



USER MANUAL

MODEL:

**KC-Virtual Brain1
Kramer Control Manager**



Introduction

Welcome to Kramer Electronics! Since 1981, Kramer Electronics has been providing a world of unique, creative, and affordable solutions to the vast range of problems that confront the video, audio, presentation, and broadcasting professional on a daily basis. In recent years, we have redesigned and upgraded most of our line, making the best even better!

Getting Started

Congratulations on purchasing your Kramer **KC-Virtual Brain1**.

We recommend that you:

- Unpack the equipment carefully and save the original box and packaging materials for possible future shipment.
- Review the contents of this user manual.



Go to [http://www.kramerav.com/downloads/KC-Virtual Brain1](http://www.kramerav.com/downloads/KC-Virtual%20Brain1) to check for up-to-date user manuals, application programs, and to check if firmware upgrades are available (where appropriate).

Achieving Best Performance

- Use only good quality connection cables (we recommend Kramer high-performance, high-resolution cables) to avoid interference, deterioration in signal quality due to poor matching, and elevated noise levels (often associated with low quality cables).
- Do not secure the cables in tight bundles or roll the slack into tight coils.
- Avoid interference from neighboring electrical appliances that may adversely influence signal quality.
- Position your Kramer **KC-Virtual Brain1** away from moisture, excessive sunlight and dust.



- This equipment is to be used only inside a building. It may only be connected to other equipment that is installed inside a building.

Safety Instructions

Caution:



- This equipment is to be used only inside a building. It may only be connected to other equipment that is installed inside a building.
- For products with relay terminals and GPIO ports, please refer to the permitted rating for an external connection, located next to the terminal or in the User Manual.
- There are no operator serviceable parts inside the unit.

Warning:

- Use only the power cord that is supplied with the unit.
- Disconnect the power and unplug the unit from the wall before installing.
- Do not open the unit. High voltages can cause electrical shock! Servicing by qualified personnel only.
- To ensure continuous risk protection, replace fuses only according to the rating specified on the product label which is located on the bottom of the unit.

Recycling Kramer Products

The Waste Electrical and Electronic Equipment (WEEE) Directive 2002/96/EC aims to reduce the amount of WEEE sent for disposal to landfill or incineration by requiring it to be collected and recycled. To comply with the WEEE Directive, Kramer Electronics has made arrangements with the European Advanced Recycling Network (EARN) and will cover any costs of treatment, recycling and recovery of waste Kramer Electronics branded equipment on arrival at the EARN facility. For details of Kramer's recycling arrangements in your particular country go to our recycling pages at <https://www.kramerav.com/esg/responsible-use-of-materials/>.

Overview

KC-Virtual Brain1 is a hardware platform with 5 instances of Kramer BRAINware software already installed on the device. KC-Virtual Brain is designed to maximize the features and benefits of Kramer BRAINware for controlling up to 5 standard spaces (e.g. a standard space could include a scaler, monitor, lighting system, touch panel and keypad).

Kramer BRAINware is an enterprise-class, revolutionary, user-friendly, software application that enables you to execute all your room control actions straight from a computer without installing a physical Brain between the user interface and the controlled devices. Using the power of Kramer Control cloud-based control & space management platform, Kramer BRAINware enables you to operate multiple devices over Ethernet such as scalers, video displays, audio amplifiers, Blu-ray players, sensors, screens, shades, door locks, and lights.

Designing a system was never easier, with Kramer Control's intuitive drag & drop Builder. Install, configure and modify your control system without any prior knowledge in programming.

Key Features

- **Simplified AV Installation** — Control up to 5 rooms without installing a physical Brain.
- **Scalable to Your Installation** — Supports controlling up to 5 standard spaces.
- **Format Conversion** — Use Kramer FC family of control format converters to enable controlling almost any device.
- **Fully Customizable UI** — Using Kramer Control, easily personalize your control interface any way you like.
- **Space Controller** — Controls any AV device with its corresponding logic.
- **Simple Configuration** — Install and start using the platform in minutes with easy configuration.

Typical Applications

- Fully customizable UI.
- Replaces physical Brains.
- Enables controlling almost any device.
- Scalable & flexible control.
- Simple configuration.

Defining KC-Virtual Brain1

This section defines **KC-Virtual Brain1**.

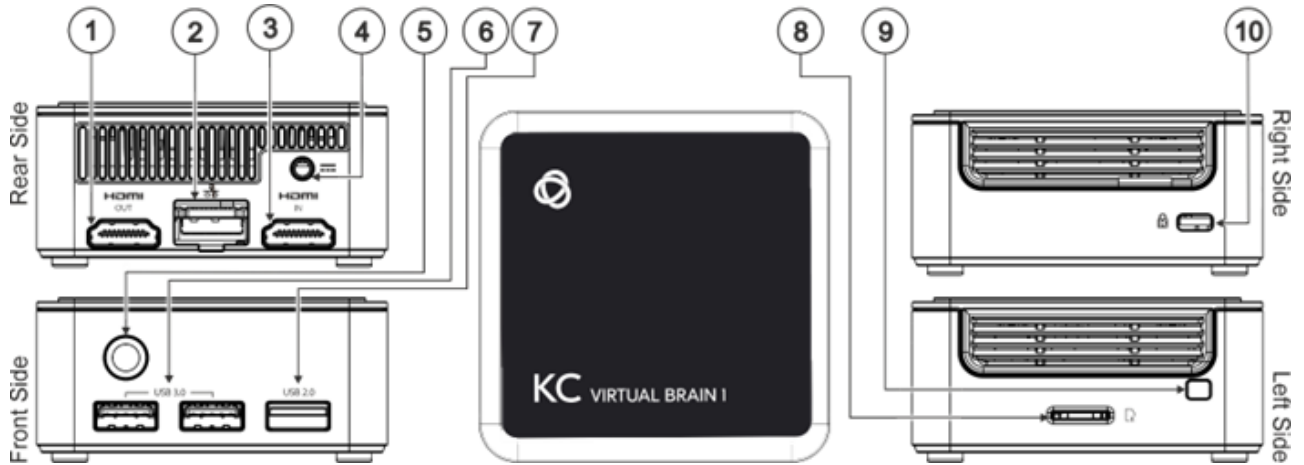


Figure 1: KC-Virtual Brain1 Front

#	Feature	Function
1	HDMI OUT Connector	Connect to an HDMI sink.
2	RJ-45 Port	Connect to a LAN (default mode).
3	HDMI IN Connector	Connect to an HDMI source.
4	Power Connector	Connect to the 12V DC power supply.
5	Power Button with LED	Press to power ON or turn OFF the device.
6	USB 3.0 Connectors (x2)	Connect to USB devices, for example, a keyboard and a mouse.
7	USB 2.0 Connector	Connect to a USB device, for example, a keyboard or mouse.
8	Micro SD Card Slot	Not in use.
9	N/A	
10	Lock Anchor	Use to lock the device to the desk.

Mounting KC-Virtual Brain1

This section provides instructions for mounting **KC-Virtual Brain1**. Before installing, verify that the environment is within the recommended range:



- Operation temperature – 0° to 40°C (32 to 104°F).
- Storage temperature – -40° to +70°C (-40 to +158°F).
- Humidity – 10% to 90%, RHL non-condensing.



Caution:

- Mount **KC-Virtual Brain1** before connecting any cables or power.

Warning:



- Ensure that the environment (e.g., maximum ambient temperature & air flow) is compatible for the device.
- Avoid uneven mechanical loading.
- Appropriate consideration of equipment nameplate ratings should be used for avoiding overloading of the circuits.
- Reliable earthing of rack-mounted equipment should be maintained.

To mount KC-Virtual Brain1 on a rack:

Mount the unit in a rack using the recommended rack adapter (see [http://www.kramerav.com/product/KC-Virtual Brain1](http://www.kramerav.com/product/KC-Virtual%20Brain1)).

You can also install KC-Virtual Brain1 using the following method:

- Place the device on a flat surface.

Connecting KC-Virtual Brain1

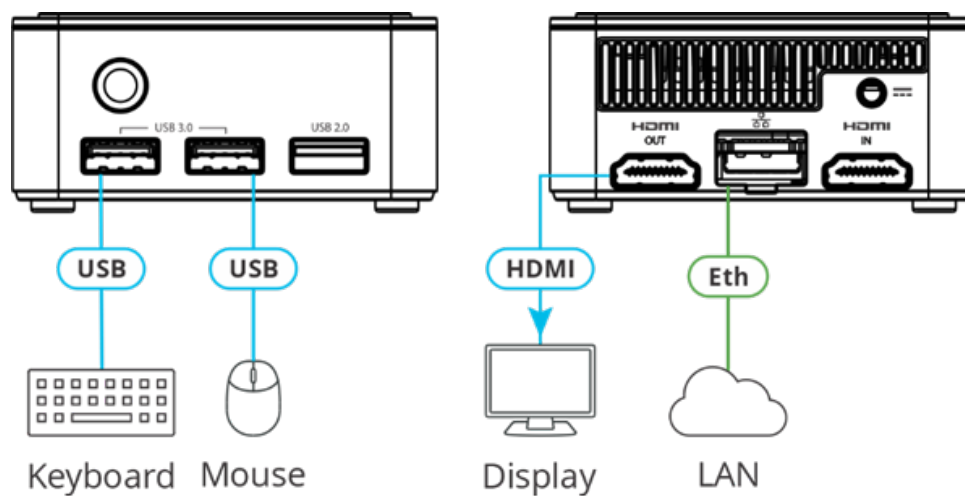


Always switch off the power to each device before connecting it to your **KC-Virtual Brain1**. After connecting your **KC-Virtual Brain1**, connect its power and then switch on the power to each device.

