PROLITH™/PROLITH Enterprise

2020a Getting Started Guide

Contents

Joining the PROLITH Users-Only Website

This section describes how to get access to the PROLITH users-only website. You must have access to the website to perform the procedures in this guide and to download PROLITH papers and training materials.

1. Go to **http://www.kla-tencor.com/usersonly**.

2. Click **Create an account**.

3. In the **Email** field, type your email address and click **Submit**.

4. Enter your information in the fields on the screen and click **Submit**.

5. When you receive a "KLA-Tencor Users Only - Account Request Approved" email from KLA-Tencor, click the first link in the email.

6. In the **Email Address** field, type your email address and click **Submit**.

7. When you receive a "Your KLA-Tencor Users Only password reset request" email, click the link in the email.

8. In the Setup or Reset Your Password window's **Username** field, type your email address.

   The Verification Code was automatically pasted into its field.

9. Click **Submit**.

10. In the Lost Password window's **Password** field, type the password you would like to use to get to the users-only site.

11. In the **Confirm Password** field, retype the password.

12. Click **Submit**.

    A message displays indicating that your password was successfully reset.

13. Follow these steps to log in to the users-only website:

    a. Go to **http://www.kla-tencor.com/usersonly**.

    b. In the **Username** field, type your email address.

    c. In the **Password** field, type the password you created.

    d. Click **Log in**.

Install and Configure PROLITH

This section describes the steps to download and install PROLITH or PROLITH Enterprise 2020a, and the steps to configure and use a stand-alone system the first time and each time you install an upgrade.

Note: *To perform the procedures in this section, you must have local administrator privileges.*

PROLITH General Information

Minimum System Requirements

The following list shows the minimum system requirements for PROLITH installation:

- 2.0 gigahertz (GHz) or faster AMD or Intel 64-bit multicore processor, with one to 16 cores
- One of the following operating systems:
  - Microsoft Windows 10 Enterprise (64-bit)
  - Microsoft Windows Server 2016 (64-bit)
  - Microsoft Windows Server 2019 (64-bit)
- 8 GB of RAM
- 120 GB or more of disk space on the drive where you install PROLITH
- A display with a resolution capable of displaying 1024 x 768 pixels, true color (32 bit) or higher
- Microsoft Internet Explorer v11.0 or later

Recommended System Configuration

For optimal performance, we recommend the following system configuration.

- One of the following operating systems:
  - Microsoft Windows 10 Enterprise (64-bit)
  - Microsoft Windows Server 2016 (64-bit)
  - Microsoft Windows Server 2019 (64-bit)
- A latest-generation, workstation-grade multicore processor with at least 8 cores
- 16 GB or more of RAM for a laptop and 64 GB or more for a desktop configuration

If your computer does not meet the recommended configuration, you can still run PROLITH, but simulations will be slower. A high-performance system may be necessary to run large-scale simulations.

PROLITH Programming Interface (PPI) Recommended System Configurations

For information about using scripting for PPIs, see "Using Scripting in PROLITH" on page 8.

- If you are using the PPI with the Visual Basic environment, you must have Microsoft Excel 2007 or later. Because Visual Basic for Applications (VBA) is the programming language for Microsoft Excel, Excel includes options for using VBA macros and code.
- If you are using the PPI with the MATLAB environment, we recommend MATLAB v2018a or later. Some of the MATLAB commands in the PPI examples might not work with older versions of MATLAB.
- If you are using the PPI with multiple PROLITH versions, you need to perform certain steps to switch between versions. For more information, see the PROLITH Help.

PROLITH License Configuration Options

Stand-Alone Licensing	Concurrent Licensing
• Each computer has PROLITH software installed.	• Each computer has PROLITH software installed.
• Each PROLITH license is tied to and installed on a specific computer.	• The license server can be located anywhere as long as the computers can access it over the network.
• The computer does **not** need to be connected to the network to run PROLITH.	• Each computer **must** be connected to the network to run PROLITH.
• If users remotely access a PROLITH computer, only one user at a time can run PROLITH remotely.	• Each instance of PROLITH running on a computer uses one license from the server. For example, if the server supports three licenses, then three users can simultaneously run PROLITH.

For information on concurrent licensing, please refer to the section on Configuring a Licensing Server for a Concurrent System.

PROLITH Installation Directory

The default installation directory for PROLITH is `C:\Program Files\ PROLITH_Toolkit\PROLITH 2020a`.

The default installation directory for PROLITH Enterprise is `C:\Program Files\PROLITH_Toolkit\PROLITH Enterprise 2020a`.

Install PROLITH

1. To install the PROLITH version that you downloaded to your desktop, double-click the icon for the **PROLITH_2020a_Install.exe** or **PROLITH_Enterprise_2020a_Install.exe** file.

2. If a Security Warning pop-up window opens, click **Run**.

3. Follow the instructions on the screen.

4. When the installation is complete, close the installer without opening PROLITH.

Note: *If the installation prerequisite(s) require a reboot, or if the installation does not resume on startup, manually start the installation again to resume.*

Get a Stand-Alone License

Note: *To install a License Server for PROLITH or PROLITH Enterprise, refer to the section on Configuring a Licensing Server for a Concurrent System.*

License Manager Installation Directory

The default installation directory for the license manager is

```
C:\Program Files(x86)\FlexNet Publisher License Server
Manager
```

New License

Note: *If you do not have a valid license, or if your license has expired, you must follow the steps in this section to request a new stand-alone license.*

1. After installation, open the Microsoft Windows start menu and, in the list of programs, select **PROLITH Toolkit Utilities** -> **PROLITH Toolkit License Administrator**.

