Distributed License Management

Installation Guide

Release 3.3

COMPUWARE

Technical support is available from our Technical Support Hotline or via our FrontLine Support web site.

Technical Support Hotline:
1-800-538-7822

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Preface

Summary of Changes

This section summarizes the enhancements to Distributed License Management (DLM) Release 3.3.

Release 3.3 Changes

This release offers the following enhancements:

◆ **Support for Windows XP** — Distributed License Management now includes support for Microsoft's Windows XP operating system.

◆ **Dynamic Debugging and Enhanced Error Messages** — Distributed License Management has made it easier to diagnose a licensing failure with its enhanced error messages and ability to debug and trace activities. The standard error string has been modified to list all errors encountered in the license path as well as the most likely cause of failure.

◆ **Remote License Administration Utility (RLAU)** — This utility allows a remote administrator to view License Manager configurations via a web browser (i.e., Internet Explorer or Netscape Navigator). Functionality includes viewing the License Manager components of the Log, License, and Options files. In addition, this tool offers the ability to monitor the usage of Compuware products and the state of License Managers that support them. For information on this utility, see "Remote License Administration Utility" on page 81.

Note: The RLAU utility is product specific. Not every product will have this tool available for use.

◆ **No Support for Novell** — Distributed License Management no longer provides support for Novell network servers.

Chapter 1
Introducing Licensing

About This Guide

The *License Installation Guide* provides information and procedures to:

◆ Obtain a license

◆ Install concurrent-user licenses

◆ Install temporary licenses

◆ Install node-locked (single-user) licenses

◆ Perform license maintenance

◆ Troubleshoot license installation errors on Windows

Note: For definitions for many of the terms used in this guide, refer to the "Glossary" on page 101.

Overview of Licensing

Compuware's software products are protected from unauthorized usage via a standard licensing mechanism. Compuware's Distributed License Management software validates that an appropriate license is available. The licenses are provided in the form of a text file named `license.dat` or `license.lic`. These files can be installed on individual end-user desktops for temporary or node-locked licenses, or can be installed on a central License Manager server for centralized administration of licenses.

When a central License Manager is used, individual end-user machines or servers running Compuware products must know how to connect to the License Manager to obtain their license. To do this, use the License Administration Utility (LAU) on each target machine or use a UNIX environment variable to establish the host name and port of the machine running the License Manager.

Licensing your Compuware product depends on several factors:

◆ The type of license file you received from Compuware.

◆ The number of users specified in your license file.

◆ The use of the License Manager or not.

This document provides all of the necessary information to administer the necessary licensing components required to run your Compuware product. Compuware's licensing software consists of the following key components:

◆ The **License Manager (LM)** - A server (long running process) that services requests for a license. The License Manager can be installed on many platforms, including Windows and UNIX. In many cases, it is recommended you collocate the License Manager with the server-based component of one of the Compuware products you are installing.

◆ The **License File (license.dat or license.lic)** - A data file that contains information about the license you have obtained for one or more Compuware products and features of those products.

◆ The **License Administration Utility (LAU)** - A Windows-based GUI used to configure the License Manager, install and apply license files you obtain, and to control license borrowing. The LAU is usually installed in your product directory, but may also be a separately installed component that can optionally be run from the product CD. See Chapter 4, "Using the License Administration Utility".

◆ The **Compuware Service Handler** - An application (included in the LAU) that provides system administrators with the ability to start and stop the License Manager. To view the Compuware Service Handler choose **Services>LMGRD** from the LAU. See "Compuware Service Handler" on page 55.

◆ The **Borrow Proxy Server** - A Compuware licensing application that runs alongside the License Manager and enables License Borrowing activities. See "Overview of License Borrowing" on page 59.

◆ The **Borrow License Client** - A Windows-based GUI utility run on end-user desktops or laptops. This utility allows users to check licenses in and out. See "Borrow License Client" on page 72.

◆ The **Remote License Administration Utility** - A web-based tool that allows an administrator to perform simple license server administration using a browser. See Chapter 6, "Remote License Administration Utility".

Note: Some of the product components listed above are not supported by some Compuware products.

License Types

Some Compuware products allow a limited-time trial license automatically without requiring installation of a license file. Others require a license file even for a trial. If you start your Compuware product without a license, it will either inform you that the license is missing or will tell you that an automatic time-limited trial has started. Each time you start a product on an automatic time-limited trial, you may be asked if you want to install a permanent license or to continue the trial. Before the trial runs out, you should acquire a permanent license from Compuware. See "Requesting a License from Compuware" on page 18.

Note: Not all products support all license types.

Compuware offers several types of licenses. These licenses are described in the following table:

Table 1-1. Compuware License Types

License Type	Node-Locked [1]	Concurrent [2]	Description
Permanent	Yes	Yes	A permanent license gives you access to the Compuware product under the terms of your contract with Compuware.
Temporary	Yes	Yes	A temporary license has a fixed expiration date from the time it is installed on your system. You must request this license from Compuware's Sales Team.
Trial	Yes	No	A trial license is automatically installed when you install some Compuware products. When this is provided, it allows you to run the product for a specific time period (14-45 days from the day you install the product). Each time you start your Compuware product, a message may appear informing you of the time left before the Trial license expires.

[1] A Node-Locked license is a license that is tied to a particular machine via a unique identifier (generally the NIC MAC Address, but optionally a hard disk signature). For node-locked licenses, the use of the License Manager is not required, but can be used if you want a central place to store all of your licenses. *A Node-Locked license is denoted by the HOSTID keyword found in the license file. For more information on Node-Locked see "Licensing When the License Manager is Not Required (Node-Locked)" on page 17.

[2] A Concurrent (Floating) license is server-based and requires the use of a License Manager. This license allows you to share the use of a product with more than one user. *A concurrent license is denoted by the SERVER and DAEMON keywords in the license file. It allows you to use a specific number of licenses without assigning them to particular workstations. When all available licenses are checked out, no additional users can run the product until a license is checked back in. For more information on Concurrent see "Licensing When the License Manager is Required (Concurrent)" on page 16.

Note: *To review the contents of your license file, open license.dat or license.lic with Notepad, Vi, or another text editor. Commented lines start with a # (pound sign); all others are license file directives.

Licensing Environment

It is often the case that multiple license files (or License Managers) are defined in a user's Licensing Environment. When a request is made to check out a license for a Compuware product, all environment paths in the Registry are scanned until a valid feature is found.

For more information on license environments, see:

◆ For UNIX, "Setting the License Environment Variable for UNIX" on page 39.

◆ For Windows, "Current License Environment Setting Dialog Box" on page 48.

Before you attempt to run a particular product, be sure that one of the paths (environments) you have defined contains the license file with a feature line for the product you want to run. Also, if there are old/ obsolete paths in your environment setting, you should delete them to improve product response time. Therefore, only currently operating servers should be specified in the license environment setting.

Determining if You Need the License Manager

The first step in the licensing process is to determine whether or not it is necessary to install and run the License Manager on a server machine. If you have a trial or node-locked license, then you do not need to install the License Manager. However, the License Manager may be used with node-locked licenses for central administration of all of your licenses.

The License Manager (or license server) is a long running process serving multiple client machines, so most often you will install it on one central server machine for your entire organization. The License Manager can serve all of Compuware's product lines—you do not need multiple license servers per product unless you are running redundant servers (see "Using Redundant License Servers" on page 17). Typically, you will install the License Administration Utility (LAU) on administrators' desktops and use it to configure the License Manager.

The following figures show product and licensing configuration for both pre-purchase and post-purchase of a Compuware product.

Figure 1-1. Typical License Configuration for a Trial or Node-Locked Product
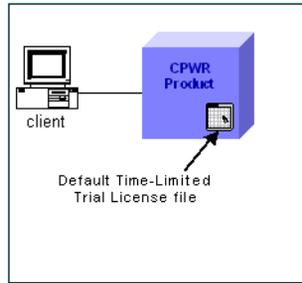
Figure 1-2. Typical License Configuration Using the License Manager
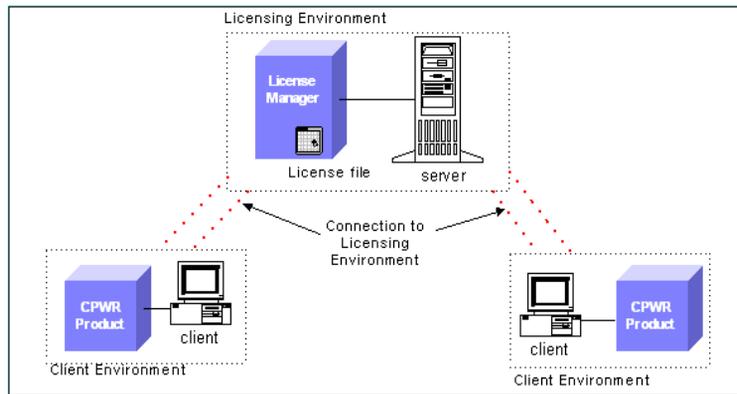
Licensing When the License Manager is Required (Concurrent)

A license file containing the SERVER and DAEMON lines is considered to be "concurrent" or "floating" and requires use of the License Manager. All other license files do not require a License Manager, but can be centrally stored, if desired, for administrative control. A concurrent license allows you to run a Compuware product on more than one client so that multiple users can access the product. This means that you purchase a specific number of licenses without assigning these licenses to particular clients or having to obtain their unique node identifiers (NIC card address, etc.).

The Compuware License Manager keeps track of licenses as they are "checked out" and "checked in" by users. Licenses are "checked out" by users on a first-come, first-served basis when they access the product. After all available licenses are issued, no additional users can run the product until another user exits and a license is "checked in." Your license determines how many users may access the product at one time.

The License Manager must be running on a computer or server that is always available to all clients needing access to the product. The License Manager can be installed on any of the following servers:

◆ For Windows, see Chapter 2, "License Installation and Management for Windows".

◆ For UNIX, see Chapter 3, "License Installation and Management for UNIX".

Licensing When the License Manager is Not Required (Node-Locked)

If your FEATURE line in the license file contains a "HOSTID=" string, you have a node-locked license. See Appendix B, "Host Name, Host ID, and HOSTID String". This license file is tied to a particular machine via its NIC card address or disk id.

When you have a node-locked license, installation is very straight-forward:

◆ you can install the license directly on the end-user desktop, in which case you do not need the License Manager, or

◆ you can install the License Manager server to consolidate your licenses in one location.

Using Redundant License Servers

Tip: If a large number of licenses are governed by a single license server, failure of the server becomes a major event. To prevent problems, you may want to set up redundant servers so that, if one server goes down, the License Manager can still function.

Redundant License Management provides limited protection against license server failure by dispersing the responsibility of managing client licenses over a predetermined set of servers. This predetermined set consists of three independent servers.

When using redundant server licensing, you need to configure the same license file on three server machines. The license file must contain the names of each server and be installed on each server in the same order as they appear in the license file. You can edit the license file so that the servers are listed in any order, however, that license file version must be exactly the same on all three machines.

The first two machines listed in the license file are designated as potential masters and the third is designated as the slave machine. In a master-slave relationship, two out of the three server machines must always be active in order to service licensing. Whichever of the first or second listed servers starts up first becomes the master server. It is recommended that the three servers be brought up in the order listed in the license file.

If the master server goes down, the other of the first two servers listed becomes the master. The third listed server is never the master. Its whole purpose is to help maintain a quorum. If the third machine goes down, then both of the first two servers must remain up in order to serve licenses.

Required: When restoring a previously lost server, all three servers should be shut down and restarted in the same order listed in the license file.

For more information on setting up redundant servers on UNIX or Windows:

◆ For UNIX, see "Setting Up Redundant Servers" on page 40.

◆ For Windows, see "Setting Up Redundant Servers" on page 50.

Caution: Redundant license servers do not work with borrow enabled licenses.

When You Need an Options File

If your license agreement allows an administrator to designate which specific users can access the Compuware product, then you need to create an Options File. If an options file is required, you can create it in Windows and FTP it to UNIX, or you can edit it manually in UNIX.

See Appendix A, "USER_BASED/HOST_BASED License Models" for more information on creating an options file.

Requesting a License from Compuware

To obtain a permanent license, you must provide the host information of the machine on which the license will reside. You can either e-mail the file **hostinfo.txt** to Compuware License Management at **license_mgt@compuware.com** or determine the host information and give that to Compuware. See Table B-1, Determining Host Information of Computer, on page 98 for procedures on determining the host information.

You can also contact your sales representative. When you receive your license file from Compuware, copy the file onto a location on your disk and put it either:

◆ In the product directory for node-locked models. See "Current License Environment Setting Dialog Box" on page 48.

◆ In the license directory pointed to by the server on the license server machine. See

Supported Platforms

The following table lists the platforms upon which DLM components can be installed, licensed, and run.

Table 1-2. Supported Platforms

Platforms	Install License Manager	License Product	Install Borrow Proxy Server	Install Borrow Proxy Client
Alpha Open VMS	-	x	-	-
DEC (TRUE 64 Open Alpha UNIX)	x	x	x	-
HP-UX (32-/64-bit)	x	x	x	-
IBM-AIX (32-/64-bit)	x	x	x	-
Linux	x	x	x	-
Reliant	x	x	-	-
Sun-Solaris 2.x (32-/64-bit)	x	x	x	-
Windows - 95*, 98, Me, NT 4.0, 2000, XP**	x	x	x	x

*Not recommended for Windows 95.

**XP is 32-bit only.

Getting Started

The remaining chapters in this manual discuss setting up the License Manager on different platforms as well as how to administer the License Manager or node-locked license file with the License Administration Utility (LAU).

When you receive your license file from Compuware, it is recommended that you copy the file onto a location on your disk either:

◆ In the product directory for node-locked licenses without the use of the License Manager. See "Current License Environment Setting Dialog Box" on page 48.

◆ On the License Manager server for concurrent licenses or centrally administered licenses. See "Configuring Clients to Access the License Manager on Windows Server" on page 28.

To begin setting up the License Manager, refer to the chapter for your platform:

◆ For Windows, refer to Chapter 2, "License Installation and Management for Windows".

◆ For UNIX, refer to Chapter 3, "License Installation and Management for UNIX".

License Installation Checklists

If you are installing a Compuware product with an automatic trial feature, you do not need to take any further action until you obtain your permanent license. Your trial license will allow you to use your Compuware product between 14-45 days, depending on the product.

The following checklists will assist you in the licensing process after your trial license has expired or if you are installing your permanent license. Please begin with the following:

❏ Determine the type of license you have. See "Determining if You Need the License Manager" on page 15.

❏ Determine the license model you will be using (Node-Locked or Concurrent). See "License Types" on page 13.

❏ If you are required to install the License Manager, see the "Installing the License Manager"checklist below.

❏ If you have a node-locked license and do not require the License Manager:
  • Install the product.
  • See "Using the License Administration Utility" on page 45.

Installing the License Manager

❏ Select the platform (Windows or UNIX) on which the License Manager will run.

- For Windows, see "License Installation and Management for Windows" on page 23.
- For UNIX, see "License Installation and Management for UNIX" on page 33.

❏ Use the License Administration Utility (LAU) to:

- configure the license or
- add a new license to an existing license (see the "Adding a New License to an Existing License File" checklist) or
- assign the license file to the License Manager

See "Using the License Administration Utility" on page 45.

❏ Each client must connect to the License Manager to add the license path to their License Environment. See "Configuring Clients/Creating a License Environment" on page 49.

❏ If License Borrowing is enabled (for concurrent licenses only):

- For Administrators, see the "License Borrowing for Administrators" checklist below.
- For Clients, see the "Borrowing a License for Clients" checklist below.

❏ If you will be using the Remote License Administration Utility (RLAU), see the "Using the Remote License Administration Utility (RLAU)" checklist below.

❏ If the terms "USER_BASED" or "HOST_BASED" are in your license files, see the "Using an Options File" checklist below.

Adding a New License to an Existing License File

❏ Start the LAU.

❏ See "Merge License Files Dialog Box" on page 53.

License Borrowing for Administrators

❏ You must have a concurrent license in order to use License Borrowing.

❏ If your license file has the keyword BORROW, you must install the Borrow Proxy Server when you install the License Manager, even if borrowing will not take place. See Chapter 5, "License Borrowing".

❏   Configure the Borrow Proxy Server.
  • For Windows, see "Borrow Proxy Server for Windows" on page 62.
  • For UNIX, see "Borrow Proxy Server for UNIX" on page 69.

❏   Start the Borrow Proxy Server.
  • For Windows, see "Starting the Borrow Proxy Server as a Service" on page 66.
  • For UNIX, see "Starting the Borrow Proxy Server for UNIX" on page 69.

Borrowing a License for Clients

❏   Start the LAU.