Connecting Device



For illustration purposes, the diagram shows connections for **KC-Virtual Brain1**, except for the HDMI IN connector.



To connect the **KC-Virtual Brain1** as illustrated above (numbers in brackets refer to the diagram in [Defining KC-Virtual Brain1](#) on page 5):

1. Connect a Local Area Network (LAN) cable to the LAN RJ-45 Connector (2) for connection to your network.
2. **KC-Virtual Brain1** can be controlled from a browser connected to the same network. Optional: To control the Brain from the local display, connect an HDMI display to the HDMI OUT Connector (5) and a keyboard and mouse to the USB Connectors (5) and (6).



When a display is connected to the **KC-Virtual Brain1**, the device's IP address is displayed at the bottom of the screen.

3. Connect the 12V DC power adapter to the Power Connector (4) and plug it into the mains electricity.



Do not turn the device on before connecting the LAN port to the network.

KC-Virtual Brain1 is connected.

Essential First Steps

Do the following after connecting your **KC-Virtual Brain1** for the first time:

1. Log into the Management pages: See [Logging into the Management pages](#).
2. Change the password: See [Changing the password](#).
3. Set the timezone and date/time: See [Setting the time](#).
4. Initialize the Services. See [Initalizing the Services](#).
5. (Optional) Check for updates. See [Checking for updates](#).
6. Provision the Brains. See [Provisioning the Brains](#).
7. (Optional) Activate Auto-update. See [Activating Auto-Update](#).
8. (Optional) Activate Kramer Remote Support. See [activating Kramer Remote Support](#).

Logging in to the Management Pages

Use the Management Pages to monitor and configure your **KC-Virtual Brain1**.

There are two ways to access the Management pages:

1. **Locally**, by connecting a mouse, keyboard and display.
2. **Remotely**, in a browser connected to the same network.

To log in locally:

1. Connect a mouse, keyboard and screen to the **KC-Virtual Brain1**.
2. Enter the username and password (default kramer/kramer) on the display connected to the **KC-Virtual Brain1**.

To log in remotely:

1. Connect your computer to the same network as the **KC-Virtual Brain1**.
2. Open a Web browser and go to the IP address of your **KC-Virtual Brain1** unit.

The login page appears.

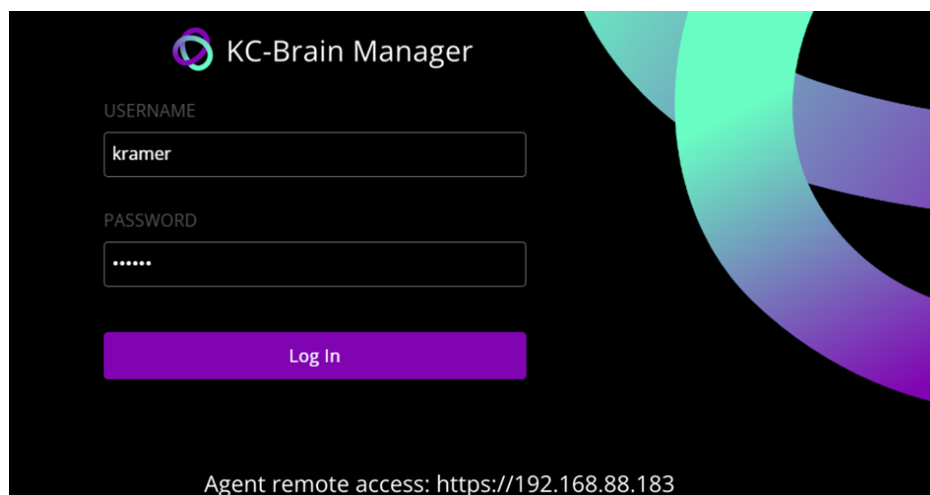


Figure 2: Brain login page

To identify the IP address of **KC-Virtual Brain1**:

- By default, the IP address is allocated by the network DHCP. Connect a screen to the device: The IP address is shown below the login screen. Alternatively, ask your system administrator or perform a network scan.
- If no DHCP is available, the device will seek to obtain IP 192.168.1.39.



The device checks for a DHCP with every reboot.

3. Enter the username and password (the default is kramer/kramer).

After logging in, the Home page opens with an overview of the device status.

Changing the Password

The default log in details for **KC-Virtual Brain1** Management pages is user “kramer” and password “kramer”. Change this password as soon as possible.

1. Log in to the **KC-Virtual Brain1**.
2. Navigate to **Settings** and open the **Security tab**.
3. Enter a new password: The Save button appears at bottom right after the details are entered.
4. **KC-Virtual Brain1** uses an SSL certificate generated by Kramer.
For added security, ask your network manager to provide a custom SSL certificate and key which you can upload to the device.

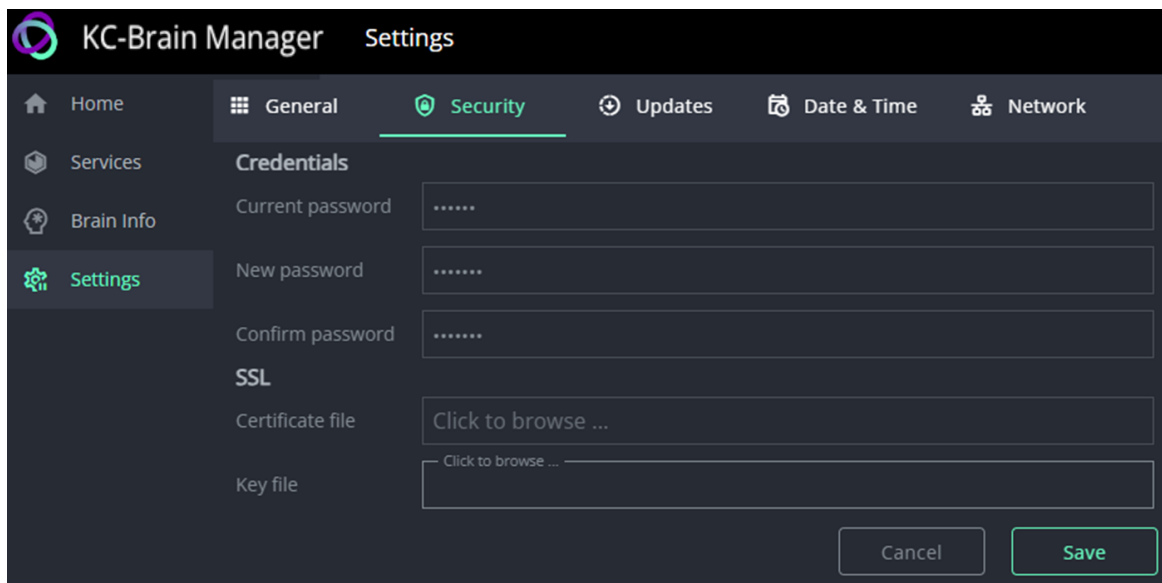


Figure 3: The Settings > Security page.

Setting the time




Accurate time shared by all devices is vital to successful network communications.

Navigate to **Settings** and open the **Time & Date** tab.

1. Set the Time zone.

To sync device time and date from a network time server:

2. Set **Time Server (NTP)**, to On (this disables manual time and date entry).
3. Enter the Time Server Address IP.
4. Click the refresh arrows  to check that the server is available.
5. Click SAVE (button is enabled after a change is made).

The device date and time are synchronized to the server address entered.

