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Documentation Conventions

This manual uses some special symbols and fonts to call your attention to important information. The following symbols appear throughout this manual:

- **CAUTION:** The Caution symbol calls your attention to information that, if ignored, can adversely affect the performance of your Harmonic product, or that can make a procedure needlessly difficult.

- **NOTE:** The Note symbol calls your attention to additional information that you will benefit from heeding. It may be used to call attention to an especially important piece of information you need, or it may provide additional information that applies in only some carefully delineated circumstances.

- **TIP:** The Tip symbol calls your attention to parenthetical information that is not necessary for performing a given procedure, but which, if followed, might make the procedure or its subsequent steps easier, smoother, or more efficient.

In addition to these symbols, this manual uses the following text conventions:

- **Typed Command:** indicates text you enter at the keyboard.
- **Buttons and Menus:** indicates a button to click, or a menu item to select.
- **<Esc> + <E>:** a key or key sequence to press.
- **LCD Screen Output:** shows LCD console output.
- **Screen Output:** shows text that is displayed to you on a computer screen.
- **Bold:** indicates the definition of a new term.
- **Italics:** used for emphasis and document references.
- **Links:** used for cross-references, and hyperlinked cross-references in online documents.
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Appendix A Configuration File
Chapter 1
Introduction

Welcome to the Harmonic License Manager User Guide. The licensing system consists of the License Manager and the Web Portal. For information about the Web Portal, refer to the Web Portal User Guide located at http://licportal.harmonicinc.com. After logging in, click the Help button on the top right corner of the page to access the User Guide.

License Manager version 3.1 provides all the functionality of its’ previous versions. In addition, it provides enhanced connectivity, recovers lost licenses and supports a new level of authentication. Web Portal uses a proprietary licensing technology to work with the Harmonic License Manager to increase productivity and improve customer satisfaction in the licensing fulfillment process.

This manual provides an overview of the Harmonic electronic licensing process and the role of License Manager. It explains how to use License Manager to associate, or bind, a Harmonic license with a specific piece of hardware in your video delivery system, how to disassociate, or unbind, a previously assigned Harmonic license, and how to view your Harmonic licenses. In the event of losing licenses during the bind/unbind process, you can use the reconciliation process to recover any lost licenses.

This chapter includes the following sections:

1.1 About the License Manager User Guide gives an overview of this manual’s organizational structure.

1.2 Licensing Overview provides a high-level description of the Harmonic licensing process, and explains the role of License Manager and Web Portal in that process.

1.3 Understanding License Manager Tasks gives a description of the licensing tasks that you can perform using License Manager.

1.1 About the License Manager User Guide

The License Manager User Guide has the following chapters:

- Chapter 1, Introduction, gives an overview of the Harmonic licensing process.
- Chapter 2, Setting Up the License Manager Session, describes how to start the License Manager application, and retrieve the device information that License Manager uses to Bind, Unbind or View licenses.
- Chapter 3, Binding Licenses, describes how to use License Manager to bind one or more licenses to a hardware device.
- Chapter 4, Unbinding Licenses, explains how to use License Manager to unbind one or more licenses that are currently bound to a hardware device.
- Chapter 5, Viewing Licenses, illustrates how to use License Manager to view licenses and current license bindings.
- Chapter 6, Reconciling Licenses, describes how to use License Manager to recover any lost licenses.
- Chapter 8, Preferences, describes configuration settings for the device time out and how to run in a multi-thread environment.
- Chapter 8, Troubleshooting, explains how to contact Harmonic if you encounter problems with License Manager.
1.2 Licensing Overview

Harmonic hardware devices are designed to work in many different and complex video delivery systems. Depending on the needs of your video delivery system and the Harmonic hardware you employ, you might need only a subset of the potentially available features on a given hardware device.

Figure 1-1 provides an overview of the licensing system. The Web Portal integrates with the Oracle back-office system. It helps you manage your licenses and fulfillment needs through the automation of the stages of the software license lifecycle. For feature details, see the Web Portal User Guide.

The License Database is a component of the Web Portal that is responsible for the management of licensed applications. There are two interfaces for license management:

- The License Manager which is a windows client interface to manage licenses for a device.
- The Web Portal which is a web interface to view, consolidate and transfer licensable rights at the organizational level.

The Gateway authenticates the user credentials when accessing data via the License Manager.

You can purchase access to all of a device’s features, or to the subset of features you need. Access to a device’s features is controlled through a feature-by-feature licensing—or rights—scheme in License Manager. You can buy license rights for some features or for all the features and capacity that a device can support.

NOTE: If you ordered your device with licenses already installed by Harmonic Manufacturing Operations, you will only need to use Licence Manager to add or move licenses as the need arises.

License Manager 3.1 can detect which features are supported on a given device, and will allow you to bind licenses up to the full capacity for each of those features. If you purchase licenses in advance for features or capacity that you anticipate installing on your system in the
future, you can bind them to the device at the same time you apply the licenses for your current configuration. When you expand your system, the necessary licenses will already be there, so the features can be activated.

For example, you can purchase and apply licenses for all 9 QAM modules on an NSG 9000, even if you only have 2 QAM modules currently installed.

**NOTE:** License Manager 3.1 uses information supplied by the device firmware to recognize the capacity for each feature on that device. Older firmware versions may not support this functionality, in which case License Manager 3.1 will not be able to determine the current capacity or maximum capacity for those particular devices. It will be up to the user to track the capacity for those older devices.

To take advantage of the full functionality of LM 3.1 you may need to update your system firmware. Firmware versions 1.4.3 and greater on the NSG-9K or all firmware versions on the NSG-9K6G provide the best data to LM 3.1.

When you purchase hardware that requires feature licensing, you use a separate software tool, License Manager, to perform four basic tasks:

- **Binding**, which associates the license for a feature with a specific hardware device.
- **Unbinding**, which deletes the license for a feature on a specific hardware device and invalidates the license key for that feature, releasing it for use on another device.
- **Viewing**, which displays a list of your network devices and details about the features and licenses available on each device.
- **Reconciling**, which automatically recovers any lost licenses due to the bind/unbind process.

*Figure 1-3* provides a high-level overview of the Harmonic licensing process.

When you purchase hardware that requires feature licensing, you use a separate software tool, License Manager, to perform four basic tasks:

- **Binding**, which associates the license for a feature with a specific hardware device.
- **Unbinding**, which deletes the license for a feature on a specific hardware device and invalidates the license key for that feature, releasing it for use on another device.
- **Viewing**, which displays a list of your network devices and details about the features and licenses available on each device.
- **Reconciling**, which automatically recovers any lost licenses due to the bind/unbind process.

*Figure 1-3* provides a high-level overview of the Harmonic licensing process.

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**1.3 Understanding License Manager Tasks**

License Manager is your management window into the Harmonic licensing process. When you place an order for hardware and feature licenses, Harmonic generates a single license or an Entitlement ID (EID) containing a series of licenses. You receive the EID numbers and instructions for downloading a copy of the License Manager software from either an email or with the documentation shipped to you.

**NOTE:** If you are running in legacy mode, you will only use the License Pack or RID numbers, instead of an EID. For information about running in legacy mode see 2.2.3 Using the Legacy Mode.

You will also receive instructions for downloading a copy of the License Manager software. You then:

- Install the software
Chapter 1 Introduction

Understanding License Manager Tasks

- Add any new hardware to your video delivery system
- Connect to your video delivery system and the Harmonic License Database
- Use License Manager to bind your licenses to the appropriate hardware devices on your video delivery system
- Add more hardware or licenses as desired, on an ongoing basis
- Use License Manager to view the license distribution on your devices
- Use License Manager to unbind licenses from devices and free them for reuse
- Use License Manager to recover any lost licenses that may have occurred due to a network outage during the bind/unbind process

During the binding process you must be connected to the Internet because License Manager communicates with the Harmonic License Database. Information about your licenses and hardware associations are stored on the Harmonic License Database during binding, unbinding and reconciling operations.

The Harmonic licensing process involves several steps, some of which take place behind the scenes, and some of which require your direct participation via the License Manager.

Licensing involves the following steps:

1. Harmonic assigns part numbers to licenses, and enters them into an internal sales database.
2. You and your Harmonic sales representative determine your hardware and feature needs, and your Harmonic sales representative provides a quote for the quantities you need.
3. Harmonics Operations receives your Purchase Order, and initiates the order fulfillment with Manufacturing Operations.
   The fulfillment process involves issuing the licenses, Entitlement ID (EID), instructions for access to License Manager, and at least one End User License Agreement.
4. Install License Manager in one of the following configurations:
   - On a single computer that connects to both the Internet and your local device network, which makes it easiest to install your licenses.
   - On two separate computers, one of which connects to the Internet, and the other connects to your local device network. This configuration requires you to transfer files between computers during the licensing operation. For more information about transferring device and license files, see 3.5 Using Two Computers for Binding Licenses on page 37 and 4.5 Using two computers for unbinding licenses on page 46. In the event of losing any licenses during the process, for example a network outage, use the reconciling function to recover licenses, see 6.4 Using two computers for reconciling licenses on page 58.
5. Run License Manager to install your Entitlement ID’s and enable features on your hardware devices:
   - License Manager queries your local device network for devices within a range of IP addresses you provide, and creates a list of those devices that show the licenses currently bound to the devices. You can save the device list file, or load one that you have previously created.
   - If binding licenses, select Entitlement ID (EID) in License Manager, and License Manager fetches a list of your associated rights from the Harmonic License Database. Under each EID, you will see a list of feature based licenses, total quantity of licenses and available quantity of licenses.
   - The Harmonic License Database uses the Web Portal license server platform as its database. You must login to the License Manager at the start of each session in order to be able to receive authentication and to bind licenses.
- Select a provisioning mode, which tells License Manager if you want to apply licenses up to the current device capacity, up to the maximum device capacity, or up to a user-defined limit.

- Specify which licenses to assign to which devices based on the license list and the device list. You can select one or more EID’s from the list.

- The Harmonic License Database generates license keys and License Manager binds the specified licenses to the specified devices. You can save the license key information to a license list file, to load on a computer with access to the device network.

You can also unbind licenses, and then rebind them to other devices as needed.