❏   See "Borrowing a License" on page 75.

Using the Remote License Administration Utility (RLAU)

❏   Install and configure the RLAU. See "Creating User Accounts" on page 84.
  • For Windows, see "Configuring in Windows" on page 87.
  • For UNIX, see "Configuring in UNIX" on page 88.

❏   Start the RLAU.
  • For Windows NT, 2000, and XP, see "Windows NT, 2000, and XP" on page 88.
  • For Windows 95, 98, ME, and UNIX, see "Windows 95, 98, ME, and UNIX" on page 89.

❏   Run the RLAU on the HTTP server. See "Configuring the Java Applet" on page 89.

Using an Options File

❏   Create an Options file if one of your FEATURE lines contains a USER_BASED or HOST_BASED clause.

❏   Modify the license file. See Appendix A, "USER_BASED/HOST_BASED License Models".

Chapter 2

License Installation and Management for Windows

Overview of License Installation for Windows

The procedures in this chapter will describe how to install the License Manager on a Windows server. You can use Windows 95, 98, Me, NT, 2000, or XP as the server to host the License Manager.

Note: Installation of the License Manager is only required for Concurrent license types (SERVER and DAEMON lines are present in the license file). Installing the License Manager is NOT required if you have a node-locked license (see "Licensing When the License Manager is Not Required (Node-Locked)" on page 17).

Depending on the type of license you have, the following steps may be necessary to install and operate the License Manager in your environment:

1 Install the License Manager and its components. See "Installing the License Manager for Windows" on page 24.

2 Configure the License Manager and its components to run as services using the Compuware Service Handler via the License Administration Utility.

3 Configure each client to access the License Manager. See "Configuring Clients to Access the License Manager on Windows Server" on page 28.

4 Configure the Borrow Proxy Server to run as a service using the Compuware Service Handler, if product is borrow-enabled.

5 Configure each client's Borrow License Client application to talk to the Borrow Proxy Server, if product is borrow-enabled.

6 Create an Options file, if necessary. See "Creating an Options File" on page 93.

Installing the License Manager for Windows

The following procedures walk you through the installation and configuration of the License Manager and the Borrow Proxy Server.

Before installing the License Manager and its components, note that it may not be necessary to completely install the new License Manager. See "Updating the License Manager on Windows" on page 28.

Note: If you are updating a license file only (not the License Manager), it is recommended that you merge the new license file with the existing one. After the new license file is merged, use the Compuware Service Handler to reread this new master license file. See "Merge License Files Dialog Box" on page 53 for more information on merging licenses.

1 From your Compuware product installation CD, select **Install (Compuware) License Manager**. This will start the InstallShield Wizard for the License Manager. You will need to navigate through several screens to proceed through the InstallShield Wizard. The screens will require you to perform tasks such as:

◇ read and accept the **License Agreement**

◇ provide **Customer Information**

◇ choose your **Destination Location**

Required: If you do not use the default install directory for License Manager, and you have an existing License Manager, you must uninstall the original License Manager, reboot, and install the new version.

◇ select a **Program Folder**

◇ start **Copying Files**

2 Click the **Next** button after completing each screen of the InstallShield Wizard.

3 After you click the Next button to copy the files, the setup will begin and you will be asked if you want to install a license.

Figure 2-1. License Installation Question Dialog Box
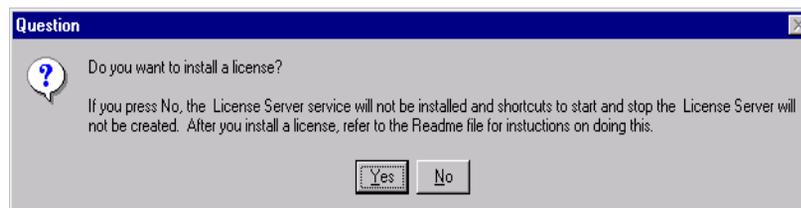
◇ If you want to install a license, click **Yes** and the License Installation Server dialog box appears (see Figure 2-2). Compuware recommends you select Yes, which will allow you to continue the installation process and install the License Manager.

◇ If you click **No**, you will exit the InstallShield Wizard and will need to configure the License Environment and the Borrow Proxy Server using the LAU. See Chapter 4, "Using the License Administration Utility" for more information on creating a license environment and starting the Borrow Proxy Server.

4   After you click the **Yes** button, you will be asked if you have a server license for this machine.

Figure 2-2. License Installation Server Dialog Box
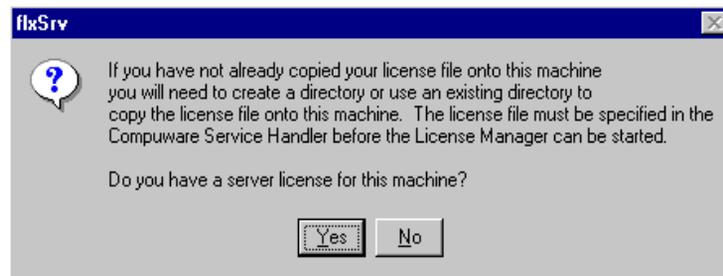
◇ If you have a server license for the machine where you are working, click **Yes** and the Compuware Service Handler screen displays (see Figure 2-3).

◇ If you select **No**, you will need to launch the LAU to acquire your system information and continue installing the License Manager. See Chapter 4, "Using the License Administration Utility" for more information on creating a license environment and starting the Borrow Proxy Server.

5 In the **Compuware Service Handler** dialog box type in, or click the **Browse** button to find, the appropriate log file and license file names in the Log File Name and License File fields.

Figure 2-3. Compuware Service Handler Dialog Box
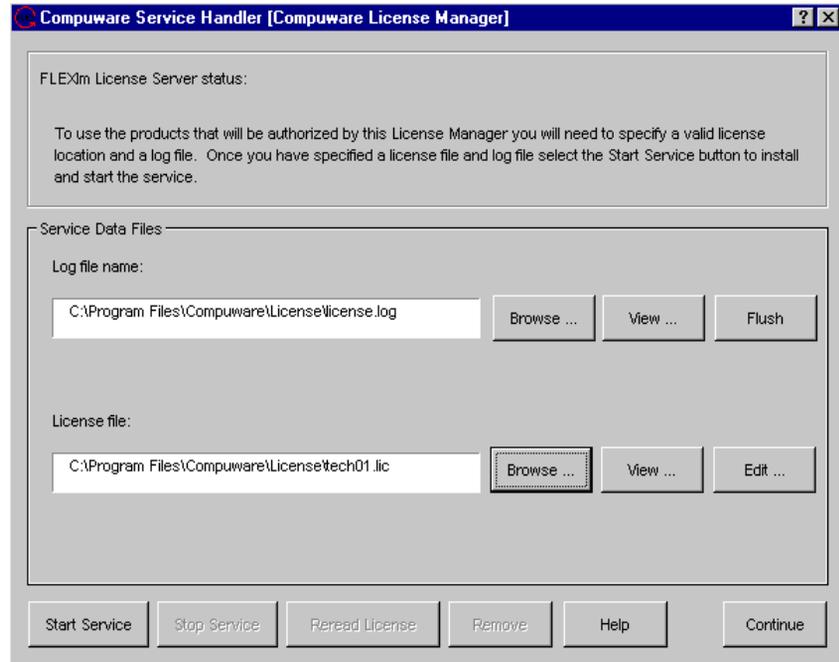
6 Click **Continue**. You will be asked if you want to start and install the Compuware License Manager as a service.

◇ If you do, click **Yes**. This will start the service. Click **Continue** again to complete the installation.

◇ If you click **No**, you will have to manually start the License Manager after completing the installation. See "Compuware Service Handler" on page 55.

If the License Manager is already installed as a service, you will receive multiple messages indicating this. Also, the log file will be written to and automatically opened.

Installing the Borrow Proxy Server

During the installation and configuration of the License Manager, you may also be prompted to install the Borrow Proxy Server (BPS) if your license file has the keyword BORROW.

> **Required:** If the keyword BORROW is present in your license file, the Borrow Proxy Server MUST ALWAYS run in conjunction with the License Manager, even if Borrowing will not take place.

1   The license is automatically scanned and checked for the **BORROW** keyword. If it is present, the following dialog box appears:

Figure 2-4. License Installation Borrow Enabled Dialog Box
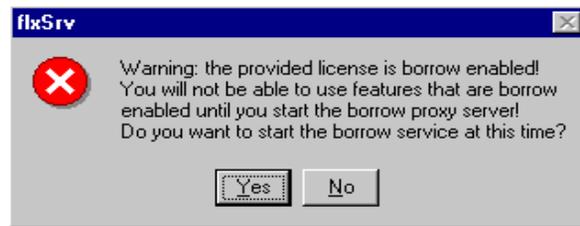
If you select **Yes**, the Borrow Proxy Server screen displays with the current machine's Server Name and Port Number fields already displayed.

2   Click the **Start BPS** button.

3   You will be asked if you want to run BPS automatically when you restart your system. If so, click **Yes.** If you click **No**, you will have to manually start the BPS each time the server machine reboots.

Tip: For Windows NT, 2000, and XP, the Borrow Proxy Server screen is only a portal to the service itself, so you may close the dialog box. For Windows 95, 98, and ME, the dialog box itself must remain open or the BPS will be stopped and licenses will not be authorized for checkout.

4   You will receive a message indicating whether or not the installation of the BPS as a Service was successful.

5   Go back to the **Compuware Service Handler** dialog box and click **Continue**.

6   On the **InstallShield Wizard** dialog box, click **Finish** to close the InstallShield Wizard.

Where To Go Next

◆   It is also necessary to configure each client's machine to access the License Manager (see "Configuring Clients to Access the License Manager on Windows Server" on page 28).

- If your License File contains the keyword **BORROW**, you need to set up each client to use the Borrow License Client utility (see "Borrow License Client" on page 72).

- If you are using an Options file, see Appendix A, "USER_BASED/ HOST_BASED License Models".

- To access the Borrow Proxy Server, see "Borrow Proxy Server for Windows" on page 62.

- To access Compuware Service Handler, see "Compuware Service Handler" on page 55.

- To access Borrow License Client from the LAU, see "Borrow License Client" on page 72.

Configuring Clients to Access the License Manager on Windows Server

When using a Concurrent license model, each client must be configured to access the License Manager. Each client does not have an individual license, i.e, the client will connect to the Master License file which is served by the License Manager. The Master License is the license used by the License Manager. The COMPUWARE_LICENSE_FILE registry variable is set using the LAU. This setting is used to connect the client to the license file. There are two ways to configure clients to access the License Manager:

- Configure Clients with the License Administration Utility (see "Configuring Clients/Creating a License Environment" on page 49)

- Configure Clients during product installation (see "Configuring Clients During Product Installation" on page 47)

After the client's License Environment is set, and if License Borrowing is enabled, verify that the Borrow License Client is configured on the client machine (for more information, see Chapter 5, "License Borrowing").

Updating the License Manager on Windows

Required: If you are upgrading to version 3.3 of Compuware's Distributed License Management software and even if you have a previous version of the license management software, you must install the

License Manager and all of its components to enable License Borrowing and the Compuware Service Handler.

If you are hosting the License Manager on a Windows server, follow the instructions below to find out if you need to update or install the License Manager.

Install the License Manager only if no previous version of the License Manager exists on the server.

Update the License Manager if a lower version of the License Manager exists on the server. Compare the version number already on the License Manager server with the version number on the product CD. To compare the version numbers perform the following steps:

1   Determine the version number already on the License Manager server:

   a   At the DOS prompt, navigate to the directory where the License Manager is located.

   b   Type the following command at the DOS prompt:
       `lmutil lmver lmgrd.exe`

   c   Press **Enter** and a message similar to the following will display.

   ```
   lmutil - Copyright (C) 1989-2001 Globetrotter Software, Inc.
   FLEXlm v7.2i (liblmgr.a), Copyright (C) 1988-2001, Globetrotter
   Software, Inc.
   ```

2   Determine the version number on the product CD:

   a   Insert the product CD, open a DOS prompt, and navigate to the directory of the CD.

   b   Type: `lmutil lmver lmgrd.exe` and press **Enter** to display the version information.

   c   If the CD has a newer version, update the License Manager by selecting the option on the product CD for installing the Compuware License Manager.

Uninstalling the License Manager or Borrow Proxy Server

There are two methods you can use to uninstall the License Manager and its components from your system. You can delete the application in DOS from the command prompt or remove the programs using Windows.

Method 1

1 Using a DOS command prompt, navigate to the License Manager/ Borrow Proxy Server root directory.

2 For the License Manager, type: `flxsrv -del` and press **Enter**.

3 For the Borrow Proxy Server, type: `bps -del` and press **Enter**.

4 Click **Yes** to proceed.

Method 2

1 From the **Start** menu, choose **Settings>Control Panel**.

2 Double click the **Add/Remove Programs** icon to display the **Add/ Remove Programs Properties** dialog box.

3 Select Compuware License Manager from the list of programs.

4 Click the **Add/Remove** button to display the InstallShield Wizard.

5 Follow the instructions on the screen to proceed through the uninstall process.

Troubleshooting Errors on Windows

License Server is Not Listed in Services List

This only applies to Windows NT, 2000 and XP; other Window's versions do not have Services lists. To check your Services list:

1 From the **Start** menu, choose **Settings>Control Panel**.

2 Double click the **Services** icon to display the **Services** dialog box.

If you did not install a permanent license when the License Manager was installed, the License Server service was not installed. See "Installing the License Manager for Windows" on page 24.

License Server Does Not Start

◆ If the machine was not rebooted after installation, try rebooting.

◆ The specified Host ID does not match the machine Host ID.

◆ To start the License Manager, choose **Start>Programs>Compuware>License Manager** from the Taskbar. If the License Manager does not start, it may produce an exception error to assist in troubleshooting.

◆ The license file specified as the master license file has been moved or is not located in the specified directory. You may not be able to see a file if your folder settings are preventing you from doing so. To verify that your settings are correct:

   a Open Windows Explorer.

   b From the **View** menu, choose **Options**. The Options dialog box appears.

   c On the **View** tab, verify that the **Show all files** option is selected.

Chapter 3

License Installation and Management for UNIX

Overview of License Installation for UNIX

The licensing process varies based on the Compuware product being installed, your agreement with Compuware, and the platform on which the License Manager is installed. Some Compuware products are installed on the client (node-locked) and do not require the License Manager product, while concurrent licenses do require the installation of the License Manager.

Note: If your license has SERVER and DAEMON lines, then you need to install the License Manager. The only time that you do NOT need to install the License Manager is if you have a Node-Locked license. If you have a Node-Locked license for a client machine, all you need to do is set the LM_LICENSE_FILE environment variable. See "Setting the License Environment Variable for UNIX" on page 39.

When a License Manager is needed, setup involves the following steps:

1   Install the License Manager and its components. See "Installing the License Manager on UNIX" on page 34.

2   Configure License Manager to start whenever the server boots. See "Starting the License Manager" on page 35.

3   Configure each client to access the License Manager. See "Setting the License Environment Variable for UNIX" on page 39.

4   Configure the Borrow Proxy Server to start whenever the server boots, if product is borrow-enabled.

5   Create an Options file, if necessary. See "Creating an Options File" on page 93.

Installing the License Manager on UNIX

Before installing the License Manager and its components, note that it may not be necessary to completely install the new License Manager. See "Updating the License Manager on UNIX" on page 37.

1   Mount the CD-ROM on your system (root access required).

2   Check to see if the License Manager is already running by typing in the following command in the Licensing Components directory:

    ```
    lmutil lmver lmgrd
    ```

3   The License Manager messages will indicate if it is already running. If it is running, type the following to bring it down:

    ```
    lmutil lmdown -c <license file>
    ```

4   Change to the mount directory. For example, if /cdrom is the mount directory, type the following: `cd /cdrom`

5   Navigate to the directory on the CD that contains the Compuware executable license files for the platform on which you are setting up the License Manager. The path is:

    ```
    <CD drive>\cpwr\cwlm\directory name
    ```

    Refer to the table below for the directory name for each platform.

Table 3-1. UNIX Directories

Platform	Directory Name
IBM-AIX 64-bit	cwlmaix64.32
IBM-AIX 32-bit	cwlmaix32.32
DEC	cwlmdec.32
HP-UX 64-bit	cwlmhp64.32
HP-UX 32-bit	cwlmhp32.32
Linux	cwlmlinux
Sun-Solaris 2.x 64-bit	cwlmsun64.32
Sun-Solaris 2.x 32-bit	cwlmsun32.32

6   Type the following to install the License Manager on your system:

    ```
    ./install
    ```

7   The install script will ask the name of the target directory for the License Manager. We suggest `/usr/local/cwlm` (root access required to create the directory). You will be notified when install is complete.

