Ballistic

#1 Ballistics app for iPhone, iPad, & iPod Touch

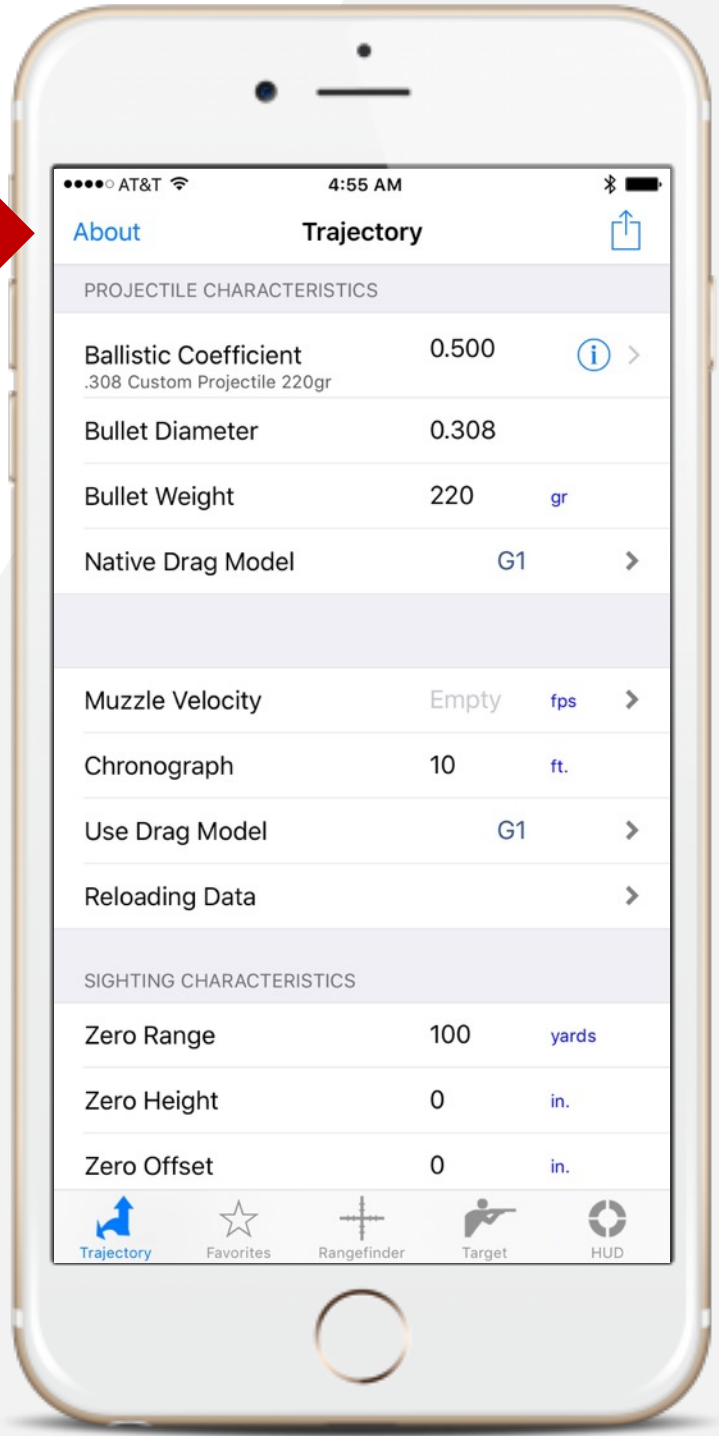
Understanding the Basics

Start-Up or Main Screen

When you open Ballistic AE, the app defaults to the **Trajectory** screen, this is your main screen. (Unless you change the default in settings.)

From here you can navigate to all the different areas in the app, make and save changes based on your ballistic preferences.

- Let's start by clicking the "**About**" link at the top left. This will take us in to the area where you can set several default functions and measurements of your choice. This is also an area where you can find answers to many common questions and help videos.

