repositories.)
- 15 (validates SDFs, file repositories, and online content. Requires an Internet connection.)

If no validation level is specified, the default is level 5 (SDF validation).

-yum
Invoke the Installer’s interactive yum mode. In this mode the Installer accepts Yum commands and parameters.

-yum help
(or -yum --help or -yum -h)
Print a yum-specific help page.

-yum downgrade [package1] [package2] [...] Downgrade an installed RPM package (or packages) to an earlier version (or versions) available in the product repository.

-yum install [package1] [package2] [...] Install package(s). If no packages are specified, all packages will be installed.

You can use the ? and * wildcards in the package name string.

-yum install --allversions [package] Install all versions of install-only packages.

An install-only package is a package that can coexist in the same installation with other versions of itself—the Installer program will not overwrite install-only packages. An install-only package is the opposite of an updatable package (a singleton).

-yum --installroot=path
Install into the specified location.

Note that this command performs the same function as the -installPath option listed above.

If you specify both -installPath and --installroot, the Installer uses whichever installation location was given last.

-yum list [all | glob_exp1] [glob_exp2] [...] List all available and installed packages.

-yum list --allversions [package] List all available versions of a particular package.

-yum list available [glob_exp1] [...] List all packages in the yum repositories that are available to be installed.

-yum list installed [glob_exp1] [...] List all installed packages.

-yum list updates [glob_exp1] [...] List all packages in the repositories that have updates available.

-yum localinstall rpmFile1 [rpmFile2] [...] Install a single RPM package (or multiple RPM packages) from a local directory.

The Installer resolves any package dependencies.
-**yum remove** package1 [...]  Remove (uninstall) the specified package or packages.

    The remove option also removes any packages that are dependent on the removed packages.

-**yum update** [package1] [...]  Update the installed packages to the latest version available in the known or specified repositories.

    If specific packages are listed, only those packages are updated.

    The update option also finds and installs any dependencies of the packages it updates.

-**-vmargs**  Specify arguments for the Java virtual machine (JVM).

    Other command-line options in this list are passed to the Installer program. All arguments that follow -vmargs are passed directly to the JVM.

    **Usage:**

    -vmargs -Xmx<memory-size>
    -vmargs -D<property>=<value>

    **Examples:**

    -vmargs -Xmx1G (specifies a heap memory size of 1 gigabyte)

    -vmargs -Declipse.p2.max.threads=1 (disables parallel downloads. To disable parallel downloads, append this option to your command-line arguments, or to your setup.ini file, installDir/setup.ini.

    **NOTE:** Specify all Installer-specific arguments before you add the -vmargs option.

---

**Table A-1  Options for the setup Command (cont’d)**

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>-yum remove</td>
<td>Remove (uninstall) the specified package or packages.</td>
</tr>
<tr>
<td>-yum update</td>
<td>Update the installed packages to the latest version available in the known or specified repositories.</td>
</tr>
<tr>
<td>-vmargs</td>
<td>Specify arguments for the Java virtual machine (JVM).</td>
</tr>
</tbody>
</table>

**NOTE:** All yum-related options must be placed after the -yum declaration. All other Installer options must be placed before the -yum declaration.

**NOTE:** If you are installing architecture-specific media, the Installer may not accept all of the values listed in Table A-1 for the -archs option.

For example, if your Wind River product is PowerPC-specific, entering -archs MIPS produces an error. The error message then lists the values allowed for that DVD.

---

a. Note that not all Wind River products require keys. For example, RPM-based products can be installed without keys.

b. Ensure that the installation path does not include any of the following characters:

    [space character] ! % < > ?

    Note in particular that space characters (such as in the directory name Documents and Settings) are not permitted.

    If there is a space character anywhere in the absolute path, some elements of the installed products will not be available.

c. The optional glob_exp* arguments can use the wildcard characters ? and *.
Sample Command-Line Sequence: Windows Host

In this example for a Windows host, the Installer is run without displaying the GUI or the splash screen, and the path to the installation keys is specified.

```
setup.exe -silent -nosplash -installPath C:\WindRiver\install -installKeys C:\WindRiver\install.txt
```

Sample Command-Line Sequence: UNIX Host

In this example for a Linux or Solaris host, the paths to the target installation directory and to the installation keys are specified. The product is installed for all hosts and for the PowerPC target architecture.

```
setup -silent -nosplash -installPath /wind/river/workbench -installKeys /tmp/install.txt -archs PowerPC
```

Sample Command-Line Sequence: Using Yum to Install a Single RPM Package

If you want to install a single RPM package into your Wind River product installation, for example you have purchased a third-party VxWorks component packaged as single RPM, do the following:

1. Download the new RPM package.
2. Run the Installer Maintenance Tool:
   a. On a Windows operating system:
      i. As an administrator, open a command prompt window
      ii. At the command prompt, run the following command:
         ``installDir\maintenance\wrInstaller\x86-win32\wrInstaller.exe -silent -nosplash -yum localinstall <absolute path to rpm file> -y``
   b. On a Linux operating system:
      i. Open a terminal window.
      ii. At the command prompt, run the following command:
         ``installDir/maintenance/wrInstaller/x86-linux2/wrInstaller -silent -nosplash -yum localinstall <absolute path to rpm file> -y``

   ![NOTE](image)

   **NOTE:** If you are running operations, such as installing, updating, downgrading, and so on, the Installer program determines whether installed content needs to be updated or removed and takes into account associated dependency changes.

   For example, if you are installing an RPM package that depends upon a later version of a package that is already installed, the Installer program will install the dependent package. The installer program replaces the dependent package if it is a singleton, otherwise it installs the later package alongside the earlier version.

3. Review your Wind River product installation to make sure the new RPM package was properly installed.

   ![NOTE](image)

   **NOTE:** The `-yum localinstall` option loads all repositories so that the Installer program can resolve RPM package dependencies.
Sample Command-Line Sequence: Using Yum to Install an Older Version of an Installed Package

Starting with the release of VxWorks 7, the Wind River Installer supports installing and maintaining multiple versions of the same non-singleton RPM within the same installation.

