

OPS-DRD : OPS Digital Signage Player

Users Manual

v2014-02-28

OPS Form Factor Android Player for Commercial Applications



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Technical Support and Assistance

Visit the NEC Display Solutions Support website at:

<http://nec-display-solutions.com/p/hq/en/home.xhtml>

Contact your distributor, sales representative, or NEC's customer service center for technical support if you need additional assistance. Please have the following information ready before you call:

- Product name and serial number
- Description of installed peripheral attachments
- Description of installed software
 - (operating system, version, application software, etc.)
- A complete description of the problem
- The exact wording of any error messages

If you think you have a defective product, follow these steps:

1. Call your dealer and describe the problem. Please have your manual, product, and any helpful information readily available.
2. If your product is diagnosed as defective, obtain an RMA (return merchandise authorization) number from your dealer. This allows us to process your return more quickly.

3. Carefully pack the defective product, a fully-completed Repair and Replacement Order Card and a photocopy proof of purchase date (such as your sales receipt) in a shippable container. A product returned without proof of the purchase date is not eligible for warranty service. Technovare shall not be responsible for lost, stolen or misdirected mail or for damage to the product incurred during shipping.

4. Write the RMA number visibly on the outside of the package and ship it prepaid to your dealer.

Packing List

Before installation, please ensure the following items have been shipped with the unit:

- 1 x OPS-DRD Unit
- 1 x WiFi Antenna
- Users Manual (installed on the OPS-DRD unit)

Declaration of Conformity

CE

This product has passed the CE test for environmental specifications. Test conditions for passing included the equipment being operated within an industrial enclosure. In order to protect the product from being damaged by ESD (Electrostatic Discharge) and EMI leakage, we strongly recommend the use of CE-compliant industrial enclosure products.

FCC Class A

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their own expense.

Warnings, Cautions and Notes

Warning!

Warnings indicate conditions, which if not observed, can cause personal injury!

Caution!

Cautions are included to help you avoid damaging hardware or losing data. e.g.

There is a danger of a new battery exploding if it is incorrectly installed. Do not attempt to recharge, force open, or heat the battery. Replace the battery only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

Note!

Notes provide optional additional information.

Safety Instructions

CARE SHALL BE TAKEN TO STORE AND OPERATE THIS EQUIPMENT ACCORDING TO ITS SPECIFICATIONS.

DO NOT LEAVE THIS EQUIPMENT IN AN ENVIRONMENT WHERE THE STORAGE TEMPERATURE MAY GO BELOW -20° C (-4° F) OR ABOVE 60° C (140° F). THIS COULD DAMAGE THE EQUIPMENT. THE EQUIPMENT SHOULD BE IN A CONTROLLED ENVIRONMENT.

- Place this equipment on a reliable surface during installation. Dropping it or letting it fall may cause damage.
- The openings on the enclosure are for air convection. Protect the equipment from overheating. DO NOT COVER THE OPENINGS.
- All cautions and warnings on the equipment should be noted.
- Never pour any liquid into an opening. This may cause fire or electrical shock.
- Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.
- If one of the following situations arises, get the equipment checked by service personnel:
 - Liquid has penetrated into the equipment.
 - The equipment has been exposed to moisture.
 - The equipment does not work well, or you cannot get it to work according to the user's manual.
 - The equipment has been dropped and damaged.
 - The equipment has obvious signs of breakage.

Caution!

DISCARD USED BATTERIES ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.

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Product Introduction

The OPS-DRD is a full-featured media player running the Android operating system and packaged in an OPS form-factor. Targeted for Commercial Applications such as Digital Signage, Quick Service Restaurant, and/or Display Walls, the OPS-DRD is based on a 1.0 GHz Quad Core ARM processor with an integrated Multi-Media Processor capable of full 1080P playback and the ability to run certified third party software.

The OPS-DRD supports true 1080P video with hardware assisted support for formats such as MPEG2, H.264, and WM9. The OPS-DRD was designed with display integration in mind, and can be plugged directly into any LCD supporting the Open Pluggable Specification (OPS). Power, Video, Audio, and Serial control are all accessible thru the units OPS connector thus eliminating the need for external cabling.

The OPS-DRD's external connections include 2 USB 2.0 for connection to keyboard, mouse, flash, or touch screen, 100/1000 LAN, 802.11n Wifi, Audio, and a SD Card slot for integrated storage.

Product Specifications

General

Operating System	Android Jelly Bean 4.2.2
CPU	Allwinner Tech A31 Quad-Core
GPU	Integrated PowerVR SGX544 MP2
RAM	2 GB DDR3-1333, Dual Channel (2 x 512M)
Flash	8 GB NAND
Video	OPS-HDMI v1.3 1080p @ 50/60 Hz, 720p @ 50/60 Hz
Audio	OPS-Analog, Stereo
Network	100/1000BT Ethernet 802.11.b/g/n Wireless
I/O	OPS-UART (3.3V LVTTL) USB 2.0 x 2 SD Card Slot
System Monitor	Watch Dog Timer

Power

Input Power	12.0 V – 19.0 V (16.0V Nominal)
Power Consumption	Idle : 2.5 Watts Max : 12.0 Watts

Mechanical

Dimensions	OPS Form Factor (200mm x 119mm x 30mm)
Weight	1.2 lbs / 0.52 kg
Gross Weight	2.2 lbs / 0.98 kg

Environmental

Operating Temperature	0 °C to +40 °C Ambient
Operating Humidity	80 % max, relative humidity, non-condensing
Storage Temperature	-20 °C to +60 °C
EMC	FCC Section 15 CE

External Connections

Bottom of Card (BOC)

The OPS-DRD media player provides a single BOC connector for the purpose of mating with an OPS compatible display or docking station. This 80-pin connector provides connectivity for the following interfaces:

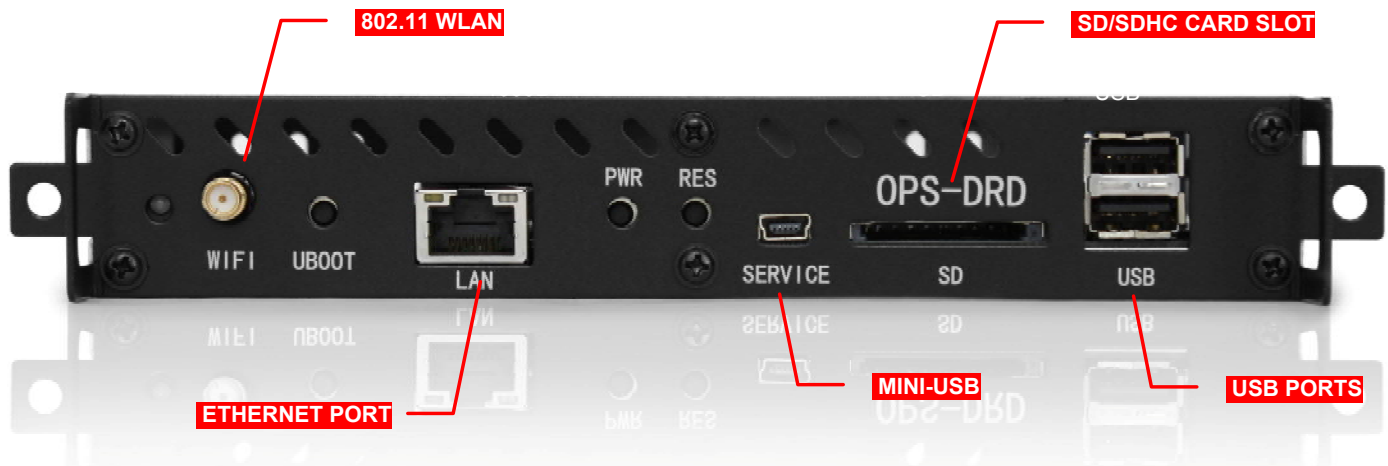
- a. HDMI Video
- b. Analog Stereo Audio
- c. UART
- d. 3 x USB 2.0



OPS-DRD BOC Connector

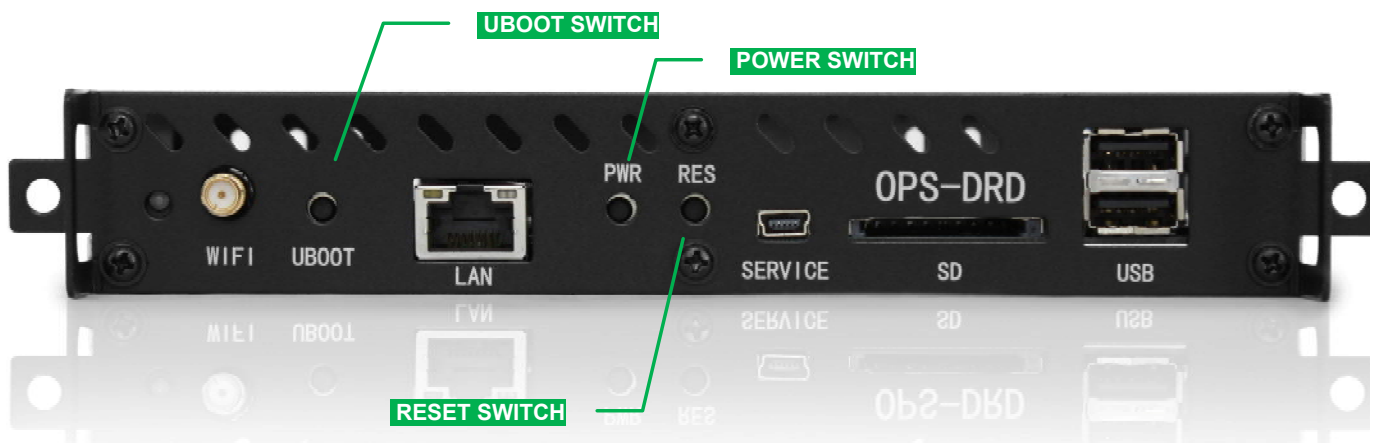
Top of Card (TOC)

The OPS-DRD media player provides several TOC connectors for the purpose of extending the capabilities of the unit. The front face location of these connectors is shown below:



Port	Description
USB	Two (2) USB interface connectors, which provide complete Plug & Play and hot swapping capability for up to 127 external devices. The USB interface is compliant with USB UHCI, Rev. 2.0. The USB interface supports Plug and Play, which enables you to connect or disconnect a device without turning off the system.
LAN	One (1) RJ-45 LAN interface connector, fully compliant with IEEE802.3u 10/100 Base-T CSMA/CD standards. The Ethernet port provides a standard RJ-45 jack connector with LED indicators to show its Active/Link status and speed status
WLAN	One (1) SMA connector for attaching the provided WiFi antenna. This port supports 802.11b/g/n wireless standards.
SD	One (1) standard SD Card Slot for installing additional flash storage.
SERVICE	This mini-USB port is for factory service personnel. It is not intended for end-user access. Caution! IMPROPER USE OF THIS PORT MAY RESULT IN COMPLETE LOSS OF UNIT FUNCTIONALITY.

In addition to the TOC connectors, the OPS-DRD provides several TOC switches as shown below.



Switch	Description
PWR	Power Switch: Allows user to power ON/OFF the unit. Press and hold button for ~ 1 sec to initiate a power ON/OFF event.
RST	Reset Switch : Allows user to reboot unit. Press and release button to initiate a reset event.
UBOOT	UBOOT Switch : Provides support for Firmware Upgrades See section entitled “System Software Updates” for further usage.

Installation

1. Ensure power is OFF on OPS-compatible display.
2. With the USB Ports of the unit towards the top, slide the OPS-DRD media player into the OPS slot on display.
3. Apply medium inward insertion force to unit such that the BOC connector positively engages monitor connector.

Caution!

IF UNIT DOES NOT MATE EASILY WITH MONITOR USING MEDIUM INSERTION FORCE, DO NOT INCREASE FORCE. REMOVE UNIT AND VERIFY PROPER ORIENTATION BEFORE REPEATING.