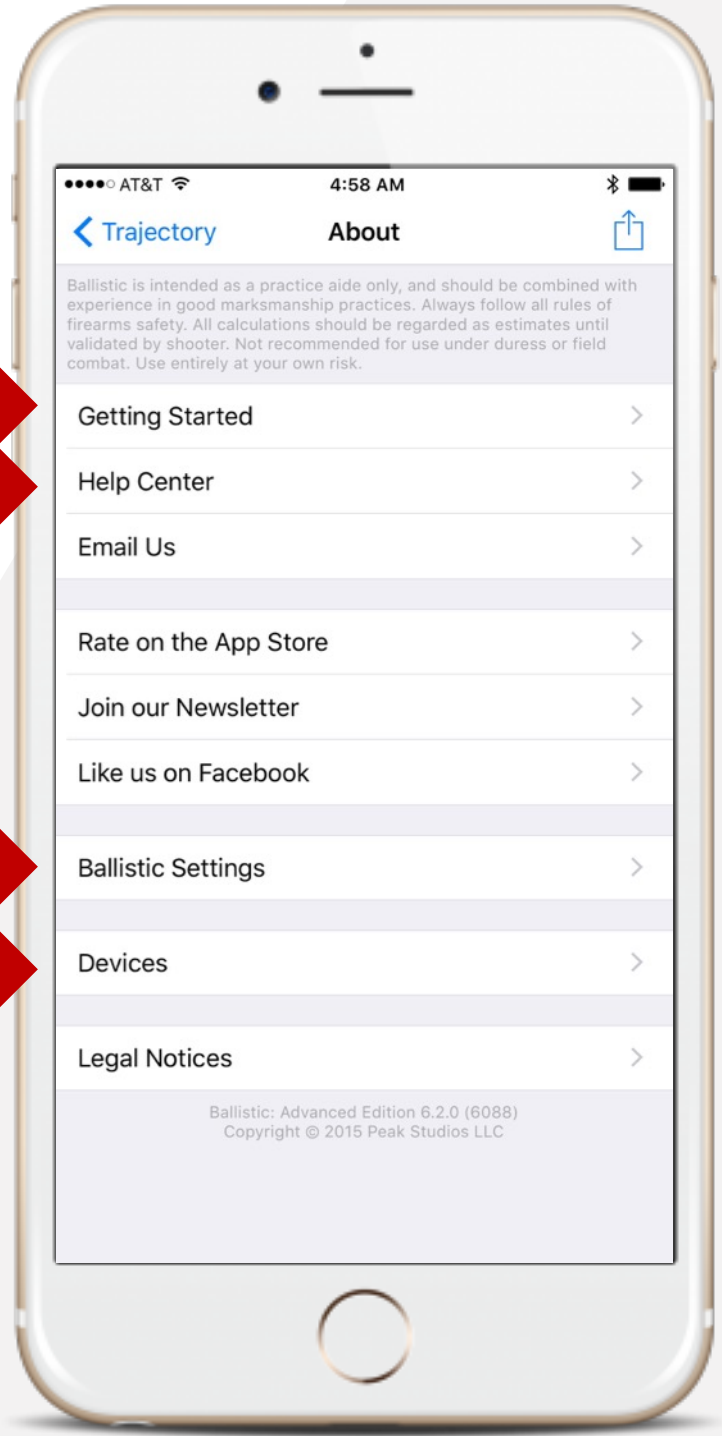


About Page

Let’s look at a few of these commonly used options the app offers.

- **Getting Started**: Here you will find a library of videos to help you better understand how to operate the app and understand the many functions it provides.
- **Help Center**: This section has answers to commonly asked questions.
- **Ballistic Settings**: This is the area where you can customize the ballistic settings. In settings you will find, General settings, General Behavior, Units of Measurement, Trajectory, 3D Trajectory Imaging, Wind Instrumentation, Reloading, Target Log, Charts, Heads Up Display and Core Location.
- **Devices**: This allows you to connect with Kestrel Drop or K5 series devices.

Let’s click back to “**Trajectory**”, at the top to continue.