These RPMs are called install-only packages (because the Installer is directed not to overwrite them). An install-only package is the opposite of a singleton package.

Install-only packages are similar to Linux kernel RPMs in the following ways:

- They always install into a new, versioned directory.
- They can co-exist in the installation with other versions of the same package.
  You can choose which version to use at run time.

When you install, the Installer offers you the most recent content, so that the latest bugfixes and features are available to you. In the rare case that you need an older version of an install-only package, you can use the Installer’s `yum` command-line interface to find and install it in the following steps:

Step 1: Check the current contents of your installation.

C:\Users\johndoe> C:\Users\johndoe\Downloads\setupc.exe -yum --installroot=C:\WindRiver list --allversions installed

Launching installer...
Searching updates.windriver.com for installer updates.

########################################################
Installed Packages
versiontest.noarch                      v2-rel0          installed

NOTE: In this example, versiontest is an install-only package.

About this step:

- The `--allversions` option is used to find out if multiple versions are already installed. For this example, the resulting output shows that only one version is installed.

- The `installed` option to the `-yum list` command limits the output to just those packages that are installed. Without the `installed` option, `-yum list` displays both installed and available, not-installed units.
Step 2: Find out what versions of a package are available.

C:\Users\johndoe> C:\Users\johndoe\Downloads\setup.exe -yum --installroot=C:\WindRiver list --allversions available

Launching installer...
Searching updates.windriver.com for installer updates.

Available Packages
- versiontest.noarch v1-rel0 test repository
- versiontest.noarch v1-rel1 test repository
- versiontest.noarch v1-rel2 test repository
- versiontest.noarch v3-rel0 test repository

Because v3 is higher than v2, a simple -yum update or -yum install operation would install it.

Step 3: Install one of the older available versions.

C:\Users\johndoe> C:\Users\johndoe\Downloads\setup.exe -yum --installroot=C:\WindRiver install versiontest-v1-rel0

Launching installer...
Searching updates.windriver.com for installer updates.

Resolving Dependencies
--> Finished Dependency Resolution
Dependencies Resolved

Installing:
- versiontest.noarch v1-rel0 test repository 1.82 KB

Is this ok [y/N]: y

Is this ok [y/N]: y

Download Packages:
- versiontest-v1-rel0.rpm 1.82 KB 37 msecs

Running Transaction Check
Running Transaction Test
Transaction Test Succeeded
Running Transaction
Installing: versiontest-v1-rel0.noarch 1/1

Installed:
- versiontest.noarch v1-rel0

Complete!

About Install-Only and Singleton Packages

- If versiontest were not an install-only package but a singleton package, v1 would not be installed in addition to and in parallel to v2, but would overwrite it.
- When a newer version of a singleton package is installed, the Installer output shows that the older version of the package is removed.
- If you try to install an older version of a singleton package, the Installer displays an error. Doing so is not supported.
Step 4: Check the contents of your installation again, to see the older-versioned package.

C:\Users\johndoe> C:\Users\johndoe\Downloads\setupc.exe -yum  
--installroot=C:\WindRiver list --allversions installed

Launching installer...
Searching updates.windriver.com for installer updates.

Installed Packages

```
versiontest.noarch                      v1-rel0          installed
versiontest.noarch                      v2-rel0          installed
```

Now two versions of the `versiontest` package coexist in the installation. In VxWorks 7, the `versiontest` package could represent a layer that is available in both versions v1 and v2.
B.1 What Does This Reference Cover? 141

B.2 User Options File Syntax 142

B.3 Action Keywords 145

### B.1 What Does This Reference Cover?

The information in this FLEXlm user options file reference is limited to a discussion of those keywords and commands that are immediately applicable to the license management instructions provided by Wind River. This section also includes an overview of the syntax of a user options file.

**NOTE:** Information in this section is based on the reference information provided in the *FLEXlm End User's Guide* from Macrovision/Acresso. The information is provided in this guide for your convenience. Always consult the latest version of the *FLEXlm End User's Guide* for complete and current information.

Table B-1 briefly describes the action keywords available for use in configuring your Wind River license manager.

<table>
<thead>
<tr>
<th>Action Keywords</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BORROW_LOWWATER</td>
<td>Set the number of BORROW licenses that cannot be borrowed.</td>
</tr>
<tr>
<td>DEBUGLOG</td>
<td>Write debug log information for a specified vendor daemon to a specified file. In the case of Wind River products, the daemon is wrsd.</td>
</tr>
<tr>
<td>EXCLUDE</td>
<td>Deny a user access to a feature.</td>
</tr>
<tr>
<td>EXCLUDE_BORROW</td>
<td>Deny a user the ability to borrow a BORROW license.</td>
</tr>
<tr>
<td>EXCLUDE_ALL</td>
<td>Deny a user access to all features served by wrsd.</td>
</tr>
</tbody>
</table>
B.2 User Options File Syntax

The basic syntax of the user options file is as follows:

\[ \text{action feature[:keyword=value] type user} \]

For example:

```
INCLUDE UU_WORKBENCH_SUBSCRIPTION_cfg1 USER johnf
```

or

```
# Exclude these New York City developers.
EXCLUDE WR_SYSTEM_VIEWER:SIGN=141556876DE GROUP USER_NYC
```

Each line of the file controls one option.