4. Attach OPS-DRD media player to OPS slot on display with the two (2) machine screws provided.



OPS-DRD Installation

5. Attach peripheral devices as required. See Figure below.



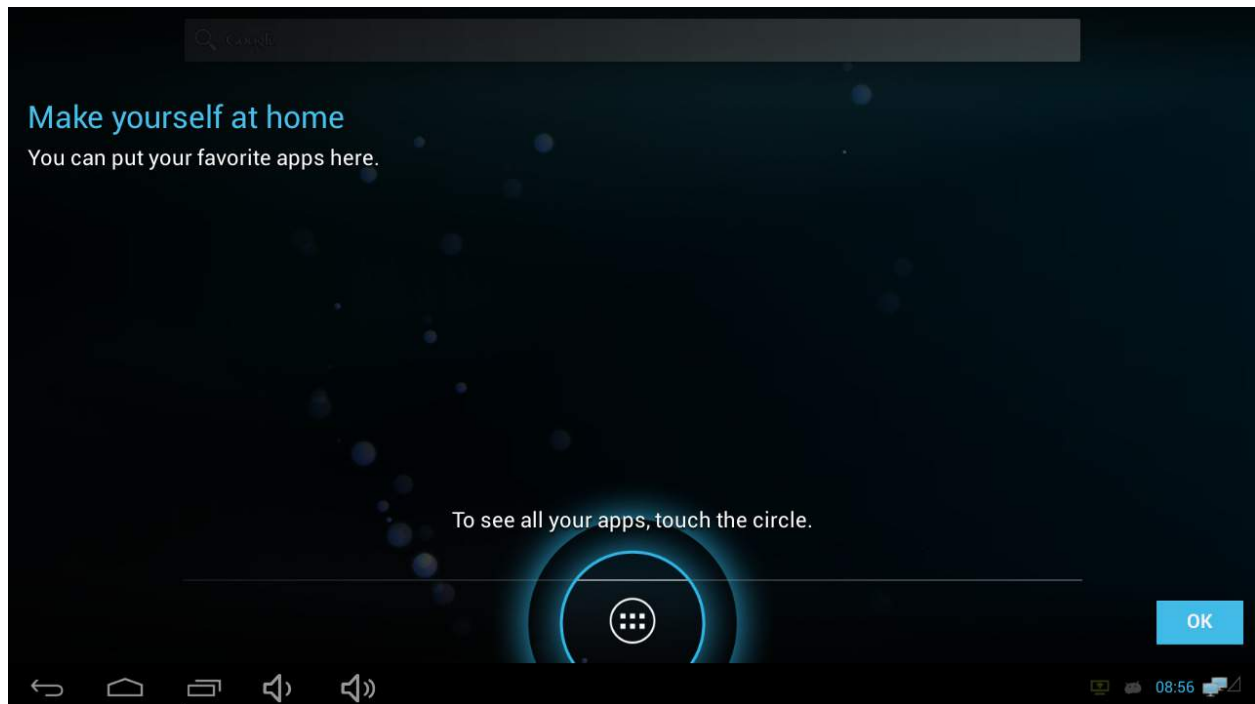
OPS-DRD Connections

Operating Instructions

Power ON

1. Ensure the OPS-DRD unit is securely installed in an OPS-compatible display.
2. The following OPS display configuration may require reference to the manufacturer's documentation.
 - a. Ensure that the Option-Slot Power on the display is configured to ON.
 - b. Ensure that the displays video input is set to OPTION.
 - c. Ensure that the displays audio input is set to OPTION.
 - d. Turn ON the OPS-compatible display.

The OPS-DRD media player power LED should illuminate and the units begin to boot. At the completion of successful boot, the following screen will be displayed:



OPS-DRD First Boot Screen

To power ON the unit when it is already installed in a powered display:

1. Press and hold the POWER button until the POWER LED becomes illuminated.

Power OFF

1. The OPS-DRD unit can be powered OFF by pressing and holding the POWER BUTTON until a message indicating device shutdown appears on the display.

Sleep / Wake

1. The OPS-DRD unit can be put to SLEEP from a powered ON state by quickly pressing and releasing the POWER button. The display will immediately go black and the POWER LED will turn OFF after a short period.
2. The OPS-DRD unit can be commanded to WAKE from a SLEEP state by quickly pressing and releasing the POWER button. The display will immediately return to displaying what was displayed when the unit was placed into the SLEEP state. In addition, the POWER LED will turn ON.

Unit Reset

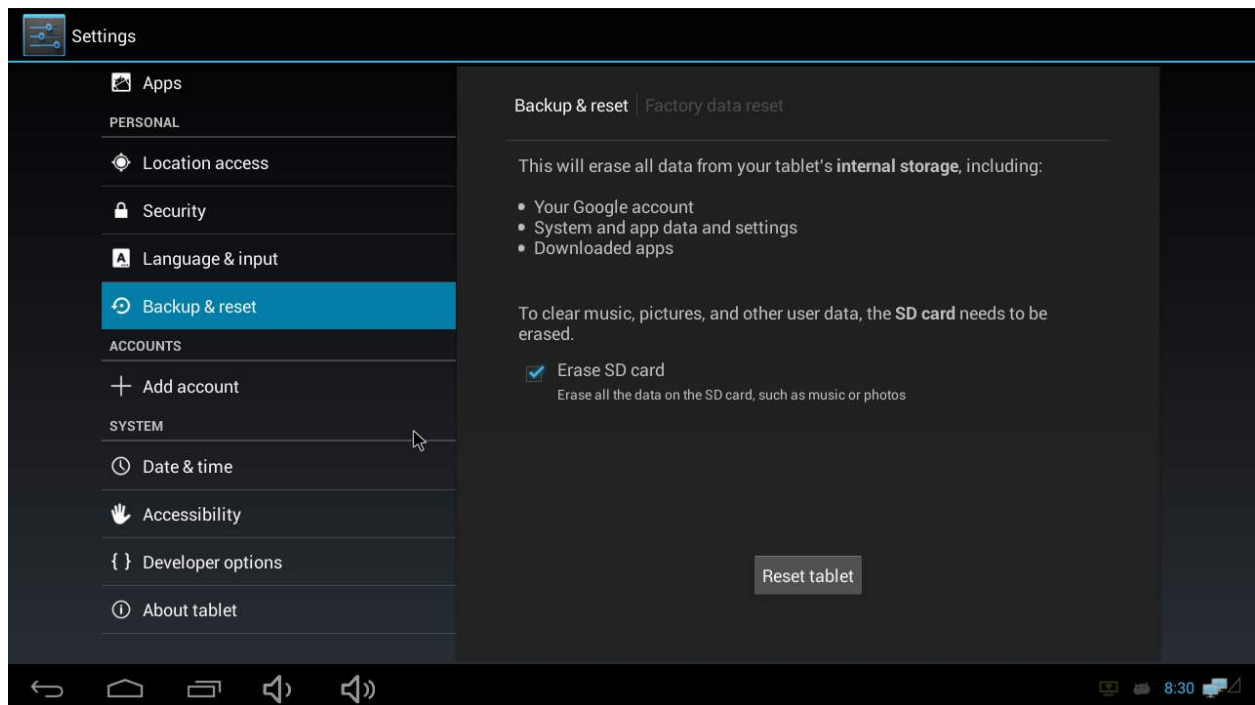
1. The OPS-DRD unit can be reset by pressing and holding the RESET BUTTON until the display goes dark. The unit will begin booting upon release of the RESET BUTTON.

Restore Factory Defaults

Caution!

RESTORING FACTORY DEFAULTS WILL CAUSE ALL INSTALLED APPLICATIONS, DATA AND SETTINGS TO BE LOST. BACKUP ALL IMPORTANT DATA BEFORE CONTINUING.

1. Open the Settings application and click on the "Backup & reset" menu item.
2. Select "Factory data reset" and the pop-up below will be displayed.
3. Check the "Erase SD card" box.
4. Click "Reset tablet" button



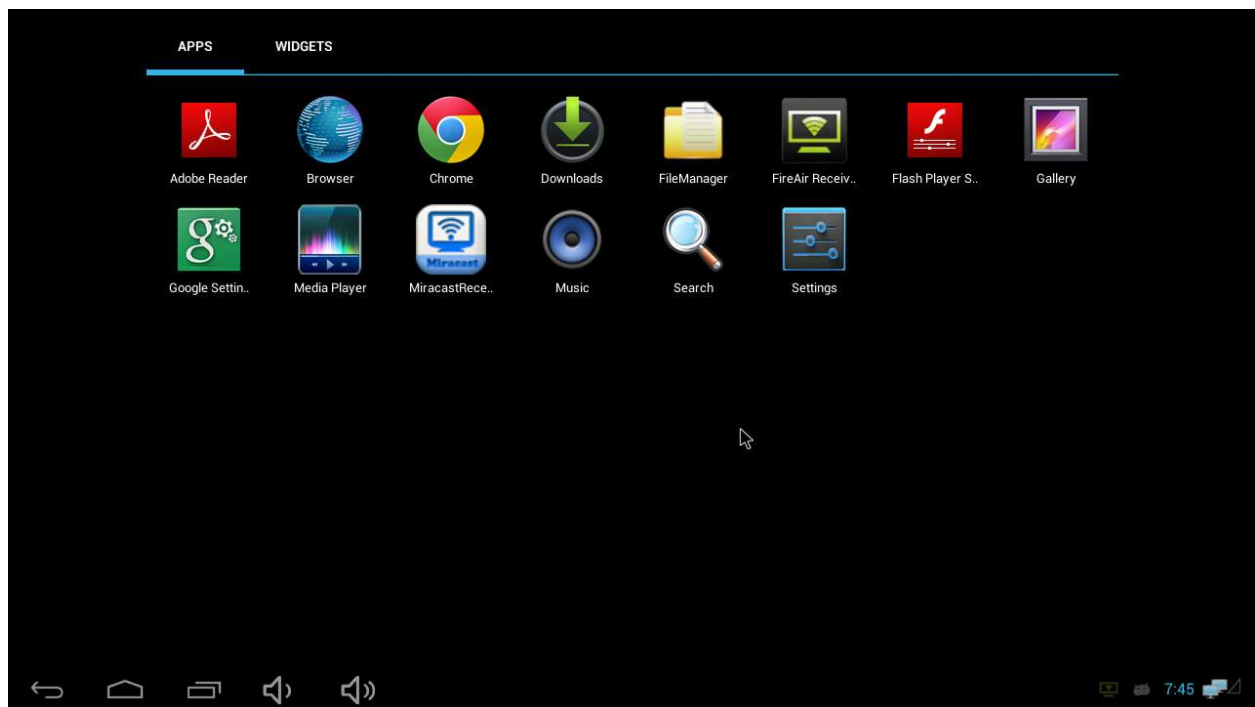
Restore Factory Defaults

The OPS-DRD unit will begin restoring factory defaults. This process should take approximately 2 minutes.

Applications

Out-of-the-Box Applications

Out-of-the-Box, the OPS-DRD provides the applications shown in the figure below. These applications provide basic media player functions such as slideshow displays, video and audio playback as well as content management on internal/external storage.



Out-of-the-Box Applications

The following applications are pre-installed at the factory. These applications cannot be deleted from the system.

Application	Description
Adobe Reader	This application allows viewing of documents in Adobe Portable Document Format (PDF).
Browser	This is a basic web browser application.
Chrome	This is an advanced web browser application supporting HTML5.
Downloads	This application displays all current downloads to the system.
FileManager	This application is used to navigate the OPS-DRD file system, allowing the user to manage files/folders via create, move, copy and delete operations.
FireAir Receiver	This application provides control over the wireless network radio.
Adobe Flash Player	This application allows playing content written in Adobe Flash version 11.
Gallery	This is an application for displaying image content. Also provides basic slideshow capabilities.
Google Settings	This application provides support for Google Play service.
Media Player	This application allows playing of video content.
Miracast Receiver	This application allows mirroring a Miracast Transmitters user interface onto the OPS-DRD.
Music	This application provides access to all installed music content.
Search	This application provides a browser based search capability of the internet.
Settings	This application provides user access to configure a wide variety of system settings allowing the user to tailor their system.

