CardioPet ECG Device and CardioPet Software

User Guides

- CardioPet ECG Device
- CardioPet Software for Windows PC
- CardioPet App for Android Mobile Device
- CardioPet iOS App
- Integrating the CardioPet App with IDEXX Web PACS or IDEXX-PACS
- ECG Quality and Troubleshooting

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CardioPet ECG Device

User Guide

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Connecting batteries and cable

To insert batteries into the CardioPet* ECG device and connect the cables:

1. Insert two AA batteries (included) into the back of the device.

   WARNING: Never use rechargeable batteries. They may cause a fire hazard. Always use nonrechargeable alkaline batteries.

2. Attach a clip to each of the four cables.
3. Plug the single end of the cable into the CardioPet ECG Device, aligning the arrow with the white triangle on the back of the device, as shown below.

   Note: To disconnect the cable, pull the **outer** cylinder of the connector to release the lock.

Turning the device on/off

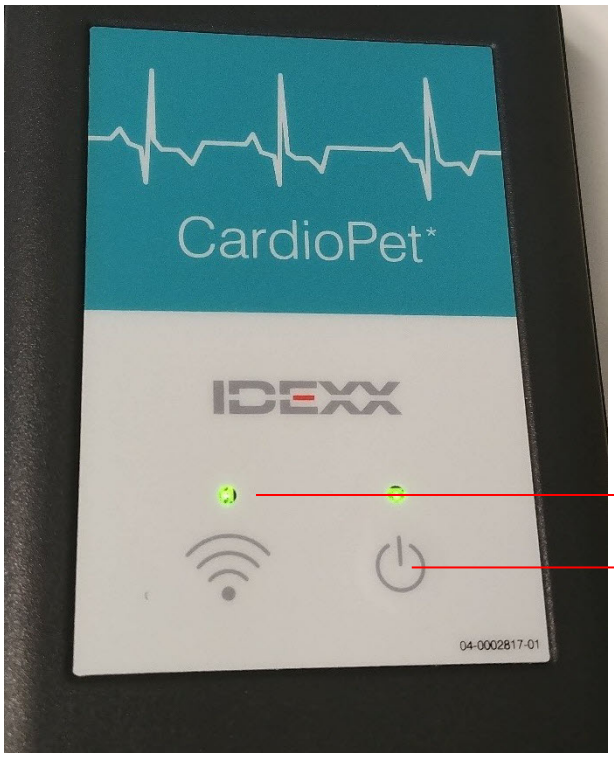
- To turn on the CardioPet ECG Device, press the power button .

  The power light on the right side of the device will illuminate.
- To turn off the device, press the power button again.

  Note: The device will turn off automatically after 5 minutes of inactivity.

CardioPet ECG Device lights and what they mean

The Bluetooth light to the left of the power button will illuminate when the CardioPet device is streaming to a mobile device or computer through the CardioPet app or software.



ECG is streaming

Power button is on

Preparing the patient and attaching clips

To prepare the patient and attach clips:

1. Place the animal on a padded surface in right-lateral recumbency.

   Note: The patient can also stand upright or be in sternal position; however, be sure to note these positions in the patient history when you submit the case.

2. Liberally apply alcohol to each limb, 1”–2” below the elbows and knees.
3. Attach the CardioPet* Comfort Clips, being sure to part the fur for good skin contact.

   Black: Left front leg Red: Left rear leg

   White: Right front leg Green: Right rear leg

IMPORTANT: Make sure that the patient’s limbs, the cables, and the clips do not touch each other or touch metal. For more information, review or print this poster that explains how to prepare a patient for an ECG.

To attach clips for a chest lead ECG:

A chest lead may be helpful if the P-waves are indistinct in lead II.

1. Place all clips as described in the previous section, **except** the black clip.
2. Place the black clip on the **left** side of the chest between the fourth and fifth ribs, wherever the heartbeat is strongest with touch or auscultation.

   When you record an ECG with the clips in this position, lead I will appear as the chest lead.

3. Add “Chest lead included” in the patient history when you submit the case on vetmedstat.com.

Maintenance and specifications

Cleaning and maintaining the CardioPet ECG Device

Clean the exterior of the device using a paper towel moistened with isopropyl alcohol.

Replacing and recycling batteries

- The CardioPet ECG Device uses two AA alkaline (nonrechargeable) batteries.
- Remove the batteries if the device will not be used for an extended period of time.
- To monitor battery status, note the battery indicator in the CardioPet software menu bar:

  Battery life is adequate Battery change is needed
-

  This symbol is placed in accordance with the European Union Directive 2002/96 on the Waste Electrical and Electronic Equipment (the WEEE Directive). If disposed of within the European Union, this product should be treated and recycled in accordance with the laws of your jurisdiction implementing the WEEE Directive. For additional information, visit idexx.com/weee.

Specifications

CardioPet ECG Device:

- Sampling rate: 500 Hz each channel
- Signal frequency range: 0.05 Hz to 100 Hz†
- Filter type: Digital
- Channels: 2 according to 3 or 6 vectors
- Operating range: Approximately 100 m (clear range)
- Operating temperature: 8°C to 45°C (46°F to 113°F)
- Ambient relative humidity: 25% to 80% without condensation
- Atmospheric pressure: 700 hPa to 1070 hPa

†The frequency range refers to the CardioPet ECG Device. The resulting frequency range depends on the specific filters implemented in the software.

Batteries:

Chemistry: Alkaline (zinc-carbon dry cell)

Type: AA

Rechargeable: No

Weight: 23 g

CardioPet Software for Windows PC

User Guide

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Installing the CardioPet software and establishing a Bluetooth connection

IMPORTANT: This section applies only to systems that are not integrated with the IDEXX-PACS* Imaging Software or IDEXX Web PACS*. Contact IDEXX Telemedicine Consultants at 1-800-726-1212 for additional information about integration.

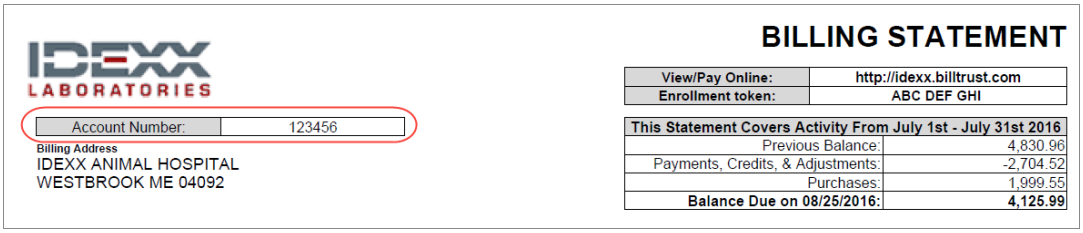
Minimum PC requirements

- Device ports: USB 1.1 or later
- Operating system: Windows* 7, Windows* 8, or Windows* 10 (32- or 64-bit)
- RAM: 2 GB
- Hard drive: 100 GB
- Internet connection

Installing the CardioPet software

1. Download and install the CardioPet* software from vetmedstat.com/cardiopet.
   For assistance, contact IDEXX Telemedicine Consultants at 1-800-726-1212 or email telemedicinesupport@idexx.com.

   Note: Some computers require administrative rights for downloading software. If you receive an error when downloading the CardioPet software, contact your practice's system administrator or IT person for assistance.
2. When asked to specify your clinic ID, enter the Account Number from your IDEXX billing statements, as shown below. The Account Number consists of numbers only.



IDEXX LABORATORIES

Account Number:	123456

Billing Address
IDEXX ANIMAL HOSPITAL
WESTBROOK ME 04092

BILLING STATEMENT

View/Pay Online:	http://idexx.billtrust.com
Enrollment token:	ABC DEF GHI

This Statement Covers Activity From July 1st - July 31st 2016	
Previous Balance:	4,830.96
Payments, Credits, & Adjustments:	-2,704.52
Purchases:	1,999.55
Balance Due on 08/25/2016:	**4,125.99**

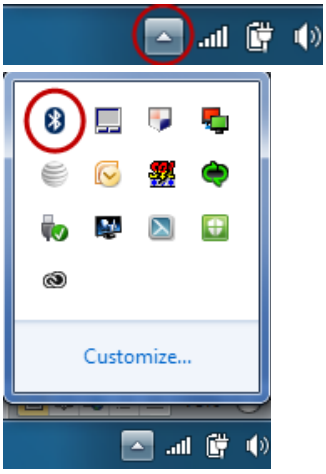
Pairing the CardioPet ECG Device with the CardioPet software

Pairing establishes wireless communication between the CardioPet* ECG Device and the software. In most cases, you will need to pair the device only once.

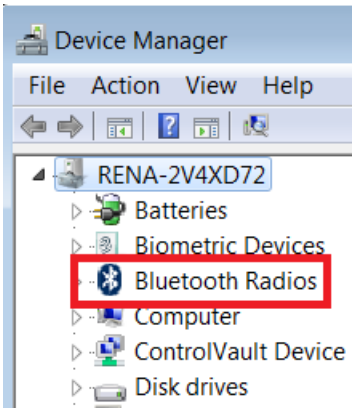
Note: The device can connect to only **one** instance of the CardioPet software at a time. Close any other open CardioPet applications (including the CardioPet app on a mobile device, if using).