B.2.1 Comments

Include comments in your user options file by starting each comment line with a pound sign (#). Everything in a user options file is case-sensitive. Be sure that usernames and feature names, for example, are entered correctly.
B.2.2 Feature Specification

The feature name can be modified with an optional keyword-value pair to fully qualify it. This notation is used for distinguishing a particular group of licenses when there are multiple FEATURE or INCREMENT lines for a single feature. The following syntax is used:

```
licenseServerComputer feature : keyword=value
```

For example:

```
WR_WORKBENCH:VERSION=2.0
```

or:

```
WR_DEBUGGER:SIGN=15308987AC
```

The keywords in Table B-2 are a subset of those available for FLEXlm. They are used as feature name modifiers to denote a specific group of licenses:

<table>
<thead>
<tr>
<th>Keyword</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXPDATE=</td>
<td>The expiration date of your license agreement.</td>
</tr>
<tr>
<td>HOSTID=</td>
<td>The unique host ID of your license server.</td>
</tr>
<tr>
<td>KEY=</td>
<td>The old-style checksum embedded in your FEATURE or INCREMENT line.</td>
</tr>
<tr>
<td>SIGN=</td>
<td>The new-style checksum embedded in your FEATURE or INCREMENT line.</td>
</tr>
<tr>
<td>VENDOR_STRING=</td>
<td>The value of the vendor (Wind River) string in your FEATURE or INCREMENT line, if configured.</td>
</tr>
<tr>
<td>VERSION=</td>
<td>The version number of your feature.</td>
</tr>
</tbody>
</table>

If you specify an action in a user options file using a package name in place of a feature name, for example, `UU_WORKBENCH_SUBSCRIPTION_cfg1` instead of `WR_WORKBENCH`, the action is applied to all package components.

B.2.3 Type Specification

The following action keywords restrict who can use licenses or where licenses can be used:

- EXCLUDE
- EXCLUDEALL
- INCLUDE
- INCLUDEALL

These actions specify the restriction based on the following type arguments:

**USER**

The username of the user executing the licensed application.

**HOST**

The system host name or IP address where the application is executing. The IP address can contain wildcards.
DISPLAY
The display where the application is shown.
For Linux and Solaris, DISPLAY is /dev/tty\(\times\) (which is always /dev/tty when an application is run in the background) or the X-display name.
For Windows, DISPLAY is the system name or, in the case of a terminal server environment, the terminal server client name.

INTERNET
The IP address of the host where the application is executing. The IP address can contain wildcards.

PROJECT
The name of a project for which restricted user access is desired.
For Windows (without a terminal server), the HOST and DISPLAY names are both set to the Windows system name. For licenses that allow checkouts from a terminal server (TS_OK keyword in the FEATURE line), the USER, HOST, and DISPLAY names can be different from one another.
The types listed above take a single value. For example:

```plaintext
EXCLUDE UU_WORKBENCH_SUBSCRIPTIONCfg1 USER joew
```
You can specify multiple values, such as a group of users or hosts, if you define them as a single value first using the action keywords GROUP and HOST_GROUP. For example, use GROUP to identify a group of project developers:

```plaintext
GROUP Dvdplayer joe barbara susan
EXCLUDE UU_WORKBENCH_SUBSCRIPTIONCfg1 GROUP Dvdplayer
```

B.2.4 Order of Precedence in the User Options File

The INCLUDE and EXCLUDE options follow rules of precedence. Rules of precedence take effect when INCLUDE and EXCLUDE statements are combined in the same user options file and both are exercising control over access to the same features. The following define the precedence when both types of statements appear together:

EXCLUDE
Everyone not on the list is allowed to use the feature.

INCLUDE
Only those users on the list are allowed to use the feature. All others are excluded.

If neither list exists, everyone is allowed to use the feature.

The EXCLUDE list is checked before the INCLUDE list; someone who is on both lists is not allowed to use the feature.

Once you create an INCLUDE or EXCLUDE list, everyone else is implicitly outside the group. This feature allows the license administrator to control licenses without having to explicitly list each user permitted or denied access. In other words, there are two approaches:

- Give most users access, and list only the exceptions.
- Severely limit access, and list only users having access privileges.
B.3 Action Keywords

This section explains the action keywords used for Wind River license management. Each entry includes a definition of the keyword, an example of syntax, and explanations of associated arguments. For a complete reference of the actions possible in a user options file, see the FLEXlm End User’s Guide.

BORROW_LOWATER

Set the number of BORROW licenses that cannot be borrowed. (For more information on license borrowing, see 14. Configuring Borrowing of Wind River Product Licenses.) This action uses the following syntax:

BORROW_LOWATER  feature:keyword=value  n

feature
Name of the feature being affected.

keyword=value (optional)
Feature name modifier to denote a group of licenses. For details, see B.2.2 Feature Specification, p.143.

n
Number of licenses that cannot be borrowed using license borrowing.

For example, if the feature UU_WORKBENCH_SUBSCRIPTION_cfg1 has ten BORROW licenses (as configured on the FEATURE line of the license file), the following line restricts the number of licenses that can be borrowed to seven:

BORROW_LOWATER  UU_WORKBENCH_SUBSCRIPTION_cfg1  3

DEBUGLOG

Specify a location for the debug log output from the vendor daemon associated with this user options file. This action uses the following syntax:

DEBUGLOG +debugLogPath

Preceding debugLogPath with a + character appends logging entries. Otherwise, the file is overwritten each time the daemon is started.

Using DEBUGLOG affects output from only the vendor daemon associated with this user options file. The debug log output of lmgrd and any other vendor daemons in the same license file is not captured in this file.

EXCLUDE

Exclude a user or pre-defined group of users from the list of who is allowed to use the feature. This action uses the following syntax:

EXCLUDE  feature:keyword=value  type  name|groupName

feature
Name of the feature being affected.
keyword=value (optional)
   Feature name modifier to denote a group of licenses. For details, see
   B.2.2 Feature Specification, p.143.

type
   One of USER, HOST, DISPLAY, INTERNET, PROJECT, GROUP, or
   HOST_GROUP. See B.2.3 Type Specification, p.143.

name
   Name of an item of type type for which to reserve licenses.

groupName
   Name of the group to exclude.

For example, to exclude the user hank from the list of users able to use feature
UU_WORKBENCH_SUBSCRIPTION_cfg1, as follows:

EXCLUDE UU_WORKBENCH_SUBSCRIPTION_cfg1 USER hank

NOTE: EXCLUDE supersedes INCLUDE. Conflicts between the EXCLUDE list and
the INCLUDE list are resolved by EXCLUDE taking precedence.

