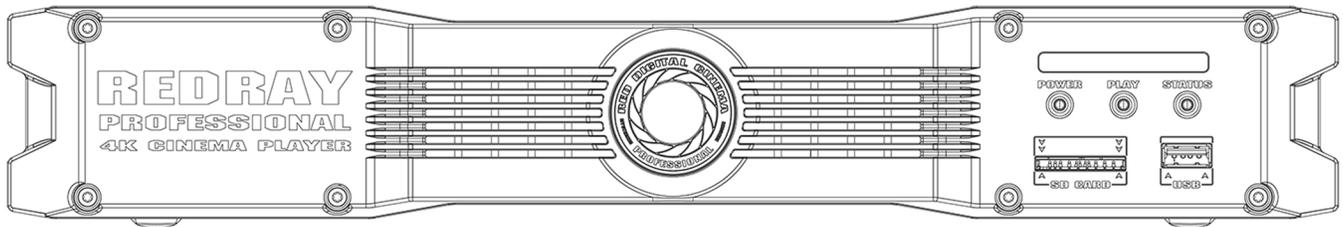




REDRAY PLAYER

OPERATION GUIDE



REDRAY PROFESSIONAL 4K CINEMA PLAYER

RED.COM

REDRAY PLAYER OPERATION GUIDE

TABLE OF CONTENTS

Table of Contents	2	Cannot Play Movie	31
Disclaimer	3	APPENDIX A: Technical Specifications	32
Copyright Notice	3	REDRAY Player	32
Trademark Disclaimer	3	APPENDIX B: REDcommand App	34
Compliance Statements	3	Install REDcommand App	34
Safety Instructions	5	REDcommand Controls	34
Battery Storage and Handling	6	APPENDIX C: REDRAY Menu Map	36
Shipping Disclaimer	7	APPENDIX D: IR Control Protocol	37
CHAPTER 1: REDRAY Overview	8	IR Specification	37
Items Included	8	IR Control Protocol	37
Playback Capabilities	8		
Media Compatibility	8		
Incompatible Media	8		
Additional Resources	9		
CHAPTER 2: REDRAY System	10		
Front and Rear Panels	10		
IR Remote Control	12		
CHAPTER 3: REDRAY Operation	13		
Power Operations	13		
Movie Menu Operations	13		
CHAPTER 4: REDRAY Setup	18		
Set up Your REDRAY	18		
CHAPTER 5: REDRAY Settings	21		
Settings Menu	21		
System Information	22		
Network	23		
Date and Time	26		
Video	27		
Playback	28		
Register (Authorize) Your REDRAY	28		
CHAPTER 6: Troubleshoot the REDRAY	29		
Access REDRAY Log Files	29		
Trouble with REDRAY Setup	29		
Trouble with 4K Image	30		
Trouble With Loopback and Compressed Audio	30		
Trouble with Media Cards	30		
Cannot Upload Movies	30		
Cannot Connect REDcommand to the REDRAY	31		

REDRAY PLAYER OPERATION GUIDE

DISCLAIMER

RED® has made every effort to provide clear and accurate information in this document, which is provided solely for the user's information. While thought to be accurate, the information in this document is provided strictly "as is" and RED will not be held responsible for issues arising from typographical errors or user's interpretation of the language used herein that is different from that intended by RED. All safety and general information is subject to change as a result of changes in local, federal or other applicable laws.

RED reserves the right to revise this document and make changes from time to time in the content hereof without obligation to notify any person of such revisions or changes. In no event shall RED, its employees or authorized agents be liable to you for any damages or losses, direct or indirect, arising from the use of any technical or operational information contained in this document.

This document was generated on 1/21/2019. To see earlier versions of this document, submit a Support ticket at <https://support.red.com>.

For comments or questions about content in this document, send a detailed email to OpsGuides@red.com.

COPYRIGHT NOTICE

COPYRIGHT© 2019 RED.COM, LLC

All trademarks, trade names, logos, icons, images, written material, code, and product names used in association with the accompanying product are the copyrights, trademarks, or other intellectual property owned and controlled exclusively by RED.COM, LLC. For a comprehensive list, see www.red.com/trademarks.

TRADEMARK DISCLAIMER

All other company, brand and product names are trademarks or registered trademarks of their respective holders. RED has no affiliation to, is not associated or sponsored with, and has no express rights in third-party trademarks including but not limited to: Microsoft®, Radeon®, NVIDIA®, Intel®, Apple®, AMD®, or the products of those companies. SD® and microSD® are registered trademark of SD-3C®, LLC in the United States, other countries, or both.

COMPLIANCE STATEMENTS

INDUSTRIAL CANADA EMISSION COMPLIANCE STATEMENTS

This device complies with Industry Canada license-exempt RSS standards RSS 139 and RSS 210. Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

This Class B digital apparatus complies with Canadian ICES-003.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement. Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

FEDERAL COMMUNICATIONS COMMISSION (FCC) STATEMENTS



This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- ▶ Reorient or relocate the receiving antenna.
- ▶ Increase the separation between the equipment and receiver.
- ▶ Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- ▶ Consult the dealer or an experienced radio/TV technician for help.

In order to maintain compliance with FCC regulations, shielded cables must be used with this equipment. Operation with non-approved equipment or unshielded cables is likely to result in interference to radio and TV reception. The user is cautioned that changes and modifications made to the equipment without the approval of manufacturer could void the users authority to operate this equipment.

NOTE: This device complies with Part 15 of the FCC Rules.

Operations subjected to the following two conditions (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including that may cause undesirable interference.



CAUTION: Exposure to Radio Frequency Radiation.

The device shall be used in such a manner that the potential for human contact is minimized.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 cm between the radiator and your body.



CAUTION: Regulations of the FCC and FAA prohibit airborne operation of radio-frequency wireless devices because their signals could interfere with critical aircraft instruments.

REDRAY PLAYER OPERATION GUIDE



CAUTION: If the device is changed or modified without permission from RED, the user may void his or her authority to operate the equipment.

AUSTRALIA AND NEW ZEALAND STATEMENTS

RED declares that the radio equipment described in this document comply with the following international standards.

- ▶ IEC 60065 – Product Safety
- ▶ ETSI EN 300 328 – Technical requirement for radio equipment

RED declares digital devices described in this document comply with the following Australian and New Zealand standards.

- ▶ AS/NZS CISPR 22 – Electromagnetic Interference
- ▶ AS/NZS 61000.3.2 – Power Line Harmonics
- ▶ AS/NZS 61000.3.3 – Power Line Flicker

JAPAN STATEMENTS



This is a Class B product based on the standard of the Voluntary Control Council for Interference (VCCI) for information technology equipment. If this equipment is used near a radio or television receiver in a domestic environment, it may cause radio interference. Install and use the equipment according to the instruction manual.

本機器は、情報処理装置等電波障害自主規制協議会(VCCI)の基準に基づくクラスB情報技術装置です。この装置は家庭環境で使用することを目的としていますが、ラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。取扱説明書に従って正しい取り扱いをしてください。

EUROPEAN UNION COMPLIANCE STATEMENTS



RED declares that the radio equipment described in this document comply with the R&TTE Directive (1999/5/EC) issued by the Commission of the European Community.

Compliance with this directive implies conformity to the following European Norms (in brackets are the equivalent international standards).

- ▶ EN 60065 (IEC 60065) – Product Safety
- ▶ ETSI EN 300 328 Technical requirement for radio equipment
- ▶ ETSI EN 301 489 General EMC requirements for radio equipment.

INFORMATION

Products with the CE marking comply with the EMC Directive (2004/108/EC) and the Low Voltage Directive (2006/95/EC) issued by the Commission of the European Community. Compliance with these directives implies conformity to the following European Product Family Standards.

- ▶ EN 55022 (CISPR 22) – Electromagnetic Interference
- ▶ EN 55024-1 (CISPR 24) – Electromagnetic Immunity
- ▶ EN 61000-3-2 (IEC610000-3-2) – Power Line Harmonics
- ▶ EN 61000-3-3 (IEC610000) – Power Line Flicker
- ▶ EN 60065 (IEC60065) – Product Safety

WASTE ELECTRICAL AND ELECTRONIC EQUIPMENT (WEEE)



The Waste Electrical and Electronic Equipment (WEEE) mark applies only to countries within the European Union (EU) and Norway. This symbol on the product and accompanying documents means that used electrical and electronic products should not be mixed with general household waste. For proper treatment, recovery and recycling, please take this product to designated collection points where it will be accepted free of charge. Alternatively, in some countries you may be able to return your

products to your local retailer upon purchase of an equivalent new product.

Disposing of this product correctly will help save valuable resources and prevent any potential negative effects on human health and the environment, which could otherwise arise from inappropriate waste handling. Contact your local authority for further details of your nearest designated collection point. Penalties may be applicable for incorrect disposal of this waste, in accordance with you national legislation.

For business users in the European Union, if you wish to discard electrical and electronic equipment, contact your dealer or supplier for further information.

USAGE RESTRICTIONS FOR PRODUCTS THAT INCORPORATE R.C.P.



Products that fall into this category are denoted by inclusion of the Class 2 identifier symbol (exclamation mark in a circle) accompanying the CE Mark on the products regulatory label, example to the left.