6. If there is no NTP server on the network, make sure Time Server NTP is off and enter the date and time manually.

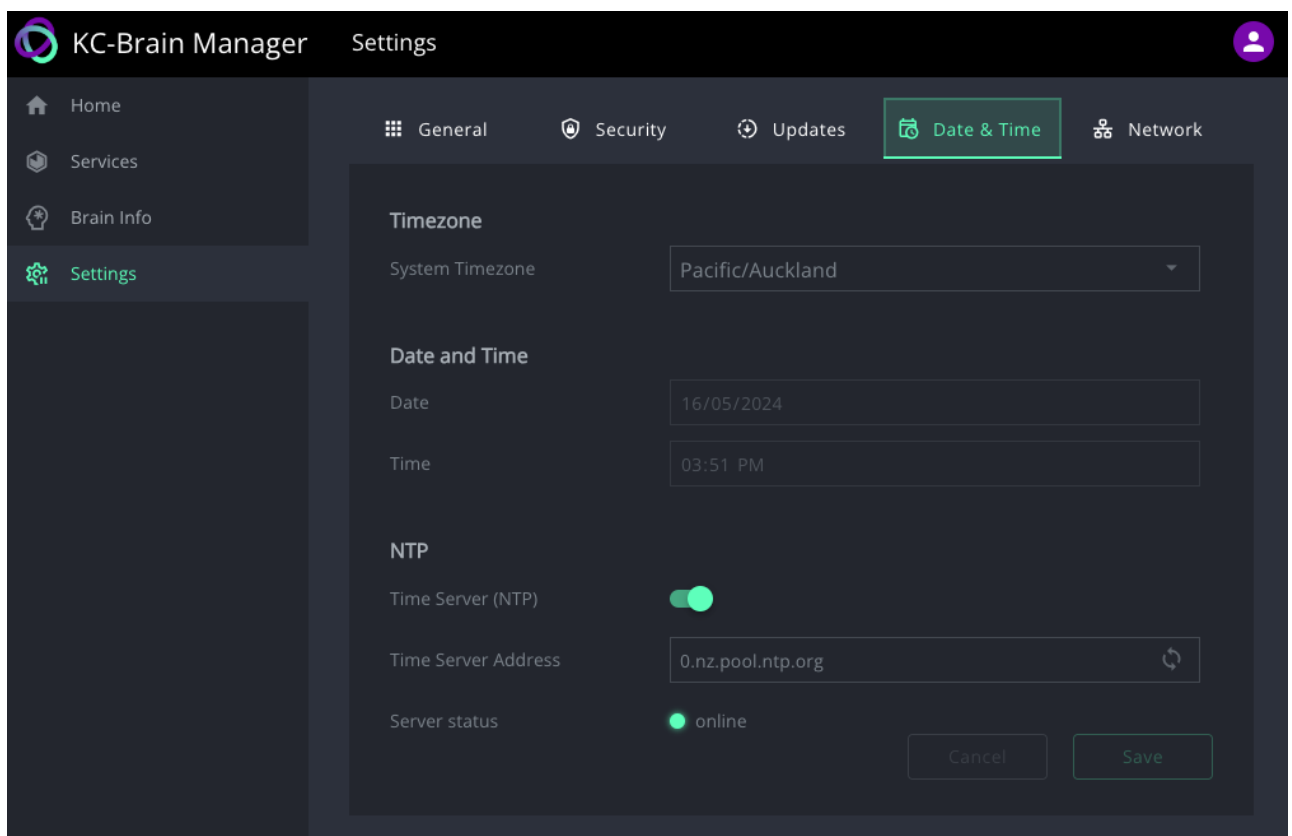


Figure 4: The Settings > Date & Time page.

Initializing the Services

Kramer Brain run inside a dedicated service. KC-Virtual Brain1 supports a single running service. The Service instance is a Docker software container (a virtual computer) capable of running a Kramer Control Brain. The service is installed at once.

When you first run KC-Virtual Brain1, the message “Missing required service” will be shown on the screen until you initialize the service.

To initialize the missing Service (Brains):

1. Navigate to the **Services** option in the left menu. The Services screen opens.
2. If the Service has not been installed, the Services page will show an **Install** button at the top right of the screen (in green).

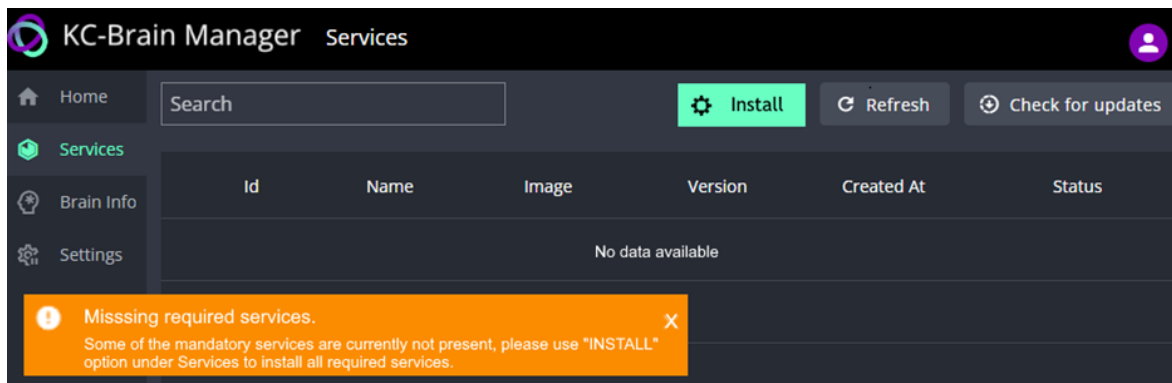


Figure 5: The Services page before installation of the service.

3. Click **Install** and the system will install and activate the Service. If connected to the Internet, **KC-Virtual Brain1** will download the latest Kramer Control version from the Kramer AWS ENV (Amazon Web Services Environment) as part of the provisioning process. If not connected to the internet, **KC-Virtual Brain1** will run the factory installed version of Kramer Control.

The **Services** page will show the service running after the install.

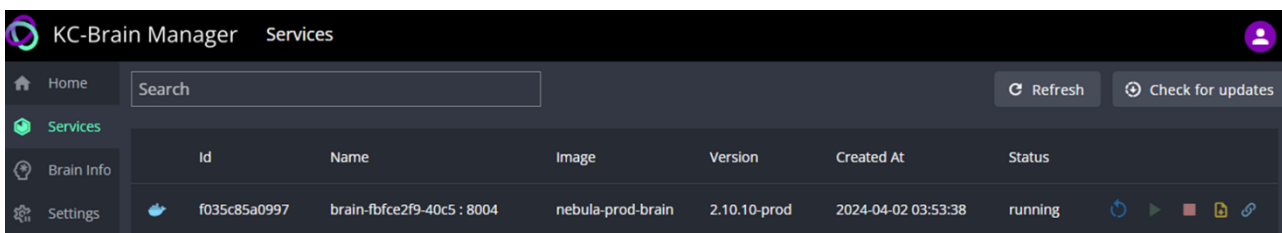



Figure 6: The Services page with services installed.

 KC-Virtual Brain1 is shipped with a license installed and the Service is configured to ensure that during initialization the license is automatically activated.

Checking for updates

After the service is installed (see the previous section), it is possible to check for updates.

1. (Optional) Click **Check for updates** (top right of screen).
2. If the system finds updates, an **Upgrade all** button (not shown) will appear next to Check for updates and an **Upgrade** button will appear at the end of each individual service's line in the display.
3. Click **Upgrade all** to implement the upgrade on all services or click **Upgrade** to limit it to an individual service.

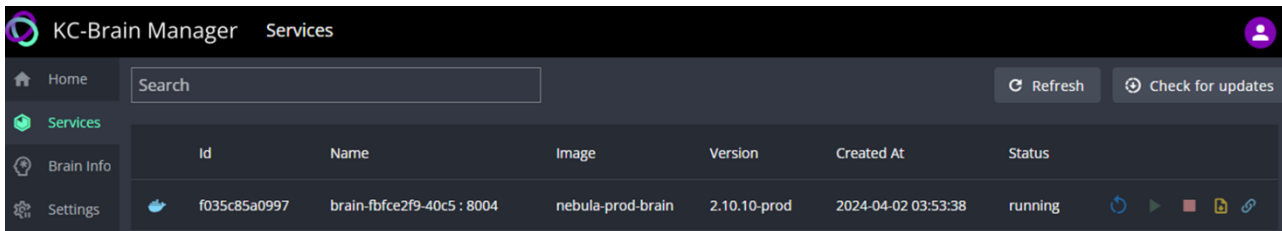


Figure 7: The Services page with the service installed.

Provisioning the Brains

Brains must be provisioned before they can control a meeting space touch panel or management device. Each Brain controls a single Kramer Control instance (and one touch panel) – the Kramer Control instance to which it was provisioned. Kramer Control instances must be unprovisioned before they can be connected to another Brain.

Provisioning a Brain – Securely connects the Brain to a single Kramer Control activation (such as a touch panel). No other Brain can be connected until it is unprovisioned.

Unprovisioning a Brain – Ends the connection between the Brain and the Kramer Control activation, so that a different Brain can be connected.

	Brain Online	Brain Offline
Provisioning	Get a code from the Kramer Control Manager and enter it in the Brain.	Download a “provisioning file” from the Kramer Control Manager and upload it to the Brain.
Unprovisioning (Brain provisioned online).	Unprovision in the Kramer Control Manager. The Brain is unprovisioned automatically.	Unprovision in the Kramer Control Manager. The Brain remains provisioned until it connects to the Internet.
Unprovisioning (Brain provisioned offline)	Get a code from the Kramer Control Manager and enter it in the Brain.	Get a code from the Kramer Control Manager and enter it in the Brain.

To provision one of the Brains:

1. Get an online provisioning code or an offline provisioning file from the **Kramer Control** portal for the Brain (meeting space or room) you are connecting.
2. Navigate to **Brain Info** in the left menu, the available Brain Services are listed (see the image below).
3. Select the Brain service you want to provision: If running, the Brain ID turns green and the **General tab** opens, showing **Brain Information**, including the Brain State, which will be Unprovisioned and will indicate if the Brain is online (it will be green if online, red if offline).