First: Check for wireless capability on your computer:

1. In the taskbar (usually in the lower right corner of the monitor), click the **up arrow** to display hidden icons, and then look for the presence of the **Bluetooth*** icon.



Alternatively, check your computer's Device Manager for **Bluetooth** or **Bluetooth Radios**.



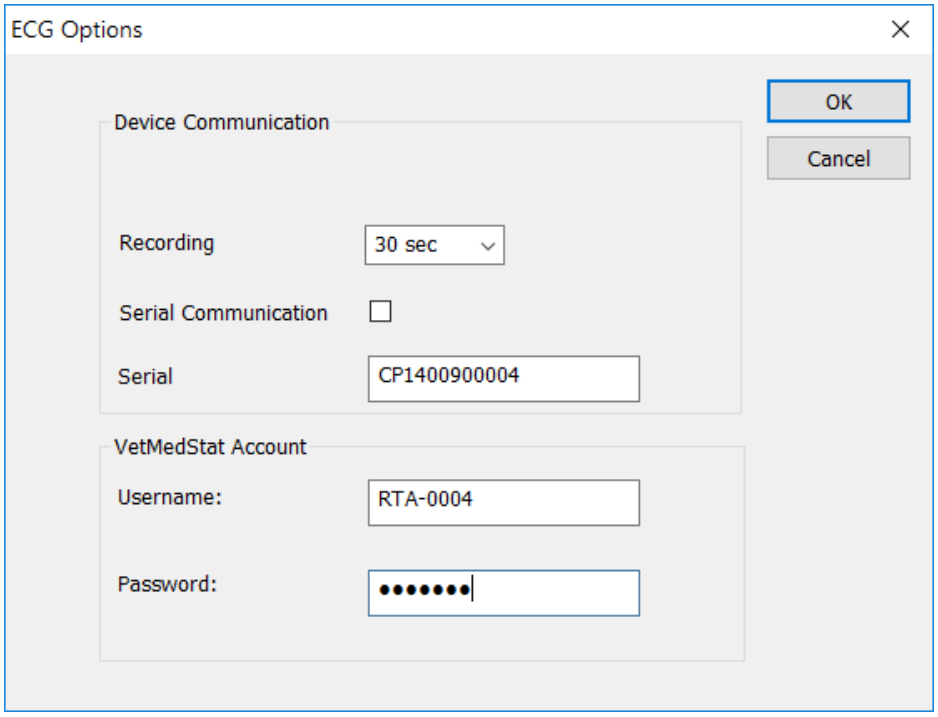
2. If the icon or radios option is **not** present, follow the instructions in the package you received from IDEXX to install the Bluetooth adapter and appropriate ASUS* drivers before continuing.

   IMPORTANT: If the Bluetooth adaptor is needed, it must remain connected to your computer at all times. Removing the Bluetooth adaptor may result in your CardioPet ECG Device becoming unpaired from the CardioPet software.

Second: Pair the CardioPet ECG Device with the CardioPet software:

1. Start the CardioPet software, and then select **Settings > ECG Options….**
2. Set the following ECG options:
   - In the **Serial Number** box, enter the serial number from the label on the back of the CardioPet ECG Device. The number starts with *CP* followed by nine digits (for example, CP140900014).
   - In the **Username** box, enter your VetMedStat* account name.

     Note: Your account name has 3 letters and 4 numbers (e.g., ABC-0123). If you need help, contact us at 1-800-726-1212 or telemedicinesupport@idexx.com.
   - In the **Password** box, enter your VetMedStat* account password, and then click **OK**.



3. Press the **Power** button on the front of the CardioPet ECG Device.
4. Click **Start ECG** in the CardioPet software.
   When pairing is successful the device begins a live ECG stream (which appears as straight or curved lines in the CardioPet window). The CardioPet ECG Device is now ready for use with the CardioPet software.

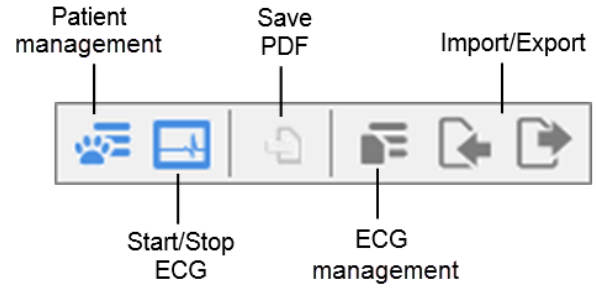
   Note: If streaming does **not** begin, check your computer's Device Manager or Bluetooth settings to ensure:
   - Bluetooth is enabled/turned on.
   - Bluetooth devices are allowed to find the computer.
   - Bluetooth devices are allowed to connect to the computer.

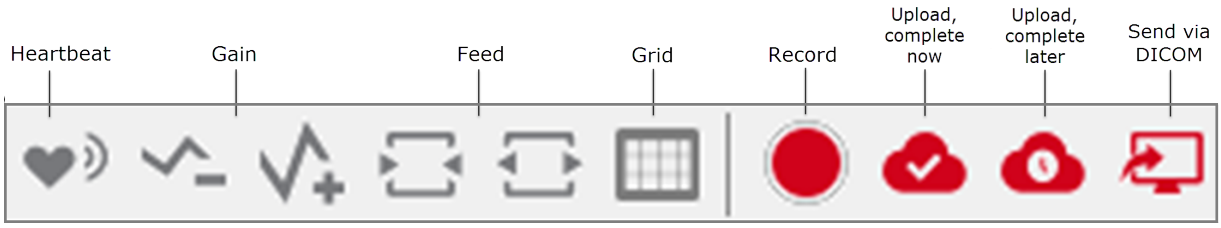
Recording and submitting an ECG

IMPORTANT: Only **one** instance of the CardioPet software or app can be used at a time; close all other open CardioPet applications.

These instructions describe submitting an ECG from the CardioPet app directly to the VetMedStat website. For instructions for recording and submitting an ECG from an integrated CardioPet app, see "Submitting a case from within the IDEXX Web PACS or IDEXX-PACS software."

Quick guide to CardioPet software controls





These controls can also be found in the **File**, **ECG**, and **View** menus.

Recording the ECG

1. Double-click the **CardioPet** icon on your desktop to start the software.
2. Click **Select & Manage Patient** .
3. Select an existing patient from the **Patient** drop-down list and click **OK.**

   OR

   Click **New,** enter the patient information (a patient name, a unique patient ID, and a last name are required), click **Save,** and then click **OK**.

   Notes:

   - Always use the patient ID from your practice management system. Be sure to check with your practice management system provider to determine whether a patient ID is in use.
   - If your practice management system does **not** provide a patient ID, you can add a letter, a number, or the patient's name to the client ID to create a unique patient ID in the CardioPet software.
   - Patient IDs must be unique.
4. Prepare the patient.
5. Turn on the CardioPet ECG Device.
6. In the CardioPet software, click **Start ECG** to see the live ECG stream.

7. When the ECG tracing is diagnostic, click **Record** . See "Diagnostic ECG Checklist" for information on diagnostic quality.

   Tip: On newer CardioPet models (model numbers ending in 02 or higher), pressing the power button for 2 seconds also starts the recording. For information about upgrading your device, call 1-800-726-1212.

   The software records the ECG for 30 or 60 seconds (depending on your settings) and then saves the ECG file. See "Changing the recording duration" for instructions on changing this setting.

   Note: The ECG must be at least 20 seconds long. If you stop the ECG before then, a warning will be displayed, and you will not be able to upload the ECG to vetmedstat.com or IDEXX-PACS.

8. Click **Stop ECG** to stop the live stream.
9. Click one of the following buttons:

   - **Upload to VetMedStat and complete now** to open vetmedstat.com where you can complete the case immediately. See "Completing the case on vetmedstat.com."
   - **Upload to VetMedStat and complete later** to upload the ECG without opening vetmedstat.com. You must log on to vetmedstat.com later to complete the case. Use this option if there is a case already started with other image files. See *Submitting cases with multiple modalities* on vetmedstat.com/cardiopet.
   - **Send via DICOM** to upload a copy of the ECG to your IDEXX-PACS software (if the two applications are integrated). See "Integrating CardioPet software with the IDEXX-PACS Imaging Software or the Cornerstone Software" for more information. Saving a file to IDEXX-PACS does not automatically submit a case to vetmedstat.com.

10. To turn off the CardioPet ECG Device, press and hold the power button for about 5 seconds; the device will also turn off automatically after 5 minutes of inactivity.

Adjusting the ECG display

Changing gain, feed, and grid

Select…	To…
	Decrease or increase the gain (recommended: 10 mm/mV)
	Decrease or increase the paper feed (recommended: 50 mm/s)
	Display .04 second squares

Listening to the patient's heartbeat

While the ECG is streaming, click **Acoustic Heart Beat** .

You must have speakers connected to your computer; make sure the sound is not muted.

Changing the display mode

The currently displayed lead is identified in the **Mode** area of the toolbar.

Note: The ECG uploaded to vetmedstat.com will always include all six leads.

