

VetGuardian

USER MANUAL

Structured Monitoring Products
Product Management Department



Scan for Digital
User Manual

VetGuardian User Manual

Purpose of the Document

The purpose of this document is to provide direction and explain how to set up and use VetGuardian. User understands and acknowledges that (i) it is participating in SMP's Early Market Test for the Products, (ii) it is receiving a preliminary version of the Product, and (iii) the Product may not operate properly, may not perform all functions for which it is intended or represented, and may not operate error-free. User agrees to use the Product primarily for purposes of evaluation, agrees to provide SMP with its comments, criticisms, and suggestions for changes with respect to the Product, and agrees to help SMP identify any and all errors or malfunctions in the operation of the Product. For a period of three hundred and sixty-five (365) days from the date User receives the Products (the '**Test Period**'), User shall keep a written record of the use and results of the Products together with any unusual, unplanned, or extraordinary events observed by User during the Test Period, supported by data, printouts, photos, or other evidence of such events as appropriate. From time to time throughout the Test period, SMP may require additional or modified tests of the Products as may be reasonably requested by SMP. User's personnel shall report each instance of any failure or malfunction of the Products ('**Product Failure**') in full (including, without limitation, a description of the application then underway and the specifics of the Product Failure). If any Product Failure results in damage to files or data or if the frequency of Product Failures is excessive under the circumstances, the User shall also promptly notify SMP of this fact. Copies of the reports regarding Product Failures shall be forwarded to SMP.

Equipment Statements

For All Equipment:

If the user makes changes or modifications that aren't approved by SMP, they might lose their right to use the equipment. This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Class B equipment:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are intended to protect a residential installation from potentially harmful interference. This equipment makes, uses, and can send out radio frequency energy. If it isn't set up and used the way the instructions say, it could interfere with radio communications and cause problems. However, there is no guarantee that interference will not occur in a particular installation. If this equipment causes harmful interference to radio or television reception, as determined by turning the equipment on and off, the user is encouraged to attempt to correct the interference by one or more of the following measures: —Reorient or relocate the receiving antenna. —Increase the distance between the equipment and the receiver. —Connect the equipment to an outlet on a different circuit from that to which the receiver is connected. —Consult the dealer or an experienced radio/TV technician for help.

This device contains an array of SPAD (single photon avalanche diode) detectors and an integrated 940 nm light source based on an eye-safe Class 1 VCSEL (vertical-cavity surface-emitting laser). The laser output is designed to remain within Class 1 laser safety limits under all reasonably foreseeable conditions, including single faults, in compliance with IEC 60825-1:2014 (third edition).

Caution: Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure

Compliance Information for the Wi-Fi module

FCC PART 15 STATEMENTS:

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,

VetGuardian User Manual		Last Modified:	March 31, 2023
Author:	SMP	Version 3.3	Page 2/48

VetGuardian User Manual

uses, and can radiate radio frequency energy that, 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 his own expense. The end user of this product should be aware that any changes or modifications made to this equipment without the approval of the manufacturer could result in the product not meeting the Class A limits, in which case the FCC could void the user's authority to operate the equipment.

Compliance Information for the Wi-Fi module FCC: Contains 2ARN8-SMPVG02

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are intended to protect a residential installation from potentially harmful interference. This equipment generates, uses, and can radiate radio frequency energy, and if it is not installed and used in accordance with the instructions, it may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment causes harmful interference to radio or television reception, as determined by turning the equipment on and off, the user is encouraged to attempt to correct the interference by one or more of the following measures:

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

To satisfy FCC RF Exposure requirements for mobile and base station transmission devices, a separation distance of 20 cm or more should be maintained between the antenna of this device and persons during operation. To ensure compliance, operation closer than this distance is not recommended. The transmitter's antenna(s) can't be in the same place as or working with any other antenna or transmitter.

This document is the property of Structured Monitoring Products.

It may not be reproduced or communicated without the author's prior agreement.

VetGuardian User Manual		Last Modified:	March 31, 2023
Author:	SMP	Version 3.3	Page 3/48

Document History

Version	Date	Description
1.0	9/30/19	Initial Draft
1.1	11/11/19	First Release
1.2	4/20/20	Version 9.8
1.3	10/28/20	Corrected iP's
2.21	8/2/21	Updated Links
2.22	3/7/22	Updated for Gen 2 Device
2.23	5/15/22	Updated per FCC Updates
2.24	7/6/22	Further Updates
2.5	10/6/22	Updated for Gen 2.5 Device
2.6	2/16/23	Updates to Cloud Application (Biosignal, Audible Alerts, and Push Notifications)
3.3	3/31/23	Updates for IR camera, Battery, and Video Downloading (Cloud Version 3.3)

Contents

1. About VetGuardian	6
1.1 Product Description	6
1.2 Major Components	6
1.3 Personas	6
1.4 Support	6
2. Setting Up a New Device	7
2.1 Initial VetGuardian Setup	7
2.2 Account & Device Registration	10
2.3 Mounting & Positioning	13
3. Software Operation	15
3.1 Configure a Device	15
3.2 Home Screen & Menu Bar	16
3.3 Menu Bar Hyperlink Tree	17
3.4 Admin Settings	17
3.5 Vet Settings	17
3.6 Staff	18
3.7 Species	20
3.8 Account & Clinic	22
4. How to Run a Remote Vital Sign Session	24
4.1 Session Setup Screen	24
4.2 Input Patient Information – New Patient	24
4.3 Input Patient Information – Edit Patient	26
4.4 Enabling Video	27
4.5 Recording Video	27
4.6 Start a Session	28
4.7 Calibrating Temperature	31
4.8 Inputting Other Manual Readings	32
4.9 Pausing a Live Session	32
4.10 Stop a Session	34
4.11 Session Log	34
4.12 Patient Info	35
5. VetGuardian Features	36
5.1 Distance	36
5.2 Biosignal Probability	36
5.3 Motion Detection	37
5.4 Body Detection	37
5.5 Temperature Monitoring	38
5.6 Infrared Night Vision Camera	38
5.7 Alert Configuration	39
5.8 Battery	42
5.9 Firmware Updates	43
6. History Tab	44
7. Medical Record Reporting	45
8. Follow-Up Support	48

1. ABOUT VETGUARDIAN

1.1) Product Description

VetGuardian is a remote vital sign monitor for animals. It can measure a stationary, non-moving subject's heart rate, respiration rate, and temperature near the tear duct without any physical contact. Users can run vital sign monitoring sessions in the VetGuardian Application, which displays live readings and stores electronic medical records and patient demographic information.

1.2) Major Components

The VetGuardian platform is comprised of 4 major components:

- **In-the-Box:**
 - VetGuardian Device: Collects and interprets vital sign data
 - USB-C Power Adapter: Supplies power to the VetGuardian device
 - Mounting Arm: Attaches the VetGuardian device to cages and IV poles
- **Not Included:**
 - Smart Device: Computer or tablet that will be used to access the Application



1.3) Personas

Stakeholders in VetGuardian fall into 3 types:

- **'Application User'** refers to a person using the VetGuardian Application, usually an animal health provider such as a Veterinarian or Technician.
- **'Subject'** or **'Animal Patient'** refers to an animal whose vital signs are being monitored or whose information is saved in the VetGuardian application.
- **'Admin'** refers to the primary user(s) of the VetGuardian Application, who can access the Admin Settings section of the VetGuardian Application.

1.4) Support

Reach out to VetGuardian for product support and feedback between 8:00 a.m. and 5:00 p.m. EST. A VetGuardian representative will respond as soon as possible:

- **1-844-VGVITAL**, VetGuardian Office Phone Number
- info@vetguardian.com
- VetGuardian Application Home Page > Help
- <https://www.vetguardian.com/contact>

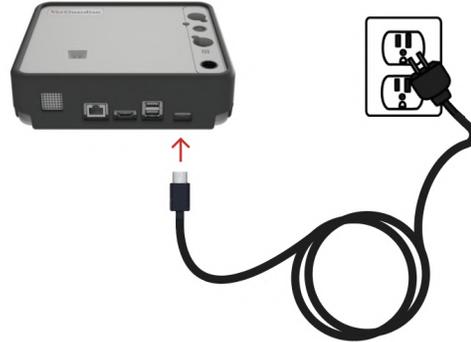
VetGuardian User Manual		Last Modified:	March 31, 2023
Author:	SMP	Version 3.3	Page 6/48

2. SETTING UP A NEW DEVICE

2.1) Initial Device Setup

A) Connect the Device to Power

- a) Attach the USB-C end of the power adapter to the bottom of the VetGuardian device, then plug the other end into a wall outlet.



- b) Hold the Power Button on the side of the device for 3 seconds. After a minute, a corner LED light will turn dark blue indicating the device is in setup mode.
- c) If the LED is not dark blue, hold the Minus Button '-' on the side of the device for 30 seconds. Wait for one minute. If the light does not turn dark blue, please contact support.



B) Download the VetGuardian Onboarding App

- a) Scan one of the QR codes to access the Onboarding Application, or search your device's app store for "VetGuardian Onboarding." Install the Application.



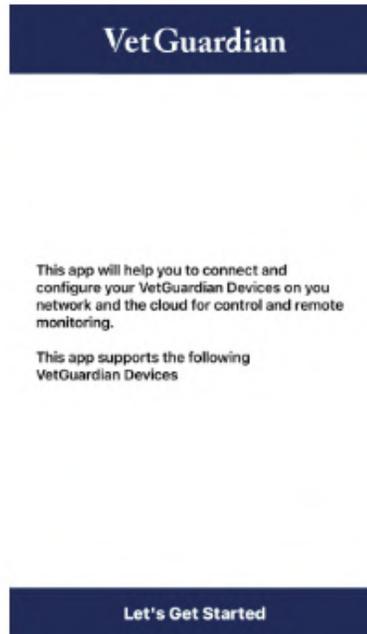
VetGuardian User Manual		Last Modified:	March 31, 2023
Author:	SMP	Version 3.3	Page 7/48

VetGuardian User Manual

b) Open the Application.

c) Connect your device with the Onboarding App

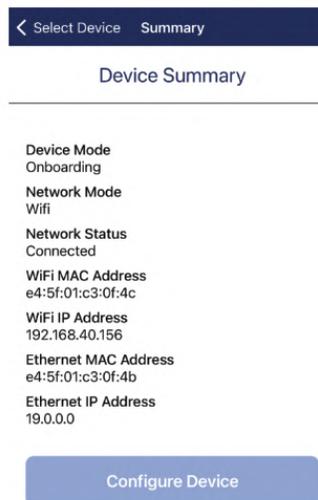
a) Click 'Let's Get Started.'



b) Wait for your device to be found via Bluetooth, then select your device.



c) Click 'Configure Device.'



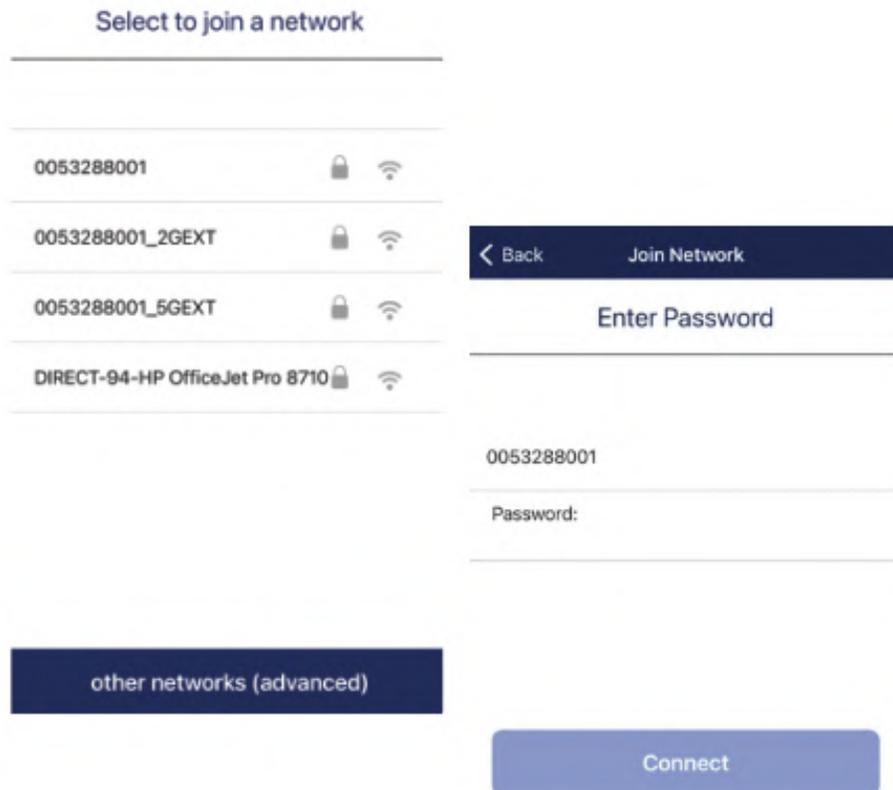
VetGuardian User Manual		Last Modified:	March 31, 2023
Author:	SMP	Version 3.3	Page 8/48

VetGuardian User Manual

d) Click 'Wi-Fi' (Recommended).

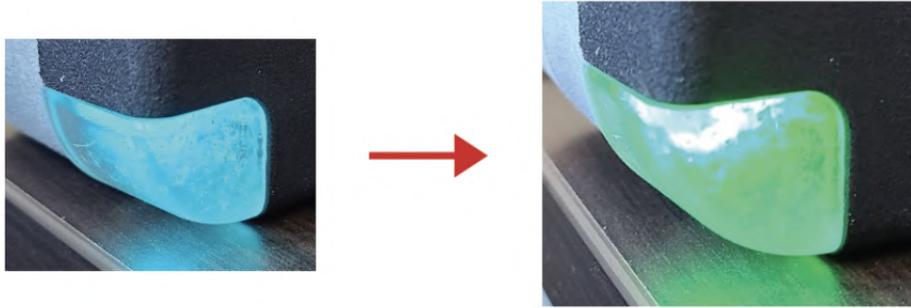


e) Select your clinic's Wi-Fi Network and enter the password.



f) Click 'Connect.'

VetGuardian User Manual		Last Modified:	March 31, 2023
Author:	SMP	Version 3.3	Page 9/48



- g) The device will reboot. A light blue LED will blink as the device attempts to connect to the Wi-Fi network. Once successfully connected to the network, you should see a green LED.

2.2) Account & Device Registration

- A) Navigate to <https://account.vetguardian.com>
- a) Click 'Sign up' to create an account for your clinic, or log in if you already have one.

VetGuardian User Manual		Last Modified:	March 31, 2023
Author:	SMP	Version 3.3	Page 10/48

VetGuardian User Manual

b) Enter your information.

Sign up with a new account

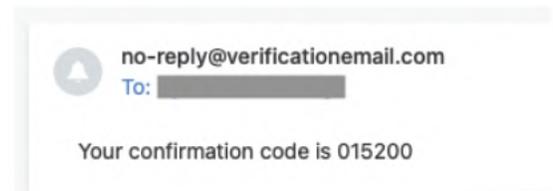
Email

Given name

Family name

Password

c) A verification code will be sent to your email.



d) Enter the verification code and click 'Confirm account.'

The screenshot shows a web page titled "Confirm your account". Below the title, it says "We have sent a code by email to c***@a***. Enter it below to confirm your account." There is a text input field labeled "Verification code". Below the input field is a blue button labeled "Confirm account". At the bottom, there is a link that says "Didn't receive a code? Send a new code".

VetGuardian User Manual		Last Modified:	March 31, 2023
Author:	SMP	Version 3.3	Page 11/48

VetGuardian User Manual

B) Configure the account for your clinic

- a) On the next page, enter your clinic's information, then click 'Next.'

The screenshot shows the 'Add a Clinic' registration form. At the top is the 'VetGuardian' logo in white text on a dark blue background. Below the logo is the heading 'Add a Clinic'. The form consists of several input fields: 'Clinic Name', 'Address 1', 'Address 2', 'State', 'Zip', and 'Phone'. A 'Next' button is located at the bottom of the form.