(If install has a problem creating the directory, you will be notified of the error and exit.)

8 Before you can start the License Manager, you must supply Compuware with the **host ID** of the node on which you plan to run the License Manager. To get this ID, type the following command within the directory created previously: `lmutil lmhostid`

9 The ID the Licensing System uses for validation is displayed. You must send this ID to Compuware. Compuware will then send back a license file that replaces the temporary or trial `license.dat` in the license file directory (usually `/usr/local/cwlm`).

Required: You must receive a new license file from Compuware before proceeding to "Starting the License Manager" on page 35.

Uninstalling the License Manager on UNIX

To uninstall the License Manager and remove the license file directory and its contents, type the following command:

```
rm -r /usr/local/cwlm
```

Caution: Be sure to save your license files before removing the license file directory.

Starting the License Manager

The License Manager can be configured to start automatically (each time the server boots) or to start manually.

To validate the license for Compuware products, the License Manager needs to be running whenever a client requests a license check out.

1 Verify that the licensing components are installed, including the license file.

2 Navigate to the directory containing the License Manager.

3 Ensure that the License Manager is shut down. Check to see if the License Manager is already running by typing one of the following commands:

◇ `lmutil lmstat -c <license file>`

◇ or the UNIX command: `ps -e|grep lmgrd`

The license utility messages will indicate if it is already running.

> **Required:** You cannot run two License Managers simultaneously and must shut one down before starting a new one.

4 Do one of the following:

◇ **To start the License Manager manually** (required each time the Server reboots), type the following:

```
lmgrd -c /fullpathname/license.dat > license.log &
```

◇ **To start the License Manager automatically** each time the Server reboots, follow the suggested procedure below for the appropriate platform:

Table 3-2. Suggested Automatic Startup Per Platform (UNIX)

Platform	Action
AIX	In `etc/rc.local`, enter the following command on one line: `nohup /etc/lmgrd -c /cpwr/license/ license.dat>license.log2>&1&`
HP-UX	In `/sbin/rc3.d`, create a file named `s95cwlm.server` and add the following command to the file: `nohup lmgrd -c /cpwr/license/ license.dat>license.log&`
Linux	In `/etc/rc.d/rc2.d`, create a file named `s95cwlm.server` and add the following command to the file: `nohup lmgrd -c /cpwr/license/ license.dat>license.log&`
Sun Solaris	In `/etc/rc2.d`, create a file named `s95cwlm.server` and add the following command to the file: `nohup lmgrd -c /cpwr/license/ license.dat>license.log&`

5 If License Borrowing is enabled (a license file containing a FEATURE line with the BORROW keyword), you may want to install the Borrow Proxy Server to start automatically with the License Manager. To do so, enter the following command:

```
nohup bps.run -c <license_file> -p <port_#> -l
<log_file> &
```

Preventing Users From Bringing Down the License Manager

To prevent users from bringing down the License Manager, use the **-p -2** option which goes directly after the lmgrd reference for any of the platforms in Table 3-2 on page 36. If this option is selected, only Administrators with root privileges can bring down the LM: `nohup path_to/ lmgrd -p -2 -c /path_to/license.dat > license.log &`

Updating the License Manager on UNIX

Follow these instructions below to update the License Manager on a UNIX server. To determine whether to install or update the License Manager, use the following guidelines:

Install only if no previous version of the License Manager exists on the machine you chose as the License Manager server. From the Compuware product CD, copy the contents of the platform-specific /cpwr/cwlm subdirectory to a directory named /cpwr/license on your License Manager server. See "Installing the License Manager on UNIX" on page 34.

Update if a lower version of the License Manager exists on the machine you chose as the License Manager server. Compare the License Manager version number already on the License Manager server (by navigating to the directory where the License Manager is located) with the version number on the product CD. To do so, follow these steps:

1   Navigate to the directory on the Server where the License Manager is located. Type the following and press **Enter**: `lmutil lmver lmgrd`

   ◇   In the response message, make note of the License Manager version number.

2   Navigate to the directory on the product CD where the License Manager is located. Type the following and press **Enter**: `lmutil lmver lmgrd`

   ◇   In the response message, make note of the License Manager version number. If the License Manager version number on the product CD is greater than the License Manager version number on the server, proceed to install.

License Administration Utility for UNIX

The `lmutil` utility allows you to perform administrative tasks for the license manager. The format for this utility is as follows:

```
lmutil command [option1 option2 ...]
    Example:
    lmutil lmstat -a
```

Table 3-3. Commands and Options for lmutil

Command	Argument	Description
lmdown	-c pathname	Performs a graceful shutdown of the License Manager. This argument is needed if you specified a location for the license file other than the default and you have not set the LM_LICENSE_FILE environment variable.
lmhostid		Returns the hostid of the machine on which you are currently running. This is the ID that must be sent to Compuware in order for you to receive a permanent license file for your License Manager machine.
lmstat	-a	Displays all information
	-A	Lists all active licenses
	-c pathname	Required if you specified a location for the license file other than the default and you have not set the environment variable LM_LICENSE_FILE.
lmver	[file]	Reports which version of security a product (binary file) has.
lmdiag		Performs diagnostics to troubleshoot problems with the License Manager system.
	-c pathname	Needed if you specified a location for the license file other than the default and you have not set the environment variable LM_LICENSE_FILE.
	[feature]	Diagnose this feature only
	-n	Run in non-interactive mode.

Setting the License Environment Variable for UNIX

If License Manager is required (concurrent license), each client must be configured to automatically access the License Manager or license file. If the License Manager is not required (node-locked license), a license file is required on each client machine. The LM_LICENSE_FILE environment variable is used on UNIX systems to set the license path (Windows uses COMPUWARE_LICENSE_FILE registry variable). Follow the procedures below for your platform.

Set the **LM_LICENSE_FILE** environment variable in the global environment using the appropriate command for your particular shell. This will configure each UNIX Client to access the License Manager or license file.

C shell

If the client is accessing a license file on the **client machine** (node-locked), use:

```
setenv LM_LICENSE_FILE /<full path to license>/
license.dat
```

Tip: The Port number is typically 7166.

If the client is accessing the License Manager on a **server** (concurrent), use:

```
setenv LM_LICENSE_FILE 7166@<hostname>
```

Bourne shell

For the Bourne shell a two line command is used:

If the client is accessing a license file on the **client machine** (node-locked), use:

a `LM_LICENSE_FILE=/<full path to license>/license.dat`
b `export LM_LICENSE_FILE`

If the client is accessing the License Manager on a **server** (concurrent), use:

a `LM_LICENSE_FILE=PORT@HOST`
b `export LM_LICENSE_FILE`

Korn shell

If the client is accessing a license file on the **client machine** (node-locked, use:

```
export LM_LICENSE_FILE=/<full path to license>/
license.dat
```

If the client is accessing the License Manager on a **server** (concurrent), use:

```
export LM_LICENSE_FILE=7166@<hostname>
```

Setting Up Redundant Servers

After you install the License Manager on all three server machines in the redundant configuration, you must edit the license file created during these installations to include the additional Ports and Hostnames.

Tip: Remember to separate the paths with a colon.

```
For example on servers Hostname1, Hostname2, and Hostname3 on Port
7166, the LM_LICENSE_FILE environment would read:
        ...7166@Hostname1:7166@Hostname2:7166@Hostname3...
```

UNIX Components

The installation directory for the UNIX platform includes the following files:

Table 3-4. Unix Platform Directory

File name	Description
lmgrd	License Manager
compuwar	Vendor daemon
lmutil	Utility for administering the License Management system
cl_merge	License Merge utility
cl_sort	License Sort utility
cl_valid	License Validation utility
flexlm.rul	Rule file used by cl_valid
bps.stat	Status checker of Borrow Proxy Server
bps.run	Borrow Proxy Server
bps.cfg	Create this file to set Borrow restrictions. (File not shipped. File must be created by the customer.)
bps.stop	File created when bps.run is started. (File not shipped. File must be created by the customer.)
install	Installation script
aes	Admin Edit Script

lmgrd

The License Manager application itself.

compuwar

The vendor-specific daemon produced by the lmgrd.

lmutil

The License Administration Utility for the lmgrd created by Globetrotter Software. See "License Administration Utility for UNIX" on page 38.

cl_merge

A script file called by the install script. This script will manually sort and merge together two license files.

Syntax:

```
cl_merge -t <target_master_lic_file> -s <source_file>
```

◇ *<target_master_lic_file>* is the target (destination) master license file with which the new (source) license file will be merged

◇ *<source_file>* is the new license file that is to be merged with the target_file

Sample script usage:

```
#!/bin/sh
cp $1 $1%
echo "merging $1 $2"
echo "A backup has been written to $1%"
cl_merge $1 $2
```

cl_sort

This script sorts an existing license file and is called by cl_merge. It requires a license file as its only argument.

Syntax:

```
cl_sort <license_file>
```

cl_valid

This script validates a license file. It prints errors to stdout.

Syntax:

```
cl_valid -l <license_file> -r <flexlm.rul_file>
```

◇ *<license_file>* is a license file that is to be scanned for errors

◇ *<flexlm.rul_file>* is the rule script file that is to be run against the license file

flexlm.rul

Rule file used by cl_valid.

bps.cfg

An optional file that is used with borrow-enabled licensed components. See "Borrow Proxy Server for UNIX" on page 69.

bps.run

A file that brings up the Borrow Proxy Server.

Syntax:

```
bps.run -c <license_file> -p <port_number> -l <log_file>
```

◇ The *license_file* argument must contain a license file with a FEATURE line that has the keyword BORROW.

◇ Port number must be unique on the network.

See "Borrow Proxy Server for UNIX" on page 69.

bps.stat

This utility reports the status of the Borrow Proxy Server.

Syntax:

```
bps.stat (with no arguments)
```

See "Borrow Proxy Server for UNIX" on page 69.

bps.stop

This file is not shipped on the CD-ROM and is created when bps.run is issued. Use bps.stop to shut down the Borrow Proxy Server.

install

The install file is an install script for the License Manager. See "Installing the License Manager on UNIX" on page 34.

aes

The aes file is a configure script for the License Manager.

Chapter 4
Using the License Administration Utility

Overview of License Administration Utility

The License Administration Utility (LAU) is a Windows-based interface to both the License Manager and the license file. It can be run directly from the product CD. Many products also install this component in the product directory for quick access. The file name is `lau.exe`.

Figure 4-1. The License Administration Utility
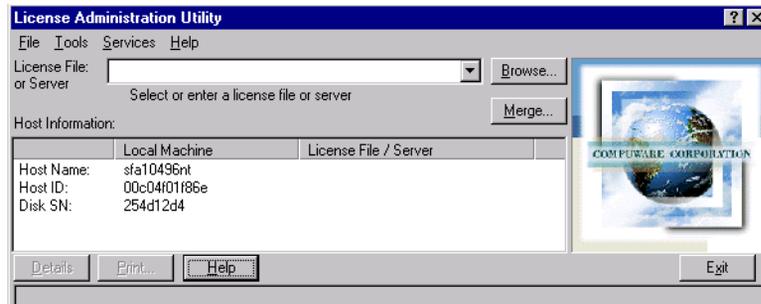
Functions of the LAU

The functions of the LAU include:

◆ **Install a license** — The Compuware License Install dialog box is displayed if a product requests a license that does not exist anywhere in the user's Current Licensing Environment. See Figure 4-2 on page 47.

◇ To set up the Environment before the product starts, see "Current License Environment Setting Dialog Box" on page 48.

◇ To merge a new license file with an existing Master License File, see "Merge License Files Dialog Box" on page 53.

Required: When setting up the components, the person who uses the product must have the same access privileges as the person or

administrator who installs the client portion of the license compo-
nents. If a system administrator installs the client portion and a
user does not have the same privileges, then the user may not be
able to use the license.

◆ **Modify the Current License Environment Setting** — The License
Environment provides users with add/remove paths to different
License Managers and license files. See "Current License Environ-
ment Setting Dialog Box" on page 48.

◆ **Verify Host information** — The LAU displays Host information in
its top pane. You can create and save a file with Host information.
This file can be used to request a permanent license when sent to
Compuware. See Appendix B, "Host Name, Host ID, and HOSTID
String" and "Requesting a License from Compuware" on page 18.

◆ **Verify license FEATURE line status —** When a License File or
License Manager is selected in the license file or server drop down
box, the file is scanned and the status of all FEATURE lines are dis-
played. This option is a reporting mechanism only and does not
"Set" a specific path—all paths in the Environment are always
scanned when a product requests a license file. See "Checking the
License Manager Status" on page 55.

◆ **Compuware Service Handler** — The Compuware Service Handler
allows System Administrators to start and stop the License Manager
service and reread a license in addition to other functionality. See
"Compuware Service Handler" on page 55.

◆ **Borrow License Client** — The Borrow License Client allows clients to
disconnect from the server and still use a licensed Compuware prod-
uct. See "Borrow License Client" on page 72.

◆ **Borrow Proxy Server** — The Borrow Proxy Server handles client
requests to borrow licenses submitted by a Borrow License Client and
must run whenever the License Manager is running. See "Borrow
Proxy Server for Windows" on page 62.

Compuware License Install Dialog Box

The Compuware License Install dialog box appears when a Compuware
product requests a license from the License Manager and the license does
not exist anywhere in the client's License Environment Setting. To add a

license, use the **Browse** button to navigate to the license file, or type in the **Port@Host** location of a License Manager.

Figure 4-2. Compuware License Install Dialog Box
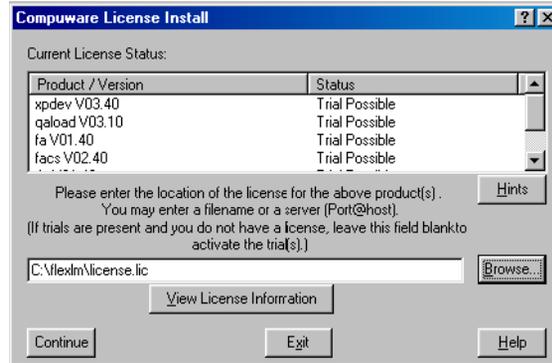
◆ **Current License Status** field — Shows the Product/Release items that are available for licensing.

◆ **License File Location** field — Enter a path to the license file or License Manager or click the **Browse** button to locate the file.

◆ **View License Information** button — Allows users to see more details regarding the license.

◆ **Continue** button — Click this button to continue product installation after a successful product install.

See for instructions on using this screen.

Configuring Clients During Product Installation

It is also necessary, during product installation, to configure each client's machine to access the License Manager. The following are instructions on using the Compuware License Install dialog box which will display during the installation process.

1 The License Install dialog box is used to connect to either the License Manager or a license file; it can also run a trial license of a product.

◇ To **connect to a License Manager**, enter the Port@Host location of a License Manager. You will not be required to merge a license file; you will be using the license file that the system administrator is using in conjunction with the License Manager.

◇ To **connect to a local license file**, select a product in the **Product/Version** list and then type in the path or click the **Browse**

button and navigate to the license file. If you already have a license file, you will be required to merge the new license file with the existing master license file. For information on merging license files, see "Merge License Files Dialog Box" on page 53. After you merge a new license with a master license file, the previous version of the master license file will be archived and named `License.dat%`.

2   If you get the following message: "License Manager must be installed and started on this machine…", then your license file contains a SERVER or DAEMON line and the License Manager must be installed first. (See "Installing the License Manager for Windows" on page 24.)

3   Return to the product installation.

Current License Environment Setting Dialog Box

The Current License Environment Setting dialog box allows users to define multiple licensing environments for a machine. To open this dialog box, choose **Tools>License Path** from the LAU. When a new License Environment is created, it will be appended to the COMPUWARE_LICENSE_FILE variable in the Registry. (See "Configuring Clients/Creating a License Environment" on page 49).

Figure 4-3. Current License Environment Setting Dialog Box
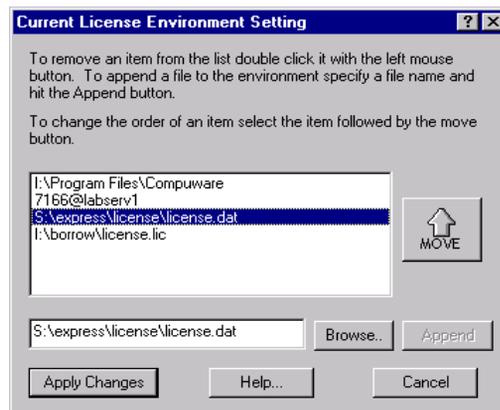
◆   **Current License Environment Setting** field — The first field, to the left of the Move button, in the Current License Environment Setting dialog box displays all currently defined license fields. To remove an item from the list, double-click the item. See "Editing Existing License Environment Paths" on page 52.