To change the displayed leads:

From the **ECG** menu, select:

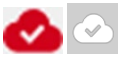
- **Single Lead** to display lead II.
- **Einthoven** to display leads I, II, and III.
- **Goldberger** to display all six leads.

Changing the recording duration

1. Select **Settings > ECG Options…**.
2. Under **Recording Time**, select either **30 sec** or **1 min** from the dropdown menu, and then click **OK**.

Completing the case on vetmedstat.com

Completing a new case

Note: If you clicked **Upload to VetMedStat and complete now**  , the vetmedstat.com web site opens automatically. Proceed to step 2 below.

To complete the case on vetmedstat.com:

1. Log on to vetmedstat.com, find the case under **Attention: Cases for You to Complete**, and click the **Finish** button.
2. On the **Patient** page, edit the patient and owner information as needed, and then click **Next**.

   Note: You will not be able to edit patient information after you leave the Patient page.
3. On the **Service** pages:
   a. Choose **Cardiology Services**, and then select the specific service.
   b. Click **Next**.
   c. Choose the desired screen or consult type.
   d. Click **Next**.

   IMPORTANT: For cardiology services, send only cardiac-specific images. If you include images for other areas of study, you must also select an applicable **Radiology** or **Dental** service. You can select multiple services for the same case, but each report will incur a separate charge.
4. Complete required history and click **Next**.
5. On the **Attachments** page, ensure all necessary ECG files, images, and documents are listed under **Files Already Attached**. To submit files in addition to the ECG you already uploaded, under **Additional attachments**, select **Upload now**, and follow instructions to attach the files.

   Tip: If this is a comparison study, attach any relevant documents older than 1 year.
6. Click **Next**.
7. On the **Summary** page, review the case information (click **Previous** to make any needed changes), and then click **Submit Case**.

The **Home** page is displayed, showing the submitted case under **Cases Successfully Submitted**.

When the case report is ready, look for it under **Completed Reports** on the **Home** page. The veterinarian will also receive the report by email or fax, depending on the veterinarian's contact settings.

Recording and completing a repeat case

IMPORTANT: Do not include images, such as radiographs, with a repeat ECG.

To submit a repeat ECG:

1. Go to vetmedstat.com.
2. Under **Completed Reports**, locate the original case, click the case number, and then select **Repeat ECG** (or **Repeat Screen)** from the menu.

   Note: This option is available only if the case is eligible for a reduced-charge repeat service.
3. Note the ID listed below the patient's name, and then click **Next**.
4. Update the **Notes** page with current patient history and exam findings, then click **Next.**
5. Open the CardioPet software.

6. Click **Select and Manage ECG** and create a new patient or find the existing patient, ensuring the patient ID is the ID noted in step 3.
7. Record the repeat ECG.
8. **Click Upload to VetMedStat and complete later** to add the ECG to the repeat case on vetmedstat.com.
9. Return to vetmedstat.com, refresh the page, and complete the case.

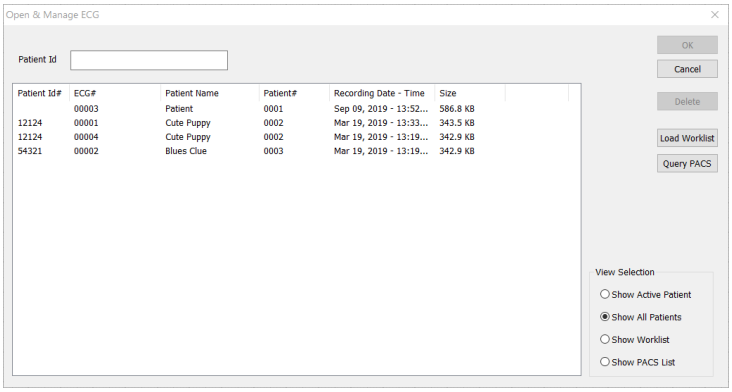
Note: Before submitting, make sure the ECG file appears on the Attachments page under **Files already attached** or on the Summary page by clicking **View Images**.

Working with saved ECGs

Viewing a saved ECG

1. Select the patient.
2. Click **Open & Manage ECG** .

   A list of ECGs for the currently active patient is displayed. To find an ECG for a different patient, select **Show All Patients** in the lower right corner of the window.



3. Double-click the ECG row.

   Note: To delete an ECG, highlight it by clicking it once, and then click **Delete.**

Saving an ECG as a PDF file

Before you begin: To use this feature, go to **Settings > Dicom Settings** and enter your practice name in the Institution Name field.

1. View the ECG within the CardioPet software and identify the areas of interest.
2. Click in the center of an area of interest to apply a green bookmark. You must apply at least one bookmark to activate the **Save As PDF** icon.

   Note: The bookmark represents the center of a 40 cm area. If the bookmark is less than 20 cm from the beginning or end of the ECG, the bookmark will shift to 20 cm from the applicable edge.
3. Repeat step 2 as many times as necessary to capture all areas of interest.
4. Click **Save As PDF** in the CardioPet toolbar, or select **Save As PDF** from the File menu, and then select a location to store the PDF.

Tip: To clear all bookmarks, right-click the ECG. The bookmarks are removed.

The PDF includes:

- Areas of interest bookmarked on the ECG tracing
- Practice name as entered in the settings (**Settings > Dicom Settings > Institution Name**)
- Patient name and ID
- Date and time of the ECG recording
- Paper speed and amplitude

Note: The paper speed is half the speed noted in the CardioPet software to compensate for the difference when viewing the tracing on a monitor in landscape mode vs. in the portrait-oriented PDF.

Exporting an ECG from the CardioPet software

The CardioPet software supports two exported ECG file types:

- .ecg (the default)
- .dce (a DICOM* format).

Before you begin: To activate the export option, go to **Settings > Dicom Settings** and enter your practice name in the **Institution Name** field. You need to do this only once.

To export an ECG:

1. Open the ECG file.
2. Click Export ECG . The default export file type is .ecg. To export the ECG as a DICOM file, select .dce in the **Save As Type** box.
3. Navigate to the desired location, and then click **Save**.

Note: To view an exported CardioPet file, you must import the file back into the CardioPet software. See the next section.

Tip: You can also save an ECG as a .pdf file.

Importing an ECG into the CardioPet software

1. In the CardioPet software, open the patient record associated with the file to be imported.
2. Click **Import ECG** . If importing a .dce file, select **.dce** in the pop-up window.
3. Navigate to the file location, select the file, and then click **Open**.
4. In the **Import ECG** box, verify the ECG recording date, and then click **OK**.

   The **Select Patient** dialog box opens with the active patient already selected. Confirm the correct patient is selected, or create a new patient.
5. Click **OK** to add the file to the patient record.

Managing patient records

To create new patient records:

1. Click **Select & Manage Patient** .
2. Click **New**, and then enter patient and owner information.
3. To associate ECG files for this patient with records in the IDEXX-PACS software or a practice management system, enter the patient ID from the other system in the CardioPet Patient ID box.
4. Click **Save**.

   Note: A reference number is appended to the patient name for tracking purposes. This number does not need to match the patient ID in other systems.
5. When finished, click **OK**.

To update patient records:

1. Click **Select & Manage Patient** .
2. Select the patient from the **Patient** drop-down list, and then update the **Patient ID** and owner information as needed (the patient name cannot be altered), or click **Delete**.

   Note: Before deleting a patient record, you must delete all associated ECGs. See "Viewing a Saved ECG" for more information.
3. Click **Save**.

Note: The most recently modified patient becomes the active patient record on the CardioPet window.

CardioPet App for Android Mobile Device

User guide

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Minimum requirements

IMPORTANT: This section applies only to systems that are **not** integrated with the IDEXX-PACS* Imaging Software or IDEXX Web PACS* software. Contact IDEXX Telemedicine Consultants at **1-800-726-1212** for additional information about integration.

- The tablet's Android* operating system must be version 7.1 or later.
- **IMPORTANT:** Although the CardioPet* App for Android* Mobile Device should be compatible with Android-based tablets, **we cannot guarantee compatibility with every Android device**. Contact IDEXX Telemedicine Consultants to validate compatibility.
- If this is a new Android device, follow the instructions that came with the device to complete its initial setup before proceeding.
- An internet connection is needed for installing the app, uploading an ECG file from the CardioPet* app to vetmedstat.com, and submitting a case directly on vetmedstat.com.
- A Google* account is needed to download apps from the Google Play* store.

Installing the CardioPet app and establishing a Bluetooth connection

Preparing the tablet

1. On the tablet, go to the device settings (usually accessed by tapping).
2. Verify that Wi-Fi is enabled and connected.
3. Update the screen timeout to **30 minutes** (or your preferred time, but more than 1 minute).
4. Confirm that the date, time, and time zone are set accurately for your location.
5. Verify that the Bluetooth* connection is turned on.
6. If prompted to enter the Bluetooth Pairing Request PIN, enter **3001**.

Installing the app

1. Install the CardioPet app:
    a. Tap the **Google Play** icon**.**
    b. Search for **IDEXX CardioPet**, and then choose **Install**.
    c. Agree to the **Terms of Service** and **Privacy Policy**.
    d. Open the CardioPet app when the installation is complete.

