

KRAMER



INSTALLATION MANUAL

Kramer Network

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Introduction

Download the up-to-date **Kramer Network** installation package from: www.kramerav.com/product/Kramer%20Network, and install the KN-Installation-Wizard-<Version_Number> application file.



You may need to fill-in a short form before downloading **Kramer Network**.

Kramer Network supports uninstall/install/repair/upgrade modes.

The installation package installs the following software:

- Visual C++ Redistributable for Visual Studio 2012.
- Visual C++ Redistributable for Visual Studio 2013.
- WAMP (Apache).
- KDS-EN3_Manager_64.
- Dante API (DAPI).
- DAPI Controller.
- Kramer Network components.
- Kramer Network Administrator Utilities.

Before you begin installing **Kramer Network**, review the installation prerequisites ([Installation Prerequisites](#) on page 2).

Kramer Network Installation Prerequisites and Specifications

This section describes the Kramer Network software installation prerequisites and specifications.

Installation Prerequisites

The following are the Kramer Network prerequisites for installation:

- [Server Hardware Spec](#) on page [2](#).
- [Server OS Language](#) on page [2](#).
- [Server Operation System](#) on page [2](#).
- [Server Firewall Ports](#) on page [3](#).

Server Hardware Spec

The server hardware spec encompasses the following:

For a small system, up to 30 streaming devices and up to 30 controlled devices:

- CPU i5, 8GB RAM, 50GB Disk-space.

For a medium system, up to 100 streaming devices and up to 100 controlled devices:

- CPU i7, 16GB RAM, 50GB Disk-space.

Server OS Language

English

Server Operation System

Kramer Network supports the following standard or virtual server operating systems:

- Windows 10 Pro / Enterprise, 64-bit, fresh install.
- Windows Server 2012, 64-bit.
- Windows Server 2016, 64-bit.
- Windows Server 2019, 64-bit.

For Kramer Network to recognize KDS-EN3 and KDS-DEC3 encoders and decoders, set the UPnP service and the SSDP Discovery service Startup Type to Automatic and verify that the Status of each service is started.

Server Firewall Ports

If you are using a firewall or an anti-virus application on the server make sure that the following ports are opened:

For Dante:

- UDP port 319, 320 PTP (address: 224.0.0.129-132).
- UDP port 5353 mDNS (address: 224.0.0.251).
- UDP port 8700 – 8708 Control and monitoring (address: 224.0.0.230 – 232).

For Dante and KDS-3 auto-discovery:

- UDP port 5353 for the Bonjour/multicast DNS (mDNS) protocol.

For Web Socket/Client:

- TCP Port 9000.

For Kramer Pro AV (Matrices, Scalers, and so on):

- TCP Port 5000.
- UDP Port 50000.

Ports in use for Room Control:

- TCP Port: 4000-5000 (range).

For internal use:

- TCP Port: 3333-3334.



These ports are not included by-default in the firewall rules and may therefore be blocked.

Specifications

This section describes the **Kramer Network** specifications. For information about server requirements, see [Installation Prerequisites](#) on page [2](#).

Clients

- Google Chrome.
- Mozilla Firefox.
- Microsoft Windows 10 Edge.

Network Recommendations

- Enabling scan and auto-detection of devices on LAN or on a single VLAN.
- Availability of L2 IP switching.
- Enabling multicast traffic for streaming.

Concurrent Clients

- Up to 10 concurrent clients (logged-in users).

Pro-AV Kramer Devices

- Kramer Pro-AV devices that support P3K, auto-detection, virtual matrix, monitoring and launch web-interface – practically unlimited.

IP Devices

- IP devices, manually added, launch web-interface – practically unlimited.

Users

- Super User: single.
- Admin level: practically unlimited.
- User level: practically unlimited.

User Levels

- Three built-in levels, with fine-tune option for two of them.

Installing Kramer Network

Kramer Network installation Wizard installs all the software required for running the **Kramer Network** application.



Before installing the program, it is important that you:

- Use the default options to prevent problems during installation.
- Make sure that you have administrator permissions.
- Allow access to all the programs included in this installation on the Windows Security Alert (Firewall).

To install the Kramer Network application:

1. Go to the **Kramer Network** web page and download “KN-Installation-Wizard-<Version_Number>” application file from the DOWNLOADS section (www.kramerav.com/product/Kramer%20Network).
2. Run the “KN-Installation-Wizard-<Version_Number>” application file as administrator. The Kramer Network installation Wizard appears.

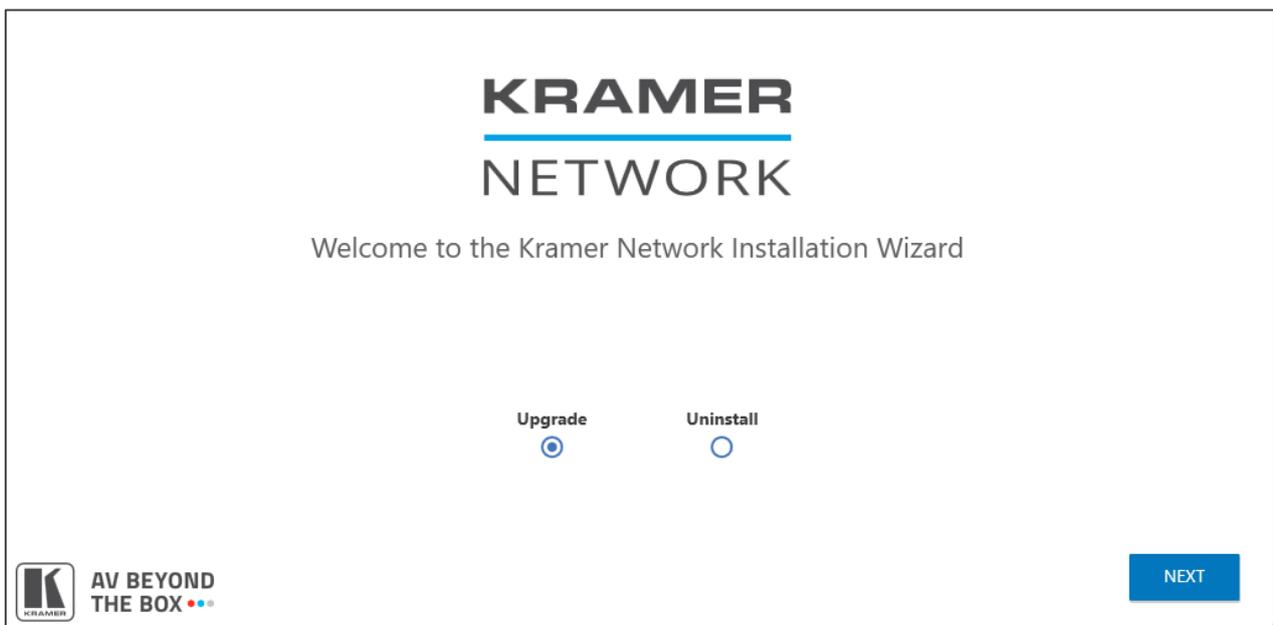


Figure 1: Kramer Network Installation Wizard

3. Check **Upgrade** to upgrade to the latest revision (or **Install** for first time installation).



Click **Uninstall** only if you want to remove the program.

You do not need to uninstall the program before installing the new revision.