2. Click **File -> New Request**.

   A Save dialog appears.

3. Save the file in a convenient location, such as your desktop. The default name shows as **computername.request**.

Note: *If you don't accept the default name, be sure to choose a name you can remember that makes sense for your environment.The same file name with a different extension will be returned to you.*

4. Email the file that you created to **DL-CP-License-Admin@kla.com**.

5. When you receive the *computername*.license file from KLA, save the file to your desktop.

6. Open the Microsoft Windows start menu and, in the list of programs, select **PROLITH Toolkit Utilities** -> **PROLITH Toolkit License Administrator**.

7. Perform one of the following steps:

   – Drag the .license file into the Fulfillments pane of the license administrator window.

   – Click **File -> Process Response**, then browse to desktop and select the .license file.

   The status in the license administrator window indicates success and shows the license information.

Replacement License

To install the PROLITH or PROLITH Enterprise 2020a software on a different computer in the future, you must request a new license. Follow the steps in this section to get the new license.

1. Open the Microsoft Windows start menu and, in the list of programs, select PROLITH Toolkit Utilities -> PROLITH Toolkit License Administrator.
2. In the Fulfillments pane of the license administrator window, select the fulfillment for the PROLITH or PROLITH Enterprise 2020a license.
3. Select Delete.
4. In the Delete confirmation window, select OK.
5. Select a location and save the Delete confirmation message.
6. Email the Delete confirmation file that you created to DL-CP-License-Admin@kla.com, and then request a new license.

If you experience any issues with installation or licensing, please refer to the table below for information on contacting technical or commercial support.

Country	Contact Information
Global Online	**Form to Submit PROLITH Questions**: https://www.kla-tencor.com/contact/technical-support-request **Note:** *Because requests for information made through the online form enter a tracking system, we strongly recommend that you use this contact method for technical support.*
All Regions	**Company**: KLA, Inc. **Email address**: `Tech_Support@kla.com`

Troubleshooting

Stand-Alone License

Problem: Although PROLITH started yesterday, today it will not start and issues a message about licensing.

Solution: You might have been using a temporary training license, or your license might have expired. To get a new license, send an email message to **DL-CP-License-Admin@kla.com**.

Databases

Problem: I upgraded PROLITH, and the files I previously saved in my database are not in the new database.

Solution: Use one of the following methods to resolve this problem:

- To configure PROLITH to use the old database instead of the new database:

  a. Start PROLITH.

  b. Select **File -> User Preferences**.

  c. In the **Database Location** field, select the old database.

  d. Click **OK**.

- To merge the old and new databases, open the PROLITH 2020a Help and perform the "Merge Databases" procedure.

Using Scripting in PROLITH

The PROLITH Programming Interface (PPI) is the application programming interface (API) for PROLITH. You can use the PPI to access PROLITH functionality from other applications without using the GUI. You can also use the PPI to simplify some tasks that might be tedious to perform in the GUI. You can add this PPI functionality to the scripting environment for Visual Basic for Applications (VBA) and for MATLAB.

Add PPI Functionality in VBA

If you plan to use the PROLITH Programming Interface (PPI) with VBA, you must add a reference to the `Prolith.exe` file.

Follow these steps for each script file that will contain a PPI macro:

1. Start the application you used to create the file, usually Microsoft Excel.

2. Follow these steps to start the Visual Basic Editor on Microsoft Office 2007 or later:

   a. Click the **Developer** tab.

      If the Developer tab is not available, refer to the Microsoft Excel documentation for steps to display the tab.

   b. Click **Visual Basic**.

3. Select **Tools -> References**.

4. In the **Available References** list, look for a **Prolith** check box.

5. If you see the check box, proceed to step 6.

   If you do not see the check box, perform the following steps to add the **Prolith** check box to the list:

   a. Click **Browse**.

   b. In the **Files of type** list, select **All Files**.

   c. Navigate to the *PROLITHInstallationDirectory*`\ PROLITH X6.1\Prolith.exe` file.

      For the location of the directory, see "PROLITH Installation Directory" on page 2.

   d. Click **Open**.

6. Select the **Prolith** check box and click **OK**.

Add PPI Functionality in MATLAB

If you plan to use the PROLITH Programming Interface (PPI) with MATLAB, you must add the PPI functionality in MATLAB.

1. In MATLAB, select **Home -> Set Path**.

2. Click **Add Folder**.

3. Navigate to *PROLITHInstallationDirectory*\PROLITH X6.1\MatLabPPI.

   For the location of the installation directory, see "PROLITH Installation Directory" on page 2.

4. Click **Save**.

Configuring a Licensing Server for a Concurrent System

This chapter describes the steps you follow to configure a Windows or Linux licensing server. You also learn how to get and install a PROLITH license.

Note: *With a concurrent system, you can install PROLITH on an unlimited number of clients, but the number of users who can simultaneously run PROLITH is limited to the number of users supported by the concurrent license.*

Configure a Microsoft Windows Licensing Server

If your licensing server has a Microsoft Windows operating system, follow the procedures in this section to configure the licensing server. If you are instead using a Linux server, see "Configure a Linux Licensing Server" on page 14.

Note: *To perform the procedures in this section, you must have local administrator privileges.*

Install the License Manager on the Windows Licensing Server

You use the FlexNet License Administrator and FlexNet Publisher software to administer the licensing server for PROLITH. Follow these steps to install the current version of the license software.

1. Download the license manager software:

   a. Go to the PROLITH users-only website at **http://www.kla-tencor.com/usersonly** and log in.

