



PD251-031

Android Based Module for ELED Televisions

Document Number: PD196-293R1

I IMPORTANT SAFETY INSTRUCTIONS

THIS INSTALLATION SHOULD BE MADE BY A QUALIFIED SERVICE PERSON AND SHOULD CONFORM TO ALL LOCAL CODES. READ AND FOLLOW THE SAFETY INSTRUCTIONS BEFORE ATTEMPTING THIS INSTALLATION.

1. Read Instructions – All the safety and operating instructions should be read before the product is operated.
2. Keep these Instructions – The safety and operating instructions should be retained for future reference.
3. Heed all Warnings – All warnings on the product and in the operating instructions should be adhered to.
4. Follow all Instructions – All warnings on the product and in the operating instructions should be followed.
5. Water and Moisture – Do not expose this product to rain or moisture. Do not use this product near water – for example, near a bath tub, wash bowl, kitchen sink, or laundry tub; in a wet basement; or near a swimming pool; and the like.
6. Cleaning – Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Clean only with a dry cloth.
7. Ventilation – Slots and openings in the cabinet are provided for ventilation to ensure reliable operation of the product and to protect it from overheating. These openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug, or other similar surface. This product should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to.
8. Heat – The product should be situated away from heat sources such as radiators, heat registers, stoves, or other products (including amplifiers) that produce heat.
9. Power-Cord Protection – Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point where they exit from the product.
10. Attachments – Only use attachments/accessories specified by the manufacturer.
11. Use only with cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over. 
12. Lightning – For added protection for this product during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the product due to lightning and power-line surges.
13. Servicing –Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
14. Oxygen Environment – Do not use in an oxygen tent or oxygen chamber. Such use may cause a fire hazard.
15. To prevent injury, this apparatus must be securely attached to the wall in accordance with the installation instructions. TV's can pose a striking hazard when mounted at an elevated level.
16. Power Sources – This product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply to your home, consult your product dealer or local power company. For products intended to operate from battery power, or other sources, refer to the operating instructions.

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Android Based Module Setup and Usage Instructions

Android Source

Enabling

Before using the module, make sure:

- In the TV's SETUP MODE/Sources/Source Enable menu, the *Android Module* is set to "Enabled".
- Confirm the TV set is at Enabled/No APO in the *Source Enable* menu.

Waking/Selecting

- Provided Android is set as the Power on Source, and the Android is sleeping, a short touch of the power button will turn on the Android based module. (The power indicator light should change from red to green).
- If Android is not the source displayed, change to the Android source by using the TV/AV or the channel up button to the highest channel and switching the source to "Android".

Unlocking

- Unlock the Android by entering the user password. (See *Lock Screen* section below for entering password or selecting a new user)

Rebooting

To reboot the module, press and hold the "Power" button for more than 8 seconds.

Keyboard

You should have the PD161-004 PDi wireless keyboard (purchased separately) or other compatible keyboard to use this module. If you are using the PDi wireless keyboard PD161-004, it will function as any 83 key QWERTY keyboard with several "Hot" keys.

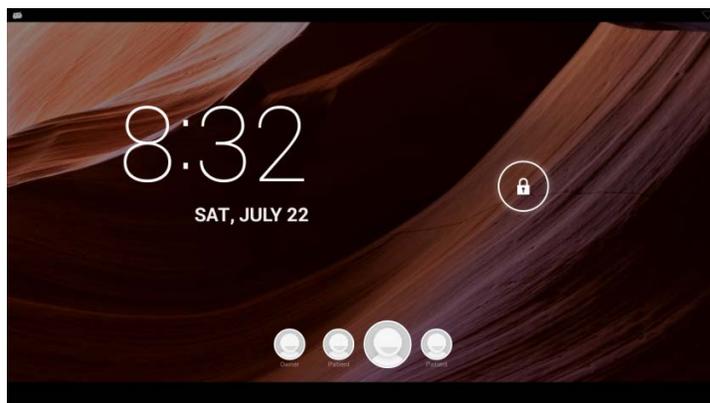
Hot Keys	Function
Fn/Pair	Pair with Module
Esc	Back one screen
Fn/Home	Home screen

Lock Screen

The starting point for almost all users would be the lock screen (except when turning on the device the first time or after a factory reset – in which case the device will open to the welcome screen).

On the lock screen, existing users would need to enter their password to continue.

A new user would start by touching the "I'm a new user" button.

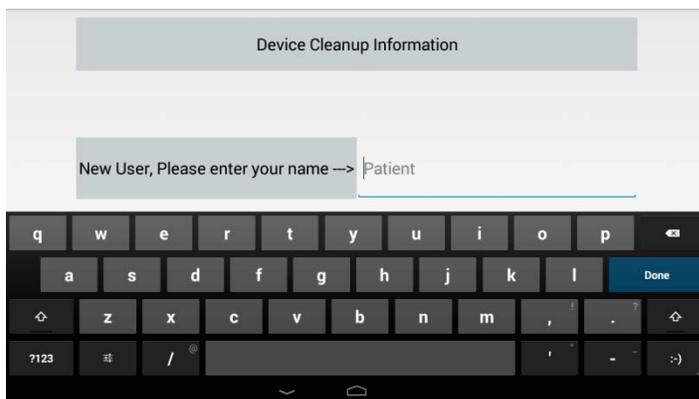


Signing On as a New User

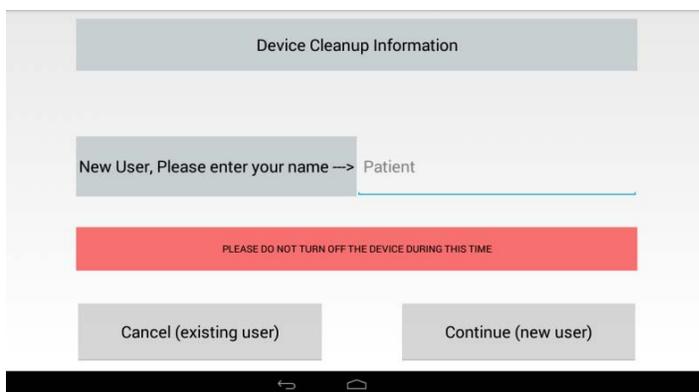
*Administrative information like Wi-Fi and clone file configuration is retained

In the initial patient setup, the patient needs to touch the *I am a new user* button.

Enter the new user name (you may use the default name *Patient*) and touch *Done*.



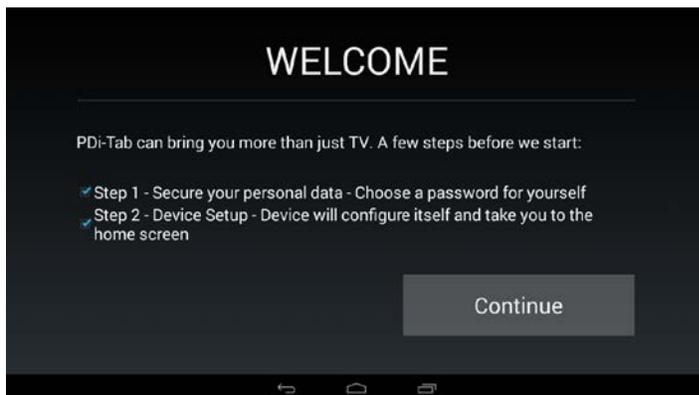
At this point, you may cancel or touch *Continue (new user)*.



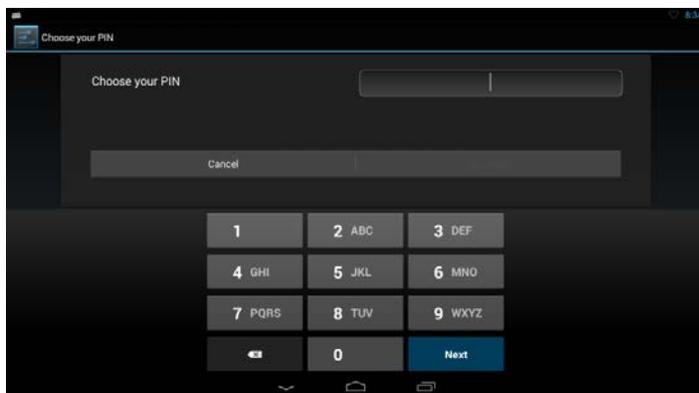
Welcome Screen – Sign In

After cleaning up the device you will enter the "WELCOME" screen.

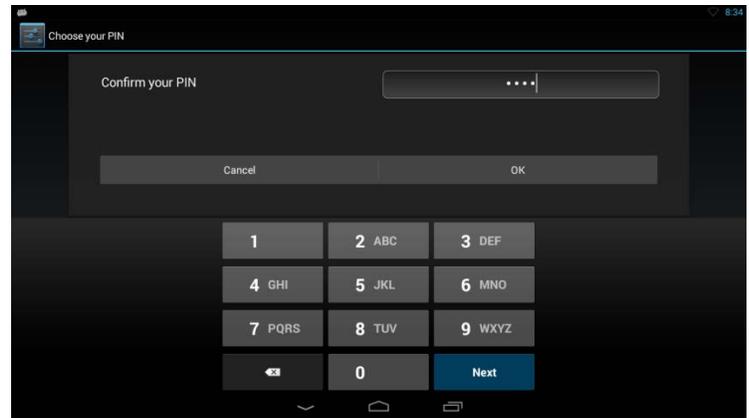
Select *Continue*.



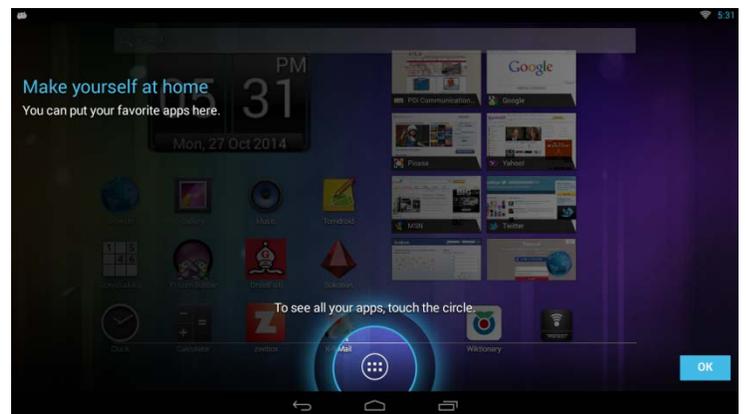
Choose a pin number and select *Next*.



Confirm your pin, *select* OK or *Next*.



Select *OK* to take you to your home screen.



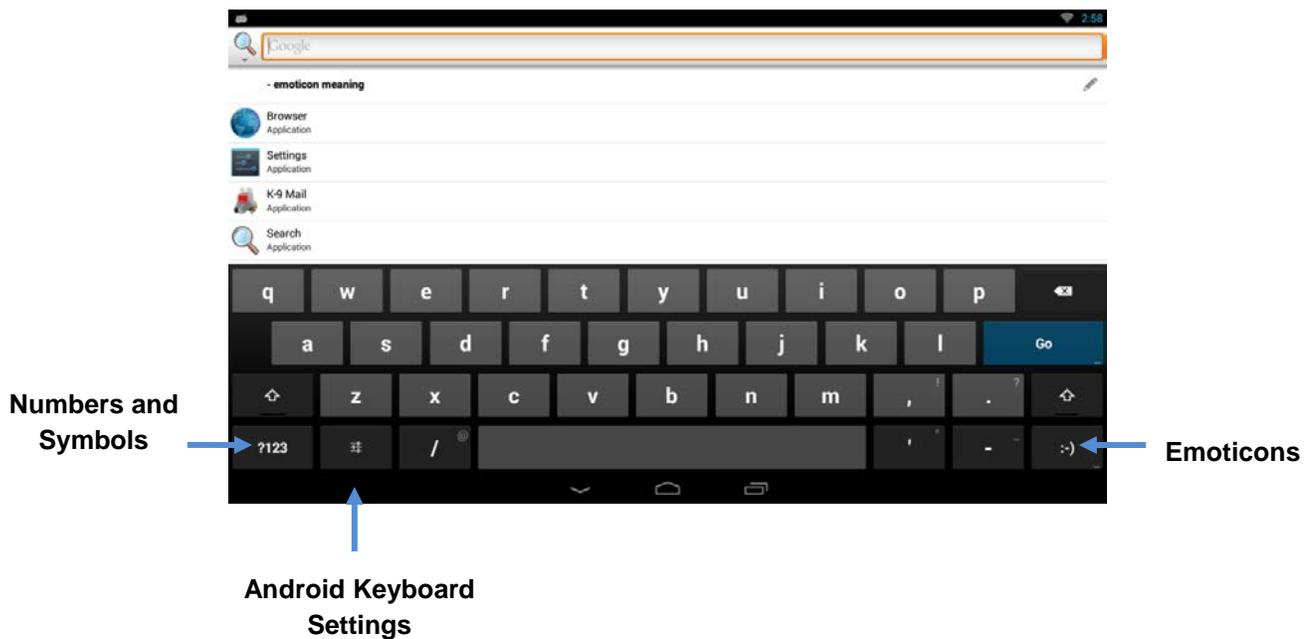
Home Screen

*The following is a screenshot of a sample home screen. Your screen will show icons based on your facility/administrator settings.