Pairing the CardioPet ECG Device and configuring settings

IMPORTANT: Only one instance of the software or app can be used at a time; close all other open CardioPet applications including the CardioPet software on a Windows* PC.

To pair the CardioPet ECG Device with the CardioPet app:

1. Turn on the Android tablet and tap to start the CardioPet App.
2. Turn on the CardioPet ECG Device.
3. Tap **Settings** at the top left side of the CardioPet app.
4. Tap in each of the following fields and then update the information as needed:

    Telemedicine

    a. VMS User Name and VMS Password: Enter your practice's VetMedStat* account information. The account name is three letters followed by four numbers. The password is case sensitive.
    b. VMS URL: api.vetmedstat.com (leave as is; do not change)

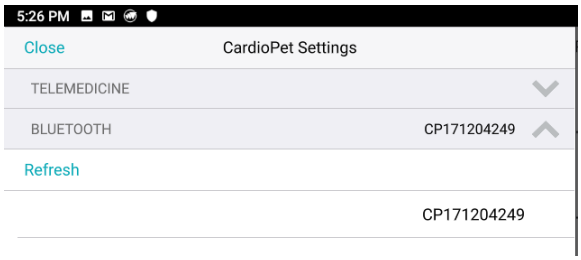
    Note: Red check marks turn green when the Android device is connected to the internet and the VMS user name and password are entered correctly. For assistance, email teledmedicinesupport@idexx.com or call 1-800-726-1212.

Bluetooth

a. If no device is listed in the Bluetooth section, tap **Refresh**.

b. Select the device name that starts with the letters **CP** and matches the serial number on the back of the device. Refreshing may take a few minutes the first time.

c. Provide permission for Bluetooth to pair with the tablet, if prompted



General

a. Recording Time: Select the recording duration you prefer (30 or 60 seconds).

b. Weight Unit: Select the weight units you prefer (Kg or Lb).

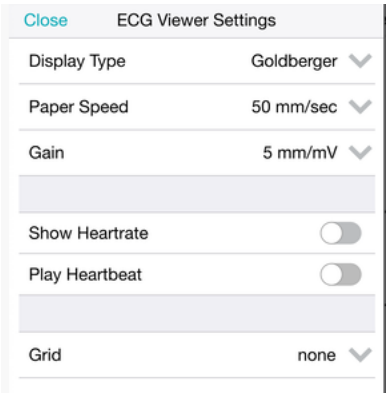
c. Quality Indicator Species Selection: Select **Always Ask Species** unless all ECGs will be performed on just one of the listed species. This feature will prompt a request for species prior to each ECG, which allows CardioPet the best ECG recording possible.

5. Tap **Close** at the top left side to exit Settings.

Note: In Settings, you can go to About to find the CardioPet version, Terms of Use, and Privacy Policy.

ECG viewer settings

1. To access the ECG Viewer Settings screen, tap **Settings** at the bottom left side of the CardioPet app. These settings relate specifically to how the ECG is viewed on the Android's screen and do not impact the saved ECG file.



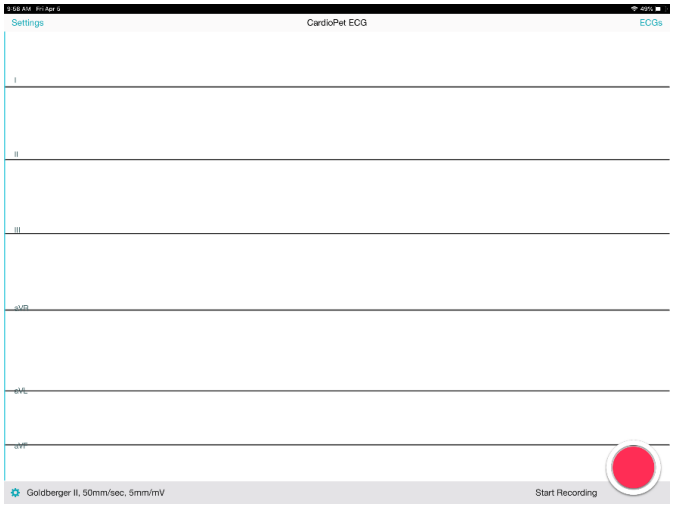
2. Set the following items to your viewing preferences:
   - **Display Type**: Single Lead, Einthoven (3 leads), or Goldberger (6 leads)
   - **Paper Speed**: Scroll to see all speed options and select the desired setting (50mm/sec is recommended).
   - **Gain**: 2.5 mm/mV, 5 mm/mV, 10 mm/mV (recommended)
   - **Show Heartrate:** When this feature is turned on, the CardioPet app shows a calculation of the patient's heart rate in the top left corner of the app.
   - **Play Heartbeat**: When this feature is turned on, the CardioPet app makes an audible beep to the rhythm of the heart rate.
   - **Grid**: Choose between fine, medium, course, or no gridlines behind the ECG tracing in the app.
3. Tap **Close** at the top left side of the screen.

Working with ECGs in the CardioPet app

Streaming and recording an ECG

1. Open the CardioPet app on the Android tablet.
2. Turn on the CardioPet* device.
   When the wireless communication light turns on, the ECG starts streaming automatically in the CardioPet app. (The Android tablet's Bluetooth* setting must be **On.**)

   Note: The first time an Android tablet is used with the CardioPet device, the device may need to be paired through the CardioPet app settings.
3. If prompted, select the patient's species.

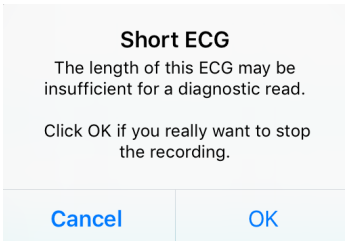


4. Prepare the patient. See Preparing the Patient for additional details.

   When the ECG tracing is diagnostic, tap **Start Recording** at the bottom right of the screen. See "Diagnostic ECG checklist" for more information.
   TIP: On CardioPet device models 02 and newer, you can also lightly depress the power button on the CardioPet device to start recording.

   The live stream and recording stop automatically once the app records the ECG for 30 or 60 seconds (depending on your setting).
5. To turn off the CardioPet device, press and hold the power button for about 5 seconds; the device will also turn off automatically after 5 minutes of inactivity.

   Note: The ECG must be at least 20 seconds long. If the **Recording** icon is tapped while recording is in progress, you may receive a Short ECG warning:



   TIP: To discard a recorded ECG, tap **Delete** in the top right corner of the screen.

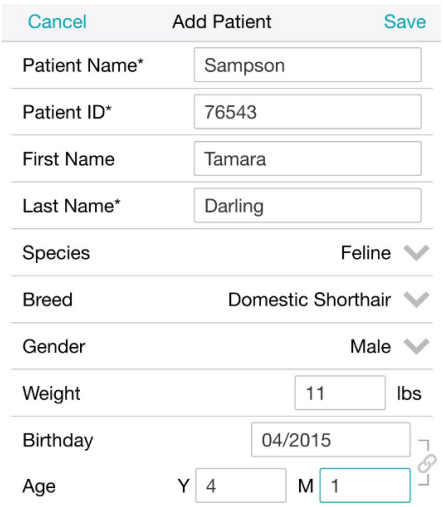
Selecting the patient and saving the ECG

1. At the bottom right side of the CardioPet app, tap **Select Patient & Save** . The Local Patients window opens.
2. Assign the ECG to an existing patient or to a new patient as follows:
   - Existing patient: Tap the patient name in the Local Patients list, and tap **Save** in the Confirm Patient window.
   - New patient: Tap at the top right of the Local Patients window and complete all fields.
     TIP: Entering the date of birth in the **Birthday** field calculates the patient age and vice versa.
3. (Optional) To record an additional ECG, tap **Live ECG** in the upper left corner of the screen.

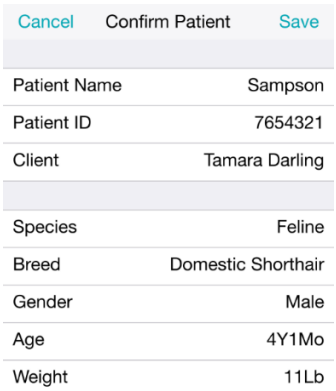
Notes:

- Patient ID must be unique.
- Using the patient ID from your practice management system is recommended. Be sure to check with your practice management system provider to determine whether a patient ID is in use. Settings may need to be configured to display hidden IDs.
- If your practice management system does **not** provide a patient ID, you can add a letter, a number, or the patient's name to the client ID to create a unique patient ID.

Add Patient window



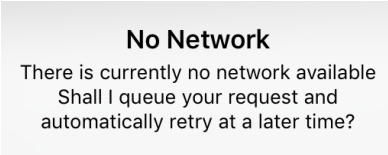
Confirm Patient window



Submitting an ECG to VetMedStat

1. To locate a previously recorded ECG, tap **ECGs** at the top right of the CardioPet app main screen.
2. Tap the desired ECG in the Recent ECGs list, and then tap **Close**.
3. When the desired ECG is visible on the screen, tap **Start a Telemedicine Case** at the bottom right side of the app.
4. In the Upload window, select one of the following:
   - **Finish Now**: To open vetmedstat.com, where you can complete the case immediately. See "Completing the case on vetmedstat.com"
   - **Finish Later**: To upload the ECG without opening vetmedstat.com. You must log on to vetmedstat.com later to complete the case. Use this option if there is a case already started with other image files. See *Submitting cases with multiple modalities* on vetmedstat.com/cardiopet.
   - **Cancel**: Closes the window.