      If you do not have a password for the users-only website, see "Joining the PROLITH Users-Only Website" on page 1.

   b. Click **Downloads -- Products & Utilities**.

   c. Scroll down to the **Utilities** section.

   d. Under **Network License Manager**, click **PROLITH Toolkit License Server (Windows)**.

   e. Enter all required information and click **Submit**.

  f. When you receive an approval email from KLA, click the link in the email.

  g. Save the software to the location of your choice on the licensing server.

2. Double-click the **PROLITHToolkitLicenseServerSetup** file.

  The setup wizard starts.

Note: *The installation requires that you have certain files installed on your system. If those files are not present, an installation window opens before setup starts. Click **Install** to install the files. The install window closes when the process is finished.*

3. Click **Next**.

4. After reading and accepting the License Agreement, click **Next**.

5. Depending on whether FlexNet Publisher License Services is already installed on your system, select or clear the **Install the FlexNet Publisher License Service** check box.

  You must have FlexNet Publisher License Services to be able to run the PROLITH Toolkit License Server software.

6. Click **Next**.

7. In the installation window, click **Install**.

  The PROLITH Toolkit License Server items are installed.

8. Click **Finish** to close the wizard.

Install the FlexNet Publisher License Service

If you selected the **Install the FlexNet Publisher License Service** check box in step 5 of "Install the License Manager on the Windows Licensing Server," the initial installation window opens.

Note: *If you did not choose to install the FlexNet Publisher License Server, your installation steps are done and you can skip to "Set Up and Start the Service" on page 12.*

1. Click **Next**.

2. Accept the default installation path, or enter your preferred path, and click **Next**.

Note: *You will need the installation path information later in this configuration.*

3. Accept the default data folder path, or enter your preferred path, and click **Next**.

4. Perform one of these steps:

    – If you have other licenses served by the FlexNet Publisher on this server, select the **Import** check box, browse to and select your installation path and data folder path, and click **Next**

    – If you do not have any other licenses served by the FlexNet Publisher on this server, ignore these settings and click **Next**.

5. Click **Install**.

6. The next window pertains to the Visual C++ 2010 Redistributable Package. You do not need to install this package, so ignore the check box and click **Next**.

7. Perform one or more of the following steps to enter port numbers:

    a. If there is no conflict using **HTTP Port Number** 8090 for the web service, leave the setting at the default 8090.

    b. If port 8090 is already in use by another web application, change the port number to an available port number.

    c. If the license service must be on a specific port, enter a value for the **License Server Port Number**.

8. Click **Next**.

9. Unless you require a specific default timeout values, alert values, or restart retries, leave the default settings and click **Next**.

10. Ensure that the **Run as a service** check box is selected.

11. The **Service name** is the name of the service that will run to host the server license. You can accept the default or enter a specific name.

12. If needed, enter the number of seconds to delay on a system restart.

13. Click **Next**.

14. Click **Done**.

15. If prompted, restart your system and then set up and start the service.

Set Up and Start the Service

1. Go to the PROLITH Toolkit License Server installation folder:

    The default location is here:

    ```
    C:\Program Files (x86)\PROLITH_Toolkit\PROLITH
    Toolkit Licensing Server
    ```

2. Copy the `PROLITH.exe` and `PROLITH_libFNP.dll` files to the FlexNet Publisher installation path you chose in step 2 of "Install the FlexNet Publisher License Service."

The default location is here:

```
C:\Program Files (x86)\FlexNET Publisher License
Server Manager
```

3. Go to Windows Services, locate the **lmadmin** service or service name you entered, right-click it, and click **Start**. It usually takes 45-60 seconds to start.

4. Add the PROLITH license to FlexNet Publisher, as described on "Add the PROLITH License to FlexNet Publisher" on page 17.

5. Get your PROLITH license.

Get the Concurrent PROLITH License for the Windows Licensing Server

1. On the license server system, open the Microsoft Windows start menu and, in the list of programs, select **PROLITH Toolkit** -> **PROLITH Toolkit Server License Utility**.

Note: *Depending on the type of server you use, the path you follow to open the PROLITH Toolkit Server License Utility might be different.*

2. Click **File -> New Request**.

A Save dialog appears.

3. Save the file in a convenient location, such as your desktop. The default name shows as `<computername>.request`.

Note: *If you don't accept the default name, be sure to choose a name you can remember that makes sense for your environment.The same file name with a different extension will be returned to you.*

4. Email the file that you created to **DL-CP-License-Admin@kla-tencor.com**.

5. When you receive the `<computername>.license` file from KLA-Tencor, save the file to your desktop.

6. If the PROLITH Toolkit Server License Utility is not already open, open it using the same method as in step 1.

7. Perform one of the following steps:

   – Drag the `.license` file into the Fulfillments pane of the License Utility.

   – Click **File > Process Request**, then browse to desktop and select the `.license` file.

   The status in the License Utility Fulfillments window indicates success and shows the license information.

8. Close the PROLITH Toolkit Server License Utility.

9. Start the PROLITH vendor daemon, as described on page 20.

10. Configure the client system to use the licensing server.

Configure Firewalls for the Windows Licensing Server

You can configure firewalls to allow the PROLITH client computers to access the licensing server.

If you need help configuring the firewalls, contact your IT department, or refer to "Appendix A: Specifying Exceptions for Firewalls" on page 24.

Note: *By default, FlexNet Publisher License Server uses port 8090 as its administration port. Be sure that administration port 8090 is open.*

Configure a Linux Licensing Server

If your licensing server has a Linux operating system, follow the procedures in this section to configure the licensing server. If you are using a Windows server, see "Configure a Microsoft Windows Licensing Server" on page 10.