EXCLUDE_BORROW

Exclude a user or pre-defined group of users from the list of who is allowed to
borrow licenses for a given BORROW feature. (For more information on license
borrowing, see 14. Configuring Borrowing of Wind River Product Licenses.) This
action uses the following syntax:

EXCLUDE_BORROW feature:keyword=value type name|groupName

feature
   Name of the feature being affected.

keyword=value (optional)
   Feature name modifier to denote a group of licenses. For details, see
   B.2.2 Feature Specification, p.143.

type
   One of USER, HOST, DISPLAY, INTERNET, PROJECT, GROUP, or
   HOST_GROUP. See B.2.3 Type Specification, p.143.

name
   Name of an item of type type for which to reserve licenses.

groupName
   Name of the group to exclude.

For example, to exclude the group windr from the list of groups able to borrow a
license for the BORROW feature UU_WORKBENCH_SUBSCRIPTION_cfg1, use
the following line:

EXCLUDE_BORROW UU_WORKBENCH_SUBSCRIPTION_cfg1 GROUP windr

NOTE: EXCLUDE_BORROW supersedes INCLUDE_BORROW. Conflicts between
the EXCLUDE_BORROW list and the INCLUDE_BORROW list are resolved by
EXCLUDE_BORROW taking precedence.
EXCLUDEALL

Exclude a user or pre-defined group of users from the list of who is allowed to use all features served by this vendor daemon. This action uses the following syntax:

```
EXCLUDEALL type name|groupName
```

- **type**  
  One of USER, HOST, DISPLAY, INTERNET, PROJECT, GROUP, or HOST_GROUP. See B.2.3 Type Specification, p.143.

- **name**  
  Name of an item of type type for which to reserve licenses.

- **groupName**  
  Name of the group to exclude.

For example, to exclude any user on the computer jupiter from using all features served by this daemon, add the following line to your user options file:

```
EXCLUDEALL HOST jupiter
```

GROUP

Define a group of users for use in the INCLUDE, INCLUDEALL, EXCLUDE, EXCLUDEALL, and RESERVE option lines. This action uses the following syntax:

```
GROUP groupName userList
```

- **groupName**  
  Name of the group being defined.

- **userList**  
  List of usernames in that group.

For example, to define a group called Hackers that consists of bob, howard, and james, use the following line:

```
GROUP Hackers bob howard james
```

If the number of members in a group exceeds the line length limit, use multiple GROUP lines for the same group name to add all of the specified users to the group.

NOTE: USER_GROUP is an alias for GROUP.

HOST_GROUP

Define a group of hosts for use in the INCLUDE, INCLUDEALL, EXCLUDE, EXCLUDEALL, and RESERVE option lines. This action uses the following syntax:

```
HOST_GROUP groupName hostList
```

- **groupName**  
  Name of the group being defined.

- **hostList**  
  List of host names in that group.
For example, to define a host group called Pacific that consists of tokyo, seattle, and auckland, use the following line:

```
HOST_GROUP Pacific tokyo seattle auckland
```

An IP address can be used anywhere a host name can be used in a user options file. If the number of members in a host group exceeds the line length limit, use multiple HOST_GROUP lines to add all the specified hosts into the group.

### INCLUDE

Include a user or pre-defined group of users in the list of who is allowed to use licenses for this feature. Anyone not in an INCLUDE statement is not allowed to use that feature. This action uses the following syntax:

```
INCLUDE feature:keyword=value type name|groupName
```

- **feature**
  - Name of the feature being affected.
- **keyword=value** (optional)
  - Feature name modifier to denote a group of licenses. See B.2.2 Feature Specification, p.143.
- **type**
  - One of USER, HOST, DISPLAY, INTERNET, PROJECT, GROUP, or HOST_GROUP. See B.2.3 Type Specification, p.143.
- **name**
  - Name of an item of type type for which to reserve licenses.
- **groupName**
  - Name of the group to include.

For example, to include bob in the list of users able to use feature UU_WORKBENCH_SUBSCRIPTION_cfg1, use the following line:

```
INCLUDE UU_WORKBENCH_SUBSCRIPTION_cfg1 USER bob
```

INCLUDE is required for user-based or host-based features. For named-user licensees, if you want to limit the number of users to the number of licensed seats, use an INCLUDE statement to define who has access.

> **NOTE:** EXCLUDE supersedes INCLUDE. Conflicts between the EXCLUDE list and the INCLUDE list are resolved by the EXCLUDE taking precedence.

### INCLUDE_BORROW

Include a user or pre-defined group of users in the list of who is allowed to borrow licenses for a given BORROW feature. (For more information on license borrowing, see 14. Configuring Borrowing of Wind River Product Licenses.) This action uses the following syntax:

```
INCLUDE feature:keyword=value type name|groupName
```

- **feature**
  - Name of the feature being affected.
keyword=value (optional)
   Feature name modifier to denote a group of licenses. See B.2.2 Feature Specification, p.143.

type
   One of USER, HOST, DISPLAY, INTERNET, PROJECT, GROUP, or HOST_GROUP. See B.2.3 Type Specification, p.143.

name
   Name of an item of type type for which to reserve licenses.

groupName
   Name of the group to include.

   For example, to include windr in the list of groups able to borrow a license for the BORROW feature UU_WORKBENCH_SUBSCRIPTION_cfg1, use the following line:

   INCLUDE_BORROW UU_WORKBENCH_SUBSCRIPTION_cfg1 GROUP windr

   INCLUDE is required for user-based or host-based features. For named-user licensees, if you want to limit the number of users to the number of licensed seats, use an INCLUDE statement to define who has access.

   NOTE: EXCLUDE_BORROW supersedes INCLUDE_BORROW. Conflicts between the EXCLUDE_BORROW list and the INCLUDE_BORROW list are resolved by the EXCLUDE_BORROW taking precedence.