4. Click **NEXT**. The end-user license agreement appears (for first-time installation):

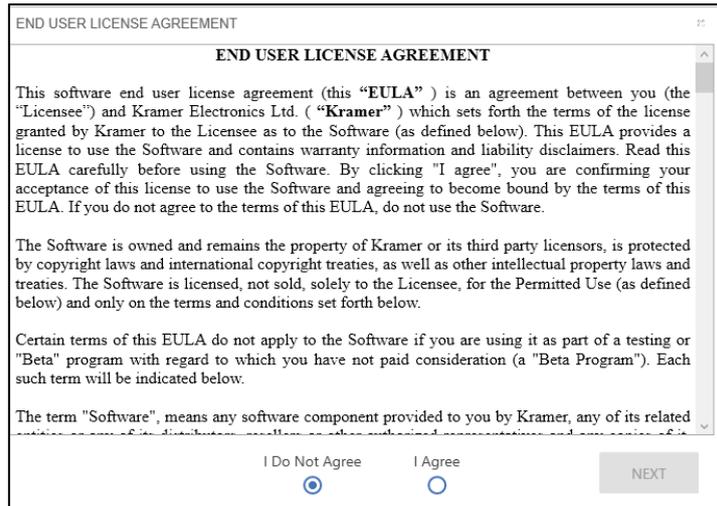


Figure 2: Kramer Installation Wizard – End User License Agreement

5. Check **I Agree** and then click **NEXT**.

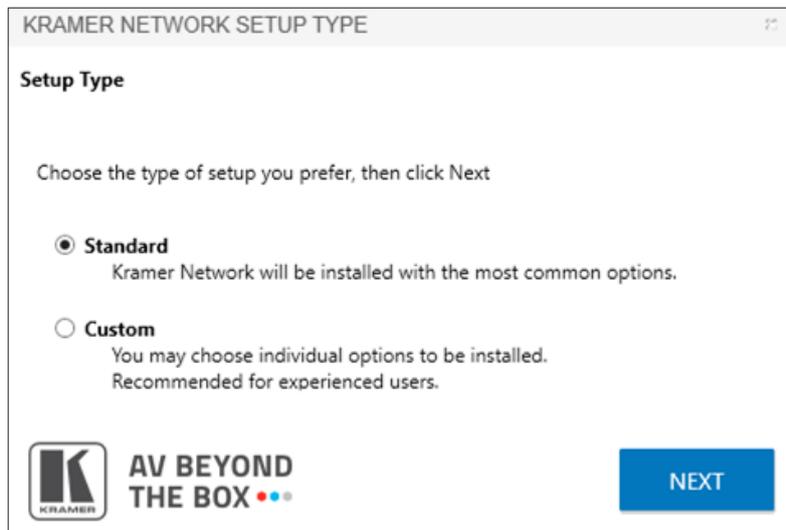


Figure 3: Kramer Installation Wizard – End User License Agreement

6. Chose the type of setup you prefer and then click **NEXT**.

7. Wait for installation wizard initialization



Figure 4: Kramer Network Installation Wizard Initialization

8. Click **NEXT**. The listed programs are installed in sequence.

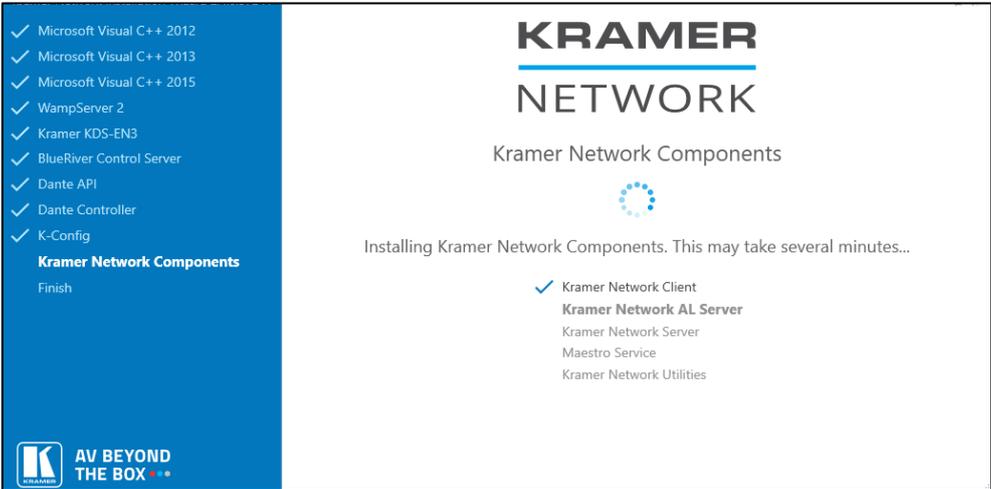


Figure 5: Kramer Installation Wizard - list of installed programs

When complete, the following window appears:



Figure 6: Kramer Installation Wizard – Installation Complete

9. Click **FINISH**. Kramer Network is installed.

Following installation of **Kramer Network** components, **Kramer Network** database is created (or updated) and the following info message appears:

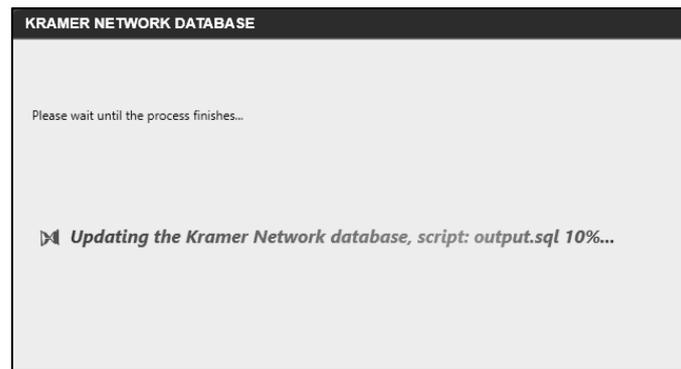


Figure 7: Info Message

When the database is ready, the following info message appears:

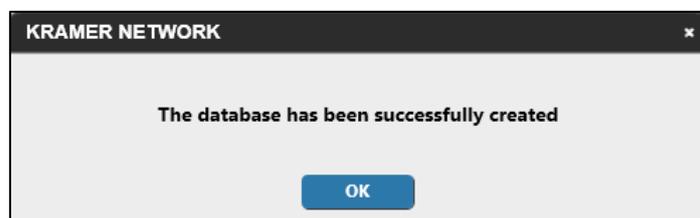


Figure 8: DB Update Complete Message

10. Click **OK**.

11. Wait for **Kramer Network** to finish the updating process.

12. When finished, click **OK**. The **Kramer Network** Administrator Utilities program appears:

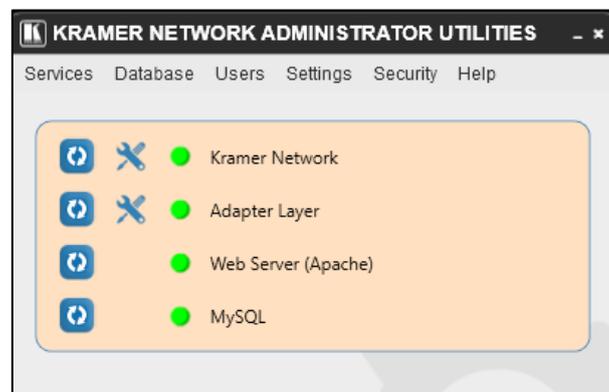


Figure 9: Kramer Network Administrator Utilities Window



Kramer Network Administrator Utilities program is installed to your desktop.

Kramer Network is installed.

For information regarding the Kramer Network Administrator Utilities, see [Kramer Network Administrator Utilities](#) on page 9.