*Figure 1-3* on page 10 provides an overview of License Manager tasks.
For instructions about:

- Getting EID and enabling features on your hardware devices, see *Binding Licenses* on page 19.
- Getting a device list, see 2.2 Step 1: Getting a Device List on page 13.
- To perform license related operations with the Harmonic License Database, you must be connected to the internet. To perform license related operations with devices, you must be connected to the devices. If you have both internet and device network connections on the same machine, you can perform all of the above operations.

Before you bind, unbind, or view reconcile licenses, you must start License Manager on a computer with an Internet connection to the Harmonic License Database, a connection to your local device network, or both.
Chapter 2
Setting Up the License Manager Session

This chapter describes how to start the License Manager application and perform the initial step necessary to any binding, unbinding or viewing tasks.

This chapter contains the following sections:

- 2.1 Before Starting License Manager tells what is needed to launch the License Manager application.
- 2.2 Step 1: Getting a Device List describes the first step of all License Manager tasks, which consists of getting a list of devices and licenses currently on your video delivery system.

2.1 Before Starting License Manager

Download the License Manager software, including installation instructions, from the Harmonic ftp site:

- Site: ftp.harmonicinc.com
- Username: software
- Password: release
- Directory: LicenseManager/
- The latest release of the application .zip file will have a filename beginning with “LM” plus release number, for example “LM3.1.0.0.0.zip”. If you use a DOS prompt FTP transfer, type in the word “bin” for the file transfer.

After you have successfully installed License Manager on the computers you use to perform licensing tasks, you are ready to begin binding, unbinding, viewing, and reconciling licenses.

License Manager is a standalone Microsoft Windows–based software application. This manual assumes that you are familiar with basic Windows tasks, such as starting and exiting applications, selecting menu items, clicking buttons, and selecting one or more items in a list.

2.1.1 Setting Up the Preferences

Some License Manager settings can be customized in the preferences settings. For instructions refer to Chapter 7, Preferences.

You can also modify the LicenseManager.exe.config, an XML file that is read by License Manager upon startup. See Appendix A, Configuration File for details.

The settings that can be customized are:

- Device Connectivity Time-out Value. See 7.2 Device Connectivity Time-out Value.

2.1.2 Starting License Manager

**TIP:** For best results viewing the License Manager GUI, set your Windows display properties to the default for the version of Windows that you are running. For example, if you use Windows XP, set the display properties for Theme to Windows XP, and font to Normal.
To start License Manager:
1. Double-click the License Manager icon on your desktop.

**Figure 2-1: License Manager desktop icon**

**NOTE:** During the time to get an EID list, you will be prompted to enter authentication details only once. See 3.3 Step 2: Getting an Entitlement ID (EID) List from Harmonic on page 21. This is the time when the application talks to Harmonic License Gateway. For the rest of the session, until you close the application, the authentication is preserved and you can perform all operations related to Harmonic License Gateway.

2. When License Manager starts, it opens the Get Device List page, as shown in Figure 2-2.

**Figure 2-2: LM opens to Get Device List screen**

**Figure 2-2** shows the Get Device List screen. The device IP address table has entry fields in the top row. The Go button executes the query. The Save and Load buttons at the bottom of the screen are for saving and loading a device list file. Use the Next and Back buttons to navigate through the steps.

### 2.2 Step 1: Getting a Device List

Binding, unbinding, viewing and reconciling licenses always involves getting a current device list. The device list is a virtual picture of the devices on your network, showing all of the licenses that are currently associated to those devices. Before you begin any License Manager task, it’s essential to have the most current picture of your device and license deployment.
There are two ways to get a device list:

- Creating a list in real-time while connected to the device network, as described in 2.2.1 Creating a Device List on page 14.
- Loading a device list file that you saved when connected to the device network, as described in 2.2.1.2 Loading a Device List File on page 16.

If the computer where you run License Manager is connected to both your device LAN network and the Internet, then when you get a device list, you can immediately bind, unbind, view, and reconcile licenses.

If your connection to the Internet and your connection to your local device network are on separate computers, create a list of devices as described in Section 2.2.1.1. Then, follow the instructions in 3.5 Using Two Computers for Binding Licenses on page 37 to load the list and complete the bind process. If you are unbinding licenses, see 4.5 Using two computers for unbinding licenses on page 46. If you want to view licenses, see 2.2.1.1 Saving a Device List File on page 15. If you are reconciling licenses, see Using two computers for reconciling licenses on page 58.

### 2.2.1 Creating a Device List

Your computer must be connected to the local device network.

To create a device list:

1. To query a series of devices that have consecutive IP addresses, enter the first IP address in the **Starting IP Address** column, and enter the last IP address in the **End IP Address** column:

   ![Figure 2-3: IP Address input screen](image)

   License Manager will query all the IP addresses in the range you enter and return information for each device.

2. To query only one device, enter the IP address in the **Starting IP Address** field.

   License Manager automatically copies the same IP address to the **End IP Address** field when you press **Enter** or click **Go**.

3. Press **Enter** to add the IP address or range of addresses to the IP address table.

4. Enter additional IP addresses or address ranges, as desired.

5. To remove an IP address range from the table, right-click in the table row containing the address you want to remove, and select **Delete IP Address Range** in the pop-up menu.

6. To modify an IP address you have previously added to the table, highlight it and enter the new address.

7. Click **Go**. License Manager prompts you to wait while it queries the device network for the address range.

   ![Figure 2-4: Wait prompt](image)
8. License Manager displays the list of devices in the bottom pane, as shown in Figure 2-5. The Device Type column shows the results of the query for each device, as follows:
   - **Device name** (for example, NSG) — the available device(s) for the IP address.
   - **Undefined** — the IP address exists but does not have any available devices.
   - **Unreachable** — the IP address does not exist.

   **NOTE:** License Manager uses sockets on port 80 to validate the existence of an IP address in the specified IP address range. For help with connectivity to devices, see 8.1 Solving Problems on page 63.

   ![Figure 2-5: Getting a device list](image)

   **NOTE:** Devices running with more number of licenses than the hardware can support display with a red highlighted background and italic text. Devices running with more than the required licenses being used by the services are highlighted with a yellow background and italic text.

9. If necessary, save the device list information to a file for transfer to another computer, as described in 2.2.1.1 Saving a Device List File on page 15.

10. Click Next to go to the next step.

11. If you don’t want to save and load a device list file skip to 2.2.2 Using the Licensing Portal.

### 2.2.1.1 Saving a Device List File

To save a device list to a file:

1. Click Save. License Manager displays the Save a Device List File dialog box:
Chapter 2 Setting Up the License Manager Session

Step 1: Getting a Device List

2. Browse to a location where you want to save the device list file.
3. Enter a name for your file.
4. Click Save in the Save a Device List File dialog box. License Manager saves the device list file to the location you specified, and appends a .dev extension to the file name you specified.

2.2.1.2 Loading a Device List File

To load a previously saved device list file into License Manager:
1. Click Load. License Manager displays the Load a Device List File dialog box:

   ![Figure 2-7: The Load a Device List File dialog box](image)

   **Figure 2-7: The Load a Device List File dialog box**

   2. Browse to the location where you saved the device list file you want to load.
   3. Select the file to load.
4. Click **Open** in the Load a Device List File dialog box. License Manager displays the device list in the bottom portion of the main pane, as shown in *Figure 2-5* on page 15.

When you have successfully completed the Get Device List step, click **Next** to go on to the next screen.

### 2.2.2 Using the Licensing Portal

Depending on your access information you will be connected with the appropriate database gateway to start binding the licenses. To access the Harmonic Web Portal, click the **New Authentication** radio button.

If you have not migrated to the new web portal, see 2.2.3 Using the Legacy Mode.

![Figure 2-8: Harmonic License Gateway login](image)

Type in your user name and password to login. The red asterisks (*) indicate required fields. Continue to bind the license. See 3.1 Binding Licenses Overview.

### 2.2.3 Using the Legacy Mode

License Manager 3.1 has the capability to operate in the License Manager 2.1.2 mode. If you are not using the Harmonic Web Portal database, click the **Legacy Authentication** radio button. See *Figure 2-9*.

**NOTE:** Another method to operate in the legacy mode is to set a flag in the configuration file. You can use the configuration file to configure this option. See Appendix A, Configuration File.

![Figure 2-9: Legacy Mode login](image)

Type in your name and email to login.

When running in legacy mode, a message displays at the bottom of the screen indicating the operation is in legacy mode. See *Figure 2-10*. Continue to bind the license. See 3.1 Binding Licenses Overview.
Figure 2-10: Legacy Mode indicator
Chapter 3

Binding Licenses

This chapter describes binding licenses using License Manager, and includes the following sections:

- **3.1 Binding Licenses Overview** provides a high-level overview of how to bind licenses.
- **3.2 Step 1: Getting a Device List** indicates where to find the instructions for this initial License Manager task.
- **3.3 Step 2: Getting an Entitlement ID (EID) List from Harmonic** explains how to get a list of EID’s from the Harmonic License Database.
- **3.4 Step 3: Binding Licenses** describes the binding process, including choosing a provisioning mode, specifying which licenses to install on which devices, generating license keys and applying the keys to devices.
- **3.5 Using Two Computers for Binding Licenses** gives instructions for binding licenses when your device network host machine does not have Internet access.

To perform the tasks described in this chapter, start License Manager and select the **Bind License** button as shown in *Figure 3-1*.

![Figure 3-1: Bind License button](image)

### 3.1 Binding Licenses Overview

When you bind a license using License Manager, you apply a license to a particular feature on a specific hardware device in your local network. Applying the license binds the license to that hardware device, and activates the specific feature on the hardware device. You can apply licenses for some or all of the features that you have currently installed on the device, and you can apply licenses for the full feature capacity of the device, in anticipation of adding to your installation.

An overview of the steps for binding licenses and the necessary Internet and LAN connections for each step is shown in *Figure 3-2* on page 20:
NOTE: If you have previously bound licenses to device features on your network, it’s a good idea to review your current license and hardware configurations before you bind additional licenses. See Chapter 5, Viewing Licenses, for more information about viewing licenses.

The following sections of this chapter provide detailed explanations of the steps involved in the binding process.

3.2 Step 1: Getting a Device List

A device list must be retrieved by License Manager from the video delivery device network via a LAN connection, or loaded from a file. See 2.2 Step 1: Getting a Device List on page 13 for information about loading the device list from a file. The instructions to log in are described in 2.1.2 Starting License Manager.