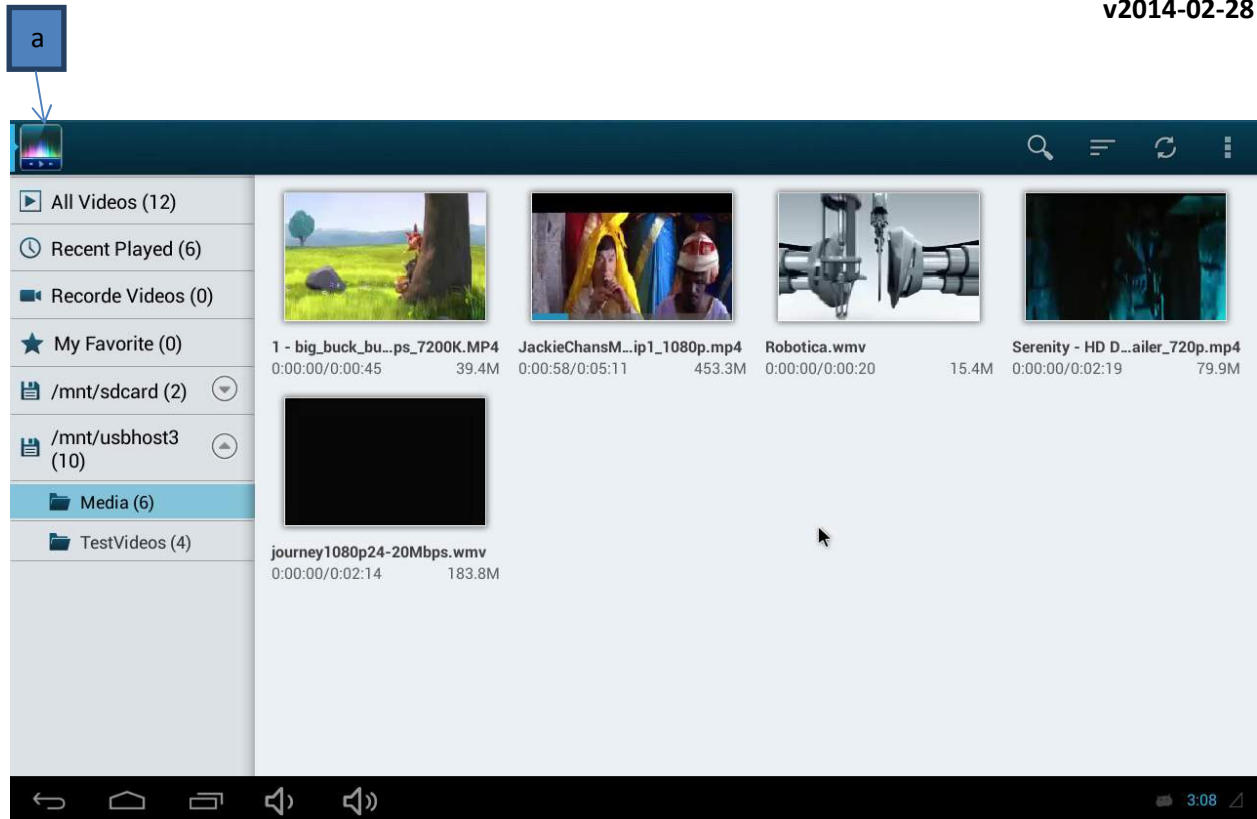
Media Player Application

The Media Player application is represented by the icon shown on the right. It provides facilities for the playback/management of video content.

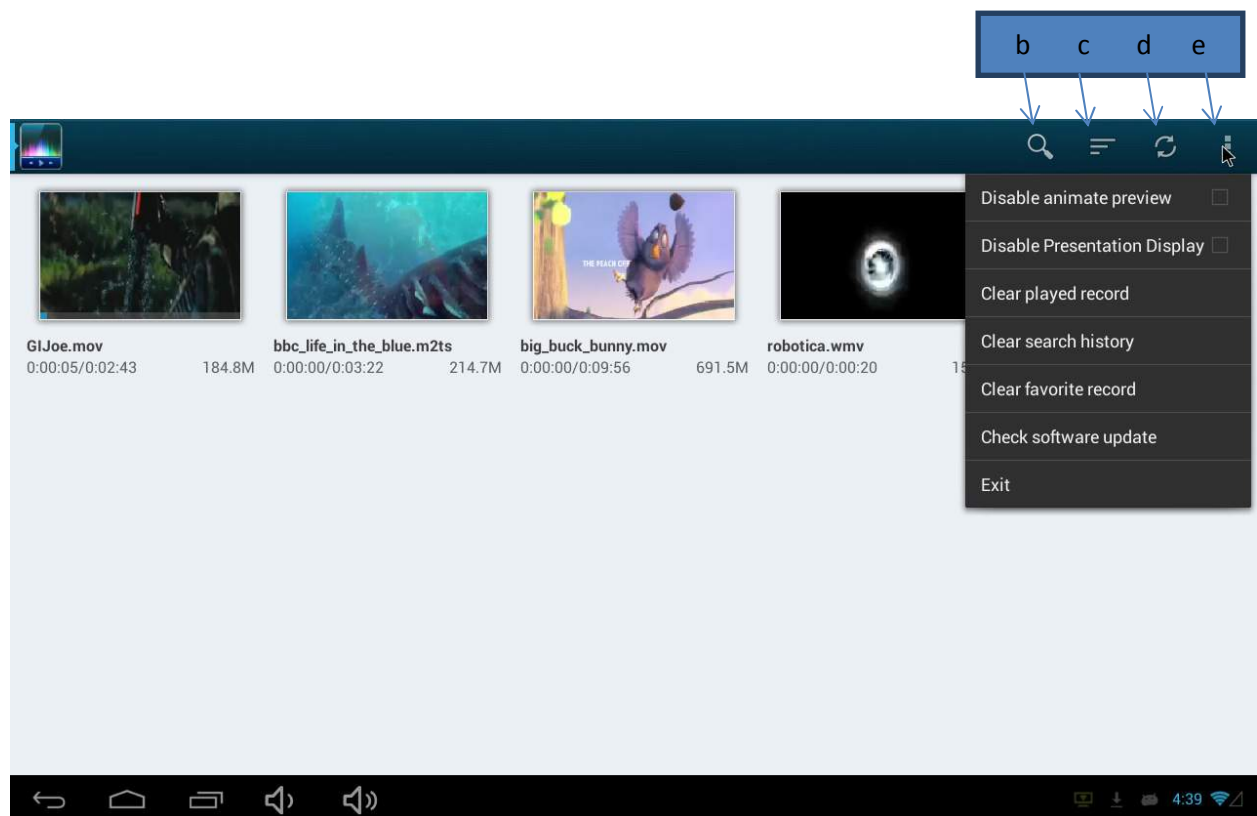


Preview Pane

1. Open the media player by single clicking the Media Player icon in the APPS section.
2. You are now at the “Preview Pane”. Here, your media is automatically found and displayed, whether on SD card, or USB drive.
3. In the preview pane, on the top right corner are a set of option icons. From left to right, here are their functions:
 - a. Media Player icon expands/hides a navigation pane on the left side of the screen. This allows quick access to Recently Played and Favorite videos along with content mounted on internal/external media.
 - b. Magnifying Glass icon allows you to search for media files.
 - c. The next icon allows you to sort the media in the preview pane alphabetically, or by size.
 - d. The next icon will scan for new media and refresh the preview pane.
 - e. The last icon gives you a drop down menu of available options for the preview pane, and the App itself. From here, you can disable the animation of the media in the preview pane, disable the Presentation Display, clear the Recently Played media, clear the Search History, clear the Favorites, check for software updates and exit the App.
4. For media playback, simply click the media file you wish to play. The preview panel will disappear and begin playing your media file. During playback, there are more options available to you.



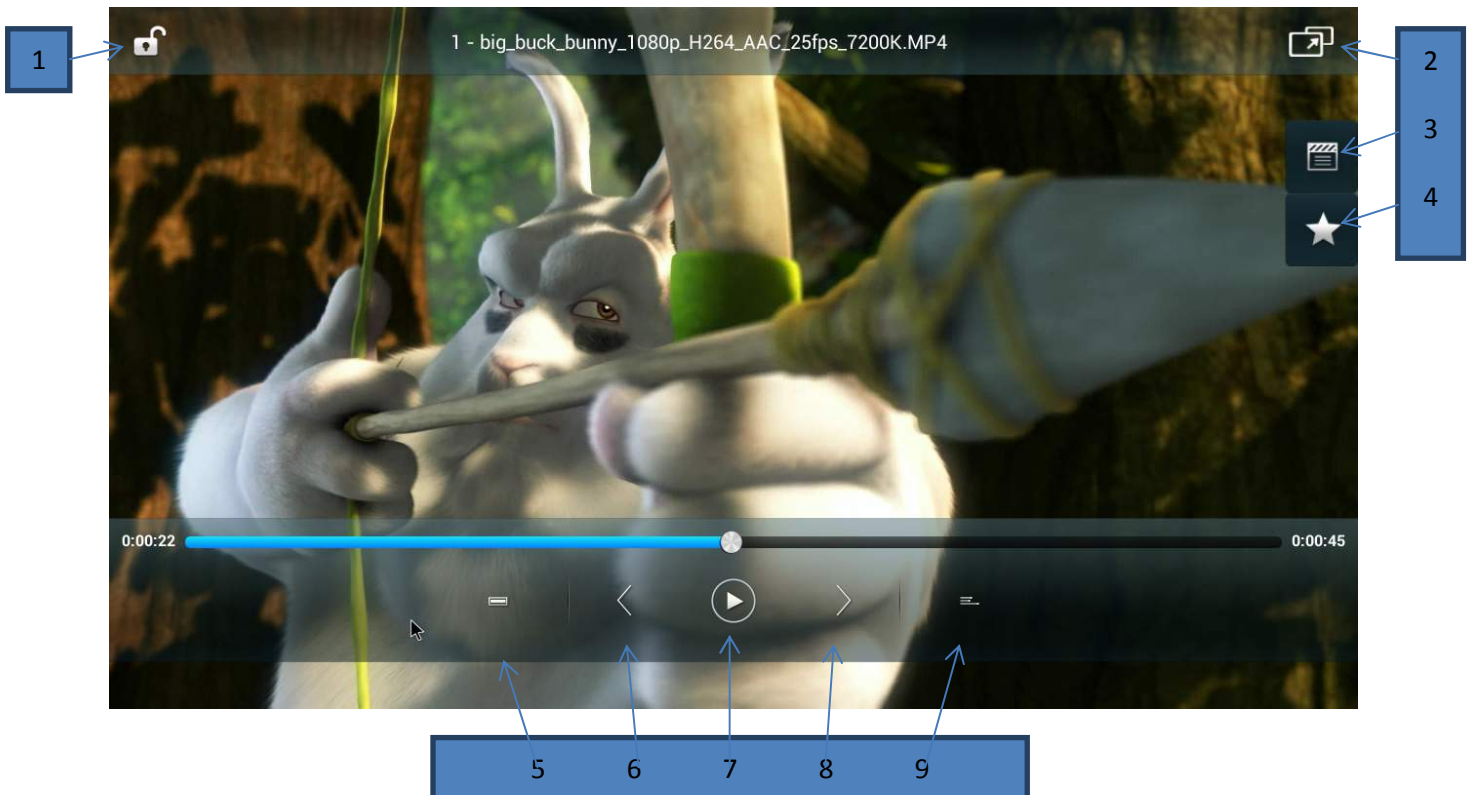
Media Player App : Navigation Pane



Media Player App : Preview Pane

Playback Controls

1. Lock – This button locks out all other options and the media control bar when activated.
2. This button will minimize the media player into a small window, allowing you to access the preview panel and other options.
3. This button will allow you to access the list of previous media files that have already been played.
4. Favorites button – This button will add the current file into your “Favorites” list. If the media file is already in the favorites list, clicking the button again will not remove it from the favorites list.
5. Format – This button changes the format/resolution of the media. The three options are; Native, Full and Stretched.
6. < - This button will skip to the previous media file played.
7. This button is to control the Play/Pause feature.
8. > - This button will skip to the next media file in the playlist.
9. This last button will bring up a sub menu to control the playlist, such as repeat, sequence play, random and also controls subtitles and audio options.



Media Player App : Playback Controls

To access the preview pane from the media player window, simply right click the mouse once, anywhere on the screen. From the preview pane, you can exit the App by clicking the Menu button on the top right of the preview pane, and select exit.