Kramer Network Administrator Utilities

Kramer Network Administrator Utilities can be used by IT Managers to monitor and detect problems in the system. It includes restart buttons for each item, port setting buttons for Kramer Network and the adapter layer, and status indicators for each item (see [Figure 10](#)).

Kramer Network Administrator Utilities enables performing the following actions:

- [Viewing the System Log](#) on page [9](#).
- [Restarting Services](#) on page [11](#).
- [Managing the Database](#) on page [11](#).
- [Resetting the Super User Password](#) on page [13](#).
- [Viewing Logged-in Users](#) on page [13](#).
- [Filtering Repeated Events](#) on page [14](#).
- [Viewing Current Version and Kramer Information](#) on page [14](#).

Viewing the System Log

Use the Services menu to display the system log.

To view system log:

1. Access Kramer Network Administrator Utilities from your desktop.

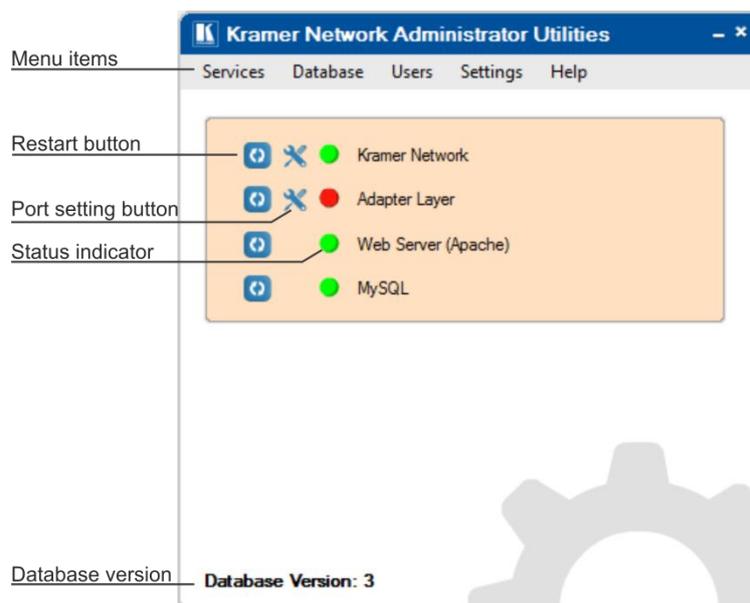


Figure 10: Kramer Network Administrator Utilities

2. Open the **Services** menu.

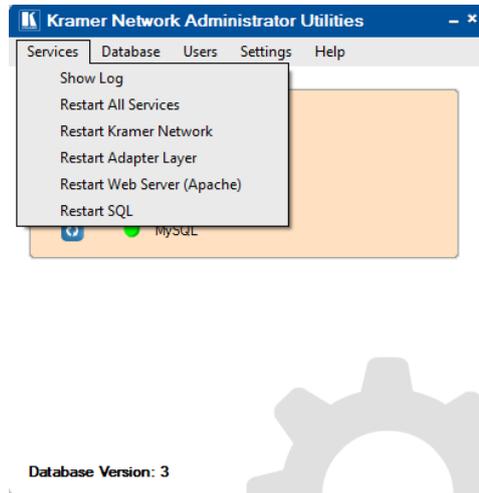


Figure 11: Services Menu

3. Select **Show Log**. Kramer Network log appears.

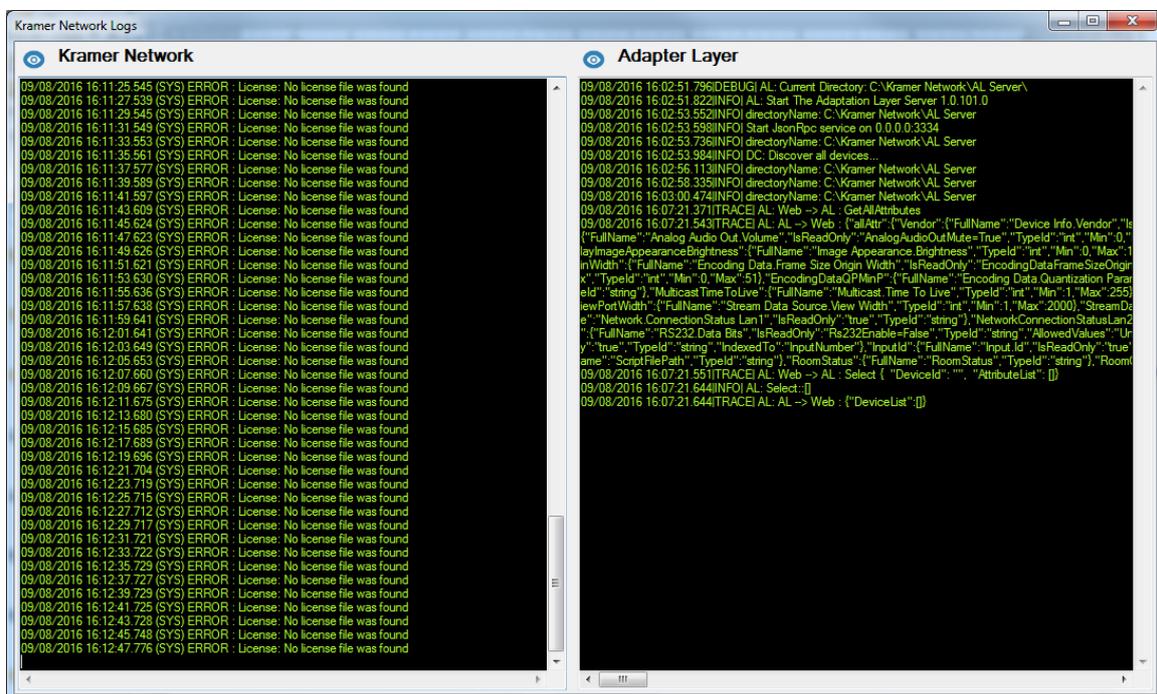


Figure 12: Kramer Network Logs

4. If required, click the eye icon (👁) to save the log and send it to Kramer Support (Tech@kramerav.com) for analysis in case of a problem.