◆ **Move** button — Allows users to change the order of the items listed in the Current License Environment Setting field. When a Compuware product attempts to check out a license, it will search all of the paths in the listing (License Manager or License.dat file) until it finds a valid feature line. Therefore, if many paths/environments are specified, setting the most frequently used paths/environments to the top of the list will increase the speed at which the Compuware product checks out a license.

◆ **New License Environment** field — This field is to the left of the Browse button and is used to add an entry to the Current License Environment Setting field. Type the Port@Host location or use the Browse button to locate a license file.

◇ See "Adding a Path to the Current License Environment" on page 52.

◇ See "Editing Existing License Environment Paths" on page 52.

◆ **Append** button — Add the path by typing the path name or click the Browse button to find the path name. Click the Append button to add the path to the Current License Environment Setting field.

◆ **Apply Changes** button — Applies any changes made while the dialog box is open, including adding, editing and removing licenses, or reordering the paths in the list.

Configuring Clients/Creating a License Environment

All clients need to add the new license file to their License Environment in order to use the product after a trial period has ended. For Concurrent Licenses, the License Manager needs to be installed and run as a service on a separate server.

1 Install the Compuware Product.

Note: *Concurrent licenses only*: Have your system administrator give you the location of the License Manager.

2 Start the LAU.

Figure 4-4. The License Administration Utility
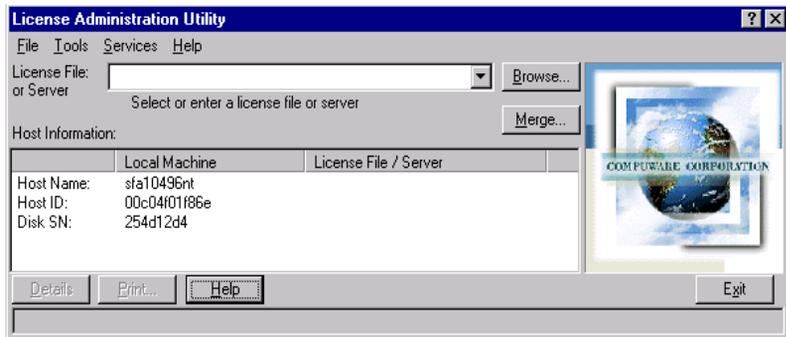
3 From the **Tools** menu, choose **License Path**.

4 Type the Port@Host server location of the License Manager in the **Current License Environment Setting** field which is to the left of the **Browse** button. Each location specified in the Current License Environment Setting field will be scanned when a Compuware product requests a license.

5 Click the **Append** button.

6 Click the **Apply Changes** button. The location of this License File/ Server has been set in the registry. Compuware products look at this registry setting for the location(s) of a valid license.

7 Close the dialog box.

Setting Up Redundant Servers

Each client machine must have an entry in its license path to each of the three redundant servers. Each of the three redundant servers should be

added to the environment. This is done by performing the following steps.

1 From the **Tools** menu, choose **License Path** to display the **Current License Environment Setting** dialog box.

Figure 4-5. Current License Environment Setting Dialog Box
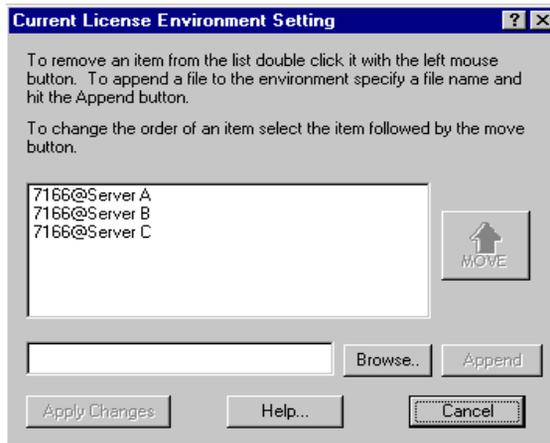
2 Add **each** of the three redundant servers to the environment by typing the Port@Host server location of the License Manager in the **Current License Environment Setting** field which is to the left of the **Browse** button.

◇ You can add each server individually and change the order of the items (see Figure 4-5) using the Move button.

◇ Or you can list all three servers in one line (see example below).

Tip: Remember to separate the paths with a semi-colon.

```
For example, on Servers A, B, and C on port 7166, the line
would read:
7166@Server A;7166@Server B;7166@Server C
```

3 Click the **Append** button.

4 Click the **Apply Changes** button.

5 Close the dialog box.

Although it is not necessary to have the three servers listed in the same order as they appear in the license file, it is operationally more efficient to have them in the same sequence.

Adding a Path to the Current License Environment

1   Start the LAU.

2   From the **Tools** menu, choose **License Path**.

3   Use the **Browse** button to locate a license file, or type in a path to a license file or a server with a Port@Host string in the **Current License Environment Setting** field.

4   Click the **Append** button.

5   Close the dialog box.

Editing Existing License Environment Paths

1   Double-click a path in the **Current License Environment Setting** field. The path will be removed from the Current License Environment Setting field and will be placed in the New License Environment field for editing.

2   Make changes to the field and then click the **Append** button.

3   Click the **Apply Changes** button.

Removing a Path Within the Current License Environment

1   Start the LAU.

2   From the **Tools** menu, choose **License Path**.

3   Double-click the path in the **Current License Environment Setting** field to remove it from the list.

4   Click the **Apply** button.

5   Close the dialog box.

Viewing the License Variable in the Windows Registry

You can use the registry to verify changes made to the License Path. The path is located in the following registry location:

HKEY_LOCAL_MACHINE/SOFTWARE/FLEXlm License Manager/ COMPUWARE_LICENSE_FILE.

The location of the license file can be found in the Window's Registry:

1   At a command prompt, type **REGEDIT**.

2   When the Registry Editor Window opens, select the **HKEY_LOCAL_MACHINE** node and click the plus sign to expand it.

3 Click the **SOFTWARE** node and click the plus sign to expand it.

4 Click on the **FLEXlm License Manager** node. The **COMPUWARE_LICENSE_FILE** variable will contain a value indicating the path(s) to all of the license files or License Managers.

Merge License Files Dialog Box

The Merge License Files dialog box allows users to enter a source and target license file and have the LAU automatically merge them. Compuware recommends keeping all license files in a single Master License File (created in the merge process) for easier maintenance. When two license files are merged together, they are simply combined and referred to as a "Master License File".

Figure 4-6. Merge License Files Dialog Box
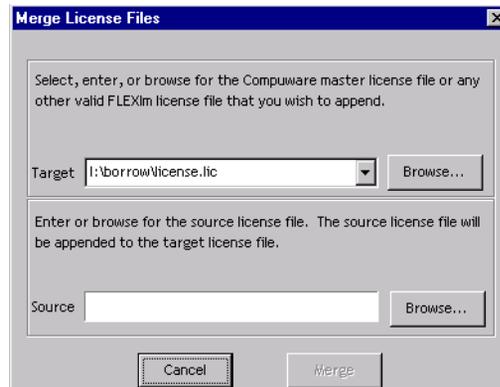
The Merge License Files dialog box contains the following features:

◆ **Target** field — The Target Field in the Merge License File dialog box describes the original, existing license file.

◆ **Source** field — The Source Field in the Merge License File dialog box describes the new license file that will be added to the Target field license file.

◆ **Merge** button — The Merge button will begin the merge process. See below.

Merge Process

During the merge process the following will happen:

1   The source file (new license file) will be opened and merged with the target file (original Master License File) creating a new Master License File.

2   The new Master License File will be sorted by the ISSUE DATE string in each FEATURE line.

Note: The merge process will NOT comment out any lines or remove any lines from either the source or target files.

3   After the merge process is complete, the new Master License File will be put through an internal "Validity Check".

4   If the Master License File contains errors, then an error dialog box will appear. The error dialog box will have Abort/Continue buttons.

   ◇   If you click the **Continue** button on a Master License File containing errors, the Master License File will be saved with errors.

   ◇   If you click the **Abort** button, then the original license file (the target file, in step 1) will be restored.

Caution: If you are unsure about the meaning of the error or how to proceed, do not click the Continue button. Contact Compuware's Technical Support for assistance. At this point, you may click the Abort button to exit the merge process or keep the error message on the screen.

5   A backup copy of the file is saved with the name `License.dat%`.

Checking the License Manager Status

To view the status of the License Manager or a license file, run the LAU. Select a license file or server from the **License File or Server** drop-down list.
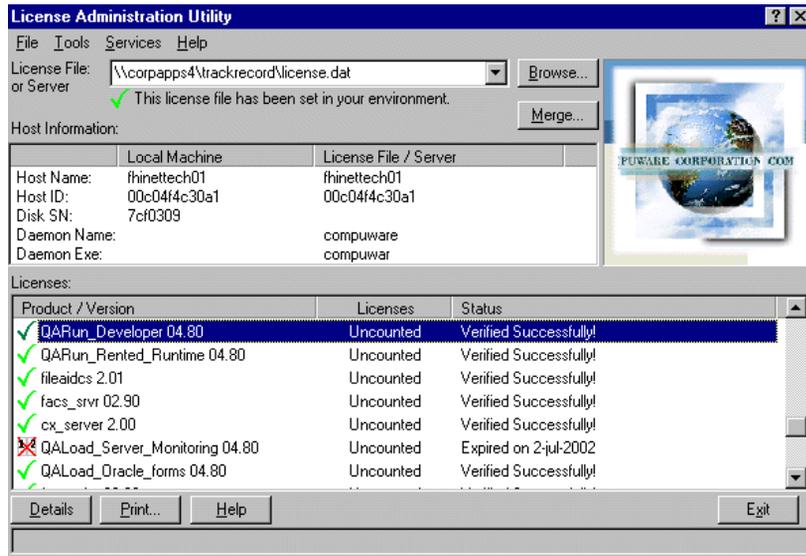
Each feature line in a license is displayed in the Licenses pane with verification and count information. Select a product in the bottom pane, and click the **Details** button to access specific product details. You can also view the online help for more information.

Compuware Service Handler

The Compuware Service Handler provides system administrators with the ability to start and stop the License Manager. Administrators can also add, flush and view log files, or modify and reread license files.

To start the Compuware Service Handler choose **Services>LMGRD** from the LAU. Only Administrators (machines designated as License Manager servers) will be able to select this item from the LAU Services menu.

Closing the Compuware Service Handler dialog box will NOT stop the License Manager from running as a service.

Figure 4-7. *Compuware Service Handler Dialog Box*
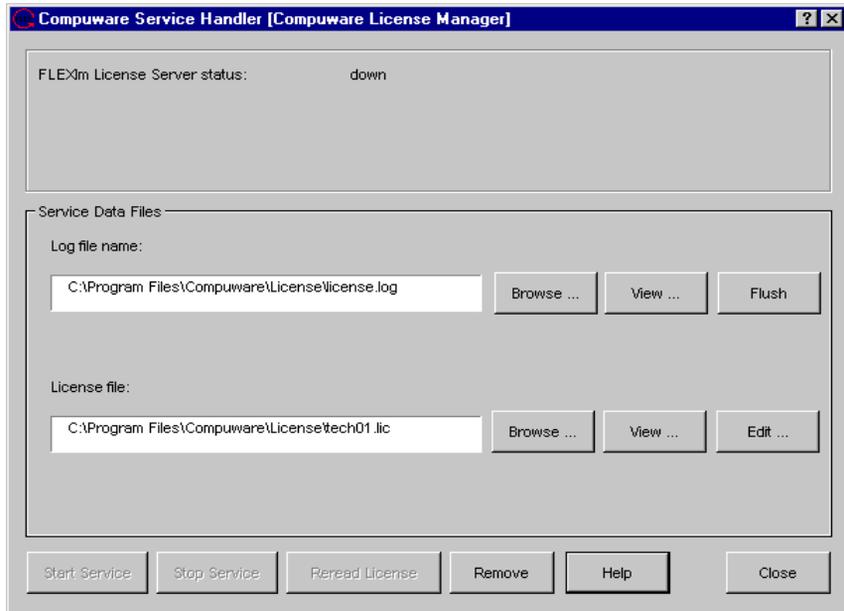
Tip: The Compuware Service Handler will not open if the current machine's Host Name and HostID do not match the Host Name and HostID in the License File.

The following controls are located on this dialog box:

◆ **Log File Name** field — Designates the location of the log file where the License Manager writes its diagnostics. To select a local log file click the **Browse** button and navigate to the log file from within the Open dialog box. Compuware recommends specifying a log file before the Service is started so that License Manager diagnostics are recorded.

Required: If a new log file is specified in the **Log File Name** field, its parent directory must exist.

◆ **View Log File** button — When clicked, a separate window is opened displaying the contents of the log file.

◆ **Browse Log File** button — When clicked, the Open dialog box appears and is used to navigate to an existing log file.

◆ **Flush Log File** button — Clears the contents of the log file specified in the Log File Name field. A good troubleshooting technique is to flush the log file when repeated errors occur before attempting to perform the step. This way the only items written into the log file will be the diagnostics pertaining to the error condition.

◆ **License File** field — Used to specify the license file that the License Manager will use while it is running as a service. To change the license file, either type in the path to a new license file or use the **Browse** button to locate a valid license file.

◆ **View License File** button — Opens the license file specified in the License File field and displays it in a separate dialog box.

◆ **Browse License File** button — Used to locate a local license file.

◆ **Edit License File** button — Opens the license file specified in the License File field using Notepad or the system's default text editor.

◆ **Start Service** button — Starts the License Manager using the log file and license file specified in the fields in the Compuware Service Handler dialog box. Compuware requires you to specify a log file before the service is started so that License Manager diagnostics are recorded.

◆ **Stop Service** button — Stops the current License Manager. A message will display asking if you want to run the License Manager as a Service the next time the machine reboots. If you choose Yes, the License Manager will be added as a service on the machine where you are working. If you choose No, it will be removed and will no longer be a service.

◆ **Reread Licenses** button — Forces the License Manager to reread the license file specified in the License File field. Administrators would use this button after merging or updating the old license file. It is not necessary to stop or bring down the License Manager to reread a license file unless the SERVER or DAEMON lines are modified.

◆ **Remove** button — Used to remove an installed License Manager Service.

◆ **Help** button — Used to launch online help.

Starting the License Manager

1   Open the LAU.

2   From the **Services** menu, choose **LMGRD** to open the Compuware Service Handler.

3   If the Compuware Service Handler reports that the License Manager is down, then:

a Type the log file name in the **Log file name** field or click the **Browse** button to find and select the log file.

b Type the license file name in the **License file** field or click the **Browse** button to find and select the license file.

4 Click the **Start Service** button.

Stopping the License Manager

1 Open the LAU.

2 From the **Services** menu, choose **LMGRD** to open the Compuware Service Handler.

3 If the Compuware Service Handler reports that the License Manager is running, then click the **Stop Service** button to stop the License Manager as a service.

4 You will be asked if you want to start the LM as a Service the next time the machine reboots. Click **Yes** or **No**.

Stopping Redundant Servers

If you have a redundant server configuration established and you click the Stop Service button, a message will display giving you the option to stop one server or stop all three servers. It is important that you choose the stop all option. If you stop only one server, you run the risk of destabilizing the license environment. For more information on redundant servers, see "Using Redundant License Servers" on page 17.

Rereading a License File

1 Open the LAU.

2 From the **Services** menu, choose **LMGRD** to open the Compuware Service Handler.

3 Click the **Reread License file** button.

Clearing the Log File

1 Open the LAU.

2 From the **Services** menu, choose **LMGRD** to open the Compuware Service Handler.

3 Click the **Flush** button.

Chapter 5
License Borrowing

Overview of License Borrowing

License borrowing enables users to check out **concurrent** licenses from the License Manager (LM) and then use a Compuware product disconnected from the network. When a user reconnects to the network, the license can be checked back in, available for all users.

The License Borrowing architecture consists of two components:

◆ The **Borrow Proxy Server (BPS)** — allows concurrent licenses to be borrowed and system administrators can monitor license borrowing activity.

   ◇ For Windows, see "Borrow Proxy Server for Windows" on page 62.

   ◇ For UNIX, see "Borrow Proxy Server for UNIX" on page 69.

◆ The **Borrow License Client (BLC)** — allows an end user to borrow and return concurrent licenses. This utility is only available for Windows operating systems.

To enable License Borrowing, the following items are required:

◆ A concurrent license file with the keyword **BORROW** in a FEATURE line.

◆ The BPS installed in the same directory as the License Manager.

◆ The BPS running whenever the License Manager is running.

◆ The BLC application installed on a client machine.