FRANCE

Usage Restrictions - Geographic Area Where Restriction Applies : France

For mainland France

- ▶ 2.400 - 2.4835 GHz (Channels 1-16) authorized for indoor use
- ▶ 2.400 - 2.454 GHz (Channels 1-10) authorized for outdoor use

Restrictions d'utilisation - Zone géographique où les restrictions s'appliquent : France

REDRAY PLAYER OPERATION GUIDE

Pour la France métropolitaine

- ▶ 2.400 - 2.4835 GHz (Canaux 1 à 16) autorisé en usage intérieur
- ▶ 2.400 - 2.454 GHz (Canaux 1 à 10) autorisé en usage extérieur

NORWAY

This subsection does not apply for the geographical area within a radius of 20 km from the centre of Ny-Ålesund

Dette gjelder ikke for det geografiske området innenfor en radius av 20 km fra sentrum av Ny-Ålesund

RESPONSIBLE PARTY

RED Digital Cinema

34 Parker

Irvine, CA 92618

USA

SAFETY INSTRUCTIONS

- ▶ Heed all cautions and warnings in these instructions.
- ▶ Read these instructions before operating the REDRAY® and its accessories.
- ▶ Follow these instructions while operating the REDRAY and its accessories at all times.
- ▶ DO NOT attempt to modify, dismantle or open your REDRAY as doing so may expose you to electric shock and serious injury. There are no user-serviceable parts inside. Alteration or repairs made to the REDRAY or accessories, except by a RED authorized service facility, will void the Limited Warranty. Users are not permitted to make design changes or otherwise modify the operation of the REDRAY or its accessories, without the express written approval of RED Digital Cinema.
- ▶ Only use accessories specified by RED®.
- ▶ Install the REDRAY in accordance with the manufacturer's instructions.
- ▶ DO NOT use the REDRAY near water and avoid exposing the REDRAY to moisture. The unit is not waterproof, so contact with water could cause permanent damage to the unit as well as electric shock and serious injury to the user. DO NOT use the REDRAY outdoors or in environments with high moisture, and immediately remove the power source if the REDRAY is exposed to moisture.



WARNING: To reduce the risk of fire or electric shock, do not expose the camera to rain or moisture.

- ▶ DO NOT expose the REDRAY or accessories to excessive vibration or impact (shock).
- ▶ **ELECTROMAGNETIC INTERFERENCE:** The use of devices using radio or other communication waves may result in the malfunction or interference with the unit and/or with audio and video signals.
- ▶ Clean only using a dry cloth. When cleaning the REDRAY, remember that it is not waterproof and moisture can damage electronic circuitry. DO NOT rinse or immerse any element of the

REDRAY or its accessories; keep them dry at all times. DO NOT use soaps, detergents, ammonia, alkaline cleaners, or abrasive cleaning compounds or solvents as these substances may damage surface finishes and electronic circuitry.

- ▶ Maintain sufficient ventilation - DO NOT block any ventilation openings or obstruct cooling fan airflow.



CAUTION: Proper ventilation requires a minimum 1.5" (1.25cm) clearance between the ventilation openings and external surfaces. Verify that objects that can block the air intake and fan exhaust ports do not impede airflow. Failure to permit adequate airflow may result in overheating of the REDRAY, degraded operation and in extreme situations, damage to the product.

- ▶ DO NOT operate or store near any heat sources such as radiators, heat registers, stoves, or any other apparatus that produce heat. Store in a protected, level and ventilated place. Avoid exposure to temperature extremes, damp, severe vibration, strong magnetic fields, direct sunlight or local heat sources during storage. Remove any batteries from the IR Remote Control accessory before storage. Recommended storage and usage temperatures for your REDRAY and accessories are:
 - ▶ Operating range: 0°C to 40°C (32°F to 104°F)
 - ▶ Storage range: -20°C to 50°C (-4°F to 122°F)
- ▶ If there are any performance issues with your camera or accessories when operating within this temperature range, submit a Support ticket at <https://support.red.com>.
- ▶ If there are any performance issues with your REDRAY or accessories when operating within this temperature range, submit a Support ticket at <https://support.red.com>.
- ▶ Do not bypass the third prong of the grounding-type plug on the power cord of the AC Power Adapter. A grounding-type plug has two blades and a third "grounding" prong. The third prong is provided for your safety. A grounding-type plug shall be connected to an outlet with a protective earthen connection. If the grounding-type plug does not fit into your outlet, do not attempt to modify the plug or outlet, consult a qualified electrician.
- ▶ Protect all power cords from being pinched, walked on or crushed. Replace any power cords suspected of sustaining damage due to crushing or other forms physical damage.



CAUTION: The power cord plug for the AC Power Adapter is used as the power disconnect. To disconnect all power from the AC Power Adapter, unplug the power cord plug from the wall outlet. During use, the power cord plug should remain easily accessible at all times.

REDRAY PLAYER OPERATION GUIDE

- ▶ Lithium Ion batteries may be subject to special handling requirements pursuant to federal and local laws. Refer to specific shipping instructions included with your battery regarding proper transport of your battery. Do not handle your battery if it is damaged or leaking. Disposal of batteries must be in accordance with local environmental regulations. For example, California law requires that all rechargeable batteries must be recycled by an authorized recycle center. Storing batteries fully charged or in high temperature, conditions may permanently reduce the life of the battery. Available battery capacity may also be temporarily lessened after storage in low temperature conditions.



WARNING: Do not expose the IR Remote Controller batteries to excessive heat.



CAUTION: Refer all service and repair to qualified RED service personnel. To reduce the risk of electric shock, and damage to the REDRAY, DO NOT attempt to perform any servicing other than any procedures that are recommended in the operating instructions.

BATTERY STORAGE AND HANDLING



WARNING: Failure to read, understand, and follow these instructions may result in overheating, chemical leakage, smoke emission, fire, or other potentially harmful results.

- ▶ Always follow proper battery handling and storage practices. Improper handling and/or failure to abide by proper storage instructions may cause permanent damage to batteries, or degrade battery charge holding capacity. Improper handling practices or failure to comply with instructions may also put you at risk.
- ▶ Lithium-Ion batteries, like the REDVOLT®, REDVOLT XL, REDVOLT-V, and RED BRICK®, self-discharge over time. When storing for long periods of time, store batteries separately from the camera or charger and remember to charge batteries to a capacity level of 40% to 60%. If batteries will be stored for long periods of time, RED recommends that you check the charge level at least once every six (6) months, and recharge batteries to a capacity level of 40% to 60%.
- ▶ When not in use, remove the battery from the camera or charger and store the battery in a cool, dry place. Avoid extreme hot temperatures (such as inside a hot car), corrosive gas, and direct sunlight. The optimal storage temperature for batteries is between -20°C to 20°C (-4°F to 68°F).



WARNING: Batteries stored in a discharged state for long periods of time may self-discharge and lose the ability to hold a charge.



WARNING: If recharging operation fails to complete even when a specified recharging time has elapsed, immediately stop further recharging.

DO NOT store batteries in a fully charged state for extended periods of time.

DO NOT store batteries in a fully discharged state for extended periods of time.

DO NOT store batteries in the camera, in a camera module, or in a charger for extended periods of time.

DO NOT use batteries for purposes other than their intended use.

DO NOT store batteries in extreme hot or cold temperatures.

DO NOT store batteries in direct sunlight.

DO NOT use third-party chargers with your RED batteries.

DO NOT disassemble or modify the battery.

DO NOT overcharge batteries. Overcharging may increase internal temperature beyond the recommended limits and cause permanent damage to the battery.

DO NOT connect the positive (+) and negative (-) terminals to a metal object such as a wire.

DO NOT transport or store the battery together with metal objects such as jewelry, hairpins, etc. as they may generate heat if they come into contact with the battery.

DO NOT discard the battery into fire or heat.

DO NOT store, use, or recharge the battery near a heat source such as a fire or a heater.

DO NOT allow the battery to get wet.

DO NOT pierce the battery with pointed or other sharp objects.

DO NOT step on, throw, or strike the battery with a hammer.

DO NOT use a battery that appears to be deformed or damaged.

DO NOT directly solder the battery.

DO NOT put the battery into a microwave oven or a pressurized container.

DO NOT use or subject the battery to intense sunlight or hot temperatures such as in a car in hot weather.

DO NOT use it in a location where static electricity may be present.

DO NOT exceed the recharging temperature range of 0°C to 40°C (32°F to 104°F).

RED recommends that you only use RED chargers to recharge RED batteries.

Store the battery in a location where children cannot reach it.

If the battery leaks or gives off a bad odor, discontinue use immediately.

If the battery gives off an odor, generates heat, becomes discolored or deformed, or in any way appears abnormal during use, recharging or storage, immediately remove it from the equipment or battery charger and discontinue use.

If electrolyte begins leaking from the battery and comes into contact with your skin or clothing, immediately wash it away with running water. Failure to do this may result in skin inflammation.

REDRAY PLAYER OPERATION GUIDE

If the battery leaks and the electrolyte reaches the eyes, do not rub them. Instead, rinse the eyes with clean running water and immediately seek medical attention. Failure to do this may result in eye injury.

If you find discoloration, a bad odor due to leakage, overheating and/or other irregularities when using the battery for the first time, submit a Support ticket at <https://support.red.com> immediately.



NOTE: For more information regarding RED battery charging and instructions for care, refer to our [Terms and Conditions](#).

SHIPPING DISCLAIMER

Shipment of Lithium Ion cells and batteries is subject to national and international shipping requirements. A Class 9 Certified shipper is required to transport these products within the United States. REDVOLT, REDVOLT XL, REDVOLT-V, and RED BRICK batteries are considered Dangerous Goods. Other products such as REDVOLT AA and RED Li 7.2V batteries may also be classified as Dangerous Goods when purchased in bulk. Applicable laws prohibit the shipping of batteries that are physically damaged. We urge you to look into the formal rules and regulations of shipping Class 9 Dangerous Goods prior to preparing your shipment. For more information on these regulations, visit www.iata.org and www.dot.gov.

For more information, see our FAQs for [Dangerous Goods \(Regulated Items\)](#).

CHAPTER 1:

REDRAY OVERVIEW

The REDRAY® 4K Professional Cinema Player is the first media player to bring ultra high-definition 4K content to your home or business.