Figure 13 Shows an example of a Log file.

```

alServerLog.txt - Notepad
File Edit Format View Help
15/08/2016 06:32:41.826 [DEBUG] AL: Current Directory: C:\Kramer Network\AL Server\
15/08/2016 06:32:41.841 [INFO] AL: Start The Adaptation Layer Server 1.0.101.0
15/08/2016 06:32:43.935 [INFO] AL: The Adaptation Layer Server cannot be started because the settings.json was not f
15/08/2016 06:33:18.435 [INFO] directoryName: C:\Kramer Network\AL Server
15/08/2016 06:33:18.701 [INFO] start JsonRpc service on 0.0.0.0:3334
15/08/2016 06:33:18.919 [INFO] directoryName: C:\Kramer Network\AL Server
15/08/2016 06:33:23.763 [INFO] directoryName: C:\Kramer Network\AL Server
15/08/2016 06:33:25.873 [INFO] directoryName: C:\Kramer Network\AL Server
15/08/2016 06:33:28.044 [INFO] directoryName: C:\Kramer Network\AL Server
15/08/2016 06:33:35.966 [INFO] DC: Discover all devices...
15/08/2016 06:34:00.772 [TRACE] AL: web --> AL : GetAllAttributes
15/08/2016 06:34:01.804 [TRACE] AL: AL --> web : {"allAttr":{"Vendor":{"FullName":"device Info.Vendor","IsReadOnly":
{"FullName":"Analog Audio Out.Volume","IsReadOnly":"AnalogAudioOutMute=True","TypeId":"int","Min":0,"Max":100},"HdmI
layImageAppearanceBrightness":{"FullName":"Image Appearance.Brightness","TypeId":"int","Min":0,"Max":10000},"HdmiI
inWidth":{"FullName":"Encoding Data.Frame Size Origin Width","IsReadOnly":"EncodingDataFramesizeOriginUseInputFram
x","TypeId":"int","Min":0,"Max":51},"EncodingDataQPMinP":{"FullName":"Encoding Data.Quantization Parameter P-Frame I
eid":"string"},"MulticastTimeToLive":{"FullName":"Multicast.Time To Live","TypeId":"int","Min":1,"Max":255},"Multic
iewPortWidth":{"FullName":"Stream Data Source.View Width","TypeId":"int","Min":1,"Max":2000},"StreamDataViewPortHei
e":{"FullName":"Network.ConnectionStatus Lan1","IsReadOnly":"true","TypeId":"string"},"NetworkConnectionStatusLan2":{"FullName
":{"FullName":"RS232.Data Bits","IsReadOnly":"Rs232Enable=False","TypeId":"string","AllowedValues":"Uninitialized,U
y":"true","TypeId":"string","IndexedTo":"InputNumber"},"InputId":{"FullName":"Input.Id","IsReadOnly":"true","TypeI
ame":"ScriptFilePath","TypeId":"string"},"RoomStatus":{"FullName":"RoomStatus","TypeId":"string"},"RoomCtrlError":{"
15/08/2016 06:34:02.419 [TRACE] AL: web --> AL : Select { "DeviceId": "", "AttributeList": []}
15/08/2016 06:34:03.033 [INFO] AL: Select::[]
15/08/2016 06:34:03.048 [TRACE] AL: AL --> web : {"DeviceList":[]}
15/08/2016 13:37:06.298 [DEBUG] AL: Current Directory: C:\Kramer Network\AL Server\
15/08/2016 13:37:06.345 [INFO] AL: Start The Adaptation Layer Server 1.0.101.0
15/08/2016 13:37:11.048 [INFO] AL: The Adaptation Layer Server cannot be started because the settings.json was not f
15/08/2016 13:37:43.142 [INFO] directoryName: C:\Kramer Network\AL Server
15/08/2016 13:37:43.517 [INFO] directoryName: C:\Kramer Network\AL Server
15/08/2016 13:37:43.517 [INFO] directoryName: C:\Kramer Network\AL Server
15/08/2016 13:37:45.908 [INFO] directoryName: C:\Kramer Network\AL Server
15/08/2016 13:37:47.955 [INFO] directoryName: C:\Kramer Network\AL Server
15/08/2016 13:37:50.017 [INFO] directoryName: C:\Kramer Network\AL Server
15/08/2016 13:37:56.455 [INFO] DC: Discover all devices...
15/08/2016 13:38:13.029 [TRACE] AL: web --> AL : GetAllAttributes
15/08/2016 13:38:15.222 [TRACE] AL: AL --> web : {"allAttr":{"Vendor":{"FullName":"device Info.Vendor","IsReadOnly":
{"FullName":"Analog Audio Out.Volume","IsReadOnly":"AnalogAudioOutMute=True","TypeId":"int","Min":0,"Max":100},"HdmI
layImageAppearanceBrightness":{"FullName":"Image Appearance.Brightness","TypeId":"int","Min":0,"Max":10000},"HdmiI
inWidth":{"FullName":"Encoding Data.Frame Size Origin Width","IsReadOnly":"EncodingDataFramesizeOriginUseInputFram
x","TypeId":"int","Min":0,"Max":51},"EncodingDataQPMinP":{"FullName":"Encoding Data.Quantization Parameter P-Frame I
eid":"string"},"MulticastTimeToLive":{"FullName":"Multicast.Time To Live","TypeId":"int","Min":1,"Max":255},"Multic
iewPortWidth":{"FullName":"Stream Data Source.View Width","TypeId":"int","Min":1,"Max":2000},"StreamDataViewPortHei
e":{"FullName":"Network.ConnectionStatus Lan1","IsReadOnly":"true","TypeId":"string"},"NetworkConnectionStatusLan2":{"FullName
":{"FullName":"RS232.Data Bits","IsReadOnly":"Rs232Enable=False","TypeId":"string","AllowedValues":"Uninitialized,U
y":"true","TypeId":"string","IndexedTo":"InputNumber"},"InputId":{"FullName":"Input.Id","IsReadOnly":"true","TypeI
ame":"ScriptFilePath","TypeId":"string"},"RoomStatus":{"FullName":"RoomStatus","TypeId":"string"},"RoomCtrlError":{"
15/08/2016 13:38:18.797 [TRACE] AL: web --> AL : Select { "DeviceId": "", "AttributeList": []}
15/08/2016 13:38:20.671 [INFO] AL: Select::[]

```

Figure 13: Log File

Log is viewed.

Restarting Services

Use the Services menu to restart all or individual services.

To restart services:

1. Access Kramer Network Administrator Utilities from your desktop (see [Figure 10](#)).
2. Open the Services menu (see [Figure 11](#)).
3. Restart services as desired.

The selected services are restarted.

Managing the Database

The database comprises the entire project. Use the Database menu to backup and restore the database.

To use Administrator Utility Services:

1. Access Kramer Network Administrator Utilities from your desktop (see [Figure 10](#)).

2. Open the Database menu.

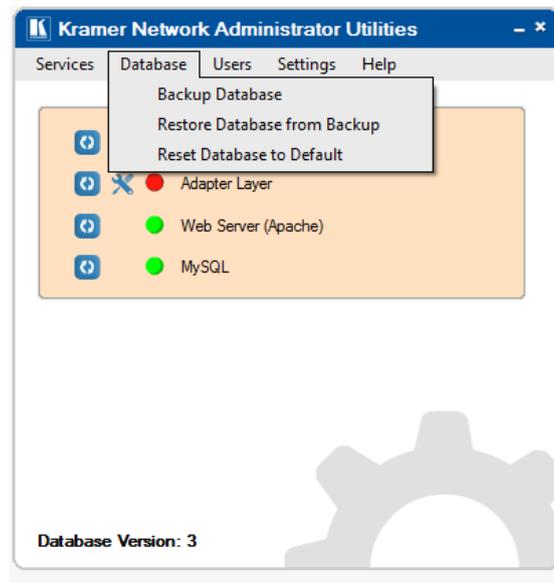


Figure 14: Database Menu

3. Perform any of the following actions:

- Backup the database.
- Restore backed-up database.
- Reset database to its default values.

Before resetting your database, the following warning message appears:

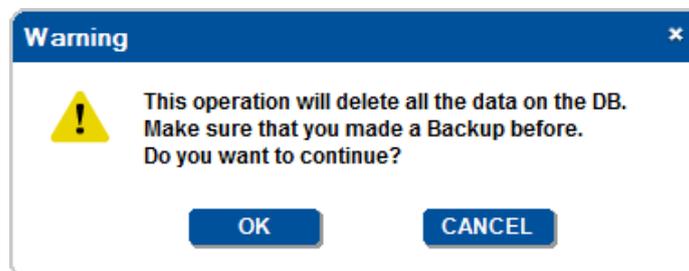


Figure 15: Database Reset Warning

4. Click **OK** to reset the database.

Database is managed.



We recommend that you back up the database file (*.knb) to your computer before upgrading the firmware.