Gallery Application

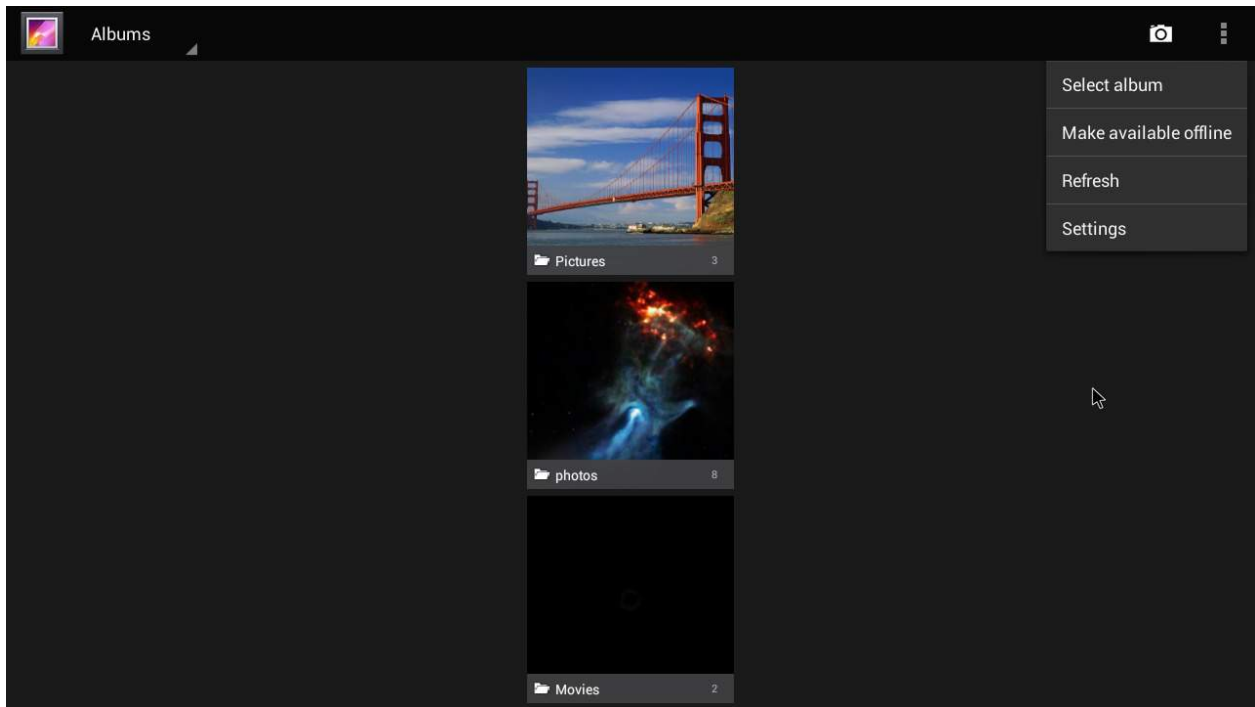
The Gallery application is represented by the icon shown on the right. It provides facilities for the display of static image content.



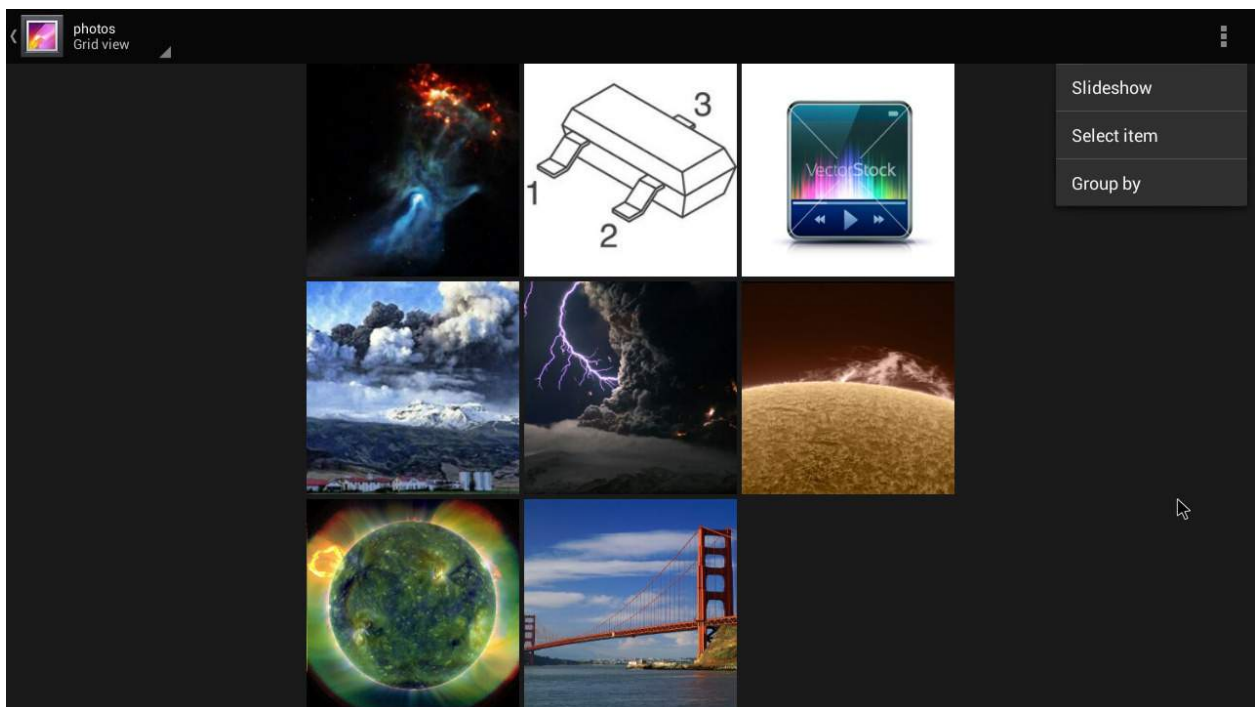
Preview Pane

1. Open the Gallery by single clicking Gallery icon in the APPS section.
2. You are now at the “Preview Pane”. Here, your images are automatically found and displayed, whether on SD card, or USB drive.
3. In the preview pane, on the top left corner is a drop down menu for sorting images in the following ways:
 - a. Albums – Sorts the images by specified albums.
 - b. Locations – Sorts images based on their location, (USB, SD, Internal).
 - c. Times – Sorts images by order of date the photo or file was created.
 - d. People – Sorts images based on people “tagged” in the image.
 - e. Tags – Sorts images by user defined tags.
4. In the preview pane, on the top right corner is a drop down menu for viewing the images. From here, you can tag, group by, select an image for viewing, or add the current image to a slideshow.

**The camera function on the top toolbar, in the preview pane, will activate a camera if one is installed. If no camera is installed, the Gallery will stop responding and close.*

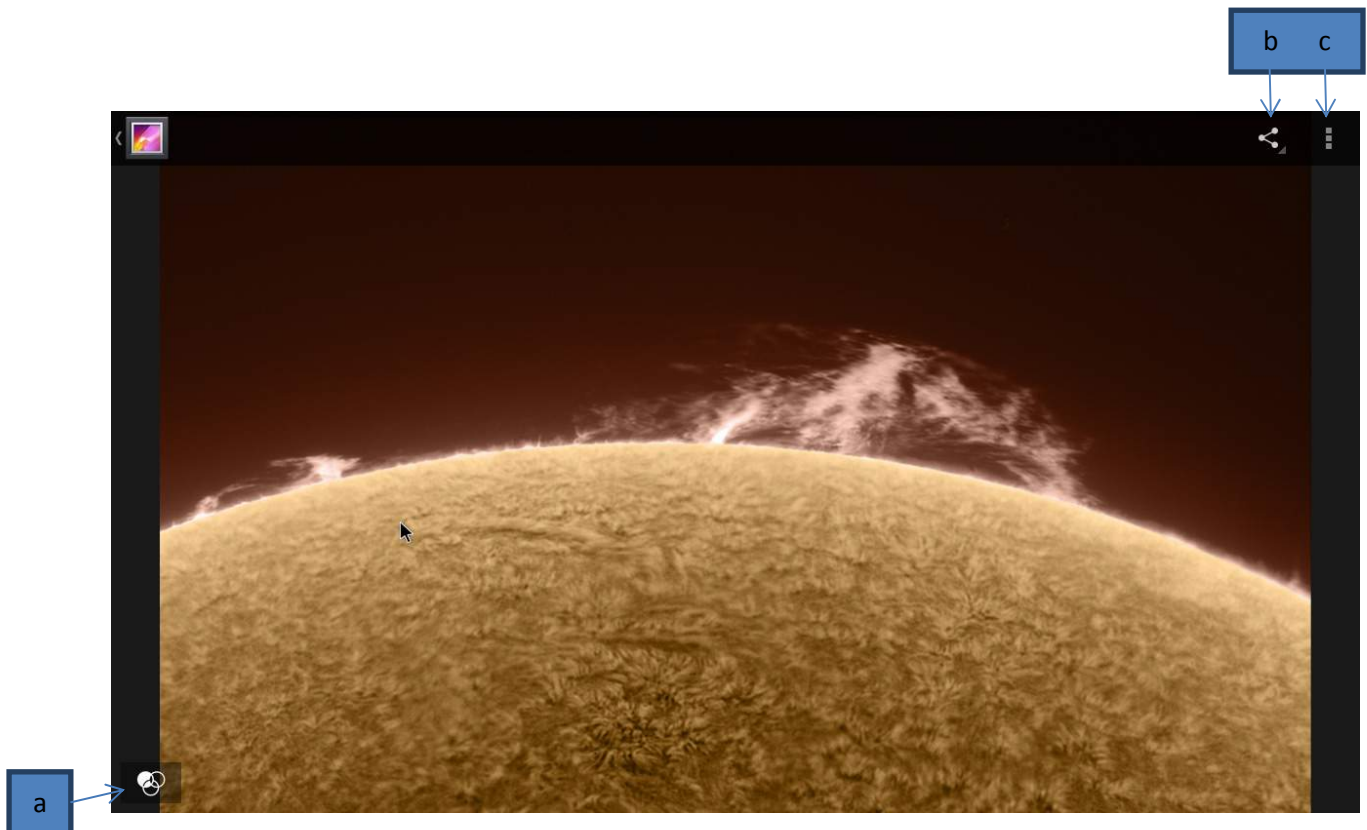


Gallery App : Preview Pane - Albums

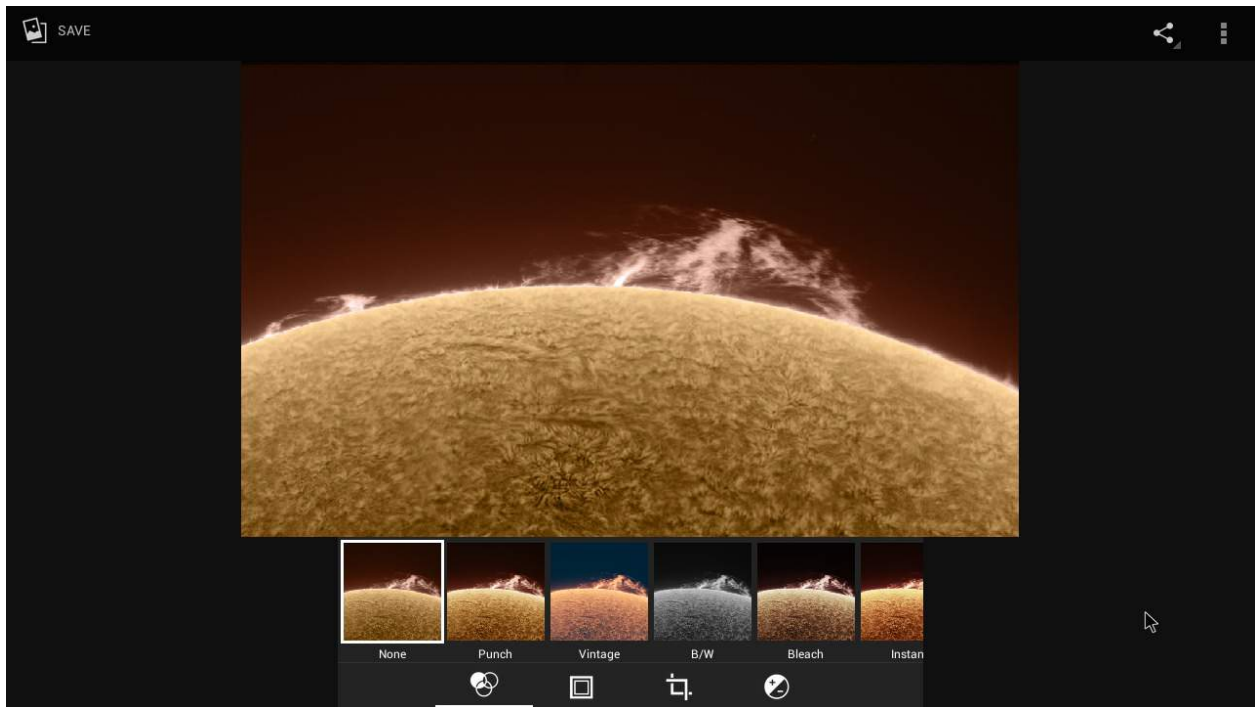


Gallery App : Preview Pane - Images

5. Once a photo is selected, the media viewer will display the photo. From the viewer, you have 3 icons/options available to you.
- The icon on the bottom left will open up the image editor. From here you can Crop, add effects, add borders, and zoom in and out.
 - The 'Share' button located on the top right of the viewing window, will share the image via Bluetooth, or convert file into PDF form.
 - The 'Menu' button located on the top far right of the viewing window will pull down a menu in which you can access all following image options:
 - Delete – deletes image
 - Slideshow – adds image to current slide show
 - Edit – opens the image editor
 - Rotate – rotates media left and right
 - Crop – allows you to crop images
 - Set picture as – sets the image as a contact photo or wallpaper