At the top of the screen you'll find Google Search, which lets you search your tablet or the internet. Select *Google* to type your search terms.



The On-Screen keyboard when using the Google Search Bar;



At the bottom center of every screen, no matter what you're doing, you will always find these three navigation buttons;



Back



Opens the previous screen you were working in, even if it was in a different app. Once you back up to the Home screen, you can't go back any further in your history.

Home



Opens the home screen. If you're viewing a left or right Home screen, opens the central Home screen.

Recent Apps



Opens a list of thumbnail images of apps you've worked with recently. To open an app, touch it. To stop running an app from the list, swipe it left or right.

Note: Android will automatically stop running an app when the system runs low on remaining available memory, therefore, it is not always necessary to quit an app.

These are a few of the apps installed on the Android based module. Some app icons will be shown, but not intended for patient use.

App/Widget	Description
Clock (widget)	Display time and date
Browser	Provides access to the World Wide Web (WWW)
Gallery	Provides access to pictures and video stored on the device by apps
Music	Provides access to music stored on the device by apps
Search	Allows the user to search the web, apps, and/or people for useful information
OpenSudoku	A puzzle game where the goal is to fill each row, column, and sub-grid with the digits from one to nine
Frozen Bubble	Match the color of the launch bubble to the frozen bubbles to make them go away before time expires or the stacked bubbles cross the foul line
DroidFish	A standard chess game
Sokoban	A maze game
Clock	Display the date and time on the full screen and/or set an alarm
Calculator	Perform arithmetic, scientific, and trigonometric operations
Wiktionary	A dictionary
Zeebox	Provides a program guide of television programming and social sharing of the shows the user will be watching on the TV side of the P14T
Google, Picasa, Yahoo, MSN, Twitter, Facebook, etc	Bookmark widgets to social sharing websites
Wi-fi Connection (Widget)	Connect to a pre-configured or open Wi-fi network with a single tap
Adobe Reader	Used for opening PDF files
FB Reader	Used for reading digital books
K-9 Mail	User level email app

Pull Down Panels

There are two different information panels that you can see at any time by pulling down the left or right side top of the screen.

Notification Panel

Notifications alert you to the arrival of new messages, calendar events, and alarms, as well as ongoing events, such as video downloads.

To open the notification shade, swipe down from the top left of the screen. Certain notifications can be expanded to show more information, such as email previews or calendar events. The one at the top is always expanded when possible.

When you are finished with a notification, remove it by touching and holding the notification and swiping to the right. Notifications that are still running will not swipe away.

Quick Settings Panel

This is on the right side of a screen and gives you direct entry into different areas of the settings app, depending on which icon you choose.



Application Drawer

At the bottom center is the Application Drawer Icon . Selecting this icon will open up a screen that contains the full list of all installed applications and widgets. Please note that some applications and/or widgets listed here are for use by the patient, some are intended for use by those with administrative privileges, and some are intended for use by service personnel. The desktop, by default, will always show user accessible apps.



The user accessible apps not previously discussed include the following:

App	Description
Adobe Reader	Provides access to documents download onto the device by the user and/or apps that are in the Portable Document Format (PDF)
Calendar	Shows dates in day, week, month, or agenda format. Please note that it takes administrative access to add events to the calendar as it requires the addition of an Exchange account.
DigiClock Settings	Change the appearance of the clock widget on the desktop (home) screen
System Profile	Change between performance, power saving, and normal mode.
Timer	Allows the user to see and add clocks from around the world, to use a stopwatch, and to use a timer countdown.
WipeUserData	Permits the user to reset the device and start a new session with all their personal information removed and the device reset to institution default settings

The administrative apps that are to be used by the administrator are:

App	Description
WSO2/PDi agent	This is the agent application for the PDi Store™. Administrators will need to sign into this application to be able to remotely manage this device. For more details see the documentation related to the PDi Store™
Clone	Allows the administrator to transfer device/institutional settings from one Android based module to another Android based module
File Explorer	Provide access to files on the device that are not accessible from the Downloads app and also allow the administrator to install 3 rd party apps
Ghost Commander	An enhanced File Explorer app for administrative use that permits transferring of files not only locally, but also from FTP, SFTP, Windows shares, and productions installed SD Card
Settings	Allows the administrator to modify the setup of the Android based module

The service apps (e.g., apps PDi service personnel would use or would direct the administrator to use at their instruction)

App	Description
aLogcat	Provides access to the Android logcat, which is Android's logging system for messages from the apps and services installed on the device. This is a useful app in helping to troubleshoot problems that may occur with the Android based module when used in conjunction with support from PDi service department personnel
Terminal Emulator	Provides a command line shell for running diagnostic applications and scripts

Installing Android Applications

Android applications (packaged as .apk files) that are compatible with the Android based module can be installed. Depending on where the applications are stored, the following are the steps to install the application:

Application Installable (.apk files) from third party publishers (Non PDi store apps)

- Download the .apk from the internet site to your device
- Connect the Android Service Port to your device
- Transfer the .apk file to the Android sd card (under Downloads)
- Select or click the File Explorer app
- Select or click the .apk file to install.
- **If you get an *Install block warning***, select or click on the Settings button then:
 1. Select the *Enter* button or click on the first line to allow installation of unknown applications.
 2. Select the *OK* button in the warning box that appears.
The box on the right side of the *Unknown sources* line should be checked.
 3. Select the *Install* button at the bottom of the screen.
- When the installation is finished, select the *Open* or *Done* button at the bottom of the screen.
- Right click or select the *Back* button to exit.

Application from the PDi app store

Applications can also be installed from the PDi Store™ at www.pdistore.com.

Media formats supported by Android

Image Formats	Format	Details
	JPEG	Encoding/Decoding (Base & Progressive)
	GIF	Decoding
	PNG	Encoding/Decoding
	BMP	Decoding
Android Native Audio	MIDI/XMF/MXMF	Type 0 and 1, DLS Version 1 and 2. XMF and Mobile XMF
	RTTTL/RTX	Ringtone formats
	OTA	(The audio format, not an over the air update archive, which has a zip extension)
	IMY	iMelody
	OGG	Vorbis
Multimedia Player		
Video Decoder	MP4/MOV/F4V	Yes (MPEG4 SP/ASP except GMC, H.264/H263, MJPEG) w/ AAC and MP3 for audio
	3GP (MP4 Demux)	Yes (MPEG4 SP/ASP except GMC, H.264/H263) w/

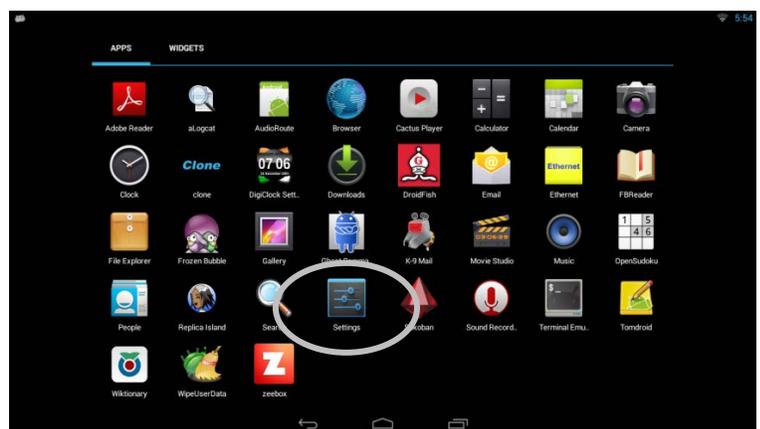
		AAC and AMR-N/WB for audio
	M4A (MP4 Demux)	Yes(AAC LC/Plus)
	AVI	Yes (MPEG4 SP/ASP except GMC, H.264/H263, Xvid, MJPEG) w/ AAC and AMR-N/WB for audio
	MPG/VOB/TS (MPEG2 PS/TS)	Yes (with MP3/AAC/LPCM)
Audio Decoder (Freescale Enhanced)	MP3	Yes
	AAC	Yes (LC/Plus)
	Vorbis	Yes
	FLAC	Yes (Sorenson H263)
	WAV	Yes
Multimedia Platform	Flash	NO
	HTML5	Yes

Applications for the Administrator

Administrators can personalize the device through the settings menu.

Settings

To enter the Settings menu, go into the All Apps screen and select the *Settings* app. After confirming your security code, you will enter the Settings screen where you can adjust network, sound, and account settings, among many others. Follow the screen instructions to personalize this device.



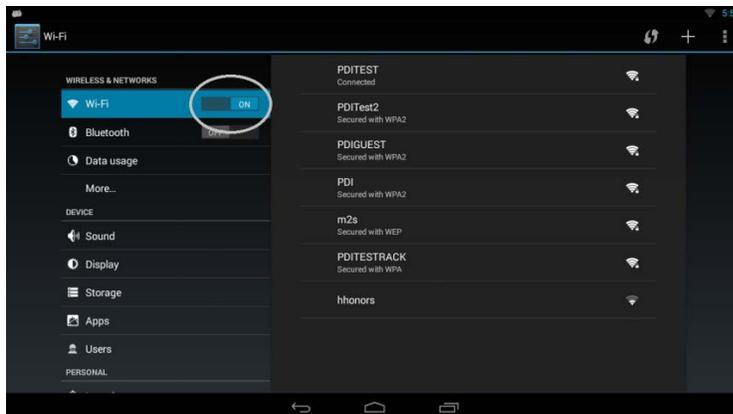
Wireless and Networks

From this screen, you can maintain Wi-Fi access points, view Data Usage, set up Virtual Private Network (VPN) access, and maintain Ethernet settings.

Wi-Fi

Connect to Wi-Fi Networks Dynamically

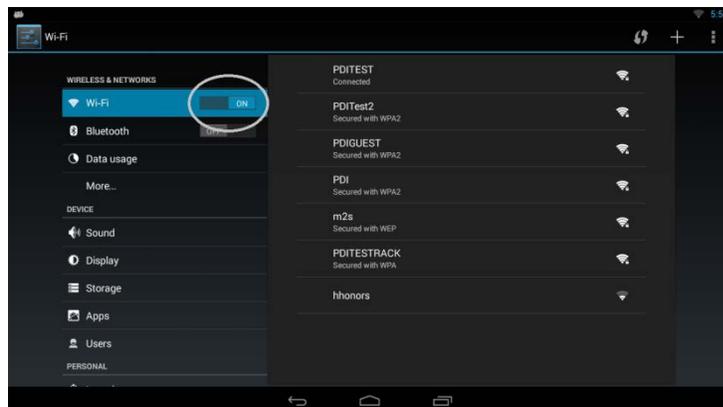
1. Slide the Wi-Fi switch to the *ON* position (if not already set to *ON*).



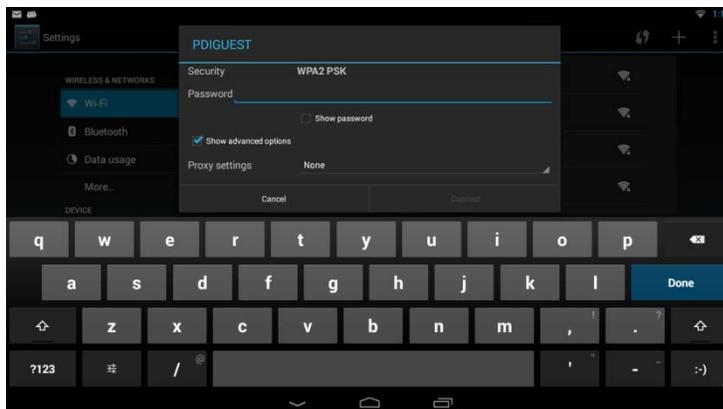
2. The module scans for available Wi-Fi networks and displays the names of those it finds. Secured networks are indicated with a .

3. If the module finds a network that you connected to previously, it connects to it.

4. Select a network name to see more details or connect to it, and type a security code (password) if necessary. You can select the *Show Password* checkbox to see the password characters as you type them instead of an asterisk mask.