TIP: If there is no internet connection available when you tap an Upload option, a No Network error message opens. Tap OK to queue the request for automatic retry at a later time.



CardioPet iOS App

User Guide

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Minimum requirements

IMPORTANT: This section applies only to systems that are not integrated with the IDEXX-PACS* Imaging Software or IDEXX Web PACS* software. Contact IDEXX Telemedicine Consultants at 1-800-726-1212 for additional information about integration.

- The CardioPet* ECG Device must be **model 04** or later.
- An internet connection is needed for installing the app, uploading an ECG file from the CardioPet* iOS App to vetmedstat.com, and submitting a case directly on vetmedstat.com from the iOS* device.
- To download the CardioPet app from the App Store*, an Apple* ID is required.
- Your Apple* iPad* must have iOS* 11 or later.
- **IMPORTANT:** Although the CardioPet app should be compatible with iPad devices, **we cannot guarantee compatibility with every iOS device.** Contact IDEXX Telemedicine Consultants to validate compatibility.

Use the following resources to help identify your iPad model: Apple* support or the Apple* check-coverage page (checkcoverage.apple.com/)

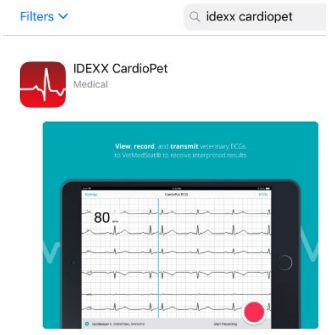
Note: The CardioPet software cannot be used with an iPhone*.

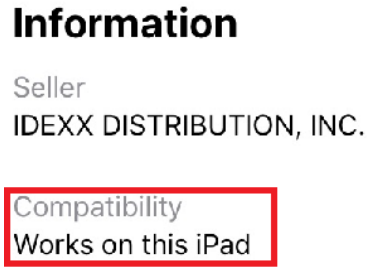
Checking compatibility

There are two ways to check whether the CardioPet app will work on your iPad:

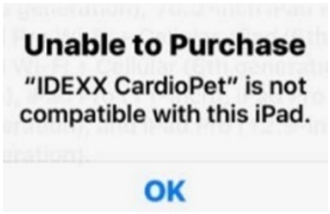
- Refer to the CardioPet app Information box. It should say “Works on this iPad**.”**

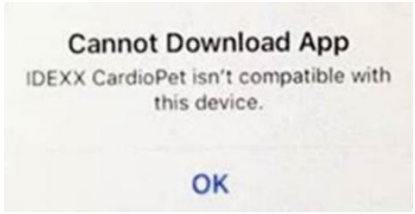
  To view the Information box: Open the App Store on the iPad and search for **IDEXX CardioPet.** Tap on the app and scroll to **Information** to view compatibility.





- Try to download the CardioPet app from the App Store. If the iPad and iOS versions are **not** compatible with the app, the app will not download successfully, and you may see error messages like these:

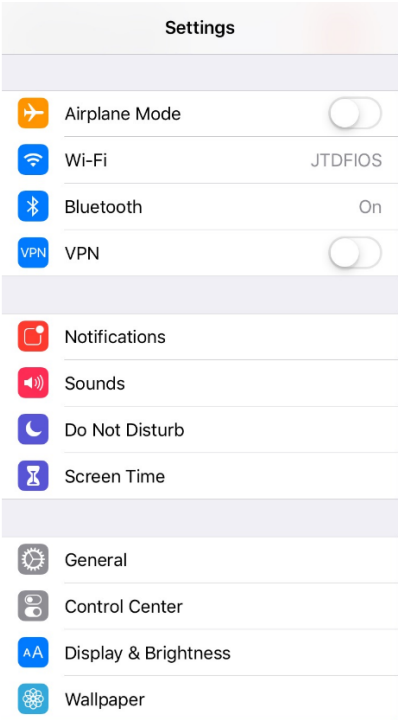




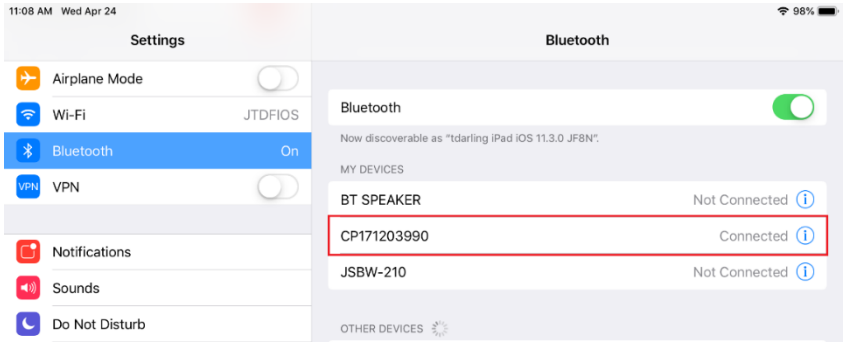
Configuring general iPad settings

IMPORTANT: If the iPad is new, first follow the instructions that came with the device to complete its initial setup, and then proceed with the steps below.

1. To access the iPad settings, tap **Settings** on the tablet screen.



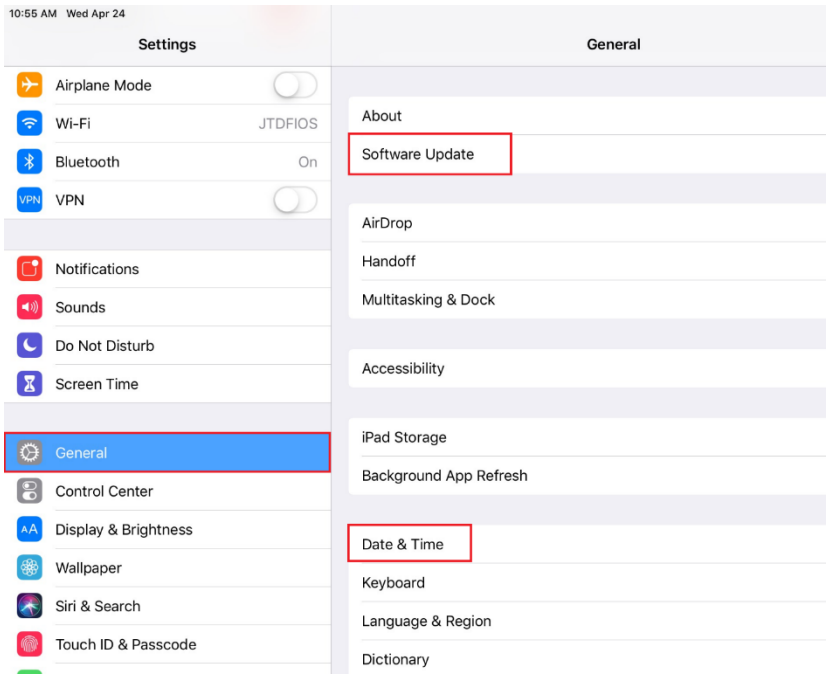
2. In the Wi-Fi setting, verify that Wi-Fi is enabled and connected to a strong internet signal.
   An internet connection is needed for installing the CardioPet app, uploading an ECG file from the CardioPet app to vetmedstat.com, and submitting a case to vetmedstat.com directly from the iOS* device.
3. Connect Bluetooth* to the CardioPet ECG device as follows:
   a. Turn on the CardioPet* ECG Device.
   b. In the iPad Settings, tap **Bluetooth** and ensure it is set to On.
   c. Select the device name that starts with the letters **CP**.



   d. Once the CP device appears under **My Devices**, turn off the CardioPet device by holding down the power button for about 5 seconds.

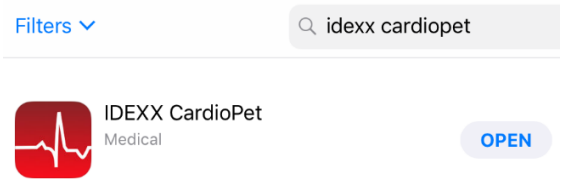
Important: If the CardioPet device will be paired with multiple devices, then Bluetooth should be disabled (turned off) on any iPad **not** currently being used with the CardioPet device. The CardioPet device can be used with only **one** Bluetooth-enabled device at a time.

4. Specify general settings
   a. **Software Update**: Check to see whether a software update is available; if it is, install it now. Updates often include important defect corrections and enhancements. Not having the most current iOS version may affect your CardioPet user experience.
   b. **Date & Time**: Confirm that the date, time, and time zone are set accurately for your location.