Installing License Borrowing Components

Installation of License Borrowing components is handled with the installation of the License Manager (LM) for both Windows and UNIX. The Borrow Proxy Server (BPS) needs to be installed and run in the same directory as the License Manager.

During installation of the License Manager, the new license file will be scanned. If it contains the keyword **BORROW**, the Borrow Proxy Server will be installed. The License Manager needs to be installed and running before the installation of the Borrow Proxy Server.

The Borrow License Client (BLC) application needs to be installed on each client machine that can borrow licenses. A system administrator should verify that each client machine that will borrow licenses has the BLC installed. The BLC cannot be installed on the same machine as the Borrow Proxy Server (BPS).

For License Manager installation procedures on Windows, see "Installing the License Manager for Windows" on page 24; for UNIX, see "Installing the License Manager on UNIX" on page 34.

Adjusting the Date and Time

Do not adjust the date/time on a client machine with a borrowed license. You will render the license inoperable and will not be able to use the license until after the number of days you established for the borrowing period has expired.

Therefore, if you need to adjust the date/time, first return the license to the Borrow Proxy Server, change the date/time and then re-borrow the license.

License Borrowing Process

The following is an overview of the licensing borrowing process:

1   The Borrow Proxy Server is installed with the License Manager as a Service by the System Administrator, each and every time the License Manager runs.

2   A client installs a Compuware product, license file, and the Borrow License Client.

3   A client accesses the BLC application.

4   When the BLC loads, it communicates with the BPS to verify license status.

5 The client selects a license to borrow.

6 The client enters the number of days to borrow the license.

7 The client commits the request by clicking the **Apply** button.

8 The BLC submits the request to the BPS. After authorization, the user can detach the laptop from the network and use the Compuware product remotely.

Figure 5-1. Borrow License Process Before a Transaction
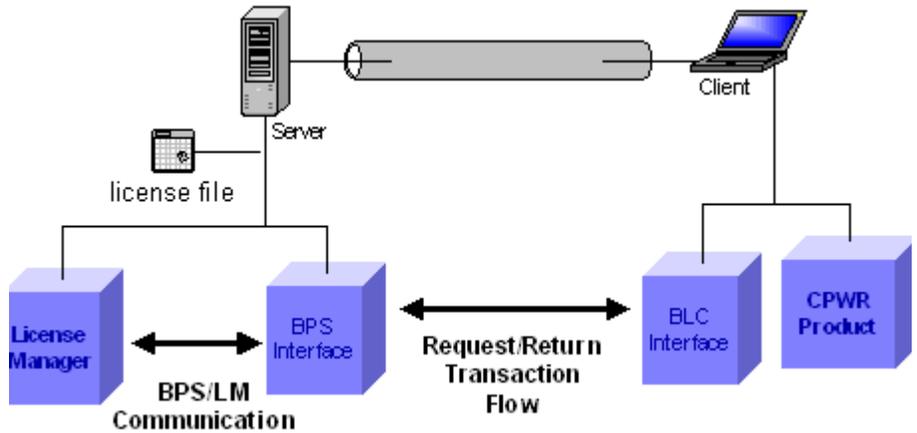
After a successful borrow transaction occurs, a license file is created on the client machine and the Compuware product uses this license file. When running the Compuware product disconnected from the network, it is not necessary to have the BLC running.

Figure 5-2 shows the Compuware product and the License Borrow components after a request transaction is complete and the client is detached from the network.

Figure 5-2. Borrow License Process After Borrow Transaction
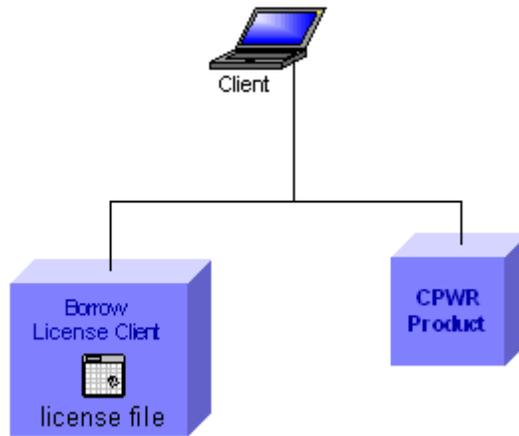
Borrow Proxy Server for Windows

The Borrow Proxy Server (BPS) is the application that provides the borrowing capability for Compuware products. The BPS is a proxy server that needs to run in conjunction with the License Manager (LM). This means that whenever the LM is running, the BPS must run.

The **BORROW** keyword in the FEATURE line of a license file determines if the BPS will be installed. If your license file contains the keyword **BORROW**, installation of the BPS is required. If the BPS is installed, Compuware products will not run unless both the BPS and LM are running.

Tip: Compuware does not recommend using Windows 95, 98, or ME.

In addition to providing the borrowing capability, the Borrow Proxy Server dialog box can be used by system administrators to monitor and restrict License Borrowing. The Borrow Proxy Server dialog box is just a GUI to the service itself; if the BPS is hosted on Windows NT, 2000, or XP, users can shut down the dialog box and still use the BPS. If the BPS is hosted on Windows 95, 98, or ME, however, the GUI itself is the service/console application and should not be shut down unless the License Manager is also brought down.

The Borrow Proxy Server has two views:

- The Borrowed Licenses view is the default view and displays the Hostname, Product, Version, and Time remaining of all borrowed licenses. See Figure 5-3 on page 63.

- The Policy Settings view displays the licenses that are available for the users to borrow. This view enables the BPS administrator to limit:

  - Number of days a license feature may be checked out

  - How many licenses are available for borrowing. For example, if Compuware license FEATURE x has 50 licenses, the administrator could limit the number of licenses that can be borrowed to 10, or any number less than or equal to the total number of licenses purchased.

Tip: For Windows NT, 2000, and XP, the Borrow Proxy Server screen is only a portal to the service itself, so you may close the dialog box. For Windows 95, 98, and ME, the dialog box itself must remain open or the BPS will be stopped and licenses will not be authorized for checkout.

Figure 5-3. Borrow Proxy Server Dialog Box
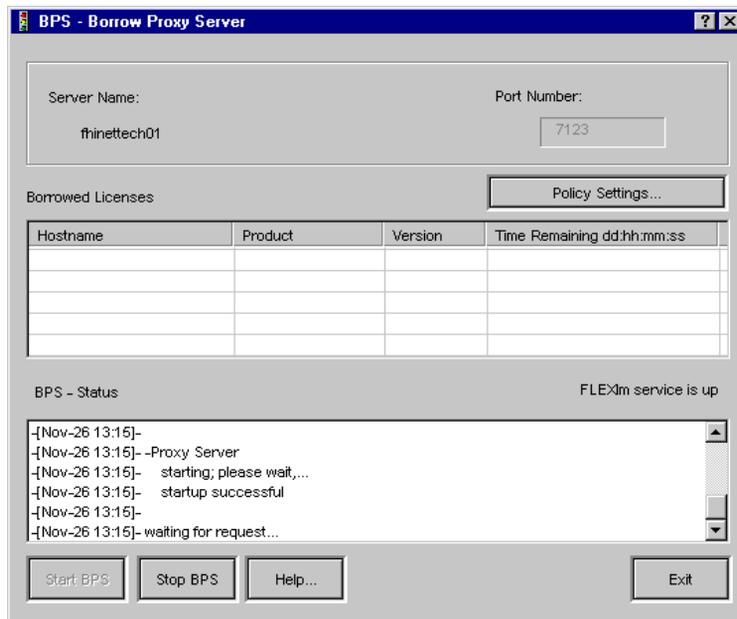
Borrow Proxy Server Features

The following controls are located on the Borrow Proxy Server:

- **Server Name** field — Located in the top frame, it identifies the server name of the License Manager to which the BPS will connect. The server name is automatically known by the BPS if it exists in the same directory as the License Manager.

- **Port Number** field — Located in the top frame, it identifies the Port Number on which the License Manager is listening. To edit the Port Number field, stop the BPS and modify the value.

◆ **Policy Settings** button — Opens the Borrow Policy Settings dialog box.

◆ **Hostname** item — Each represents a single client who has borrowed a license. Each Hostname item has the following attributes:

 ◇ **Product** — Licensed Compuware product name that has been borrowed

 ◇ **Version** — Version number of the product that was borrowed

 ◇ **Time Remaining** — Length of time before the borrowed license expires

◆ **BPS-Status** field — Contains status messages from the Borrow Proxy Server to the current user giving borrow transaction status.

◆ **Start BPS** button — Attempts to connect the Borrow Proxy Server to the License Manager. The License Manager must be running.

◆ **Stop BPS** button — Stops the Borrow Proxy Service.

◆ **Borrow Policy Settings** dialog box — Provides a system administrator with the ability to control how many licenses and for how long each product license component may be borrowed. To modify the settings for a specific product, see "Changing Borrow Policy Settings" on page 66.

 ◇ **Product** item — Each Product item contained in the Borrow Policy Settings listing represents the type of features available in the license file. To change the defaults on a given Product item, select it and modify the Max Length field or the Reserved field.

 ◇ **Reserved** field — When a Product item is selected in the Borrow Policy Settings listing, the Reserved field will display allowing an administrator to Reserve a certain number of licenses that are not available for borrowing. For example, if the total license count for a given feature is 6, and 4 is entered into the Reserved field, only 2 licenses will be available to borrow.

 ◇ **Max Length** field — When a Product item is selected in the Borrow Policy Settings listing, the Max Length field will display allowing an administrator to set the maximum number of days for which the selected product may be borrowed.

 ◇ **Apply** button — Applies changes made from the Max Length field or the Reserved field.

Connecting to the License Manager

In order to connect the Borrow Proxy Server to the License Manager, the License Manager must be running. The best way to connect the BPS to the LM is during the LM installation. See "Installing the License Manager for Windows" on page 24.

1   From the LAU's **Services** menu, choose **License Borrowing>Proxy Server** to open the BPS dialog box.

2   Verify that the License Manager's Host name appears in the **Server name** field.

3   Verify that the License Manager's port number appears in the **Port Number** field. These items should appear automatically from installation.

4   Click the **Start BPS** button.

Monitoring Borrowed Licenses

Use the default view (Borrowed Licenses) of the BPS to monitor borrowed licenses. When the BPS opens, all borrowed licenses will display in the Borrowed Licenses listing.

Changing Borrow Policy Settings

1   From the LAU's **Services** menu, choose **License Borrowing>Proxy Server** to open the BPS dialog box.

2   Click the **Policy Settings** button and the Borrow Policy Settings dialog box displays. See Figure 5-4 on page 66.

Figure 5-4. Borrow Policy Settings Dialog Box

Product	Version	Max Length	Reserved	Authorized	Borrowed
xpdev	03.40	365	0	6	0
qaload	03.10	365	0	6	0
fa	01.40	365	0	6	0
facs	02.40	365	0	6	0
tic	01.40	365	0	6	0
NPP	01.00	365	0	6	0
computest	02.20	365	0	6	0

No product selected, select a product

CLOSE
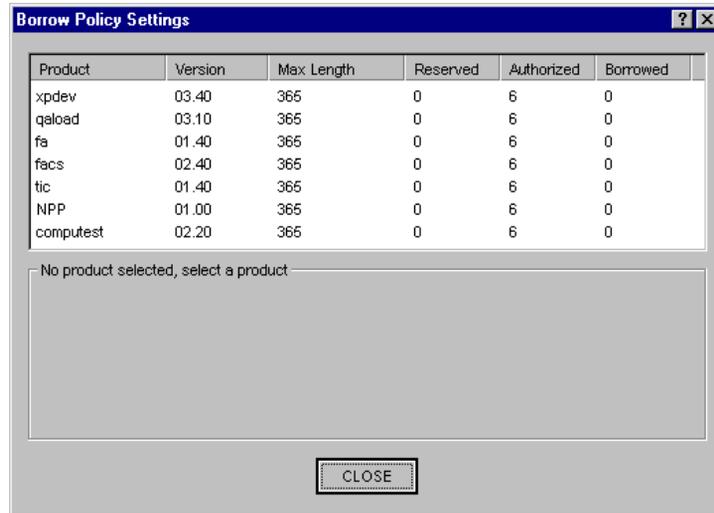
3   Select a product in the product listing.

4   To set the maximum number of days that a client can borrow a license of that type, type a number (can be 365 days or less) in the **Max Length** field.

5   To reserve a number of licenses that cannot be borrowed, type a number in the **Reserved** field.

6   Click the **Apply** button to save your changes.

7   Click the **Close** button to close the dialog box.

Starting the Borrow Proxy Server as a Service

The Borrow Proxy Server (BPS) can only be started on the machine that is hosting the License Manager (LM). The BPS must have been installed with the LM in order to start it. Compuware recommends that you install and run the BPS at the same time that you install and run the License Manager. See "Installing the License Manager for Windows" on page 24. This gives you the option of adding the License Manager and Borrow Proxy Server as services.

To start the BPS in Windows:

1 From the LAU's **Services** menu, choose **License Borrowing>Proxy Server** to open the BPS dialog box. If the Proxy Server menu item is disabled, it means that the current machine is not a License Server (current machine is a client) or the current license environment does not contain a license file with a SERVER line.

Figure 5-5. Starting BPS from the LAU
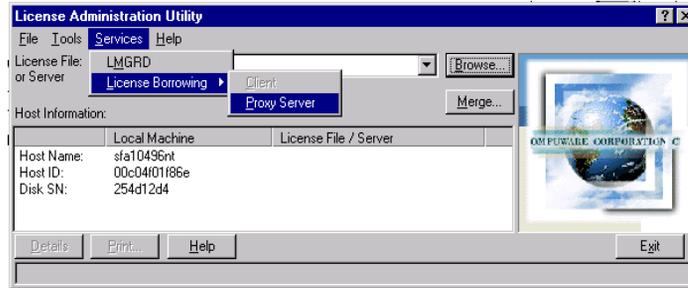
When you select the Proxy Server menu command, it attempts to start the BPS service. However, if the Proxy Server is already running, the following error message will display.

Tip: If a user has more than one BPS defined, all defined Borrow Proxy Servers must be running for a user to invoke a served license that is borrow-enabled.
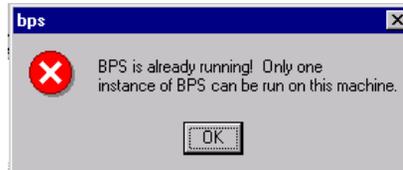
When the Borrow Proxy Server starts, the status of the License Manager is displayed, as shown in Figure 5-6.

Figure 5-6. License Manager Status Displayed on the Borrow Proxy Server

License Manager status
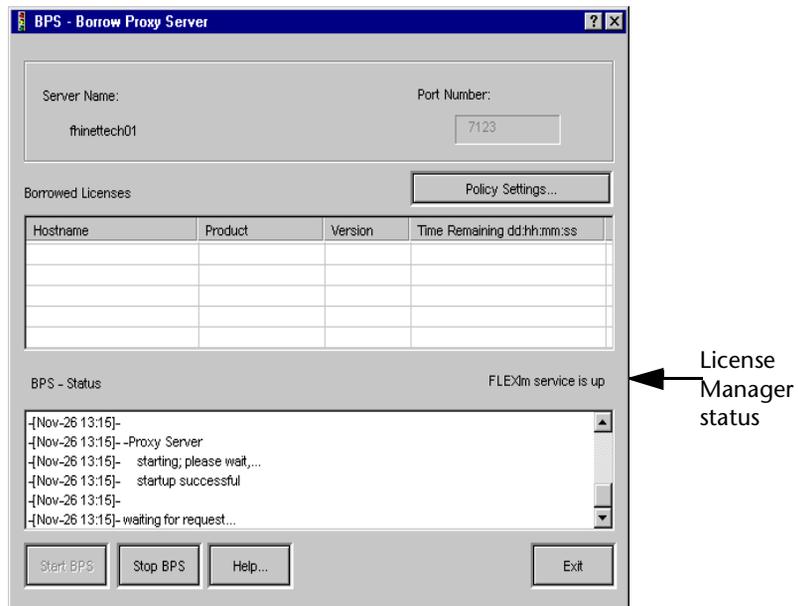
2 Click the **Start BPS** button on the Borrow Proxy Server. If the BPS is not already installed as a service in Windows NT, 2000, or XP, the following message appears:
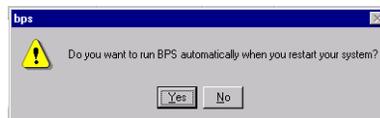
◇ If you click the **Yes** button, the BPS will be installed as a service and run automatically each time the machine is rebooted. You will receive several messages stating the status of the automatic update and that other users must have your same permissions to run the BPS.

◇ If you click the **No** button, the BPS will run in the foreground of the current session.