5. If necessary, select the *Show advanced options* checkbox to modify the Proxy and internet protocol (IP) settings. A proxy server facilitates access to other network resources and may be needed in some environments. If you are unsure whether or not a proxy setup is required, please contact your information technology (IT) department. If they indicate such a setup is required, have them provide the proxy hostname, proxy port, and any addresses that the proxy should not be used for when servicing requests. To enter the information, select each field and enter the appropriate information. In the *Bypass proxy* field, the addresses should be separated with commas. If the IP settings need modification, refer to the *Connect to Wi-Fi Network Staticly* section.

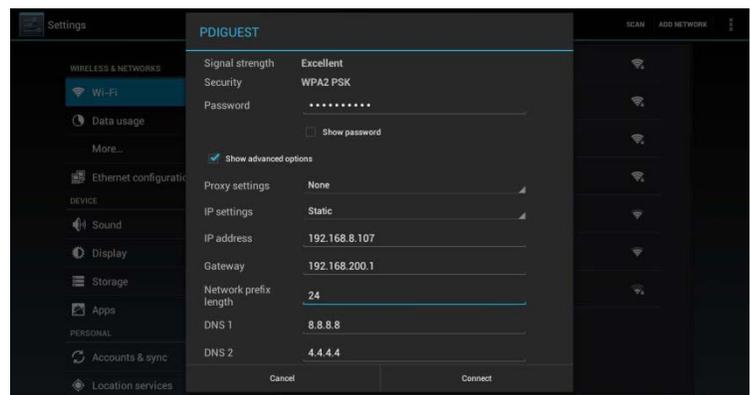


Connect to Wi-Fi Networks Statically

The previous process to connect to a Wi-Fi network requires the presence of a router on the network supporting dynamic host configuration protocol (DHCP) for automatically assigning internet protocol (IP) addresses to Android units on the networks. If the network does not support this protocol and/or the Android based module requires the use of a fixed IP address for a dedicated purpose (for example, to act as a cloning server), it will be necessary to configure the Wi-fi access using a static IP address. The IP address that is chosen must not already be allocated to another IP capable device on the network (note: this includes not only other Android based modules on the network, but any device capable of communicating to the module or other units on the network). The IP address will need to be in IPV4 format (e.g., a set of four octets separated by periods, for example 192.168.1.10). The IP address, gateway IP address, network prefix length, and domain name server IP addresses must be known before starting this process. If you do not have this information, please consult your information technology (IT) department.

To configure the device, perform the following steps:

1. Access the *Settings* app and provide the administrative password.
2. Select the Wi-Fi menu item under the *Wireless & Networks* section
3. Select a Wi-Fi network to connect to from the list of Wi-fi networks on the right side of the app
4. Select the *Show Advanced Options* checkbox
5. Select IP settings dropdown list box and tap on the *Static* entry
6. Select the IP address field and enter the desired IP address
7. Select the gateway field and provide the network's gateway IP address. The gateway facilitates access to outside network resources such as the Internet.
8. Select the network prefix length and enter a value
9. Select the DNS 1 entry and enter a value. If you enter the value 8.8.8.8 you are asking for access to the Google Public DNS service, which may or may not be suitable or allowed for the network where the Android based module is operating
10. Select the DNS 2 entry and enter a value. If you enter the value 4.4.4.4 you are asking for access to the Google Public DNS service, which may or may not be suitable or allowed for the network where the Android based module is operating
11. Provide a password if not already done and if required. The *Connect* button should now be enabled.
12. Select *Connect*.



Bluetooth

This option is not enabled at this time.

Data Usage

Your data usage is measured by your device. Access this under *Wireless & Networks* and touch *Data Usage*.

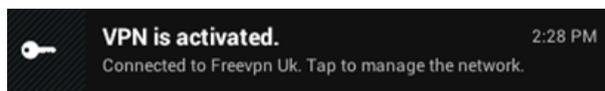
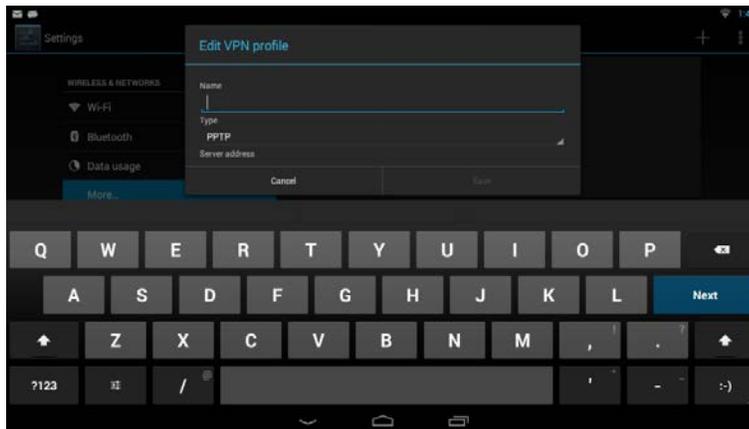


VPN (Virtual Private Network)

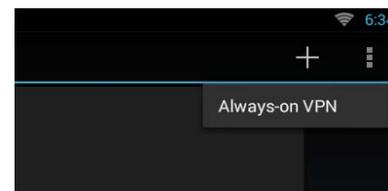
To configure VPN access, you must first obtain configuration information from your administrator.

The VPN screen allows you to add VPN networks and adjust their settings. To view this screen and perform the tasks described here, go to Settings > /Wireless & Networks > More ...> VPN.

1. From the VPN screen, touch + in the upper right corner of the screen.
2. In the form that appears, fill in the information provided by your network administrator. It may be necessary to select the *Show Advanced Options* checkbox and provide more detailed information for the VPN network, such as the DNS servers to use and applicable forwarding routes. Select each field to enter the appropriate information.
3. Select *Save*
4. Select the newly created entry and provide a username and password. Select the *Save information* to retain the information in the future. Select *Cancel* to stop the logon process
5. Once connected, the following notification and system tray icon will be visible:



6. If you were to conduct a web search asking for your current IP address, assuming you were in the United States and connected to a United Kingdom (UK) based VPN service, you should see the following result returned by the search engine:



Note: If you would like the VPN to always be active, select the Always-on VPN option in the overflow menu of the VPN section.

Note: The IP address will vary depending on the service and on time of connection.

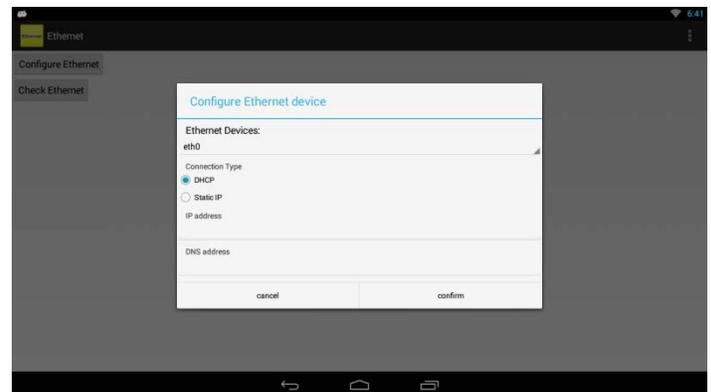
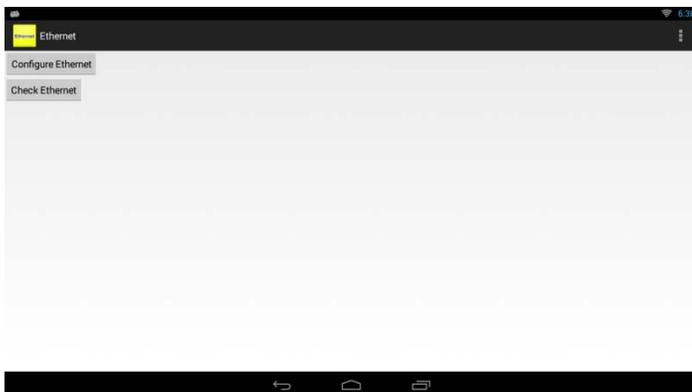
Ethernet Configuration

The Android based module is capable of providing wired internet access provided the unit was configured with this option at production time. If it was, there will be a CAT 6, RJ-45 (8P8C modular connector) twisted pair cable accessible from the neck of the unit. This cable (PD106-559) must be plugged into an accessible Ethernet port.

The Ethernet menu item allows for configuration or check of the wired network connection. By default, the device is enabled for dynamic (e.g., DHCP) connection. However, if static access is required, tap on the Ethernet Configuration button then tap the Static IP button and provide the following information after obtaining the required IP address, netmask, DNS IP addresses, and gateway IP address from your information technology department personnel:



1. Leave the Ethernet Devices selection as is. The Android based module only supports a single Ethernet connection, which is automatically named eth0 by the Android operating system.
2. Select the radio button that says Static IP under Connection Type
3. Select the IP address field and enter four octets (do not forget to enter the periods—they are not automatically added as they are for Wi-Fi static connections)
4. Select the DNS address field and enter the primary DNS IP server address (the use of a secondary DNS IP server address is not supported with this connection type).
5. Select *Confirm* to save value or discard to cancel the process.



Device

Manage the Sound, Display, Storage, and Apps on the device

Sound

- Modify Android sound volumes
- Change notification sound
- Enable/disable touch sounds and screen lock sound



Display

- Change Wallpaper
- Change sleep timeout
- Enable/disable Daydream and select type of Daydream (screen saver)
- Change font size for user interface elements



Storage

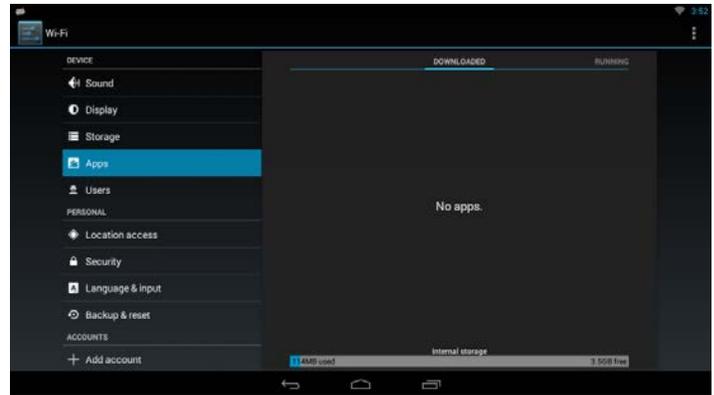
- View internal storage allocation for PDi apps and media for the owner
- View internal storage allocation for the user installable apps and media for the owner.
- View internal storage allocations of other users
- Mount SD cards (pre-installed option on some models supported in a future version of the Android based module) and USB storage devices



Note: To optimize your storage on memory usage, uninstall apps you don't use from main storage on SD card. Remove any problematic apps or services that are running.

Apps

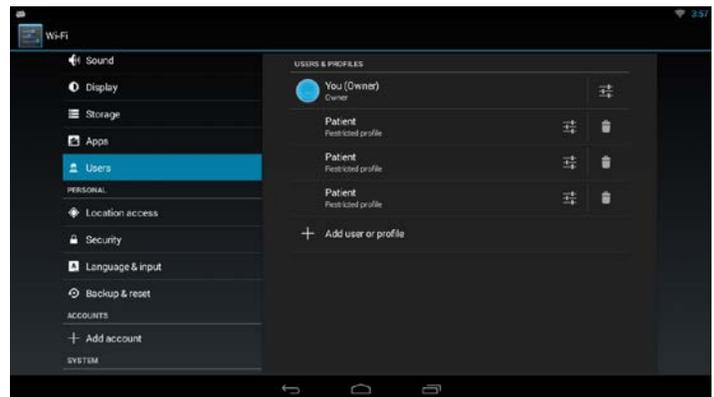
- Manage downloaded and installed apps
- Manage currently running apps and services
- Manage all apps and services



Users

- Access your profile and add or delete a user profile
- Non-admin users can delete their account
- Administrators can delete patient accounts

*Since a patient account is automatically created upon touching the *I am a new user* button, administrators should not create a new user account using this option.



Personal

Set your personal preferences for Accounts Location, Security, and Language, Backup & Reset information. Follow screen instructions to complete preferences.