INCLUDEALL

Include a user or pre-defined group of users in the list of who is allowed to use all features served by this vendor daemon. Anyone not in an INCLUDEALL statement is not allowed to use these features. This action uses the following syntax:

   INCLUDEALL  type  name|groupName

   type
      One of USER, HOST, DISPLAY, INTERNET, PROJECT, GROUP, or HOST_GROUP. See B.2.3 Type Specification, p.143.

   name
      Name of an item of type type for which to reserve licenses.

   groupName
      Name of the group to include.

   For example, to allow jane to use all features served by this daemon, use the following line:

   INCLUDEALL USER jane

MAX

Specify a maximum number of licenses that a user or group of users may use. For the specified users, if more licenses are requested than the specified maximum for this feature, these requests will be denied. This action uses the following syntax:

   MAX  numberOfLicenses  feature[keyword=value]  type  [name | groupName]
numberOfLicenses
The maximum number of licenses to allow.

feature
The software feature that this limit applies to.

keyword=value (optional)
Feature name modifier to denote a group of licenses. For details, see B.2.2 Feature Specification, p.143.

type
One of USER, HOST, DISPLAY, INTERNET, PROJECT, GROUP, or HOST_GROUP. See B.2.3 Type Specification, p.143.

name
Name of an item of type type for which to limit licenses.

groupName
Name of the group that this limit applies to.

For example, to limit the user jan to 5 licenses for feature f1, use the following line:

MAX 5 f1 USER jan

MAX_BORROW_HOURS
Changes the maximum number of hours (as specified in the license file) during which a BORROW license feature can be borrowed. (For more information on license borrowing, see 14. Configuring Borrowing of Wind River Product Licenses.)

This action uses the following syntax:

MAX_BORROW_HOURS feature:keyword=value n

feature
Name of the feature being affected.

keyword=value (optional)
Feature name modifier to denote a group of licenses. See B.2.2 Feature Specification, p.143.

n
Maximum number of hours in the new borrow period. This value must be less than the number specified in the license file. (If no value is specified in the license file for the feature, the default maximum is 168 hours.)

For example, to set a new maximum borrow period of 72 hours for the BORROW feature UU_WORKBENCH_SUBSCRIPTION_cfg1, use the following line:

MAX_BORROW_HOURS UU_WORKBENCH_SUBSCRIPTION_cfg1 72

NOTE: If multiple MAX_BORROW_HOURS keywords are specified in the user options file, only the last one is applied to the specified feature.
NOTE: Because MAX_BORROW_HOURS is encrypted in the license file, in order to change its value, you must do the following:
2. Regenerate the license file with the new MAX_BORROW_HOURS value. See 3. Obtaining Server License Files for instructions.
3. Copy the new license file to your license server.

NOLOG

Suppress logging the selected type of event in the debug log file. This action uses the following syntax:

```
NOLOG eventType
```

eventType

The type of event you wish to suppress logging of: IN, OUT, DENIED, or QUEUED.

For example, turn off the logging of checkins as follows:

```
NOLOG IN
```

Turn off the logging of checkouts and queued requests, as follows:

```
NOLOG DENIED
NOLOG QUEUED
```

Note that two separate NOLOG lines are required.

NOTE: License administrators use this option to reduce the size of the debug log file. However, it can also reduce the usefulness of the debug log for debugging license server problems.

RESERVE

Reserve a license for a specified user or group of users. This action uses the following syntax:

```
RESERVE numberOfLicenses feature[keyword=value] type {name | groupName}
```

numberOfLicenses

The number of licenses to reserve for this user or group.

feature

The software feature that this reservation applies to.

keyword=value (optional)

Feature name modifier to denote a group of licenses. For details, see B.2.2 Feature Specification, p.143.

type

One of USER, HOST, DISPLAY, INTERNET, PROJECT, GROUP, or HOST_GROUP. See B.2.3 Type Specification, p.143.
name
   Name of an item of type type for which to reserve licenses.

groupName
   Name of the group that this reservation applies to.

To reserve one license of feature f1 for user mel, use the following line:

RESERVE 1 f1 USER mel

Users and groups cannot be named in the same RESERVE line; if you want to reserve a license for several users or groups, you must use a separate RESERVE line for each user or group.

Once you have reserved a license for a user, it cannot be used by others, even if the license is not in use. However, an idle reserved license is not logged as license usage.
C.1 What Does This Reference Cover?

The information in this FLEXlm reference is limited to a discussion of those commands that are immediately applicable to the license management instructions provided by Wind River. The following sections provide basic information for the commands required to set up Wind River license management.

A complete reference can be found in the FLEXlm End User’s Guide.

C.2 License Manager Daemon Command-Line Syntax

This section describes a subset of the command-line options available for the FLEXlm license manager daemon (lmgrd).

lmgrd Command-Line Options

The lmgrd command takes the following options:
<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
</table>
| -c licenseFileList | Use the specified license management file(s). `licenseFileList` can be one or more of the following options:  
|               |   ▪ the full path to a single license file  
|               |   ▪ a directory, where all files named *.lic in that directory are used |
| -l +debugLogPath | Write debugging information to file `debugLogPath`. This option uses the letter “l,” not the numeral “1.” Prepending `debugLogPath` with the + character appends logging entries. |
| -2 -p | Restrict use of `lmdown`, `lmreread`, and `lmremove` to a system administrator who, by default, is `root`. If there is a Linux or UNIX group called `lmadmin`, use is restricted to members of that group only. If `root` is not a member of this group, then it has no permission to use `lmdown`, `lmreread`, and `lmremove`. If `-2 -p` is used when starting `lmgrd`, Windows users cannot shut down the license server using `lmdown`. |
| -local | Restrict the `lmdown` command to be run only from the same computer where `lmgrd` is running. |
| -x lmdown | Disable the `lmdown` command so that no user can run it.  
|               | If `lmdown` is disabled, stop the `lmgrd` and vendor daemon processes on Linux and Solaris using `kill pid` and on Windows through the Windows Task Manager or Windows service. On Linux and Solaris, do not use the -9 argument with the `kill` command; it does not terminate the vendor daemons. |
| -x lmremove | Disable the `lmremove` command so that no user can run it. |
| -z | Run `lmgrd` in the foreground. The default behavior is to run `lmgrd` in the background. If `-l debugLogPath` is present, no windows are used. However, if no -l argument is specified, separate windows are used for `lmgrd` and each vendor daemon. |
| -v | Display the `lmgrd` version number and copyright. |
| -help | Display usage information. |

C.3 License Administration Tools

FLEXlm provides a number of utilities that are used to manage your license server. All of the utilities described in this section are launched using the executable,
**lmutil**. For example, the command `lmutil lmdown` is used to launch the `lmdown` utility.