The REDRAY includes a high-capacity 1TB internal drive to store all of your audio visual content. The REDRAY is also equipped with a front-facing USB 2.0 port and SDHC card slot to enable content distribution via solid-state media including USB flash drives and SDHC media cards.

While the REDRAY is convenient and easy-to-use, read through this operation guide to familiarize yourself with the various REDRAY features and settings before operating.

ITEMS INCLUDED

Before connecting and using your REDRAY, verify that the following items are included in your shipment:

- ▶ REDRAY Professional 4K Cinema Player
- ▶ IEC Power Cord
- ▶ 802.11 Antenna
- ▶ IR Remote Control
- ▶ Two (2) AAA batteries (for IR Remote Control)
- ▶ Quick-Start Guide

If any of these items are missing or damaged, submit a Support ticket at <https://support.red.com>.

PLAYBACK CAPABILITIES

With the supplied version of system firmware, the REDRAY has the ability to play the following types of files:

- ▶ .RED files (REDCODE RGB distribution video and audio codec) at 4096 x 2160p or 3840 x 2160p at 23.98/24.00 FPS

MEDIA COMPATIBILITY

The REDRAY can interface with the following types of physical media:

- ▶ USB 2.0 flash drive
- ▶ SDHC™ memory card

INCOMPATIBLE MEDIA

The REDRAY cannot interface with the following types of physical media:

- ▶ Mini-USB, micro-USB, microSDXC™ memory card, miniSD™ memory card, microSD™ memory card, compact flash memory card, and Memory Stick®
- ▶ IDE/PATA, SCSI, SAS, FireWire®, Fiber Channel External Hard Drives

REDRAY PLAYER OPERATION GUIDE

ADDITIONAL RESOURCES

The following resources offer additional information about RED, the DSMC[®] system, and the RED community:

- ▶ **RED.com:** Check the [official RED website](#) for the latest information about RED products.
- ▶ **RED Learn Articles:** RED offers [in-depth technical articles](#) about RED cameras, post-production, and digital cinematography.
- ▶ **RED Downloads:** Go to [RED Downloads](#) to download the latest firmware, operation guides, and post-production software.
- ▶ **DSMC Toolkit:** Go to [RED Downloads](#) to find the DSMC Toolkit, which offers many helpful tools and resources to customize and improve your camera workflow.
- ▶ **RED Support:** Check the [RED SUPPORT site](#) for FAQs, or to file a support ticket.
- ▶ **In-Camera Help:** Select the Help button on an in-camera screen to open up the help for that screen.
- ▶ **REDUSER:** Discuss all things RED on the [REDUSER](#) third-party forum.

CHAPTER 2: REDRAY SYSTEM

FRONT AND REAR PANELS

This section outlines the front and rear controls and connectors of the REDRAY® media player.

FRONT PANEL



Figure: Front Panel

#	FRONT PANEL ELEMENT	DESCRIPTION
1	IR Remote Window	Receives commands from IR Remote Control
2	Power LED	Illuminates when external AC power is supplied
3	Play LED	Illuminates when media is being played (or paused)
4	Status LED	Illuminates during remote control communication or if a system error is detected
5	SDHC™ Card Slot	Accepts SD and SDHC media cards
6	USB 2.0 Port	Accepts USB 2.0 flash media

REDRAY PLAYER OPERATION GUIDE

REAR PANEL

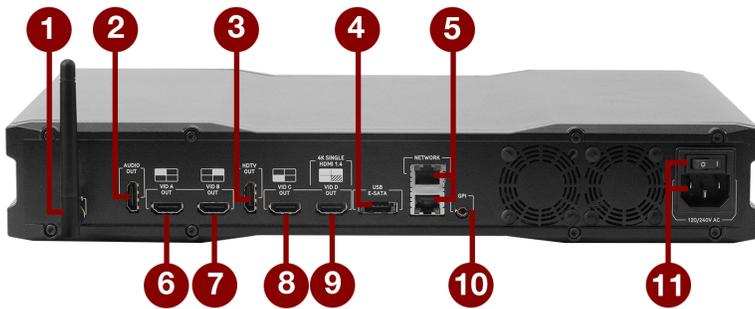


Figure: Rear Panel

#	REAR PANEL ELEMENT	DESCRIPTION
1	802.11 Connector	For use with the included 802.11 Antenna
2	AUDIO OUT (HDMI 1.3 connector)	Audio output (Stereo and 5.1 Ch), 24-bit, 48kHz uncompressed LPCM
3	HDTV OUT (HDMI 1.3 connector)	Video output at up to 12-bit 4:2:2 YCbCr, 1920 x 1080p resolution
4	USB/E-SATA	Reserved for future use
5	NETWORK (RJ45)	(Upper) GigaBit Ethernet network interface port (Lower) ² Reserved for future use
6	VID A OUT (HDMI 1.4 connector)	Video output at up to 12-bit 4:2:2 YCbCr, 4096 x 2160p resolution
7	VID B OUT (HDMI 1.4 connector)	Video output at up to 12-bit 4:2:2 YCbCr, 4096 x 2160p resolution
8	VID C OUT (HDMI 1.4 connector)	Video output at up to 12-bit 4:2:2 YCbCr, 4096 x 2160p resolution
9	VID D OUT ¹ (HDMI 1.4 connector)	Video output at up to 12-bit 4:2:2 YCbCr, 4096 x 2160p resolution
10	GPI ²	Reserved for future use
11	AC Power Switch and Connector	IEC 3-pin, 100-240 VAC, 50-60 Hz, 1A max. at 100VAC

1. This is the primary 4K connector. Use this connector when connecting the REDRAY PLAYER to a 4K display using a single HDMI cable.
2. These connectors have been disabled on the REDRAY Player.

REDRAY PLAYER OPERATION GUIDE

IR REMOTE CONTROL

The IR Remote Control enables you to navigate through the REDRAY on-screen display (OSD). You can also use the REDcommand app on an iOS device as your remote control for the REDRAY. For more information about the REDcommand app, go to "[REDcommand App](#)" on page 34.



Figure: IR Remote Control

#	BUTTON ACTION	MENU OPERATION	PLAYBACK OPERATION
1	Power	Toggle power On/Off	Toggle power On/Off
2	Up	Navigate up in the selected menu; Increase the value of the selected menu topic	N/A
3	Left	Navigate left in the selected menu; Return to menu from additional menu options	Rewind 4x, 8x, or 16x
4	Down	Navigate down in the selected menu; Decrease the value of the selected menu topic	N/A
5	Menu	Access the selected menu; Return to the previous menu	Stop media
6	Right	Navigate right in the selected menu; Access additional menu options	Fast-Forward 4x, 8x, or 16x
7	Enter	Selects the highlighted menu topic or function	Play, Pause, and Resume

CHAPTER 3: REDRAY OPERATION

POWER OPERATIONS

When the REDRAY® is first powered on, it takes approximately three (3) minutes for the REDRAY to power up and initialize. Thereafter, when you power off the system and leave it connected to a power source, the REDRAY enters a Power Saving (sleep) mode. Subsequent boots occur much faster, in approximately two (2) seconds.

- ▶ **POWER ON:** When the REDRAY is in Power Saving mode, press **Power** on the IR Remote Control. The REDRAY boots up in approximately two (2) seconds from Power Saving mode and the Power and Status LEDs both turn green.
- ▶ **POWER OFF:** When the REDRAY is powered on, press **Power** on the IR Remote Control. The REDRAY immediately enters Power Saving mode. The Power LED turns red, and the STATUS LED turns off.

MOVIE MENU OPERATIONS

The MOVIES menu consists of several elements including: the INTERNAL DRIVE, the Movie Browser, the Preview Window, and additional options. Navigate the REDRAY menu using the IR Remote Control provided with your REDRAY or with the REDcommand app.

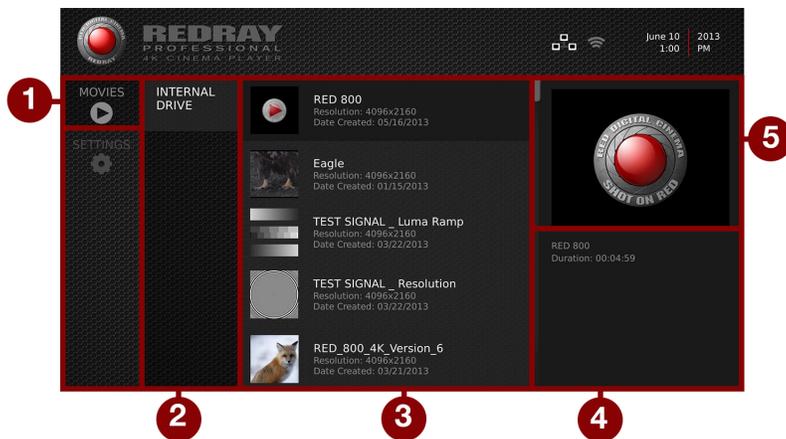


Figure: MOVIES Menu

#	MENU ELEMENT	DESCRIPTION
1	MOVIES Menu	Includes the INTERNAL DRIVE, Movie Browser, Preview Window, and more
2	INTERNAL DRIVE	Includes all media loaded on the REDRAY player
3	Movie Browser	Displays the available media on the INTERNAL DRIVE
4	Additional Options and Information	Access to additional menu options such as delete, move, and other menu actions
5	Preview Window	Displays a preview image of the currently selected item (if available)

REDRAY PLAYER OPERATION GUIDE

LOAD MOVIES FROM USB AND SDHC CARDS

1. Ensure the REDRAY is powered on.
2. Connect a USB 2.0 flash drive or SDHC™ card that contains the movies to be loaded to the REDRAY.
3. Once connected, the REDRAY automatically uploads all movies located in the “Content” folder on the flash drive or SDHC card to the internal hard drive. It takes about 20 minutes to load a two (2) hour movie.