C) Register the device using the Serial Number

- a) Find the device serial number located on the back of the device under the barcode.



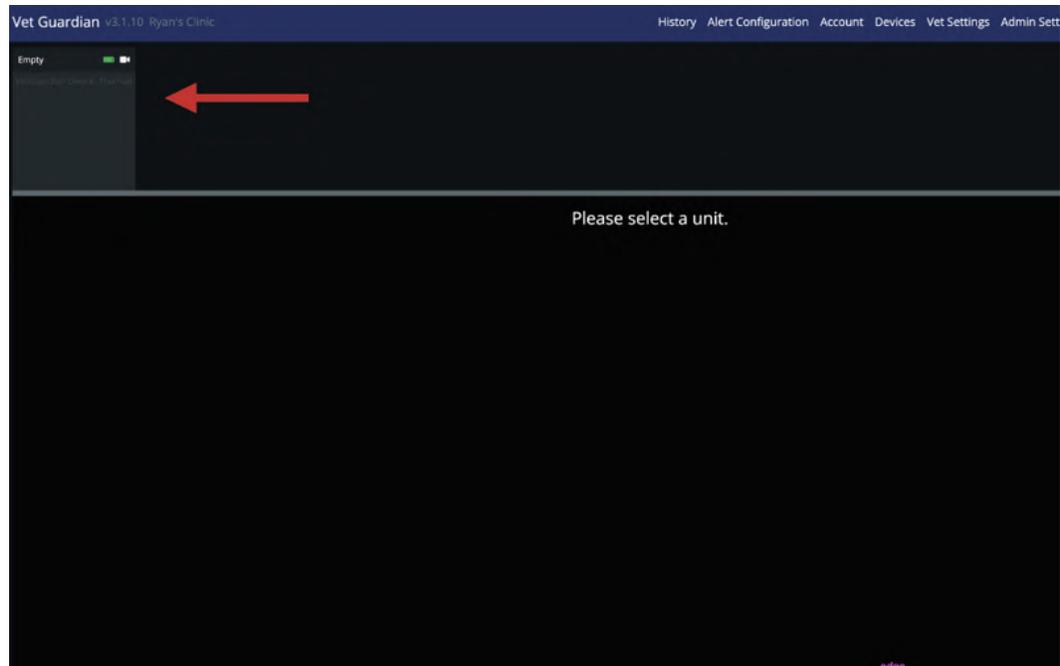
- b) Enter the serial number, then click 'Next' to complete registration. The device has now been added to your clinic.

The screenshot shows the registration screen for entering a serial number. At the top is the 'VetGuardian' logo. Below the logo is the heading 'Please Enter The Serial Number of Your Device'. There is a text input field labeled 'Serial Number'. Below the input field is a note: 'serial numbers are located on a decal on the back of the unit'. A 'Next' button is at the bottom. At the very bottom, there is a note: 'Other Units may be added in a later step. If you already have an account, please login to access your devices or add additional units.'

VetGuardian User Manual		Last Modified:	March 31, 2023
Author:	SMP	Version 3.3	Page 12/48

VetGuardian User Manual

- D) Navigate to the Cloud App <https://cloudapp.vetguardian.com>
- a) Log in to the account you just created. The device you added should now be visible in the top left.



2.3) Mounting & Positioning

A) Loosen the Mounting Arm

- a) Turn the red knob counterclockwise to loosen the entire mount.



- b) Screw the end of the mounting arm, to which the clamp is not attached, into the back of the VetGuardian Device.

VetGuardian User Manual		Last Modified:	March 31, 2023
Author:	SMP	Version 3.3	Page 13/48

VetGuardian User Manual

B) Attach the clamp to an IV Pole or kennel.

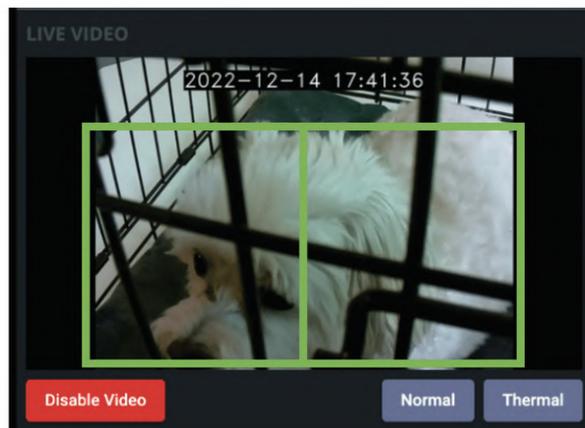
a) Attach the black clamp to an IV Pole or directly to a cage. Tighten the clamp securely.

C) Position the device for a strong signal

a) Aim the device at the patient's left side. Tilt the device downward at about 45 degrees.



b) The patient's head should be on the left of the camera frame, and the patient's back or chest should be visible on the right of the frame.



c) When ready, turn the red knob clockwise to tighten the mount.

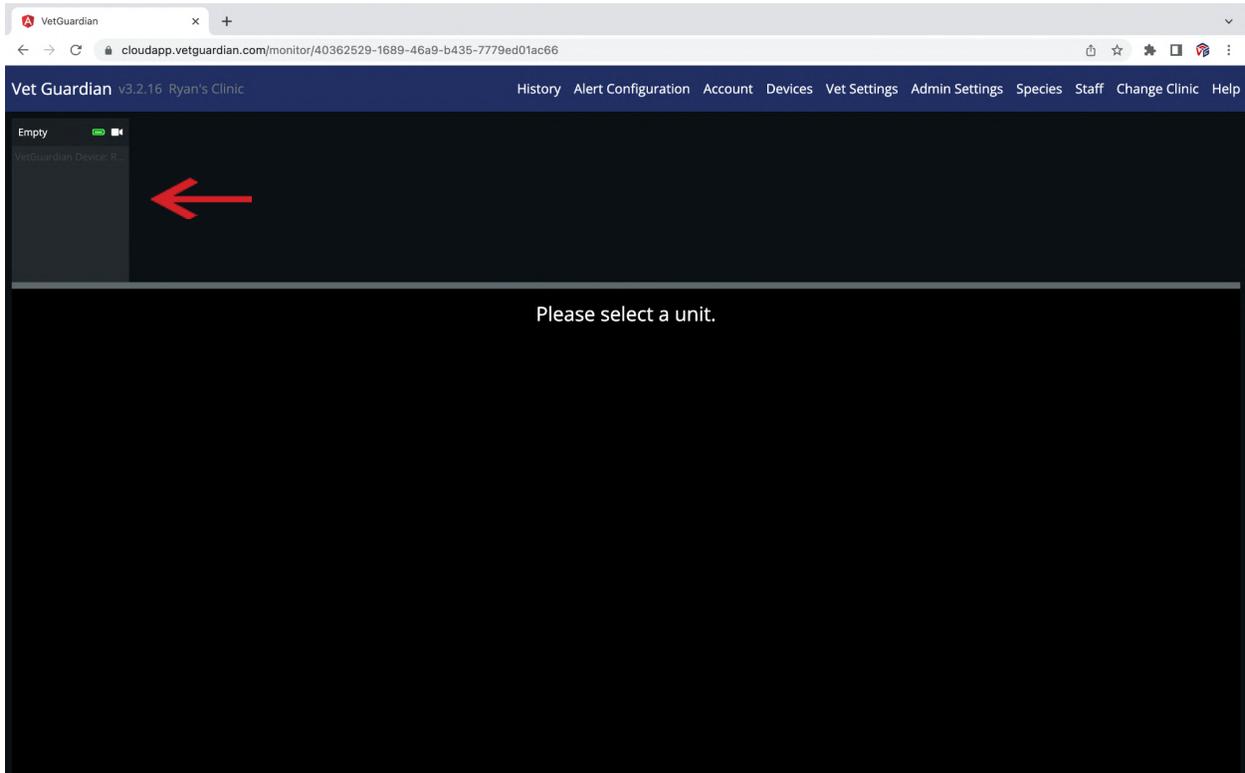
🚩 **Congratulations. Setup is now complete.**

VetGuardian User Manual		Last Modified:	March 31, 2023
Author:	SMP	Version 3.3	Page 14/48

3. SOFTWARE OPERATION

3.1) Configure a Device

Once the VetGuardian device is connected to the application, it will automatically appear in the Devices menu.

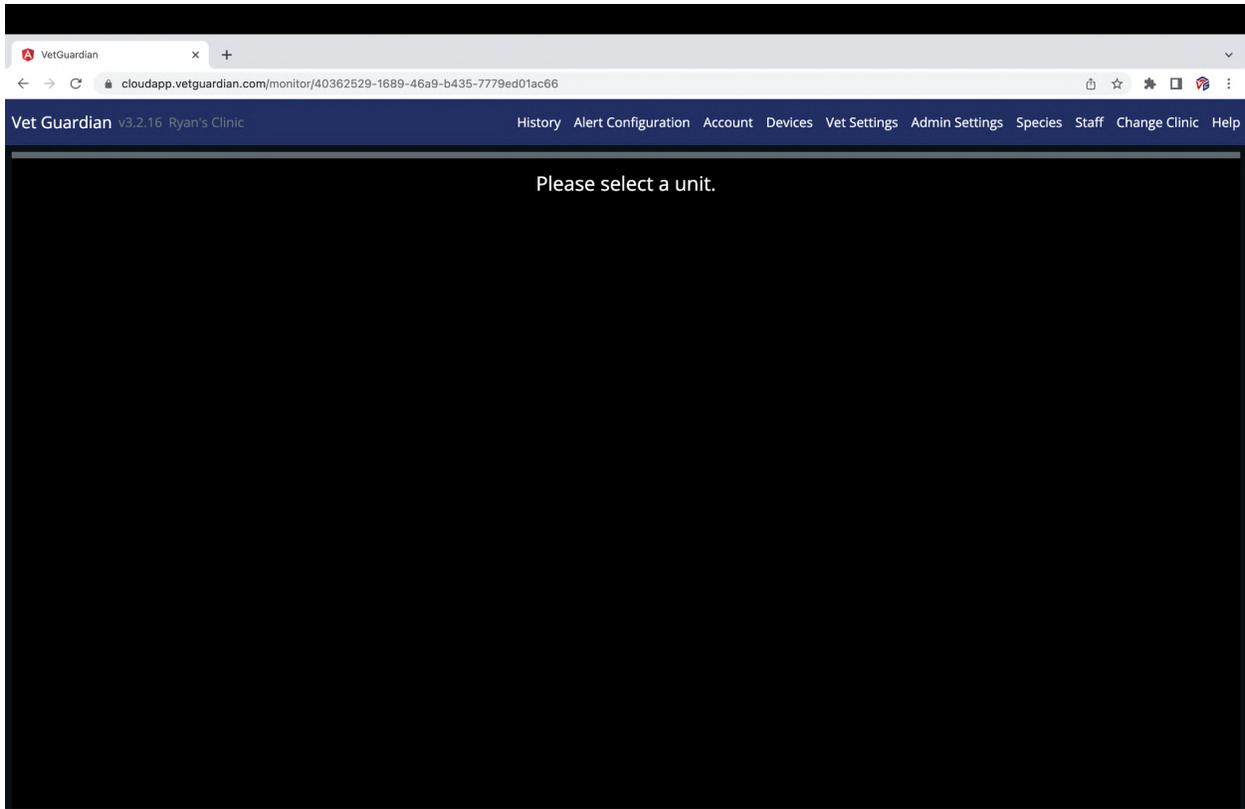


VetGuardian User Manual		Last Modified:	March 31, 2023
Author:	SMP	Version 3.3	Page 15/48

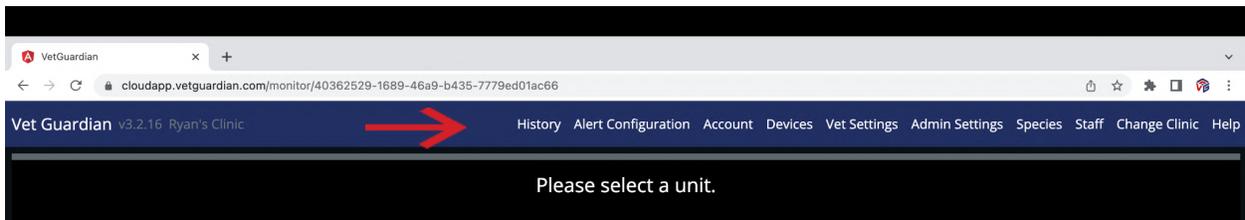
VetGuardian User Manual

3.2) Home Screen & Menu Bar

The **'Home Screen'** refers to the first page visible when an application user accesses the VetGuardian Application.



The **'Menu Bar'** refers to the blue margin and links at the top.



VetGuardian User Manual		Last Modified:	March 31, 2023
Author:	SMP	Version 3.3	Page 16/48

3.3) Menu Bar Hyperlink Tree

Menu Bars in tree-structure from the Home Screen:

(SECTION 2) > Devices > Device List, Configure Unit

(SECTION 3) > Settings > Admin Settings, Vet Settings, Staff, Species, Alert Configuration, Account, Change Clinic

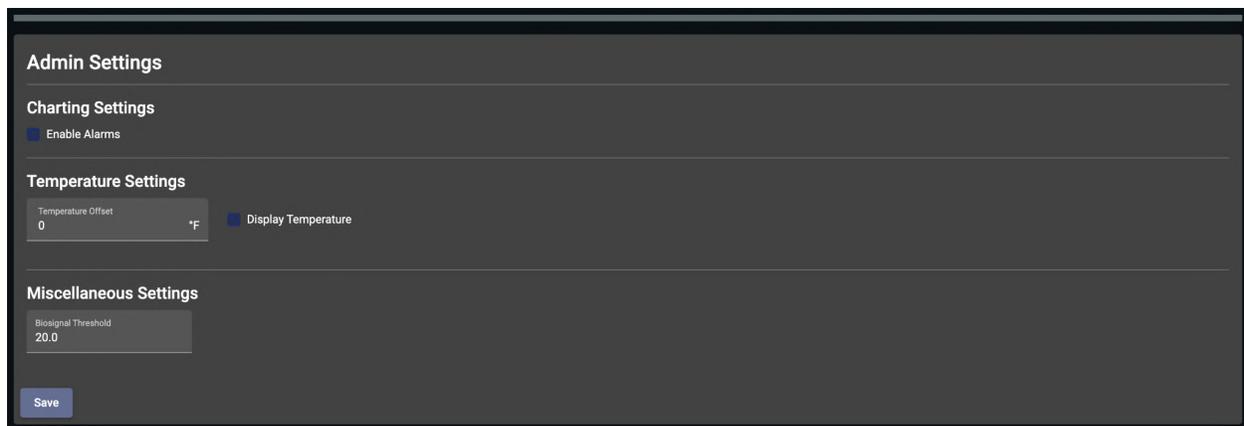
(SECTION 6) > History

(SECTION 7-8) > Help > Support, Feedback, Change Log

3.4) Admin Settings

Application users can control advanced settings on the Administrator Settings screen. Only advanced users should access this screen. Application users can control audible alerts for alarms and warnings under Charting Settings via **'Enable Alarms.'** Under Temperature Settings, the Temperature Offset can be set. This is the positive or negative offset value that the clinic wants to be applied to all temperature readings in all sessions.

Under Miscellaneous Settings, the Biosignal Threshold is set as a decimal number between 0 and 1. Its value determines the minimum Biosignal quality during a session, and will be displayed as a percentage. When the Biosignal falls below this threshold, vital sign readings are paused and the 'No Body Detected' message is displayed in the Session window.



3.5) Vet Settings

The **'Vet Settings'** screen allows Application Users to input information about the organization managing and using VetGuardian, which is also displayed on electronic medical record reports (**See Section 7 for Medical Record Reporting**).