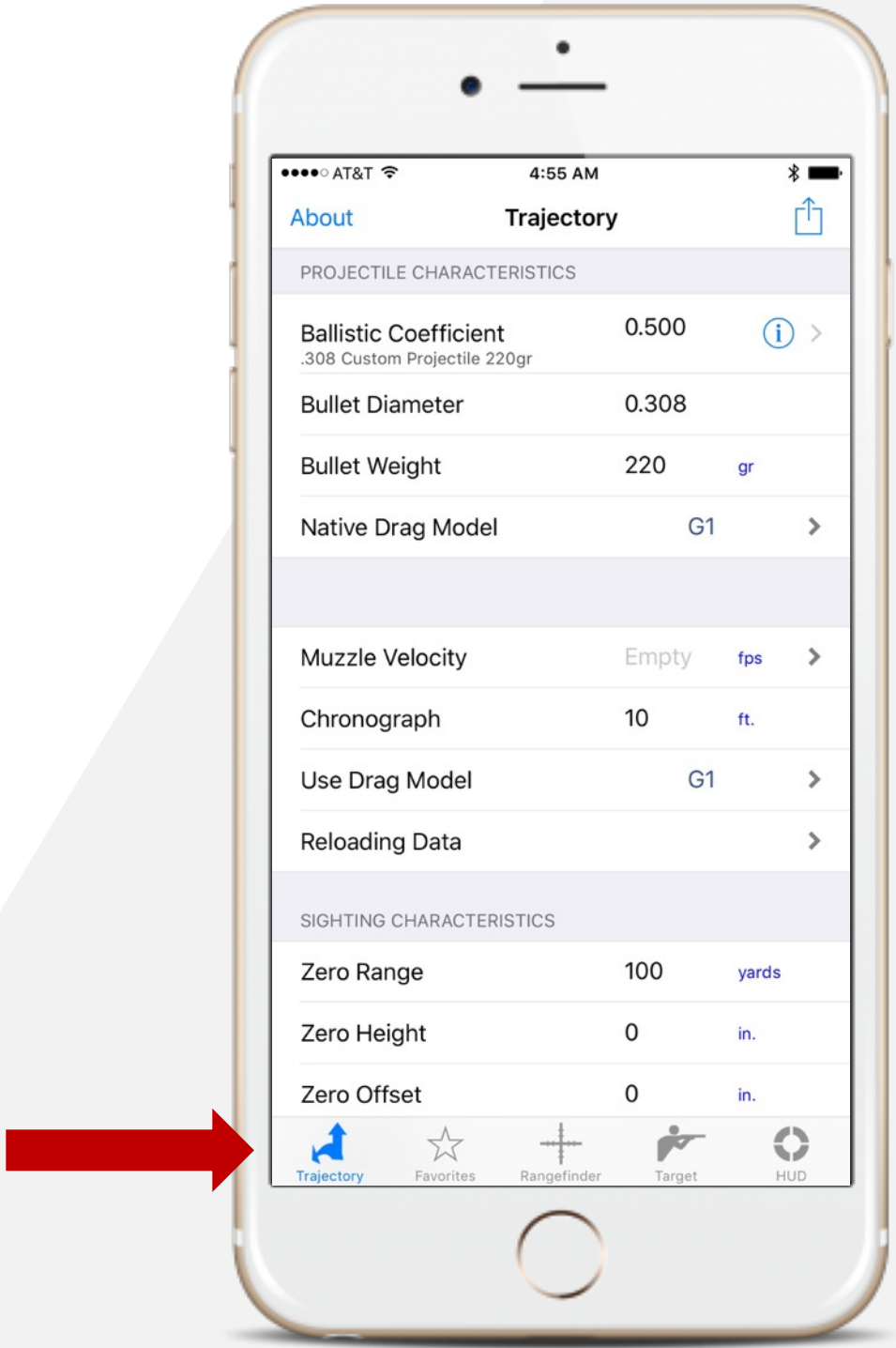
Bottom Menu

Across the bottom of the app, you will find 5 options.