While uploading, a progress bar with the movie name displays on the screen. After all movies are uploaded, they appear on the INTERNAL DRIVE in alphabetical order.

4. Remove the USB flash drive or SDHC card.

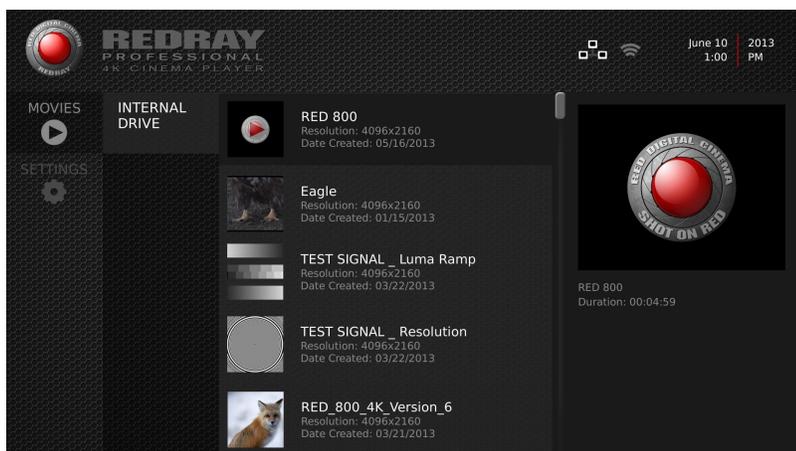


Figure: Load Movies

NOTE: If the REDRAY does not upload the movies from your USB flash drive or SDHC card, ensure that all desired movies are located on the media card or flash drive in a folder named “Content”.

NOTE: DO NOT remove a USB flash drive or a SDHC card while loading movies.

NOTE: REDRAY only plays movies that have a valid license.

NOTE: The REDRAY overrides media on the INTERNAL DRIVE if you attempt to load a movie with the same name.

REDRAY PLAYER OPERATION GUIDE

PLAY MOVIES

1. Press **Menu** on the IR Remote.
2. Navigate to **MOVIES > INTERNAL DRIVE**.
NOTE: Available movies display in alphabetical order. The first movie is set as the default playback movie.
3. Navigate to the movie that you want to play.
4. Press **Enter** to play the movie.

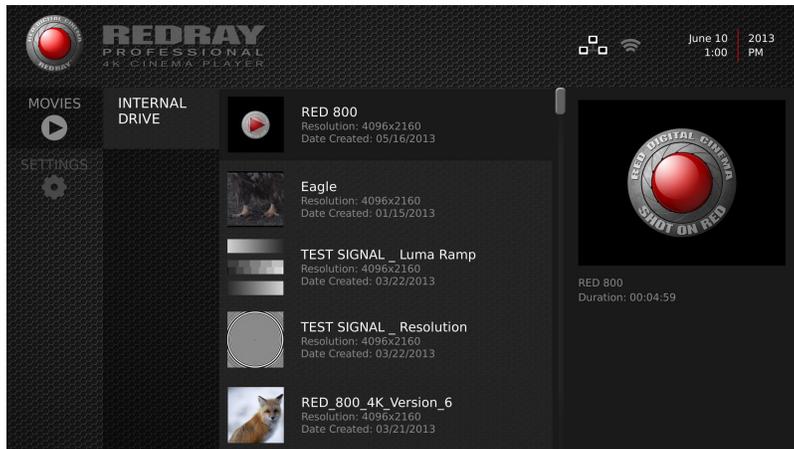


Figure: Movie Browser - Select

DELETE MOVIES

1. Navigate to the movie that you want to delete.
2. Press **Right** to access additional options.
3. Select **Delete Content**.
4. Press **Enter** to delete the movie from the list.
NOTE: If you do not want to delete the movie, select **Cancel**.

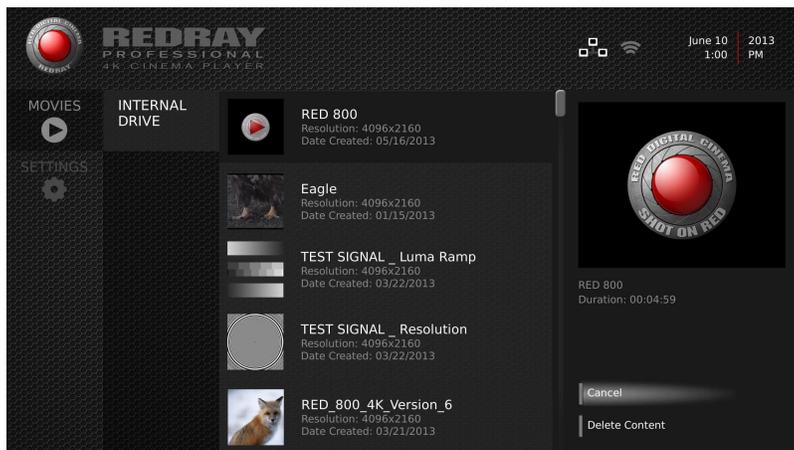


Figure: Movie Browser - Delete

REDRAY PLAYER OPERATION GUIDE

PLAYBACK OPERATIONS



Figure: IR Remote

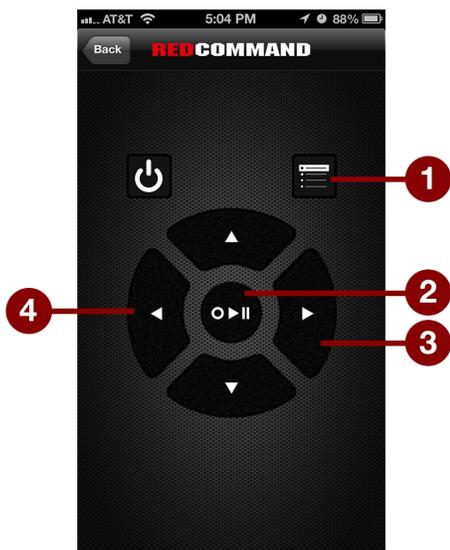


Figure: REDcommand App

The operations described in the table below are available while playing movies.

#	OPERATION	SELECT ON IR REMOTE OR REDCOMMAND
1	Stop	Press Menu to Stop the movie
2	Play, Pause, and Resume	Press Enter to Play/Pause or resume a paused movie
3	Fast-Forward ¹	Press Right to Fast-Forward by 4x, 8x, or 16x
4	Rewind ¹	Press Left to Rewind by 4x, 8x, or 16x

1. Audio does not play during fast-forward or rewind.

REDRAY PLAYER OPERATION GUIDE

ORGANIZE MOVIES IN FOLDERS

Keep all of your movies organized on the REDRAY by creating and managing folders.

CREATE FOLDERS

You can create a folder in the INTERNAL DRIVE, or within another folder. When creating a sub-folder, make sure that you are inside a folder first; otherwise, the new folder is added to the same level as the original folder.

To create folders, follow the instructions below:

1. Navigate to **MOVIES > INTERNAL DRIVE**.
2. Press **Right** to access additional menu options.
3. Select **Create Folder**.
4. Enter a name for the folder and select **Accept**.

DELETE FOLDERS

Deleting a folder deletes all of the movies and sub-folders located inside it.

1. Navigate to the specific folder, and press **Right** to access additional menu options.
2. Select **Delete**.

An “Are You Sure?” dialog box appears.

3. Select **Yes**.

A dialog box appears notifying you that you are deleting all movies.

4. Select **Yes**.

MOVE MOVIES

Moving a movie removes the movie from the original directory and places it in another directory.

To move a movie, follow the steps below:

1. Navigate to **MOVIES > INTERNAL DRIVE**.
2. Press **Right** to access additional menu options.
3. Select **Move**.

All of the movies temporarily disappear from the INTERNAL DRIVE, so that only folders display.

4. Navigate to the desired destination folder for the movie.
5. Press **Right** to access additional menu options.
6. Select **Move**.

NOTE: If you decide that you do not want to move the movie, select **Cancel**. This cancels the action, and the movie remains in the original directory.

CHAPTER 4: REDRAY SETUP

SET UP YOUR REDRAY

1. Install two (2) AAA batteries (included) into the IR Remote Control.
2. Attach the 802.11 Antenna (wireless transceiver) to the 802.11 Connector.
3. Connect an HDMI 1.4 cable (also known as an HDMI High Speed cable) to an HDMI input port on your monitor, and connect the other end to the REDRAY® port that corresponds to your monitor configuration:
 - ▶ **4K (UHD) monitor:** Plug an HDMI 1.4 cable into the **VID D** port.
 - ▶ **HD monitor:** Plug an HDMI 1.4 cable into the **HDTV** port.
 - ▶ **Four HD monitors:** Plug HDMI 1.4 cables into the **VID A**, **VID B**, **VID C**, and **VID D** ports (One (1) HDMI 1.4 cable is required for each port).

For more information, go to "[Monitor Configuration](#)" on the next page.

4. If using a standalone audio receiver, plug an HDMI 1.4 cable into the **AUDIO** port, and plug the other end of the cable into an HDMI input port on your audio receiver.
5. Plug an Ethernet cable into the **NETWORK** port (Upper) and connect the other end to an Ethernet port on one of the following devices:
 - ▶ Internet router.
 - ▶ Wireless network extender.
 - ▶ Any other device that is designed to distribute Ethernet, such as a powerline Ethernet adapter.

NOTE: For optimal media download speeds, connect to your network using an Ethernet cable, and not a wireless connection.

6. Plug the IEC Power Cord into the **AC power** connector.
7. Toggle the **Power Switch** to turn on the REDRAY.

The POWER LED on the front panel illuminates red and the STATUS LED flashes orange.