3 The **BPS - Status** field will display messages indicating the success or failure of starting of the BPS.

Stopping the Borrow Proxy Server

1 From the LAU's **Services** menu, choose **License Borrowing>Proxy Server** to open the BPS dialog box.

2 Click the **Stop BPS** button. If the **Stop BPS** button is disabled, then the BPS is already stopped.

3 A dialog box will appear asking if you want to start the BPS as a Service the next time the machine runs. It is recommended that you choose **Yes** so that you do not have to manually restart the BPS when the Server boots.

Stopping the BPS will prevent all License Borrowing by clients.

4 To manually uninstall the BPS, see "Uninstalling the License Manager or Borrow Proxy Server" on page 29.

Borrow Proxy Server for UNIX

The Borrow Proxy Server for UNIX can run on the following UNIX platforms:

◆ DEC

◆ HP-UX (32-/64-bit)

◆ IBM - AIX (32-/64-bit)

◆ Linux (Redhat Linux)

◆ Sun Solaris 2.x (32-/64-bit)

Installing the Borrow Proxy Server on UNIX

The Borrow Proxy Server is installed using the `install` script, during License Manager installation.

Note: For complete License Installation details, see "License Installation and Management for UNIX" on page 33.

Starting the Borrow Proxy Server for UNIX

1 Verify that the Borrow Proxy Server is installed by navigating to the directory containing the License Borrowing Components. Type the following: `$ls`

2 You should see the files `bps.run` and `bps.stat`. If you do not see the files, re-run install (see "install" on page 42).

3 Type in the following: `$bps.run -c (license file) -p (port number) -l [log file]`

4 This will create a file called `bps.stop`, which is used to shut down the Borrow Proxy Server.

5 See "Reporting on the Borrow Proxy Server for UNIX" on page 70.

Stopping the Borrow Proxy Server for UNIX

1 Navigate to the directory containing the License Borrowing Components.

2 Type in the following: `bps.stop`

Reporting on the Borrow Proxy Server for UNIX

1 Navigate to the directory containing the License Borrowing Components.

2 Type in the following: `$bps.stat`

3 If the Borrow Proxy Server is running, the following will display, otherwise, you will get a message regarding the problem.

```
bps.stat - Copyright (C) 2000,2001 Compuware Corporation
bps status: running
```

user	hostname	feature	version	dd:hh:mm:ss
===========	=========	=======	=======	===========
Win_98.User	fh18419	qaload	03.10	00:23:55:07
Win_98.User	fh18419	xpdev	03.40	00:23:55:07
PFHSSSx	sfa10xx6nt	NPP	01.00	26:06:02:58
PFHSSSx	sfa10xx6nt	FE	02.70	00:23:55:07

The following items describe the Header fields in the report above:

◆ **User** — Represents the user who has borrowed a product.

◆ **Hostname** — Represents the hostname of the user who borrowed the license.

◆ **Feature** — The product or feature that the user borrowed.

◆ **Version** — The version of the product that the user borrowed.

◆ **dd:hh:mm:ss** — Represents the time remaining in the borrowed license.

To set restrictions on the duration and amount of users that can borrow a license, see the next section.

Setting Restrictions on Borrow Enabled Licenses for the BPS for UNIX

A system administrator can create a special file that allows setting restrictions on the number of days a license can be borrowed, and how many licenses of a certain type can be borrowed.

1   Create a file named bps.cfg and place it in the same directory as the License Borrowing components.

2   Open the file. The file will be comprised of keywords, parameters, and comments when necessary. The file should follow the format below:

Table 5-1. Keyword Definitions for bps.cfg

Keyword-Parameter syntax	Definition
RESTRICT(prod_name, prod_version)	Restrict designates the beginning of a FEATURE restriction. Only FEATURE lines in a license file can have a RESTRICT. • **prod_name** — name of product as it is defined in the license file. • **prod_version** — version number of borrow-enabled product.
MAX_TIME(max_number_of_days)	Maximum number of days a product can be borrowed. Cannot exceed 365 - which is BORROW maximum duration.
COMMIT(number_of_licenses)	This is the number of licenses that are allowed to be borrowed. Cannot exceed available license count. This is the opposite of what happens with the keyword RESERVE.
RESERVE(number_of_licenses)	This is the number of licenses that cannot be borrowed. Cannot exceed available license count. This is the opposite of what happens with the keyword COMMIT.
END	Ends a unique RESTRICTION BLOCK.
#	Use the # sign for a comment.

The following sample file shows how system administrators can create the bps.cfg file to restrict License Borrowing.

```
# bps.cfg
# THIS FILE IS USED TO RESTRICT LICENSES BORROWING
# FOR ALL BORROW-ENABLED LICENSES
# // FIRST RESTRICT FEATURE. THE FOLLOWING RESTRICTS
# THE PRODUCT QALOAD, VERSION 03.10, TO ONLY 1
# LICENSE THAT CLIENTS CAN BORROW

restrict(qaload,03.10)
  commit(1)
end

# //SECOND RESTRICT FEATURE. THE FOLLOWING RESTRICTS
# THE PRODUCT XPDEV, VERSION 03.40, TO ONLY 10
# LICENSES THAT CLIENTS CAN BORROW FOR ONLY 30 DAYS

restrict(xpdev, 03.40)
   max_time(30)
   commit(10)
end
```

Borrow License Client

The Borrow License Client (BLC) is a Windows-based application that is used to check licenses in and out of the Borrow Proxy Server. The user can then detach the client from the network and use the Compuware product with a borrowed license. This borrowed license is identical to the original license and allows the Compuware product to function as if it were connected to the License Manager.

The Borrow License Client application is installed with the Compuware product and is in the same directory as the LAU. The BLC needs to be installed on the computer on which the Compuware product is installed (see Figure 5-2 on page 62).

Once a license has been borrowed, it is not necessary to start the BLC to run a Compuware product on a detached workstation. You only need to run the BLC to check out a license, to check in a license, or to view the

status of all checked out licenses on a client machine. When the BLC runs, it opens up in the "Edit Transactions" mode. In this mode, you can borrow and return licenses. The "Time Remaining" mode provides a listing of the Product, Version, and Time Remaining for each borrowed license. There are two buttons to toggle between the modes.

Borrow License Client Features

To get started with borrowing licenses, review the available features on the **Borrow License Clien**t dialog box (see Figure 5-7), and then use the sections following these items to borrow and return licenses, and perform other license borrowing functions.

Figure 5-7. Borrow License Client Dialog Box
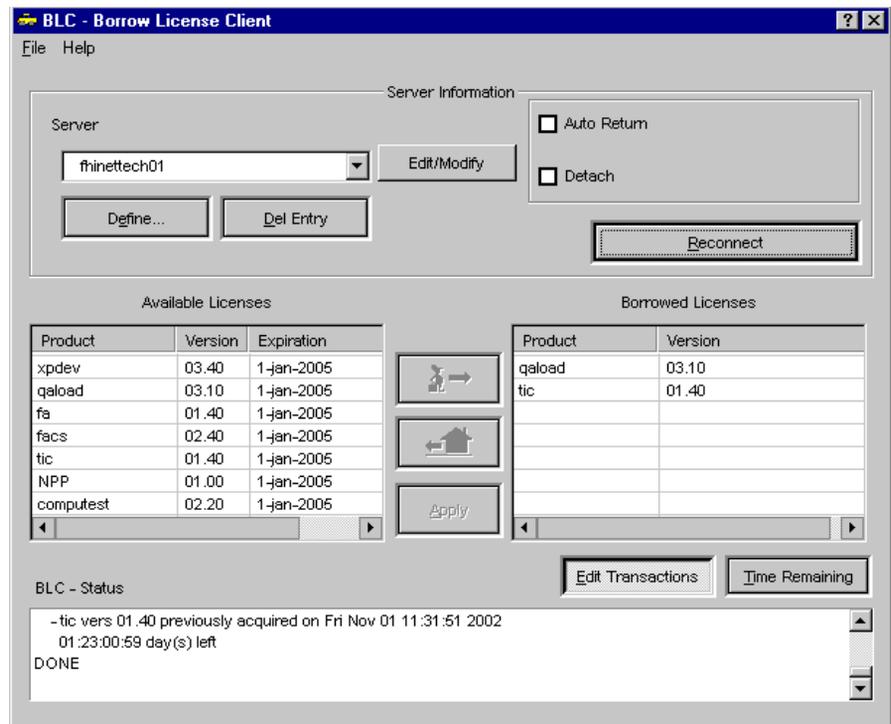
◆ **Server** field — Defines the server name where the Borrow Proxy Server is running. To define a Borrow Proxy Server, click the **Define** button and add a server in the Define Server dialog box. An alternative method to modify the values in the Server field is to open the bpsHosts.txt file. See "bpsHosts.txt file" on page 80.

◆ **Define** button — Opens the Define Server dialog box.

◆ **Del Entry** button — Deletes the currently selected server from the Server field.

◆ **Auto Return** checkbox — Automatically returns all borrowed licenses to the Borrow Proxy Server when the client machine re-establishes a connection with the network (as long as Detach is not selected). The Auto Return checkbox is a true/false checkbox; meaning, if it is selected (true), it will remain selected until it is deselected (default, false). The default value is "not selected". If Auto Return is selected when the client reconnects, ALL licenses will be returned to ALL proxy servers defined in the Server drop-down field.

◆ **Detach** checkbox **—** Immediately forces the client's workstation to use Borrowed Licenses. The Detach checkbox is a true/false checkbox; meaning, if it is selected (true) it will remain selected until it is dese-lected (default, false). If no licenses are borrowed, Compuware prod-ucts will not run (unless connected to License Manager). Be sure to select the Detach checkbox after the licenses are checked out and to set it to false (default value, or not clicked) when reconnecting to the network.

The Detach functionality can be used to run a borrowed license if the network or server where the License Manager and Borrow Proxy Server are located is experiencing difficulty.

◆ **Define Server** dialog box — Allows clients to create separate loca-tions for multiple Borrow Proxy Servers. Example: if there is a BPS on a UNIX box and also on a Windows box, two different connections can be established. It is possible to borrow licenses from any Borrow Proxy Server to which a client can connect.

  ◇ **Identifier** — The unique name that will appear in the Server field of the BLC dialog box.

  ◇ **BPS Hostname or IP Address** — Defines the Hostname or IP Address of the Borrow Proxy Server to which the Borrow License Client will connect.

  ◇ **BPS Listening Port** — Identifies the TCP/IP port on which the Borrow Proxy Server is listening.

◆ **Available Licenses** item - Each product contained within the Avail-able Licenses listing is a FEATURE line in the active license file that contains a BORROW keyword. This product may be borrowed by the client machine. When a Product item is selected with a mouse click, the Borrow button is enabled. Clicking the Borrow button will begin the transaction process. See "Enter the Number of Days Dialog Box" on page 79. The Available Licenses listing also includes the product Version item and the Expiration date item of the borrow transaction.

◆ **Borrowed Licenses** item — Each product item within the Borrowed Licenses listing is a product that has already been borrowed (or will be when the Apply button is clicked). To return the item to the Borrow Proxy Server, click the Return button.

◆ **Borrow** button — Enabled when a Product item is selected from the Available Licenses listing. When clicked, the Enter the Number of Days dialog box will display.

◆ **Return** button — Enabled when a Product item is selected from the Borrowed Licenses listing.

◆ **Apply** button — Click the Apply button to enforce a given transaction after the Borrow or Return buttons are clicked.

◆ **Edit Transaction** button — Clicked (selected) by default and provides the default view for the Borrow License Client. The default view contains the following:
  ◇ Available Licenses listing
  ◇ Borrowed Licenses listing

◆ **Time Remaining** button — Hides the Available Licenses and the Borrowed Licenses listings and displays a larger version of the Borrowed Licenses listing, including the following fields:

  ◇ **Product** item — Displays each product that is currently Borrowed

  ◇ **Version** item — Lists the version number of each Product that is borrowed

  ◇ **Server —** Identifies the name of the Borrow Proxy Server (see Server field) from where the borrow request originated

  ◇ **Time Remaining —** Displays the time remaining of the borrow transaction in dd:hh:mm:ss format.

Borrowing a License

1 Open the LAU.

2 From the **Services** menu, choose **License Borrowing>Client**.

Tip: Contact your system administrator for the Host Name/IP Address and Port Number of the Borrow Proxy Server.

3 If the server name of the Borrow Proxy Server you want to connect to does not appear in the **Server** field of the BLC, click the **Define** but-

ton on the BLC. The **Define Server** dialog box displays (see Figure 5-8).

Figure 5-8. Define Server Dialog Box
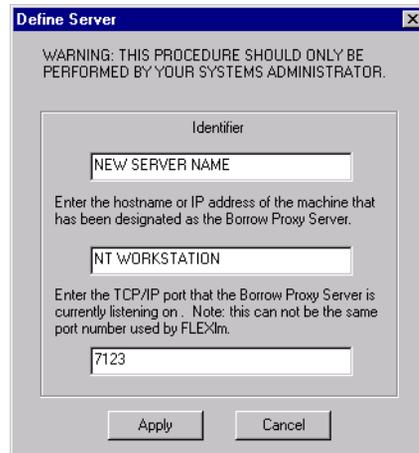
4　In the **Identifier** field type in the server name, giving it a unique name of your choice.

5　In the **BPS Hostname or IP Address** field, type in the name given to you by your system administrator.

6　In the **BPS Listening Port**, type in the port number specified by your administrator.

7　Click the **Apply** button. The **BLC - Borrow License Client** dialog box displays (see Figure 5-7).

8　In the BLC's **Available Licenses** listing, select one or more products from the list. This will enable the Borrow and Apply buttons.

Figure 5-9. Available Licenses Listing
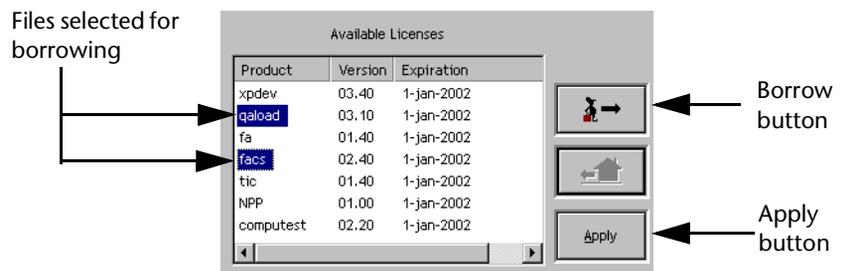
9　Click the **Borrow** button. The **Enter Number of Days** dialog box displays.

10 Enter the number of days for this borrow transaction. For additional information on borrow duration, see "Enter the Number of Days Dialog Box" on page 79.

11 Click **OK**. The licenses are moved from the Available Licenses listing to the Borrowed Licenses listing.

12 To complete the borrow process, click the **Apply** button.

Figure 5-10. Borrow Process
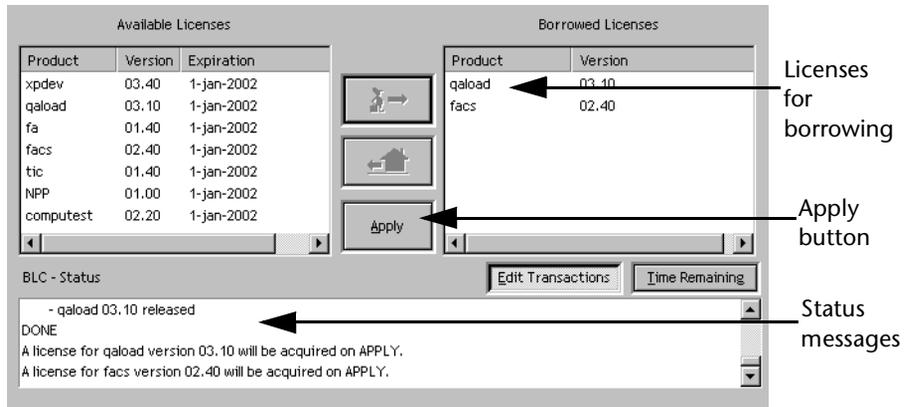
When apply is clicked, the Borrow, Return, and Apply buttons are disabled. The borrow transaction status is displayed in the "BLC - Status" screen.

13 The messages appear as follows:

```
***PROCESSING REQUESTS***
- "PRODUCT NAME & VERSION" acquired
- "PRODUCT NAME & VERSION" acquired
```

Detaching a Client from the Network

In the **Server Information** field at the top of the Borrow License Client screen, after one or more licenses are borrowed, select the **Detach** checkbox to immediately disconnect from the network.

When the Detach checkbox is selected, Compuware products will use the borrowed license, even if the client is attached to the network. You can remove your network connection at any time.