- **Trajectory** – This is where all the ballistic data is entered.
- **Favorites** – Save your favorite hand loads or factory loads.
- **Rangefinder** – Upload a scope reticle and use it to range distance.
- **Target** – Load a target and measure shot groups.
- **HUD** – (Heads Up Display) A quick reference for calculating shots over distance.

Trajectory is the main screen where ballistic data is input or loads are selected to calculate trajectory.

Let's begin!!!

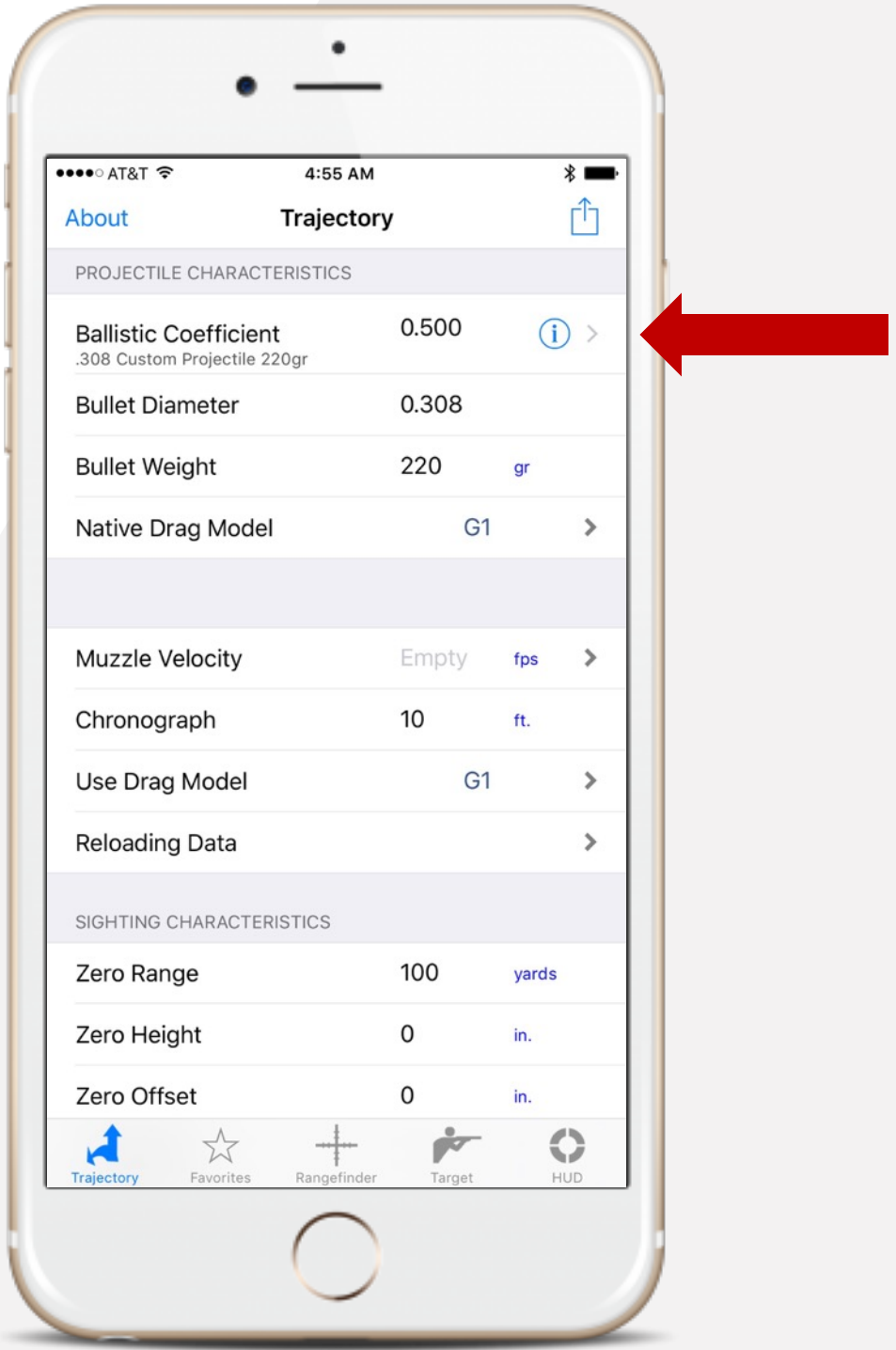


Projectile Selection and Characteristics

Start by clicking the blue icon "ⓘ" in the upper right.