VetGuardian User Manual		Last Modified:	March 31, 2023
Author:	SMP	Version 3.3	Page 17/48

VetGuardian User Manual

Vet Settings

Clinic

Name: Ryan's Clinic

Address: _____

City: _____

State: Ohio

Zip Code: 44035

Phone Number: 8448484825

Email: _____

Default Attending Doctor: _____

Default Vet Tech: _____

kg lb °C °F

Save Settings

Logo

Upload No file chosen

Client/Patient ID

Client ID Patient ID

The name, address, phone number, and logo of the clinic or hospital can be added to the software and medical reports.

The units of measurement for patient weight (kg/lb) and patient temperature (Celsius/Fahrenheit) set the default for new patient entries and monitoring sessions. These choices can be overridden in the patient profile.

3.6) Staff

Veterinary practices can keep track of who uses the VetGuardian app for auditing and historical purposes.

Staff

Filter

First Name	Last Name	Staff Type	Timestamp ↓
Melanie	Schultz	_____	Jan 12, 2023, 9:01:22 PM
Mike	Mike	_____	Jan 12, 2023, 9:01:22 PM
Scott	Ijaz	_____	Jan 12, 2023, 9:43:36 PM
Ryan	Friedenberg	_____	Jan 12, 2023, 9:01:22 PM
Vik	Ram	_____	Jan 12, 2023, 9:01:22 PM

Items per page: 10 1 - 5 of 5

VetGuardian User Manual		Last Modified:	March 31, 2023
Author:	SMP	Version 3.3	Page 18/48

VetGuardian User Manual

Staff			
Filter			
First Name	Last Name	Staff Type	Timestamp ↓
Melanie	Schultz	Vet Tech	Jan 12, 2023, 9:01:22 PM
Mike	Mike	Attending Doctor	Jan 12, 2023, 9:01:22 PM
Scott	Ijaz		Jan 12, 2023, 9:43:36 PM

Staff members, which fall into 2 categories, **'Vet Tech'** and **'Attending Doctor'**, can be added to the VetGuardian database through the **'Account'** tab. Click on **'Manage Clinic,'** then click **'+ User.'** Select **'Edit'** or **'Delete'** next to a staff member to update or remove information in the staff database.

NOTE: To be added to the Clinic, the staff member must have created a VetGuardian account (Login username and password).

[Logout](#)
[Go to app](#)

VetGuardian

[Manage Account](#) [Manage Clinic\(s\)](#) [Manage Device\(s\)](#)

Clinic 1

Ryan's Clinic
clinic name
OH 44094
address

[+ Clinic](#)

Members:

[+ User](#)

VetGuardian

Please Enter The Email You Would Like To Add

[Next](#)

VetGuardian User Manual		Last Modified:	March 31, 2023
Author:	SMP	Version 3.3	Page 19/48

VetGuardian User Manual

When an Application User is setting up a session on the home screen, staff can be selected from a drop-down, which will appear on electronic medical records. The Session Operator must be an Attending Doctor.

The screenshot shows the session setup interface for patient Bentley (384729). It displays vital signs with low and high alarm and warning thresholds. A red box highlights the 'Session Operator' dropdown menu, which is currently set to 'Normal'.

Vital Sign	Low Alarm	Low Warning	High Warning	High Alarm
HR	60	90	120	150
RR	10	15	28	35
TEMP	95 °F	98.6 °F	102.2 °F	105.8 °F

A Default **'Vet Tech'** and **'Attending Doctor'** can be chosen in Vet Settings.

The screenshot shows the 'Vet Settings' screen. It includes fields for clinic name, address, city, state, zip code, phone number, and email. There are also fields for 'Default Attending Doctor' and 'Default Vet Tech', which are highlighted with a red box. A 'Save Settings' button is visible at the bottom.

3.7) Species

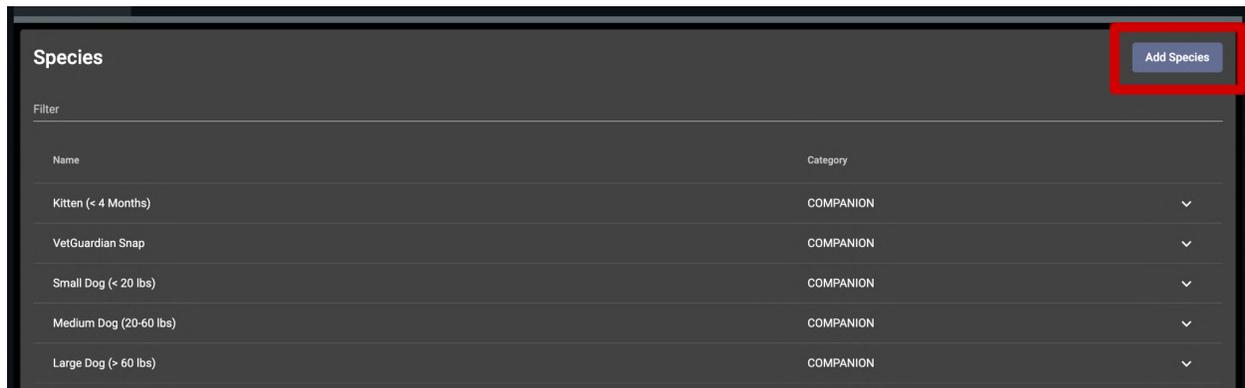
Generally speaking, **'Species'** are categories of animals. They can have different average ranges for vital signs, so providers will want to set up Alarm and Warning ranges specific to the species being monitored. The **'Species'** tab under **'Settings'** lists all the species saved in the VetGuardian software along with their pre-set alarm and warning ranges.

Application Users can add new species to the list by selecting **'New'**. If a new species is entered, it will appear in the species dropdown when new patients are added. Remove species from the list by selecting **'Delete'**, and edit the Alarm and Warning ranges of a species by selecting **'Edit'**.

VetGuardian User Manual		Last Modified:	March 31, 2023
Author:	SMP	Version 3.3	Page 20/48

VetGuardian User Manual

The Species in the Category 'COMPANION' are a selection of domestic animals with vital sign profiles fixed by VetGuardian; they cannot be modified or deleted.



When Application Users click on '**Add Species**', new species can be entered in the next window that appears.

While entering the Heart Rate and Respiration Rate parameters, it's important to note that the **Low Alarm** setting should be lower than the **Low Warning** setting, and the **High Alarm** setting should be higher than the **High Warning** setting. If this rule is not followed, the '**Save**' button will be disabled.

A screenshot of the 'Create Species' form. It features input fields for 'Name' and 'Category'. Below these are three sections for vital signs: 'Heart Rate', 'Respiration Rate', and 'Temperature'. Each section contains four input fields: 'Low Alarm', 'Low Warning', 'High Alarm', and 'High Warning'. All these fields currently display the value '0'. At the bottom left of the form, there is a blue 'Save' button, which is highlighted with a red rectangular box.

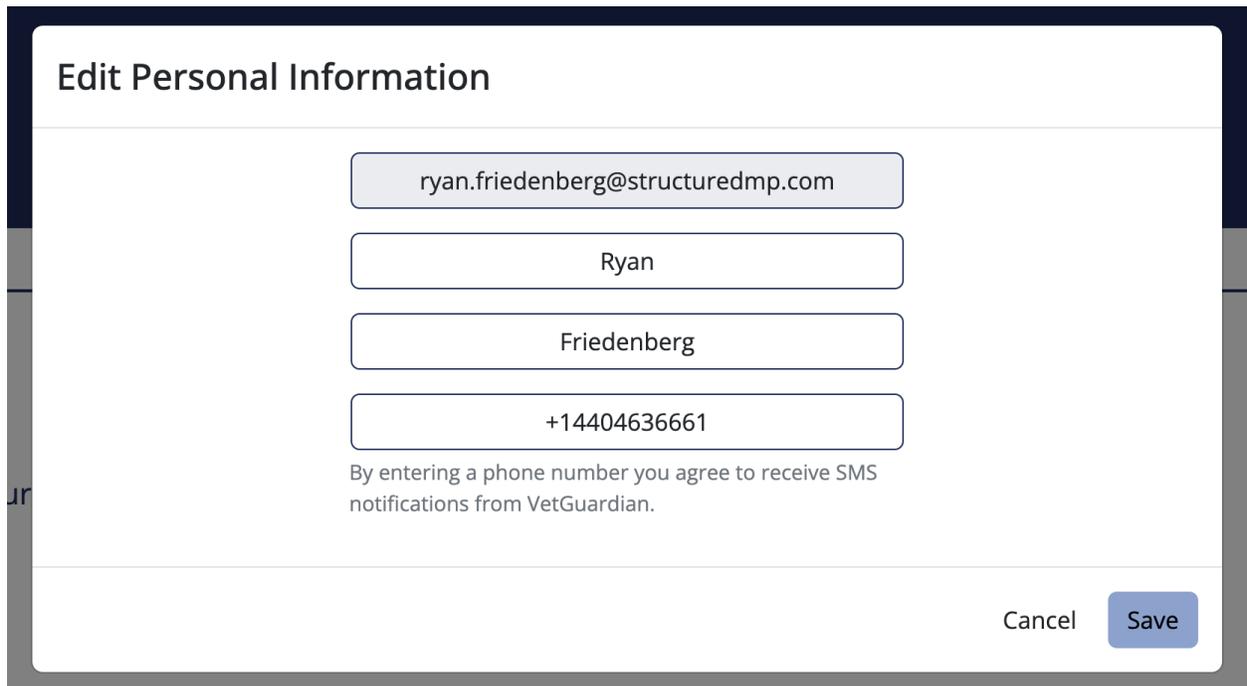
VetGuardian User Manual		Last Modified:	March 31, 2023
Author:	SMP	Version 3.3	Page 21/48

3.8) Account & Clinic

Application Users can click 'Account' in the navigation menu to access their VetGuardian App account. This will take you outside of the app, where users can manage their account settings, clinic settings, or devices.



On the **Manage Account** page, users can click the **pencil icon** to edit their personal information. This email and phone number is used to receive **Alert Notifications** (See Section 5.6 - Alert Configuration). Please make sure to enter the phone number in international format (+1...).



On the **Manage Clinic** page, users can edit clinic settings and manage staff members. Click the **pencil icon** to edit the clinic name, click the **trash bin icon** to delete staff, click the **+User button** to invite a new staff member via email, and click the **+Clinic button** to add a new clinic location.

VetGuardian User Manual		Last Modified:	March 31, 2023
Author:	SMP	Version 3.3	Page 22/48

VetGuardian User Manual

VetGuardian
Manage Account Manage Clinic(s) Manage Device(s)

Clinic 1

Ryan Friedenber
clinic name
OH 44035
address

+ Clinic

Members:

melanie.schultz@vetguardian.com
Melanie Schultz

ryan.friedenberg@structuredmp.com
Ryan Friedenber

+ User

VetGuardian

Please Enter The Email You Would Like To Add

email

Next

On the **Manage Devices** page, users can click the **pencil icon** to edit the device name, click the **trash bin icon** to remove a device from the clinic account, and click the **+Device button** to add an additional device to the clinic account. The serial number can also be found on this page.

VetGuardian
Manage Account Manage Clinic(s) Manage Device(s)

Logout
Go to app

Ryan Friedenber Clinic 1

VetGuardian Device: 1000000008e437ae

Ryan

+ Device

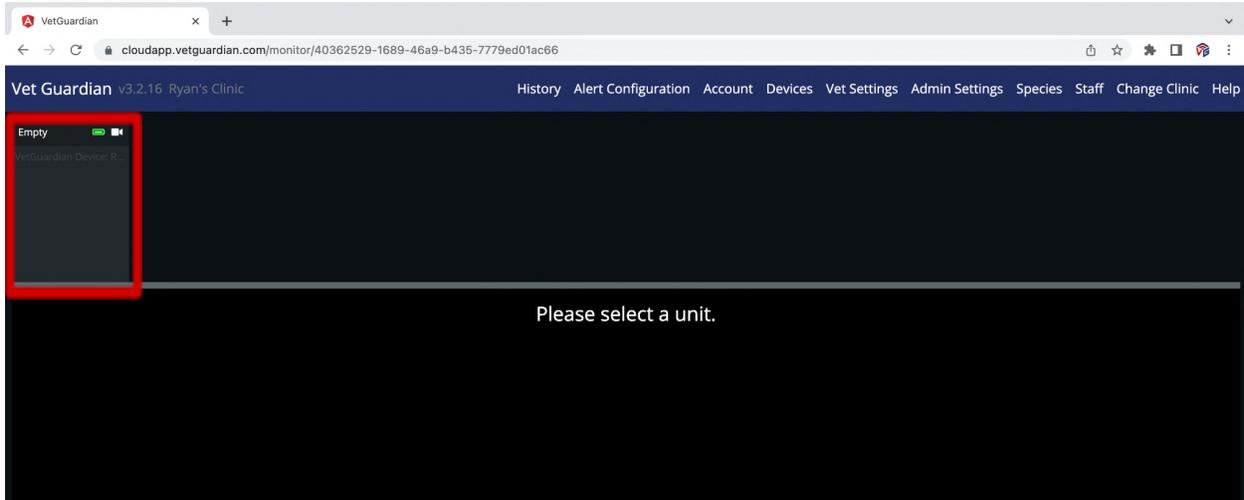
Click **“Go to App”** in the top right at any time to return to the VetGuardian App.

VetGuardian User Manual		Last Modified:	March 31, 2023
Author:	SMP	Version 3.3	Page 23/48

4. HOW TO RUN A REMOTE VITAL SIGNS SESSION

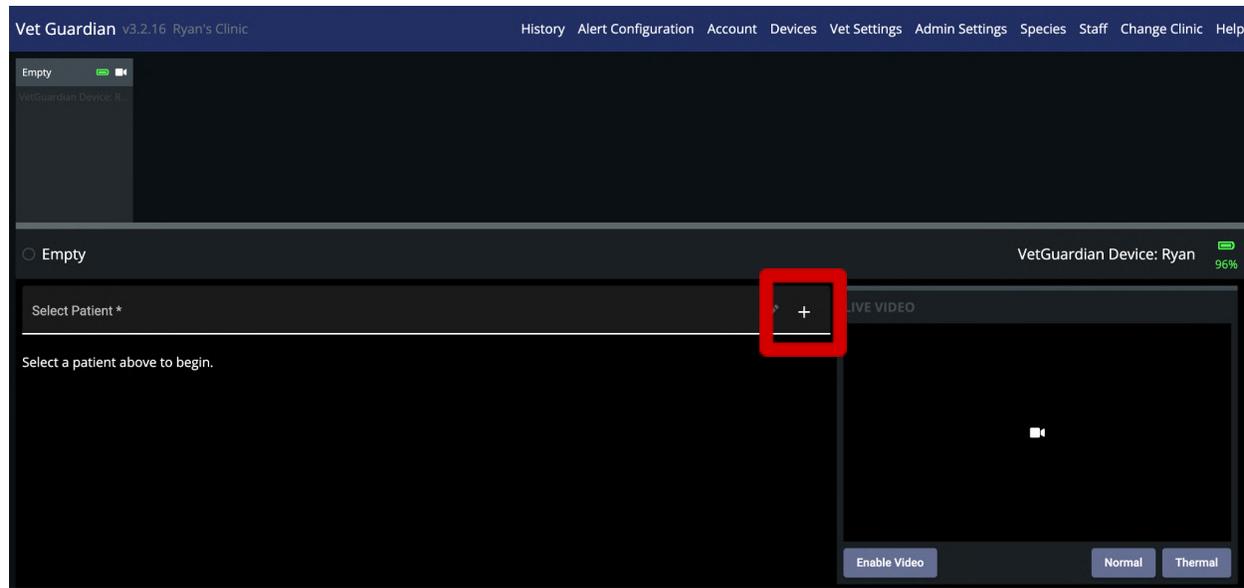
4.1) Session Setup Screen

The **'Session Setup Screen'** refers to the home screen page where Application Users can set up and run a monitoring session. Application Users can access the session screen by selecting **'Add Patient'** in the drop-down menu.