The **Brain State** field is green if the Brain is already provisioned and red if it is not.

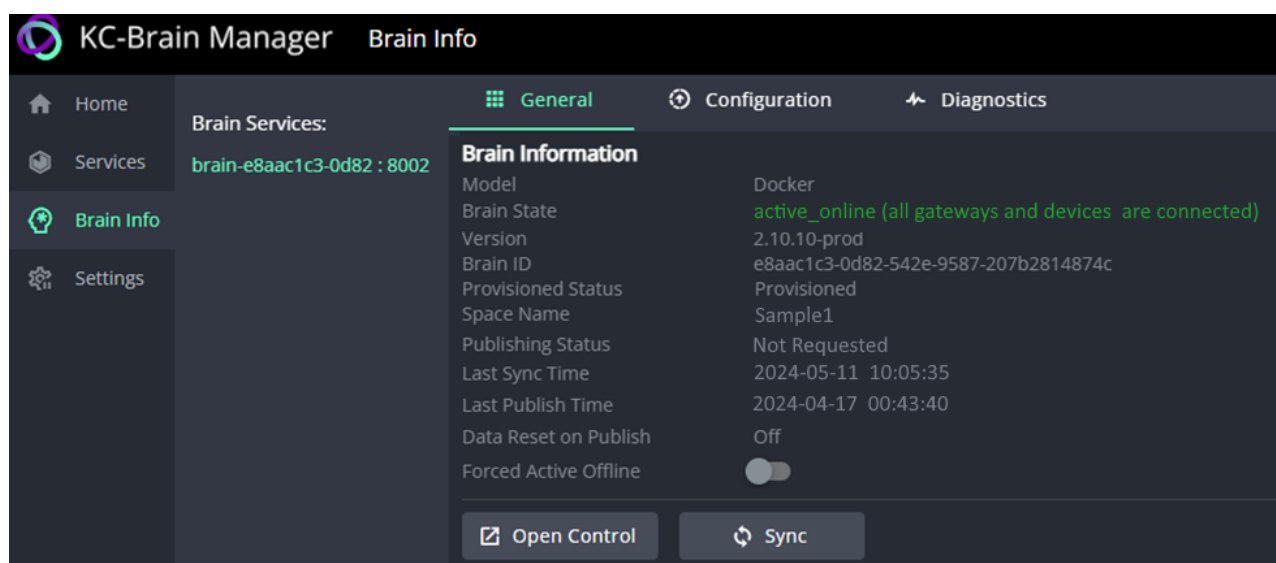


Figure 8: The Brain Info page's General tab

4. Select the **Configuration tab** and upload the provisioning file you downloaded from Kramer Control (if the Brain is offline) or enter the Kramer Control code if it is online.

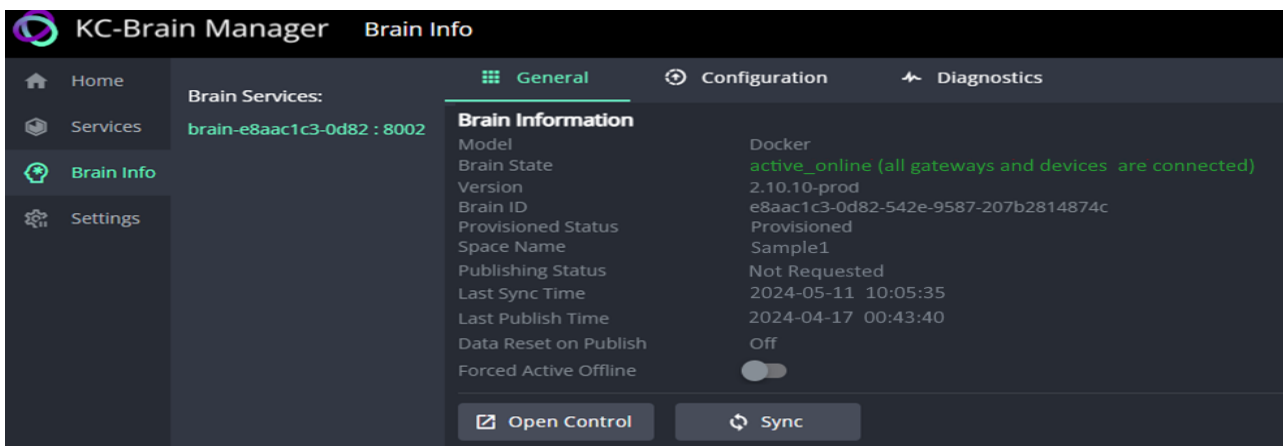



Figure 9: The Brain Info page's Configuration tab

5. After a provisioning file's details are entered, the **Save** button is enabled.

 Select the **Diagnostics tab** to view the live logs and events for the Brain.

6. After the Brain is provisioned, select the **General tab** and then click **Open Control to connect with Kramer Control**.

Activating Auto-Update

Auto-update performs an automated daily check for new versions of the Kramer Control agent and/or services. When a new version is available, Auto-Update downloads and installs the package.

1. Navigate to **Settings** and select the **Updates tab**.
2. Slide the **Kramer Software Updates** slider to the right, it turns green.
3. You can also use this screen to manually upload update packages:
 - **Agent Package** – An update package for the Docker Services (that run the Kramer Control Brain).
 - **Kramer Control Package** – An offline update for the Kramer Control Brain (that runs inside a Docker Service).

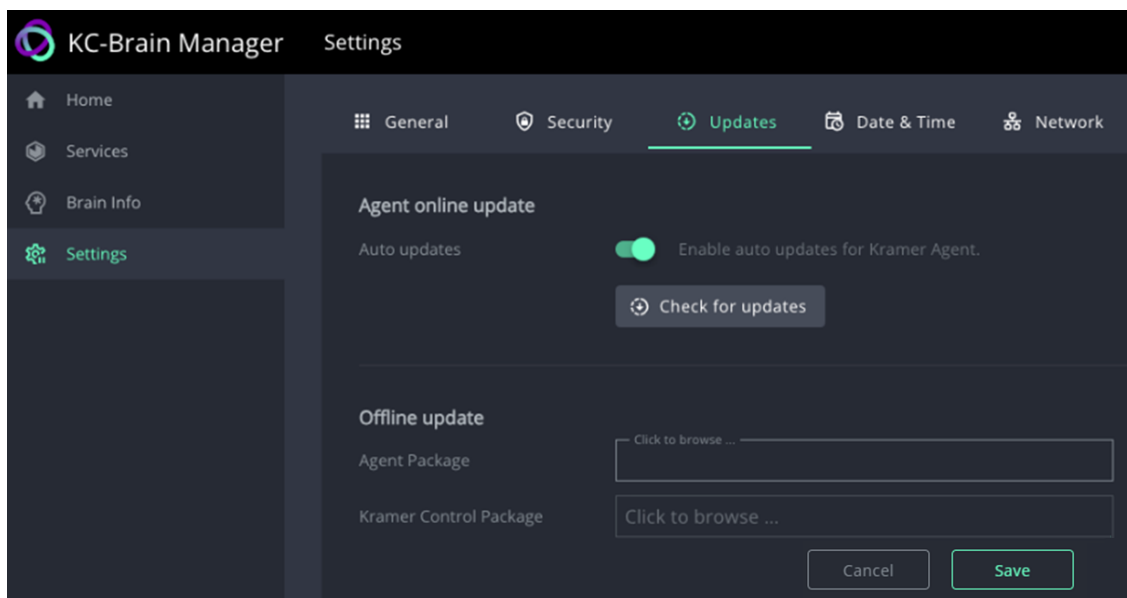


Figure 10: The Settings > Updates page.

Activating Kramer remote support

Kramer remote support uses a TCP secured tunnel that connects securely to the Kramer AWS system and enables Kramer support staff to connect to Kramer Control. Use of this service requires entry of a unique Remote Support ID provided by Kramer Support.

To activate Kramer remote support:

1. Navigate to **Settings** and open the **General** tab.
2. Move the Kramer Remote Support slider to the right (it turns green).
3. Enter your Remote Support ID.