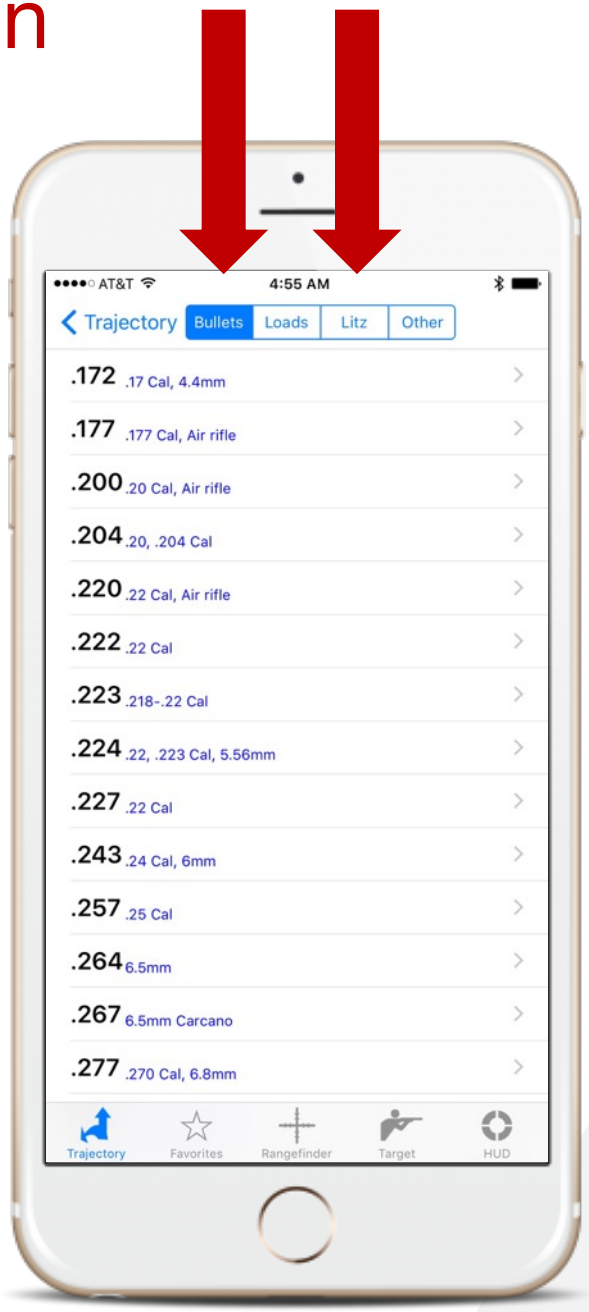
This will bring us to the screen where we are able to select a Factory load, or enter in some of the data to create our own bullets ballistic, let's take a closer look.

Ballistic: Advanced Edition has over 5,200 bullets and loads in its proprietary library.