The REDRAY powers up in about three (3) minutes.

NOTE: For more information on general setup, refer to the REDRAY QUICK-START GUIDE included.

REDRAY PLAYER OPERATION GUIDE

MONITOR CONFIGURATION

MONITOR CONFIGURATIONS		PORTS AND CABLES				
DISPLAY TYPE	AUDIO	VID A	VID B	HDTV	VID C	VID D
4K (UHD) monitor: One 4096 x 2160p or 3840 x 2160p monitor	HDMI 1.4 cable					HDMI 1.4 cable
HD monitor: 3840 x 2160p output scaled to a 1920 x 1080p monitor	HDMI 1.4 cable			HDMI 1.4 cable		
Four HD monitors: Four 3840 x 2160p outputs segmented and scaled to four 1920 x 1080p monitors	HDMI 1.4 cable	HDMI 1.4 cable (top left monitor)	HDMI 1.4 cable (top right monitor)		HDMI 1.4 cable(bottom left monitor)	HDMI 1.4 cable (bottom right monitor)

NOTE: Use only HDMI 1.4 cables (also known as HDMI High Speed cables) to connect your monitor(s) and audio receiver to the REDRAY.

RECOMMENDED MONITOR SETTINGS

The out-of-the-box settings for many monitors are not optimized for 4K and HD content. Review your monitor's operation guide and settings to ensure your monitor is optimized for the best viewing experience possible.

When using REDRAY, RED recommends that you adjust your monitor's image quality and image size/scaling settings as described below.

IMAGE QUALITY

If applicable, RED recommends that you turn the following monitor settings to "Off" or "Zero":

- ▶ Sharpness
- ▶ Motion enhancement settings, including any TruMotion™ or Motionflow™ settings
- ▶ Dynamic contrast (DC)
- ▶ Reality creation

NOTE: Settings may not be available on all monitors.

REDRAY PLAYER OPERATION GUIDE

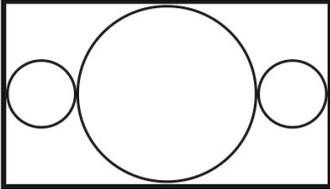
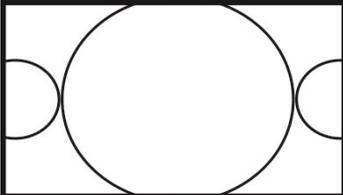
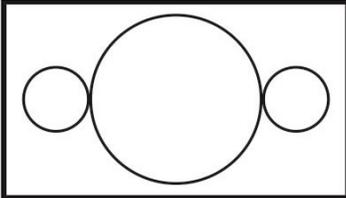
IMAGE SIZE AND SCALING

Every monitor has a setting that determines the size and scaling of your video content on the screen. Depending on the brand and model of your monitor, this setting may be referred to as View Mode, Aspect Ratio, Screen Size/Resolution, or another name.

If the image on your monitor is stretched out, incorrectly scaled, cut off, or otherwise distorted, select an image size/scaling option that fits and scales your content correctly.

Refer to your monitor's operation guide for more information on your monitor's size and scaling options.

IMAGE SIZE AND SCALING EXAMPLES

DISPLAY	SUMMARY	DESCRIPTION
	Correct display	The entire image is displayed unaltered on the screen.
	Stretched	The image is stretched out and may be partially cut off. If your image is stretched, adjust the size/scaling settings on your monitor.
	Incorrectly scaled	The image is incorrectly scaled, so that the image is either too large for the screen, or the image is too small and does not fill the screen. If your image is incorrectly scaled, adjust the size/scaling settings on your monitor.

CHAPTER 5: REDRAY SETTINGS

SETTINGS MENU

The REDRAY® SETTINGS Menu provides access to important REDRAY system settings and other information including: network information, date and time settings, video information, playback settings, and more.

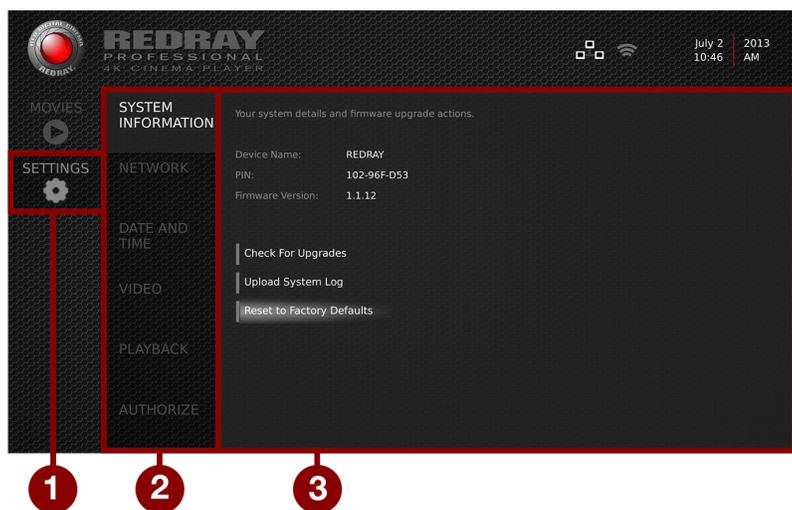


Figure: SETTINGS Menu

#	MENU ELEMENT	DESCRIPTION
1	SETTINGS Menu	Includes SYSTEM INFORMATION, NETWORK, DATE AND TIME, VIDEO, PLAYBACK, and AUTHORIZE settings
2	SETTINGS Sub-menus	Includes all media loaded on the REDRAY player
3	Settings Browser	Displays the available media on the INTERNAL DRIVE

REDRAY PLAYER OPERATION GUIDE

SYSTEM INFORMATION

The SYSTEM INFORMATION sub-menu shows the currently installed firmware version and the unique Product Identification Number (PIN).

You can upload system log files from this screen. For more information on REDRAY system log files, go to ["Set up Your REDRAY"](#) on page 18.

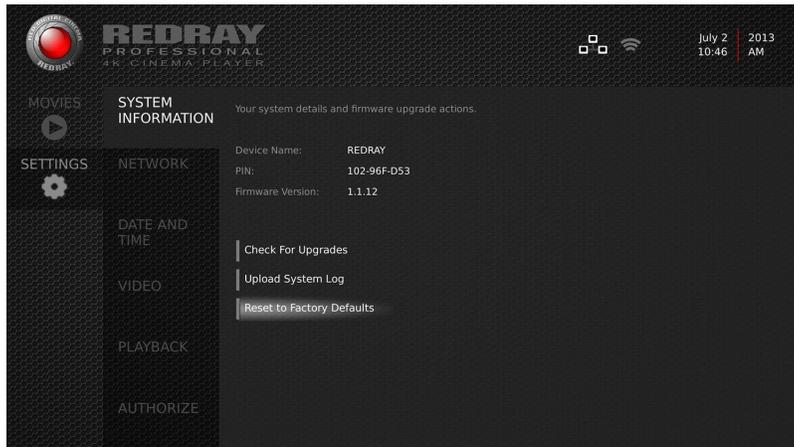


Figure: System Information

RESET TO FACTORY DEFAULTS

RED no longer provides authorization (registration) for REDRAY Players. If you reset the REDRAY Player to the factory defaults, then you will be unable to re-authorize the device. If you previously authorized the REDRAY Player, then you will be able to continue to use the RRencode Plugin licenses. However, if you never authorized the REDRAY Player, then you will not get access to RRencode Plugin licenses. This means that you will not be able to encode content for the REDRAY Player. RED cannot re-authorize the device in any way. For more information, go to the [REDRAY Player Support](#) article.

REDRAY PLAYER OPERATION GUIDE

NETWORK

You can connect your REDRAY to your network using an Ethernet cable or a wireless connection. For optimal media download speeds, connect to your network using an Ethernet cable, and not a wireless connection.

Configure your network settings through the NETWORK sub-menu. After your network settings are configured, the current Ethernet and wireless IP addresses are displayed in the NETWORK sub-menu.

NOTE: DO NOT attempt to connect to more than one (1) network at a time.

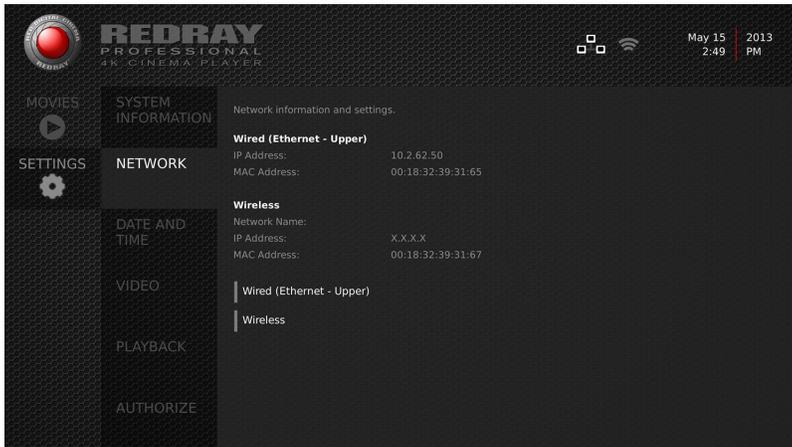


Figure: Network

REDRAY PLAYER OPERATION GUIDE

CONNECT WITH ETHERNET

The default and recommended setting for Ethernet is AUTOMATIC (DHCP). In this mode, the REDRAY receives its IP Address from your network router.

CONNECT WITH DCHP

1. Navigate to **SETTINGS > NETWORK**.
2. Select **Wired (Ethernet - Upper)**.
3. Select **Automatic (DHCP)**.

The REDRAY communicates with the router for about 10 seconds to obtain your network IP address. You cannot select anything on the REDRAY on-screen display during these 10 seconds.