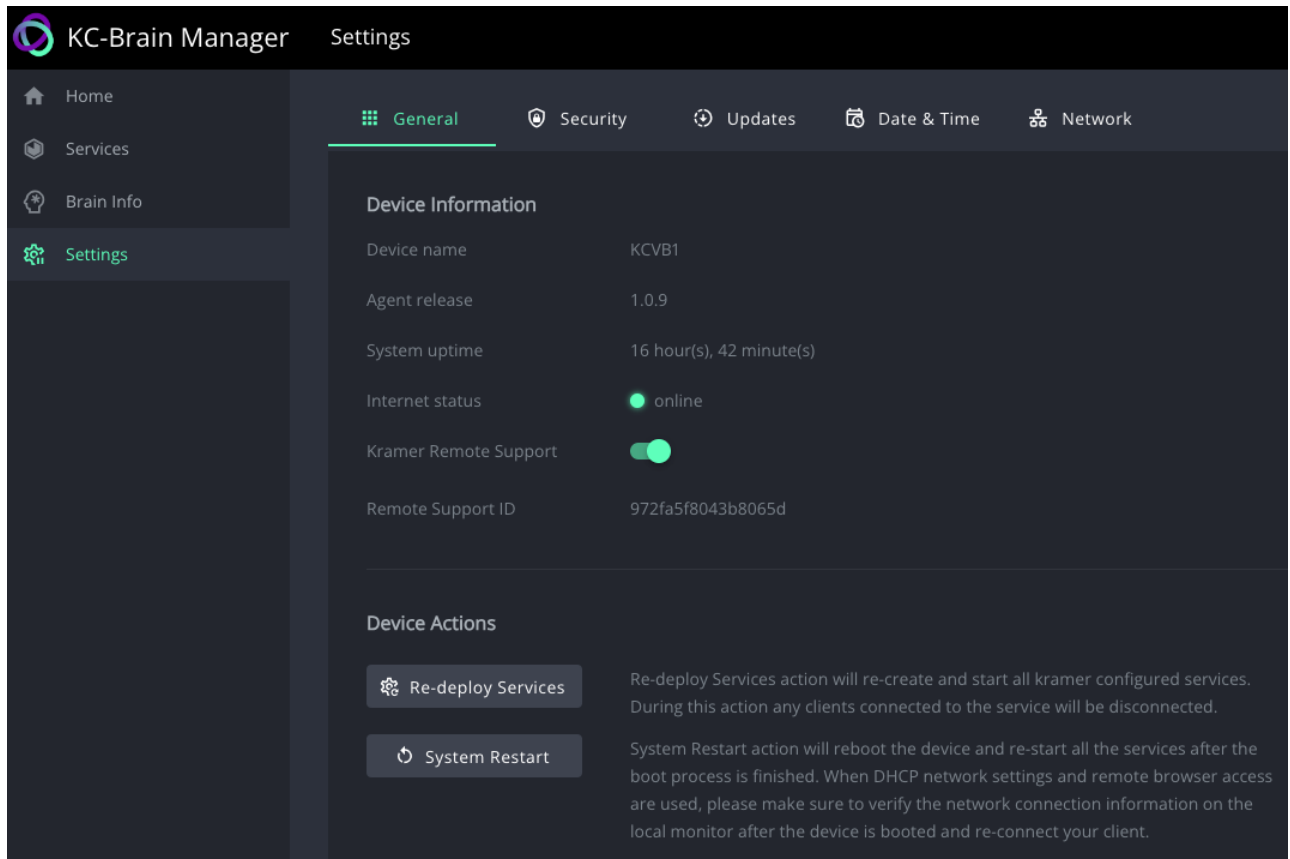


Figure 11: The Settings > General page.

The Management Pages

For Management pages' access instructions, see [Logging in to the Management pages](#).


The Home Page

After you log in, the **Home** menu page opens automatically, showing a dashboard overview of the device. The Home page is display-only: No updates can be made from this page.

- **System Information**

- **Hostname** - The name used to identify the KC-Virtual Brain1 in the network.
- **Last boot time** – The time KC-Virtual Brain1 last rebooted.
- **Kernel** – The OS running inside the KC-Virtual Brain1.
- **Agent release** - SW release version of the KC-Virtual Brain1.
- **Docker services** (visual) – The left number is the number of active services and the right number the maximum possible number of active services.
- **Usage-Disk** – % Usage of the KC-Virtual Brain1's built-in HD.
- **Usage-Memory** – % Usage of the KC-Virtual Brain1's RAM.
- **Usage-Swap** – % Usage of the KC-Virtual Brain1's Swap Memory. Swap Memory is RAM that is temporarily loaded into the HD.

- **Network** – An overview of the device's network status. If DHCP is enabled, **KC-Virtual Brain1**'s network IP is provided by the network's DHCP server.
- **Kramer Control licenses** – The Kramer Control license stored in the device. **KC-Virtual Brain1** holds a single license.

 **Note:** At first run, a “**Missing required services**” message warns that the Docker service is not initialized. The Brain cannot be started until the Docker service is installed. See [Initializing the Services](#).

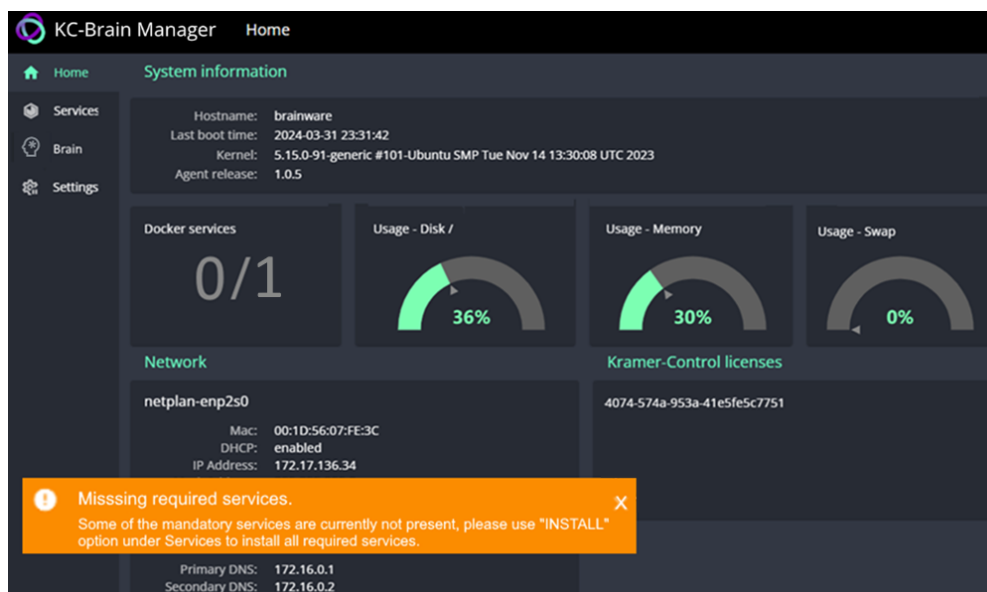



Figure 12: The Home page

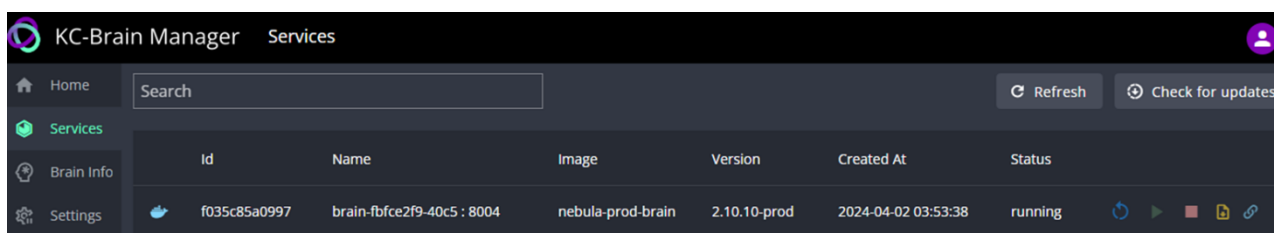
The Services Page

Kramer Control Brains run inside Services. Each Service is a Docker container capable of running a single Kramer Control Brain. **KC-Virtual Brain1** runs a single service.

On devices that run multiple Services, each service and the Brain it runs is isolated and independent from the other Services.

The Services Page lists the available Services (Docker containers) and is used to initialize, upgrade, run, stop and troubleshoot the services.

 Note: If no Services have been installed, a “**Missing required services**” message warns that the Services are not initialized. Please do [Initializing the Services](#).



Id	Name	Image	Version	Created At	Status
f035c85a0997	brain-fbfc2f9-40c5 : 8004	nebula-prod-brain	2.10.10-prod	2024-04-02 03:53:38	running

Figure 13: The Services page with services installed.


If no service is active: The Service table will be empty and the Install button visible (top right in green). See [Initializing the Services](#).


If a Service is active: The Services table shows the following:


- **ID** – The Docker ID of the Service.
- **Name** – The Docker container’s name.
- **Image** – Name of the Docker image that was used to create the container.
- **Version** – The version number of the Brain running inside the Docker container.
- **Created At** – The time the Docker Container was initialized.
- **Status** - Status of the Docker container (running, stopped, initializing).


Action icons: Click an icon to perform the action. The following actions are available (some require the service to be running):

 - Restart the service.

 - Start the service.

 - Stop the service.

 - Download the logs (downloads a Zip file). To view a “live” display of the logs, see [Brain Info – Diagnostics](#) (select a Brain and then click Diagnostics).

 - Opens the **Brain Info** page for this service (opens in a separate window). Brain Info can also be opened by navigating to the **Brain Info** menu option.

Checking for updates: See [Checking for updates](#).

The Brain Info Page

Brain Info shows Brain specific information for a user-selected Brain. Brain Info can be accessed directly from the Services page (it opens directly on the selected Brain) or by selecting a Brain in the Brain Info's Brain Services list. The selected Brain will be green if it is running, red if it is not.