The database backup can be restored only to the same firmware version. You cannot restore the database to a new version of the firmware.

When upgrading to a newer firmware version, the project automatically keeps the database so there is no need to restore the database to the latest version.

When backing up the database, record the database version number (2 in this example, in the lower part of the Utilities window) in case you need to restore from this backup. When restoring the database, the database version must match the firmware version.

If you encounter a problem with the software upgrade procedure, you need to install the previous software version and only then restore the database.

Resetting the Super User Password

The Users menu enables resetting the Super password (the Super password cannot be changed from within **Kramer Network**).

To reset the Super user password:

1. Access Kramer Network Administrator Utilities from your desktop (see [Figure 10](#)).
2. Open the **Users** menu.

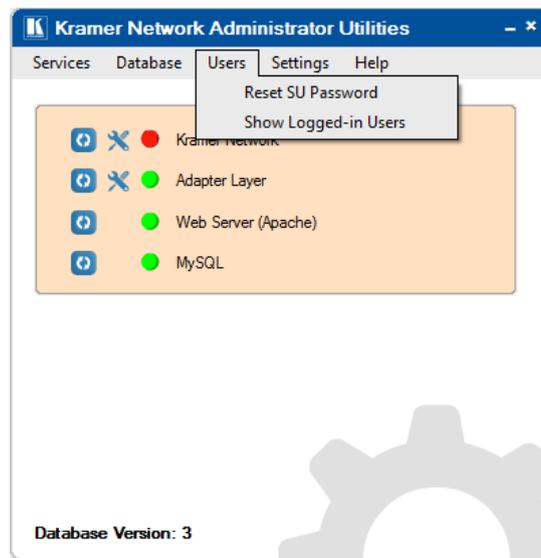


Figure 16: Users Menu

3. Select **Reset SU Password**.
4. Follow the instructions to reset the Super user password.
Super user password is reset.

Viewing Logged-in Users

Use the Users menu to view the current logged-in users.

To view logged-in users:

1. Access Kramer Network Administrator Utilities from your desktop (see [Figure 10](#)).
2. Open the **Users** menu (see [Figure 16](#)).
3. Select **Show Logged-in Users**.
4. View the current logged-in users.

You can view the current users logged in.

Filtering Repeated Events

Use the Settings menu to filter out repeated events.

To filter out repeated events:

1. Access Kramer Network Administrator Utilities from your desktop (see [Figure 10](#)).
2. Open the Settings menu.
3. Select **Filter repeated events**.

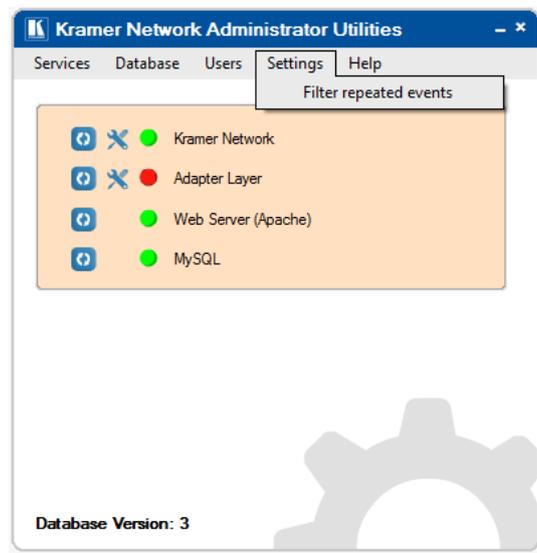


Figure 17: Settings Menu

4. filter out repeated events.

Repeated events are filtered.

Viewing Current Version and Kramer Information

The Help menu shows the Administrator Utilities version and Kramer contact details.

1. Access Kramer Network Administrator Utilities from your desktop (see [Figure 10](#)).
2. Open the **Help** menu.



Figure 18: Help Menu

3. View the required information.

Opening Kramer Network Client

Before opening the **Kramer Network Client**, make sure that the **KN Server** is running.



Note that following a server restart, all the services are automatically started.

To Login to Kramer Network client:

1. Open a web browser and type <http://localhost/> in the URL.
Once the file is uploaded, the client prompts you to login:

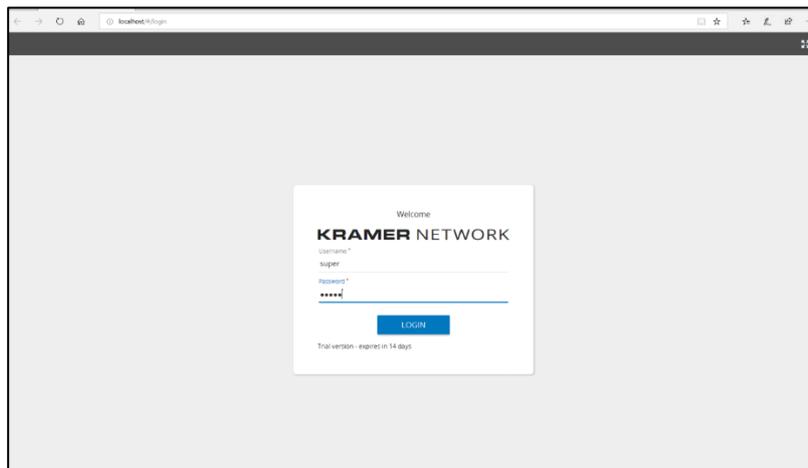


Figure 19: Kramer Network Login

2. Enter the default super user login information:
 - **User:** super
 - **Password:** 12345

After login you are prompted to change the password.

3. Enter the new password.

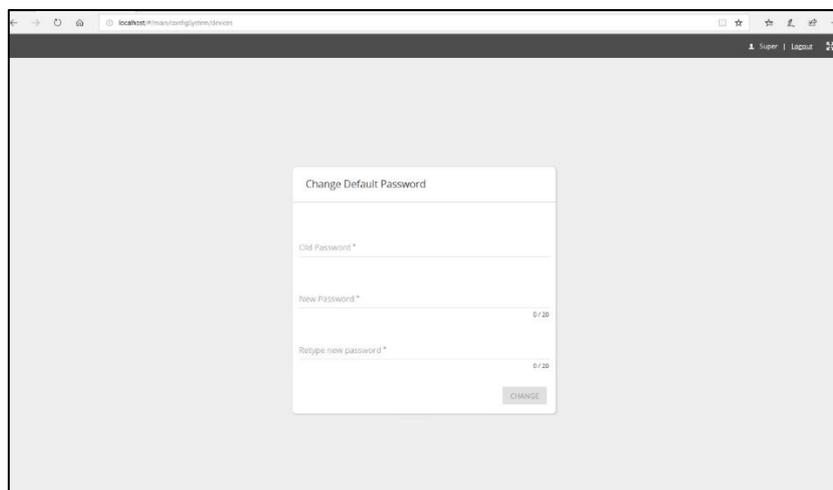


Figure 20: Changing the Default Password

Kramer client is logged in and password is changed.

Purchasing and Activating Licenses

When you first download and run **Kramer Network Client**, you get 14 days of free trial. At the end of the trial period you are requested to purchase a license.