4.2) Input Patient Information – New Patient

The **'New Patient Screen'** refers to the page where Application Users can add a new animal patient to the VetGuardian database. Application Users can edit demographic information and configure Warning and Alarm ranges on this screen. More information about the Warning and Alarm ranges is provided in *Section 5.5*.

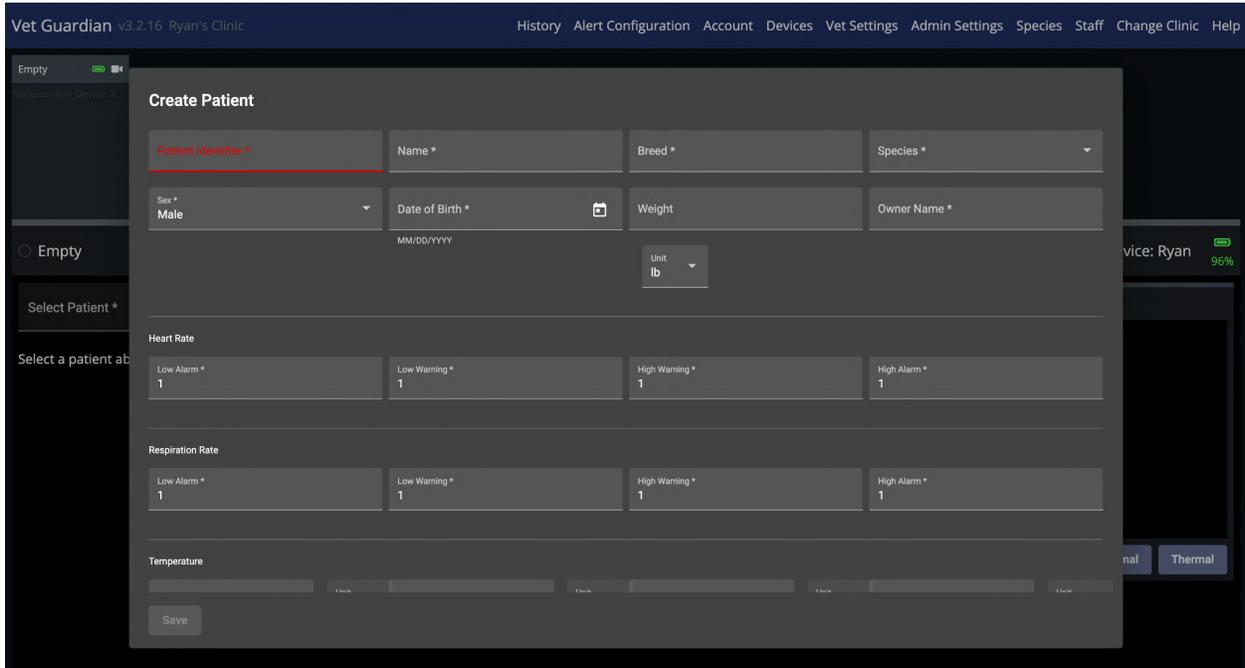


VetGuardian User Manual		Last Modified:	March 31, 2023
Author:	SMP	Version 3.3	Page 24/48

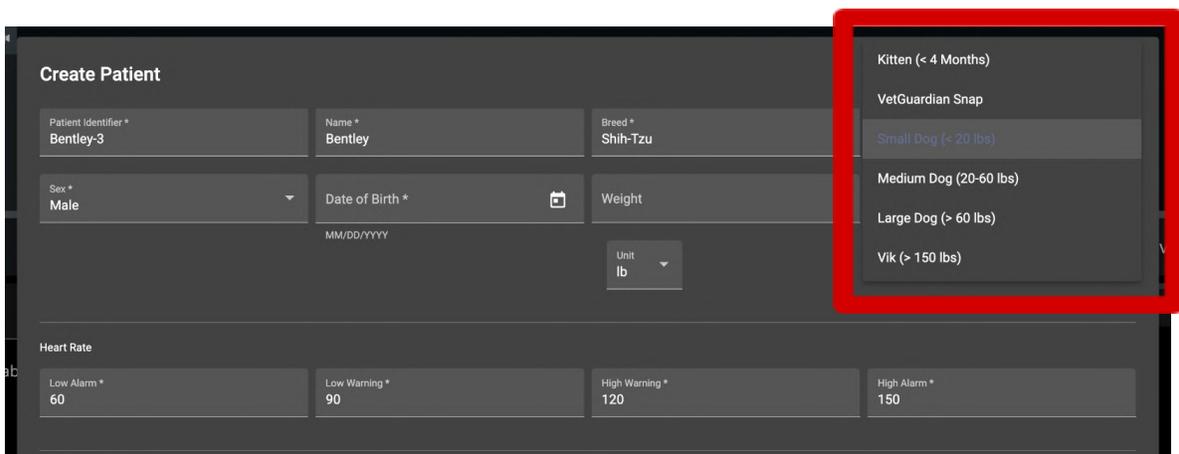
VetGuardian User Manual

Application Users can access the new patient screen by selecting '+ New' on the session setup screen. When adding a new patient, only the Patient ID, Patient Name, and Species are required.

NOTE: The Patient Identifier field must contain at least one numeric character and one non-numeric number.



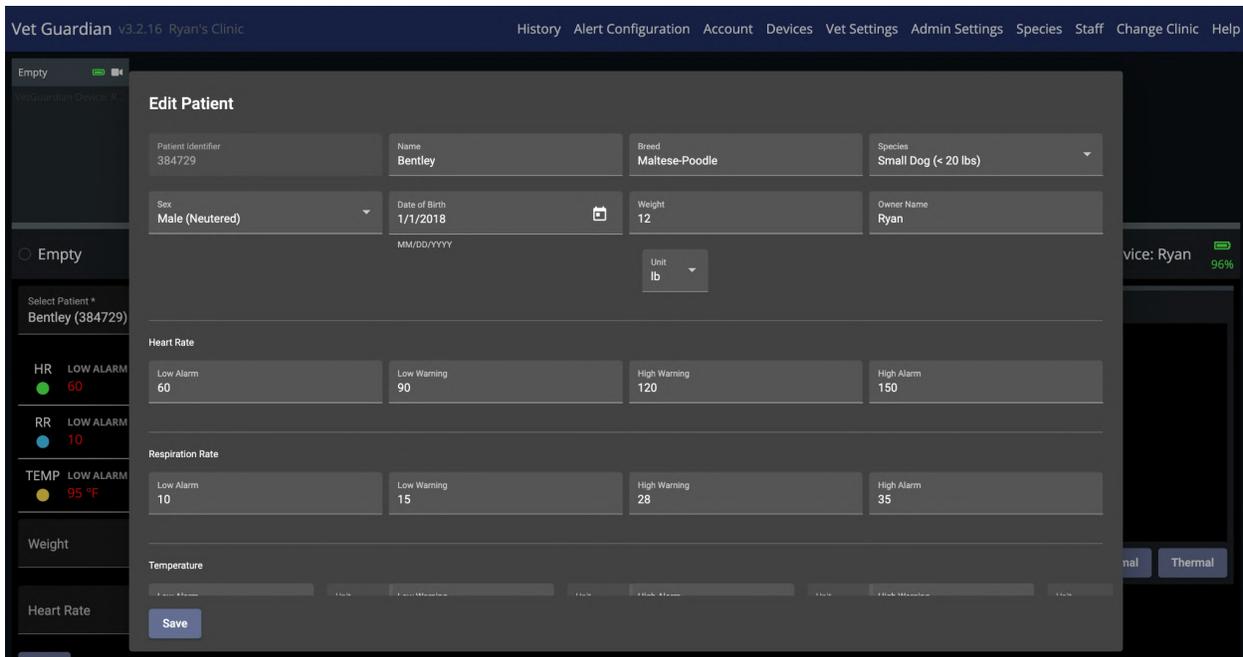
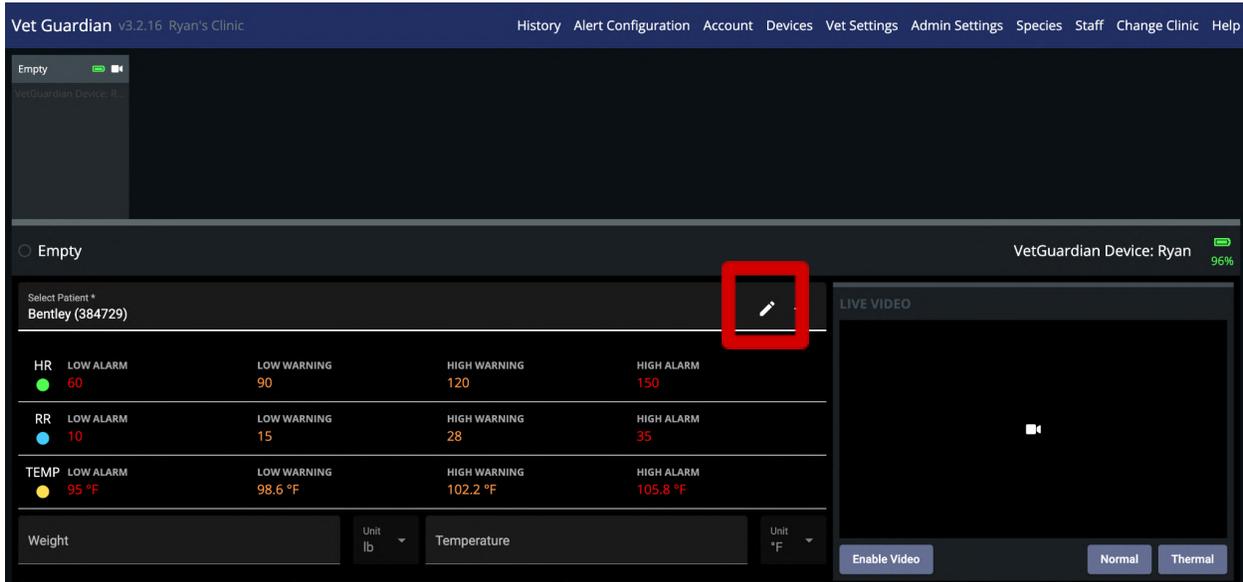
If a new species is entered in the Species tab, it will now appear in the species dropdown when a new patient is added.



VetGuardian User Manual		Last Modified:	March 31, 2023
Author:	SMP	Version 3.3	Page 25/48

4.3) Input Patient Information – Edit Patient

Application Users can load and edit demographic information about animal patients saved in the VetGuardian database. To load an existing patient's information, Application Users should type the patient ID or name into the search bar. To edit an existing patient's information, Application Users should first find and select a patient in the search bar by inputting its name or patient ID and then click the **Pencil Edit Icon**.

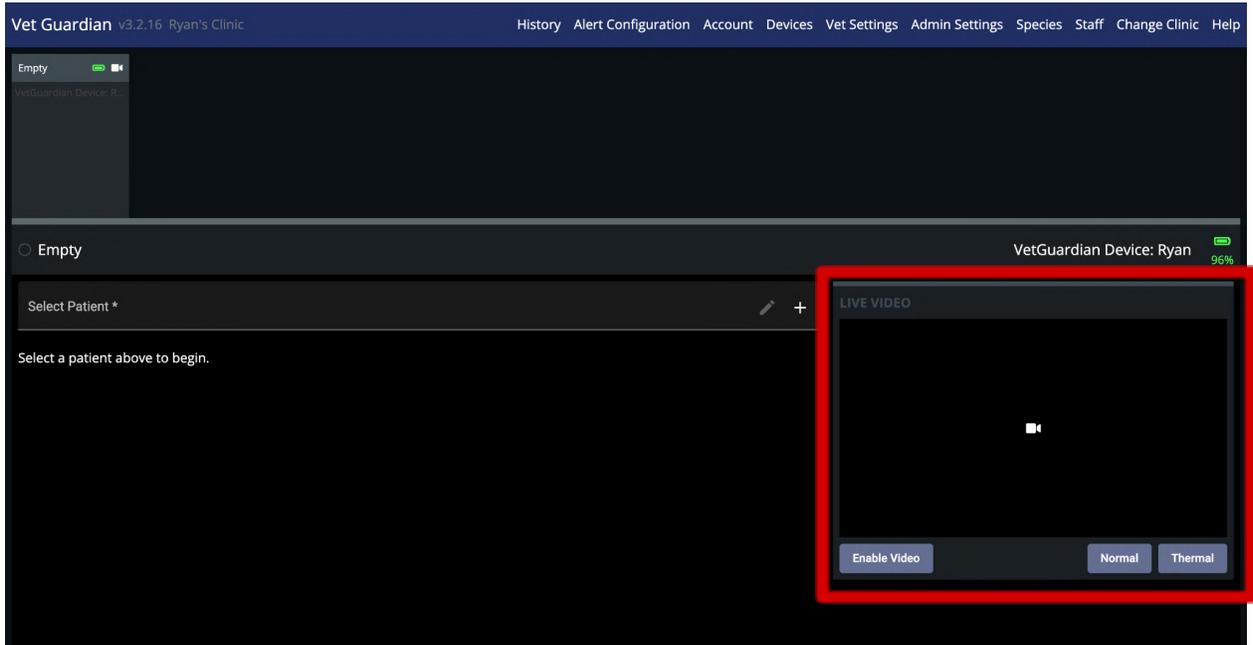


During a live session, information about the patient and the session is shown to the left and above the line graph. Time represents the session duration.

VetGuardian User Manual		Last Modified:	March 31, 2023
Author:	SMP	Version 3.3	Page 26/48

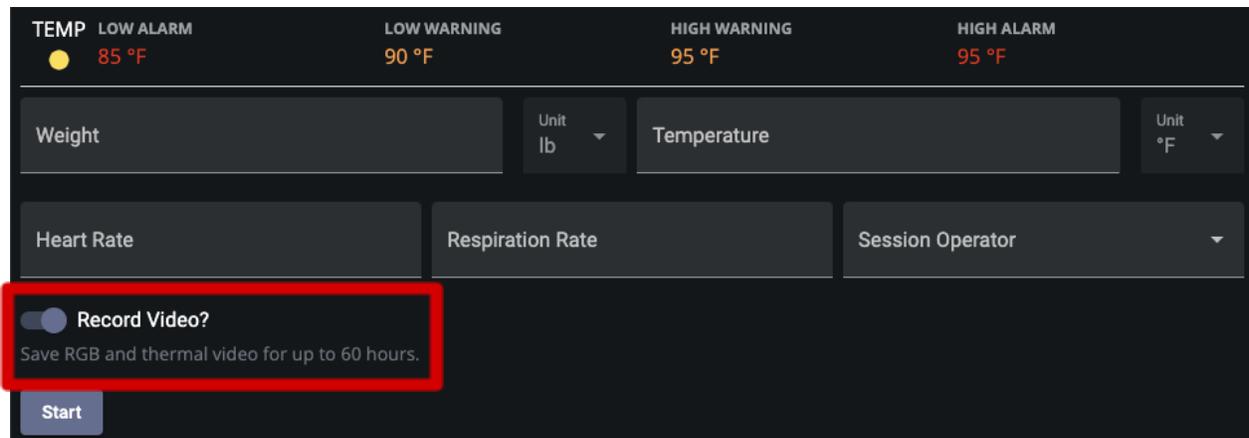
4.4) Enabling Video

The 'Live Video' section of the session screen refers to the area where a live video is displayed. Application Users can use this to watch animal patients in real time. Video functionality is controlled through the 'Enable/Disable Video' button. Video is disabled by default. The video feed is always live meaning separate Application Users can enable and disable video without affecting whether video is enabled or disabled for the other user.