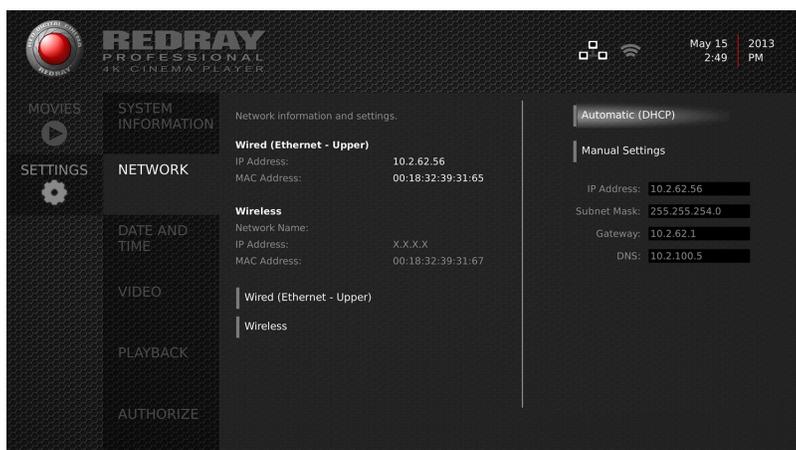


Figure: Wired (Ethernet - Upper)

After the REDRAY obtains the IP address, the panel on the right side of the screen closes and the IP address displays on the NETWORK screen.

NOTE: If the REDRAY is connected to a router through an Ethernet cable and a wireless connection, two (2)sets of IP addresses display on the NETWORK screen.

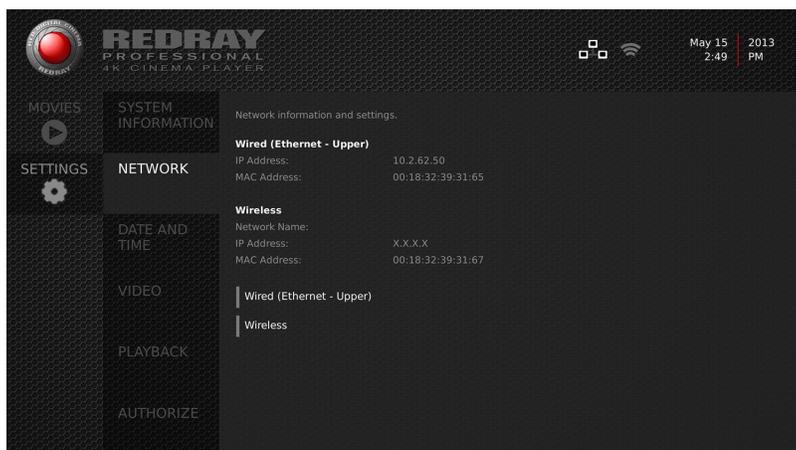


Figure: Network IP Address

REDRAY PLAYER OPERATION GUIDE

CONNECT MANUALLY

If you prefer to use a static IP address (instead of using the DHCP setting), connect to your network by following the instructions below:

1. Navigate to **SETTINGS > NETWORK**.
2. Select **Wired (Ethernet - Upper)**.
3. Select **Automatic**.
4. Select **Manual**.
5. Select **IP Address** and enter your network information.
6. Select **Subnet Mask** and enter your network information.
7. Select **Gateway** and enter your network information.
8. Select **DNS** and enter your network information.

The REDRAY communicates with the router for about 10 seconds to obtain your network IP address. You cannot select anything on the REDRAY on-screen display during these 10 seconds.

After the REDRAY obtains the IP address, the panel on the right side of the screen closes and the IP address displays on the NETWORK screen.

NOTE: If the REDRAY is connected to a router through an Ethernet cable and a wireless connection, two sets of IP addresses display on the NETWORK screen.

CONNECT WIRELESSLY

For optimal media download speeds, connect to your network using an Ethernet cable, and not a wireless connection. However, if you only have access to a wireless network, configure your wireless connection by following the instructions below.

1. Navigate to **SETTINGS > NETWORK**.
2. Select an available wireless network.

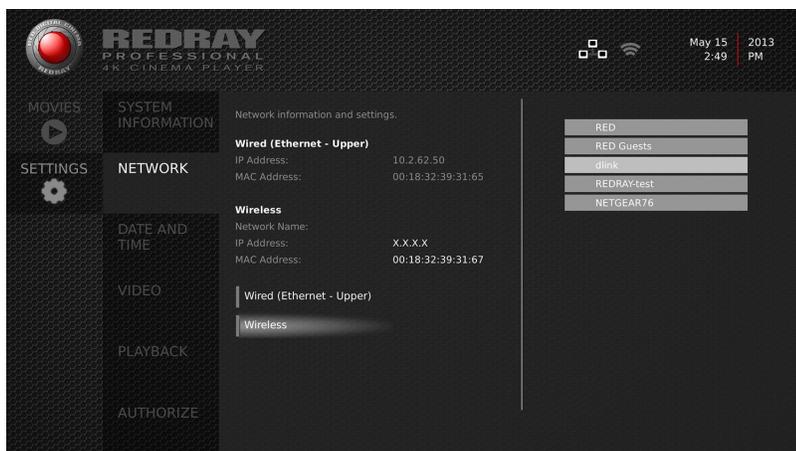


Figure: Wireless Networks

3. Select **Network Name (SSID)** and choose your network.
4. Select **Authentication Type** and choose the appropriate security setting (a home network typically uses WPA2-Personal).
5. Select **Wireless Key** and enter your network password.

REDRAY PLAYER OPERATION GUIDE

- After entering the wireless settings, select **Accept**.

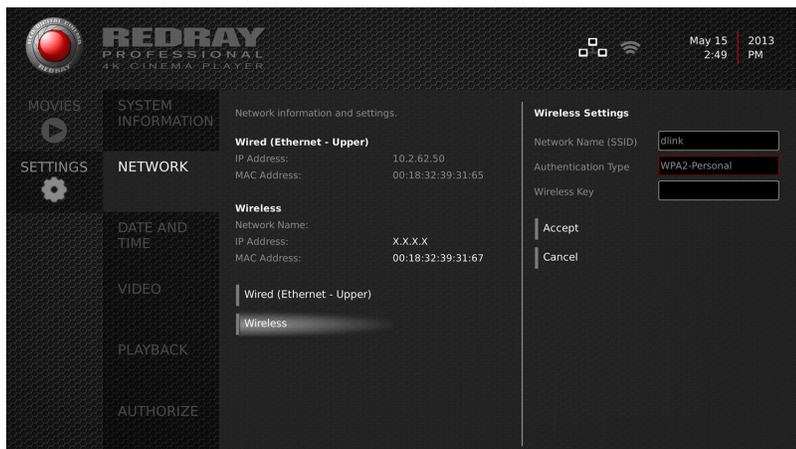


Figure: Wireless Settings

The REDRAY communicates with the router for about 10 seconds to obtain your network IP address. You cannot select anything on the REDRAY on-screen display during these 10 seconds.

After the REDRAY obtains the IP address, the panel on the right side of the screen closes and the IP address displays on the NETWORK screen.

NOTE: If the REDRAY is connected to a router through an Ethernet cable and a wireless connection, two sets of IP addresses display on the NETWORK screen.

DATE AND TIME

View and modify your date, time, and time zone settings in the DATE AND TIME sub-menu.

Change your settings by following the instructions below:

- Navigate to **SETTINGS > DATE AND TIME**.
- Select **Date** and enter today's date (MM/DD/YYYY).
- Select **Time** and enter the time.
- Select **Timezone** and choose your location to allow proper synchronization with Universal Time based Digital Rights Management video services.

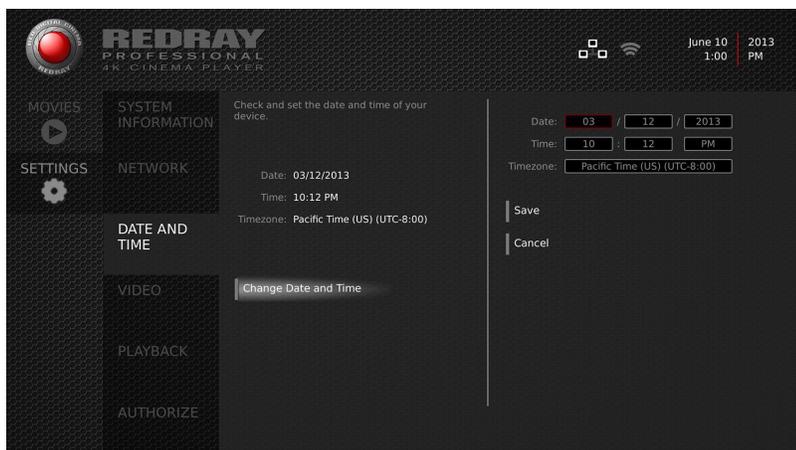


Figure: Date and Time

REDRAY PLAYER OPERATION GUIDE

VIDEO

View and modify your colorspace and bit depth settings in the VIDEO sub-menu.

COLORSPACE

Select either **RGB** or **YCbCr**. The default for most 4K Ultra High Definition displays is YCbCr.