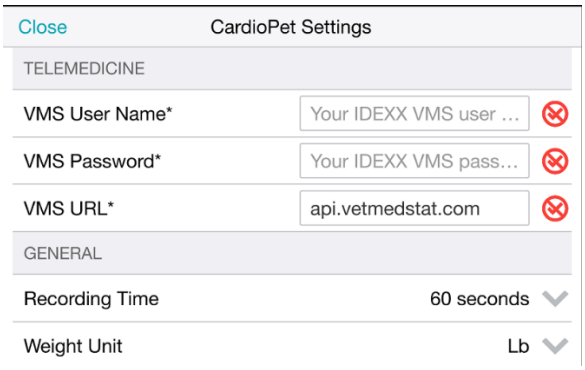
Installing the CardioPet app and configuring app settings

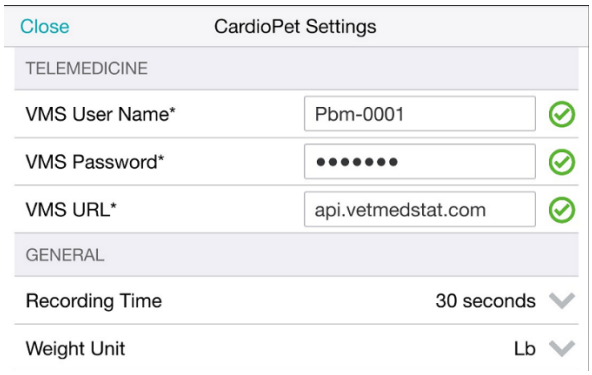
1. Open the App Store on the iPad, and search for **IDEXX CardioPet**.
2. Select the **CardioPet** app in the search results, and then tap **GET**.
3. When the installation is complete, tap **OPEN**.



4. Tap **Accept** to accept the Terms of Service and Privacy Policy.
5. Tap **Settings** at the top left side of the IDEXX CardioPet app.
6. Tap in each of the following fields, and then update the information as needed:
   - Telemedicine
     - VMS User Name and VMS Password: Enter your practice's VetMedStat* account information. The account name is three letters followed by four numbers. The password is case sensitive. For assistance, email teledmedicinesupport@idexx.com or call 1-800-726-1212.
     - VMS URL: api.vetmedstat.com (leave as is; do not change)
   - General Recording
     - Time: Select the recording duration you prefer (30 or 60 seconds).
     - Weight Unit: Select the weight units you prefer (Kg or Lb).
   - Quality Indicator Species Selection: Select Always Ask Species unless all ECGs will be performed on just one of the listed species. This feature will prompt a request for species prior to each ECG, which allows CardioPet the best ECG recording possible.

Note: Red checkmarks turn green if the iPad is connected to the internet and the VMS user name and password are entered correctly.



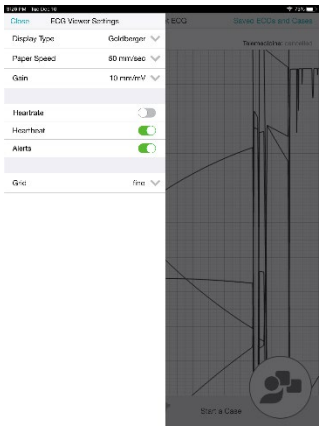


7. Tap **Close** at the top left side to exit Settings.

   Note: In Settings, you can go to **About** to find the CardioPet version, Terms of Use, and Privacy Policy.

Configuring ECG viewer settings

1. To access the ECG Viewer Settings screen, tap **Settings** at the bottom left side of the CardioPet app. These settings relate specifically to how the ECG is viewed on the iPad screen and do not impact the saved ECG file.



2. Set the following items to your viewing preferences:
   - **Display Type**: Single Lead, Einthoven (3 leads), or Goldberger (6 leads)
   - **Paper Speed**: Scroll to see all speed options and select the desired setting (50mm/sec is recommended).
   - **Gain**: 2.5 mm/mV, 5 mm/mV, 10 mm/mV (recommended)
   - **Heartrate:** When this feature is turned on, the CardioPet app shows a calculation of the patient's heart rate in the top left corner of the app.
   - **Heartbeat**: When this feature is turned on, the CardioPet app makes an audible beep to the rhythm of the heart rate.
   - **Alerts**: When this feature is turned on, the CardioPet app will provide alerts.
   - **Grid**: Choose between fine, medium, course, or no gridlines behind the ECG tracing in the app.
3. Tap **Close** at the top left side of the screen.

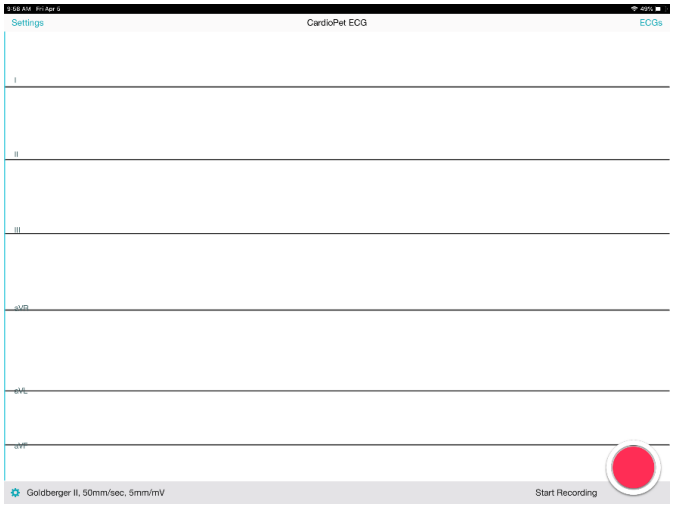
Working with ECGs in the CardioPet app

Streaming and recording an ECG

1. Open the CardioPet app on the iPad*.
2. Turn on the CardioPet* device.
   When the wireless communication light turns on, the ECG starts streaming automatically in the CardioPet app. (The iPad Bluetooth* setting must be **On.**)

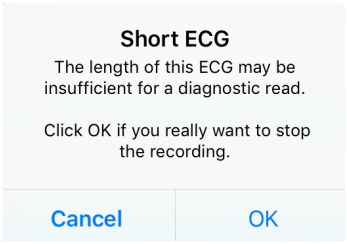
   Note: The first time an iPad is used with the CardioPet device, the device must be paired to Bluetooth on the iPad.
3. If prompted, select the patient's species.
4. Prepare the patient. See "Preparing the Patient" for additional details.
5. When the ECG tracing is diagnostic, tap **Start Recording** at the bottom right of the screen. See "Diagnostic ECG checklist" for more information.

   TIP: You can also lightly depress the power button on the CardioPet device to start recording.



   The live stream and recording stop automatically once the app records the ECG for 30 or 60 seconds (depending on your setting).
6. To turn off the CardioPet device, press and hold the power button for about 5 seconds; the device will also turn off automatically after 5 minutes of inactivity.

   Note: The ECG must be at least 20 seconds long. If the **Recording** icon is tapped while recording is in progress, you may receive a Short ECG warning:



   TIP: To discard a recorded ECG, tap **Delete** in the top right corner of the screen.

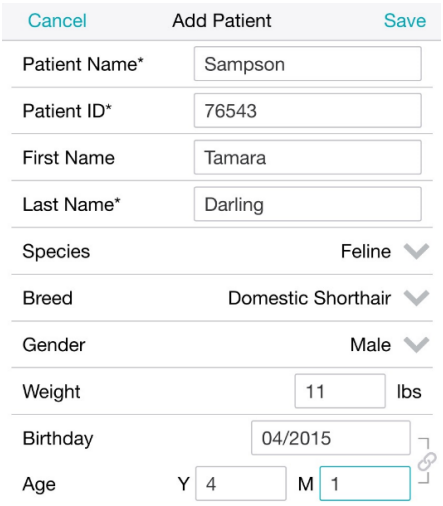
Selecting the patient and saving the ECG

1. At the bottom right side of the CardioPet app, tap **Select Patient & Save** . The Local Patients window opens.
2. Assign the ECG to an existing patient or to a new patient as follows:
   - **Existing patient**: Tap the patient name in the Local Patients list, and tap Save in the Confirm Patient window.
   - **New patient:** Tap at the top right of the Local Patients window and complete all fields.
     TIP: Entering the date of birth in the **Birthday** field calculates the patient age and vice versa.
3. (Optional) To record an additional ECG, tap **Live ECG** in the upper left corner of the screen.

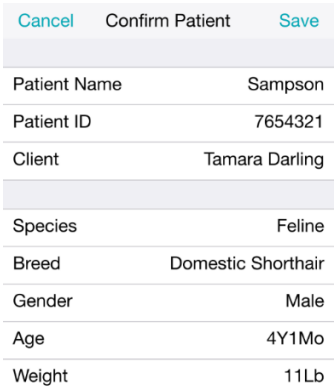
Notes:

- Patient ID must be unique.
- Using the patient ID from your practice management system is recommended. Be sure to check with your practice management system provider to determine whether a patient ID is in use. Settings may need to be configured to display hidden IDs.
- If your practice management system does **not** provide a patient ID, you can add a letter, a number, or the patient's name to the client ID to create a unique patient ID.