Gallery App : Image Viewer



Gallery App : Image Edit Controls

6. To exit the App, simply right click until you are back to the Android desktop

Miracast Application

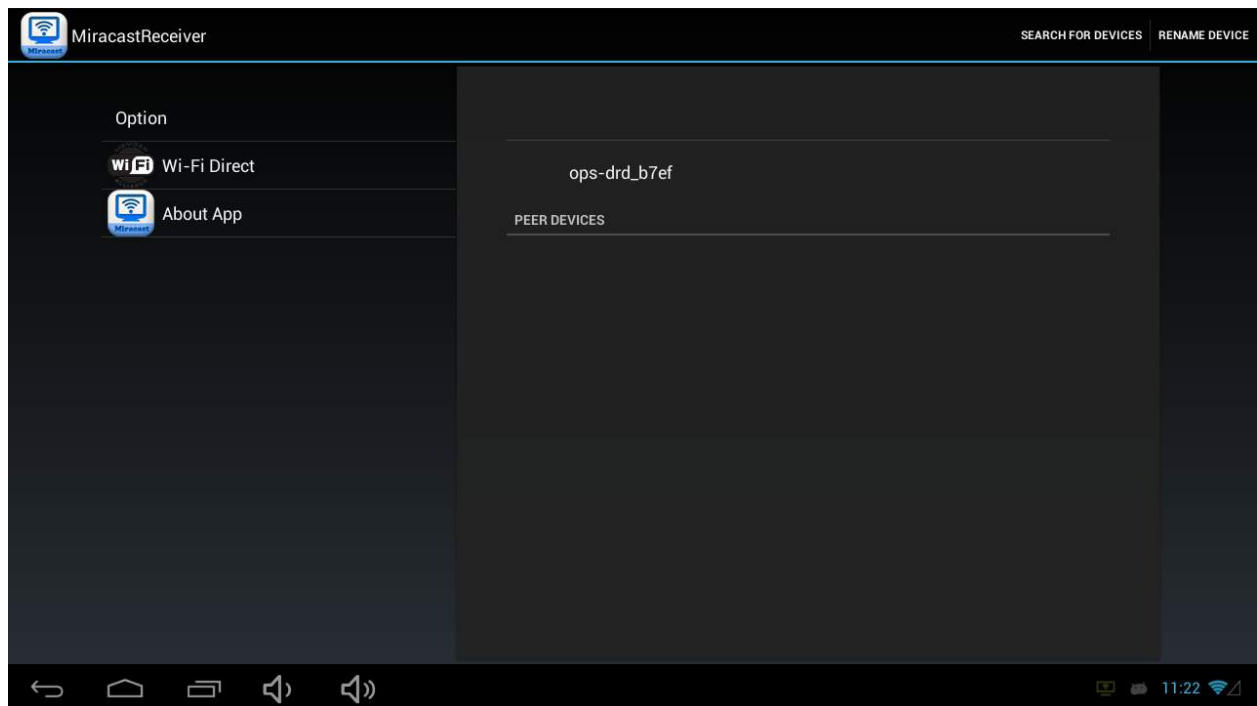
The Miracast application is represented by the icon shown on the right. It provides facilities for receiving wireless display content from a remote device via the WLAN. The OPS-DRD is the Miracast Receiver and devices such as smart phones and tablets with wireless display features are Miracast Transmitters.





Miracast/Wi-Fi Direct

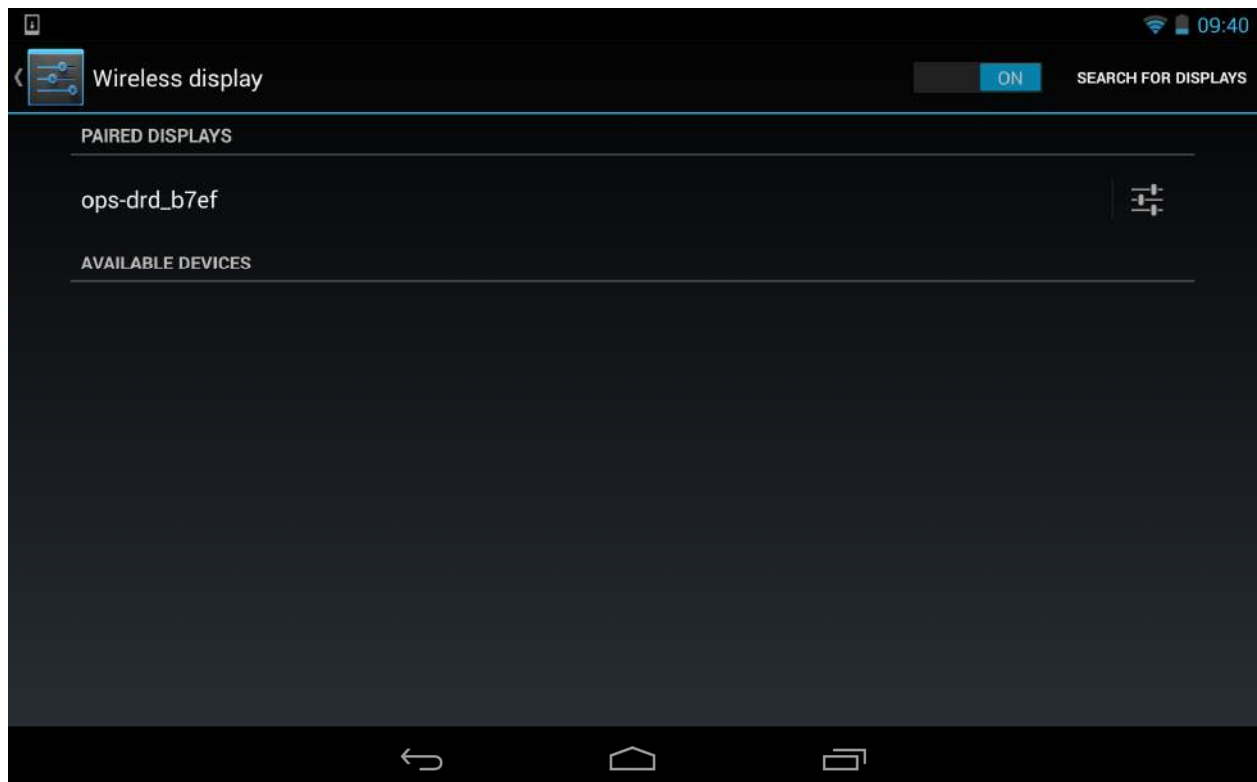
Note : OPS-DRD wireless network connection is optional for Miracast operation

1. Open the Miracast application by single clicking the Miracast icon in the APPS section.
2. You are now at the “Options Pane”. Here, your receiver information and device name are displayed.



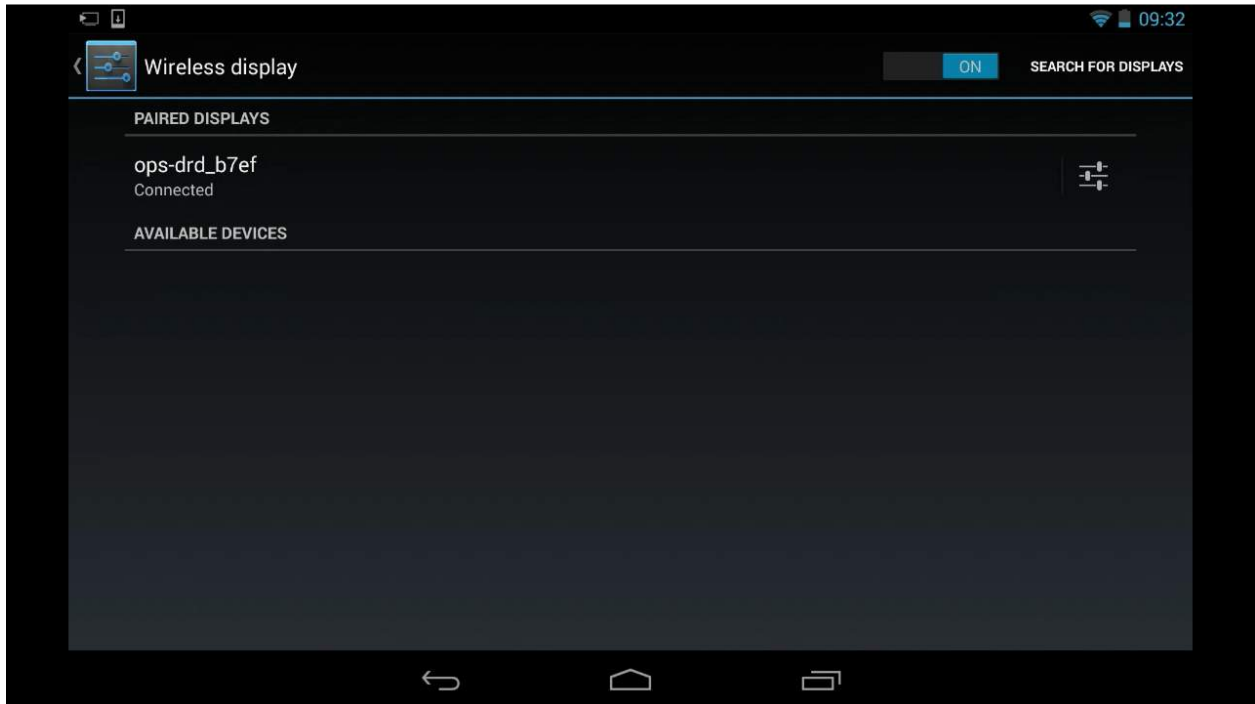
Miracast App : Option Pane

3. Next, follow your device instructions for turning on the “Wireless Display” option. Here is an example from popular Android devices:
 - a. Wireless display on Google Play edition devices
 - i. Some of this information applies only to devices running Android 4.4.
 - ii. Nexus 4, Nexus 5, Nexus 7 (2013), Nexus 10, and certain Google Play edition phones are compatible with devices that support the Wi-Fi Certified Miracast™ protocol for wireless display. To turn on the wireless display feature, go to  **Settings > Device > Display > Cast screen >  Menu**, then check the box next to “Enable Wireless Display.”
 - iii. You can cast the screen to wirelessly stream video and audio to a variety of displays and other devices that support Miracast - even when a standard Wi-Fi network isn’t available. For example, you can cast the screen to show your device’s screen on a TV equipped with a certified Miracast adapter.
4. Once Wireless Display is enabled, the device will search for wireless displays and list any that are found.



Miracast Transmitter : Available Wireless Displays

5. Select a wireless display from the “Paired Display” list on the Miracast Transmitter device. A connection will be established to the selected wireless display.
6. Once connected, the wireless display will mirror the audio/video content from the transmitting device.