At this point, the BLC utility can be shut down and the machine can be detached from the network. The Compuware product will display a

message with the number of days remaining on the borrowed license each time the product runs.
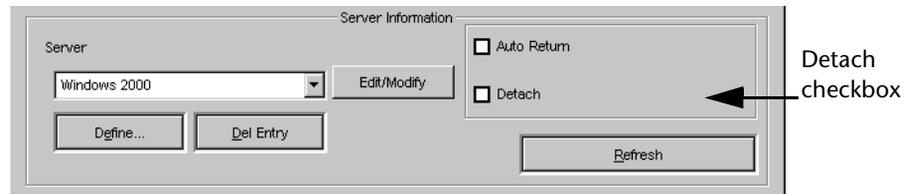
Returning a License

1 Reconnect the machine to the original network.

2 Open the LAU.

3 From the **Services** menu, choose **License Borrowing>Client**.

4 If the **Auto Return** checkbox is selected, then all licenses will automatically be returned to all Proxy Servers when the **Detach** checkbox is deselected. Otherwise proceed to the next step.

5 Select the product to return in the Borrowed Licenses listing. This will enable the Return button.

Figure 5-11. Return Process
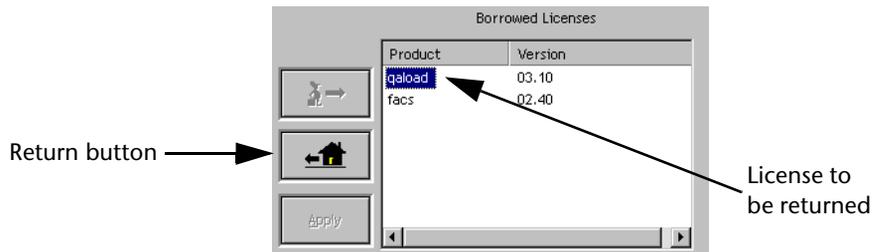
6 Verify that the Detach button is not selected.

7 Click the **Return** button. A message in the status screen will display the following:

```
A license for "PRODUCT NAME & VERSION" will be returned on
APPLY.
```

8 To commit the return, click the **Apply** button.

9 The product license will be checked back into the License Manager via the Borrow Proxy Server. Resume step 5 for any remaining products to return.

Enter the Number of Days Dialog Box

The length of time that a license can be borrowed from the Borrow Proxy Server is specified when the Borrow button is clicked. This dialog box includes one field that takes an integer (a whole number) specifying how many full days the current borrow transaction will last, from 1 to 365.

Note: The system administrator can limit the amount of days that a license can be borrowed using the Borrow Proxy Server.
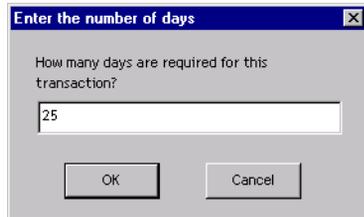
If a client does not return the license to the BPS before the license expires, two things will happen:

◆ **On the client machine —** the product that is checked out under the expired license will not run.

◆ **On the server —** the BPS will inform the License Manager that a checked out license has expired. The LM will make this license available to all users on the network.

Viewing the Status of Borrowed Licenses

The status of borrowed licenses can be seen in the Time Remaining mode of the Borrow License Client.

Tip: Status for connections and transactions are always displayed in the "BLC-Status" screen.

To view the time remaining for borrowed licenses, click the **Time Remaining** button on the Borrow License Client dialog box. When this button is clicked, the Available Licenses and Borrowed Licenses listings

are hidden and replaced with an expanded version of the Borrowed
Licenses listing which includes Server and Time Remaining columns.

Figure 5-12. Time Remaining Listing

Click the **Edit Transaction** button to return to the Borrow License Client
dialog box default view.

bpsHosts.txt file

The bpsHosts.txt file contains the strings for the server field in the
Borrow License Client. In Windows, these items can be created using the
Define Server dialog box (see Figure 5-8 on page 76). In UNIX, these
strings can be manually typed in the bpsHosts.txt file which is located in
the same directory as the Borrow Proxy Server.

Note: To ensure that each client connects to the correct Borrow Proxy
Server, a single file can be created and copied into each client's
Borrow License Client directory.

The following is an example of what is in the `bpsHosts.txt` file:

```
# comment
server (UNIX Workstation, productionEnt4500, 7123)
```

The following terms describe the example from above:

```
server = keyword
UNIX Workstation = Name of the BPS location
productionEnt4500 = Host Name or IP address of BPS
7123 = port on which BPS is listening
```

Chapter 6
Remote License Administration Utility

Overview of Remote License Administration Utility

Distributed License Management's Remote License Administration Utility (RLAU) provides a central point of license administration. The file for the utility (dlmCGIAdmin) is on the product CD or copied onto the product directory, and the RLAU must be run on an HTTP server. It allows the administrator to view the current status of authorized License Managers through a user-friendly web interface without being present at the server.

Figure 6-1. The Remote License Administration Utility
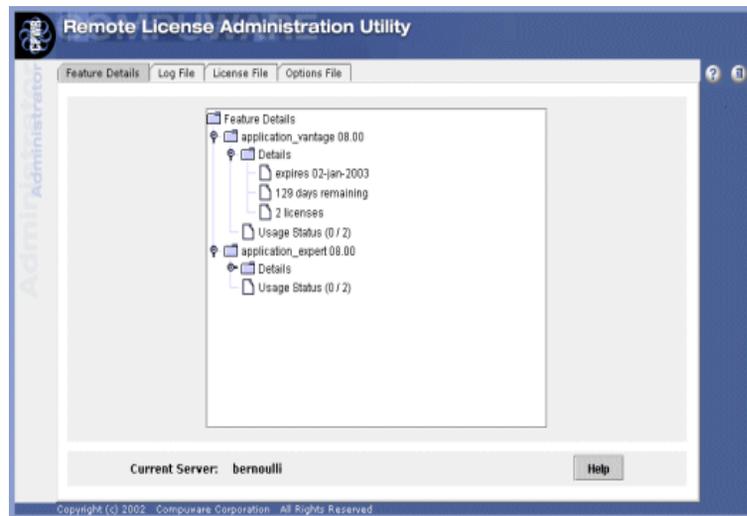
Client/server administration capabilities include:

◆ Obtaining the current status of the License Manager

◆ Examining license usage

◆ Viewing contents of the current log, license, and options files

The RLAU consists of several components. These components include a Java-applet, a User Configuration/Administrative Tool, and a CGI.

Unlike the applet portion of the RLAU, the CGI module and User Configuration Tool are non-Java applications, which means that unique binaries exist for each supported platform.

Installing and Configuring the RLAU

The following steps are necessary to install and configure the Remote License Administration Utility in your environment:

1 Install the License Manager and its components.

◇ For Windows, see "Installing the License Manager for Windows" on page 24.

◇ For UNIX, see "Installing the License Manager on UNIX" on page 34.

2 Create User Accounts. See "Creating User Accounts" on page 84.

3 Define the License Manager. See "Defining the License Manager" on page 86.

4 Configure the vendor daemon to allow streaming of information.

◇ For Windows, see "Configuring in Windows" on page 87.

◇ For UNIX, see "Configuring in UNIX" on page 88.

5 Install the CGI as a service. See "Installing the CGI" on page 88.

6 Run the RLAU. See "Configuring the Java Applet" on page 89.

Tested Environments

Required: The Java-applet component requires that client systems that access the applet via a browser, such as Netscape or Explorer, have a minimum of Java 1.3 installed for Java support.

The RLAU was tested and will work properly in the following environments.

Web Servers

◆ Apache on UNIX Solaris 8.0

◆ IIS on Windows 2000 Server

◆ iPlanet on Windows NT Server and Solaris 8.0

Browsers

◆ Internet Explorer 5.5 and 6.0

◆ Netscape 6.2

Note: Java Plug-in 1.3 and 1.4 for Netscape 6.2 is not supported in the AIX, HP, and Redhat environments.

Functions of the RLAU

The RLAU provides remote review of FLEXlm-based Compuware License Managers and their environments. The following diagram illustrates the interaction between the provided Java-applet component and the CGI.

Figure 6-1. Java Applet Component and CGI Interaction
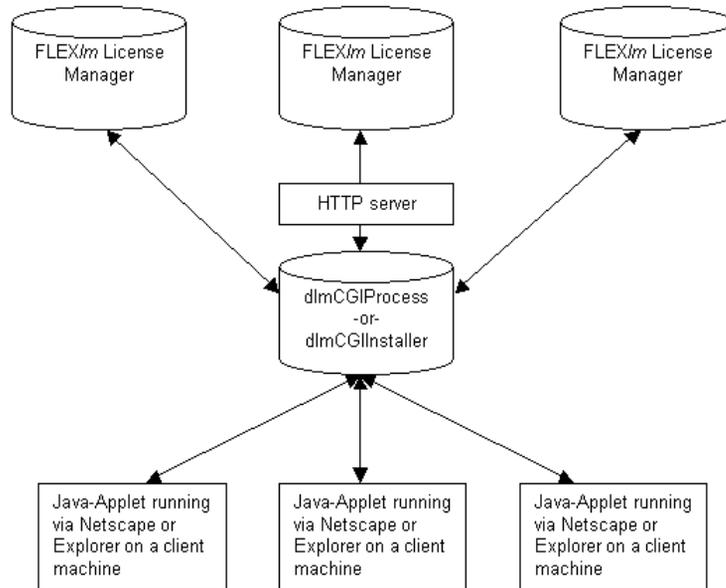
Only authorized clients can access the data from a License Manager. User account definitions define the access rights of individual users to a particular License Manager. The CGI Administrative Tool administers user accounts for remote License Manager access.

Supported Platforms

The platforms supported by these components are AIX, SunOS, OSF, HP-UX, Windows XP, Windows NT, and Linux. An administrator with root access to the machine should perform installation and/or configuration of these components.

The following chart shows the binary to platform relation of all binary components provided for the RLAU.

Table 6-1. Supported Platforms

Platforms	Component List
Windows XP and Windows NT	dlmCGIInstaller.exe, dlmCGIProcess.exe, dlmCGIAdmin.exe
Linux, HP-UX, HP-UX 64, OSF/Digital, AIX, AIX 64, SunOS/ Solaris, and SunOS/ Solaris 64	dlmCGIProcess <platform>, dlmCGIAdmin <plat-form>, aes

Note: 64 = 64 bit version.

Creating User Accounts

To create user accounts, run the dlmCGIAdmin executable file for the platform that corresponds to the system that you have designated as your HTTP server. The dlmCGIAdmin file has a text based GUI which means that it can be run in a text based terminal window, such as Telnet.

Required: You should have root or administrative access to the HTTP server before running the component.

To run the dlmCGIAdmin component:

1 At the command prompt, type `dlmCGIAdmin <platform>` or `dlmCGIAdmin.exe` to display the **dlmCGIAdmin Main Menu** screen (see Figure 6-2).

Figure 6-2. dlmCGIAdmin Main Menu Screen
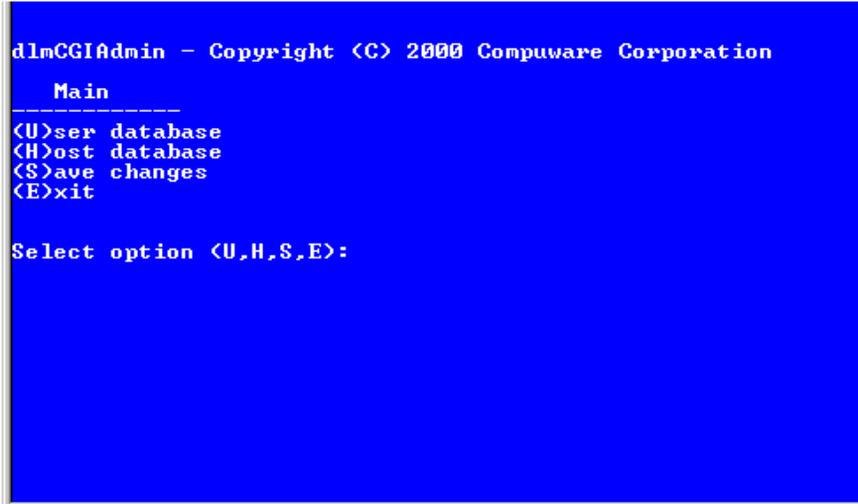
2 Type `U` and press **Enter** to access the User Database Menu.

3 Type `N` and press **Enter** to add a New User to the User Database.

4 Type a user name and press **Enter**.

5 Type a password for the newly created user and press **Enter**.

6 Re-type the password for confirmation and press **Enter**. A message will appear on the screen to confirm that the user was added to the user database.

7 Press **Enter** to add another user and repeat steps 3 through 6.

8 To return to the Main Menu, press **Enter** three times.

Only users with accounts will have access to the License Managers. User accounts are added to the dlm_password file that is located in the /etc directory for UNIX platforms and the C:\Windows directory for Microsoft OS platforms.

Defining the License Manager

Before interaction between a client (Applet) and a License Manager can occur you must identify the License Manager to the CGI. To define the License Manager:

1   From the Main Menu of dlmCGIAdmin, type H and press **Enter** to access the **Host Database Menu** screen (see Figure 6-3).

Figure 6-3. dlmCGIAdmin Host Database Menu Screen
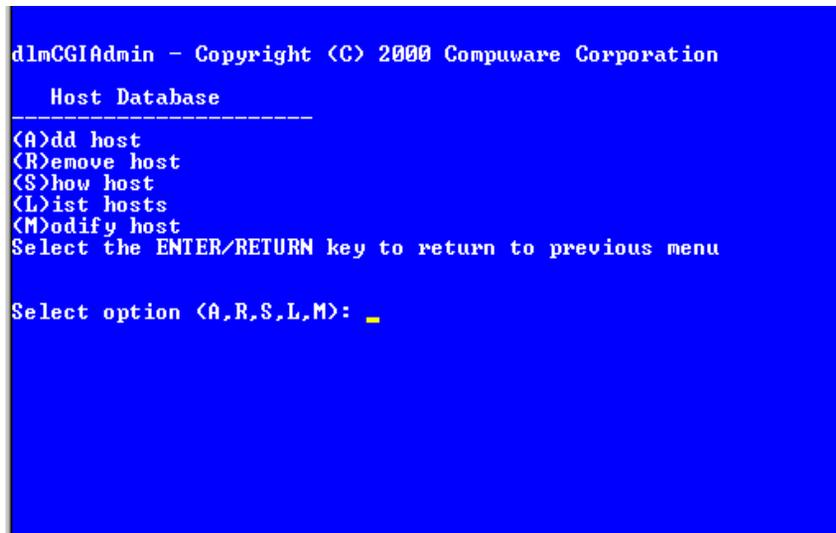
2   Type A and press **Enter** to add a host name or TCP/IP address.

3   Type the host name or TCP/IP address of the License Manager to be added and press **Enter**.

Note: The TCP/IP address can be either the hostname-alias or the actual IP address of a system that is running the License Manager.

4   Type an alias name for the host and press **Enter**.

◇   If an alias is specified the alias is displayed on the client instead of the TCP/IP identifier of the License Manager. References to the License Manager can use either the alias or the hostname.

◇   If an alias is not specified, only the host name or TCP/IP address, whichever is supplied during the creation of the host entry, can be used to identify a License Manager.

5   Type the port number where the License Manager is listening and press **Enter**. The port number can be found on the SERVER line of

your license file. A message will appear on the screen to confirm that the alias and host was added to the host database.

6 Press **Enter** to add another host and repeat steps 3 through 5.

7 Press **Enter** three times to return to the Main Menu.

8 Type U and press **Enter** to access the User Database Menu.

9 Type A and press **Enter** to add a host to a user's account.

10 Type the name of the user from the list displayed and press **Enter**.

11 Type the host name or TCP/IP address or alias of the License Manager where the user needs access and press **Enter**. A message will appear on the screen to confirm that reference to the host name was added for the user.

12 Press **Enter** to add another host reference to a user's account and repeat steps 10 and 11.

13 Press **Enter** three times to return to the Main Menu.

14 Type E and press **Enter** to exit.

Configuring the Compuware Vendor Daemon to Accept Requests

There are two levels of security provided for support of Web-browsing. In addition to defining user accounts for the CGI, each vendor daemon must also be authorized to allow the streaming of information. Therefore, although a user can have access to a License Manager in their account description, the License Manager still has the ability to block all requests.

Configuring in Windows

To configure the Compuware Vendor Daemon in Windows:

1 Run cpwrDiag.exe (found on the product CD).

2 Click the **License Manager(5)** tab.

3 Select the checkboxes **Enable remote review of the log file** and **Enable remote review/edit of the license file**.

4 Click the **Exit/Close** button.

Caution: If you do not configure the Compuware Vendor Daemon, you will not be able to view the license file information in the License File Tab and/or the log file information in the Log File Tab of the RLAU.