• To proceed to step 2, click Next.
License Manager prompts you to log in to the Harmonic server. During the time to get an EID list, you will be prompted to enter authentication details only once. See 2.2.2 Using the Licensing Portal or 2.2.3 Using the Legacy Mode. Your login and password access will be provided by your system administrator.

3.3 Step 2: Getting an Entitlement ID (EID) List from Harmonic

The second step in the binding process is to get your list of EID's from Harmonic. The EID used to be referred to as License Pack or RID in earlier releases.

There are two ways to get a list of your available licenses:

- Downloading a list for specific EID's from the Harmonic License Database, as described in 3.3.1 Downloading a List of EID's from Harmonic.
- Loading a license list file that you saved when connected to the Harmonic License Database, as described in 3.3.2 Loading a License List File on page 23.

NOTE: You must select an organization from the drop-down list and click Go to connect to the Harmonic License Database. See Figure 3-3:

![Figure 3-3: The Get EID's From Harmonic page](image)

3.3.1 Downloading a List of EID's from Harmonic

To determine which licensed rights and features you can enable on your devices, the Harmonic License Database uses an EID number from:

- The insert in your license bundle
- The label on your system, or the insert shipped with your system
- An Entitlement ID document sent to you by Harmonic

3.3.1.1 To retrieve EID's from the Harmonic License Database:

1. Select an organization from the drop-down list.
2. Enter any Entitlement ID number you have received from Harmonic in the EID field in the Query box.

TIP: If your EID numbers are in a text file, you can copy and paste them into the entry field.

If you don't know the exact EID number, click Go to browse the list of EID's for your logged in ID.

NOTE: If the EID that you entered does not belong to the selected organization, you will see a message indicating that the EID entered does not exist within the selected organization.

3. Click Go.

License Manager communicates with the Harmonic License Database over an Internet connection, and retrieves your license rights. Your firewall must permit access to the Harmonic License Database url http://licensegateway.harmonicinc.com.
4. After a successful login, you will see a list of hierarchical information of the Sites to which you have access. See Figure 3-4. Each site displays a list of EID’s. Under each EID you will see the PO, a list of feature based licenses, total quantity of licenses and available quantity of licenses.

If you are using the Legacy Mode, see 3.3.1.2 Get License Packs in Legacy Mode.

**NOTE:** The EID numbers are covered in the screen capture examples to keep confidentiality.

5. After logging in, you can use the Organization drop-down option to select a different site that is accessible to you.

6. Use the check boxes to select one or more EID’s from the list.

7. Click Next to go to the final step of binding licenses, which involves specifying which licenses to install on which hardware devices in your network, generating license keys, and distributing, or applying, your license keys.

You need a connection to the Harmonic License Database to generate keys, and a connection to the device network to apply the keys. If you are planning to take this license list information to another computer, proceed to the next step and generate the license keys, then save your license list with the generated keys to a .lic file that you can load on the computer with access to the device network.

For specific instructions about the next step in the process, see 3.4 Step 3: Binding Licenses on page 24.

### 3.3.1.2 Get License Packs in Legacy Mode

If you login using the legacy mode, you will follow a slightly different procedure:

1. Type in the License Pack number.
2. Click Go to proceed.

A License Pack displays at the bottom of the screen. See Figure 3-5.

![Figure 3-5: Get Entitlement ID's](image)

The Total License Count column displays the available license quantities under each License Pack.

If desired, select the Get All License Packs In Same Sales Order check box. When you select this checkbox, License Manager retrieves all the License Packs associated with the Sales Order that includes the License Pack number you entered.

3. Click Next to go to the final step of binding licenses, which involves specifying which licenses to install on which hardware devices in your network, generating license keys, and distributing, or applying, your license keys.

You need a connection to the Harmonic License Database to generate keys, and a connection to the device network to apply the keys. If you are planning to take this license list information to another computer, proceed to the next step and generate the license keys, then save your license list with the generated keys to a .lic file that you can load on the computer with access to the device network.

For specific instructions about the next step in the process, see 3.4 Step 3: Binding Licenses on page 24.

### 3.3.2 Loading a License List File

You may need to load a license list from a file, for example when you are performing licensing tasks on two computers. For more information, see 3.5 Using Two Computers for Binding Licenses on page 37 and 4.5 Using two computers for unbinding licenses on page 46.

**NOTE:** If you are running License Manager on a computer with access to both the Internet and your device network, you probably won’t need to save or load a License List file.

To load a license list file into License Manager:

1. Go to the Get Entitlement ID’s From Harmonic page in License Manager if you are not already there.
2. Click **Load** in the status bar at the bottom of the License Manager application window. License Manager displays the Load a License List File dialog box as shown in *Figure 3-6*:

![License Manager Load a License List File dialog box](image)

*Figure 3-6: The Load a License List File dialog box*

3. Browse to the location where you have stored your license list files.

4. Select the license file to load, and click **Open**. License Manager loads the license information into the Get Entitlement ID(s) From Harmonic page.

5. Click **Next** to go to Step 3, the final step of binding licenses.

### 3.4 Step 3: Binding Licenses

Completing the binding process for licenses involves four steps:

1. Selecting a radio button from the top pane of the screen to activate one of the following device provisioning modes:
   - Use Device Current Capacity
   - User Defined
   - Use Device Maximum Capacity
   
   See **3.4.1 Selecting the Device Provisioning Mode** on page 25 for information about these modes.

2. Specifying licenses to install on devices by transferring licenses from the license tree located on the left side of the screen, to the device tree on the right side of the screen. See **3.4.2 Specifying Licenses to Install** on page 26 for instructions.

3. Generating license keys for the transferred licenses by clicking the **Generate License Key** button. See **3.4.3 Generating License Keys** on page 34 for instructions.

4. Applying the generated license keys to features on the specified hardware device by clicking the **Apply License** button. See **3.4.4 Applying License Keys** on page 36 for instructions.

Each of these steps takes place on the Bind License to Device page of License Manager, as shown in *Figure 3-7* on page 25:
Figure 3-7: Bind License to Device page

License and Device Trees and Tabs

Figure 3-7 shows one EID node in the license tree in the left panel. Expand each Entitlement ID node to show the individual licenses.

The device tree in the right panel shows one device node, identified by its IP address. Expand each device node to show the licenses that are currently bound to it.

Four tabs in the bottom pane show details for the items selected in the trees. See the descriptions in 3.4.2.1 Planning Your License Binding on page 26 for the contents of each tab.

Use the Next and Back buttons to navigate through the Bind License steps.

3.4.1 Selecting the Device Provisioning Mode

You begin Step 3 of the binding process by selecting a device provisioning mode, as shown in Figure 3-8.

License Manager applies licenses according to the following rules:

- **Use Device Current Capacity**
  - This is the default mode.
  - License Manager identifies and matches all feature licenses for the selected Entitlement ID or License PN to corresponding features on the selected device. It maps any available licenses to the matching feature(s) modules currently installed on the device.
  - This provisioning mode allows licensing only for features present on the device.

- **User Defined**
  - The user is prompted to designate the number of available licenses to map to the
selected device.

- License Manager verifies that licenses are available and that they match device features before it allows mapping.

- **Use Device Maximum Capacity**
  - License Manager identifies and matches all feature licenses to features on the selected device. It maps any available licenses to the matching feature(s) on the device.
  - It maps any available licenses for the full feature capacity for the device, regardless of features currently installed.
  - In this mode you can transfer licenses for the full feature capacity of a device in anticipation of system expansion.

**NOTE:** Some older firmware may not supply the device capacity data required by LM 3.1 to support the Current and Maximum capacity provisioning options. Therefore, when older firmware is present, the User Defined option is always triggered, regardless of the provisioning mode selected, requiring the user to designate the number of licenses to map.

To take advantage of the full functionality of LM 3.1 you may need to update your system firmware. Firmware versions 1.4.3 and greater on the NSG-9K or all firmware versions on the NSG-9K6G provide the best data to LM 3.1.

### 3.4.2 Specifying Licenses to Install

After you select the device provisioning mode you are ready to map licenses to devices and features. As you choose the EID’s or license(s) from the license tree and transfer them to the device tree you need to do the following:

- Plan your license binding using information displayed in the tab controls about licenses, devices, and the binding process. The tab contents vary according to the selections made in the license and device trees.

- Transfer the licenses for binding from the license tree to the device tree

#### 3.4.2.1 Planning Your License Binding

The four tabs under the license and device trees show details about what is currently selected in the trees. Use this information to plan the distribution of licenses across your system. The four tabs are described as follows:

**TIP:** To manage the display of data in the tabs:
- Resize a column by dragging the margins.
- Rearrange column order by grabbing the column heading and moving it to the desired position.
- Sort a list by clicking in the column heading.

**The License Pack/Entitlement ID tab**

The Entitlement ID tab lists each individual license in the EID node you have currently selected in the license tree. The columns are:

- **License SN** — unique serial number identifier for a particular license
- **License Description** — summary license description
- **License PN** — feature license part number
Figure 3-9 shows the license tree with several EID nodes. The selected EID has 20 available licenses for FW-NSG-9K-QAM-1L. In the License Pack/Entitlement ID tab, all 20 licenses are displayed.

Figure 3-9: Entitlement ID tab with Entitlement ID node expanded

The Device tab

The Device tab gives identification information for the device node currently selected in the device tree. The columns are:

- **Device SN** — device serial number
- **Device Name** — user defined device name and/or IP address (user defined name is defined using system management software)
- **Total License Count** — total of licenses currently bound to this device
- **Device Type** — device family
- **Chassis Number** — chassis serial number
- **IP Address** — IP address
- **Machine Address** — MAC address
Figure 3-10 shows the device “RickNSG” selected in the device tree. The Device tab shows the details for that device.