The Brain Info page has 3 tabs:

1. [General](#) – Displays **Brain Information** and can be used to connect to the **Kramer Control Manager**.
2. [Configuration](#) – The **Provisioning** tab. Use to provision the Brain with codes or files downloaded from Kramer Control Manager.
3. [Diagnostics](#) – The Diagnostics tab can be used to view or download the Brain's logs and events.

Brain Info – General tab

Brain Information displayed by the General tab.



In the **Brain Info** page, the Brain must be selected in the **Brain Services** column before the tabs are displayed.

The screenshot shows the 'Brain Info' page in the 'General' tab. The left sidebar contains navigation options: Home, Services, Brain Info (selected), and Settings. The main content area displays 'Brain Services' with a list containing 'brain-e8aac1c3-0d82 : 8002'. Below this, the 'Brain Information' section lists various attributes:

Model	Docker
Brain State	unprovisioned (Unprovisioned, not connected to server)
Version	2.10.10-prod
Brain ID	e8aac1c3-0d82-542e-9587-207b2814874c
Provisioned Status	Not Provisioned
Space Name	
Publishing Status	
Last Sync Time	Invalid Date
Last Publish Time	Invalid Date
Data Reset on Publish	Off
Forced Active Offline	<input type="checkbox"/>

At the bottom of the information section, there are two buttons: 'Open Control' and 'Sync'.

Figure 14: Brain Info page, General tab

- **Model** – “Docker”.
- **Brain State** –
 - **Active_Online** (All gateways and devices are connected)
 - **Active_Online** (No gateways are connected)
 - **Active_Offline**
 - **Unprovisioned** (Ready for provisioning)
 - **Unprovisioned** (Not connected to server)
- **Version** – Software version of the Brain.

- **Brain ID** – The Docker container’s name and ID.
- **Provisioned Status** – Provisioned or Unprovisioned.
- **Space Name** – Name of the meeting room in which the Brain is interfacing with a control device.
- **Publishing Status** – Status of the latest Kramer Control Interface definitions that were published to the room device.
- **Last Sync Time** – Time of the last sync between the Brain and the room device.
- **Last Publish Time** – Last time that interface definitions were sent to the room device.
- **Forced Active Offline** – User controlled slider, when on, the Brain will disconnect from the room device, even if a connection is available.
- **Buttons:**
 - **Open Control** – If the Brain is online, will open the Kramer Control Manager in a separate page.
 - **Sync** – If the Brain is online, will connect to the Kramer Control Manager to download the latest room interface settings.

Brain Info – Configuration tab

The **Configuration tab** is used to upload provisioning files (if the Brain is offline) or enter provisioning codes (if the Brain is online) received from Kramer Control.



In the **Brain Info** page, a Brain must be selected in the **Brain Services** column before the tabs are displayed.

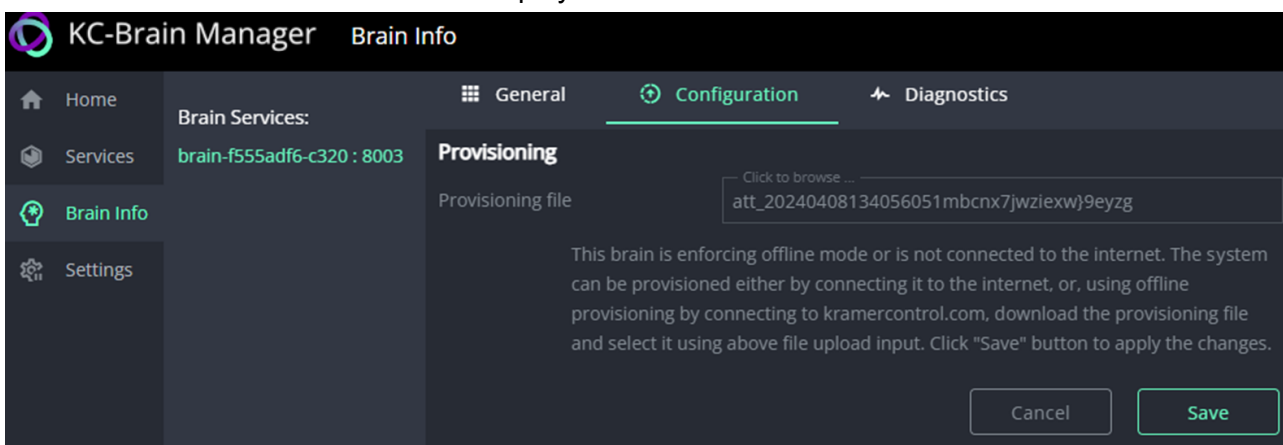


Figure 15: The Brain Info page’s Configuration tab


Save only appears if a value is entered in the file/code entry field.

Brain Info – Diagnostics tab

The Diagnostics tab can be used to view the Brain's logs and the events that it has handled.



In the **Brain Info** page, a Brain must be selected in the **Brain Services** column before the tabs are displayed.

To view the logs offline, go to the Services page and click the logs download icon . For more information see [The Services page](#).

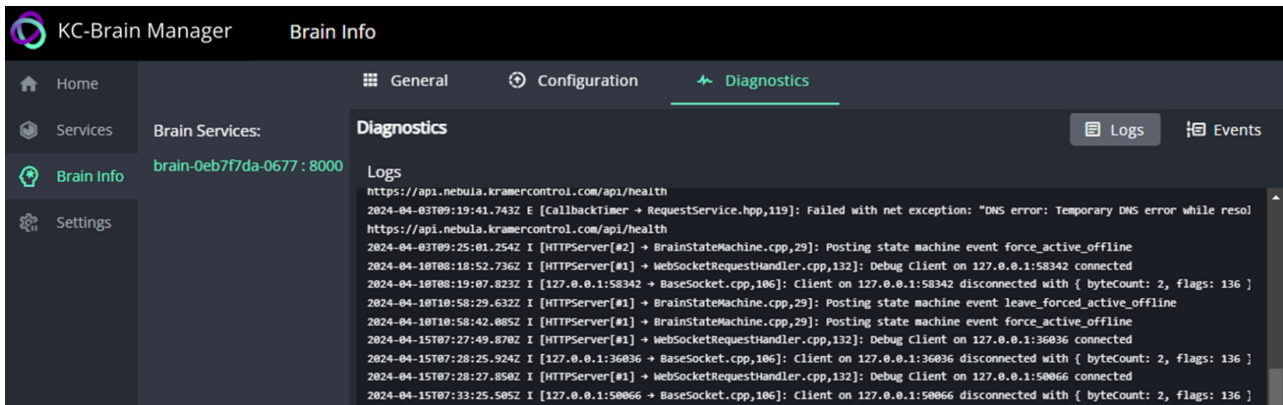


Figure 16: The Brain Info page's Diagnostics tab

The Settings Page

The Settings page has 5 tabs:

1. [General](#) – Opens by default when the **Settings** page opens. Provides device information and restart actions.
2. [Security](#) – Password change and SSL settings.
3. [Updates](#) – Software updates and automated updates.
4. [Date & Time](#) – Set the timezone, date time or connect an NTP server.
5. [Network](#) - Set the Hostname, enable/disable DHCP and view or set the device IP address.

Settings – General tab

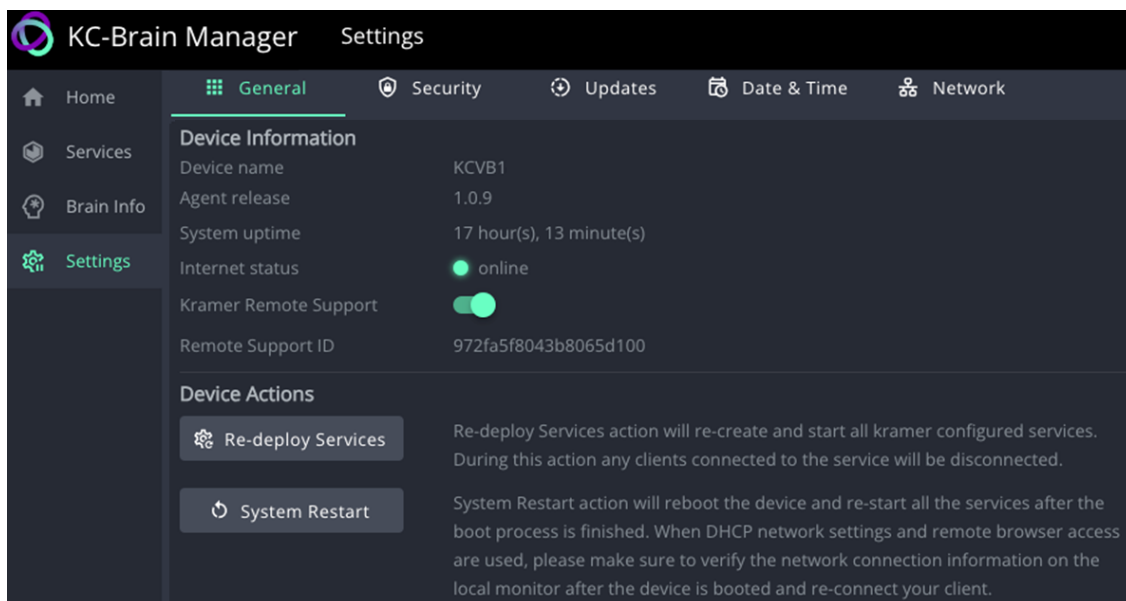


Figure 17: The Settings page's General tab

Device Information:

- **Device name** – The type of device (**KC-Virtual Brain1**).
- **Agent release** – The software version of the KC Agent.
- **System uptime** – Amount of time that the device has been running.
- **Internet status** – Offline or online.
- **Kramer Remote Support** – Slide to the right to enable Kramer Remote Support. When necessary, Kramer Remote Support personnel can set up a TCP secured tunnel to the customer's Kramer Control system. Requires the customer to share their unique Remote Support ID with the Kramer Support person.
- **Remote Support ID** – A code which is unique to the customer and enables Kramer Support to connect securely to the customer's Kramer Control Manager.
- **Device Actions:**
- **Re-deploy Services** – The device reinstalls and then restarts the services.
- **System Restart** – The device will shut down the services, reboot itself and then restart the services. If DHCP is active, verify that the device IP is unchanged.