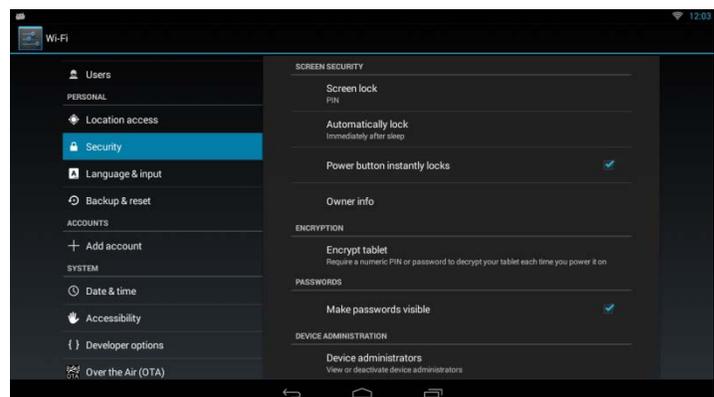


Location access

From this menu, you can choose your location sources and give permission to access location.

Security

From this location, you will be able to set up screen security, encryption requirements, password visibility, device administration, and credential storage.



Language & Input

Note: The active keyboard layouts are English (US) and Chinese (Pinyin). Not all labels will display translated labels when a non-English language is selected.

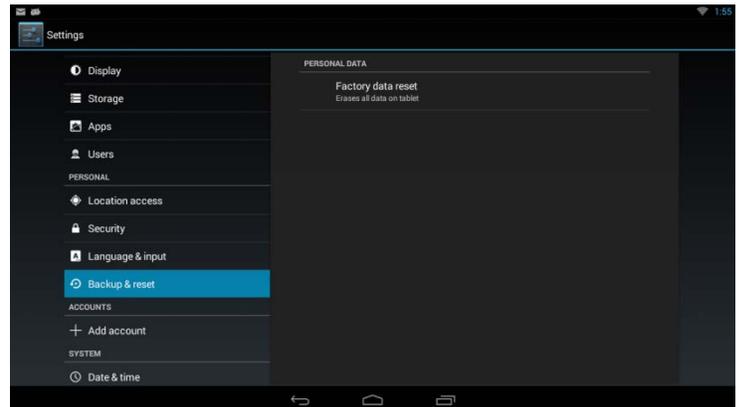
Warning: Not all translations will be exact when a non-English language is selected.

- Spell checker
- Personal dictionary
- Pointer speed



Backup & Reset

- Remove all user accounts and their associated data from device
- Restore devices to original factory settings

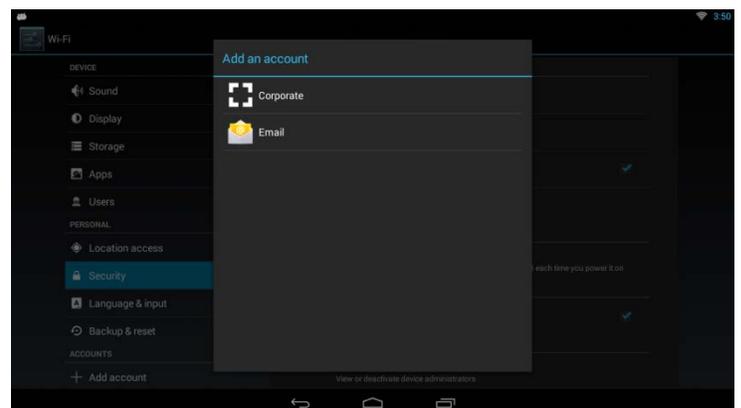


Accounts

From the Accounts & sync screen, select *Add Account*. Follow the screen instructions for setting up your account.

- Enable and disable its use
- Add a corporate (Exchange) email/calendar account
- Add a POP3 email account

Note: This requires an email app to utilize. Some apps may independently set up and maintain email accounts without the need for administrative involvement in setting up system level email accounts (for example, K9 Mail or Mail Droid – Note: this does not constitute an endorsement of these apps on the part of PDi Communication Systems, Inc.).

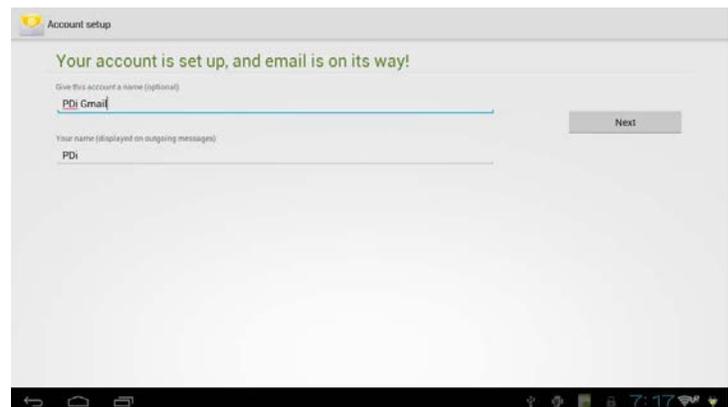
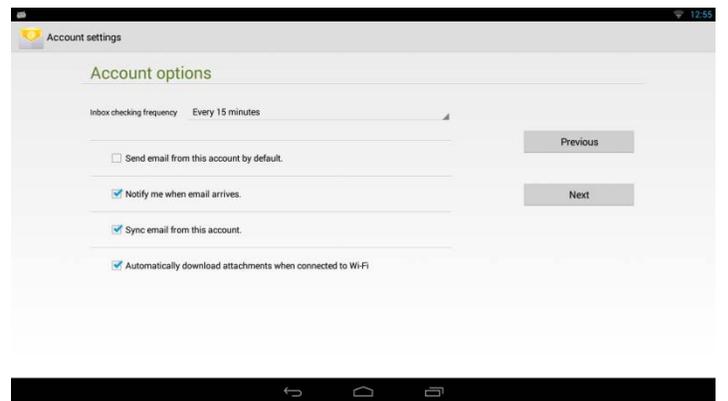
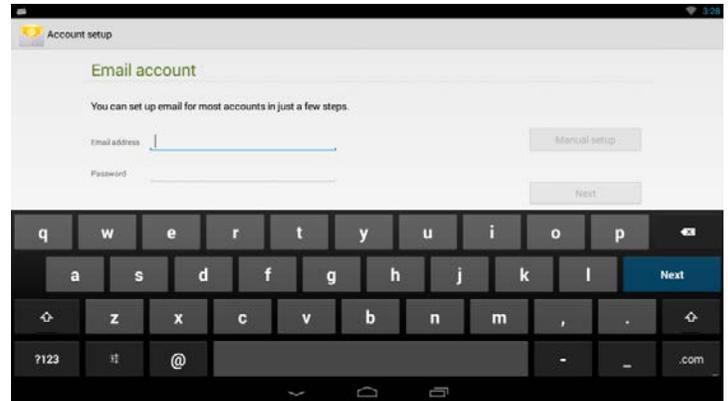


Adding POP3 account

1. Enter email address and password on the first screen
2. If an IMAP or Exchange account is needed instead, tap the Manual setup button and make the necessary adjustments. Otherwise, tap the Next button.
3. On the Account options screen, there are a variety of options that can be tapped to enable/disable and/or select, which include:
 - Inbox checking frequency dropdown to select how often to check for new messages
 - Whether or not to use this account as the email default
 - Whether or not to receive email notifications
 - Whether or not to sync email for this account
 - Whether or not to automatically download attachments.

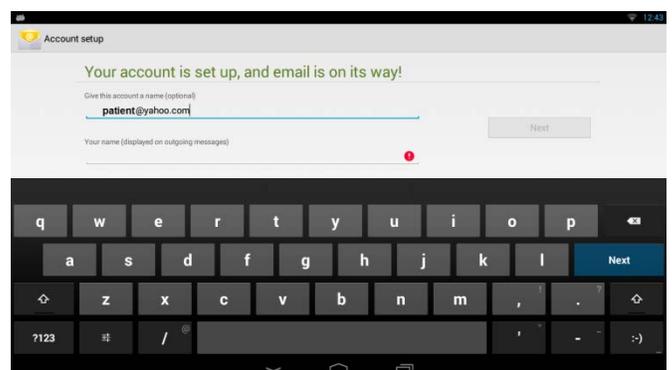
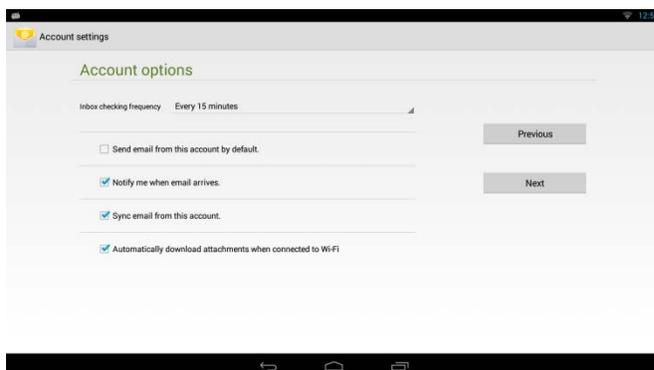
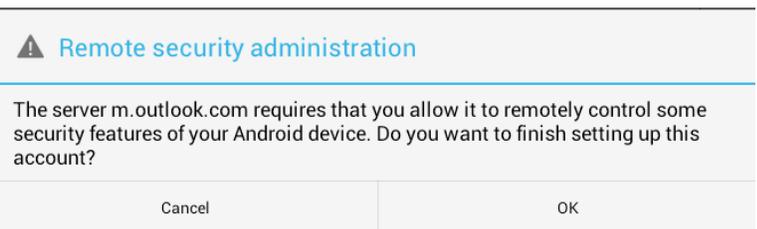
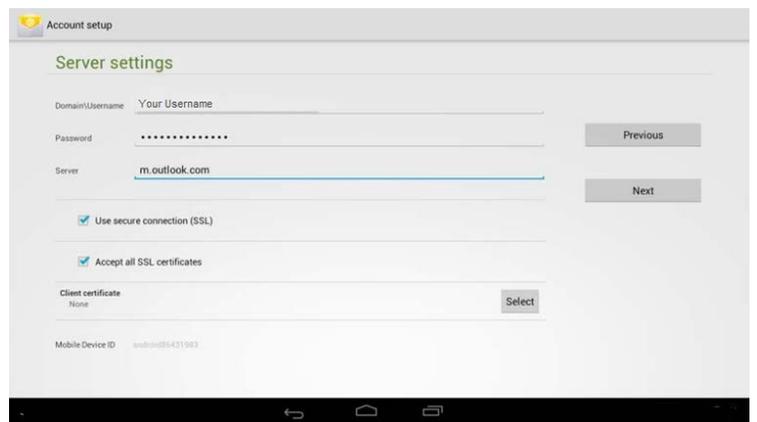
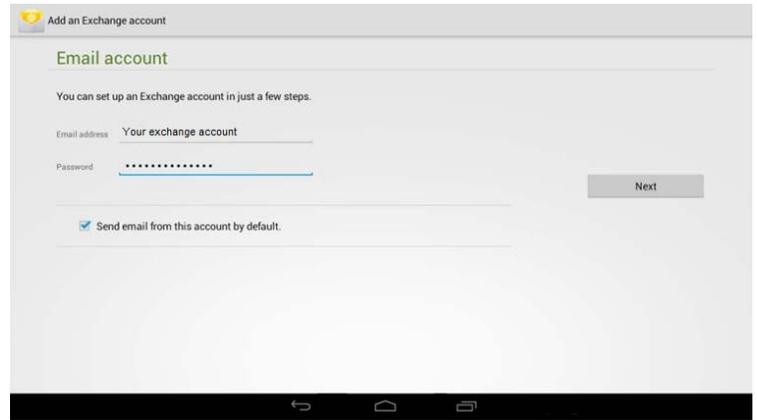
Tap *Next* once the adjustments are made or the defaults are accepted

4. On the “Your account is set up, and email is on the way!” screen, provide a name for this account (email address is used as a default) and the name to use for outgoing messages by tapping on each field and entering the required information. Tap Next after this information is entered or the default is accepted



Adding Exchange account

1. Enter email address and password on the first screen and tap whether or not to use this account as the default email sending account. Tap *Next*.
2. If the Server settings screen appears, tap the Domain\Username and Server fields to provide domain and server values for your Exchange account. If you are unsure of these values, please contact your information technology department personnel.
3. If a pop-up screen is displayed asking you for permission to remotely control some security features of Android, decide whether or not to allow such management. It is required to be able to finish setting up the account. If desired, tap *OK* to complete setup or tap *Cancel* to stop the account creation process.
4. In the *Account options* screen there are a variety of options controlling inbox checking frequency, number of days to sync email, whether to sync other forms of personal information (e.g., contacts and calendar), whether to download attachments when connected to Wi-Fi, and whether or not to receive notifications. Tap *Next* once down making any desired modifications.
5. On the “Your account is set up, and email is on the way!” screen, provide a name for this account (email address is used as a default) and the name to use for outgoing messages by tapping on each field and entering the required information. Tap *Next* after this information is entered or the default is accepted.