To purchase a license:

1. In **Kramer Network**, click the **About** tab on the top right corner.

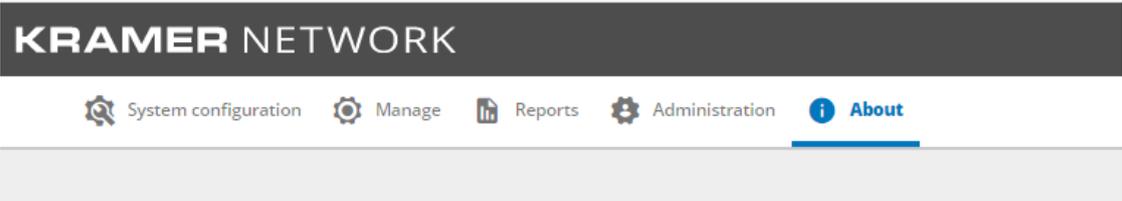


Figure 21: Kramer Network About Tab

The About tab windows appears:

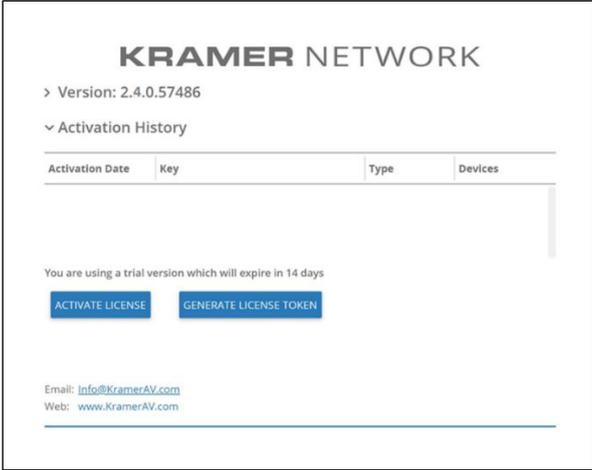


Figure 22: Kramer Network About window - 14 days Free Trial

2. Click **GENERATE LICENSE TOKEN**. The License Token window appears.

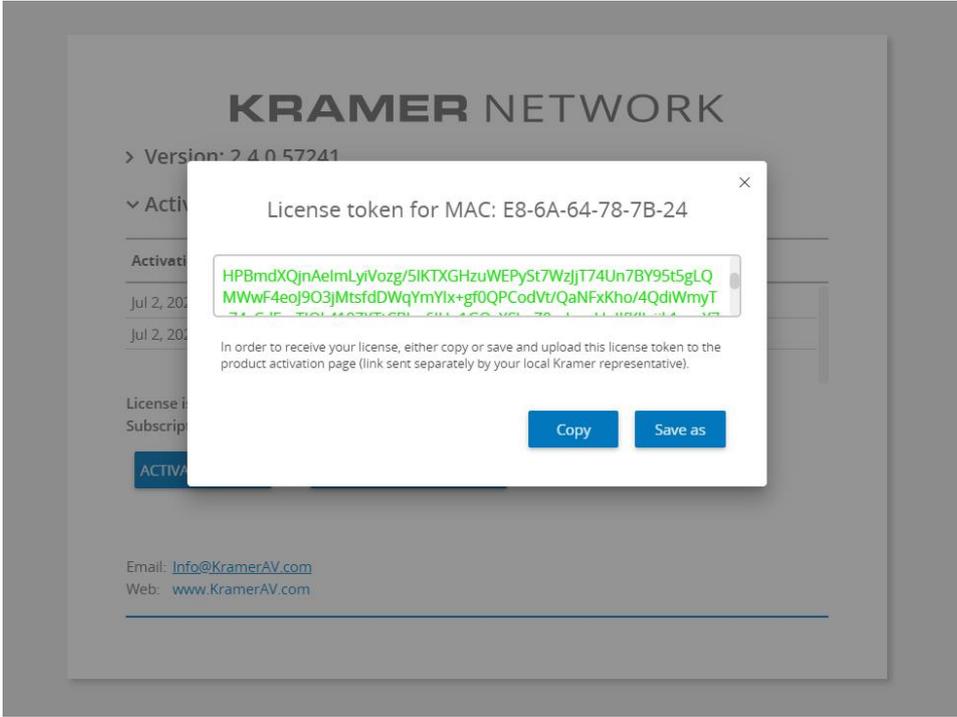


Figure 23: License Token

3. Select any of the following options for acquiring the License Token:
 - **Copy** to copy the license token to the clipboard.
 - **Save as** to save the license token as a file.
4. Send the license token to the dealer/integrator (either by copying it to an email or by sending the saved file).
5. Once you receive a return email with a license key attached., save it in a known location.

To activate the License Key:

1. In **Kramer Network**, click the About tab on the top right corner (see [Figure 21](#)).
2. The About tab windows appears.

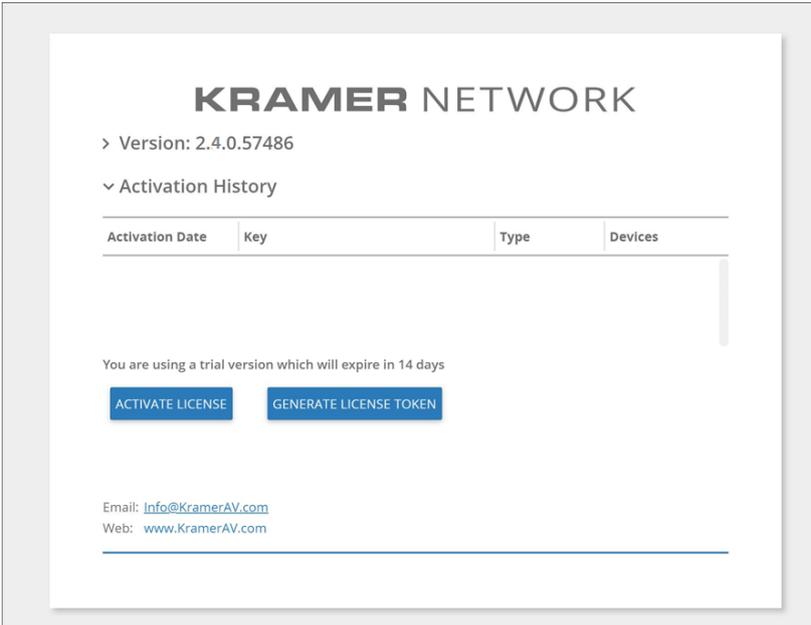


Figure 24: Activating the License Key

- 3. Click **ACTIVATE LICENSE** to upload the saved license key file. The Upload License message appears.

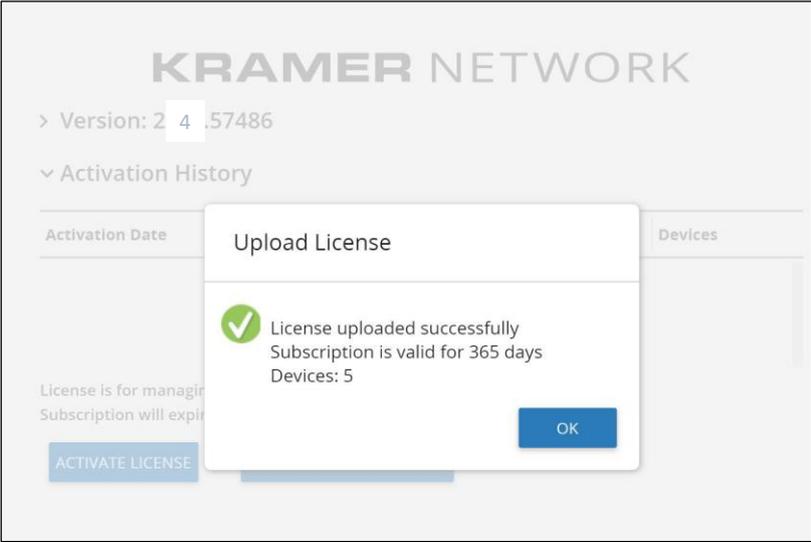


Figure 25: License Activation Message



The specific message displayed depends on your setup and your activated licenses.