Wireless Display : Connected - Mirroring Transmitting Device

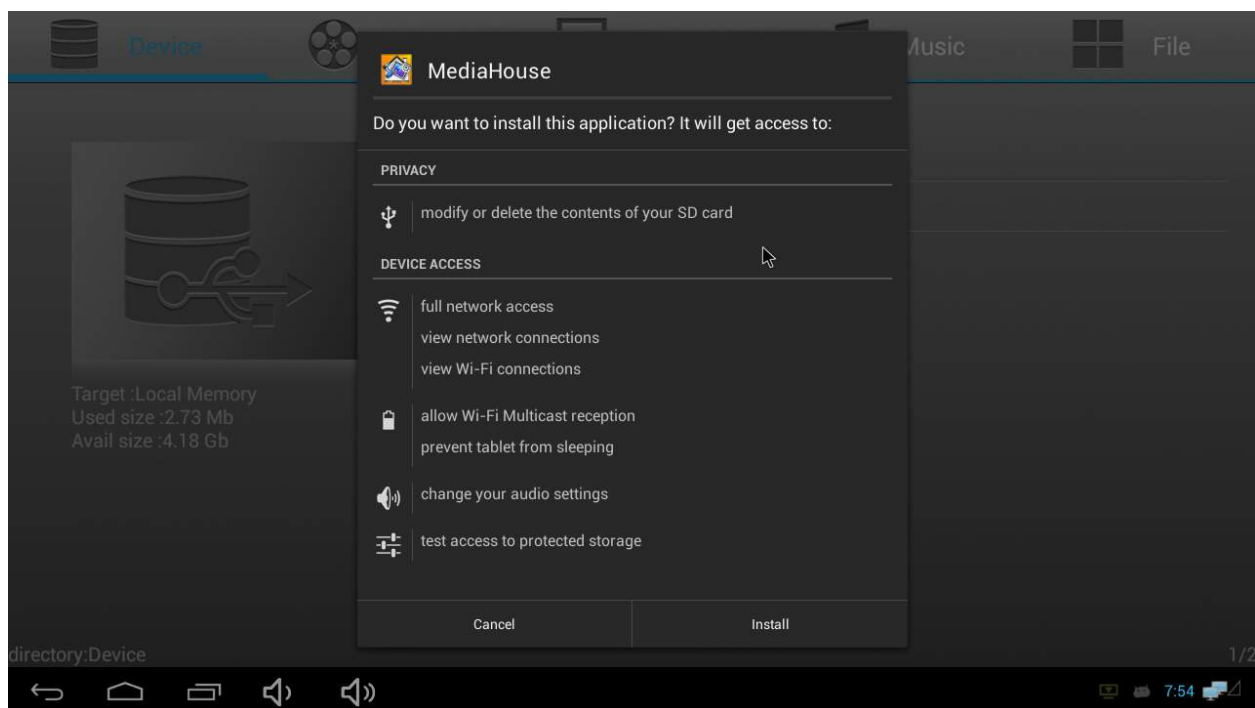
At this point the wireless display functions of the OPS-DRD will mirror actions and content from the Miracast Transmitter Device.

To disconnect from the wireless display:

1. Return to the Wireless Display menu on the transmitting device.
2. Click on the connected wireless display. A pop-up will be displayed asked to confirm disconnection.
3. Click OK to disconnect.

Installing New Applications

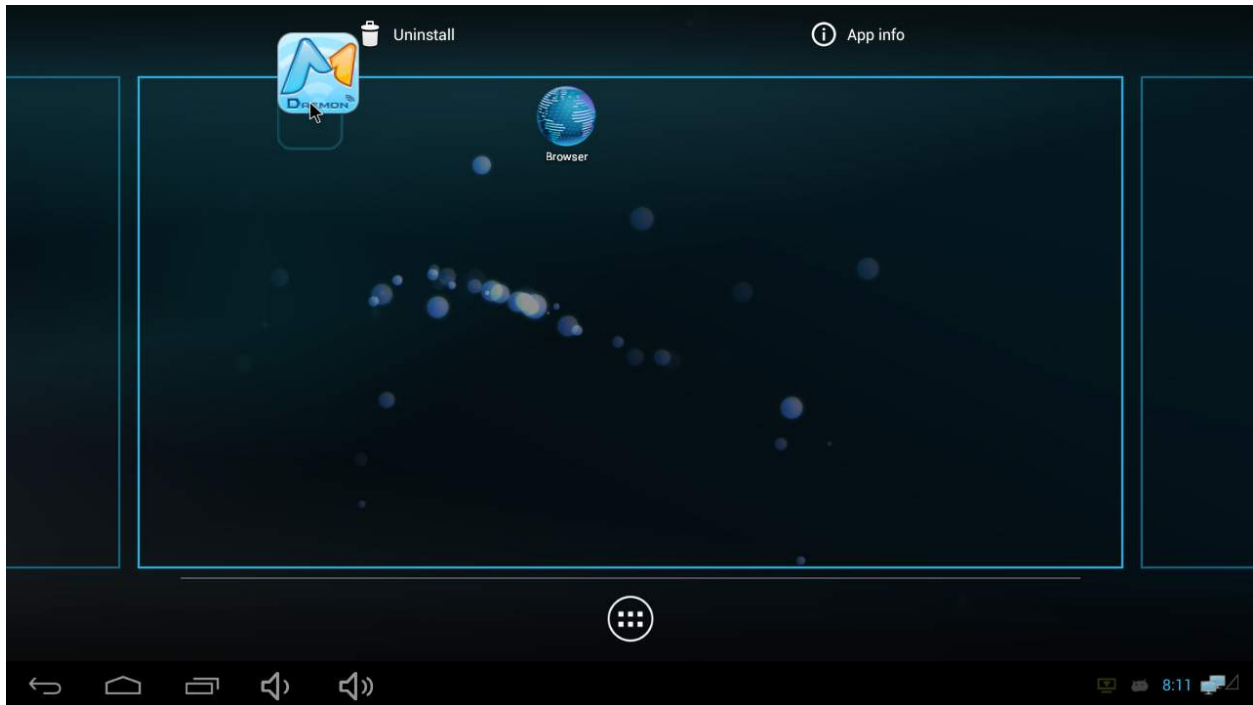
Additional applications (.apk file extension) can be installed by the user via network, SD Card or USB interfaces. Use the FileManager application to navigate to where the .apk is stored and left-click the apk file you want to install. The system will provide an application-dependant prompt asking you to confirm installation. Click Install to initiate the installation.



New Application Install Prompt

Uninstalling Applications

Any installed application that was not provided by the factory can be uninstalled. To do so, left-click and hold the app icon until an “X Uninstall” prompt appears at center top of screen. Drag the app over this prompt until it turns red. Release left mouse button.

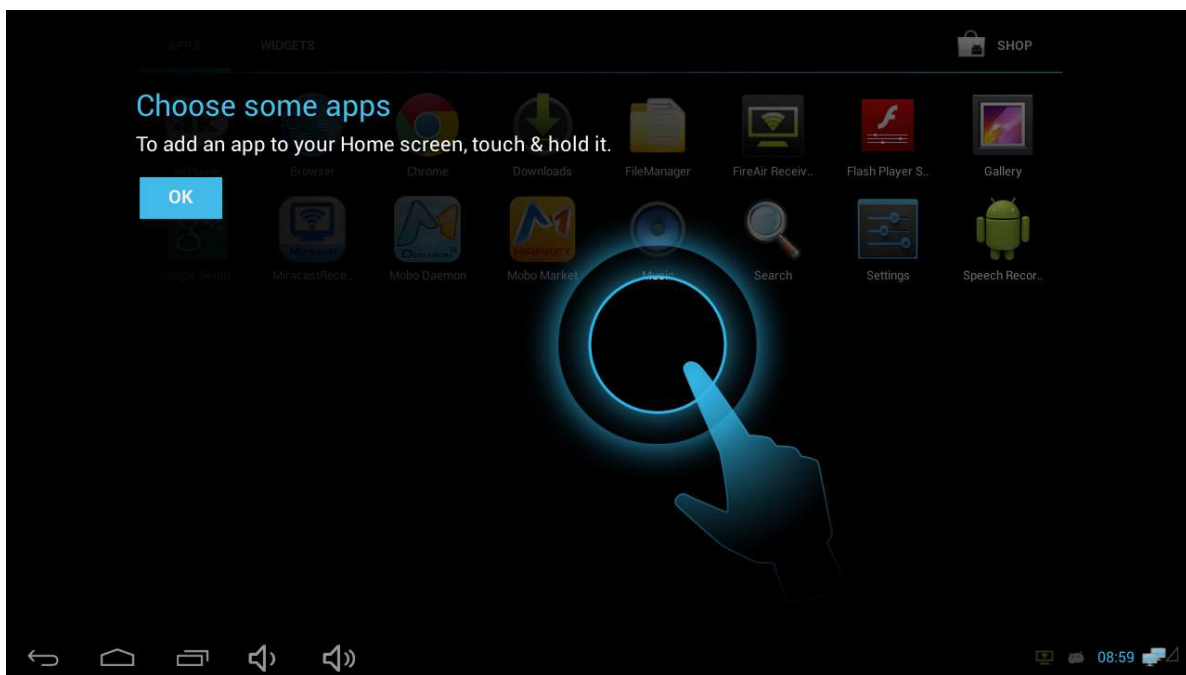


Application Uninstall Prompt

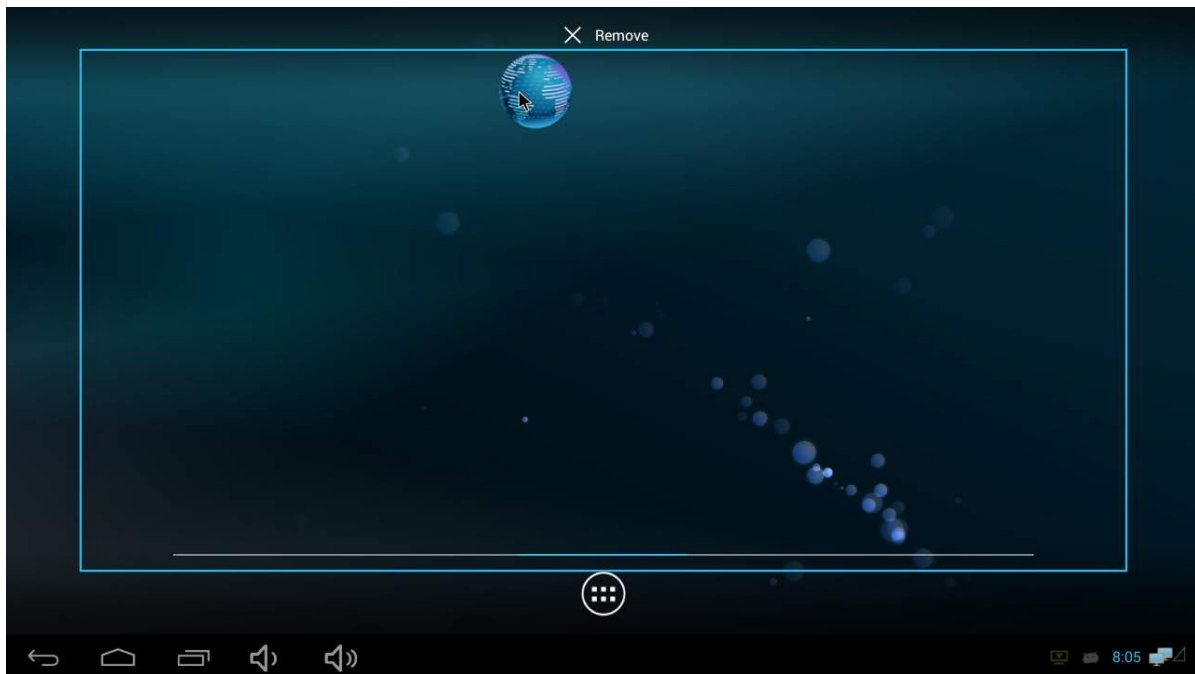
Adding/Removing Installed Applications from Desktop

Applications can be added to the user desktop simply by left-click-holding over the app you want and then dragging it to the desired location on the desktop.

Once installed on the desktop, they can be removed by a left-click and hold of the app icon until an “X Remove” prompt appears at center top of screen. Drag the app over this prompt until it turns red. Release left mouse button. Note: this does not delete the application from the system.