4.5) Recording Video

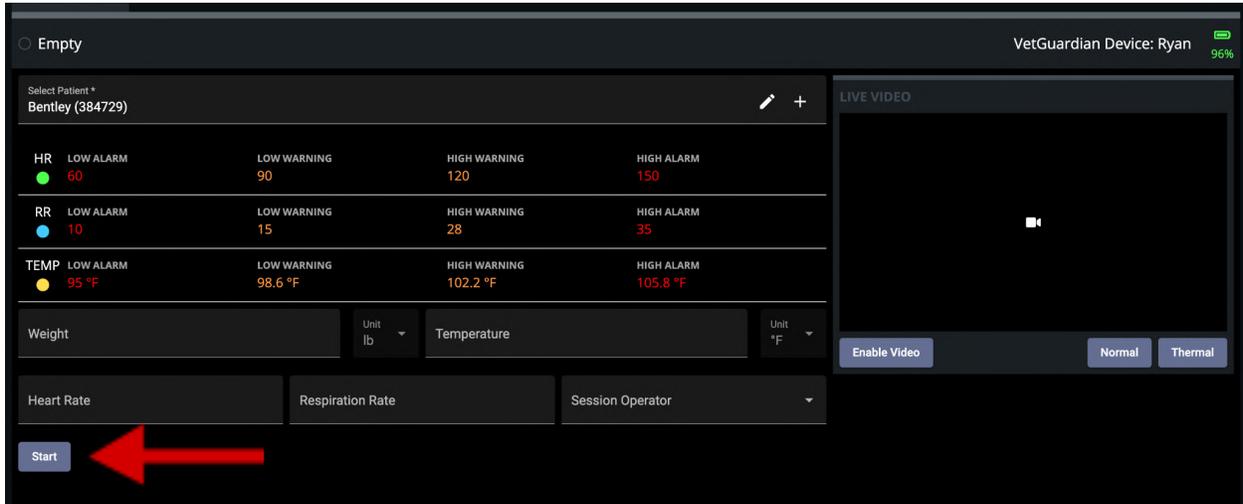
While selecting a patient on the Session Setup Screen, a Record Video switch can be toggled. If turned on, the VetGuardian will save both the normal and thermal video for up to 60 hours. By default, the feature is active. The video files can be accessed on the History Page.



VetGuardian User Manual		Last Modified:	March 31, 2023
Author:	SMP	Version 3.3	Page 27/48

4.6) Start a Session

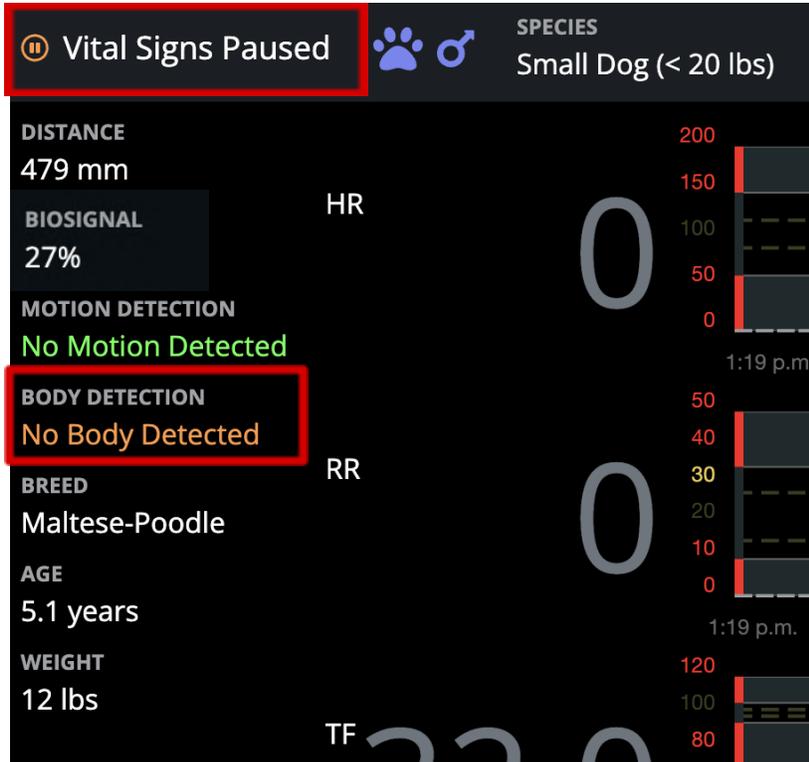
Application Users can select **'Start'** on the **'Session Setup Screen'** to initiate a live session. Selecting start will open the **'Live Session Screen'** where real-time vital sign readings and other session-related information are displayed.



VetGuardian can only gather vital signs from a subject if it can detect its body. During a session, when the VetGuardian application detects the body of a subject, a blue notification will appear in the bottom right corner of the screen and in the session log which reads **'Body Detected'**. Live vital readings will display.

If a body is initially detected, but thereafter the VetGuardian device does not detect a body, a different blue notification will appear at the bottom right of the screen and the session log, which reads **'No Body Detected'**. Live readings will not display.

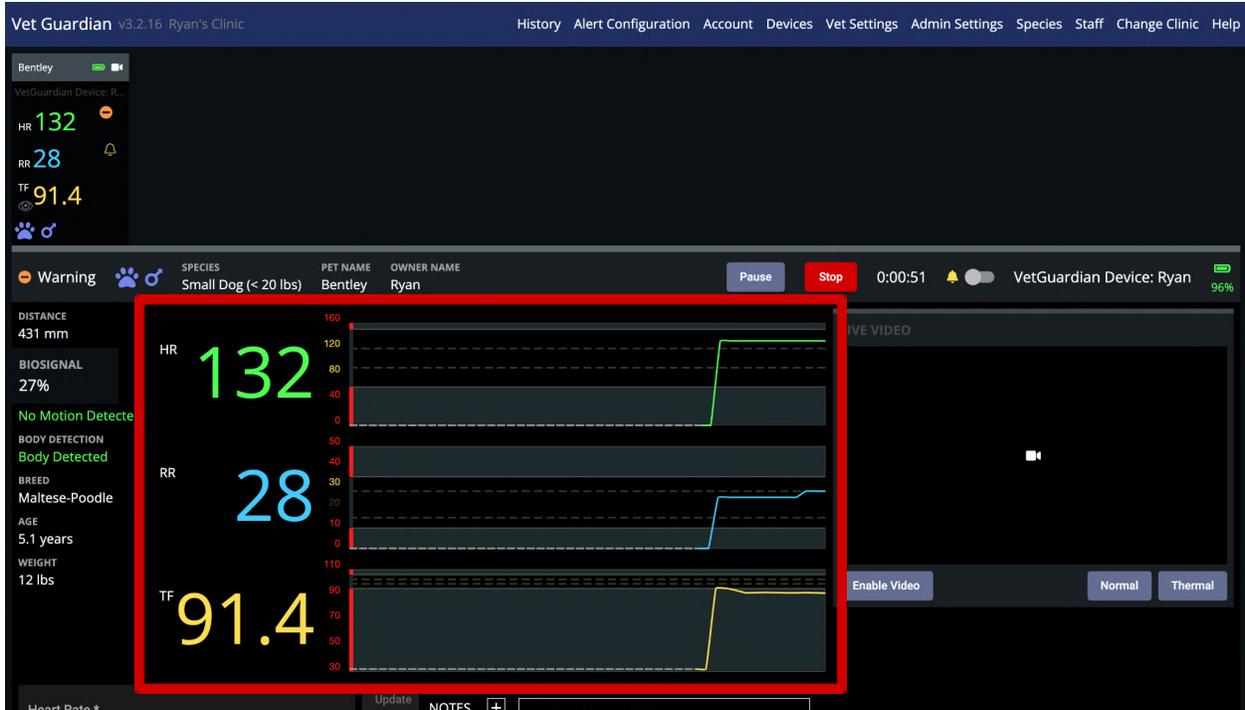
VetGuardian User Manual		Last Modified:	March 31, 2023
Author:	SMP	Version 3.3	Page 28/48



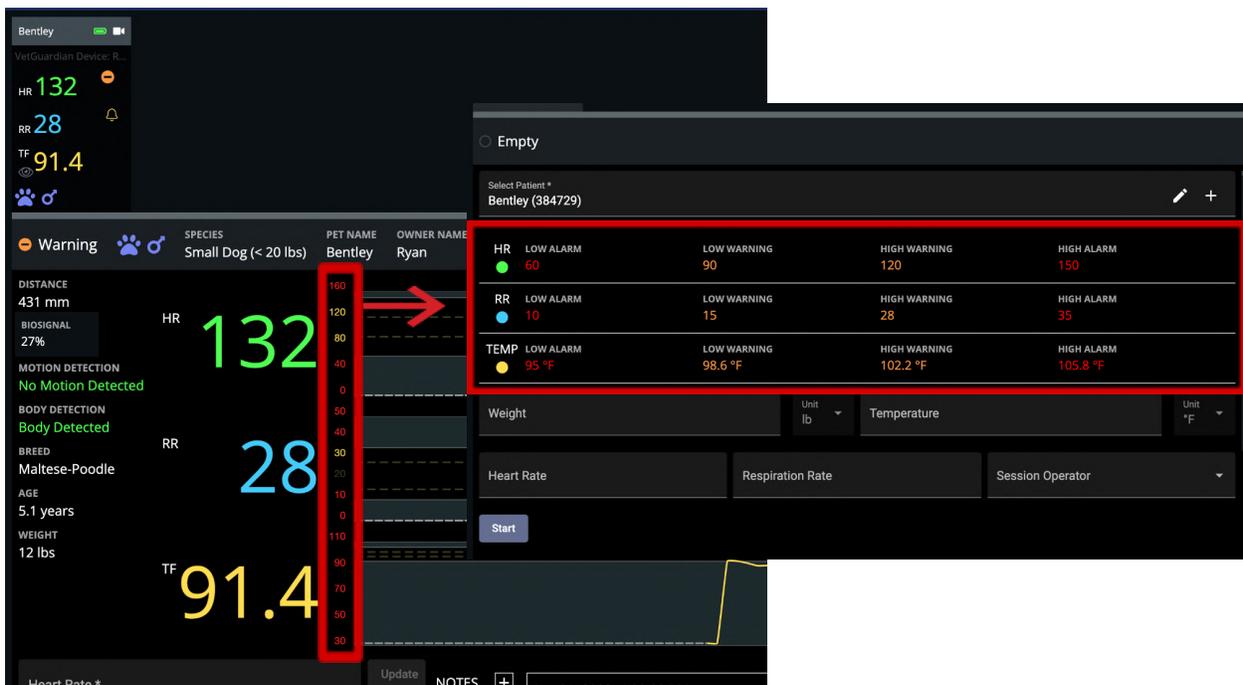
After a session is initiated from the session setup screen, **'Temperature' (T)**, **'Heart Rate (HR)'**, and **'Respiration Rate (RR)'** readings are shown to the left of the live session Screen. Line graphs represent T, HR, and RR over time which is helpful in discerning recovery trends.

VetGuardian User Manual		Last Modified:	March 31, 2023
Author:	SMP	Version 3.3	Page 29/48

VetGuardian User Manual



The orange and red values next to the T, HR, and RR readings represent **warning** and **alarm** ranges. They correspond to the T, HR, and RR ranges on the Patient Information Screen.



VetGuardian User Manual		Last Modified:	March 31, 2023
Author:	SMP	Version 3.3	Page 30/48

VetGuardian User Manual

Those same T, HR, and RR ranges are represented in the line graphs. The center dotted lane represents the vital sign's normal range. The outside dotted lanes represent the **Warning** range, and the shaded outside lanes represent the **Alarm** range. If the live reading values line falls outside the dotted lines, audio and visual notifications are triggered for warning. If the live reading values line falls into the shaded areas of the graph, audio and visual alarm notifications are triggered. (See Section 5.6 - Alert Configuration)

NOTE:

- The Warning sound is played for 6 - 8 seconds only and will not be heard again until a reading crosses a warning threshold from an in-range reading. The visual 'Warning' indication remains until the Warning threshold is no longer exceeded.
- The Alarm sound is played continuously while a reading is outside of its Alarm thresholds. When live reading values no longer exceed the Alarm thresholds or the operator clicks on the 'Acknowledge' button next to the visual Alarm indication, the alarm sound ends.

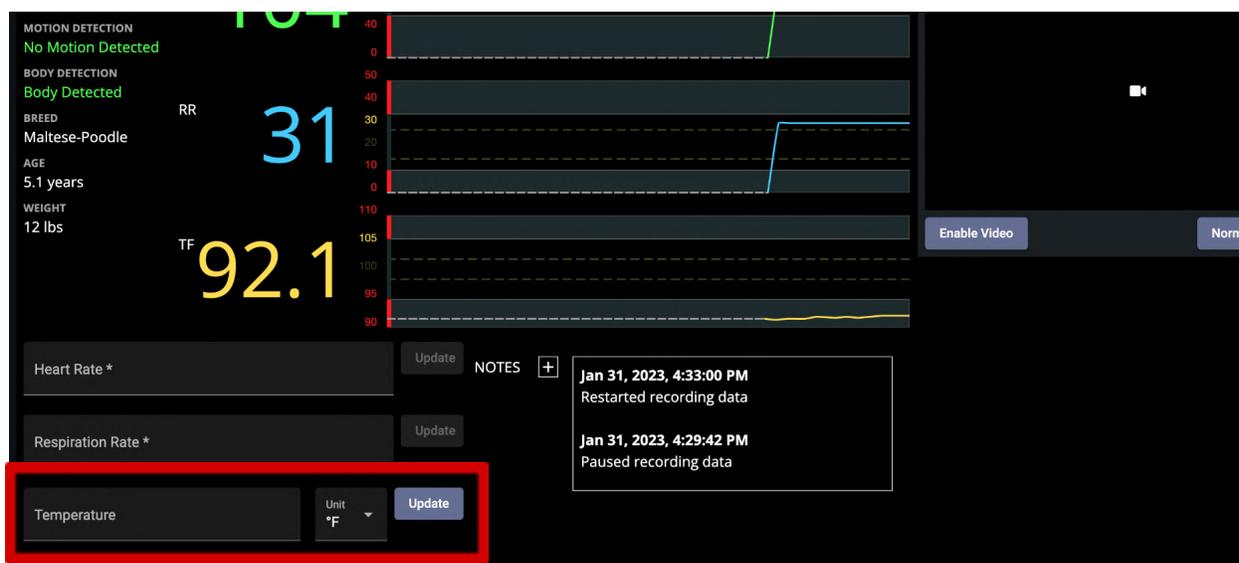
4.7) Calibrating Temperature

The device's thermal temperature must be calibrated at the beginning of every session. Application Users must first wait 2 minutes from the time the device powered on so that the thermal camera can warm up. The manual temperature reading must be inputted at the beginning of a session to ensure temperature reading accuracy from the VetGuardian device.

How To Calibrate:

1. **Wait 2 minutes** from when the device powered on for the camera to heat up.
2. Take a manual reading of the patient's **rectal temperature**.
3. Enter this reading in the 'Temperature' box in the bottom left of the Session Screen.
4. Ensure vital sign readings are being reported from the VetGuardian device.
5. If possible for the operator, click '**Update**' when the patient's eye is highlighted by a blue box in the video stream and the Temperature will be calibrated. If the manual reading is entered without the blue box, the Temperature will still be calibrated with a minimal degradation of accuracy
6. All subsequent temperature values reported in the session from the VetGuardian device will now be offset by the difference of the device and manual readings at the moment the manual reading was entered.