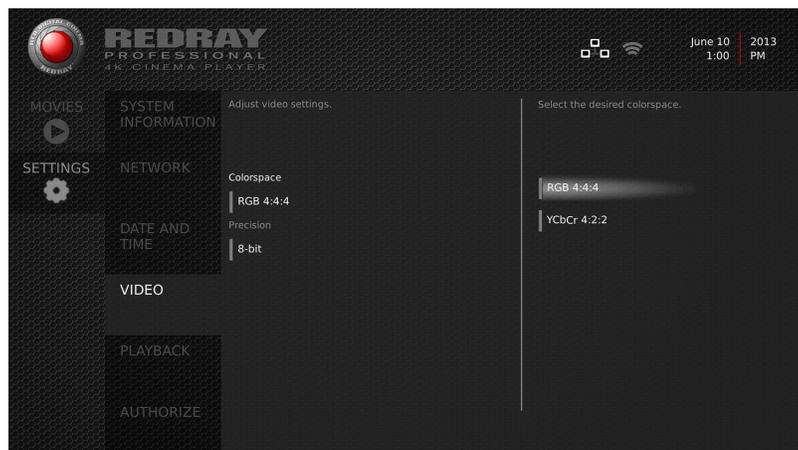


Figure: Colorspace

BIT DEPTH

Select a bit depth. If the colorspace is set to RGB, the bit depth is limited to 8-bit at 4K resolution. If the colorspace is set to YCbCr, you can set the bit-depth to 8-bit, 10-bit, or 12-bit. In most cases, 10-bit is the recommended bit-depth to match the REDRAY output precision to the display input precision.

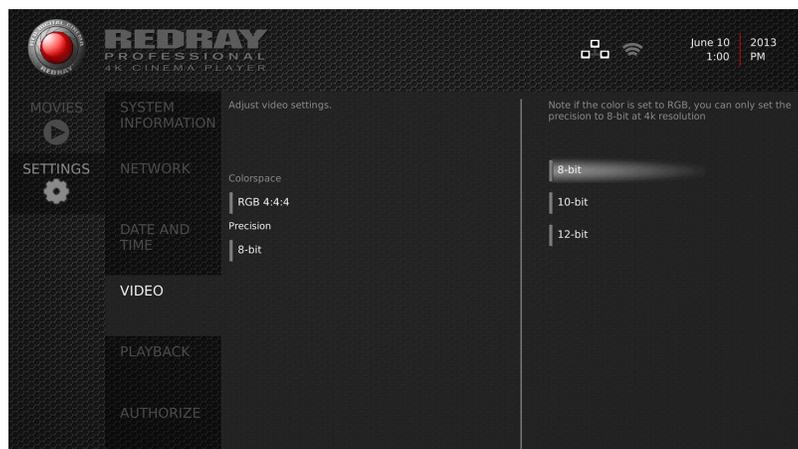


Figure: Bit Depth

REDRAY PLAYER OPERATION GUIDE

PLAYBACK

In the PLAYBACK sub-menu, you can enable or disable Video Loopback. When Video Loopback is enabled, a video replays automatically after it ends. By default, Video Loopback is disabled.

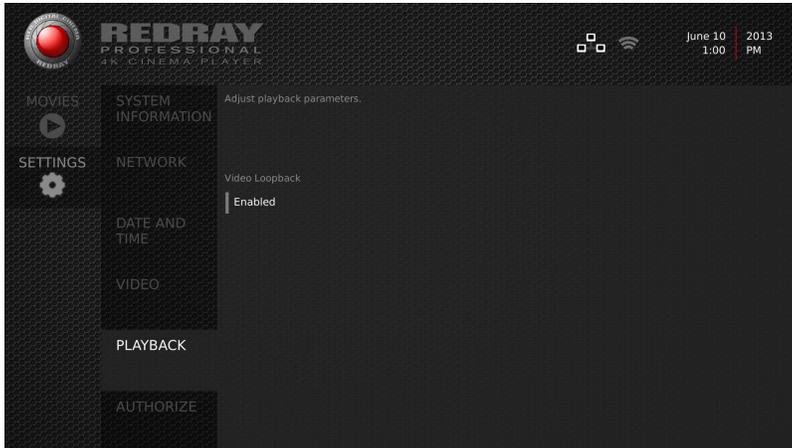


Figure: Video Loopback

REGISTER (AUTHORIZE) YOUR REDRAY

RED no longer provides authorization (registration) for REDRAY Players. For more information, go to the [REDRAY Player Support](#) article.

CHAPTER 6:

TROUBLESHOOT THE REDRAY

This chapter explains how to troubleshoot your REDRAY® Player. If you continue to experience issues after troubleshooting, submit a Support ticket at <https://support.red.com>.

ACCESS REDRAY LOG FILES

If you need to contact a Support representative about issues with your REDRAY, you may be asked to send in or attach a log file to a support ticket. To access the log file on the REDRAY Player, follow the instructions below:

1. Navigate to the **SETTINGS** > **SYSTEM INFORMATION** menu.
2. Insert a blank USB 2.0 flash drive (formatted as MS-DOS FAT for Mac®, or FAT32 for Windows®) into the USB port on the front panel of the REDRAY.
3. Select **Upload System Log**.
4. Select **USB**. The log file is loaded onto the connected USB flash drive.
5. You can now connect the USB 2.0 flash drive to your computer and access the REDRAY log file.

NOTE: Other options available in the REDRAY menu are reserved for future use.

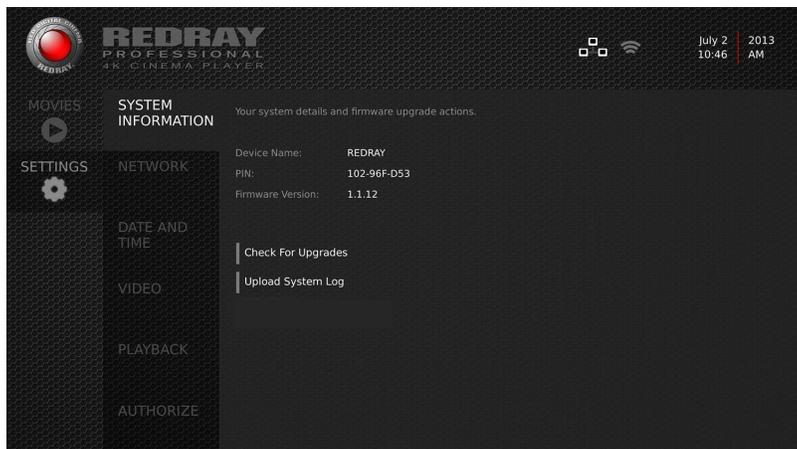


Figure: Upload System Log

TROUBLE WITH REDRAY SETUP

SYMPTOM

Having trouble with audio or video from your REDRAY Player.

POTENTIAL RESOLUTION

Ensure that you are using only HDMI 1.4 cables (also known as HDMI High Speed cables) to connect your monitor(s) and audio receiver to the REDRAY.

REDRAY PLAYER OPERATION GUIDE

TROUBLE WITH 4K IMAGE

SYMPTOM

The monitor is not displaying the 4K image properly, or only displaying one quadrant of the 4K image.

POTENTIAL RESOLUTIONS

- ▶ Ensure that your display is 4K or UHD capable. Ensure that you are using the appropriate cabling configuration to set up your 4K/UHD display. If you are setting up a display that uses four (4) individual 1080p resolution panels to display the 4K media, ensure that you have properly attached the cables to the REDRAY Player.
- ▶ If you are using a 1080p monitor, ensure the HDMI 1.4 cable is plugged into the HDTV OUT port on the REDRAY.
NOTE: Refer to "[REDRAY Setup](#)" on page 18, or the REDRAY QUICK-START GUIDE included in your REDRAY shipment.

TROUBLE WITH LOOPBACK AND COMPRESSED AUDIO

SYMPTOM

The REDRAY freezes or begins functioning improperly while the Loopback setting is enabled.

POTENTIAL RESOLUTIONS

- ▶ If the REDRAY freezes, cycle the power off and back on using the AC power switch on the rear panel. If the problem persists, submit a Support ticket at <https://support.red.com>.
- ▶ Content that has been encoded with compressed audio may cause the REDRAY to freeze when the Loopback setting is enabled. If the problem persists, ensure that your .RED file is encoded with uncompressed audio if you wish to play the content on loop.

TROUBLE WITH MEDIA CARDS

SYMPTOM

The REDRAY Player does not recognize a USB 2.0 flash drive or SDHC™ card.

POTENTIAL RESOLUTION

Verify that the USB 2.0 flash drive or SDHC card is formatted as MS-DOS FAT (for Mac) or FAT32 (for Windows).

CANNOT UPLOAD MOVIES

SYMPTOM

A USB 2.0 flash drive or SDHC card is connected to the REDRAY, but it does not upload movies.

POTENTIAL RESOLUTION

If the REDRAY does not upload the movies that are on your USB flash drive or SDHC card, ensure that all of your movies are in a folder called "Content".

CANNOT CONNECT REDCOMMAND TO THE REDRAY

SYMPTOM

The REDcommand app does not connect or communicate with the REDRAY.

POTENTIAL RESOLUTION

Verify your IP address and network settings. If the problem persists reset your router and try again.

CANNOT PLAY MOVIE

SYMPTOM

Attempting to play the movie results as a full frame of yellow.

EXPLANATION

If you attempt to play a video encoded with HDCP (High-bandwidth Digital Content Protection), the output video displays as a full frame of yellow. The REDRAY on-screen menus and test-patterns continues to display correctly, as those elements are not HDCP protected.

POTENTIAL RESOLUTION

If the video output is yellow, try encoding the video with HDCP disabled.