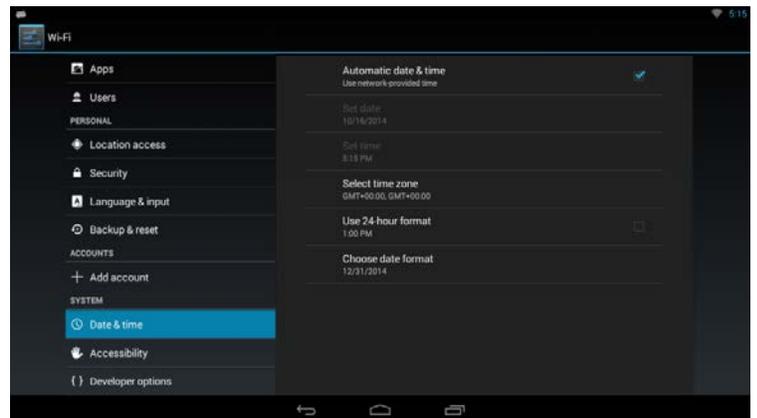


System

Date & Time

- Enable/disable automatic setting of date and time zone
- Set time zone manually
- Choose hour format
- Choose date format

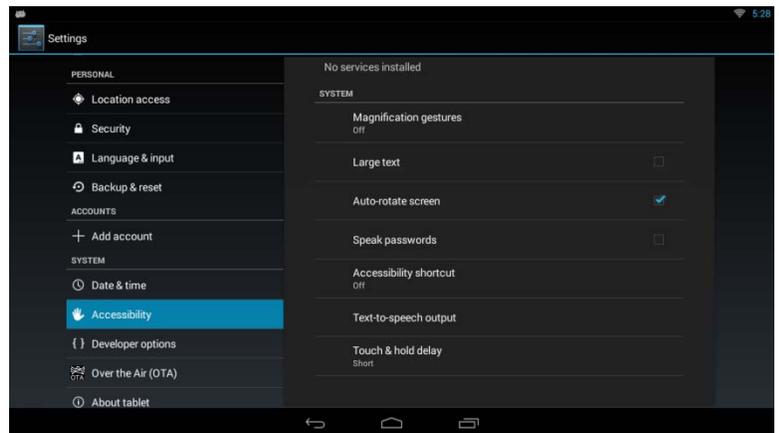
Note: Default time zone is Greenwich or Eastern Time Zones (depending on firmware version)



Accessibility

From this menu, you can manage and enable/disable the following items:

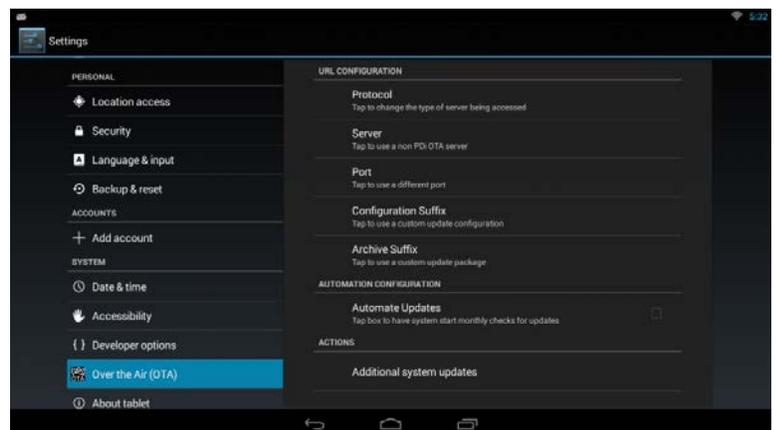
- Accessibility services installed
- Magnification gestures
- Large text
- Touch & hold delay duration



Over the Air (OTA)

The Over the Air system menu setting allows the administrator to automatically update the Android module without having to depend on PDi service personnel and/or PC hosted solutions. These updates provide bug fixes and/or enhanced functionality.

To use the OTA facility, an OTA configuration must be provided. By default, the OTA functionality is designed to contact PDi servers to check for an update. During periods of high traffic to PDi's network assets, updates may take an extended period to complete or may fail to complete due to insufficient bandwidth available for serving OTA requests. If an OTA update fails to download, try again during non-peak business hours. However, it is possible for an administrator to configure a different OTA server at the direction of PDi service personnel or when hosting a local OTA server (please contact PDi sales or service personnel to secure OTA update files as they become available).

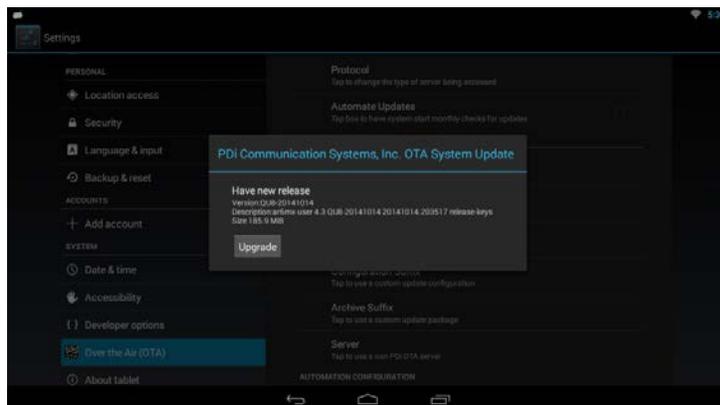


To provide an alternative OTA configuration, please input the following values:

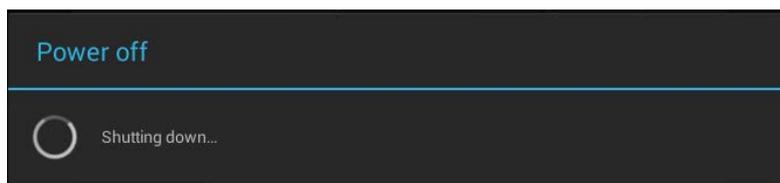
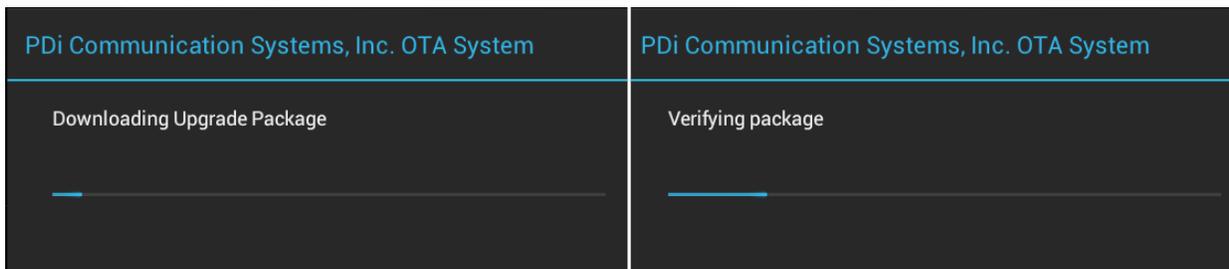
1. Tap the Protocol button and tap the method of communication between the Android based module and the OTA server. By default, hypertext transfer protocol (HTTP) is used and recommended. The alternative choices are secured hypertext transfer protocol (HTTPS), file transfer protocol (ftp), local file resource (an OTA archive must be present on the PDi device already), or java archive resource (an OTA archive is packaged as a jar file)
2. Tap the Server button and enter the name of the server to use. If a non-IP name is entered (for example, pdiarm.com), a DNS server must be present on the network to retrieve the IP address for the human readable server address provided.
3. Tap the Port button and enter the port of the service to use. It is standard, but not required to use 80 for HTTP, 443 for https, 21 for FTP, and nothing for file or jar selections.
4. Tap the Configuration Suffix if necessary to provide access to custom OTA updates provided by PDi service personnel. The configuration suffix is a filename that references a remote configuration file that provides a description of the OTA update file including critical timestamps that determine whether or not to apply an update to the Android based module. The Android based module will not update to an earlier release. Do not modify this value unless directed by PDi service personnel. The default value is build.prop.
5. Tap the Archive suffix to provide access to a custom OTA update provided by PDi service personnel. Normally this value does not need to be modified.

Once configured, tap the Additional system updates to have the module check for, download, and if applicable apply the OTA update.

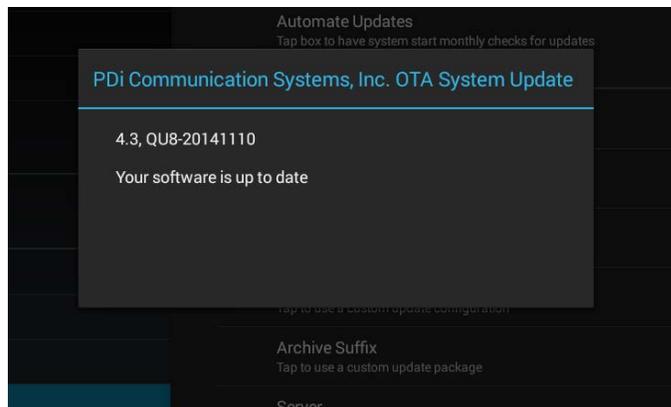
If there is an update available, the popup will say that there is a new release and provide the version information. The size of the update, typically, will be in the hundreds of megabytes (MiB) range. If the size of the update is 8.00 KB, this is a placeholder size that indicates the configuration suffix was configured correctly, but the archive suffix was not configured successfully and/or the OTA file is not available. Press the upgrade button to have the update applied to the system.



During the process of updating the system, the popup will change its contents to reflect the progress of the update. The popup will indicate that it is downloading the update package, verifying the update, and shutting down among other steps.



If the unit is running a firmware release later than that stored in the OTA update archive, the popup window will be updated to provide this information.



About tablet

This is a screen for gathering information for support and describes the device's:

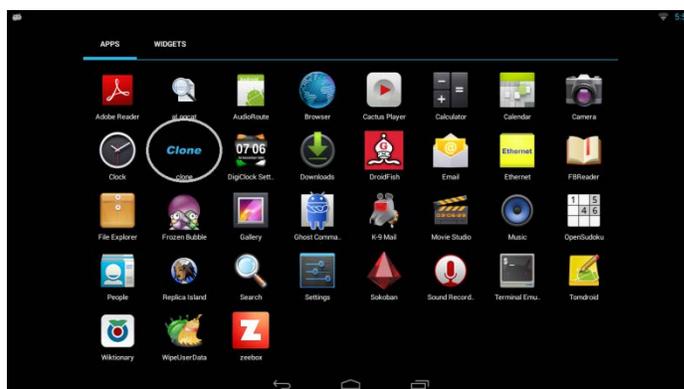
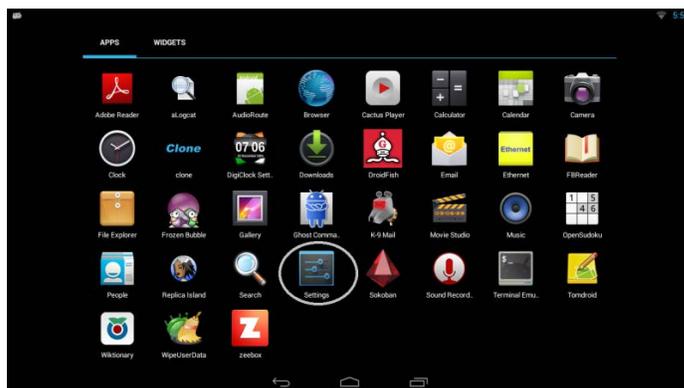
- Tablet status
- Legal information
- Model number
- Android version
- Kernel version
- Build number



Android Cloning

Cloning allows quick programming of a module from a USB Flash Drive. The operation involves first downloading setup information from a programmed host module to an USB Flash Drive and then uploading the setup information to another TV.

1. From the android home screen, touch the *All Apps* icon .
2. In the *All Apps* screen, touch the *Clone* icon. You may be prompted for a security code by the security application.