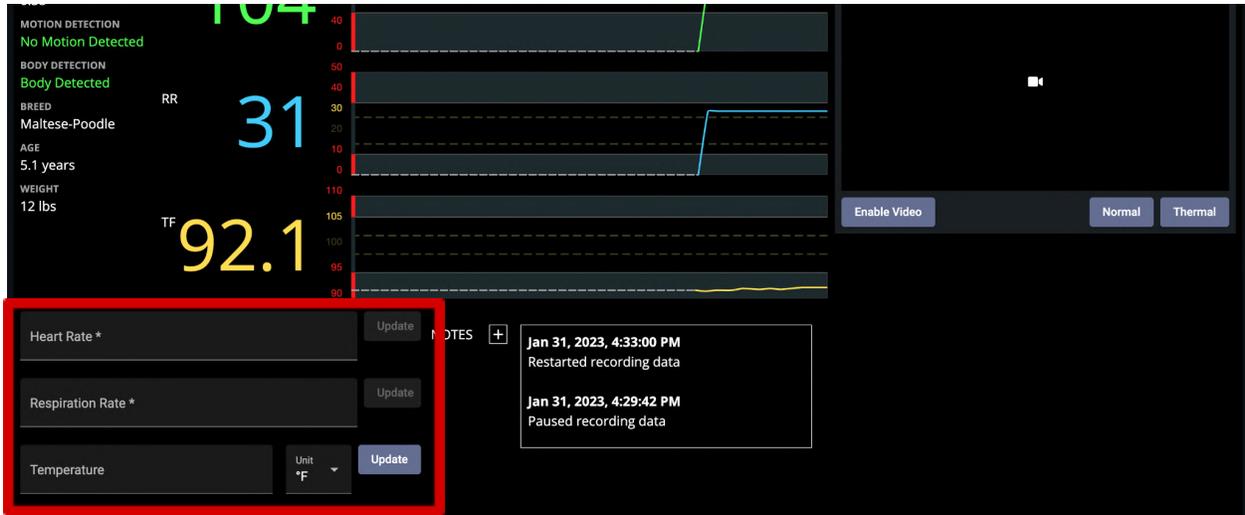
This calibration can be repeated by the operator as often as desired during the session.



VetGuardian User Manual		Last Modified:	March 31, 2023
Author:	SMP	Version 3.3	Page 31/48

4.8) Inputting Other Manual Readings

Application Users can add manual readings for temperature, heart rate, and respiration rate at the bottom left of the Live Session Screen. Inputted values will appear in electronic medical records. They are helpful in comparing manual vital sign readings to VetGuardian's readings. Application users can also add free-form notes by selecting the plus sign, which is to the left of the session log. This is also included in electronic medical records.

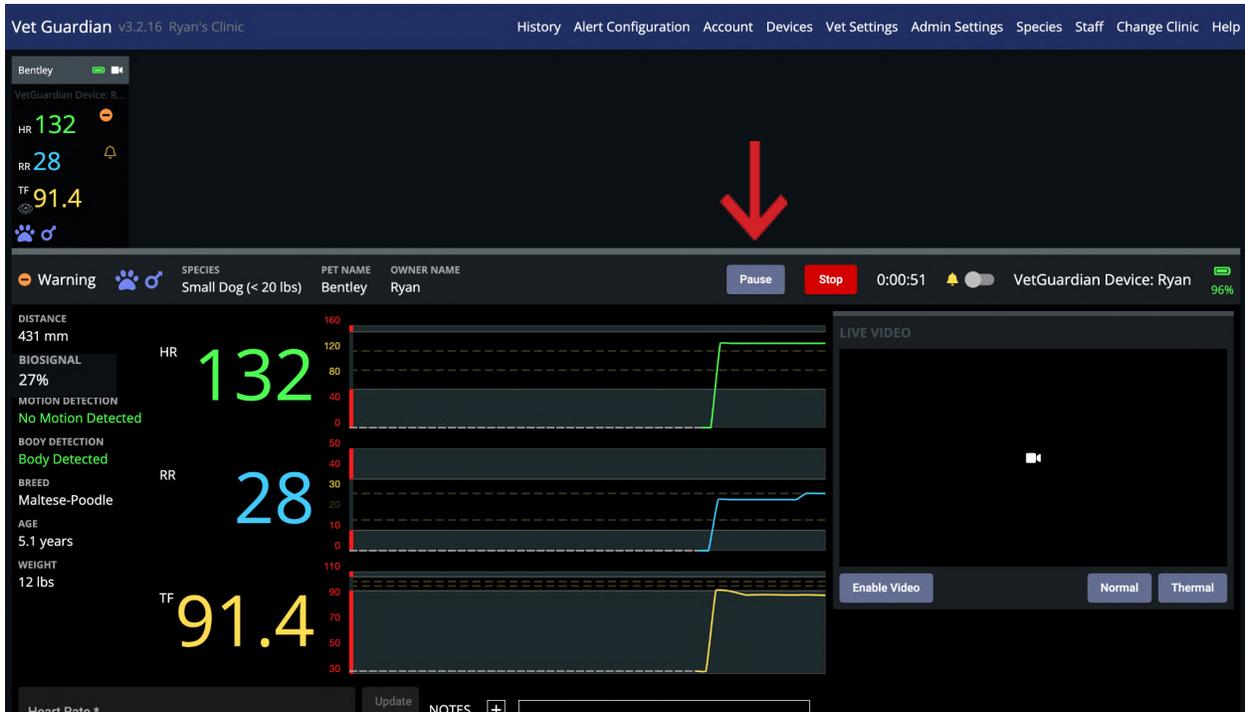


4.9) Pausing a Live Session

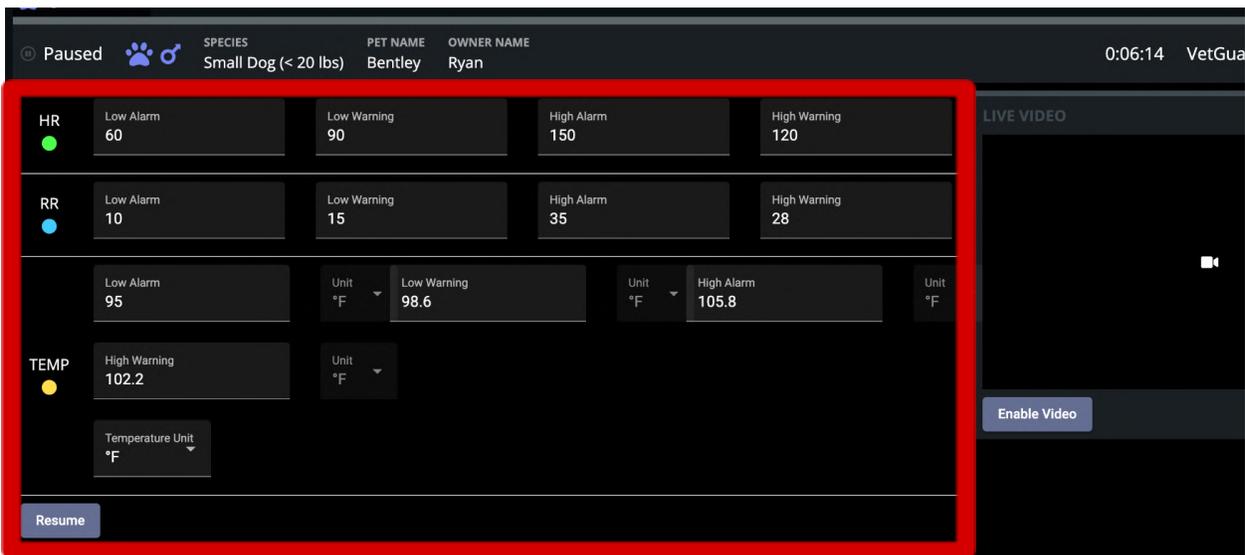
Application Users can pause a session by selecting the **'Pause'** button right of the **'Unit Name'** field and under the logout button. VetGuardian does not read or display vital sign information when sessions are paused.

VetGuardian User Manual		Last Modified:	March 31, 2023
Author:	SMP	Version 3.3	Page 32/48

VetGuardian User Manual



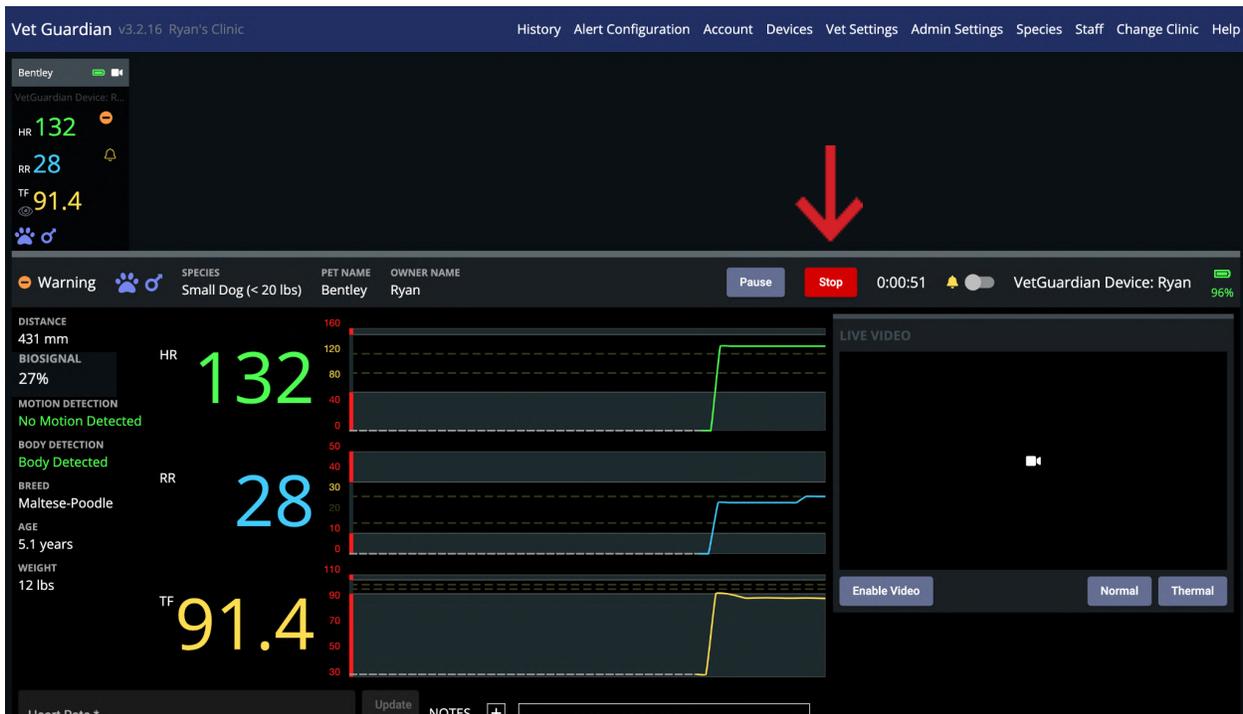
Application Users can also update the warning and alarm threshold ranges during a paused session. Any patient's alarm thresholds that are edited will not automatically reset to their original values in a subsequent session.



VetGuardian User Manual		Last Modified:	March 31, 2023
Author:	SMP	Version 3.3	Page 33/48

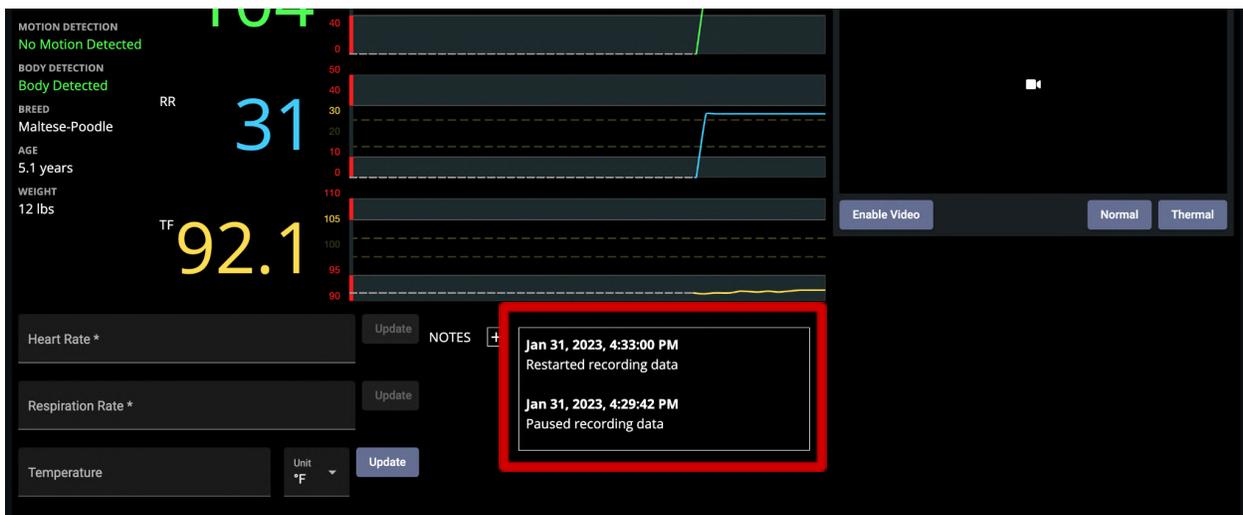
4.10) Stop a Session

Application users can select **'Stop'** to end a live session.



4.11) Session Log

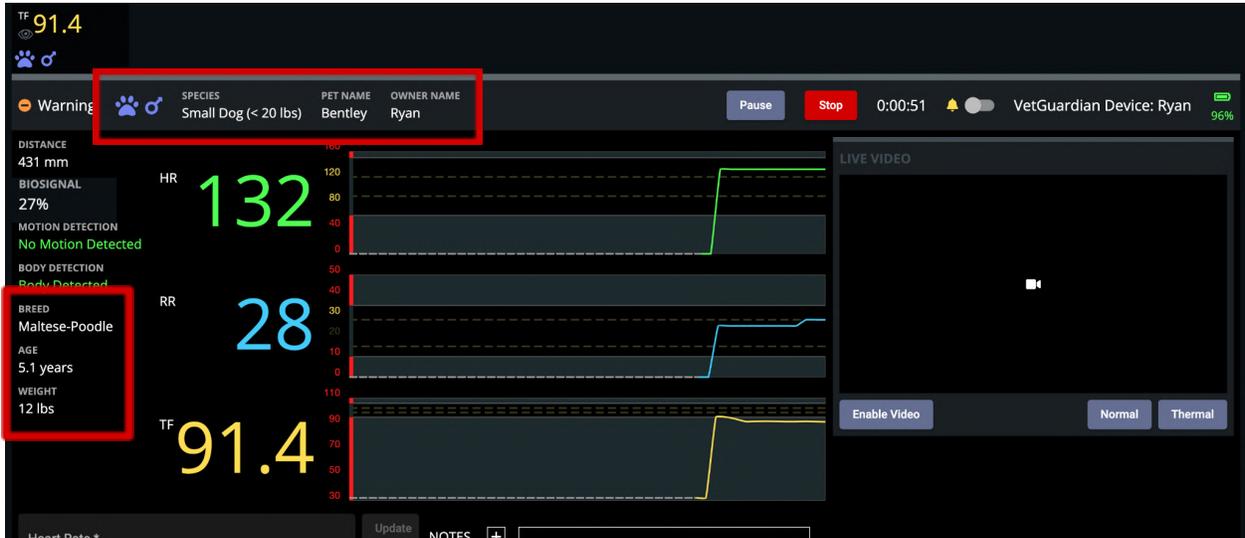
The **'Session Log'** provides a list of updates with time stamps about events that happen during a session.



VetGuardian User Manual		Last Modified:	March 31, 2023
Author:	SMP	Version 3.3	Page 34/48

4.12) Patient Info

On the Live Session Screen, Application Users can see patient demographic information to the left of the line graph and directly to the right of the alarm status.



VetGuardian User Manual		Last Modified:	March 31, 2023
Author:	SMP	Version 3.3	Page 35/48

5. VETGUARDIAN FEATURES

5.1) Distance

Application Users can use the **distance** feature to tell how far away the animal is from the patient. The measure will return the distance of the closest object detected by the radar. It is recommended to keep the distance below X mm. This measure is constantly detected as long as the device is powered on.



5.2) Biosignal Probability

The **Biosignal Probability**, previously called Flatline value, uses machine learning algorithms to determine the confidence of the VetGuardian's reading. Vital sign detection will be paused if the Biosignal value goes below the Biosignal threshold set from the Admin Settings menu. The Biosignal Probability is set to 21% by default. The higher the Biosignal Probability, the higher the accuracy of vital signs reported.