**TIP:** To manage the display of data in the tabs:
- Resize a column by dragging the margins.
- Rearrange column order by grabbing the column heading and moving it to the desired position.
- Sort a list by clicking in the column heading.
The Device Features tab

The Device Features tab lists the features that are available for the device selected in the device tree. It also displays the licenses currently bound to the device, and the capacity totals for each of the features. The columns are:

- **LicensePN** — feature part number
- **Feature Description** — summary description of feature
- **Applied** — dual figure A/B. “A” represents the number of regular licenses that can be applied, *without* the default licenses. “B” represents the number of default licenses that are present on the device.
- **Cur Cap** (Current Capacity) — dual figure C/D. “C” represents the number of regular licenses that are applied to maximize the full use of the current hardware installed and the current configuration, *without* the default licenses. “D” represents the total number of default licenses that can be applied to maximize the full use of the current hardware installed and the current configuration.
- **In Use** — number of licenses currently being used by this device
  
  To put a license in use, you allocate it via the device management software GUI, for example NMX or MCT. This column shows the licenses that are in use at the time you get the device list in Step 1 (see 3.2 Step 1: Getting a Device List on page 20).
- **Max Cap** (Maximum Capacity) — dual figure X/Y. “X” represents the number of regular licenses that can be applied if the system is loaded to full hardware capacity in the current configuration, *without* the default licenses. “Y” represents the total number of default licenses that can be applied if the system is loaded to full hardware capacity in the current configuration.

This tab shows the features for a single device when you select either that device, or one of the feature subnodes of that device.

**NOTE:** To map a license to a feature in the Device Features tab, you must have purchased the appropriate license, and it must show as an entry in the selected Entitlement ID that matches the feature.

*Figure 3-11* shows the device “RickNSG” selected in the device tree. The Device Features tab shows 6 possible features for that device, and the corresponding license totals that are currently bound to it.

**NOTE:** Devices running with more number of licenses than the hardware can support display with a red highlighted background and italic text.

Devices running with more than the required licenses being used by the services are highlighted with a yellow background and italic text.
NOTE: License Manager 3.1 uses information supplied by the device firmware to recognize the capacity for each feature on that device. Older firmware versions may not support this functionality, in which case License Manager 3.1 will display “N/A” in those columns of the Device Features tab. To take advantage of the full functionality of LM 3.1 you may need to update your system firmware. Firmware versions 1.4.3 and greater on the NSG-9K or all firmware versions on the NSG-9K6G provide the best data to LM 3.1.

TIP: Using LM 3.1 with current firmware (1.4.3 or later) allows you to re-evaluate your license distribution. For example, with older versions of LM or older firmware versions with LM 3.1, it was possible to apply licenses to a device without regard for the true capacity of the device. If you have upgraded your firmware to 1.4.3 or later, check the current capacity in the tab/table. If there is a yellow highlight on the item’s row, it indicates that there are more number of licenses than required are being used by the services. You may have some licenses that you can unbind and use elsewhere.

The Operations Log tab

The Operations Log tab is the binding status window. When you choose Generate License Key or Apply License, the Operations Log tab is activated and displays the licenses that have been designated for binding. It has the following columns:

- **Action** — two entries for each license:
  - Generate License Key
  - Apply License Key

  A green check mark shows when keys have been successfully generated and applied.

- **License Description** — license description and serial number

- **Device Bound** — device name, product family, IP address, and serial number

- **Status Description** — updated when keys have been successfully generated and applied:
  - Bind Successful
3.4.2.2 Transferring Licenses for Binding

You continue the binding process by selecting license(s) from the license tree and transferring them to the device tree. This selection works in concert with the device provisioning mode that you selected previously. You can initiate a transfer of an entire Entitlement ID to a device and let License Manager determine which and how many licenses are eligible, or you can pick individual licenses and apply them selectively.

Figure 3-13 shows a license tree with one EID node and one device node. In both trees, each license entry includes quantity, license PN, and license type, for example, [2]FW-NSG-9K-QAM-1LI[Default].

<table>
<thead>
<tr>
<th>License Pack/Entitlement ID</th>
<th>Device</th>
<th>Device Features</th>
<th>Operations Log</th>
</tr>
</thead>
<tbody>
<tr>
<td>Action</td>
<td>License Description</td>
<td>Device Bound</td>
<td>Status Description</td>
</tr>
<tr>
<td>Generate License</td>
<td>NSG-9K LICENSE SINGLE QAM [Default]</td>
<td>RN9001 : NSGA09000 : 1...</td>
<td></td>
</tr>
<tr>
<td>Apply License</td>
<td>NSG-9K LICENSE SINGLE QAM [Default]</td>
<td>RN9001 : NSGA09000 : 1...</td>
<td></td>
</tr>
</tbody>
</table>

**Figure 3-12: Operations Log tab**

**Figure 3-13: License Tree and Device Tree**

**TIP:** To expand or collapse all nodes in the license tree, right-click any node and choose Expand All or Collapse All from the pop-up menu.

**To transfer a license to a device:**

1. Select the EID’s or license(s) from the license tree.
2. Drag the selected license(s) from the license tree to the device tree.
   Alternatively, you can left-click the license(s) in the license tree and then right-click the device node in the device tree and choose Transfer Licenses from the pop-up menu.
   When you drag a selection from the license tree to the device tree that is not allowed, the cursor changes to ⚠️.

**NOTE:** Transferring licenses is not allowed unless you have access to the Harmonic License Database. For example, it’s not allowed if you’re working from a loaded .lic file, because LM must contact the Harmonic License Database to generate the keys.

When the transfer is successful, two things happen:

- The transferred licenses leave the license tree and appear in the device tree, where they are displayed in red with an asterisk (*). If the license features are new to the device, the icons will display a plus (+).
- The licenses will be added to the list in the Operations Log tab, ready for you to generate keys and apply them to the device(s). See Figure 3-12 on page 31 to view the Operations Log tab.

3. To undo a transfer, right-click the item in the device tree and select Undo Transfer Licenses from the pop-up menu. Licenses are returned to license tree.

![Figure 3-14: Undo Transfer Licenses menu selection](image)

4. Transfer as many licenses to as many devices as you desire.

Table 3-1 shows the types of transfers that are allowed by License Manager.

**NOTE:** The allowed transfers in Table 3-1 work within the scope of the current device provisioning mode. The default provisioning mode is Use Device Current Capacity.

**Table 3-1: Allowed License Transfers:**

<table>
<thead>
<tr>
<th>From</th>
<th>To</th>
<th>Action (within scope of device provisioning)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Node in license tree</td>
<td>Node in device tree</td>
<td></td>
</tr>
<tr>
<td>EID root</td>
<td>Device root</td>
<td>LM will identify any matching feature(s) and transfer accordingly.¹</td>
</tr>
<tr>
<td>EID root</td>
<td>Any subnode</td>
<td>Not Allowed.</td>
</tr>
<tr>
<td>Subnode</td>
<td>Device root</td>
<td>LM will identify the matching feature(s) on the device and transfer accordingly. Only the matching feature(s) will be highlighted in the device tree.</td>
</tr>
<tr>
<td>(license group within EID)</td>
<td>(license group within device)</td>
<td>LM will verify that features match before allowing transfer. Only the matching feature(s) will be highlighted in the device tree.</td>
</tr>
</tbody>
</table>
1. Older device firmware versions that do not fully support all the features of LM 3.1 will default to the User Defined provisioning mode and will not support the transfer of an Entitlement ID root to the Device root. You will still be able to apply licenses by transferring from license tree subnodes, using the User Defined mode.

TIP: If you change your mind about a transfer, follow these steps to undo:
—To undo a specific license transfer, right-click the item in the device tree and select Undo License Transfer.
—To undo all the transfers to an entire device, right-click that device and choose Undo License Transfer.
—To undo all the transfers you have made, click the Back button to return to the previous step.
You cannot undo transfers after you choose Generate License Key or Apply License.

Figure 3-15 shows the transfer of FW-NSG-9K-QAM-1L licenses to the device “RickNSG”.

The User Defined provisioning mode is selected, so the transfer must be made from a license tree subnode to a device node or subnode. The number of FW-NSG-9K-QAM-1L licenses in the device tree will be updated when the number of licenses to transfer is entered in the User Defined Settings dialog box.

License Manager provides the maximum quantity of licenses that can be transferred as a default value in the dialog box entry field:

![Figure 3-15: User Defined provisioning mode prompt](image)

NOTE: License Manager 3.1 defaults to the User Defined mode for transfers when it encounters older versions of firmware that do not support the Use Device Current Capacity and Use Device Maximum Capacity features. The default value in the Number of licenses to transfer entry field is also dependent on the information provided by firmware.

To take advantage of the full functionality of LM 3.1 you may need to update your system firmware. Firmware versions 1.4.3 and greater on the NSG-9K or all firmware versions on the NSG-9K6G provide the best data to LM 3.1.

Figure 3-16 shows the transfer of NSG-9K LICENSE SINGLE QAM licenses to the device “RickNSG”.
The Use Device Maximum Capacity provisioning mode is selected, so License Manager has transferred 20 of the 20 available licenses to this device, leaving 0 in the Entitlement ID. The transferred licenses are shown in red, with an asterisk (*) and because these are the first MOT PRIVACY MODE PER QAM licenses on this device, the icon shows a (+).

![Figure 3-16: Transferring from license tree to device tree](image)

### 3.4.3 Generating License Keys

When you have transferred all the licenses desired, you generate the license keys. To generate license keys, you must be connected to the Harmonic License Database through the Internet.

**NOTE:** To communicate with the Harmonic License Database your firewall must permit access to the url [http://licensegateway.harmonicinc.com](http://licensegateway.harmonicinc.com).

License Manager makes a list of all the licenses you have transferred to devices. The list includes the license serial number and the target device serial number. When you generate license keys, License Manager passes the list to the Harmonic License Database, and the server uses that information to generate unique license keys.

#### To generate a license key:

1. Select the Operations Log tab to see the list of licenses that have been transferred from the license tree to the device tree in the previous steps. It displays two action entries for each license, one for Generate License Key, and one for Apply License.

2. Click Generate License Key.

A different key will be generated by the License Database for each of the licenses currently listed in the Operations Log tab. License Manager displays the success of the operation in the Status Description column and places a check by the entry, as shown in...
Generating a license key creates a unique binding record on the Harmonic License Database. The key specifies that a License SN has been assigned to a particular feature on a specifically and uniquely identified hardware device.

**CAUTION:** Selecting the Back button after you have generated license keys (but have not yet applied them) will return a warning message: “You have unsaved license keys waiting to be applied to devices. Save them to a license list file, or Apply the license keys to a device. Unsaved and unapplied license keys will be suspended and can only be recovered by the reconcile process.” Click OK to exit the message box. Then, either apply the license keys or save them to a license list file to be applied later.

Next, you will enable the feature by applying the newly generated license key to the hardware device. See 3.4.4 Applying License Keys on page 36 for instructions on performing this final task.