Note: *To perform the procedures in this section, you must be logged in as* `root.`

Packages to be Installed

When you run the installer, you install the following packages:

• Flexera Trusted Storage Service
• Flexera FlexNet Publisher License Server
• PROLITH Vendor Daemon
• `PROLITH_server_tsadmin` utility

Install the License Manager on the Linux Licensing Server

These steps describe how to install the license manager for Linux systems.

1. Follow these steps to download the FlexNet Publisher License Server software:

   a. Go to the PROLITH users-only website at **http://www.kla-tencor.com/usersonly** and log in.

      If you do not have a password for the users-only website, see "Joining the PROLITH Users-Only Website" on page 1.

   b. Click **Downloads -- Products & Utilities**.

   c. Scroll down to the **Utilities** section.

    d. Under **Network License Manager**, click **PROLITH Toolkit License Server (Linux)**.

    e. Enter all required information and click **Submit**.

    f. When you receive an approval email from KLA, click the link in the email.

    g. Save the software to the location of your choice on the licensing server.

2. If a shell is not started, start a shell.

3. To change to the directory where you saved FlexNet Publisher License Server, type the following command:

    `cd DirectoryName`

4. Start the installation of the FlexNet Publisher License Server software by typing the following command on one line:

    `sh PROLITHToolkitLicenseServerSetup-x86_64-Version.sh`, where *Version* is the License Server version. The format will be:

    `PROLITHToolkitLicenseServerSetup-x86_64-XX_XX.sh`

    Run this command to start the standard installation of all packages mentioned in "Packages to be Installed" on page 14.

Note: *This command begins the installation of everything shown in "Packages to be Installed" on page 14. However, if you want to see what other installation options are available to you, run the* **`sh PROLITHToolkitLicenseServerSetup-x86_64-Version.sh --help`** *command instead.*

5. After reading the license agreement, enter `y` to accept it and press Enter.

    If you only press Enter, you are canceling the installation.

6. Enter a user account name and press Enter.

    If you only press Enter, you accept the default account name of `lmadmin`.

Note: *We recommend that you run the license server from an account without administrative privileges.*

7. Enter an installation directory and press Enter.

    If you only press Enter, you accept the default installation directory.

8. Enter a port number and press Enter.

    If you only press Enter, you accept the default port.

The installation finishes and creates a directory for log files in the `tmp` directory. These log files describe all of the commands that ran during installation.

You must get a PROLITH license before you can use the software. See "Get the Concurrent PROLITH License for the Linux Licensing Server" on page 16.

Get the Concurrent PROLITH License for the Linux Licensing Server

Note: *If do not have a valid license, or if your license has expired, you must follow the steps in this section to request a new concurrent license.*

If you need to install the FlexNet Publisher License Server software on a different computer in the future, you must request a new license. In such cases, email **DL-CP-License-Admin@kla-tencor.com** *to ask for a COPO Disable form so that the license on the old computer can be deactivated. Then request a new license.*

1. On the licensing server, type the following command:

   PROLITH_server_tsadmin -r license.request

Note: *If you don't use the default name, be sure to choose a name you can remember that makes sense for your environment.The same file name with a different extension will be returned to you.*

2. Email the license.request file you just created to **DL-CP-License-Admin@kla-tencor.com**.

3. When you receive the license.license license file from KLA-Tencor, process the license by typing the following command:

   PROLITH_server_tsadmin -p license.license

   You can view the licenses in the trusted storage server by typing the following command:

   PROLITH_server_tsadmin -v

4. To proceed with the installation, configure the PROLITH daemon port, as described in step 6 of "Configure Port Numbers on the Server" on page 21.

5. Start the PROLITH vendor daemon, as described on page 20.

6. Configure the client system, as described on page 22.

Configure Firewalls for the Linux Licensing Server

Configure firewalls to allow the PROLITH client computers to access the licensing server.

If you need help configuring the firewalls, contact your IT department, or refer to "Appendix A: Specifying Exceptions for Firewalls" on page 24.

Note: *Be sure that administration port 8090, or the port you configured in "Install the License Manager on the Linux Licensing Server" on page 14, is open.*

Configure the Flexera License Server

You can configure the Flexera license server using a Windows or a Linux system. Follow the steps in each section to set up this license server.

Add the PROLITH License to FlexNet Publisher

If you do not have a PROLITH license already installed, follow these steps to install it:

1. Open a web browser.

2. Navigate to the port you configured for the license server in step 7 of "Install the FlexNet Publisher License Service" on page 11.

   If you changed the port from 8090 to a different value for the web interface, change the URL to match the correct port. For example, if you changed the web port to 8022, navigate to **http://localhost:8022**.