Copy Settings from Android – Master Configuration (STEP 1)

Create Master Device

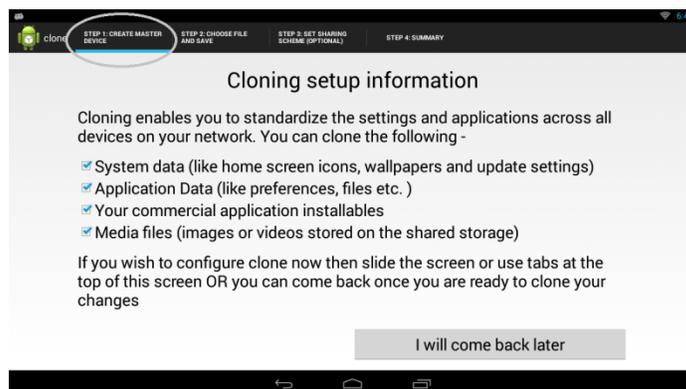
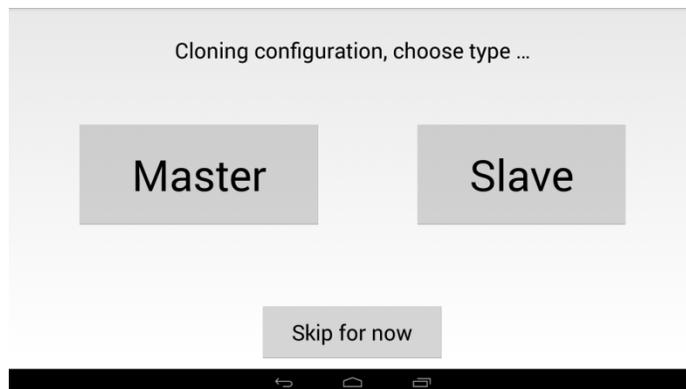
You will now have the Master cloning screen

1. To use this device to generate clone data, select *Master*.
2. Follow *Master* setup information by sliding the screens and entering information.

If you are not ready to clone at this time, you can come back to this screen once you are ready to clone your changes.

If you wish to create a master device now, then slide the screen or use tabs at the top of the screen

Note: *The checking options are disabled in this screen.*

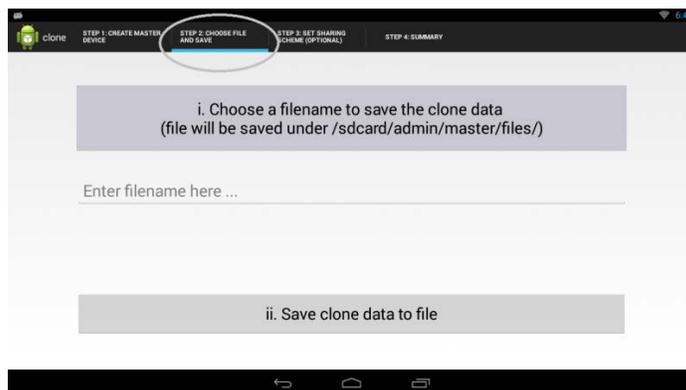


(STEP 2)

Choose file and save

Select *Enter filename here...* and you will be able to type your desired file name.

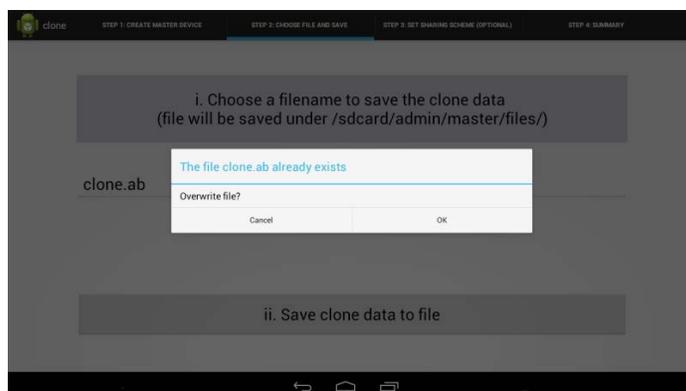
Select *Save clone data to file* to start saving the clone data.



If the file name you have chosen already exists, then you will be presented with the *file already exists* screen.

Select *OK* if you want to overwrite the existing file or select *cancel* to choose a different file name.

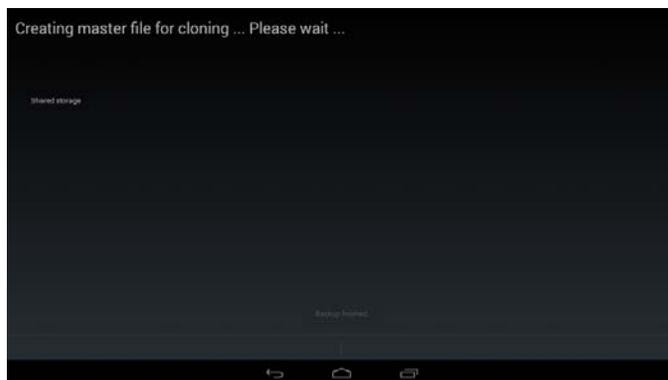
Note: The default file name is *clone.ab*



While the device is being cloned, you will see the screen to the right. The time taken will depend on the number of applications and the size of files.

DO NOT disturb the module during this process.

Note: The clone data file will be saved under */sdcard/admin/master/files/* folder.



(STEP 3)

Set Sharing Scheme (Optional)

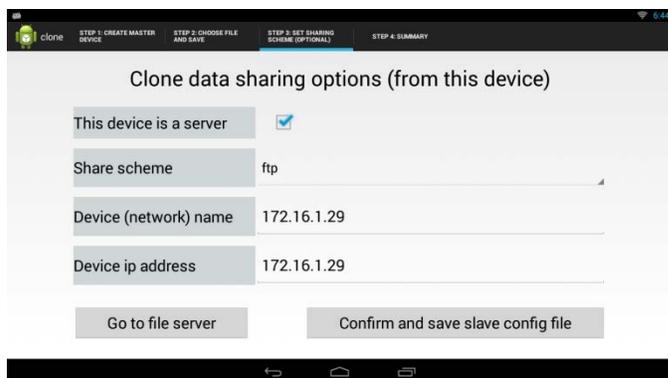
See Option 1: to use this device as an ftp server. See Option 2: to use another device as a clone data server.

Option 1:

If you want to use this device as a clone file server, keep the checked option as shown and follow the next two steps.

Note: The device network name and device ip address are not editable.

1. Select *Go to file server* to set up the ftp server. If prompted by the app locker, please enter your security code.
2. Confirm and save slave config file (applicable for auto cloning and will be available in future release)

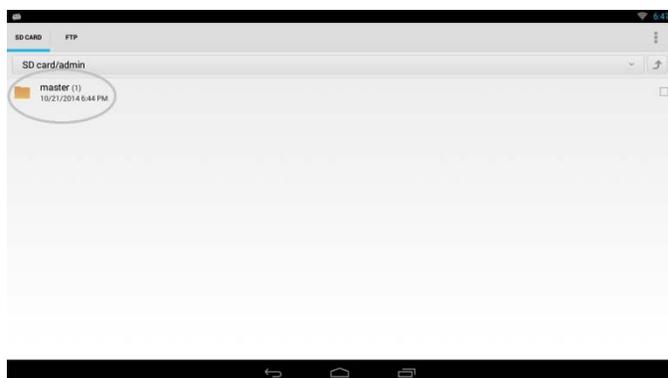


FTP Server configuration

Select the SD card Tab and browse the admin folder.



You should be able to see the clone files you save under ***SDcard/admin/master/files.***



Slide to the ftp server tab.

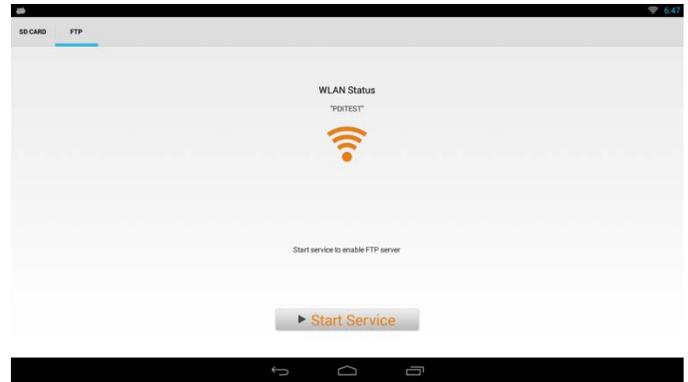
You will see your network status and an icon labeled *Start Service*.

Select *Start Service* to start the ftp server on this device. If you see the icon label *No wi-fi-Network* please check your network connection.

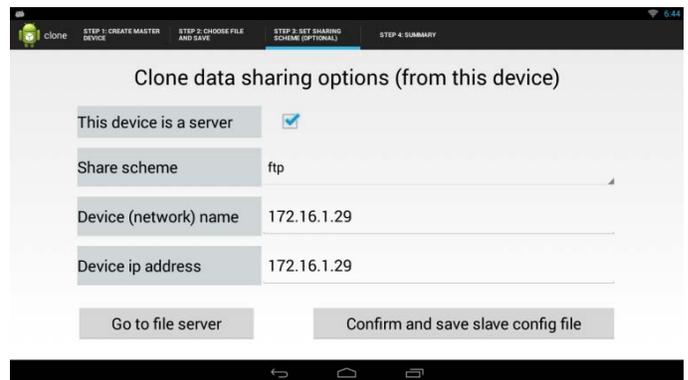
Note: *The ftp server will work only on a Wi-Fi connection*

Note: *The ftp server will have to be manually re-started when the device reboots.*

Touch the back icon  to go back to the cloning application screen.



**If you would like to use the auto cloning feature, touch the *Confirm and save slave config file* button.



The *Confirm and save slave config file* takes you to the Slave configuration setup.

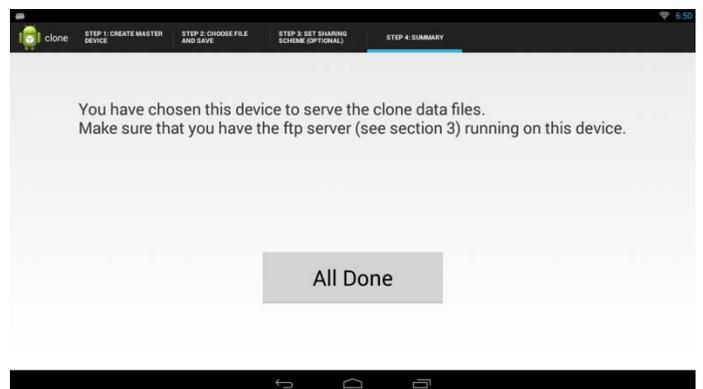
Make sure the entries are in Green. This means the host is reachable and the file is available.

Select *Done* to save the slave config file that will be picked up by the auto-cloner.

You may also use this information for manual slave set-up.



Congratulations, your master clone setup is complete! Touch *All Done* to exit the cloning application



Option 2:

If you do not want to use this device as a clone file server, uncheck the check box next to “This device is a server”

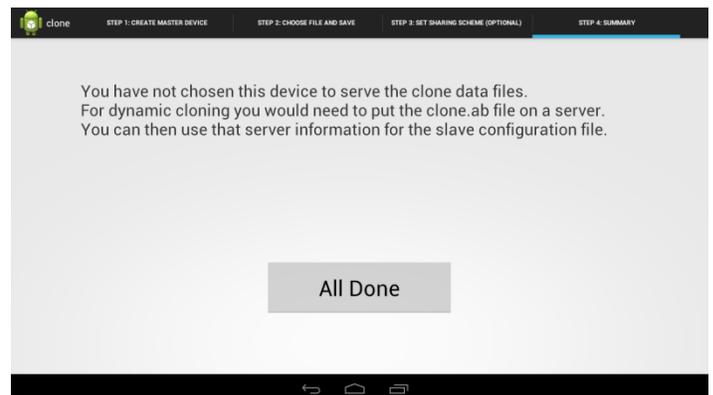
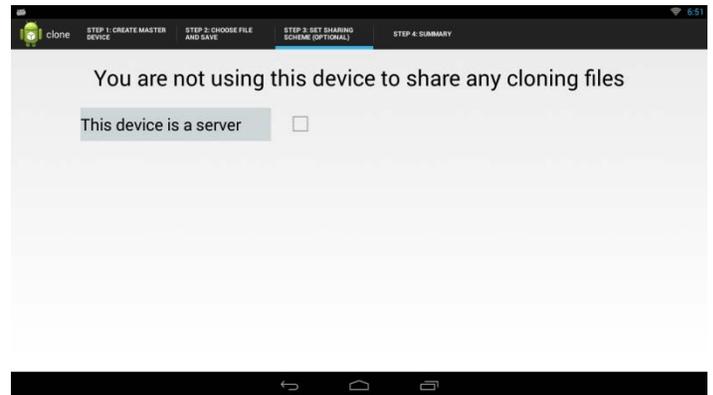
Slide to the next screen.