To apply the keys, your computer must be connected to the device network so that it can access each device. If you plan to take your license key information to load it on another computer, you must save it to a file, as described in 3.4.3.2 Saving a License List File on page 35.

3.4.3.1 Recuperating the License Keys

There is no undo after you Generate License Keys. You can recuperate the license keys in two ways:

1. Complete the bind process by applying the license to the device. See 3.4.4 Applying License Keys on page 36. Then, use unbind to release it. See 4.3 Step 2: Unbinding Licenses.

2. Save the generated license keys to a .lic file. See 3.4.3.2 Saving a License List File. Then, use the reconcile license process and recuperate the licenses. See 6.3 Step 2: Reconciling Licenses.

3.4.3.2 Saving a License List File

When you download an Entitlement ID list and generate license keys, your computer must be connected to the Harmonic License Database via the internet. If your computer is not attached to your local device network, then you must save your license information to a license list file, so that you can manually transfer it.

**NOTE:** Before you save the license list file, you must complete the Generate License Key task in Step 3 of the Bind process.

License Manager saves the license information and the unique keys that associate those licenses to particular devices to the license list (.lic) file. You will use the .lic file to complete the binding process. For more information about binding licenses using two computers, see 3.5 Using Two Computers for Binding Licenses on page 37.
To save a license list to a file:
1. Follow the instructions for Binding Licenses through the Generate License Keys step, if you have not yet done so. You should see a list of the licenses you have designated for binding in the Operations Log tab of the Bind screen displayed with a green check mark and “Bind Successful” in the status column, as shown in Figure 3-17 on page 35.
2. Click Save. License Manager displays the Save a License List File dialog box.
3. Browse to a location where you want to save the license list file.
4. Enter a name for your file.
5. Click Save in the Save a License List File dialog box. License Manager saves the license list file with a .lic extension.

3.4.4 Applying License Keys

The final part in the binding process is to apply the generated license key to the specified hardware device. To apply licenses, you must be connected to your local device network. License Manager assigns the license key to the designated hardware device, which enables the specified feature on the device.

NOTE: License Manager 3.1 allows you to generate and apply keys for modules that are not yet installed on your device. You must have both the hardware and the license keys in place to use a feature.

To apply a license key to a hardware device:
1. Open the Operations Log tab to see the list of licenses that have been transferred from the License Tree to the Device Tree in the previous steps. It displays two action entries for each license, one for Generate License Key, and one for Apply License. The entries that have had a key generated show a green check mark before them, as shown in Figure 3-17.
2. Click Apply License. License Manager sends the license key to the hardware device, which stores the key and unlocks the feature you want.

When License Manager applies a license key and the hardware device successfully installs the key and activates the feature, the hardware device returns status information to License Manager. If the operation is successful, License Manager displays the success of the operation in the Status Description column, and places a check by the entry, as shown in Figure 3-18 on page 36:

![Figure 3-18: Successful license key application](image-url)
Figure 3-19 shows an unsuccessful attempt to apply a license key to a device. This may be because the computer is not connected to the device network.

If desired, export a copy of the action log so that you can keep a record of the license transactions you perform.

To save an operation log:
1. Click Export Log in the status bar, as shown in Figure 3-20.

2. Follow the prompts for saving a key file on your system. Figure 3-21 shows a sample of the printed log. In this example, licenses have been generated, but not applied.

<table>
<thead>
<tr>
<th>Action</th>
<th>License Description</th>
<th>Device Location</th>
<th>Status Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generate License Key</td>
<td>NSG-9K LICENSE SINGLE QAM BUNDLED [Device]</td>
<td>192.168.1.100</td>
<td>Bind Successful</td>
</tr>
<tr>
<td>Generate License Key</td>
<td>NSG-9K LICENSE SINGLE QAM BUNDLED [Device]</td>
<td>192.168.1.100</td>
<td>Bind Successful</td>
</tr>
<tr>
<td>Apply License</td>
<td>NSG-9K LICENSE SINGLE QAM BUNDLED [Device]</td>
<td>192.168.1.100</td>
<td>Bind Successful</td>
</tr>
<tr>
<td>Apply License</td>
<td>NSG-9K LICENSE SINGLE QAM BUNDLED [Device]</td>
<td>192.168.1.100</td>
<td>Bind Successful</td>
</tr>
</tbody>
</table>

Figure 3-21: Printed log

3.5 Using Two Computers for Binding Licenses

When you use different computers to connect to the Internet and to your local device network, you must manually transfer device list information files (*.dev) and license information files (*.lic) between the computers to bind licenses. The binding process requires access to both the Internet and the device network as follows:

The computer must be connected to the Harmonic License Database to:
- Generate license keys

The computer must be connected to the device network to:
- Apply license keys

This section describes binding licenses using two computers. For instructions on unbinding using two computers, see 4.5 Using two computers for unbinding licenses on page 46. For reconciling using two computers see 6.4 Using two computers for reconciling licenses on page 58.

Figure 3-22 illustrates the binding process using two computers.
To transfer an information file from one computer to another when the computers are on different networks:

1. Use License Manager to create a device list on a computer that is connected to your local device network (see 2.2 Step 1: Getting a Device List on page 13.)
2. Save the list to a file (.dev).
3. Transfer the file to the computer that connects to the Internet.
4. Start License Manager on the computer with Internet access.
5. Choose Bind License.
6. On Step 1, Get Device List, load your saved .dev file.
   License Manager now has access to the Harmonic License Database and your device information. Follow the instructions for steps 2 and 3 of the bind process starting with 3.3 Step 2: Getting an Entitlement ID (EID) List from Harmonic on page 21 all the way through Generate License Keys.
7. Save the license list and key information to a file (.lic).
8. Take the .lic file containing your generated license keys back to the computer connected to your device network.
9. Start License Manager on the first computer (on the device network).
10. Choose Bind License.
11. Connect to the correct device on your network in the Get Device List page.
12. On Step 2, Get License List, load the .lic file (see *Loading a License List File* on page 23.)
13. On Step 3, Bind License to Device, select the Operations Log tab to see the licenses that have generated keys.
14. Select **Apply License** to bind them to the device.
This chapter provides detailed information about unbinding licenses using License Manager, and includes the following sections:

- **4.1 Unbinding Licenses Overview** provides a high-level overview of how to unbind licenses.
- **4.2 Step 1: Getting a Device List** describes how to specify the list of devices from which to remove licenses.
- **4.3 Step 2: Unbinding Licenses** explains how to deactivate a license on a device on your local device network and return the license to the Harmonic License Database.
- **4.4 Reusing Licenses** provides an overview of how to reuse a license after you remove it from a device.
- **4.5 Using two computers for unbinding licenses** gives instructions for unbinding licenses when your device network host machine does not have Internet access.

To perform the tasks described in this chapter, start License Manager and select the Unbind License button as shown in Figure 4-1.

![Figure 4-1: Unbind License button](image)

### 4.1 Unbinding Licenses Overview

When you unbind a license using License Manager, you delete a license for a particular feature on a specific device. Deleting the license disables the feature. Then, you return the license to the Harmonic License Database to make it available for reuse. When you return a license to the server, it is restored to the Entitlement ID it came from.

You can unbind regular licenses. You cannot unbind default, temporary or grace period licenses.

**NOTE:** If you have previously bound licenses to device features on your network, it’s a good idea to review your current license and hardware configurations before you unbind licenses. See Chapter 5, Viewing Licenses, for more information about viewing licenses.

*Figure 4-2 on page 41 provides an overview of the unbinding process and the necessary Internet and LAN connections necessary for each step.*
The following sections of this chapter provide detailed explanations of the steps involved in the unbinding process.

### 4.2 Step 1: Getting a Device List

A device list must be retrieved by License Manager from the video delivery device network in order to unbind licenses. For the first unbinding task, Delete License From Device, the list must be created while connected to the device network.

To perform the second task of unbinding, Return License To Server, the device list may be loaded from a file. Getting a device list is common to all License Manager tasks and is described in 2.2 Step 1: Getting a Device List.

To proceed to step 2 in unbinding a license, click **Next**.

**NOTE:** If your pc is connected to the Internet, the login prompt displays. You need to fill in the login and password provided by your administrator to proceed. For the offline procedure when the pc is not connected to the Internet, the login prompt displays after loading the device file.
4.3 Step 2: Unbinding Licenses

Unbinding licenses requires:

- Deleting a license from a device
- Returning the license to the Harmonic License Database, allowing you to rebind the license to another device later

**Figure 4-3: Unbind Licenses on Device page**

*Figure 4-3* shows the Unbind Licenses on Device page. It has three sections:

- The device tree in the left panel has the list of devices, and the licenses bound to them.
- The device information in the right panel includes a Features box that lists how many regular licenses and how many default licenses are present for all the features currently bound to the device. The first figure is for the licenses that can be applied without the default licenses and the second figure is for licenses that can be applied including the default licenses. The highlighted rows indicate the devices that have more number of licenses that are not being used by the services.
- The operations log at the bottom of the page shows the progress of the unbind process.
4.3.1 Deleting a License from a Device

Deleting a license from a device updates the device records, disabling the feature. The device returns confirmation of the deletion to License Manager.

To delete a license from the hardware device:
1. Select the license(s) from the list in the device tree.
   - Check the box next to the device node to select all the licenses on that device.
   - Expand the node to select individual licenses.

   **NOTE:** Checking licenses to delete is not allowed unless you are connected to the device network. For example, it's not allowed if you are working from a loaded .dev file, because LM must communicate with the device to receive the license key deletion receipt.

2. When you select a license to delete, License Manager displays two action items in the operations log at the bottom of the page:
   - Delete License From Device
   - Return License To Server

   *Figure 4-4* shows one license selected for deletion:

   ![Figure 4-4: Action items listed in the operation log](image)

   **Figure 4-4** shows one license selected for deletion:

2. Click the **Delete License From Device** button in the status bar.

   License Manager shows the success of the operation in the Status Description column, and places a check by the action item, as shown in *Figure 4-5* on page 44.
When you delete a license from a device, the device generates a deletion receipt that indicates the previously bound license is no longer in use and can be reapplied to a different device on your network. License Manager transmits this information to the Harmonic License Database as a separate task, described in 4.3.2 Returning a License to the License Database.