Settings – Security

Use this page to change the password and/or enter a custom SSL certificate for enhanced network security. SSL certificates make SSL/TLS encryption possible.

For additional information see [Changing the Password](#).

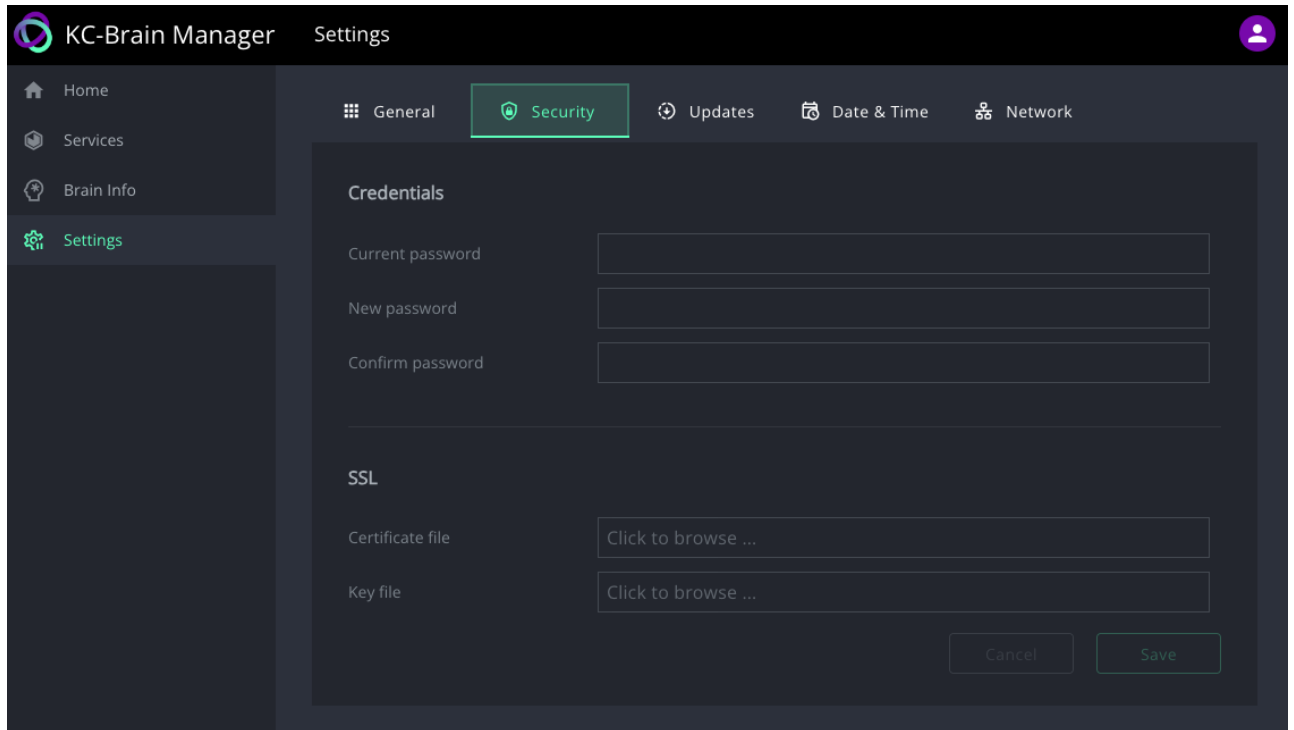


Figure 18: The Settings page's Security tab

Settings – Updates

Auto-update performs an automated daily check for new versions of the Kramer Control agent and/or services. When a new version is available, Auto-Update downloads and installs the package.

Offline - If you prefer to manually download updates, then download the update packages from the Kramer website:

- **Agent Package** – An update package for the Docker Services (that run the Kramer Control Brain).
- **Kramer Control Package** – An offline update for the Kramer Control Brain (that runs inside a Docker Service).

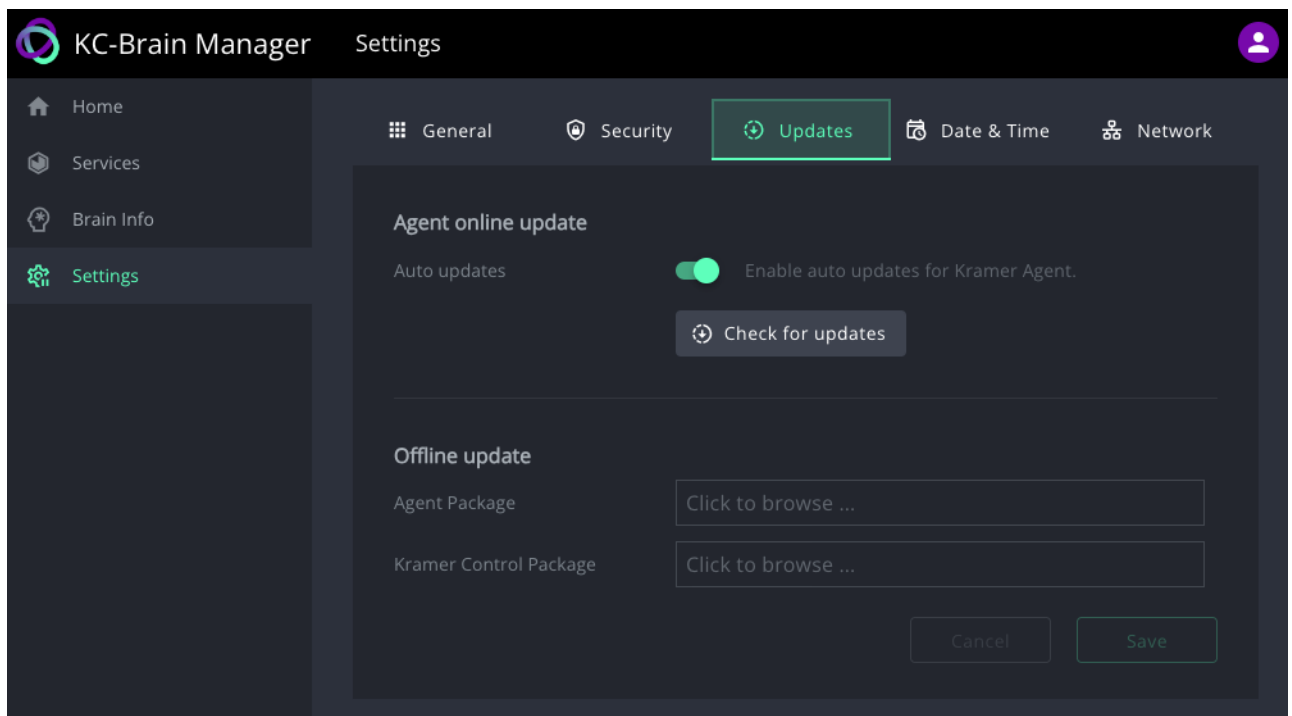


Figure 19: The Settings page's Updates tab

Settings – Date & Time

Make sure you enter the correct timezone. If an NTP (Network Time Protocol) server is used, the date and time cannot be manually entered.

Date and time synchronization improves device and application reliability and contributes to efficient system operation. An NTP server is recommended.

For more information see [Setting the time](#).