Setting the Biosignal threshold to '0' in the Admin Settings would effectively disable the Biosignal measurement and its effects in a session. The VetGuardian would interpret all signals, including reporting 'noise' feedback, as a valid measurement. VetGuardian strongly cautions against using any threshold value for Biosignal lower than 21%

VetGuardian User Manual		Last Modified:	March 31, 2023
Author:	SMP	Version 3.3	Page 36/48

5.3) Motion Detection

VetGuardian is designed for the monitoring of stationary, non-moving subjects, which means that it does not gather vital sign readings when an animal patient is in motion. The VetGuardian Application shows if a subject is moving via the Motion Detection status in the session log and session information. If movement is detected, a picture of the animal is taken and added to the electronic medical report. This can be used to later review how the patient has moved.



5.4) Body Detection

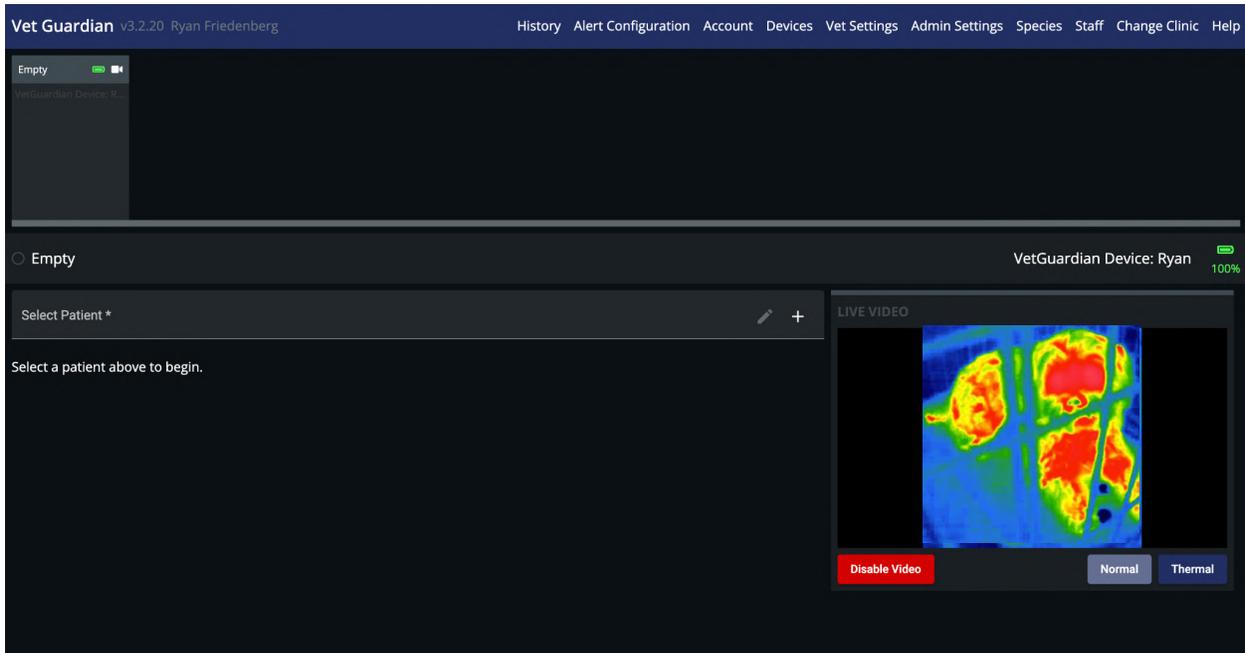
Similar to the Motion Detection functionality described above, the VetGuardian application shows if a subject is detected via the Body Detection status in the session info area.



VetGuardian User Manual		Last Modified:	March 31, 2023
Author:	SMP	Version 3.3	Page 37/48

5.5) Temperature Monitoring

The VetGuardian uses a thermal camera that measures temperature. This sensor identifies several Regions of Interest (ROI), the patient, and the patient's eye(s). When the sensor detects the eye it reports the animal's tear duct, the highest temperature on the animal. If the eye is unable to be located the unit will display the highest temperature in ROI with the patient. A temperature offset is then added to the recorded temperature to provide the most accurate body temperature estimate. The thermal camera cannot detect heat through glass.



5.6) Infrared Night Vision Camera

VetGuardian will **automatically** switch to and from the infrared camera when in low light conditions.



Infrared Camera

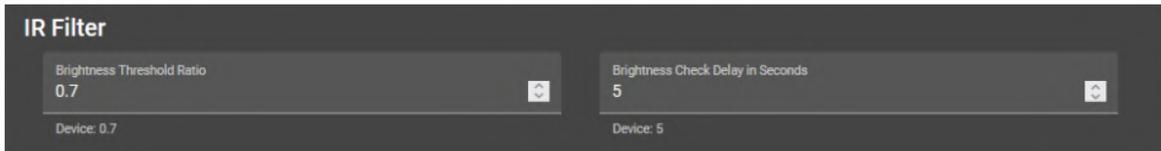


Normal Camera

VetGuardian User Manual		Last Modified:	March 31, 2023
Author:	SMP	Version 3.3	Page 38/48

VetGuardian User Manual

To configure infrared camera settings, go to Devices > Configure > Modify Device Configuration > RGB Camera. Under IR Filter, you can edit the **Brightness Threshold Ratio** and **Brightness Check Delay in Seconds** fields. A **Brightness Threshold** of 0 means never enable infrared; a threshold of 1 means always enable InfraRed. **Brightness Check Delay** indicates how long the transition to or from infrared must exist before executing the transition.



5.7) Alert Configuration

Vital sign readings provide insight into an animal patient's health and well-being. Abnormal vital sign readings can indicate a need for further medical attention. For example, an increased heart rate might indicate a risk of a cardiac event. The VetGuardian app shows and tells providers when vital signs are out of range, so they can keep a closer eye on the patient and know when to send help.

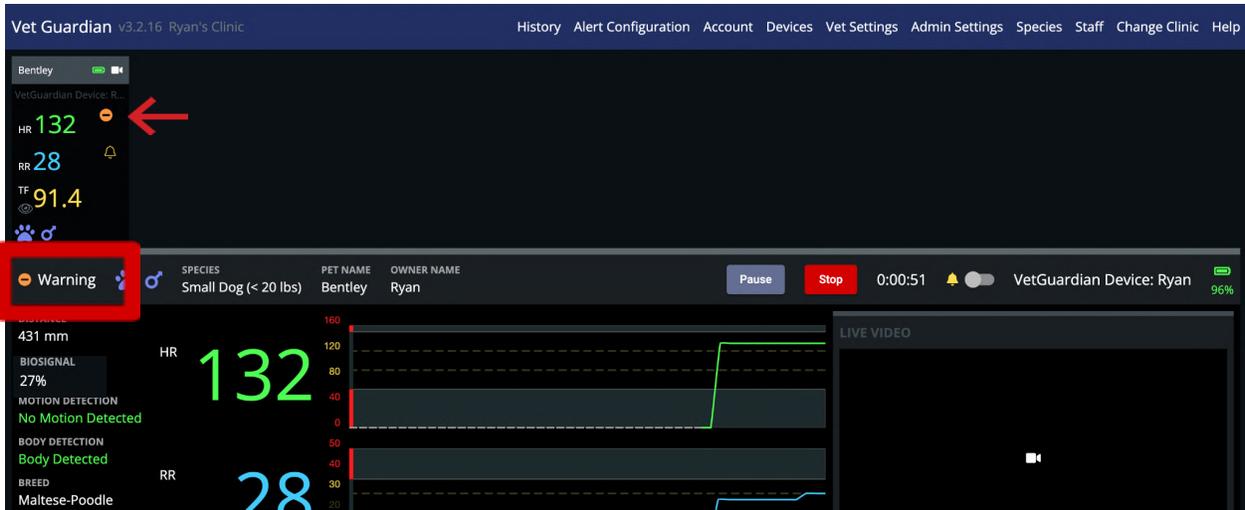
Vital sign readings fall into three categories:

- **In-range:** Vital signs are within normal range. Medical attention might not be needed. Readings are above the Low Warning and below the High Warning values.
- **Warning:** Vital signs are outside the normal range, and there is some need for medical attention. Readings are between the Low Alarm and High Alarm values, but outside of the High Warning and Low Warning values.
- **Alarm:** Vital signs are far outside the normal range, and there is an urgent need for medical attention. Readings are below the Low Warning or above the High Warning.

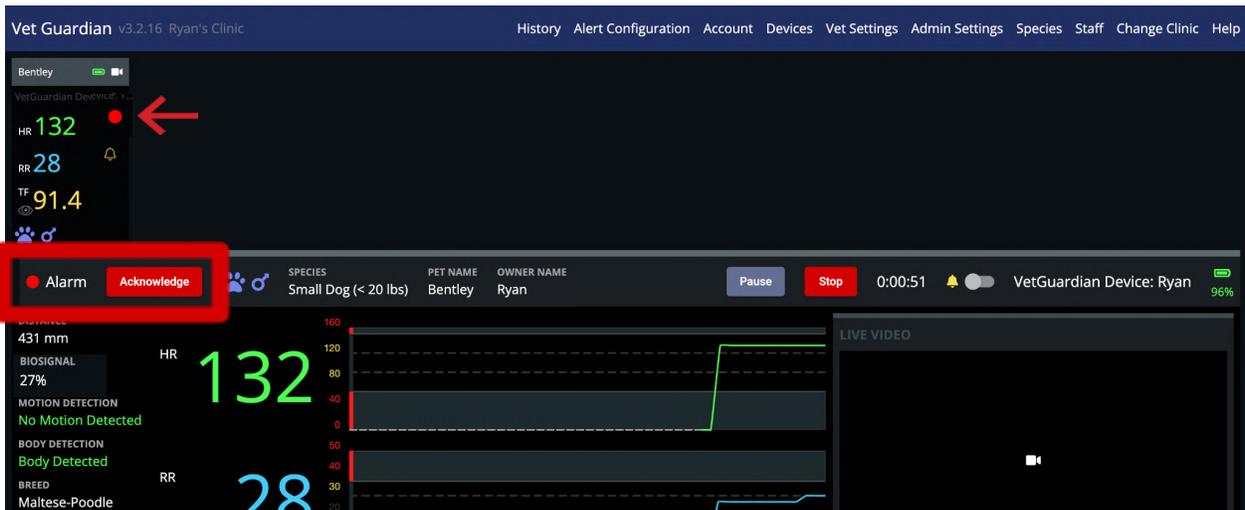
When readings reach the **Warning** level, a notification with a yellow circle appears to the left of the live session screen. **Warning** alerts will play a sound for 6 seconds and not repeat until leaving and returning to the Warning state again.

VetGuardian User Manual		Last Modified:	March 31, 2023
Author:	SMP	Version 3.3	Page 39/48

VetGuardian User Manual



When readings are in an **Alarm** status, a red '**Acknowledge**' button will appear on the left of the live session screen. An audio and visual alarm will sound and display until an application user selects the acknowledge button. The purpose of the acknowledged functionality is to ensure that providers are aware of potentially medically-relevant information.



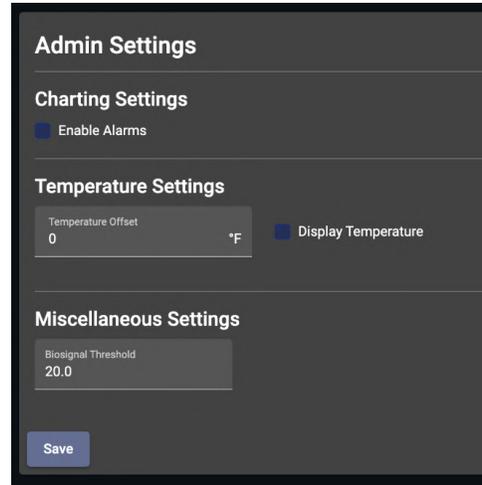
Application users can customize the upper and lower limits of warning and alarm ranges. Before a session, they can be edited in the Patient Information Screen, and during a live session, they can be edited by pressing the pause button.

VetGuardian User Manual		Last Modified:	March 31, 2023
Author:	SMP	Version 3.3	Page 40/48

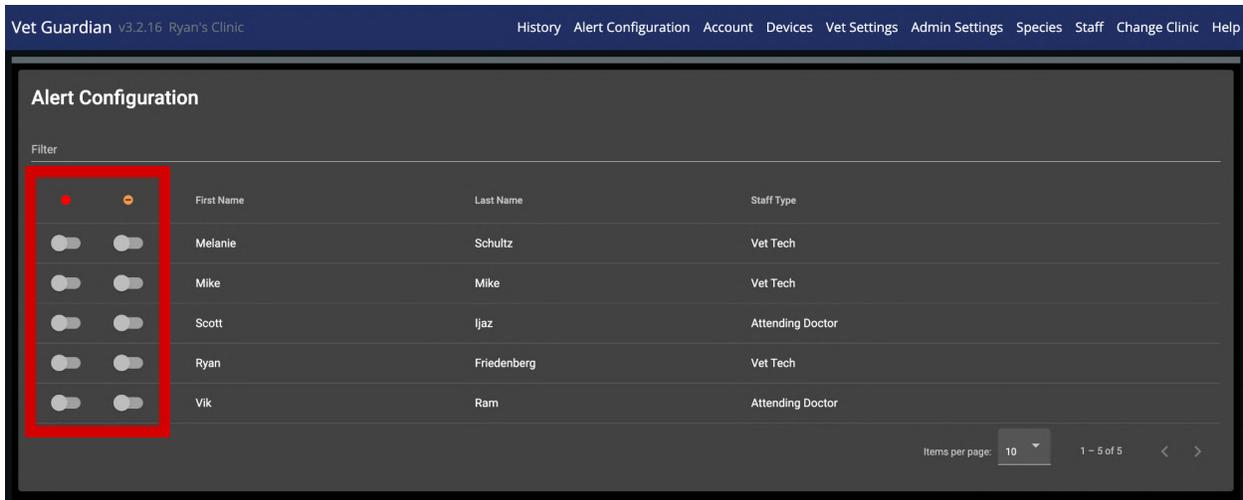
VetGuardian User Manual

How to Enable Alerts:

First, go to the Admin Settings page, check the box next to **Enable Alarms**, and then click Save. This will enable audible alarms to play app-wide.



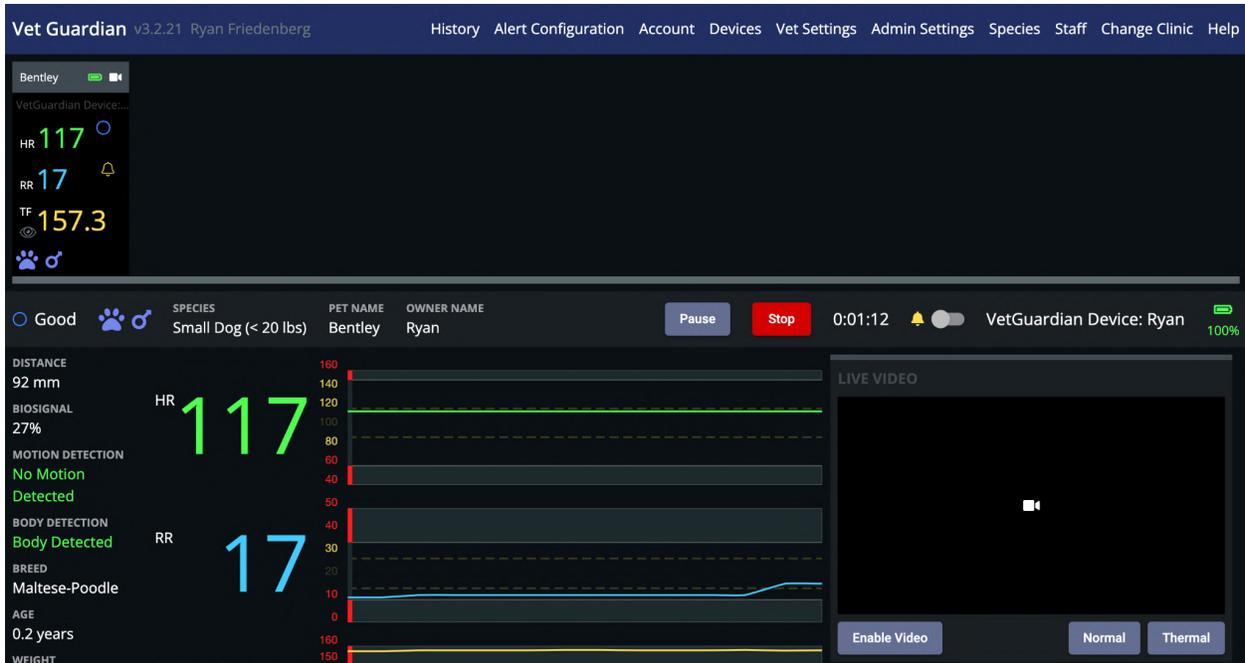
On the **Alert Configuration Screen**, Application Users can set up **push notifications** to be sent to them by email or text message. For each staff member, push notifications for **Alarms** (red dot) and **Warnings** (yellow dash) can be turned on separately. Notifications for the alarm types that have been set are sent to any email address or phone number (in international format) added for that staff member. To edit this information, see *Section 3.8, "Account & Clinic."*



Lastly, to begin receiving push notifications, the **Bell icon switch** must be turned on for the session.