**CAUTION:** Selecting the Back button after you have deleted license keys (but have not yet returned them to the Harmonic License Database) will return a warning message: “You have unsaved license keys waiting to be returned to the Harmonic License Database. Save them to a device list file, or choose Return License to Server. Unsaved and unreturned license keys will be suspended and can only be recovered by the reconcile process.” Press OK to exit the message box. Then, either return the license keys or save them to a device list file to be returned later.

If you need to transfer the deleted license receipts to another computer with access to the Internet, save it now to a device list file (.dev) file. For instructions on saving a device list file, see 2.2.1.1 Saving a Device List File on page 15. To review the unbinding process using two computers, see 4.5 Using two computers for unbinding licenses on page 46.

### 4.3.2 Returning a License to the License Database

The final unbinding task is to update the internal license record on the Harmonic License Database. This returns a license to the License Database. To do this, you must be connected to the Internet.

License Manager sends the deleted license key status to the Harmonic License Database. The server updates the internal license record, removing the links it had to a specific device, and restores the license to its EID’s. This frees the license for reuse, or re-binding, on another device. The server returns confirmation of the update to License Manager, and provides the associated Entitlement ID.

**To remove a license from the Harmonic License Database:**

- Click Return License To Server in the status bar.

Once a license is returned to the Harmonic License Database, License Manager reports the EID number in the operation log as shown in Figure 4-6 on page 44. Refer to this EID number when you want to reuse the license.

In this example, a check mark appears next to the Remove License From Server action item, and the Status Description column shows "Returned to 1308...".

You are finished unbinding.
If desired, save a copy of the action log so that you can print and keep a record of the license transactions you perform, and the EID numbers you will need when you reuse the licenses.

**To save an operation log:**

1. Click **Export Log** in the status bar, as shown in *Figure 4-7*.

   ![Figure 4-7: Export Log button](image)

2. Follow the prompts for saving a PDF on your system. *Figure 4-8* shows a sample of the printed PDF log:

   ![Figure 4-8: Printed log](image)

   **TIP:** The exported file (in PDF) will contain the same order of rows as they are currently displayed on the screen. For best results, sort the order of the columns to the way that you wish to view them before saving the file to PDF.

### 4.4 Reusing Licenses

When you unbind a license from a device, you disable a corresponding feature on that device. In addition, the license is returned to the Harmonic License Database and reinstated in it’s EID. You can use that Entitlement ID to bind the license to another device with the same features, as described in *Chapter 3, Binding Licenses*.

To help you track the EID numbers you’ll need for reusing licenses, save the log as you unbind licenses. For instructions on saving a log of the license and Entitlement ID numbers as you unbind them, see *4.3.2 Returning a License to the License Database*. 
4.5 Using two computers for unbinding licenses

When you use different computers to connect to the Internet and to your local device network, you must manually transfer a device list information file (*.dev) between the computers to unbind licenses. The unbinding process requires access to both the Internet and the device network as follows:

The computer must be connected to the Harmonic License Database to:
- Return license keys to server

The computer must be connected to the device network to:
- Delete license from device

This section describes unbinding licenses using two computers. For instructions on binding using two computers, see 3.5 Using Two Computers for Binding Licenses on page 37. For reconciling using two computers see 6.4 Using two computers for reconciling licenses on page 58.

Figure 4-9 illustrates the unbinding process using two computers.
To transfer an information file from one computer to another when the computers are on different networks:

1. Use License Manager to create a device list on a computer that is connected to your local device network (see 2.2 Step 1: Getting a Device List on page 13.)
2. Perform the unbind steps all the way through Delete License From Device. See 4.3.1 Deleting a License from a Device on page 43 for instructions on the unbinding steps.
3. Save the license delection records in a device list (.dev) file. Your .dev file stores the device information, including which licenses you deleted.
4. Transfer the file to the computer that connects to the Internet.
5. Start License Manager on the computer with Internet access.
6. Load the device list file into License Manager (see 2.2 Step 1: Getting a Device List on page 13). License Manager now has access to the Harmonic License Database and your device information.
7. Click Next to proceed to the Unbind License From Device page.

The operations log shows the licenses you have deleted from devices, as shown in Figure 4-10:

![Figure 4-10: Deleted license in operation log](image)

8. Select Return License To Server. See 4.3.2 Returning a License to the License Database on page 44 for more information about this step.

You are finished unbinding.
Chapter 5
Viewing Licenses

This chapter provides detailed information about viewing licenses using License Manager, and includes the following sections:

- **5.1 Viewing Licenses Overview** provides a high-level overview of how to view licenses.
- **5.2 Step 1: Getting a Device List** describes how to specify a list of devices for which to return licensing information.
- **5.3 Step 2: Viewing Licensing Details** explains how to read licensing information that appears in the detail pane during the viewing process.

To perform the task described in this chapter, start License Manager and select **View License** as shown in **Figure 5-1**.

![Figure 5-1: View License button](image)

### 5.1 Viewing Licenses Overview

Viewing licenses with License Manager allows you to gather information about the deployment of licenses across your device network. **Figure 5-2** gives an overview of the LAN connections necessary for viewing licenses.
Chapter 5 Viewing Licenses

5.2 Step 1: Getting a Device List

A device list must be retrieved by License Manager from the video delivery device network via a LAN connection, or loaded from a file. This step is common to all License Manager tasks and is described in Chapter 2, Setting Up the License Manager Session. See 2.2 Step 1: Getting a Device List on page 13 for more information.

To proceed to step 2, click Next.

5.3 Step 2: Viewing Licensing Details

Use the License Information From Devices page to determine which features are available on a device, how many licenses are bound to the device, and how much capacity is still available for features on a device.
Figure 5-3 shows the View License Information From Devices page.

![Figure 5-3: View License Information From Devices](image)

The devices are listed in the left panels in card format. The device name and/or IP address shows in the title of the card.

To expand a device card and show it’s full identity description information, click the arrows in the card title bar, as shown in Figure 5-3.

As you select each device, the Device Information Panel displays details for that device in the right panel.
5.3.1 Viewing the Device Information Panel

The device information panel on the right includes the following information for the selected device:

- The mainboard serial number
- The chassis serial number
- The IP address
- The number of features supported on the device.
- A Feature(s) table
- A License(s) table

NOTE: License Manager 3.1 uses information supplied by the device firmware to recognize the capacity for each feature on that device. Older firmware versions may not support this functionality, in which case License Manager 3.1 will display “N/A” in those columns of the Feature(s) table.

To take advantage of the full functionality of LM 3.1 you may need to update your system firmware. Firmware versions 1.4.3 and greater on the NSG-9K or all firmware versions on the NSG-9K6G provide the best data to LM 3.1.

5.3.1.1 Viewing the Feature(s) Table

The Feature(s) table lists the features that are available for the device selected in the device panel and displays the bound licenses and the capacity totals for each of the features. The columns are:

- Feature Description — summary description of feature
- Applied — dual figure A/B. “A” represents the number of regular licenses that can be applied, without the default licenses. “B” represents the number of default licenses that reside on the device.
- Cur Cap (Current Capacity) — dual figure C/D. “C” represents the number of regular licenses that are applied to maximize the full use of the current hardware installed and the current configuration, without the default licenses. “D” represents the total number of default licenses that can be applied to maximize the full use of the current hardware installed and the current configuration.

The four default QAM licenses that are provided with any module are not included in this total. For example, the four QAM licenses for NSG-9K-6G modules are not included.

- In Use — number of licenses currently being used by this device

To put a license in use, you allocate it via the device management software GUI, for example NMX or MCT. This column shows the licenses that are in use at the time you get the device list in Step 1 (see 3.2 Step 1: Getting a Device List on page 20).

- Max Cap (Maximum Capacity) — dual figure X/Y. “X” represents the number of regular licenses that can be applied if the system is loaded to full hardware capacity in the current configuration, without the default licenses. “Y” represents the total number of default licenses that can be applied if the system is loaded to full hardware capacity in the current configuration.
NOTE: Devices running with more number of licenses than the hardware can support display with a red highlighted background and italic text.

Devices running with more than the required licenses being used by the services are highlighted with a yellow background and italic text. See Figure 5-4.

### Feature(s) tables

#### 5.3.1.2 Viewing the License(s) Table

The License(s) table displays information about the licenses that are currently bound to the device. Each item in the table includes:

- An icon indicating the type of license
- An expiration date for the license, if any
- The license serial number
- A license description

![Image of License(s) table]

The color of the icon at the left of each license indicates the type of license:

<table>
<thead>
<tr>
<th>Color</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green</td>
<td>Regular license</td>
</tr>
<tr>
<td>Yellow</td>
<td>Temporary license</td>
</tr>
<tr>
<td>Red</td>
<td>“Grace Period” license</td>
</tr>
<tr>
<td></td>
<td>For example, a 14-day temporary license available on the NSG9000.</td>
</tr>
</tbody>
</table>
You can change the way information is displayed in the tables as follows.

**To change the column display order in a table:**
- Drag a column heading to a different spot in the heading row. *Figure 5-6* shows the License(s) table with the License SN column in the first position, followed by License Description and Expiration. It is sorted by License SN.

![Figure 5-6: Change column order in table](image)

**To sort information by a particular column:**
- Click in the column heading. The arrow in the heading indicates if the sort is ascending or descending.

**To group information by a particular column:**
- Drag a column heading above the column heading row. *Figure 5-7* shows the License(s) table sorted by the License Description column.

![Figure 5-7: Sort table by license description column](image)

**To restore feature information to its default format:**
- Drag the column heading back into the column heading row.

---

### Table 5-1: Harmonic License Types

<table>
<thead>
<tr>
<th>Color</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blue</td>
<td>Default module license for 4 QAM, available only for the NSG9000</td>
</tr>
</tbody>
</table>

---
Chapter 6
Reconciling Licenses

This chapter describes reconciling licenses using License Manager. It includes the following sections:

- **6.1 Reconciling Licenses Overview** provides a high-level overview of how to reconcile licenses.
- **6.2 Step 1: Getting a Device List** describes how to specify the list of devices that require reconciliation with the Harmonic License Database.
- **6.3 Step 2: Reconciling Licenses** explains the reconciliation process, and how to complete the process.
- **6.4 Using two computers for reconciling licenses** gives instructions for reconciling licenses when your device network host machine does not have Internet access.

To perform the tasks described in this chapter, start License Manager and select the Reconcile License button as shown in Figure 6-1.