This section describes a subset of the utilities available for FLEXlm license administration. For additional information, see the *FLEXlm End User’s Guide* available from Macrovision Corporation.

**lmutil Universal Command-Line Options**

The following universal command-line options are available for use with most `lmutil` utilities:

- `-c licenseFilePath`
  Specifies the path to the license file.

- `-help`
  Display usage information, and exit.

- `-v`
  Display the `lmgrd` version number and copyright.

- `-verbose`
  Provide long descriptions for all errors.

**lmborrow**

The `lmborrow` utility supports license borrowing on the server. It must be executed on the server where licenses are borrowed. The `lmborrow` utility can be used to:

- initiate borrowing (by setting the borrow period)
- clear the borrow period
- determine the borrow status
- return a borrowed license before the end of the borrowing period

For more information on borrowing, see *14. Configuring Borrowing of Wind River Product Licenses*.

**Initiating Borrowing**

When used to initiate borrowing, `lmborrow` has the following usage:

```
lmborrow vendor endDate time
```

Where:

**vendor**

The vendor daemon name that serves the licenses (or specify all, which indicates all vendor daemons on the license server).

**endDate**

Specifies the date the license is to be returned in `dd-mmm-yyyy` format.

**time** (optional)

Specifies the time in 24-hour format (`hh:mm`). If `time` is unspecified, the checkout persists until the end of the given end date.
Clearing a Borrowed License

When used to clear a borrowed license setting, `lmborrow` has the following usage:

```
lmborrow -clear
```

Where:

- `-clear`
  
  Clear the `LM_BORROW` environment variable setting in the registry or `$HOME/.flexlmborrow`.

**NOTE:** Clearing `LM_BORROW` does not change the status for already-borrowed licenses.

Determining a Borrowed License Status

When used to determine the status of a borrowed license, `lmborrow` has the following usage:

```
lmborrow -status
```

Where:

- `-status`
  
  Display information about borrowed features.

**NOTE:** The borrowing workstation does not need to be connected to the network in order to determine the borrow status.

Returning a Borrowed License

When used to return a borrowed license, `lmborrow` has the following usage:

```
lmborrow -return -c licenseFileList -d display feature
```

Where:

- `-return`
  
  Return a borrowed license.

- `-c licenseFileList`
  
  Use the specified license file or files. Depending on your license server configuration, you may need to specify the license file in order to return a license before the borrow end date.

- `-d display`
  
  Specify the display from which the borrow was initiated. This option is required if your current display is different from the one that was used to initiate the borrow. On Windows, this is the system name or the terminal server client name. On Linux and UNIX systems, it is `/dev/ttyxx` or the X-display name.

- `feature`
  
  The name of the borrowed feature that will be returned.

**NOTE:** You can use `lmborrow -status` to get a list of the borrowed feature names.
Imdown

The `Imdown` utility is used to gracefully shut down a selected license server (includes `lmgrd` and the selected vendor daemons). `Imdown` has the following usage:

```
Imdown -c licenseFileList -vendor vendorDaemon -q -all -force
```

Where:

- `-c licenseFileList`
  Use the specified license management file(s). Always use `-c` with `Imdown`.

- `-vendor vendorDaemon` (optional)
  Shut down only the specified vendor daemon. This option allows `lmgrd` to continue running.

- `-q` (optional)
  Do not prompt or print a header. Otherwise, `Imdown` asks “Are you sure? [y/n].”

- `-all` (optional)
  Automatically shut down all servers when multiple servers are used. The `-all` option implies `-q`.

- `-force` (optional)
  If licenses are borrowed, run `Imdown` only from the system where the license server is running.

Imnewlog

The `Imnewlog` utility moves existing license-usage log information to a new file and starts a new usage log with the existing filename. `Imnewlog` has the following usage:

```
Imnewlog -c licenseFileList feature renamedUsageLog
```

or:

```
Imnewlog -c license_file_list vendor renamedUsageLog
```

Where:

- `-c licenseFileList` (optional)
  Use the specified license file or files.

- `feature`
  Any feature in the license file.

- `vendor`
  Vendor daemon specified in the license file.

- `renamedUsageLog`
  Path for the renamed usage log. (That is, the path to which the existing log file should be moved.)
**lmremove**

The **lmremove** utility releases a hung license to the license pool. **lmremove** has the following usage:

```
lmremove -c licenseFileList feature user userHost display
```

or:

```
lmremove -c licenseFileList -h feature serverHost port handle
```

Where:

- `-c licenseFileList` (optional)
  Use the specified license file or files.

- `feature`
  Name of the feature that is checked out by the user.

- `-h`
  Specifies that the license to be removed be identified using the server host, port, and handle instead of the user, user host, and display name.

- `user`
  Name of the user whose license will be removed (as reported by **lmstat -a**).

- `userHost`
  Name of the host that the selected user is logged into (as reported by **lmstat -a**).

- `display`
  Name of the display where the selected user is working (as reported by **lmstat -a**).

- `serverHost`
  Name of the host system on which the license server is running.

- `port`
  TCP/IP port number on which the license server is running (as reported by **lmstat -a**).

- `handle`
  License handle (as reported by **lmstat -a**).