- 4. Click **OK**.
- 5. Repeat this procedure to add additional licenses (when needed).
Once you add a license, it appears in the Activation History list in the About tab.

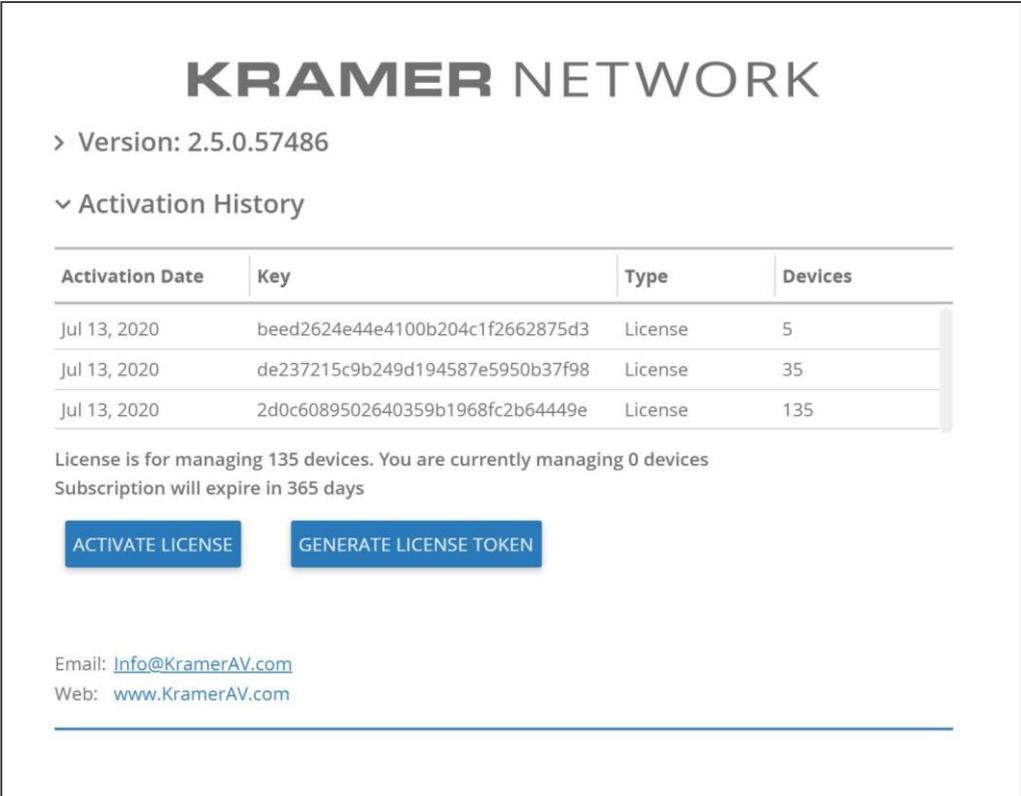


Figure 26: Licenses Activation History

Basic Troubleshooting

Generally, The **Kramer Network** Administrator Utilities program monitors the **Kramer Network** system. When a problem occurs, the specific status indicator turns red.

When an indicator turns red, do the following:

1. Open the **Kramer Network** Administrator Utilities program from your desktop.
2. Click the refresh icon (or refresh via the Services menu).
If the status indicator turns green, the problem is solved. If not continue to step 2.
3. Open the Services menu and select Show Log.
4. Click the eye icon (👁️) to save the log.
5. Contact Kramer Support (Tech@kramerav.com) and send them the KN log.
6. If recommended by Kramer Support, click the port setting button (⚙️) to set the ports.

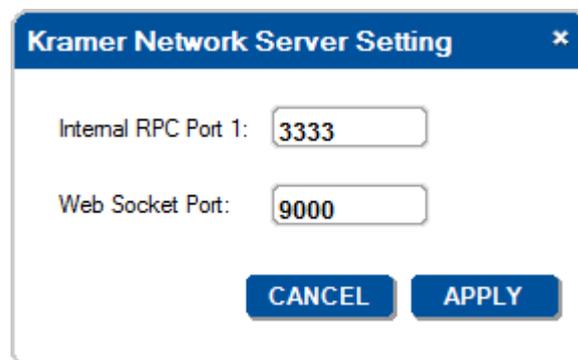


Figure 27: Server Setting Window

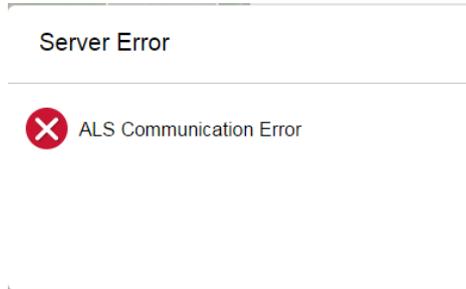


Do not change the port settings unless Kramer Support recommends doing so.

Common Serving Error Messages

This section describes common server error messages and their solutions.

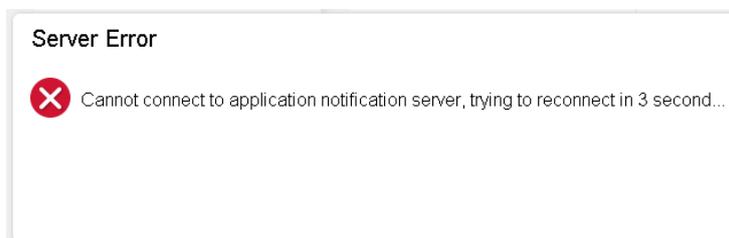
- **Error:** ALS Communication problem



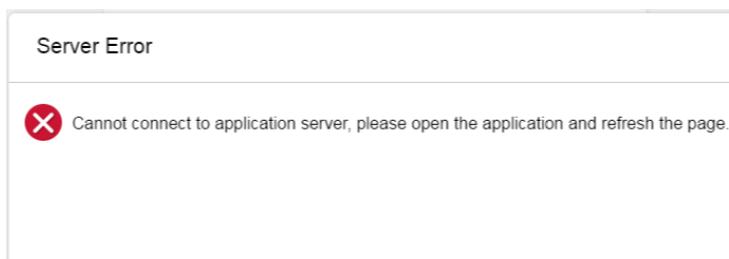
Solution: Go to the Administrator Utilities program and restart the Adapter Layer.



- **Error:** Kramer Network Server is down

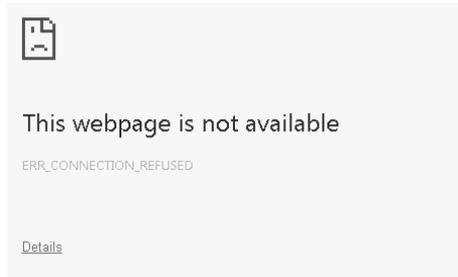


Or



Solution: Go to the Administrator Utilities program and restart **Kramer Network**.

- WAMP Server is down.



Solution: Go to the Administrator Utilities program and restart the Web Server and MySQL.

The warranty obligations of Kramer Electronics Inc. ("Kramer Electronics") for this product are limited to the terms set forth below:

What is Covered

This limited warranty covers defects in materials and workmanship in this product.