![Figure 6-1: Reconcile License button](image)

### 6.1 Reconciling Licenses Overview

Reconciling is necessary when a licensing task was interrupted or incomplete, and license key status is out of sync with the Harmonic License Database. Reconciling completes the unfinished licensing tasks, and updates the customer database, restoring licenses keys to their original EID’s.

The Reconcile License option takes the current license status on one or more devices and checks that status against the customer record on the Harmonic License Database database. License Manager then performs the following actions:

- If license keys were generated for a device but the licenses are not present on that device, it returns those keys to the Entitlement ID from which they came.
  
  For example, assume you had an EID 123123123123123123123123123456, with 2 FW-NSG-9K-QAM-1L licenses. You connected to the Harmonic License Database and generated a key to use one of FW-NSG-9K-QAM-1L licenses on an NSG device with SN 6XXX21. Your customer record shows that license is bound to NSG SN 654321. But, for whatever reason, you never applied that license key to the device. When License Manager performs the Reconcile License operation, it returns that FW-NSG-9K-QAM-1L license key to your EID 123123123123123123123123123456.

- If any license key deletion receipts are on the device(s), it picks them up and returns them to the EID’s from which they came.
In both cases, the customer record is updated to show that those licenses are available for use.

Figure 6-2 provides an overview of the reconciling process and the Internet and LAN connections necessary for each step.

The following sections describe the steps involved in the reconciling process.

6.2 Step 1: Getting a Device List

A device list must be retrieved by License Manager from the video delivery device network in order to reconcile licenses. The list must be created while connected to the device network.

To perform the second task of reconciling, Reconcile Licenses between Device and Harmonic Server, the device list may be loaded from a file. To review the reconciling process using two computers, see 6.4 Using two computers for reconciling licenses on page 58.

Getting a device list is common to all License Manager tasks and is described in 2.2 Step 1: Getting a Device List on page 13 for more information.

**NOTE:** The Reconcile License option returns license keys to their EID's automatically when you proceed to Step 2. Include only the devices that you are sure you want updated when you enter the address range for creating the device list.

To proceed to step 2, click **Next** (no undo for this action).
6.3 **Step 2: Reconciling Licenses**

License Manager performs the reconciliation and displays the results of comparing the device list with the customer records on the Harmonic License Database. This step is performed automatically, for all the devices in the device list.

*Figure 6-3* shows the Reconcile Licenses between Device and Harmonic Server page. It has three sections:

- The device tree in the left panel has the list of devices. It shows:
  - The devices that don’t need reconciliation are indicated by a green check mark. Their nodes are not expanded.
  - The devices that were reconciled are highlighted in yellow. They are expanded to show the individual licenses. In *Figure 6-3*, only the device having FW-NSG-9K-DOCDTI-1L has licenses to be reconciled.
  - The licenses currently bound to a device are shown in black text.
  - The licenses with red text and yellow highlight, followed by a minus (−) at the end, imply that their keys were deleted from the device but not returned to the Harmonic License Database. License Manager returns these to the Harmonic License Database automatically, no user action is required.
  - The licenses with red text followed by an asterisk (*) at the end, imply that the license keys were generated but never applied on the specified device. License Manager reissues the license keys from the Harmonic License Database so that you can reapply them to the device. If you are using two computers, you must save the licenses to a .lic file and reload to the desired computer.

- A Features box that lists totals for all the features currently bound to the device.
- The operations log at the bottom of the page shows the progress of the reconciliation process.
The reconciliation process is performed automatically. License Manager compares the device list to the customer records on the Harmonic License database and performs the necessary steps to reconcile the two. This involves:

- Reconciling deleted licenses—If License Manager finds license key deletion receipts on a device, it returns them to the Harmonic License Database.
- Reconciling unapplied (missing) licenses—If the customer record shows keys have been issued for a device, but License Manager does not find them on the device, it can be applied back to the device by using the Apply button.

In the first case, License Manager restores the licenses to the License Pack/EID they came from. The customer record is updated, and the licenses are ready for re-use elsewhere. In the second case, License Manager re-issues license keys so that the customer can apply them on the device. Figure 6-3 on page 56 shows a device having licenses returned and licenses to be applied.

Figure 6-4 shows the result of the reconciliation in the operations log. In this example, a check mark appears next to the Return License To Server action item. The Action column displays the applied and the returned licenses. The Status Description column shows Returned to 12065...., indicating the Entitlement ID to which it was returned.

Harmonic recommends that you export a record log of the reconciliation operations to keep for your records.

**Saving an operation log:**

1. Click Export Log in the status bar, as shown in Figure 6-4.
2. Follow the prompts for saving to a PDF. Figure 6-5 shows a sample of the printed log.

**TIP:** The exported file (in PDF) will contain the same order of rows that currently display on the screen. For best results in your print log output, adjust the column order and width before printing. See Figure 6-5. For example, expand the Status Description column so that you can see the full EID.
All licenses for these particular devices are now either bound to the appropriate device, or returned to the appropriate EID. To use them on a device, perform the Bind License operation, as described in 3.1 Binding Licenses Overview on page 19.

6.4 Using two computers for reconciling licenses

When you use different computers to connect to the Internet and to your local device network, you must manually transfer a device list file (*.dev) to the computer that connects to the Internet to perform reconciliation. The reconciling process requires access to both the Internet and the device network as follows:

The computer must be connected to the device network to:
- Load the device list, which shows the disposition of licenses on the device

The computer must be connected to the Harmonic License Database to:
- Return deleted license keys from the device to their Entitlement ID’s
- Return generated license keys that are not on the device to their Entitlement ID’s

You can use the Reconcile option to perform all of these tasks. Figure 6-6 illustrates the reconciling process using two computers.

Figure 6-6: Reconciling Licenses Using 2 Computers
To transfer an information file from one computer to another when the computers are on different networks:

1. Start License Manager on the computer with access to the device network.
2. Choose Reconcile License and create a device list (see 6.2 Step 1: Getting a Device List on page 55.)
3. Save the device list in a device list (.dev) file. Your .dev file stores the device information, including which licenses which are applied and deleted on that device.
4. Exit License Manager.
5. Start License Manager on the computer with Internet access. Your firewall must permit access to the Harmonic License database url http://licensegateway.harmonicinc.com.
6. Choose Reconcile License.
7. Load the device list file that you saved in Step 3. License Manager now has access to the Harmonic License Database and your device information.
8. Click Next to proceed to the Reconcile Licenses with Device and License Database page, shown in Figure 6-3 on page 56.
9. License Manager prompts you to log in to the Harmonic server. See 2.2.2 Using the Licensing Portal.

License Manager communicates with the Harmonic License Database over an Internet connection, and retrieves your license rights. Your firewall must permit access to the Harmonic License database url http://licensegateway.harmonicinc.com.
10. After a successful login, you will see a list of hierarchical information of the Sites to which you have access. Each site displays a list of EID’s. Under each EID you will see a list of feature based licenses, total quantity of licenses and available quantity of licenses.

At the bottom of the page, the operations log shows the licenses that have been returned to the License Database, as shown in Figure 6-7:

- **Action**: None
- **Status Description**: None
- **License Description**: None
- **Device Brand**: None

![Figure 6-7: Returned licenses in operation log](image)

In this example, two licenses were returned and three pending to be applied.

For more information about the reconciliation process, see 6.3 Step 2: Reconciling Licenses on page 56.

11. Click Save to save the licenses to a file.

**NOTE:** It is recommended to save the reconciliation operations log for your records. Reconcile log shows the license description and EID for the licenses that have been returned. For saving instructions, see Saving an operation log: on page 57.

12. Exit the application.
13. Start License Manager on the computer with access to the device network.
14. Choose Reconcile License and create a device list (see 6.2 Step 1: Getting a Device List on page 55.)
15. Click Next to proceed to the Reconcile Licenses with Device and License Database page.
16. Click Load to upload the .lic file. For instructions on how to upload see, 3.3.2 Loading a License List File.

17. As shown in Figure 6-8 licenses are pending to be applied. Click Apply License.

<table>
<thead>
<tr>
<th>Action</th>
<th>Status Description</th>
<th>License Description</th>
<th>Device Bound</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apply License</td>
<td></td>
<td>NSG4K DOCSIS DTI CLIENT LICENSE SINGLE QAM</td>
<td></td>
</tr>
<tr>
<td>Apply License</td>
<td></td>
<td>NSG4K DOCSIS DTI CLIENT LICENSE SINGLE QAM</td>
<td></td>
</tr>
<tr>
<td>Apply License</td>
<td></td>
<td>NSG4K DOCSIS DTI CLIENT LICENSE SINGLE QAM</td>
<td></td>
</tr>
<tr>
<td>Apply License</td>
<td></td>
<td>NSG4K DOCSIS DTI CLIENT LICENSE SINGLE QAM</td>
<td></td>
</tr>
<tr>
<td>Apply License</td>
<td></td>
<td>NSG4K DOCSIS DTI CLIENT LICENSE SINGLE QAM</td>
<td></td>
</tr>
<tr>
<td>Apply License</td>
<td></td>
<td>NSG4K DOCSIS DTI CLIENT LICENSE SINGLE QAM</td>
<td></td>
</tr>
</tbody>
</table>

Figure 6-8: Pending Licenses

18. As shown in Figure 6-9, a green check mark displays next to the licenses.

<table>
<thead>
<tr>
<th>Action</th>
<th>Status Description</th>
<th>License Description</th>
<th>Device Bound</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ Apply License</td>
<td></td>
<td>NSG4K DOCSIS DTI CLIENT LICENSE SINGLE QAM</td>
<td></td>
</tr>
<tr>
<td>✓ Apply License</td>
<td></td>
<td>NSG4K DOCSIS DTI CLIENT LICENSE SINGLE QAM</td>
<td></td>
</tr>
<tr>
<td>✓ Apply License</td>
<td></td>
<td>NSG4K DOCSIS DTI CLIENT LICENSE SINGLE QAM</td>
<td></td>
</tr>
<tr>
<td>✓ Apply License</td>
<td></td>
<td>NSG4K DOCSIS DTI CLIENT LICENSE SINGLE QAM</td>
<td></td>
</tr>
<tr>
<td>✓ Apply License</td>
<td></td>
<td>NSG4K DOCSIS DTI CLIENT LICENSE SINGLE QAM</td>
<td></td>
</tr>
<tr>
<td>✓ Apply License</td>
<td></td>
<td>NSG4K DOCSIS DTI CLIENT LICENSE SINGLE QAM</td>
<td></td>
</tr>
<tr>
<td>✓ Apply License</td>
<td></td>
<td>NSG4K DOCSIS DTI CLIENT LICENSE SINGLE QAM</td>
<td></td>
</tr>
</tbody>
</table>

Figure 6-9: Applied Licenses

Reconciliation is complete.