3. In the upper right, click **Administration** to open the Sign In window shown in Figure 1.
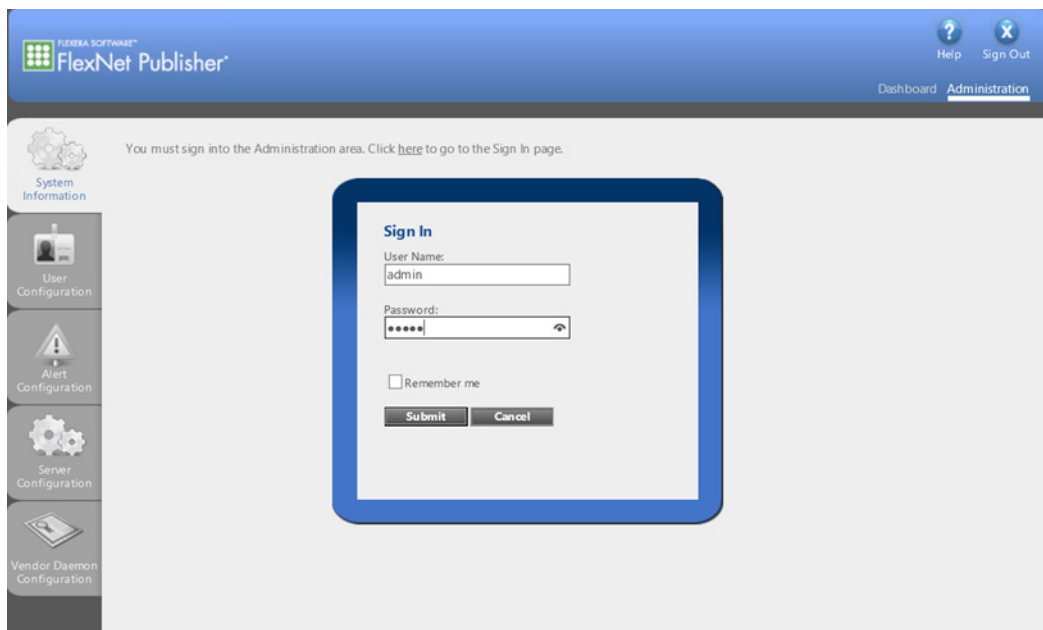
Figure 1: FlexNet Publisher Sign In Window

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4. Complete the fields to sign in:

   a. For **User Name**, type `admin`.

   b. For **Password**, type `admin`.

Note: *The first time you sign in, you must complete additional fields to change the password.*

   c. Click **Submit**.

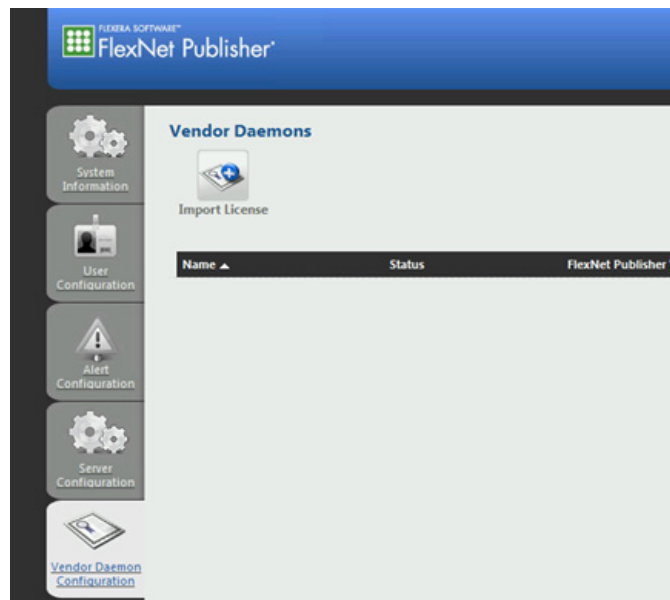5. Click the **Vendor Daemon Configuration** tab to display the window shown in Figure 2.

Figure 2: Vendor Daemon Configuration Tab

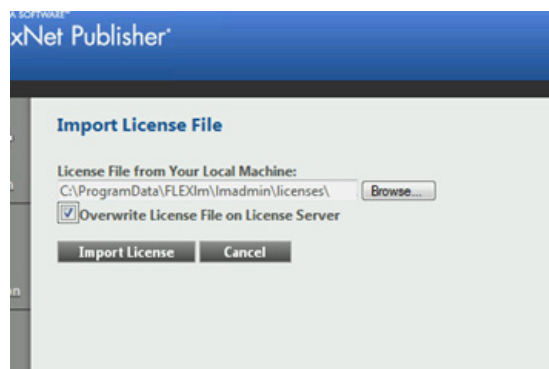6. Click **Import License** to display the window shown in Figure 3.

Figure 3: Import License into FlexNet Publisher

7. Click **Browse** and perform one of the following steps:

   – For Windows systems, navigate to `C:\Program Files (x86)\PROLITH_Toolkit\PROLITH Toolkit Licensing Server`.

– For Linux systems, follow these steps:

   i. Download the
`PROLITHToolkitLicenseServerSetup-x86_64-`*`Version`*
`.sh` file.

   ii. Run this command on one line:

`PROLITHToolkitLicenseServerSetup-x86_64-`*`Version`*
`.sh -unpack`

   iii. Navigate to the `/tmp` directory.

8. Select `PROLITH.lic`.

9. Ignore the **Overwrite License File on License Server** check box and leave it cleared.

10. Click **Import License**.

11. On the next window, click **OK**.

The PROLITH daemon now appears in the Vendor Daemons list, but you must get a PROLITH license before you can start the daemon.

Figure 4: PROLITH Daemon in the Vendor Daemons List

12. Refer to one of these sections and follow the steps to get a license:

Start the PROLITH Vendor Daemon

You must start the PROLITH vendor daemon before you can run PROLITH. Complete these steps to start the daemon:

1. Complete one of the following steps:
    – If FlexNet Publisher is not already open, open a web browser and continue with step 2.
    – If FlexNet Publisher is already open, skip to step 5.

2. Navigate to the port you configured for the license server in step 7 of "Install the FlexNet Publisher License Service" on page 11.

    For example if you accepted the default 8090 port, you would navigate to **http://localhost:8090** or **http://127.0.0.1:8090**.