Congratulations, you have saved your master clone data file!

You have not chosen this device to serve the clone data files.

For dynamic cloning you would need to put the clone.ab file on a server. You can then use that server information for the slave configuration file – See the section on “Slave Configuration” for details.

Select *All Done* to exit the cloning application.



Restore Settings to Android – Slave Configuration

To Clone from the clone data (saved in previous section) to another Android based module, follow the steps below.

From the android home screen, tap the  icon.

1. In the All Apps screen, select the *Clone* icon.
2. Choose *Slave* to enter configuration setup.

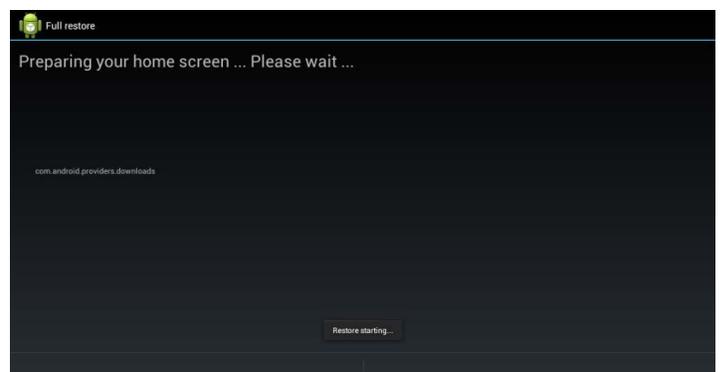
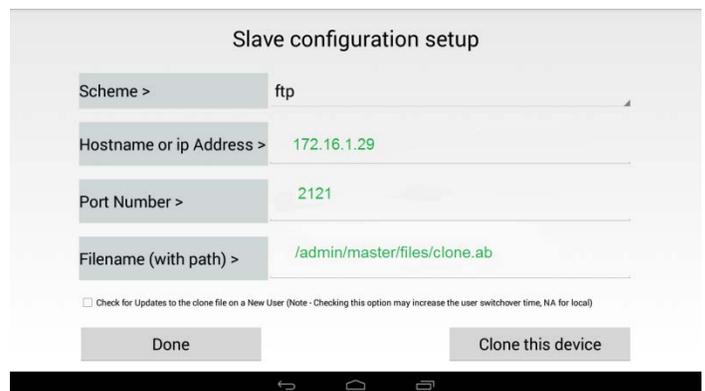
Make sure the entries are in Green This means the host is reachable and the file is available.

Select *Done* to save the slave config file. This device will be cloned on next new user.

Note: Check the box next to *Check for updates to the clone file...* if you want the clone device to check for updated file on a new user.

To clone this device now (and also for future users of this device) select the *Clone this device* button.

When cloning is complete, the TV will return to the home screen.



FAQ

Q. Is there a complete separation between patient profiles? I.e.: my personal browsing habits, credit card info etc. will not be viewable by the next patient?

A. Yes, the patient profiles are separate. A new space is created for a new patient. Old accounts are deleted under one of three conditions:

1. The maximum number of accounts are in use on the device and all other accounts have been logged into more recently than this one.
2. The user runs the “Delete my App” app and selects the button to remove the account.
3. More than 30 days has elapsed since the creation of the account.

Q. How do you address lost PIN codes?

A. You have to select New User; there is no mechanism to retrieve PIN.

Q. What happens when power is disconnected? Is the user profile saved in non-volatile memory?

A. Yes, the profile is saved.

Q. Why does the time show January 1, 1970 around 12AM?

A. The Android module needs an active internet connection to get the correct time and date. In some cases, even with an active internet connection, the network may be configured to block access to external time servers as a security precaution. Once connected, the date and number of minutes after the hour should be correct if access to a time server is permitted. It is possible to manually set the time through the Settings app.

Q. Why does the Android module show the correct date and number of minutes after the hour, but not the correct hour?

A. By default, the Android module will set the time to Eastern Standard Time (EST) or Greenwich Mean Time (GMT). The module lacks the necessary GPS and cellular radio technology that is typically used to establish a location needed for time zone calculations on smartphones and tablets. The correct time zone/time can be applied through the Settings App.

Q. What is the recommended process for getting music, pictures, or video on to the PDi-Tab for consumption?

A. The recommended way is to use the web interface (HTML5 app version) of a file sharing service. Although PDi cannot recommend a particular service, common file sharing services are provided by Google (Drive), Amazon (Cloud Drive), Dropbox, and Microsoft (OneDrive).

Although it is possible to side-load the Android apps for each of these services, it requires administrative privileges and PDi may not be able to support such a configuration.

Q. The patient complains about app x misbehaving and randomly shutting down when performing actions that used to succeed just fine—what are some basic troubleshooting steps I can take for to get the app to operate properly?

A. These are some basic troubleshooting steps:

1. Start the Settings app.
2. Tap the Apps entry under Device
3. Tap the All tab
4. Tap the entry for the problematic app
5. If enabled, tap the Clear cache button
6. Try restarting the app to see if the problem goes away
7. If not, repeat the previous process, but now tap the Clear data button
8. Try restarting the app to see if the problem goes away
9. If the problem still persists, try installing a newer or slightly older version of the app and see if it works better
10. If the problem is still not resolved, enter the WipeUserData app and tap the Continue (new user) button. The user will need to create a new PIN and reload any data/app that they installed (if allowed).
11. If necessary, install the problematic app for the user from a known good source

12. If the problem persists, use the Factory data reset option in the Setting app (under Backup & reset, Personal section) and check the box to erase SD card.
13. Once the device is restore, have the user create a new PIN, reinstall data/apps, and/or install the problematic app from a known good source
14. If the problem still persists, call PDi support.

Q. How do I enlarge the text for the patient, who has limited visual abilities?

A. Please perform following steps:

1. Start the Settings app
2. Select the Accessibility entry under the System section
3. Select the Large text checkbox. You should notice a change in the rendered font size. This may cause some apps to have text that overruns their widget containers, but hopefully will not impact app performance.

Q. Are patient education videos part of the image or can they be hosted on the network?

A. Today, no, in the future yes it could be loaded on the device.

Q. Can you include a lock-out feature so it does not update automatically?

A. Yes, today Android does not automatically update f/w.

Q. How do you control applications loaded on the device?

A. In a future update, administrators will configure the device to control which apps patients will be permitted to access as part of the out-of-the-box initial configuration. Also, an app will be provided to control the access rights of future apps that may be installed manually or through the cloning process. The applocker service and app present in the previous version of the firmware does not work across multiple limited user profiles.

Q. How do I install my commercial apps on the Android based module master device?

A. Please see the section on how to install apps on the Android based module.

Q. What is the recommended way for cloning the tablets?

A. The following steps are recommended when creating a master clone file:

1. For the master device – full factory reset the device (is also check the “Erase SDcard option”) from under settings->”Backup and Reset”
2. Login from the welcome screen and choose the wifi network that you want to use for all the slave device (there will be separate instructions if there are multiple wifi networks to be configured)
3. Install apps – if you test them then make sure you delete the data associated with those app (e.g. if you are using Pandora – your login password also gets copied in the clone file – and you may not want this. Before creating the master clone file, make sure you “Clear Data” (Go to Settings->Apps->Touch the app name) from the Apps whose data you would not want to clone.
4. Delete any unwanted apps (that you may have installed but not want to clone) and data (from say downloads folder, movies, music etc.) that you do not want to be cloned.
5. Cloning of widget icons on the Home Screen is not supported currently. So you may not see your widgets icons cloned to the slave devices.
6. Avoid configuring the same device as both slave/master.

Q. How does the device monitor for Malware?

A. Default Android comes with a lot of inbuilt security features – like non writeable /system partition that holds the core android software, user level applications have access permissions granted by the user, application run under the Dalvik Virtual Machine and have limited access to system level resources etc. We have preserved almost all of those features on the Android based module and also provided admin control over the ability to install apps – so that malware cannot enter the device.

Common Android malware today have exploited sms and other telephony functions that the Android module does not offer. For most of the usage on the Android module, we would recommend to follow anti- malware techniques like secure internet communication for sensitive information, applications to store encrypted data on the device etc.

Now if application downloads are allowed and user installs an app that is a malware – the extent of damage would be limited to that user session. Once the new user button is pressed the Android based module cleans up the writeable /data and /sdcard partitions – thereby removing any existing malware installed by the previous user.

Future versions of Android are identifying and addressing critical gaps in Android Security - Called Security Enhanced Android. Our updates to the Android based module will include these improvements.

Q. What are the major new features/improvements supported in Jelly Bean 4.3?

A. The following features/improvements are present:

1. The ability to support multiple limited/restricted user (a total of eight accounts are supported on the Android module including the administrator (owner) account, which cannot be removed, but wiped to remove personally identifying information – limited/restricted accounts can be deleted). The administrator/owner may also choose to create limited or standard accounts via the Settings app.
2. Video processing is improved
3. Full CPU speed is available on input touch
4. Shortcuts/widgets will automatically rearrange themselves when a new shortcut/widget is being added to one of the screens of the launcher
5. Notification system is greatly improved with expandable notifications (e.g., notifications that can show action buttons allow for limited feedback choices without opening the app)
6. Notifications can be disabled on a per app basis
7. Support for widgets on the lock screen
8. Expanded version of the interface layout and home screen on larger display devices like the P14T2 (e.g., navigation keys are centered on the bottom and the notification and quick settings panels along the top left and right corners respectively)
9. A new default clock app (the digiclock widget is still available)
10. A new screen saver system called Daydreams has been added
11. Bi-directional text support

Q. Where any new system apps added in this release?

A. Yes, the new apps in this release include:

1. Cactus Player – plays different types of media with support for fast forward and fast rewind, multiple audio track selection at run time, and subtitle and selection settings.
2. Camera (will only work with an optionally installed camera and microphone module) – takes pictures and records video.
3. Ethernet – configure wired connections (in a previous release this app was part of the Settings app, but has been decoupled for this release to permit easier configuration).
4. FBReader – this app is an eBook reader and supports reading books in the EPUB, FictionBook, HTML, plucker, PalmDoc, zTxt, TCR, CHM, RTF, OEB, mobipocket (mobi – no DRM), and plain text formats.
5. K-9 Mail – an email program that allows access to email systems of many services, including Google's Gmail. It does not depend on system level email accounts being configured via the Settings app.
6. Movie Studio – allows the editing of video files
7. Replica Island – a fun, action-based game
8. Sound Recorder – an app to record audio on those devices with the optionally installed camera and microphone.
9. Tomdroid -- a note taking app
10. Delete My Account (in a future OTA update) – an app to remove the currently logged on limited/restricted profile account that the user can access him/herself.

Q. Do you wipe the device after each use?

A. No. There are three ways to wipe the device. First, the device is wiped when the maximum number of user accounts is active on the device and a new account is created. In this case, the oldest created account is removed (in a future OTA update, the oldest accessed account will be removed). Second, the user can access the delete my account app and remove their account from the device. Third, the administrator (owner) can access the Factory reset option and remove all accounts from limited/restricted accounts from the device along with wiping the owner account (the device will be reset to its factory original state albeit with any OTA updates applied).

Q. Can they save data to the device?

A. Yes, any data downloaded by the apps like files; pictures, etc. are saved in the user space. All this is protected by a user chosen password and gets wiped out when a new user comes in (and touches the "I'm a new user" button)

Q. Is the device encrypted?

A. Android comes with encryption function – where you can encrypt the full device (will take an hour to encrypt – normally would be on a per user basis) with a numeric PIN/password and decrypt it each time you power it on. Currently, we have disabled it on the Android based module – The "Encrypt device" is disabled under the settings->Security. The module would normally be physically secured and cannot be easily stolen/displaced – so unlike phones or tablets, it would be difficult to open the device and retrieve the data from inside it without anyone knowing about it. Also Full device encryption may be too cumbersome for changing users/patients. So we would have to have encrypted data on a per app basis. For example, the apps that deal with patient information should be storing encrypted data on the device for additional confidentiality.

Q. Can Mobile Device Management applications like MobileIron be loaded on the device?

A. The Android based module conforms to standard Android Interface - Version 4.3 Jelly Bean, API Level 18, so any app written to that interface and not requiring any hardware feature not supported by the PDi-Tab could be loaded on the Pdi-Tab.

A quick way to check this or any app would be to install the app on the device (in the user space) and check whether it works as intended. In a future OTA update, the PDi-Store and its WSO2 Agent app will allow for mobile device management capabilities as an alternative to applications like MobileIron.