Add Patient window



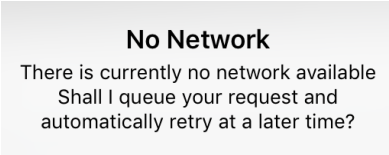
Confirm Patient window



Submitting an ECG to VetMedStat

1. To locate a previously recorded ECG, tap **ECGs** at the top right of the CardioPet app main screen. Tap the desired ECG in the Recent ECGs list, and then tap **Close**.
2. When the desired ECG is visible on the screen, tap Start a Telemedicine Case at the bottom right side of the app.
3. In the Upload window, select one of the following:
   - **Finish Now**: To open vetmedstat.com, where you can complete the case immediately. See "Completing the case on vetmedstat.com"
   - **Finish Later**: To upload the ECG without opening vetmedstat.com. You must log on to vetmedstat.com later to complete the case. Use this option if there is a case already started with other image files. See *Submitting cases with multiple modalities* on vetmedstat.com/cardiopet.
   - **Cancel**: Closes the window.

TIP: If there is no internet connection available when you tap an Upload option, a No Network error message opens. Tap OK to queue the request for automatic retry at a later time.



Integrating the CardioPet App with IDEXX Web PACS or IDEXX-PACS

User Guide

Integrating the CardioPet app with IDEXX Web PACS or IDEXX-PACS Imaging Software

Integrating a CardioPet app with IDEXX Web PACS* or the IDEXX-PACS* Imaging Software lets you keep ECGs, radiographs, and other digital images together in the same patient record in IDEXX-PACS. You can then submit the images to IDEXX Telemedicine Consultants (vetmedstat*) as a single case.

Integration requirements:

- A CardioPet app installed on an eligible Windows* PC, Android* mobile device, or iPad* tablet
- IDEXX-PACS software version 4.2.1 or later, and/or an IDEXX Web PACS subscription.

Contact IDEXX Telemedicine Consultants at 1-800-726-1212 for additional information and/or to schedule a remote session with a representative who will help you set up the integration.

Sending ECGs to IDEXX Web PACS or IDEXX-PACS software

For instructions on sending ECGs, please refer to the document provided to you during integration setup.

Submitting a case from within the IDEXX Web PACS or IDEXX-PACS software

Refer to your IDEXX Web PACS or IDEXX-PACS online help for instructions on submitting cases to IDEXX Telemedicine Consultants (vetmedstat.com) from within the IDEXX-PACS software. You can include radiographs, ultrasounds, and ECGs in a single submission.

IMPORTANT: For cardiology services, send only cardiac-specific images. If you include images for other areas of study, you must also select an applicable **Radiology** or **Dental** service. You can select multiple services for the same case, but each report will incur a separate charge.

ECG Quality and Troubleshooting

User Guide

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Examples of diagnostic ECGs

Diagnostic canine ECG

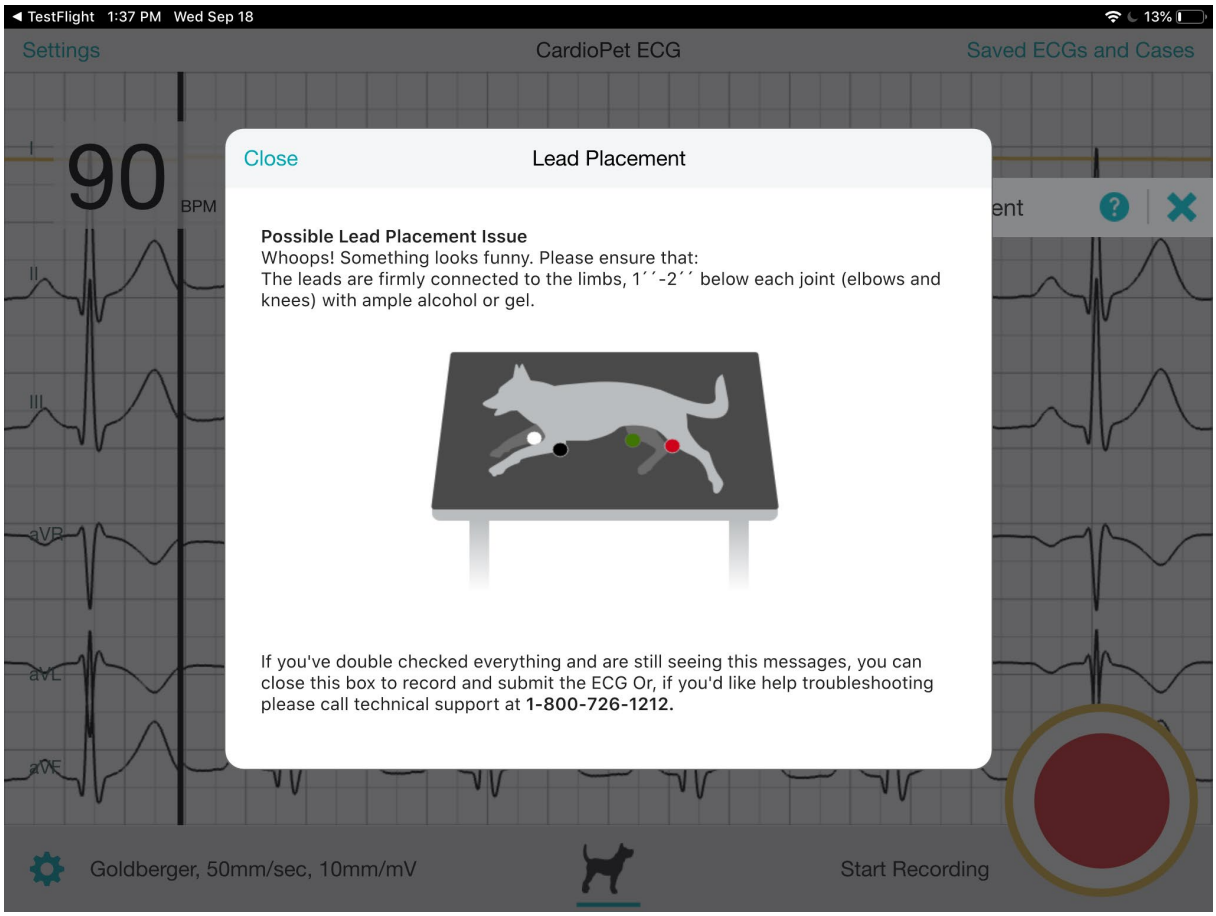
Diagnostic feline ECG

ECG Quality Indicator tool

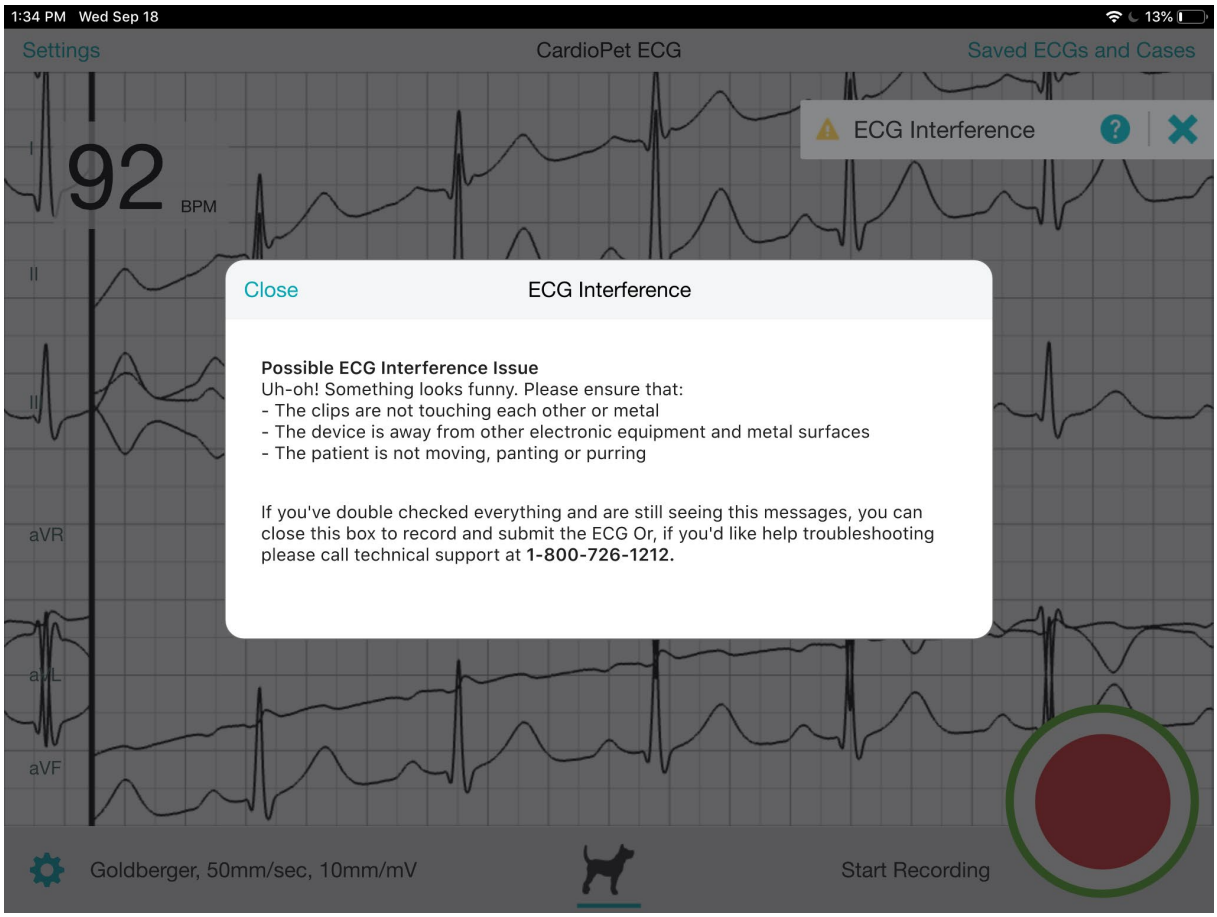
The newest versions of the CardioPet* software/app include an ECG Quality Indicator tool, which provides real-time feedback on ECG quality and lead placement. The Quality Indicator will change the color of any potentially affected leads to yellow and will provide additional troubleshooting information.