3. Click **Administration** to open the Sign In window.

4. Complete the fields to sign in.

5. Click the **Vendor Daemon Configuration** tab to display the list of Vendor Daemons shown in Figure 5.
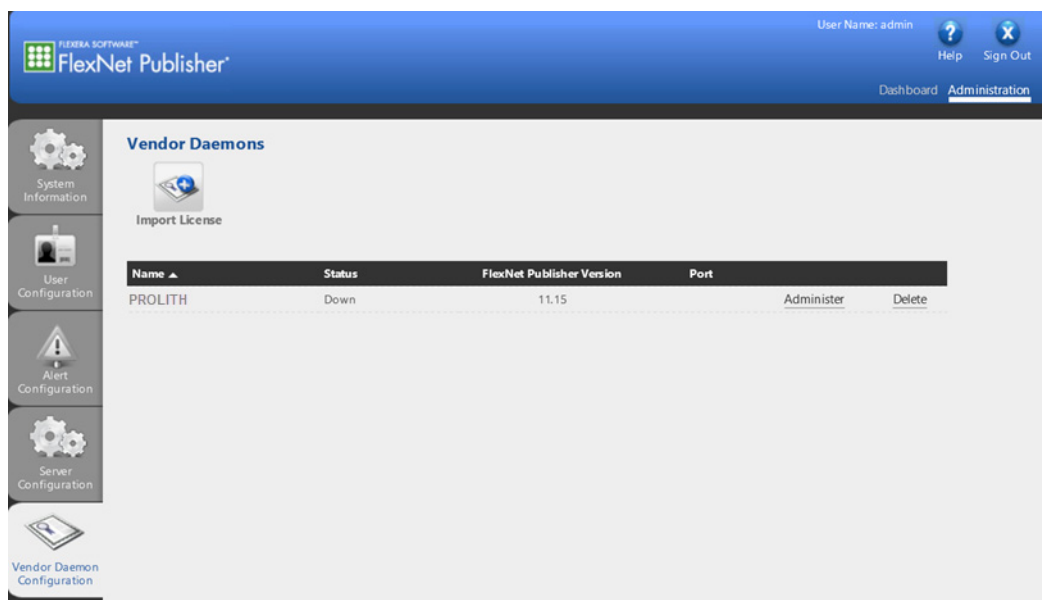
Figure 5: FlexNet Publisher Vendor Daemons Window

6. In the **PROLITH** row, click **Administer**.

7. In the setup window, leave the default settings and click **Start**.

    The status of the daemon changes to **Up**. You might need to click another tab and then click **Vendor Daemon Configuration** again to see the status change.

8. Close FlexNet Publisher.

Configure Port Numbers on the Server

You can configure the license server port and the PROLITH vendor daemon port. If you are using PROLITH on a Linux system, you must configure the PROLITH vendor daemon port.

To configure port numbers on the server, go to the licensing server and follow these steps to do so:

1. Open a web browser.

2. Navigate to the port you configured for the license server in step 7 of "Install the FlexNet Publisher License Service" on page 11.

3. Click **Administration** to open the Sign In window.

4. Complete the fields to sign in.

5. To change the license server port, follow these steps:

   a. On the Administration page, click the **Server Configuration** tab.

   b. Click the **License Server Configuration** title to open the section, as shown in Figure 6.
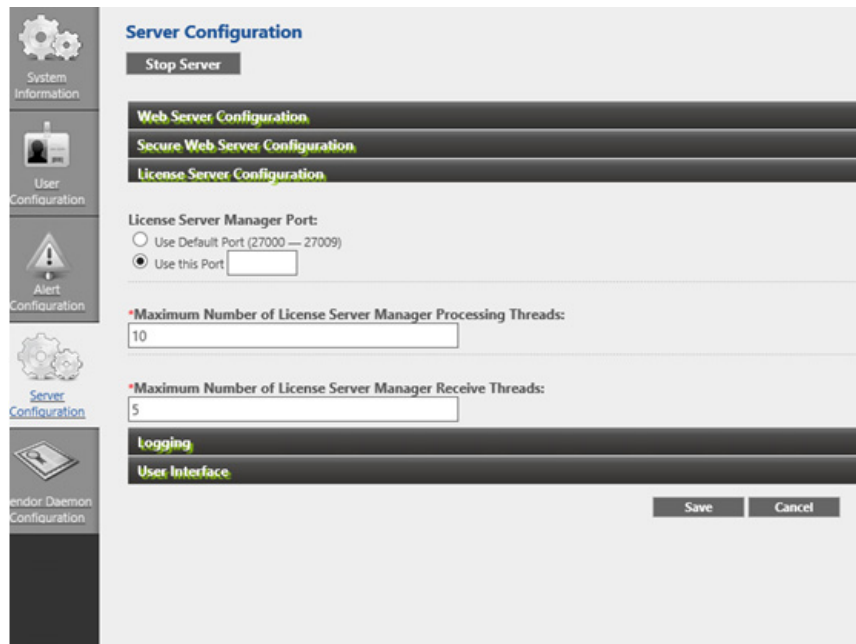
Figure 6: License Server Settings of Server Configuration

   c. Click the **Use this port** radio button and enter the port number you want to use.

Note: *This is the port used by the **lmadmin.exe** utility.*

   d. Click **Save**.

6. To change the port for the PROLITH vendor daemon, follow these steps:

   a. On the Administration page, click the **Vendor Daemon Configuration** tab.