Configuring in UNIX

From within UNIX, you must run the `aes` configure script to define the location of the license file and log file and to make sure they are pointing to the same license. If they are not, the log file will not match the license file when viewing them in the RLAU.

Installing the CGI

The CGI component of the RLAU provides interaction between the client and a specific License Manager. The CGI only allows one client at a time to communicate with an individual License Manager. Before accessing a License Manager from a remote location, a client-user must have a registered account with the CGI.

Once you have configured your user accounts (see "Creating User Accounts" on page 84) and the individual License Managers (see "Defining the License Manager" on page 86), you will need to install the CGI to start it on the HTTP server.

Windows NT, 2000, and XP

Before you can run the CGI on a Windows HTTP server you must first install it as a service. The dlmCGIInstaller is used to run, install, remove, and start the dlmCGIProcess. To install and execute the CGI as a service:

1 Determine a port number where you want to run CGI.

2 Type the following command at a DOS command prompt:

   `dlmCGIInstaller -i -p <port number> -e`

This action does not need to be performed again. You only need to install this dlmCCIInstaller once.

Checking the Status

To check the status of the dlmCGIInstaller, enter the command `dlmCGIInstaller -st` at the DOS command prompt.

Windows 95, 98, ME, and UNIX

In a Windows 95, 98, ME, or UNIX environment, the CGI is started at the command line or placed in a UNIX rc-startup file. To start the CGI at the command line type the following command:

```
dlmCGIProcess -p <port number>
```

Configuring the Java Applet

After you start the CGI, you can then run it on the HTTP server. To run the RLAU:

1 Copy the DLM_Web_Tool folder found on the product CD to a location on your HTTP server. The location on your server should be designated as the site location for the RLAU application.

2 Open the DLMAdminTool.html file.

3 Change the port number in the source code of the DLMAdmin-Tool.html file to match the port number you defined when starting the CGI (see "Installing the CGI" on page 88).

4 Create a link from your intranet site to the RLAU.

```
Example:
http://sitename/dlmweb/DLMAdminTool.html
```

5 To access the RLAU, direct users to the site address you created.

Launching the Remote License Administration Utility

Logging into the RLAU

To log into the Remote License Administration Utility, follow the steps below.

1   Open the RLAU in a browser window using the site address provided by the system administrator. The RLAU Login Screen will display in your browser window (see Figure 6-4).

Figure 6-4. RLAU Login Screen
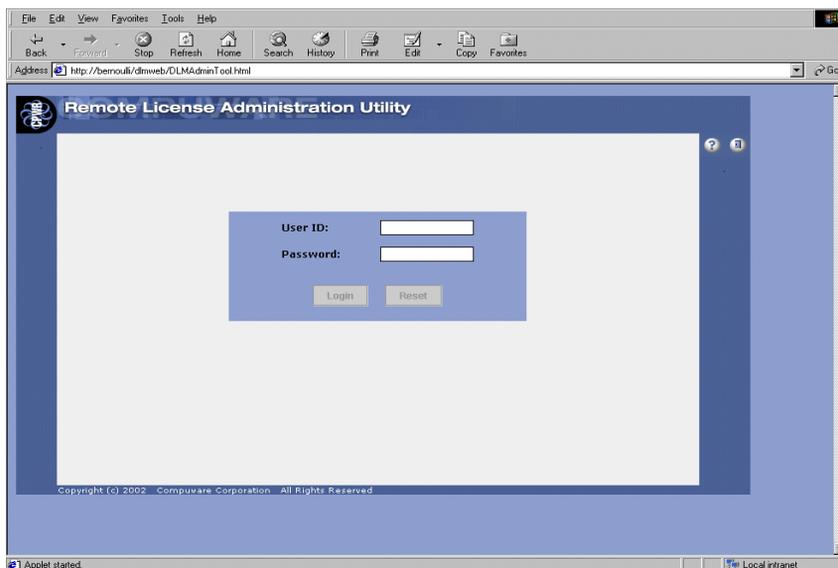
2   Type your User ID and password in the **User ID** and **Password** fields. The User ID and password must be created by the system administrator. See "Creating User Accounts" on page 84.

3   Click the **Login** button.

   ◇   The Login button will not be available until you type a password in the Password field.

   ◇   The Reset button is enabled after you click the Login button. To restart the login process, click the **Reset** button to clear the User ID and Password field and to remove any errors and the License Manager drop-down list.

4   Select a License Manager from the drop-down list.

5   Click the **Connect** button.

After you log into the RLAU and it is loading in your browser, it may seem that the application is not launching because the screen looks inactive. However, the way to distinguish whether or not it is running is to look in the bottom left-hand corner of the screen. If you see the following messages, then the application is loading.

```
Applet started.
Busy contacting server. Please wait...
```

Loading the RLAU

If the application takes an unusually long amount of time to load after logging in and selecting a server, and your license and log files contain numerous features and users, you may perform any or all of the following tasks to decrease the load time of the RLAU.

1   Flush the Log file. This should be done periodically to increase streaming.

2   Disable the remote review of the log file and/or license file. (See "Configuring in Windows" on page 87.)

If however, you do not get a connection to the RLAU and it does not load, open your Java Console to determine the error and contact Compuware's Technical Support.

Appendix A
USER_BASED/HOST_BASED License Models

Overview of USER_BASED/HOST_BASED License Models

USER_BASED and HOST_BASED license models are similar to the concurrent license model except that they allow an administrator to restrict certain users/machines from checking out a license through the use of an Options File. These license models require the use of the License Manager.

The concurrent license, specified by Compuware, must be a counted license with a user count of 1 or more. These license models use a text file called an Options File to specify the licensed users or hosts and the Options File must be specified on the DAEMON line of the Compuware license file. Therefore, two changes are necessary in order to implement this license model: changing the license file and adding an Options File.

The following sections provide an overview for creating an Options File to implement USER_/HOST_based licensing and modifying the concurrent license file.

Creating an Options File

Tip: Use the keyword INCLUDE for 50 users or less. Use the keyword GROUP for more than 50 users.

There are several keywords necessary to create an Options File. The two most important keywords are **INCLUDE** and **GROUP**. These two keywords are described in more detail below. For more Options File keywords and information, contact GLOBE*trotter* Software for a *FLEXlm User's Guide*.

Note: Do not use Notepad to create an Options File; use another standard text editor. On some platforms, invalid characters are inserted that will be misinterpreted by FLEXlm. Please contact Technical Support at 1-800-538-7822 for assistance in creating the Options File using the Compuware License Diagnostics Tool.

Refer to the following sections for instructions on creating an Options File.

Implementing a USER_/HOST_based License Model

The following steps provide an overview for creating an Options File to implement USER_/HOST_based licensing.

1 Specify a name for the Options File within the license file.

If the Options File location is not in the same directory as the license file, specify the complete path.

The Options File path must be specified on the DAEMON line of the Compuware license file. It is recommended that you use the full path name for the Options File. Compuware suggests that you use the suffix ".opt" in the file name. For example:

```
DAEMON compuware compuwar <full path to license> compuwar.opt
```

2 Add the **HOST_BASED** or **USER_BASED** literal to the **FEATURE_LINE.**

For example:

```
FEATURE test compuware 1.000 1-dec-1999 2 DCA6EE6A58F94072F0F7\
    VENDOR_STRING=999999;0;PERM USER_BASED ck=101
```

Tip: The license type specification is in uppercase and usually appears after the VENDOR_STRING field.

3 Create an ASCII text file (Options File) and name it the same name used in step 1 above. This file is created and updated at the customer site.

4 Enter your USER, HOST, or GROUP parameters in the Options File. See "INCLUDE Keyword" on page 95 and "GROUP Keyword" on page 96.

Modifying the License File for USER_/HOST_Based Licensing

The following is an example of a complete license file where feature "test" is USER_BASED and "test2" is HOST_BASED:

```
#Start of license file example
SERVER fh18419 00c04f35d091 TCP:7166

DAEMON compuware compuwar <full path to license> compuwar.opt

FEATURE test compuware 1.000 1-jan-0000 2 \
    DCA6EE6A58F94072F0F7 \
    VENDOR_STRING=999999;0;PERM USER_BASED \
    ck=101

FEATURE test2 compuware 1.000 1-jan-0000 3\
    9C668E6A5C3CF3C0DB7E \
    VENDOR_STRING=999999;0;PERM HOST_BASED \
```

```
     ck=81
#end of license file example
```

INCLUDE Keyword

The **INCLUDE** statement is used to specify a licensed user or host for 50 users or less, the syntax is:

```
INCLUDE <product>  ⎡USER   <name>
                   ⎣HOST
```

◆ `<product>` — The name of the Compuware product. It is possible to define a specific version of a product by appending a colon followed by the desired version. For example, "test:version=1.1" would only allow specified users or hosts to run version 1.1 of the specified product. If the version modifier is omitted, all versions of the product can be accessed. There are additional modifiers that are not covered in this document.

◆ `USER/HOST` — Specify as **USER** for USER_BASED; or **HOST** for HOST_BASED licenses.

◆ `<name>` — Name of the **USER** or **HOST** licensed to run the product. Please note that host or user name is case sensitive and must match the name used by the network name server.

Below is a possible option file for the above license file example:

Figure A-1. Options File Example 1

```
INCLUDE test USER user1
INCLUDE test USER user2
INCLUDE test2 HOST xx18929
INCLUDE test2 HOST xx18419
```

In this example, **user1** and **user2** are licensed to run all versions of product "test" and machines **xx18419** and **xx18929** are licensed to run all versions of product "test2". Please note that the license file above specifies a maximum of two users for product "test" and a maximum of three hosts for product "test2".

In this example, all possible users are defined. Any additional users or hosts specified as licensed users are ignored and therefore not licensed to run the product. For example, if there were four hosts defined for product test2, only the first three host specifications would be used. You have the option of changing or adding names of users or hosts up to the specified license count. You cannot specify more users than the license file allows.

If the Options File does not exist, there are no licensed users for the product. If a user tries to acquire a license and is not specified as a legal

user, an error code -39 will appear indicating the user or host has not been specified in the Options File as a licensed user or host.

GROUP Keyword

In lieu of using individual users within the **INCLUDE** statement, the **GROUP** keyword can be used to define a grouping of more than 50 users. The GROUP keyword appears at least two times: (1) One for each Group to include (2) One within the INCLUDE statement to specify a GROUP name.

Tips For Using the GROUP Keyword

◆ The GROUP keyword must be defined *before* the INCLUDE statement.

◆ A separate INCLUDE statement is required for each GROUP defined.

◆ The number of users that can be included in a single GROUP is limited to no more than 100 users.

Figure A-2. Options File Example 2

Syntax

```
GROUP group_name user1 user2 userN
INCLUDE YourProductName GROUP group_name
```

Example

```
GROUP Development jillJack janeDoe marySmithe
GROUP Testing wsWrite satchPage johnDoe
INCLUDE YourProductName GROUP Development
INCLUDE YourProductName GROUP Testing
```

Appendix B

Host Name, Host ID, and HOSTID String

Overview

The **Host Name** is the unique name that identifies a computer on a network. A computer may have several of these (aliases). The **Host ID** is the machine identification number of a Host. For Windows PCs, this is the Ethernet Card ID. **HOSTID** is a string found in a line below the FEATURE line of a license file and typically is the ethernet card of a machine.

Host Name and Host ID

To obtain a license for your Compuware product, you must provide the host information of the machine on which the license will reside. If a License Manager is required, this is the server machine. You need to supply Compuware with the Host ID of the server on which the License Manager will run, not the Host IDs of all of your clients. If no License Manager is required, this is the same machine on which the product is installed.

To determine Host information to send to Compuware to request a permanent license:

Table B-1 Determining Host Information of Computer

Platform	Step	Action
Windows	1	Start the LAU.
	2	From the **File** menu, choose **Save**.
	3	Choose a directory and click the **Save** button. A text file (named HostInfo.txt) is saved in this location.
	4	Provide the file to Compuware or locate the Host Name and Host ID in the file and supply that information to Compuware.
UNIX	1	Navigate to the directory in which the License Manager is located (for example, /cpwr/license).
	2	Type uname -n. A message like the following is displayed: Host Name = fh5222dt.
	3	Type lmutil lmhostid. A message like the following is displayed: FLEXlm host ID is "00c04fd9ed02.
	4	Provide the Host Name and Host ID information to Compuware.

After you receive your license file from Compuware, you can find your Host Name and Host ID for your Concurrent licenses in the first line of the license file:

```
SERVER sfa15155 00c05f581a0e TCP:7166
```

SERVER keyword   Host name   Host ID   Port on which the Host is listening for requests

HOSTID

The **HOSTID** string is only found in Node-Locked licenses and defines the Host ID of the client that can execute a given feature. See the example below:

```
FEATURE xpdev compuware 03.40 1-jan-2001 3
        ABCD33NDDMEKK3K \
        VENDOR_STRING=989898;0;PERM \
        HOSTID=00c00f47fa0e ck=110
```

The typical values for **HOSTID** are either a Host ID from a machine or the keyword "ANY". If you see the keyword "ANY" in your license file, the license can run a feature on "any" single client machine, based on the license terms and conditions.

Glossary

Borrow License Client (BLC): Allows an end user to check licenses in and out. This utility is only available for Windows operating systems.

Borrow Proxy Server (BPS): An application that allows concurrent licenses to be borrowed and system administrators can monitor license borrowing activity. The BPS is a proxy server that runs in conjunction with the License Manager.

Compuware Service Handler: Provides system administrators with the ability to start and stop the License Manager.

Concurrent-user license: This type of license model allows the product to run on more than one workstation so that multiple users can access the product. When all available license are checked out, no additional users can run the product until a license is checked back in. Permanent and temporary licenses are types of concurrent-user licenses.

Daemon: The vendor daemon is used to count (or check licenses in and out) concurrent-user licenses. If your license contains server and daemon lines without a # sign in front of them, it is a concurrent-user license that is to be installed on a machine dedicated as the server. Literally, daemon is an acronym 'Disk And Execution MONitor'. It is a program that is not invoked explicitly, but lies dormant waiting for some condition(s) to occur. The idea is that the perpetrator of the condition need not be aware that a daemon is lurking (though often a program will commit an action only because it knows that it will implicitly invoke a daemon).

Floating license: See concurrent-user license.

Host name: A unique name that identifies a computer on a network. A single computer can have several host names, also called aliases.

Host ID: The machine identification number of a host. For Windows PCs, this would be the Ethernet address of the network interface card.

LAU: See License Administration Utility.

License Administration Utility (LAU): This is a Windows-based GUI designed to help you set up and manage your license files and set your environment. By using this utility, you do not have to manually type in information or open the license file in a text editor and risk corrupting your file or typing the information incorrectly. You can view details of a product license and get hints to solve many of your licensing errors.

License File (license.dat or license.lic): A data file that contains information about the Compuware products (clients and locations) and the License Manager.

License Manager: Compuware's License Manager contains the FLEXlm license server component

and the License Administration Utility. Both of these components enable the License Manager to check licenses in and out and maintain the master license file.

License Manager server: The dedicated machine upon which you will install the Compuware License Manager.

LM: See License Manager.

LMGRD: The License Manager application itself using the Compuware Service Handler interface.

Master license file: This is the repository for the licensing information for all the products you have installed on your machine. When you get a new product license, you will append that information to the master license file using the License Administration Utility.

Network license: See concurrent-user license.

Node-locked license: This type of license model allows the product to run on a single, specified workstation (node). The product cannot be used on any other workstation. Permanent, temporary, and trial licenses are types of node-locked licenses.

Permanent license: This type of license gives you access to the product under the terms of your contract with Compuware. Compuware offers two types of permanent licenses: node-locked and concurrent-user.

RLAU: See Remote License Administration Utility.

Remote License Administration Utility (LAU): This utility allows a remote administrator to review License Manager configurations via a web browser. Functionalities include viewing the log, license, and options files. In addition, this tool offers the ability to monitor the usage of Compuware products and the state of the License Managers that support them.

Server: On a local area network, a computer running administrative software that controls access to the network and its resources, in this case the product licenses, and provides resources to computers functioning as workstations (client machines) on the network.

Single-user license: See Node-locked license.

Temporary license: A temporary license has a fixed expiration date from the time it is installed on your system. You must request this license from Compuware's Technical Support.

Terminal Services: Terminal Services provides functionality similar to a terminal-based, centralized host, or mainframe, environment in which multiple terminals connect to a host computer. Each terminal provides a conduit for input and output between a user and the host computer.

Trial license: This type of licensing is installed when you install your Compuware product and it allows you to run the product for a specific time period (typically 14-45 days from the day you install the product).

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