APPENDIX A: TECHNICAL SPECIFICATIONS

REDRAY PLAYER

REDRAY PLAYER TECHNICAL SPECIFICATIONS

SPECIFICATION	DESCRIPTION
Supported Resolution	Up to 4096 × 2160 pixels, 4K DCI, 4K UHD, 1080p
Supported Video File Format	.RED (4K)
Playback Frame Rates	23.98 FPS, 24 FPS
Audio File Format	.RED
Audio Output	Up to 5.1 channel LPCM, 24-bit 48 kHz
Supported Media	SDHC™ memory card, USB 2.0 flash drive
Storage Capacity	1TB Internal SATA Drive
Bit-Depth (Color)	YCbCr 8-bit 4:2:2, YCbCr 10-bit 4:2:2, YCbCr 12-bit 4:2:2, RGB 8-bit 4:4:4
Colorimetry	ITU-R BT.709
Remote Control	IR (for REDMOTE®), 802.11, WiFi/Ethernet (for REDcommand app)
Media Security	REDCRYPT® digital media encryption
I/O Connectors ¹	4x HDMI 1.4 2x HDMI 1.3 1x USB/eSATA hybrid slot ² 1x GigaBit Ethernet port
Dimensions	Height: 2.2" (60 mm) Width: 14.8" (380 mm) Depth: 9.8" (250 mm)
Weight	5.9 lbs (2.7 kg)
Material	Aluminum
Operating Temperature	0°C to 40°C (32°F to 104°F)
Storage Temperature	-20°C to 50°C (-4°F to 122°F)
Humidity Range	0% to 85%, non-condensing
Minimum Clearance	1.5" (1.25 cm) behind rear panel for fan exhaust

REDRAY PLAYER OPERATION GUIDE

REDRAY PLAYER TECHNICAL SPECIFICATIONS

SPECIFICATION	DESCRIPTION
Power	100-240 VAC, 50-60 Hz, 1A max. at 100 VAC

1. REDRAY® also has a disabled GigaBit Ethernet port and GPI port.
2. Use ONLY USB 2.0 flash drives with the eUSB/eSATA hybrid slot. eSATA is NOT supported.

APPENDIX B:

REDCOMMAND APP

This section provides setup information for the REDcommand app on your iPhone® or iPad® for use with REDRAY®. You can use REDcommand instead of the IR Remote to control your REDRAY.

NOTE: The REDcommand app is optimized for use on the iPhone.

INSTALL REDCOMMAND APP

1. Ensure that your iOS® device is connected to the same network that your REDRAY is connected.
2. Open the **App Store** on your iPhone or iPad.
3. Download and install the **REDcommand app**.
4. Open the **REDcommand app**.

REDcommand opens and automatically searches for available REDRAY units.

5. Select your REDRAY.

NOTE: Currently, you can only control one (1) REDRAY at a time from REDcommand.

REDCOMMAND CONTROLS

After you have paired the REDcommand app to your REDRAY Player, you have full control of the REDRAY using the REDcommand app. You can easily navigate the MOVIE and SETTINGS menus, as well as select videos.

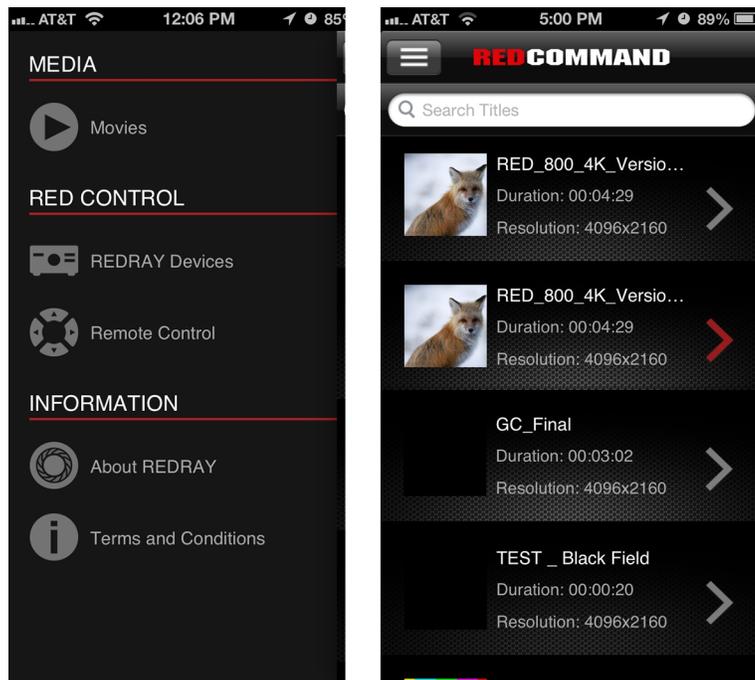


Figure: Browse Menu and Movies

REDRAY PLAYER OPERATION GUIDE

REDcommand can be used to perform playback operations including play, pause, fast-forward, rewind, and stop.

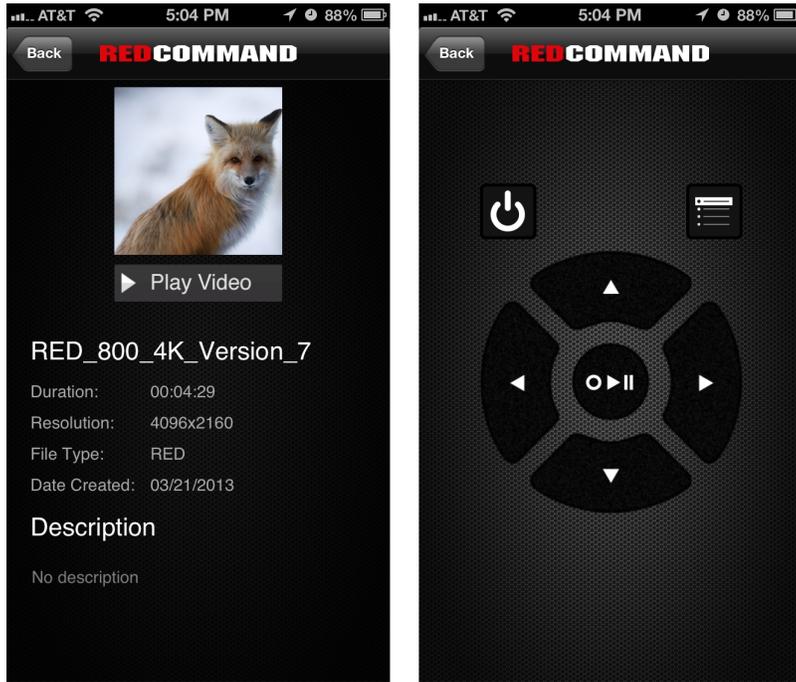
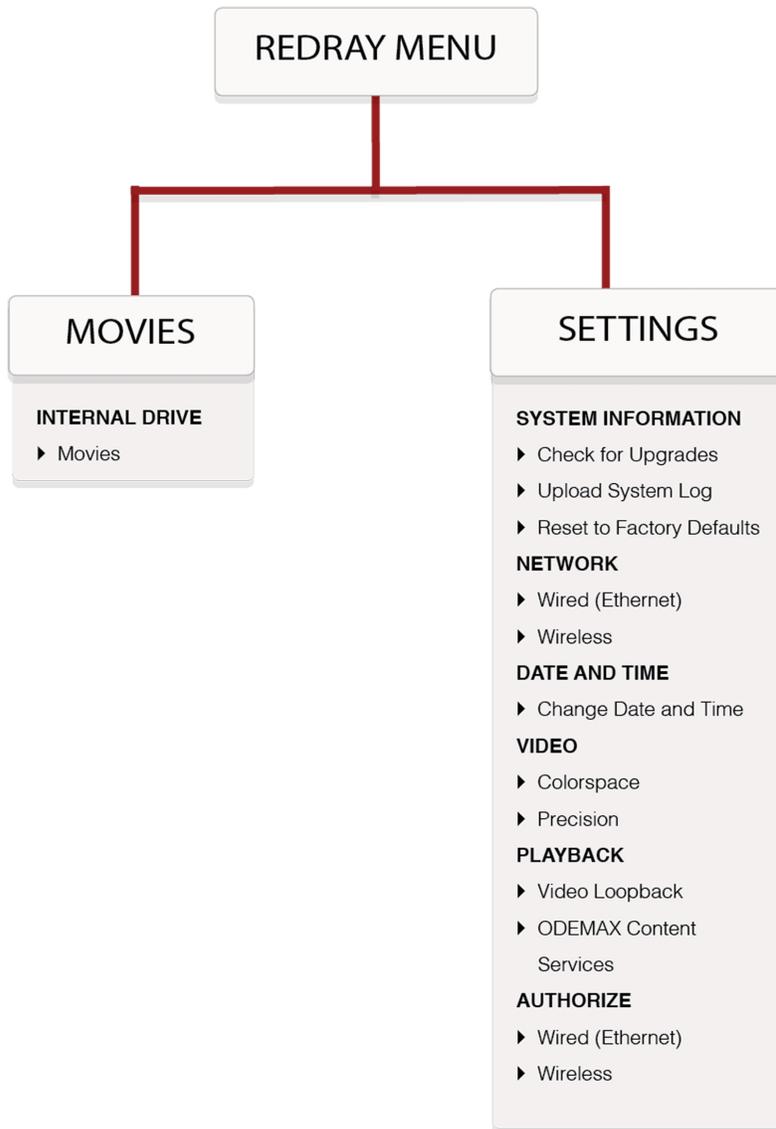


Figure: Playback Operations

APPENDIX C: REDRAY MENU MAP



APPENDIX D: IR CONTROL PROTOCOL

This section provides information about the infrared control protocol used by the provided IR Remote Control to communicate with the REDRAY® Player.

IR SPECIFICATION

SPECIFICATION	DESCRIPTION
IR Format	SONY® (D7C5)
Carrier Signal	Pulse modulated with 40 KHz signal at 480 KHz

IR CONTROL PROTOCOL

KEY CONTROL	SONY IR PROTOCOL MESSAGE	
	DATA CODE	CUSTOM CODE
Power	0X0A	0x19
Menu	0X0B	0X19
Up	0X0C	0X19
Left	0X0D	0X19
Enter	0X0E	0X19
Right	0X0F	0X19
Down	0X10	0X19