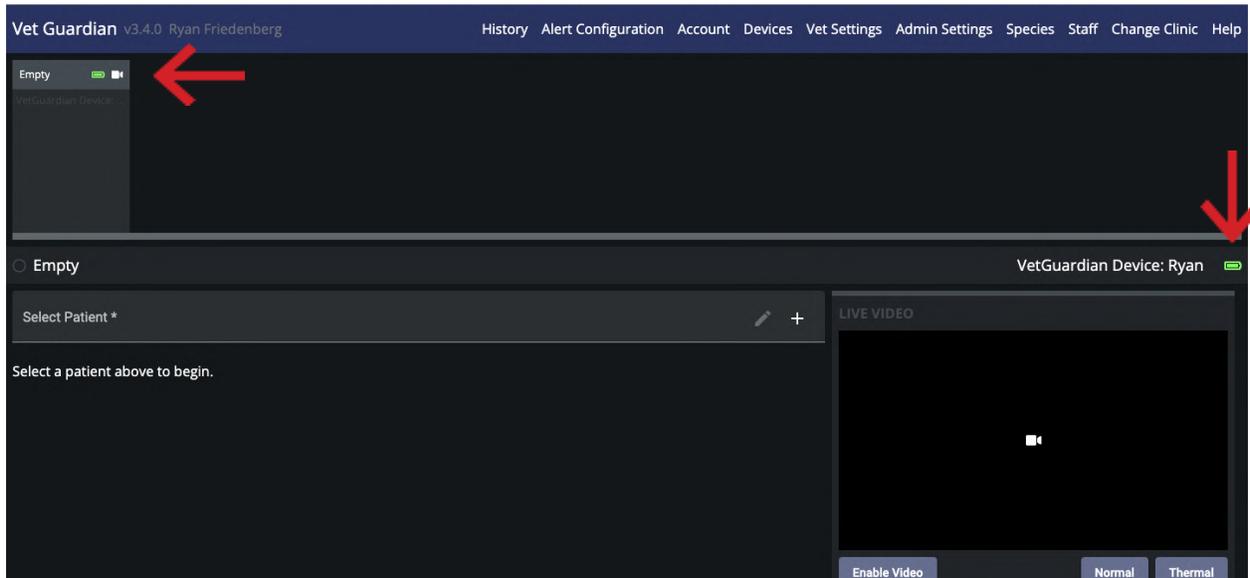
VetGuardian User Manual		Last Modified:	March 31, 2023
Author:	SMP	Version 3.3	Page 41/48

VetGuardian User Manual

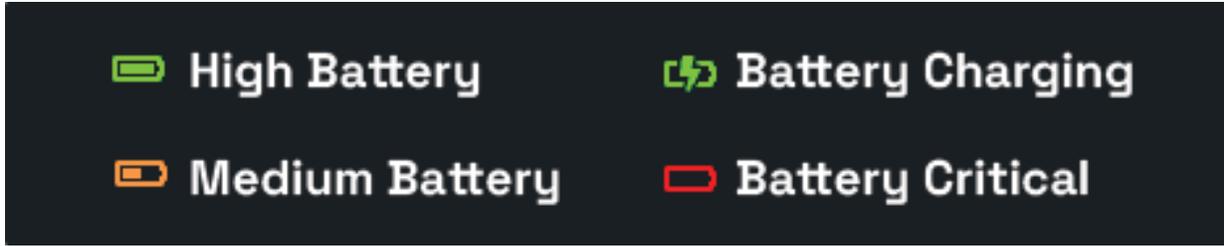


5.8) Battery

VetGuardian V2.5 can run on its own battery power and doesn't need to be plugged into an outlet. The battery lasts approximately 4–6 hours on a full charge. When the battery gets to about 10%, the unit will stop a session and power down.



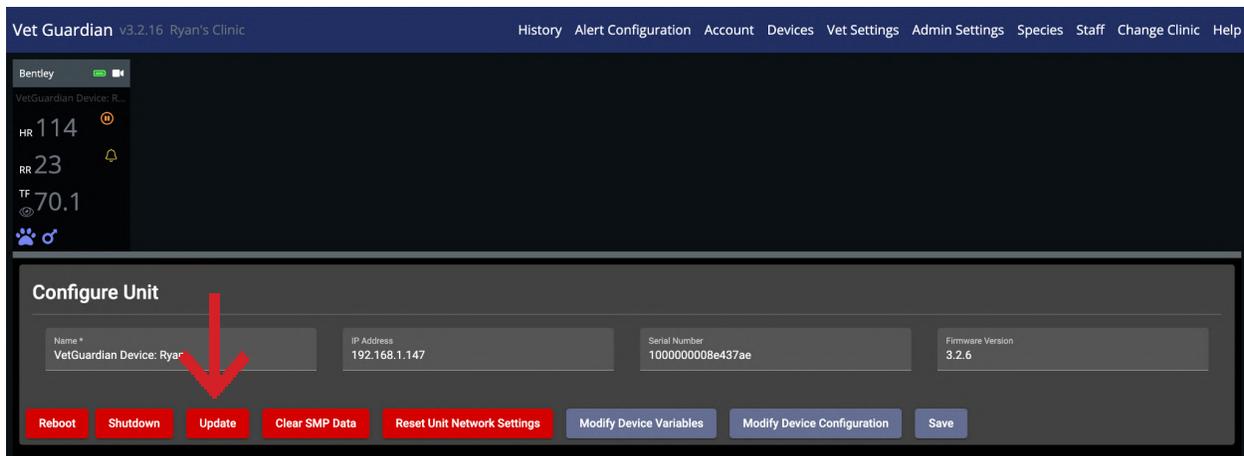
VetGuardian User Manual		Last Modified:	March 31, 2023
Author:	SMP	Version 3.3	Page 42/48



5.9) Firmware Updates

'Firmware' refers to the specific software version running on the VetGuardian device, not to be confused with the Desktop or Cloud Application. The device's firmware tells the device how to function. Firmware updates typically include improvements like bug fixes, new features, or even improvements to the vital sign detection algorithms. Firmware updates and availability can differ by device version (model).

Application Users can check for updates by navigating to the Devices page on the Application: Go to **Devices** >> Click the **arrow** by your connected device >> Click **Configure** >> Click **Update**.



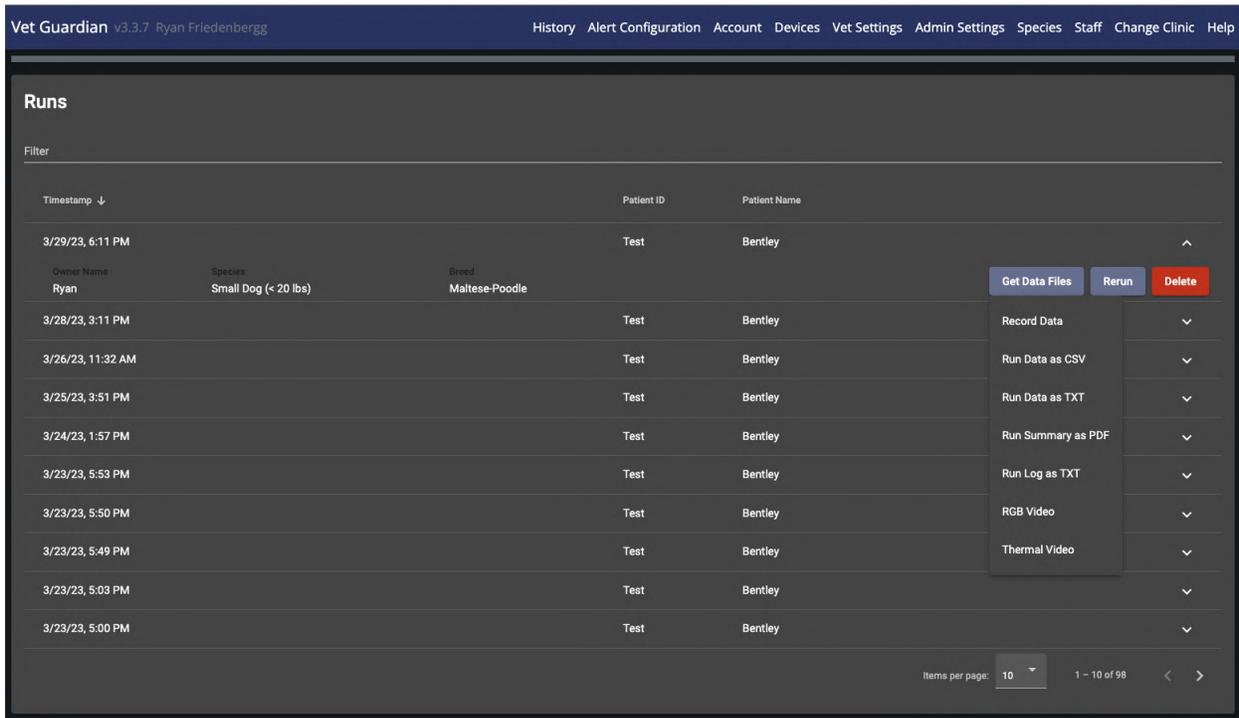
While the device is undergoing an update, the left corner LED will blink purple. Updates take 10-20 minutes or longer depending on the size of the update, internet connection and speed, and the last time the device was updated. **DO NOT turn off** the device during an update. The unit will automatically reboot after an update is complete and then reconnect to the VetGuardian cloud.

VetGuardian User Manual		Last Modified:	March 31, 2023
Author:	SMP	Version 3.3	Page 43/48

6. HISTORY TAB

On the history screen, Application Users can select:

- **'Get Data Files'** to access monitoring reports and downloaded video files. Application Users can:
 - Run Data as CSV
 - Run Data as TXT
 - Run Summary as PDF
 - Run Log as Text
 - View RGB Video
 - View Thermal Video
- **'Rerun'** to re-engage a prior session. The same session parameters will load from the last time it was run, and a second identical session will commence.
- **'Delete'** to delete the record of the selected session.



7. MEDICAL RECORD REPORTING

The VetGuardian application stores summary reports of all completed sessions in the **'History'** screen. Summary Reports are useful because they provide a full audit trail of animal patient recovery and can be printed off for owners as proof of medical services. Summary reports can be printed in 4 different formats:

- Run Data as CSV
- Run Data as TXT
- Run Summary as PDF
- Run Log as Text

Application users will most often use the **'Run Summary as PDF'** because it provides the most medically relevant information presented in the cleanest format. The top section of the report provides information about the managing organization, typically a veterinary practice or hospital. The information corresponds to the fields in the Vet Settings screen.


Schultz staging Clinic

Version	3.2.11.0	Patient	melanie (111)
Date	1/9/2023 (Coordinated Universal Time)	Owner	melanie
Duration	30.456 mins	Gender	Female
Average RR	9.316	Species	Vik (> 150 lbs)
RR Limits	5 5 / 30 30	Breed	human
Average HR	66.336	Birth Date	11/1/1980
HR Limits	60 50 / 100 90	Weight	140 lb
Average Temperature (C)	22.153		
Average Temperature (F)	71.876		
Attending Dr.	Melanie Schultz		

Vital Data

CreatedAt	Elapsed Time	Avg HR	Avg RR	Min/Max HR	Min/Max RR	Flatline Prob	Avg Temp (C)
1/9/2023 1:31:08 PM	00:03:51	55.659 (+0.000)	9.925 (+0.000)	0 / 68	0 / 24	0.568495575221239	23.869 (+0.000)
1/9/2023 1:35:00 PM	00:08:51	67.396 (+11.737)	10.208 (+0.283)	67 / 68	9 / 11	0.7496245733788397	23.376 (-0.492)

VetGuardian User Manual

The second section of the report corresponds to fields completed on the New Patient screen.



Version	3.2.11.0	Patient	melanie (111)
Date	1/9/2023 (Coordinated Universal Time)	Owner	melanie
Duration	30.456 mins	Gender	Female
Average RR	9.316	Species	Vik (> 150 lbs)
RR Limits	5 5 / 30 30	Breed	human
Average HR	66.336	Birth Date	11/1/1980
HR Limits	60 50 / 100 90	Weight	140 lb
Average Temperature (C)	22.153		
Average Temperature (F)	71.876		
Attending Dr.	Melanie Schultz		

Vital Data

The final section, **Vital Data**, summarizes vital sign readings in the form of 5-minute averages. In other words, VetGuardian takes average vital sign readings for each 5-minute interval and lists them out. Min/Max HR corresponds to the lowest and highest heart rates recorded during a 5-minute interval, and Min/Max RR corresponds to the lowest and highest respiration rates recorded.

Vital Data

CreatedAt	Elapsed Time	Avg HR	Avg RR	Min/Max HR	Min/Max RR	Flatline Prob	Avg Temp (C)
1/9/2023 1:31:08 PM	00:03:51	55.659 (+0.000)	9.925 (+0.000)	0 / 68	0 / 24	0.568495575221239	23.869 (+0.000)
1/9/2023 1:35:00 PM	00:08:51	67.396 (+11.737)	10.208 (+0.283)	67 / 68	9 / 11	0.7496245733788397	23.376 (-0.492)
1/9/2023 1:40:00 PM	00:13:51	68.000 (+0.604)	9.000 (-1.208)	68 / 68	9 / 9	0.64	21.660 (-1.717)
1/9/2023 1:45:00 PM	00:18:52	68.000 (+0.000)	9.000 (+0.000)	68 / 68	9 / 9	0.64	21.448 (-0.212)
1/9/2023 1:50:00 PM	00:23:51	68.000 (+0.000)	9.000 (+0.000)	68 / 68	9 / 9	0.64	21.611 (+0.164)
1/9/2023 1:55:00 PM	00:28:51	68.000 (+0.000)	9.000 (+0.000)	68 / 68	9 / 9	0.64	21.424 (-0.188)
1/9/2023 2:01:35 PM	00:30:27	68.000 (+0.000)	9.000 (+0.000)	68 / 68	9 / 9	0.64	21.902 (+0.479)

VetGuardian User Manual		Last Modified:	March 31, 2023
Author:	SMP	Version 3.3	Page 46/48

VetGuardian User Manual

If the camera is turned on, a snapshot of the subject is taken immediately when a session starts and also every time the subject moves. These images are saved in the **'Patient Image'** section of the report.

Patient Image

2019-07-25 16:45:54



VetGuardian User Manual		Last Modified:	March 31, 2023
Author:	SMP	Version 3.3	Page 47/48

8. FOLLOW-UP SUPPORT

Reach out to us for product support and feedback between 8:00 a.m. and 5:00 p.m. EST. A VetGuardian representative will get in touch as soon as possible:

- **1-844-VGVITAL**, VetGuardian Office Phone Number
- info@vetguardian.com
- VetGuardian Application Home Page > Feedback
- <https://www.vetguardian.com/contact>

End of document

VetGuardian User Manual		Last Modified:	March 31, 2023
Author:	SMP	Version 3.3	Page 48/48