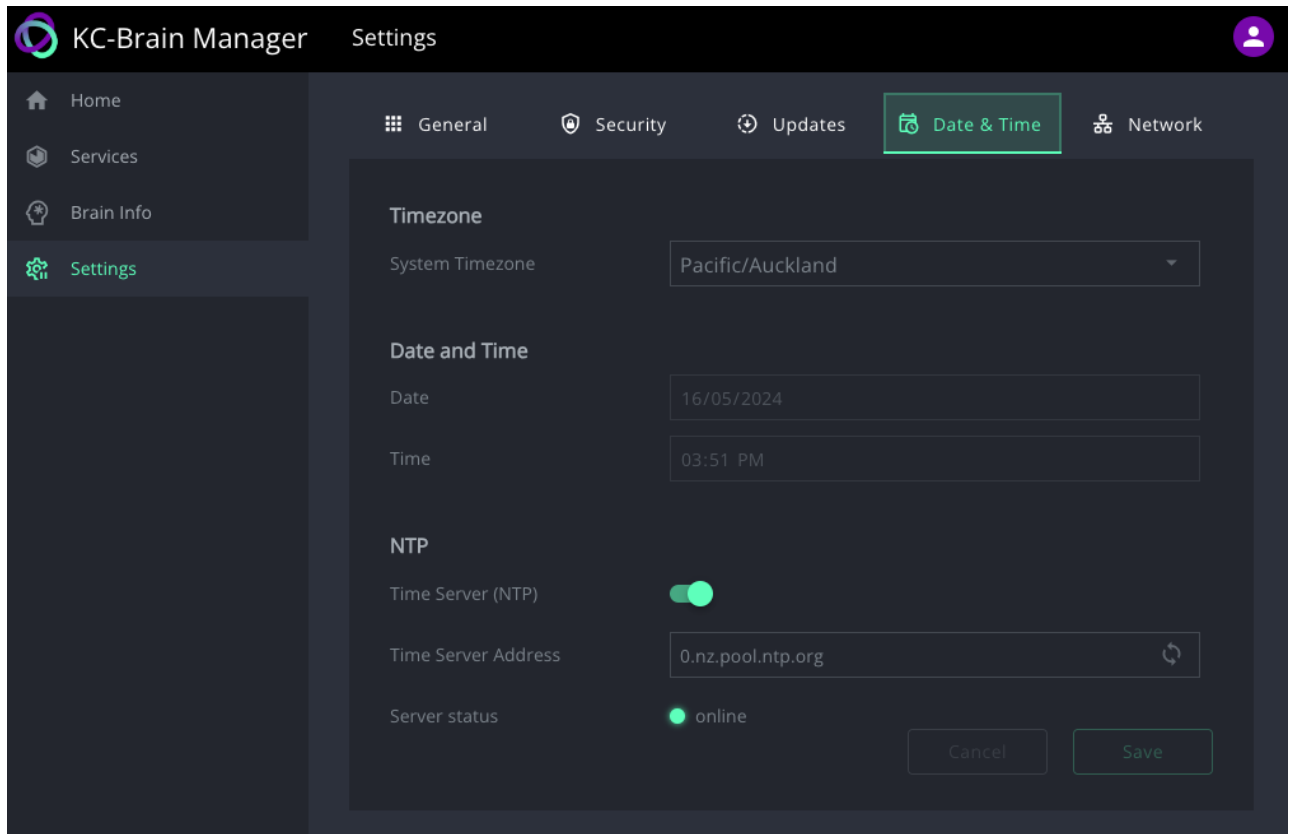


Figure 20: The Settings page's Date & Time tab

Settings – Network



The device must reboot to save changes to network settings. Incorrect settings may make the device inaccessible.

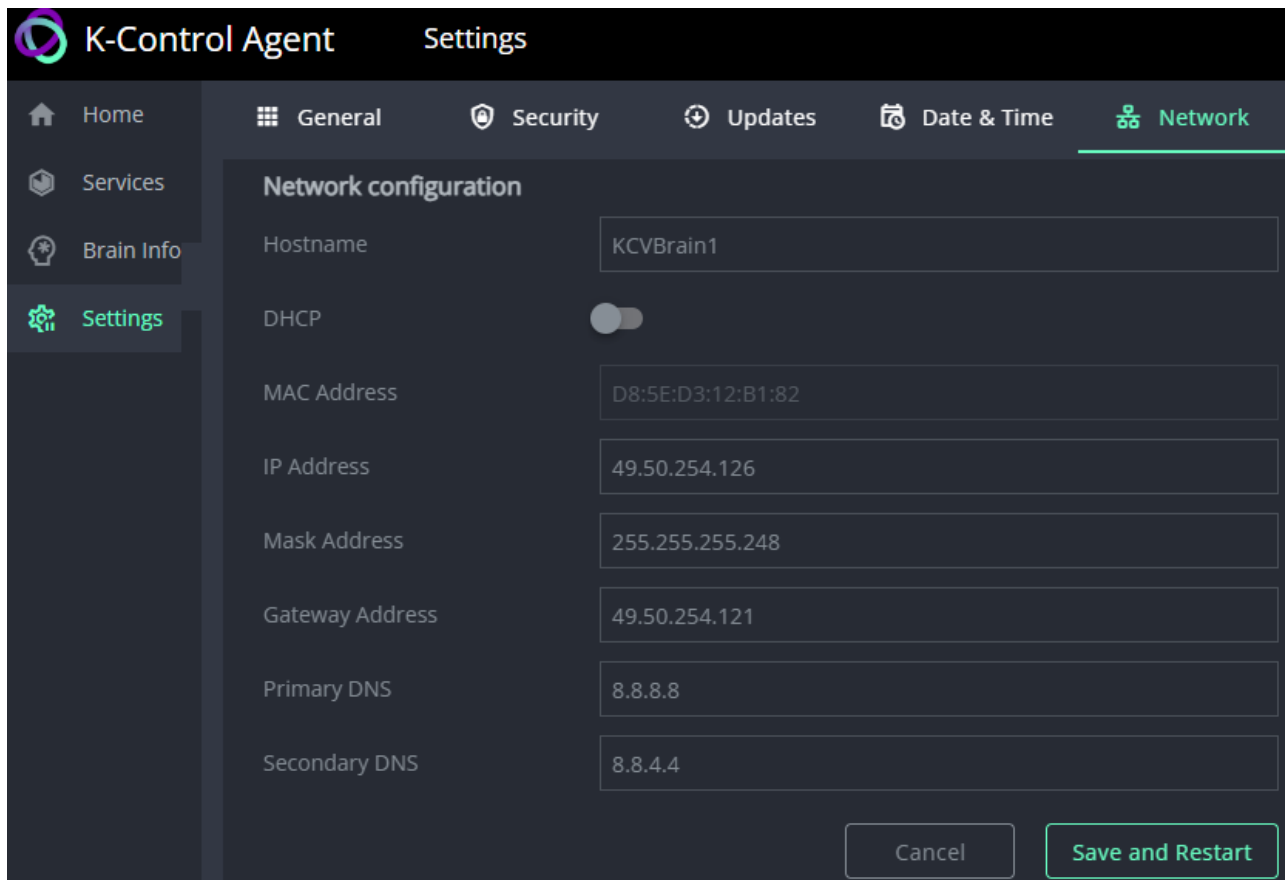


Figure 21: The Settings page's Network tab

To set a static IP: Disable DHCP, enter the desired IP address, then **Save and Restart**.

- **Hostname** – The network name allocated to the KC-Virtual Brain1.
- **DHCP** – If enabled, then the device IP is allocated by the network's DHCP server. If disabled or no DHCP is available, the device will seek to obtain IP 192.168.1.39.
- **MAC Address** – The KC-Virtual Brain1's permanent unique device identifier (not editable).

The following 3 fields can only be updated if DHCP is disabled:

- **IP Address** – The KC-Virtual Brain1's address on the local network. Enter the IP address in a browser to access the embedded web menu.
- **Mask Address** – The network subnet to which the KC-Virtual Brain1 belongs.
- **Gateway Address** – Address of the router interface to which KC-Virtual Brain1 is connected.
- **Primary DNS** – The IP address of the network's domain name server.
- **Secondary DSN** – The network address of the secondary/backup domain name server (if used).

Technical Specifications

Ports	3 USB	On 2 USB 3.0 connectors and 1 USB connector
	1 LAN	On an RJ-45 connector
Inputs	1 HDMI	On a female HDMI connector
Outputs	1 HDMI	On a female HDMI connector
General	Processor	4th generation Intel® Dual core 1.4GHz
	Main Memory	4GB, high speed
	Storage	32GB, solid-state drive
	LAN	Gigabit LAN
Power	Source	12V DC
	Consumption	700mA
Environmental Conditions	Operating Temperature	0° to +40°C (32° to 104°F)
	Storage Temperature	-40° to +70°C (-40° to 158°F)
	Humidity	10% to 90%, RHL non-condensing
Accessories	Included	Power cord, VESA mounting bracket
Physical	Product Dimensions	21.00cm x 19.00cm x 5.00cm (8.27" x 7.48" x 1.97") W, D, H
	Product Weight	1.4kg (3.1lbs) approx.
	Shipping Dimensions	40.50cm x 29.70cm x 9.00cm (15.94" x 11.69" x 3.54") W, D, H
	Shipping Weight	2.77kg (6.1lbs) approx.
Specifications are subject to change without notice at www.kramerav.com		

Warranty

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 covered by a standard one (1) year warranty. Kramer 7 inch touch panels purchased on or after April 1st, 2020 are covered by a standard two (2) year warranty.
3. 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 lifetime 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.

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