**lmreread**

The **lmreread** utility forces the license daemon to reread the license file. **lmreread** usage is as follows:

```
lmreread -c licenseFileList -vendor vendor -all
```

Where:

- `-c licenseFileList` (optional)
  Use the specified license file or files.

- `-vendor vendor` (optional)
  Specifies that only the named vendor daemon (`vendor`) rereads the license file. **lmgrd** starts the specified vendor daemon if necessary.

- `-all` (optional)
  If more than one license manager daemon is specified, it instructs all daemons to reread the license file.
The `lmstat` utility displays the status of the license server. `lmstat` usage is as follows:

```
lmstat -a -c licenseFileList -f feature -i feature - s server -S vendor -t timeoutValue
```

Where:

- `-a` Displays all available information.
- `-c licenseFileList` Use the specified license file or files.
- `-f feature` Display information for users of the specified feature (`feature`). If `feature` is not specified, display information for all available features.
- `-i feature` Display information from the `FEATURE/INCREMENT` line of the license file for the specified feature (`feature`). If `feature` is not specified, display information for all features.
- `-s server` Display status of all license files listed in `$VENDOR_LICENSE_FILE` or `$SLM_LICENSE_FILE` on the server (`server`). If `server` is not specified, display information for all servers.
- `-S vendor` List all users of the features for the specified vendor (`vendor`).
- `-t timeoutValue` Set the connection timeout to the value `timeoutValue`. This value limits the amount of time `lmstat` spends trying to connect to a server.

The `lmswitchr` utility switches the existing license-usage log to a new filename. `lmswitchr` usage is as follows:

```
lmswitchr -c licenseFileList feature newUsageLog
```

or:

```
lmswitchr -c licenseFileList vendor newUsageLog
```

Where:

- `-c licenseFileList` Use the specified license file or files.
- `feature` Any feature in the license file.
vendor

Vendor daemon specified in the license file.

newUsageLog

Path to the new usage logfile.

If usage logging is not already enabled for the vendor daemon, the lmswitchr utility directs the daemon to start writing usage log output to a new file (newUsageLog). If usage logging is enabled for the vendor daemon, the utility directs the daemon to close its current usage log file and start writing the new log output to newUsageLog.
customer license number

A four- to six-digit number assigned to a Wind River customer. Also called customer license, license number, or customer ID.

You can find your customer license number in any of the following ways:

- It is printed on your License Administrator Essentials or Developer Essentials sheet.
- If you have a Wind River Workbench installation of version 3.3 or higher, you can find your customer license number by launching Workbench and selecting Help > About Wind River Workbench.
- It is recorded (as customer ID) in the file installDir/setup.log. The setup.log file is created when you install Wind River products.

enterprise licensing model (ELM)

A subscription approach to Wind River Platform products and supported architectures. The right to use the product expires after the contract end date, and must be renewed.

entitlement

See installation key, p.162.

floating license (FL)

A license type that allows you to share a pool of license seats among users. Any user can take a license, up to the number of seats purchased. When all license seats are in use, no other developers can use that product until someone else finishes.

With the floating license type, you must set up a license server, and the development workstations must be connected to it over the network. You do not have to report license usage to Wind River.

install.txt

See product activation file, p.165.
install-only package

Product content that can coexist with other versions of itself in your installation. (This is by exception to the default, singleton packages, of which your installation can include only one version.)

If your installation includes multiple versions of an install-only package, the different versions reside in parallel, versioned directories. You can declare at run time which version of the package to use.

For an example using install-only packages, see Sample Command-Line Sequence: Using Yum to Install a Single RPM Package, p.136.

By contrast, see singleton package, p.165.

installation key

An encrypted code that controls which software components can be installed. For Wind River products, the installation key is embedded in the install.txt file.

To find your installation keys, look in your install.txt file for lines beginning with CDR-. To learn what software pieces are installable from that CDR, go to the images/CDR-* directory of your installation DVD (or other installation media). Once there, open the mediaID file and find a description of the software component.

Installation keys can also be referred to as entitlement.

LAC

See license authorization code (LAC), p.162.

license administrator token (LAT)

A string of numerals and characters that you use on Wind River’s licensing portal to perform license-management tasks such as permanent product activation and rehosting.

The LAT is printed on your License Administrator Essentials sheet, included in your Wind River product shipment.

license authorization code (LAC)

A code for the temporary licensing of the products you have purchased. The Installer program uses the LAC to request an install.txt file over the Internet. With this install.txt file, you can install Wind River products and perform a temporary activation of them.

The LAC is typically found in one of the following ways:

- If you have ordered and received your product on physical media, your LAC is listed on the License Administrator Essentials or Developer Essentials sheet included with your shipment.
- If you have downloaded an evaluation version, the LAC is e-mailed to you.
- If you are installing from an evaluation CD or DVD, the LAC is printed on the disk sleeve or was e-mailed to you.

It is an alphanumeric, case-sensitive string of the format XXXXX-XXXX-XXXX. The first segment of the string also corresponds to the customer license number.
**license file**

A text file that lists how many seats of each product can be used simultaneously. The license file is specific to a license server computer or a node-locked host and contains a list of licensed features. For license server computers, the license file also contains information on license server nodes and vendor daemons.

The license file is located in the `installDir/license` directory.

**license number**

See *customer license number*, p.161.

**license seat**

A token that the license server issues to allow a user to run a software package. License seats are the unit by which software is sold and counted.

Also called *seat*.

**licensed feature**

Controls run-time access to the software. Licensed features are defined in the *license file*, and can be identified by the lines in that file beginning with *FEATURE*, *INCREMENT*, or *PACKAGE*. Software packages are made up of licensed features.

**licensing portal**

The Web site at [http://www.windriver.com/licensing/](http://www.windriver.com/licensing/) where you obtain long-term *product activation files* for the products you have purchased. To get access to the portal, you need your *license administrator token (LAT)*.

In addition to obtaining product activation files, you can use the portal to perform other license-management tasks, such as rehosting.