**TIP:** You should use the reconciliation option often to keep your license records up-to-date with the Harmonic License Database.
Chapter 7
Preferences

This chapter includes the following sections:

- **7.1 Multi-Threading Communication with Devices**, describes how to set the multi-thread value.
- **7.2 Device Connectivity Time-out Value**, describes how to set the time-out value.

### 7.1 Multi-Threading Communication with Devices

License Manager 3.1 supports multi-threaded as well as single-threaded communication with devices by setting a value for the key `RunMultiThread`. The number of threads can be configured by setting a value for the key `MaxThreads`. For additional information and examples of syntax, see [A.2.2 RunMultiThread and MaxThreads](#) on page 67.

Multi-Threading is the default setting and recommended when:

- You are licensing a great number of devices at the same time.
- LM is running on a CPU with at least 1 GB RAM.

In all other cases, single-threaded mode is sufficient.

To modify the thread settings:

1. Click **Preferences** in the left navigation panel. The Preferences window displays as shown in [Figure 7-1](#).

2. Leave the check box in the Device Settings panel as checked. If this check box is unchecked, the system operates in the single-thread mode.

3. Type in the desired number in the text box. The allowed range is 1 to 50. For additional information and examples of syntax, see [A.2.2 RunMultiThread and MaxThreads](#) on page 67.

4. Click **Save** for the setting to take effect.

   To cancel the operation, browse out from the Preferences screen.
   To restore to the factory default values, click **Reset to default**.

### 7.2 Device Connectivity Time-out Value

License Manager 3.1 supports a user-defined time-out period for getting connectivity established with devices on the network, by setting a value for the key `DeviceTimeout`. The `DeviceTimeout` value applies to all devices. The default is 2000ms.
How to choose the right time-out value:

- The License Manager 3.1 default time-out value is optimized for NSG-9K-6G devices. If you do not use the NSG-9K-6G devices, you may get better response times if you lower the time-out value. NSG-9K-6G talks on a secure HTTP protocol that increases the communication time. Another device, such as the NSG-9K, talks on a non-secure HTTP protocol that has a shorter time-out value. Choosing the correct time-out value improves the overall response time in the system.

- If your network has slow or congested traffic, the time-out of 2000 ms may not be enough, in which case a higher time-out value is suggested.

- If you cannot query a device within the defined time-out and the device is present on the network, a higher time-out value is suggested.

To modify the settings:

1. Click Preferences to open the configuration settings window. See Figure 7-1.

2. Type in the desired number in the Device timeout in milliseconds text box. The allowed range is 100 to 3000 ms. For additional information and examples of syntax, see A.2.1 DeviceTimeout on page 66.

3. Click Save for the setting to take effect.

   To cancel the operation, browse out from the Preferences screen.

   To restore to the factory default values, click Reset to default.
Chapter 8
Troubleshooting

This chapter includes the following sections:

- **8.1 Solving Problems** describes troubleshooting that can be performed by a knowledgeable and qualified end user.
- **8.2 Contacting Harmonic Support** gives contact information, including web address, mailing address, and contact phone numbers for Harmonic Inc.

### 8.1 Solving Problems

**No device(s) or not all devices appear in the Get Device List page when performing a query.**

License Manager cannot find, or establish a connection to the device(s) within the allowed time-out period. License Manager does not return an error message when it can’t find a device. It ignores the devices in the query list that it can’t find, and returns only the devices it can find. Try the following:

- LM must establish a connection to a device within a pre-defined time-out period. The time-out period can be configured in the LicenseManager.exe.config file. If the device list doesn’t reflect all the devices you know to be present on the network, you may want to adjust the time-out value, as described in Preferences. If your network has slow or congested traffic, a higher time-out value is suggested.

- LM 3.1 supports both secured (https) and non-secured (http) communication with devices. It will attempt first secured, then non-secured communication. If neither can establish a connection, LM will ignore the device address. Make sure that firewall protections are set to allow communication with the devices, by opening port 80 for NSG-9K devices, and port 443 for NSG-9K-6G devices. If you use both devices, open both ports.

**Error Messages appear when trying to get an Entitlement ID list, Generate License Keys, or Remove License From Server.**

If you cannot connect to the Harmonic License Database, you may see error messages like this:

![Figure 8-1: Error messages from Harmonic License Database](image)

You must have an internet connection and be able to access the url ```http://licensegateway.harmonicinc.com``` to connect to the Harmonic License Database.

To verify your connection:

- Grant any firewall permissions necessary to access ```http://licensegateway.harmonicinc.com```.
- Try to ping ```licensegateway.harmonicinc.com```.
If you can ping licensegateway.harmonicinc.com but still get the errors, there may be some permissions or firewall issues that require further investigation. Contact Harmonic Support.

**A red X appears in the Operations Log tab when trying to Apply or Delete Licenses.**

If the Status Description column says “Unable to send request to Device!”, License Manager is performing a task that requires a LAN connection to your video delivery system.

![Error messages from device network](image)

**Figure 8-2: Error messages from device network**

You must be connected to your device network to Apply Licenses or Delete Licenses. To test the connections to the device, try to ping the device IP address.

If your computer doesn’t connect to both the Internet and your device network, see 3.5 Using Two Computers for Binding Licenses on page 37 and 4.5 Using two computers for unbinding licenses on page 46 for instructions on how to perform these tasks. To review the reconciling process using two computers, see 6.4 Using two computers for reconciling licenses on page 58.

**Authentication failed.**

The login or password entered do not match with the Harmonic License Manager Portal user credentials. You must find out the correct login and password from your system administrator and retry.

**This operation requires LM 3.0. Please install the latest version of License Manager software to continue.**

You may be using an earlier version of the License Manager to retrieve RID information. You must upgrade your software to the current release to continue with the bind operation.

Another possibility that you may get this message is that you may have not been given the new authentication credentials from your administrator. Please contact your administrator for the credentials. If you cannot obtain the information, contact Harmonic Support.

### 8.2 Contacting Harmonic Support

The Harmonic Customer and Technical Support groups are available to help you with any questions or problems you may have regarding Harmonic products.

**For assistance from within the U.S. and Canada, call toll free:**

1.888.MPEGTWO (673.4896)

**For assistance from outside the U.S. and Canada, call:**

1.408.490.6477

The fax number is 408.490.6770.

The email address is techhelp@harmonicinc.com.
The corporate address for Harmonic Inc. is:

Harmonic Inc.
4300 North First St.
San Jose, CA 95134, U.S.A.
Attn: Customer Support

The corporate telephone numbers for Harmonic Inc. are:

Tel. 1.800.788.1330 (from the U.S. and Canada)
Tel. +1.408.542.2500 (outside the U.S. and Canada)
Fax.+1.408.490.6770

The web address for Harmonic Inc. is www.harmonicinc.com.
A.1 Sample LicenseManager.exe.config File

The following is a sample LicenseManager.exe.config file:

```xml
<?xml version="1.0" encoding="utf-8" ?>
<configuration>
  <appSettings>
    <add key="DeviceTimeout" value="2000" />
    <add key="RunMultiThread" value="False" />
    <add key="MaxThreads" value="50" />
    <add key="LegacyMode" value="False" />
  </appSettings>
</configuration>
```

A.2 Config File Settings

The value settings for the keys listed in this section can be modified.

A.2.1 DeviceTimeout

License Manager 3.1 supports a user-defined time-out period for getting connectivity established with devices on the network, by setting a value for the key `DeviceTimeout`. The `DeviceTimeout` value applies to all devices.

**Syntax:**

```xml
<add key="DeviceTimeout" value="2000" />
```

The **value** is in milliseconds. The default is 2000. The range is 100 ms to 3000 ms.

**Description:**

Earlier versions of License Manager used a default time-out value of 600ms for connecting to NSG-9K-6G devices. The newer NSG-9K-6G devices may take longer for connectivity to be established because of an additional security layer, so the default time-out in License Manager 3.1 is 2000 ms.

You may want to lower the time-out value if:

- You only use NSG-9K-6G devices on your network. A default time-out of 2000 ms is probably higher than you need, and can result in slower response times because License Manager will wait 2000 ms before giving up on any device that cannot be found.

You may want to raise the time-out value if:

- Your network has slow or congested traffic.
- The device list doesn’t reflect all the devices you know to be present on the network.
A.2.2 RunMultiThread and MaxThreads

License Manager 3.1 supports multi-threaded as well as single-threaded communication with devices by setting a value for the key RunMultiThread. The number of threads can be configured by setting a value for the key MaxThreads.

**Syntax:**

```xml
<add key="RunMultiThread" value="True" />
```

The value is True for multi-threading mode, False for single-threading mode. The default is True.

```xml
<add key="MaxThreads" value="50" />
```

The value is the maximum number of threads. The default is 50. The range is 1 to 50.

*Suggested settings are:*

- **LAN:** MaxThreads = 20 and DeviceTimeOut = 2000 ms
- **WAN:** MaxThreads = 15 and DeviceTimeOut = 2000 ms

**Description:**

Previous versions of License Manager supported only single-threaded mode, which handled requests to devices (query license, bind license and delete license) in a serial fashion. Each request was sent to a device and License Manager waited for a response before sending the request to the next device.

License Manager 3.1 supports multi-threaded mode, which sends requests to all devices simultaneously on different threads. It relies on the `ThreadPool` technology of .Net Framework to automatically manage all the new threads created.

Multi-Threading is recommended when:

- You are licensing a great number of devices at the same time.
- License Manager is running on a CPU with at least 1 GB RAM.

In all other cases, single-threaded mode is sufficient.

A.2.3 Switch to Legacy Mode

License Manager 3.1 supports operating in legacy mode as version 2.1.1. In this mode, users can continue to use the Harmonic legacy license database.

**Syntax:**

```xml
<add key="LegacyMode" value="False" />
```

The value is False for running in 3.0 mode, True for running in 2.1.1 mode. The default is False.

**Description:**

By operating in the legacy mode, you can take advantage of the improved features offered in version 3.0 and still be able to access the Harmonic legacy license database to manage your licenses.