Adding Applications to the Home Screen



Removing Applications from the Home Screen

System Configuration

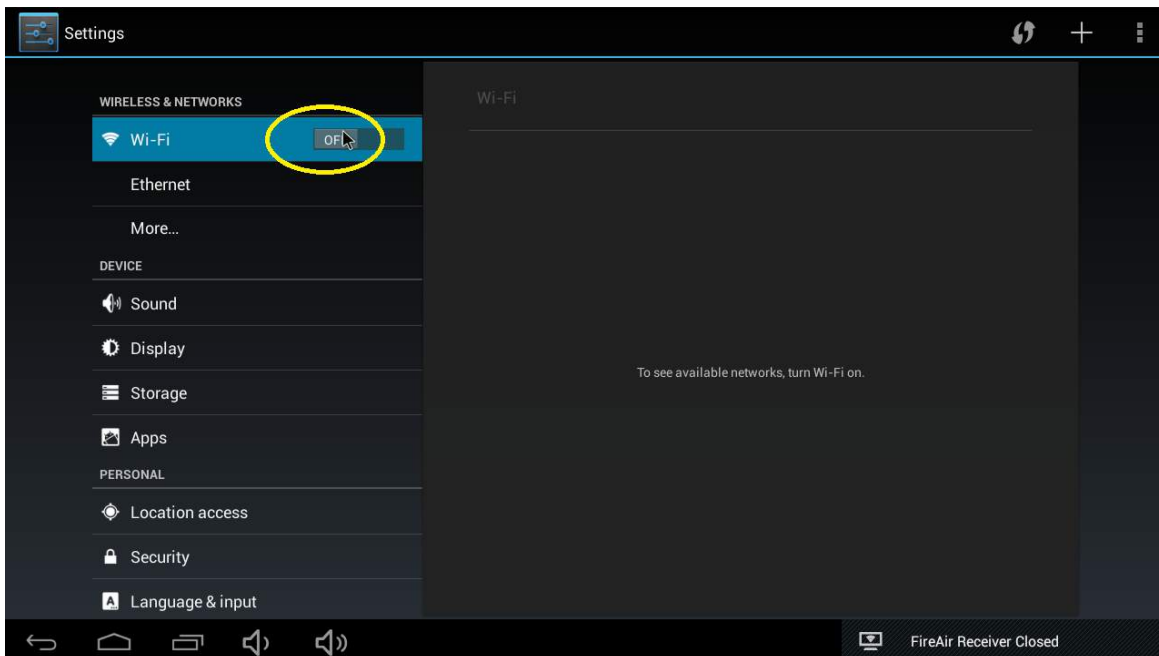
WLAN Configuration

To configure the Wireless LAN you will need the following:

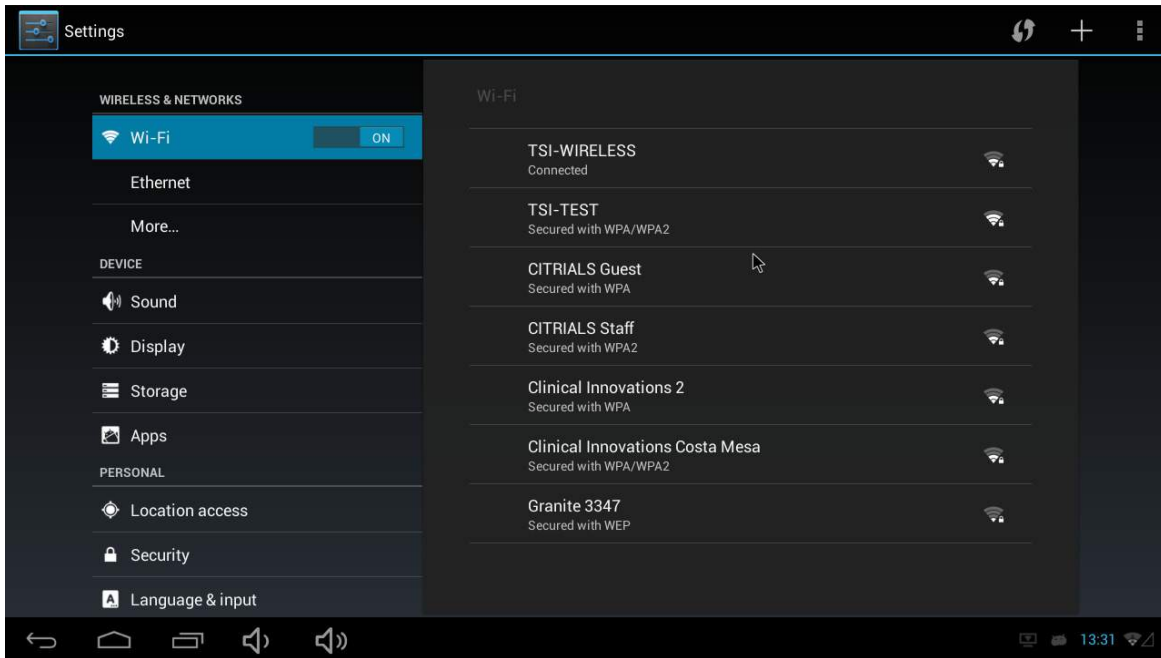
- Wireless SSID
- Wireless Security Passphrase
- USB Mouse

Perform the following steps to configure the Wireless LAN. These steps will need to be performed only the first time the device is connected to a new network.

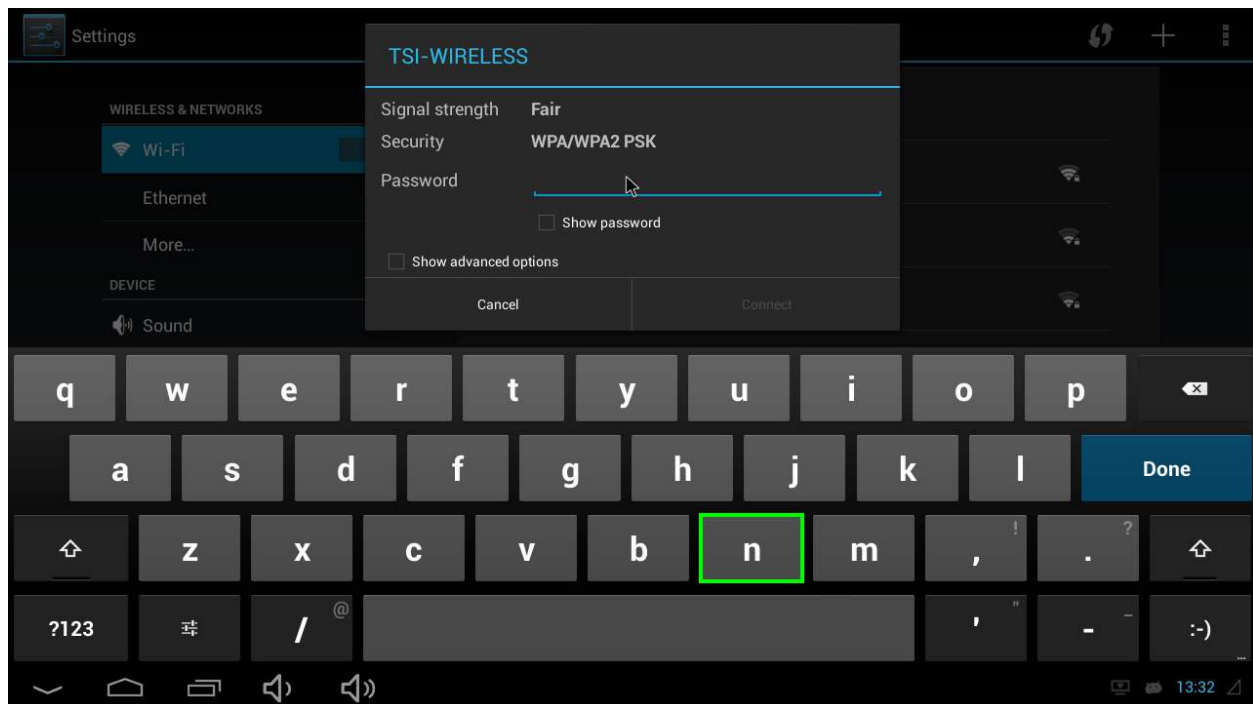
1. Using the mouse, click on the Settings app on the desktop. The following screen will be displayed:



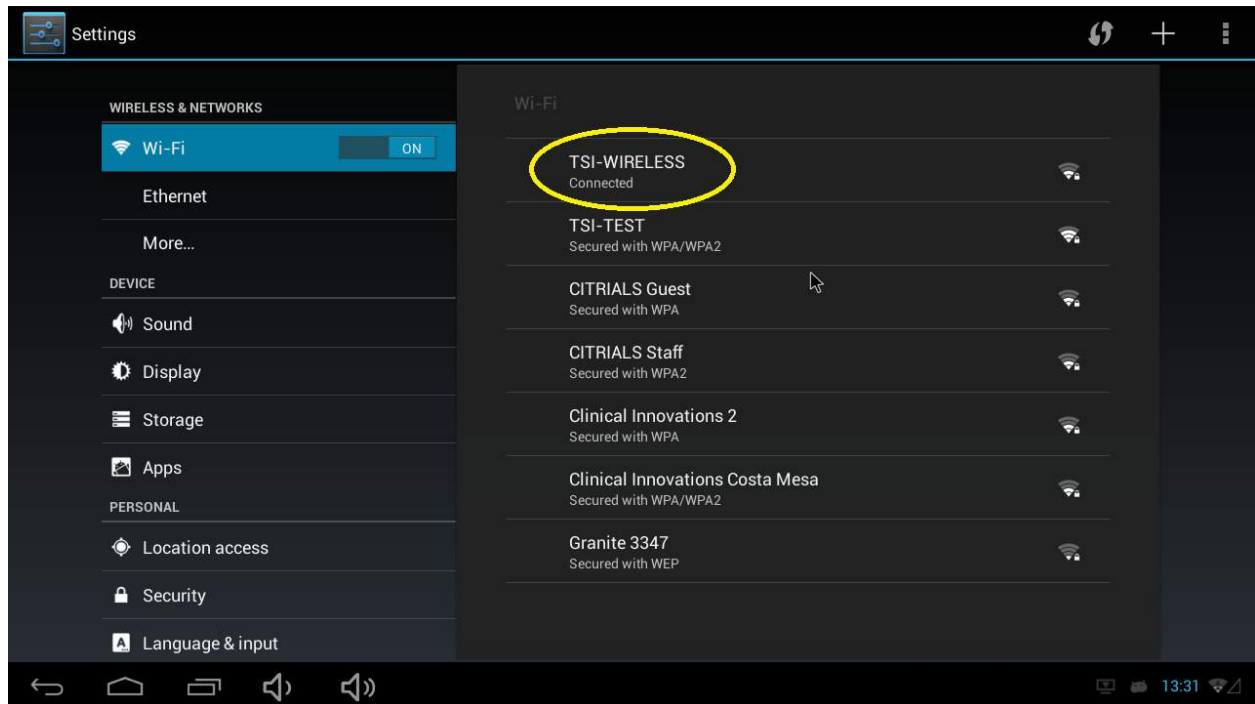
2. Click on the OFF side of the Wi-Fi slider to turn WLAN ON.
3. The screen will change to indicate Wi-Fi ON as well as provide a list of available networks as shown below:



4. Click on the desired WLAN to connect to. If that network provides security, the following Security Credentials pop-up will be displayed:



5. Use the on-screen keyboard to enter your networks security passphrase.
6. Click [DONE] when complete.
7. After successfully connecting the WLAN, the Setting screen will show a “Connected” status as shown below:



LAN Configuration

To configure the LAN you will need the following:

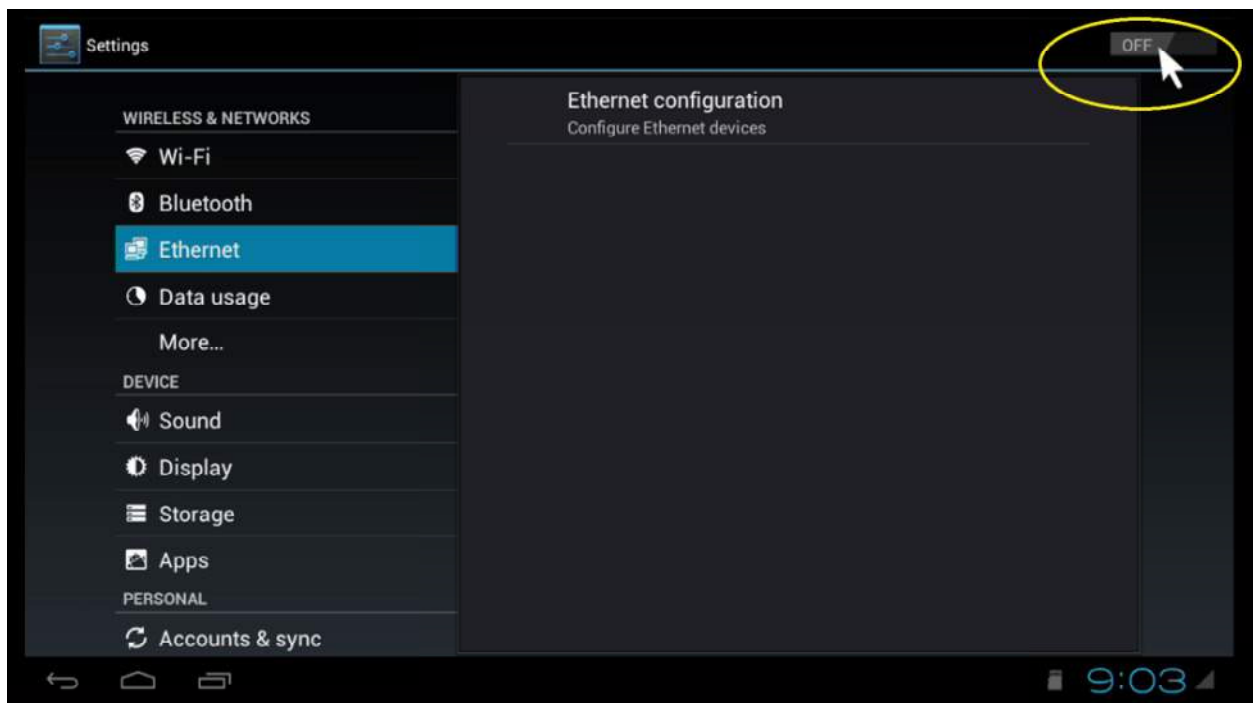
- Ethernet Cable
- USB Mouse

Perform the following steps to configure the LAN. These steps will need to be performed only the first time the device is connected to a new network.

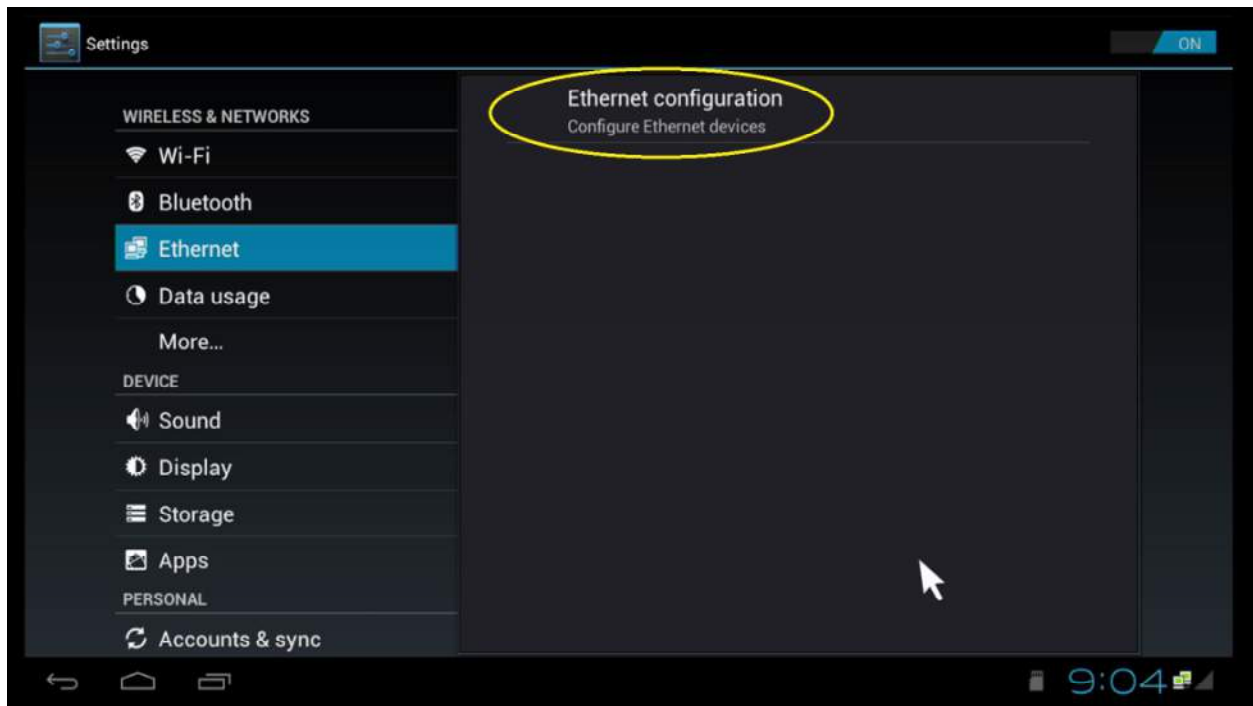
1. Using the mouse, click on the Settings app on the desktop. The following screen will be displayed:



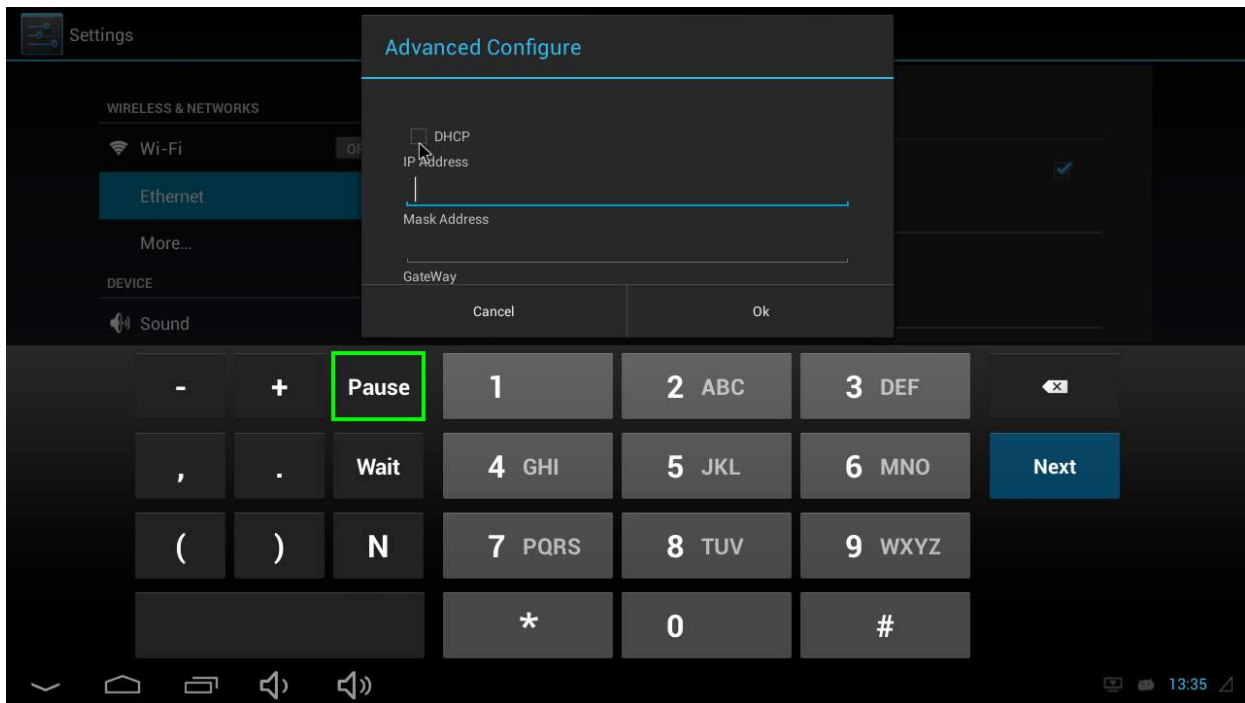
2. Click on “Ethernet”.
3. Check the “Use Ethernet” box. The screen will change to indicate Ethernet OFF.



4. Click the OFF indication, the device status will change to ON.
5. Click on “Ethernet Configuration”.



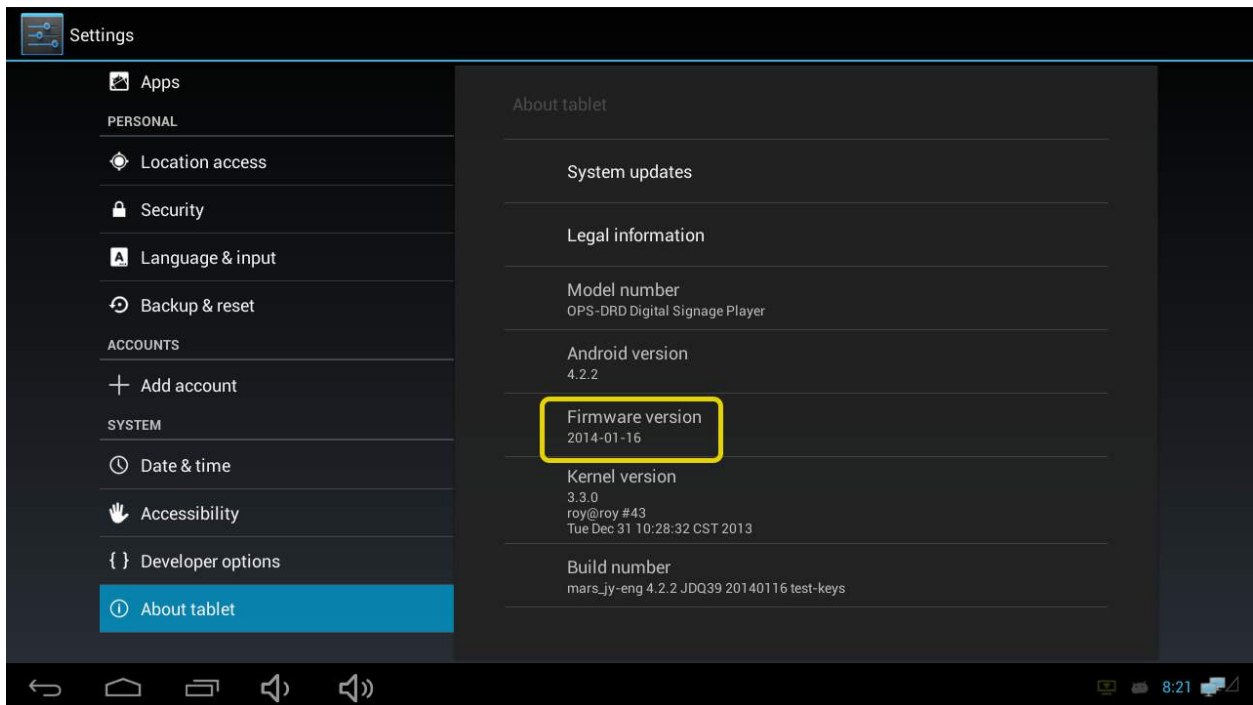
6. If you have DHCP enabled on your router, leave the default settings as shown below, there is no need to change any configuration. If you are using Static IP select “Static IP” as shown below and enter an IP, Netmask, DNS and Gateway address:



7. You will be prompted to reboot for MAC address to take effect. Once rebooted you should have internet connection through your router. To Verify you received an IP address, after rebooting go back to the Ethernet setup and you should see similar information pertaining to your own network.

System Software Updates

The version of system software installed on the OPS-DRD media player can be determined via the About Tablet menu item within the Settings Application.



OPS-DRD Firmware Version

From time to time product improvements may be made available via a system software update.

Contact your authorized service representative for further information.

Caution!

UPGRADING YOUR SYSTEM SOFTWARE WILL CAUSE ALL INSTALLED APPLICATIONS, DATA AND SETTINGS TO BE LOST. BACKUP ALL IMPORTANT DATA BEFORE CONTINUING.

Caution!

UPGRADING YOUR SYSTEM SOFTWARE FROM AN UNAUTHORIZED SOURCE MAY CAUSE THE DEVICE TO BECOME UNUSABLE. IF UNSURE OF THE SOURCE, CONTACT YOUR SERVICE REPRESENTATIVE.

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