If you have completed all troubleshooting and continue to receive the Quality Indicator error, you may close the alert and continue recording.

For more troubleshooting information, review the following:



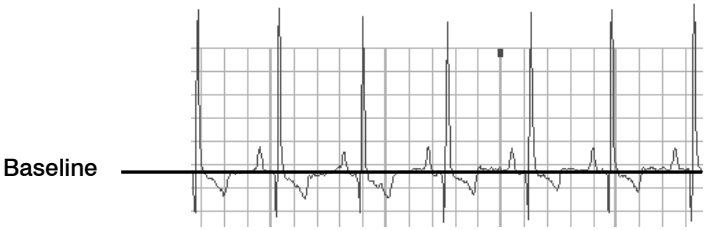
ECG Interference


1:34 PM Wed Sep 18
13%
Settings
CardioPet ECG
Saved ECGs and Cases
92
BPM
ECG Interference
Close
ECG Interference
Possible ECG Interference Issue
Uh-oh! Something looks funny. Please ensure that:
- The clips are not touching each other or metal
- The device is away from other electronic equipment and metal surfaces
- The patient is not moving, panting or purring
If you've double checked everything and are still seeing this messages, you can close this box to record and submit the ECG Or, if you'd like help troubleshooting please call technical support at 1-800-726-1212.
I
II
III
aVR
aVL
aVF
Goldberger, 50mm/sec, 10mm/mV
Start Recording

Diagnostic ECG checklist

It is important that tracings submitted to our cardiology team are diagnostic. This means that:

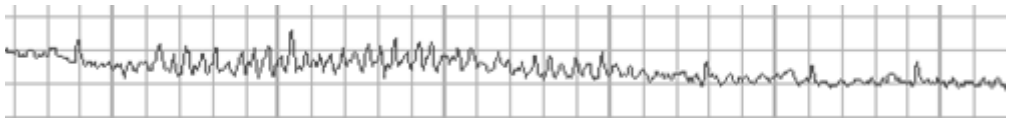
- The P-waves are visible and distinct from motion artifact in lead II. The P-wave may be very small or invisible on leads I and III, especially in feline ECGs.
- The P-wave (if visible):
  - is positive (points upward) in leads I, II, and III.
  - is negative (points downward) in lead AVR.
  - may be either positive or negative in leads AVL and AVF.
- The ECG baseline is generally level.



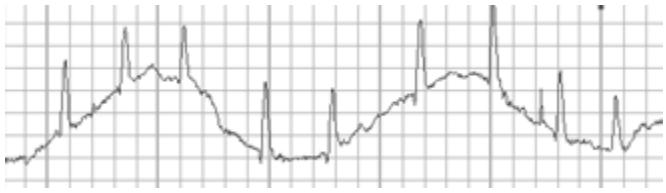
Troubleshooting ECGs

Indistinct P-waves and movement artifact

P-waves may be “washed out” by artifacts caused by panting, shaking, and vocalizing.



Feline ECG with indistinct P-waves caused by purring



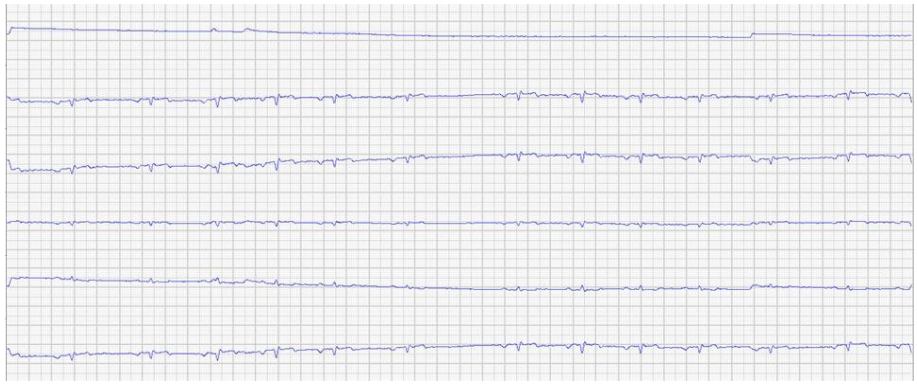
Canine ECG with respiratory (panting) artifact

To reduce movement artifact:

- Move clips below the knees and elbows.
- Distract the patient by tapping gently on the nose or offering them a treat out of a closed hand.
- Apply gentle pressure to the chest and/or legs.
- Reposition the patient (if patient is standing, place in right-lateral position, or the reverse).
- Record a chest lead to distinguish P-waves from movement artifacts.

Flat lines or indistinct complexes

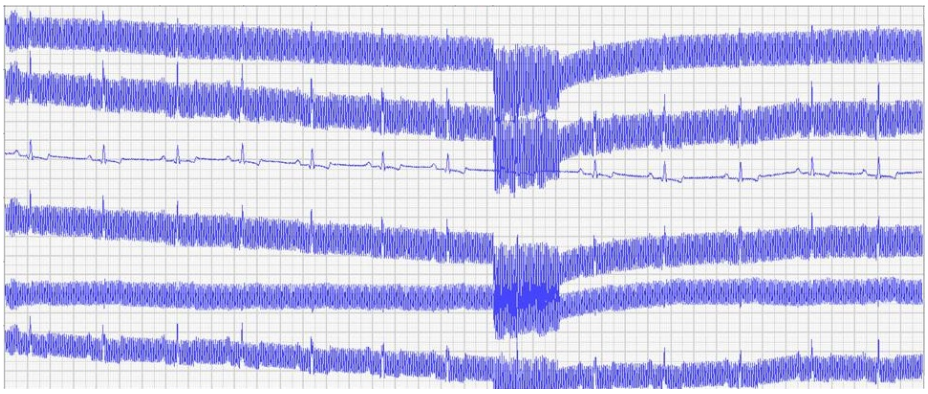
Make sure clips have sufficient skin contact and alcohol saturation for conduction.



Flat lines and indistinct complexes

Blurry lines

Make sure clips are secure and have sufficient alcohol saturation for conduction.



Blurry lines

Small or absent P-waves

Record a chest lead if P-waves are small, inconsistent, or absent. See “Positioning clips for a chest lead,” for more information.

Inverted P-waves

If the P-wave is not positive in leads I, II, and III, or negative in lead AVR, ensure the leads are correctly plugged into the CardioPet* ECG Device and the clips are attached to the correct legs. See “Connecting the batteries and cables” and “Preparing the patient” for more information.

Vertical red bar in the ECG tracing

A vertical red bar in the ECG tracing indicates a data integrity error. For example, the patient may be out of the device’s transmission range. Try moving the device closer. Remove any obstacles between the device and the software.

Crowded or overlapping complexes

Gain may be too high or feed too slow. Try a gain of 10 mm/mV and a feed of 50 mm/s. See “Adjusting the ECG stream” in the section for the computer or tablet you are using.

ECG tracing is not visible in the software

Windows PC:

- Check that the wireless communication light is illuminated on the CardioPet ECG Device. If it is not, try restarting the device.
- In Bluetooth* settings, remove the CardioPet ECG Device and then add it again. The pairing code is 3001.
- Make sure the correct serial number is in the CardioPet software (**Settings > ECG Options**).
- Restart the computer.
- If necessary, uninstall and reinstall the CardioPet software.

Android or IOS device:

- Try enabling the connection to the CardioPet ECG device again. Refer to the instructions in the section for your tablet type.

Additional troubleshooting tips

Case is not visible in vetmedstat.com

If the case was uploaded from a Windows* PC:

- In the CardioPet software, select **Settings > ECG Options**. Under **VetMedStat Account,** verify that the VetMedStat* user name and password are correct.
- Verify that your PC has an Internet connection.

If the case was uploaded from an Android* or iOS* device:

- Hold down the ***Menu button**, and then tap **Settings** . Verify that the VetMedStat account number and password are correct and that the domain is **api.vetmedstat.com**.
- Verify that the device is connected to a Wi-Fi network with internet access.

If you need help…

If you need help installing or using the CardioPet software, CardioPet app, or the CardioPet ECG Device:

- Contact IDEXX Telemedicine Consultants at **1-800-726-1212**.
- Visit vetmedstat.com/cardiopet.
- Email telemedicinesupport@idexx.com.

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