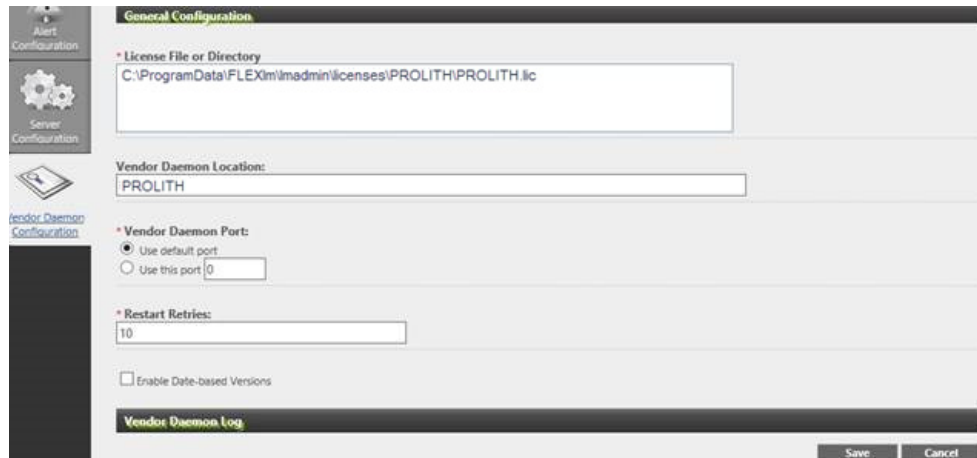   b. Click the **PROLITH** daemon in the list and go to the **General Configuration** section, as shown in Figure 7.

Figure 7: General Configuration Settings of Vendor Daemon Configuration

   c. Click the **Use this port** radio button and enter the port number you want to use.

   d. Click **Save**.

7. Restart the license server to make sure services use the new ports you specified.

If you changed the port for the `lmadmin.exe` utility, follow the steps in "Configure a Client to Use the License Server" to update the license administrator.

Note: *You can also view the server logs on the Vendor Daemon Configuration page by clicking the* ***Vendor Daemon Log*** *section and then clicking* ***View file externally***.

Configure a Client to Use the License Server

On the client system where you want to run PROLITH X6.1, install PROLITH, as described in "Install PROLITH" on page 4.

Then follow these steps to configure the client. You also follow these steps to configure the license path when you use ports other than the default.

1. Open the Microsoft Windows start menu and, in the list of programs, select **PROLITH Toolkit -> PROLITH Toolkit License Administrator**.

2. Select **File -> Edit License Path** and click the top of the window to enable editing.

    A dialog with a list of paths appears.

3. Double-click the blank line below the last path and enter the server name as **@*<server_name>***.

    For example, if the server is named licenseserver, you would enter **@licenseserver**,

4. If a special port has been configured on the license server, enter the following information:

    port number@<machine name> or ***<IP address of license server>***

    For example, you might enter **27000@10.0.0.1**.

Note: *Port number 27000 is the default port. If you leave the default port number configured, you do not need to enter it in this path, but you must still include the @ symbol with the machine name. For example, you might enter @10.0.0.1. If you change the default port, you must include the new port number in the path.*

5. Click **OK**.

6. Close the license administrator window.

7. Start PROLITH.

If you want to use scripting, see "Using Scripting in PROLITH" on page 8.

Appendix A: Specifying Exceptions for Firewalls

Follow the instructions in this appendix when you need to specify exceptions for firewalls on Windows or Linux systems.

Windows Firewall Exceptions

If your licensing server has a Microsoft Windows operating system and you have enabled the Windows firewall, this section describes how to configure the Windows firewall to allow PROLITH client computers to access the licensing server. This section how to specify exceptions for the firewall on Windows 7, Windows 10, Windows Server 2008, Windows Server 2012, and Windows Server 2016. Some of the steps differ between operating systems.

1. To open the Windows Firewall, navigate to the Control Panel.

2. In the address bar at the top of the window, type the following text:

   `C:\WINDOWS\System32\Firewall.cpl`

3. Follow these steps to allow clients access to the licensing server:

   a. On the left side of the window, click **Allow a program or feature through Windows Firewall**.

   Note: *This link might show **Allow an app or feature through Windows Firewall**.*

   b. If the **Allow another program** or **Allow another app** button is not available, click **Change settings**.

   c. Click **Allow another program** or **Allow another app**.

   d. Click **Browse**.

   e. Navigate to the
   LicenseMgrInstallationDirectory`\FlexNet Publisher License Server\lmadmin.exe` file and click **Open**.

   For the location of the installation directory, see "License Manager Installation Directory" on page 5.

   f. Click **Add**.