Q. Do Master IP addresses need to be constant or are there other ways to handle dynamic IP addresses?

A. We have the provision to have fixed IP address on the Android based module, but we could solve the problem of dynamic IP addresses in other ways:

1. By using the master network name in the cloning configuration – the Android module has a unique network name by default – e.g. P14T-051b49D4D72D7422. Other Android based modules can access the master device by name instead of an IP address. An IT administrator should be able to address this.
2. It is also possible to keep the clone file on an HTTP server e.g. www<yourwebsitehere>/P14Tab/clone.ab and use that configuration for slaves.

Q. How much band width do typical applications use?

A. Bandwidth Usage – This is just an indicative list. Please note that typical cases may vary.

A typical number of user supported scenario is given below. Note that the actual numbers would depend on many other factors including but not limited to actual network bandwidth, network configuration, other users on the network, other background applications taking up bandwidth, media/video content, etc.

Activity	Bandwidth Usage per Activity
One hour of text-based instant messaging (IM) chatting	~0.01 MB
Sending one email via Webmail, Gmail, etc.	~0.2 MB if email is plain text with no attachments
Uploading a photo to Flickr	Less than 1 MB, if the photo is resized to 1024 x 768
Downloading a three-minute song from iTunes, Amazon,	2-5 MB, depending on the song and encoding
Watching a five-minute video clip from YouTube	~5 MB (1 MB per minute, on average)
Using video chat on Skype for 15 minutes	2.7-14.4 MB
Watching a two-hour streaming movie from Netflix, iTunes, Amazon, Hulu, etc.	~2 GB at 640 x 480 resolution
Listening to Pandora for one hour	56.25 MB, assuming 128 Kbps streaming rate

Q. What is the typical band width offered by standard connectivity technologies?

A. The following table covers two standard connectivity technologies offered by the Android based module.

	Technology	Support	Description
Network Bandwidth	802.11n(600Mbps) aka wifi	120 - 1200 concurrent users	500 kbps (360p, H.264 baseline) - 5 Mbps (1080p,H.264 High) – per device for YouTube Video
	802.3z(Gigabit Ethernet) aka gigE	200 - 2000 concurrent users	

Android Troubleshooting Tips

Many problems can be solved by just rebooting the Android. To reboot the Android, touch and hold the TV power button (bottom right) for 8-10 seconds. The power button must turn back to green after turning to red.

Symptom

Check

KEEP GETTING “PLEASE WAIT” MESSAGE WHEN SWITCHING TO ANDROID	<ul style="list-style-type: none"> • REBOOT THE ANDROID
CONNOT CONNECT TO INTERNET	<ul style="list-style-type: none"> • CHECK INTERNET CONNECTION SETUP. SEE SECTION SETTINGS->WIRELESS & NETWORKS FOR MORE INFORMATION.
DEVICE SHOWS THE TIME JANUARY 1, 1970 AROUND 12AM	<ul style="list-style-type: none"> • THE ANDROID BASED MODULE NEEDS AN ACTIVE INTERNET CONNECTION TO GET THE CORRECT TIME AND DATE. • IN SOME CASES, EVEN WITH AN ACTIVE INTERNET CONNECTION, THE NETWORK MAY BE CONFIGURED TO BLOCK ACCESS TO EXTERNAL TIME SERVERS AS A SECURITY PRECAUTION. ONCE CONNECTED, THE DATE AND NUMBER OF MINUTES AFTER THE HOUR SHOULD BE CORRECT IF ACCESS TO A TIME SERVER IS PERMITTED. • IT IS POSSIBLE TO MANUALLY SET THE TIME THROUGH THE SETTINGS APP.
THE ANDROID BASED MODULE DOES NOT AUTOMATICALLY SHOW THE CORRECT TIME ZONE	<ul style="list-style-type: none"> • BY DEFAULT, THE ANDROID MODULE WILL SET THE TIME TO EASTERN STANDARD TIME (EST) OR GREENWICH MEAN TIME (GMT). • THE MODULE LACKS THE NECESSARY GPS AND CELLULAR RADIO TECHNOLOGY THAT IS TYPICALLY USED TO ESTABLISH A LOCATION NEEDED FOR TIME ZONE CALCULATIONS ON SMARTPHONES AND TABLETS. • THE CORRECT TIME ZONE/TIME CAN BE APPLIED THROUGH THE SETTINGS APP.

<p>AN APP DOESN'T WORK PROPERLY (THAT IS SUPPOSED TO BE COMPATIBLE* WITH THE ANDROID BASED MODULE) *HARDWARE, PERFORMANCE, ORIENTATION, ETC. COMPATIBLE</p>	<ul style="list-style-type: none"> • START THE SETTINGS APP. • TAP THE APPS ENTRY UNDER DEVICE • TAP THE ALL TAB • TAP THE ENTRY FOR THE PROBLEMATIC APP • IF ENABLED, TAP THE CLEAR CACHE BUTTON • TRY RESTARTING THE APP TO SEE IF THE PROBLEM GOES AWAY • IF NOT, REPEAT THE PREVIOUS PROCESS, BUT NOW TAP THE CLEAR DATA BUTTON • TRY RESTARTING THE APP TO SEE IF THE PROBLEM GOES AWAY • IF THE PROBLEM STILL PERSISTS, TRY INSTALLING A NEWER OR SLIGHTLY OLDER VERSION OF THE APP AND SEE IF IT WORKS BETTER • IF THE PROBLEM IS STILL NOT RESOLVED, ENTER THE WIPEUSERDATA APP AND TAP THE CONTINUE (NEW USER) BUTTON TO RESET THE UNIT. THE USER WILL NEED TO CREATE A NEW PIN AND RELOAD ANY DATA/APP THAT THEY INSTALLED (IF ALLOWED). • IF NECESSARY, INSTALL THE PROBLEMATIC APP FOR THE USER FROM A KNOWN GOOD SOURCE • IF THE PROBLEM PERSISTS, USE THE FACTORY DATA RESET OPTION IN THE SETTING APP (UNDER BACKUP & RESET, PERSONAL SECTION) AND CHECK THE BOX TO ERASE SD CARD. • ONCE THE DEVICE IS RESTORE, HAVE THE USER CREATE A NEW PIN, REINSTALL DATA/APPS, AND/OR INSTALL THE PROBLEMATIC APP FROM A KNOWN GOOD SOURCE • IF THE PROBLEM STILL PERSISTS, CALL PDI SUPPORT.
<p>THE ANDROID BASED MODULE DID NOT FACTORY RESET</p>	<ul style="list-style-type: none"> • MAKE SURE YOU CHECK THE "ERASE SD CARD" OPTION FROM UNDER SETTINGS->BACKUP AND RESET TO COMPLETELY RESET THE DEVICE. • PLEASE SEE THE SECTION UNDER SETTINGS->BACKUP AND RESET FOR DETAILS.

Many common conditions which appear to render the Android based module nonresponsive are easily addressed by a simple reboot process. Please contact PDi Technical Support for more information at 800-628-9870 ext. 505.

Specs

Software

Component	Description
Android	4.3 (aka Jelly Bean, second revision)
Kernel	Linux 3.0.35 (wireless drivers backported from 3.06)
Bootloader	U-Boot 2009.08 (Recovery and Fastboot now supported)

Hardware

Component	Description
Main board version	2.0
Processor	Freescale iMX.6 Quad (CPU with four Cortex A9 processor cores running up to 1GHz (speed is dynamic based on system load and/or internal power profile service setting)
Memory (Running Programs)	1 GB Random Access Memory (RAM)
Memory (Storage)	8 GB embedded Multimedia Card (eMMC) – Note this memory is fixed on the unit and is not replaceable/upgradeable
SD Card Expansion (Optional)	32 GB installed at production – not field upgradable
Wireless Access	Intel 100/105 (802.11b/g/n) or Intel 3160 (802.11 b/g/n/ac) supporting WEP, WPA, WPA2, open networks; Bluetooth 4.0/Wifi-Direct not available presently but will be supported in a future update on units carrying the 3160
Wired Access (Optional)	Standard Ethernet RJ-45
Sensors	None
Display	HDMI running at 1280x720 resolution (internally connected to TV main board)
External Access	USB service port that also permits USB On-The-Go

Firmware

The TV firmware for the model PDI-P14T is field upgradeable, but normally does not require this process and should be performed by the hospital technician via USB. A special data file is required from the manufacturer to complete this process. The file is posted on PDi Communication System's web site: <http://www.pdiarm.com/support>. Firmware files are written to the PDITDF directory of a blank USB flash drive, connected to the TV's USB port and updated using the TV's menus. Once complete, the TV settings may need to be reprogrammed.

Many common conditions which appear to render the Android nonresponsive are easily addressed by a simple reboot process. Please contact PDi Technical Support for more information at 800-628-9870 ext. 505. The unit may be reset by reloading Firmware via the micro USB.

Micro USB Cable

PDi-TAB2 devices have a micro USB cable that is mounted inside the nose cover extending from the neck of the unit. This cable allows service personnel to provide offline updates to the Android firmware. In addition, this cable and the USB port it is attached to, support the USB On-The-Go (OTG) standard, which allows the connection of external devices such as flash drives and keyboards. The devices that attach to this cable along with any other external cabling must also support the USB OTG standard along with being supported by the Android firmware. For instance, if a flash drive is attached, (ex: Sandisk BN140600028 supporting FAT32, NTFS, or EXT file systems) any pictures on the device will appear in the Gallery.

Note: Microsoft's exFAT file systems found on flash drives greater than 32 GB by default and Mac OS file systems are not supported by the PDI-TAB2.

Limited Warranty

PDi Communication Systems Inc., ("PDi") warrants, to the original purchaser only, that the product will be free from defects in materials and workmanship, under normal use, for 2 years from the date of original purchase. This warranty does not cover any other equipment that may have been included with PDi's shipment of this product.

After receipt of written notice of a defect or malfunction occurring during the warranty period, PDi will repair or replace goods returned to its Springboro, Ohio location, at its discretion, the whole or any component part of any product manufactured by PDi and found by PDi to be defective. If the decision is made to replace the product, PDi will exchange the model for the same model or a model similar in form and function.

As a condition to obtaining warranty service, written notification of the defective product must be received by PDi within ten (10) days of noticing the defect. Repair of said product requires it to be shipped to the PDi factory in Springboro, Ohio. All shipments shall be F.O.B. Springboro, Ohio, and all shipping and freight charges to PDi's factory shall be paid by the customer.

For information regarding authorized servicing and all other information pertaining to this warranty, please contact PDi COMMUNICATION SYSTEMS at 40 Greenwood Lane, Springboro, Ohio 45066 or phone 800-628-9870 and ask for Service.

This warranty gives specific legal rights and you may also have other rights which vary from state to state.

Exclusions from Warranty

- Products damaged by any catastrophe, accident, or from neglect, misuse, fault, improper assembly, improper maintenance, inadequate return packaging, or negligence by the customer or any third party. They will be treated as out of warranty for external cause to the Products, such as, but not limited to, failure of or faulty electric power, air conditioning, operator error, failure or malfunction of any data communications system. Such conditions will be determined by PDi at its sole unfettered discretion.
- Service and repair of accessories, apparatus, attachments or any other devices which are not PDi products or options.
- Defacing of product, revision control and PDi labeling (label alterations, serial number missing, serial number no longer discernible and serial number invalid). All serial numbers are recorded and tracked for warranty purposes.
- Unauthorized changes, modifications or alterations in or to the Products not installed by PDi.
- Damage to or loss of any programs, data, or removable storage media.
- Damage incurred during installation, relocation or removal of the Products or any accessories, apparatus, attachments or other devices.
- Normal wear.
- The furnishing of accessories or supplies.
- Damage by shipping carrier.
- Incompatibility issues.
- Damages of any kind including, but not limited to, direct or indirect damages, lost profits, lost saving, or other special incidental, exemplary or consequential damages whether for breach of contract, tort or otherwise, or whether arising out of the use of or inability to use the product, even if PDi or any distributor, dealer, or authorized service provider has been advised of the possibility of such damages, or any claim by any other party
- Damage caused by any software or application not installed at the factory.

PDi's liability under this warranty is limited to repair or replacement of defective products and parts as provided above. PDi shall not be liable for incidental or consequential damages.*

The warranty contained herein is in lieu of all other expressed or implied warranties, including any implied warranty of merchantability or fitness for any particular purpose. PDi neither assumes nor authorizes any person to assume, on its behalf, any other obligation or liability.

*Some states do not allow the exclusion or limitation of incidental or consequential damages or a disclaimer of warranties implied by law, so the above limitation or exclusion may not apply.

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