Also called the *product activation portal* or *product activation site*.

**license server**

In hardware, a *license server* is a computer on which license server software processes run (see below).

In software, a *license server* is a set of utilities for serving floating and named-user licenses. The license server consists of two processes: a FLEXlm-based license manager daemon (*lmgrd*) and one or more vendor-specific daemons (including *wrsd*). The license server runs on a computer that is accessible to development workstations over a network, and it grants users permission to run specific Wind River products.

This granting of permission is based on the contents of the server’s *license file* and *user options file* (if one is present).

**license usage reporting**

See *wrsd_report*, p.167.

**lmgrd**

The FLEXlm license manager daemon that routes requests to use a license-enabled application from the development workstation to the correct vendor daemon running on the same license server.
log options file

A plain-text configuration file that allows you to control how your license server logs the use of Wind River products.

With the log options file, you can control the filename and directory location of license usage logs, as well as what kind of license events are recorded.

By default, the log options file is called `wrsdlog.opt` and is located in the same directory as your license file.

For detailed information on configuring license usage logging, see 11.3 Logging License Usage, p.86. For instructions on creating reports from license usage logs, see 11.4 Reporting License Usage, p.92.

maintenance contract

The terms and conditions under which Wind River provides software support and maintenance to customers who pay an annual support fee. You must have a valid maintenance contract in order to install software maintenance products, such as patches and service packs.

named-user license (NU)

A license type in which the license is assigned to a specific user. The license administrator controls license access by configuring a user options file.

With named-user licenses, you must set up a license server, and the development workstations must be connected to it over the network. You must report named-user license usage to Wind River on a quarterly basis. For more information, see 11.4 Reporting License Usage, p.92.

node-locked license (NL)

A license type in which the software products are used on a single development workstation. The products are not shared over the network, but they can be used by anyone with physical access to the workstation. The products can function when the workstation is disconnected from the network.

With the node-locked license type, you do not have to report license usage to Wind River.

OEM licenses

See perpetual licenses, p.165.

PAF

See product activation file, p.165.

patch

A set of files that Wind River provides to fix a specific problem. Applying a software patch typically adds or replaces a small number of files in your existing installation.

Take care in applying patches. Because patches are likely to overwrite files in your existing product installation, they are not separately removable, and because combinations of different patches and products are not necessarily verified together, applying patches can break your installation. Furthermore, consider that
common patches are typically included in a forthcoming service pack—at which point, the combined pieces have been verified.

permanent activation

A method of installation in which you obtain a product activation file from Wind River so that you can use the software products without any time limit other than those laid out in your license agreement.

For comparison, see also temporary activation, p.166.

perpetual licenses

Perpetual licenses, also known as OEM licenses, do not expire. The customer has the right to use the product for its lifetime, as long as the customer abides by the terms of the agreement.

product activation file

A plain-text file that lists the products and features your license entitles you to, along with installation keys. The product activation file (or PAF) is usually named install.txt.

A product activation file is required in order to permanently activate your products.

repo

See repository, p.165.

report generator

See wrsd_report, p.167.

repository

A location containing Wind River products or product updates that are available for installation. A repository can be local to your host or accessible over a network.

An administrator can create a repository to make products available to users; or a repository can be a Wind River-provided resource such as WindShare.

rotation

The act of closing the current file where license usage is being recorded, and opening a new one.

singleton package

Product content that cannot coexist with other versions of itself in your installation. This is the default case for product packages.

When a singleton package is updated, the old version is removed. If you try to install an older version of a singleton package, the Installer displays an error: doing so is not supported.

By contrast, some packages are designated as non-singleton or install-only. These packages can be installed in parallel in different versions. See install-only package, p.162.
For the distinction between singleton and non-singleton packages in the icons used in the GUI Installer, see *About Singleton Packages*, p.35.

**temporary activation**

A method of installation in which you use a temporary license so that you can work with the Wind River products right away.

With temporary activation, you can use the Wind River products for a limited time (usually 31 days). To continue using them beyond that period, you must eventually perform a **permanent activation**. The permanent activation allows you to use the same installation; you will not need to re-install your Wind River products.

**user options file**

A plain-text configuration file that allows you to manage how your Wind River software licenses are used—which products, where, when, and by whom.

The user options file is essential if you have named-user licenses: in this file, you must list the individuals designated to use the software. For floating licenses, it can also be useful in apportioning licenses.

The user options file is specific to a given **vendor daemon**. As the Wind River vendor daemon is **wrsd**, the user options file for the management of Wind River software licenses is called **wrsd.opt**. It is distinct from the **log options file** **wrsdlog.opt**, which configures license usage logging.

The user options file is located on your license server, in the same directory as your license file.

For detailed information on creating and using an options file, see *9. Controlling Access to Products with the User Options File*.

**vendor daemon**

The license server process that dispenses licenses for the requested feature. The Wind River daemon is called **wrsd**.

**wrsd_log_YYYYMMDD_hhmmss.log**

A raw binary usage log that is the input to the license usage reporting tool **wrsd_report**.

**wrsd**

The Wind River vendor daemon. It tracks how many of the available seats of a particular product have been assigned, and to whom.

The vendor daemon reads the **license file** and the **user options file**. Then, based on the rules in those files, it decides whether a user’s request to use a licensed feature is valid.

The **wrsd** daemon runs alongside the license-management daemon **lmgrd** on the license server.

**wrsd.opt**

See *user options file*, p.166.
wrsd_report

The license usage reporting tool that Wind River provides for customers who hold named-user licenses. With the named-user license type, you must report license usage to Wind River each quarter.

The **wrsd_report** utility creates plain-text reports from the binary license usage logs generated by your license server.

For detailed information on reporting license usage, see **11.4 Reporting License Usage**, p.92.

wrsdlog.opt


WRSLicense.lic

A host’s **license file** for the purchased contract period. You obtain this file from Wind River when you perform **permanent activation**.

This file is located in the **installDir/licence** directory.

See also **product activation file**, p.165.