g. As shown in Figure 8, the display name of the application changed to **Flexera Software LLC**, but it is still the **lmadmin.exe** application. Make sure the row is selected.
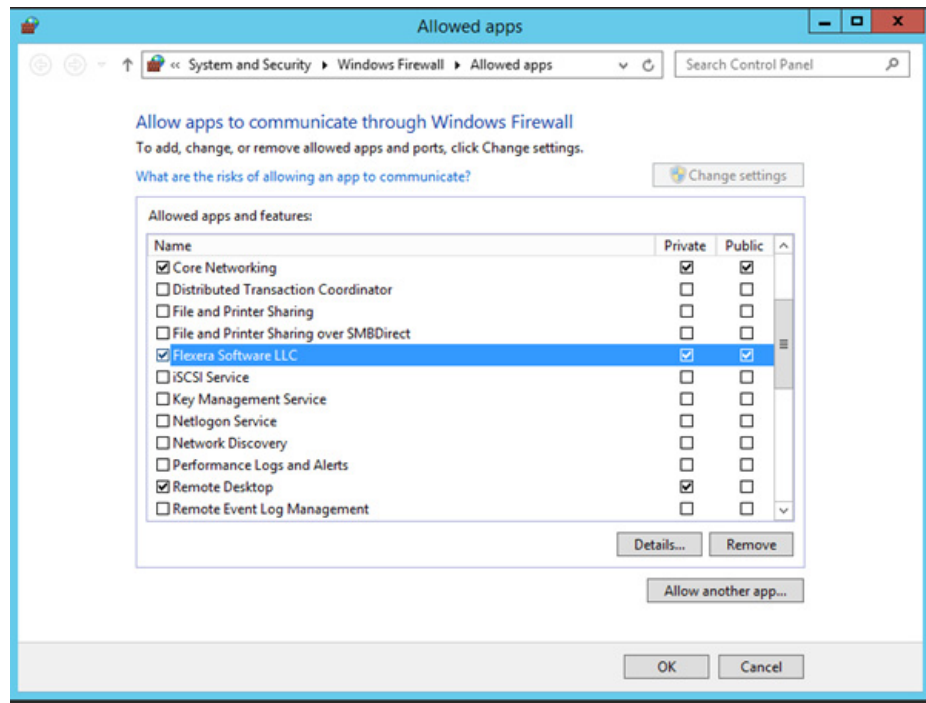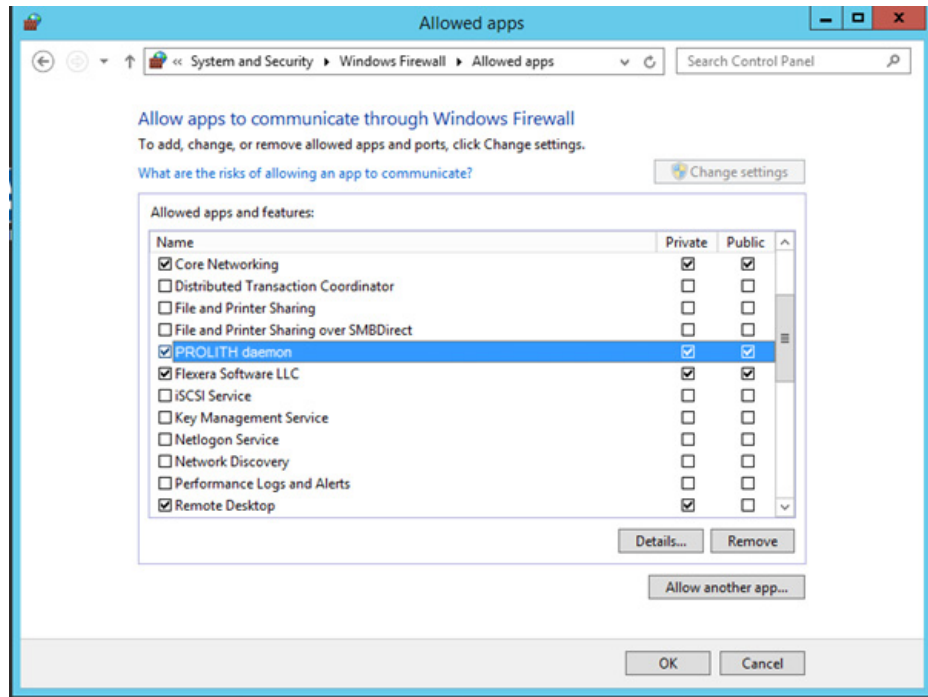

Figure 8: Windows Firewall Allowed Programs with **lmadmin** selected

h. Select all of the network connection type check boxes that are shown, such as **Private**, **Public**, and **Domain**.

i. Click **Allow another program** or **Allow another app**.

j. Click **Browse**.

k. Navigate to the *LicenseMgrInstallationDirectory*\FlexNet Publisher License Server\prolith.exe file and click **Open**.

l. Click **Add**.

m. As shown in Figure 9, make sure **PROLITH daemon** is selected.

Figure 9: Windows Firewall Allowed Programs with **PROLITH** selected

n. Select all of the network connection type check boxes that are shown, such as **Private**, **Public**, and **Domain**.

o. Click **OK**.

You can also set up a port-based exception list for your firewall for the port numbers associated with the **lmadmin** and **prolith** processes.

Red Hat Enterprise Linux (RHEL) Firewall Exceptions

If your licensing server has a Linux operating system, use this section to configure those firewalls to allow PROLITH client computers to access the licensing server.

In these example, computers that have PROLITH installed reside in the `public` zone. If the computers that are requesting licenses reside in another zone, substitute the name of that zone for *public*.

- You can enter the following command on one line to allow incoming traffic on port 8090 on a RHEL 7 machine. Port 8090 is the port that the web-based administration listens on:

  firewall-cmd --permanent --zone=*public* --add-port=8090/tcp

- You can use the following command to allow incoming traffic on port 27000-27009 on a RHEL 7 machine. For a default configuration, the license server listens on ports 27000 through 27009 when serving licenses:

  firewall-cmd --permanent --zone=*public* --add-port=27000-27009/tcp

- You can use the following command to allow incoming traffic on port *prolithport* on a RHEL 7 machine, where *prolithport* is the value selected during configuration of the Flexera License Server. Refer to step 6 of "Configure Port Numbers on the Server" on page 21 for the instructions, then run this command:

  firewall-cmd --permanent --zone=*public* --add-port=*prolithport*/tcp

- After making changes to the firewall, run the following command to update the firewall:

  firewall-cmd --reload

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