What is Not Covered

This limited warranty does not cover any damage, deterioration or malfunction resulting from any alteration, modification, improper or unreasonable use or maintenance, misuse, abuse, accident, neglect, exposure to excess moisture, fire, improper packing and shipping (such claims must be presented to the carrier), lightning, power surges, or other acts of nature. This limited warranty does not cover any damage, deterioration or malfunction resulting from the installation or removal of this product from any installation, any unauthorized tampering with this product, any repairs attempted by anyone unauthorized by Kramer Electronics to make such repairs, or any other cause which does not relate directly to a defect in materials and/or workmanship of this product. This limited warranty does not cover cartons, equipment enclosures, cables or accessories used in conjunction with this product. Without limiting any other exclusion herein, Kramer Electronics does not warrant that the product covered hereby, including, without limitation, the technology and/or integrated circuit(s) included in the product, will not become obsolete or that such items are or will remain compatible with any other product or technology with which the product may be used.

How Long this Coverage Lasts

The standard limited warranty for Kramer products is seven (7) years from the date of original purchase, with the following exceptions:

1. All Kramer VIA hardware products are covered by a standard three (3) year warranty for the VIA hardware and a standard three (3) year warranty for firmware and software updates; all Kramer VIA accessories, adapters, tags, and dongles are covered by a standard one (1) year warranty.
2. Kramer fiber optic cables, adapter-size fiber optic extenders, pluggable optical modules, active cables, cable retractors, ring mounted adapters, portable power chargers, Kramer speakers, and Kramer touch panels are all covered by a standard one (1) year warranty.
3. All Kramer Cobra products, all Kramer Calibre products, all Kramer Minicom digital signage products, all HighSecLabs products, all streaming, and all wireless products are covered by a standard three (3) year warranty.
4. All Sierra Video MultiViewers are covered by a standard five (5) year warranty.
5. Sierra switchers & control panels are covered by a standard seven (7) year warranty (excluding power supplies and fans that are covered for three (3) years).
6. K-Touch software is covered by a standard one (1) year warranty for software updates.
7. All Kramer passive cables are covered by a ten (10) year warranty.

Who is Covered

Only the original purchaser of this product is covered under this limited warranty. This limited warranty is not transferable to subsequent purchasers or owners of this product.

What Kramer Electronics Will Do

Kramer Electronics will, at its sole option, provide one of the following three remedies to whatever extent it shall deem necessary to satisfy a proper claim under this limited warranty:

1. Elect to repair or facilitate the repair of any defective parts within a reasonable period of time, free of any charge for the necessary parts and labor to complete the repair and restore this product to its proper operating condition. Kramer Electronics will also pay the shipping costs necessary to return this product once the repair is complete.
2. Replace this product with a direct replacement or with a similar product deemed by Kramer Electronics to perform substantially the same function as the original product. If a direct or similar replacement product is supplied, the original product's end warranty date remains unchanged and is transferred to the replacement product.
3. Issue a refund of the original purchase price less depreciation to be determined based on the age of the product at the time remedy is sought under this limited warranty.

What Kramer Electronics Will Not Do Under This Limited Warranty

If this product is returned to Kramer Electronics or the authorized dealer from which it was purchased or any other party authorized to repair Kramer Electronics products, this product must be insured during shipment, with the insurance and shipping charges prepaid by you. If this product is returned uninsured, you assume all risks of loss or damage during shipment. Kramer Electronics will not be responsible for any costs related to the removal or re-installation of this product from or into any installation. Kramer Electronics will not be responsible for any costs related to any setting up this product, any adjustment of user controls or any programming required for a specific installation of this product.

How to Obtain a Remedy Under This Limited Warranty

To obtain a remedy under this limited warranty, you must contact either the authorized Kramer Electronics reseller from whom you purchased this product or the Kramer Electronics office nearest you. For a list of authorized Kramer Electronics resellers and/or Kramer Electronics authorized service providers, visit our web site at www.kramerav.com or contact the Kramer Electronics office nearest you.

In order to pursue any remedy under this limited warranty, you must possess an original, dated receipt as proof of purchase from an authorized Kramer Electronics reseller. If this product is returned under this limited warranty, a return authorization number, obtained from Kramer Electronics, will be required (RMA number). You may also be directed to an authorized reseller or a person authorized by Kramer Electronics to repair the product.

If it is decided that this product should be returned directly to Kramer Electronics, this product should be properly packed, preferably in the original carton, for shipping. Cartons not bearing a return authorization number will be refused.

Limitation of Liability

THE MAXIMUM LIABILITY OF KRAMER ELECTRONICS UNDER THIS LIMITED WARRANTY SHALL NOT EXCEED THE ACTUAL PURCHASE PRICE PAID FOR THE PRODUCT. TO THE MAXIMUM EXTENT PERMITTED BY LAW, KRAMER ELECTRONICS IS NOT RESPONSIBLE FOR DIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM ANY BREACH OF WARRANTY OR CONDITION, OR UNDER ANY OTHER LEGAL THEORY. Some countries, districts or states do not allow the exclusion or limitation of relief, special, incidental, consequential or indirect damages, or the limitation of liability to specified amounts, so the above limitations or exclusions may not apply to you.

Exclusive Remedy

TO THE MAXIMUM EXTENT PERMITTED BY LAW, THIS LIMITED WARRANTY AND THE REMEDIES SET FORTH ABOVE ARE EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, REMEDIES AND CONDITIONS, WHETHER ORAL OR WRITTEN, EXPRESS OR IMPLIED. TO THE MAXIMUM EXTENT PERMITTED BY LAW, KRAMER ELECTRONICS SPECIFICALLY DISCLAIMS ANY AND ALL IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. IF KRAMER ELECTRONICS CANNOT LAWFULLY DISCLAIM OR EXCLUDE IMPLIED WARRANTIES UNDER APPLICABLE LAW, THEN ALL IMPLIED WARRANTIES COVERING THIS PRODUCT, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, SHALL APPLY TO THIS PRODUCT AS PROVIDED UNDER APPLICABLE LAW.

IF ANY PRODUCT TO WHICH THIS LIMITED WARRANTY APPLIES IS A "CONSUMER PRODUCT" UNDER THE MAGNUSON-MOSS WARRANTY ACT (15 U.S.C.A. §2301, ET SEQ.) OR OTHER APPLICABLE LAW, THE FOREGOING DISCLAIMER OF IMPLIED WARRANTIES SHALL NOT APPLY TO YOU, AND ALL IMPLIED WARRANTIES ON THIS PRODUCT, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR THE PARTICULAR PURPOSE, SHALL APPLY AS PROVIDED UNDER APPLICABLE LAW.

Other Conditions

This limited warranty gives you specific legal rights, and you may have other rights which vary from country to country or state to state.

This limited warranty is void if (i) the label bearing the serial number of this product has been removed or defaced, (ii) the product is not distributed by Kramer Electronics or (iii) this product is not purchased from an authorized Kramer Electronics reseller. If you are unsure whether a reseller is an authorized Kramer Electronics reseller, visit our web site at www.kramerav.com or contact a Kramer Electronics office from the list at the end of this document.

Your rights under this limited warranty are not diminished if you do not complete and return the product registration form or complete and submit the online product registration form. Kramer Electronics thanks you for purchasing a Kramer Electronics product. We hope it will give you years of satisfaction.



P/N: 2900-300571



Rev: 7



SAFETY WARNING

Disconnect the unit from the power supply before opening and servicing

For the latest information on our products and a list of Kramer distributors, visit our website where updates to this user manual may be found.

We welcome your questions, comments, and feedback.

All brand names, product names, and trademarks are the property of their respective owners.