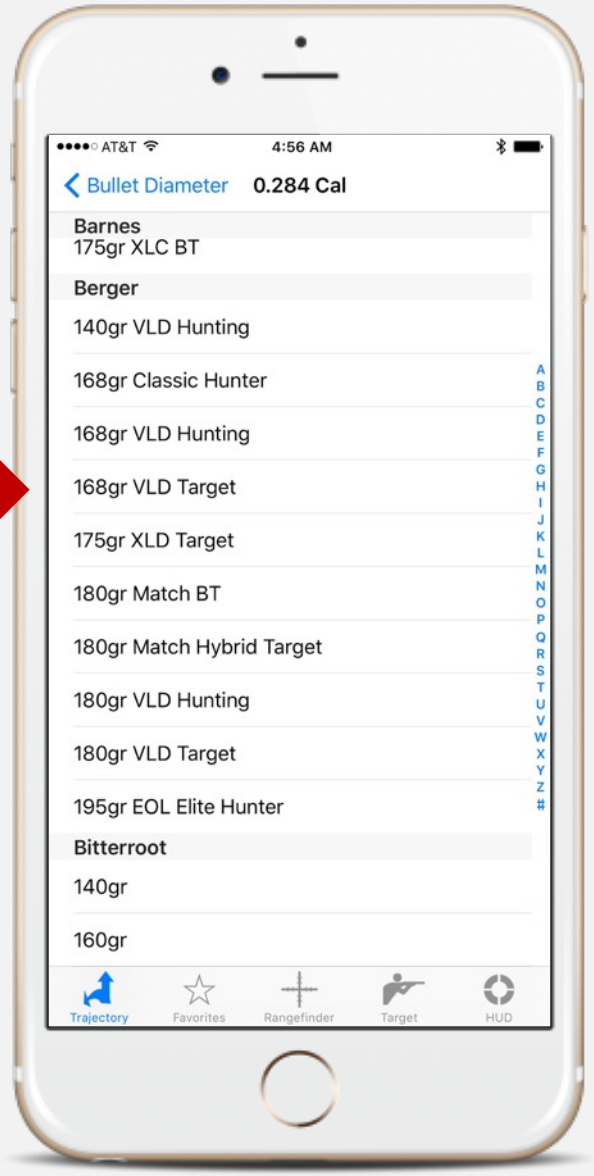


Bullet Selection

If you are reloading, this is where you make the selection of the caliber you are shooting. You can choose from **Bullets** (G1) or **Litz** (G7).

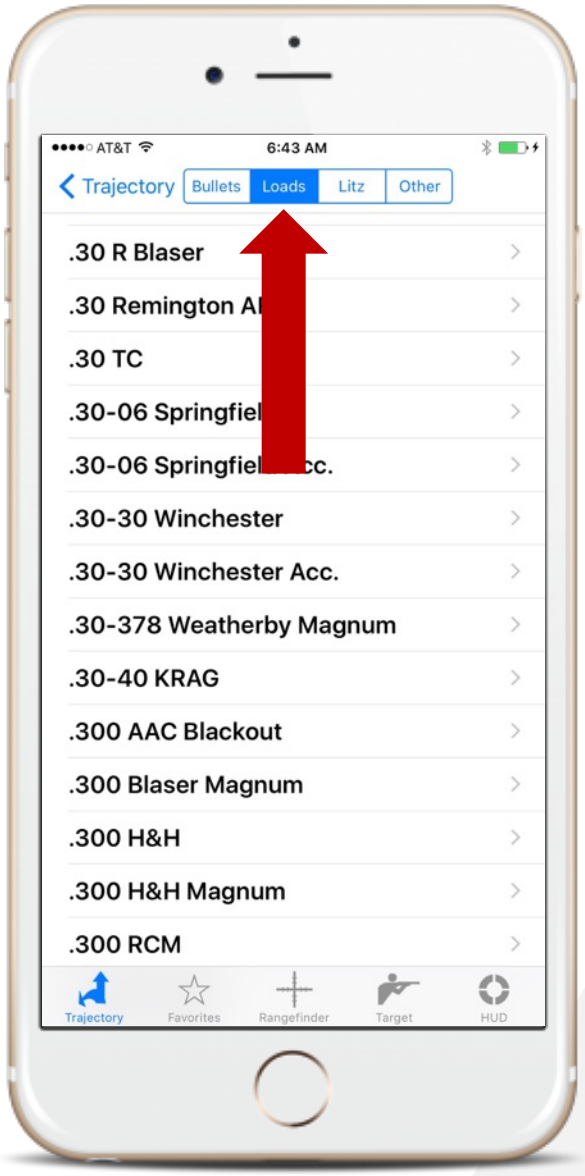


Once you have selected the caliber, you will now have the option to select a specific bullet from the library.

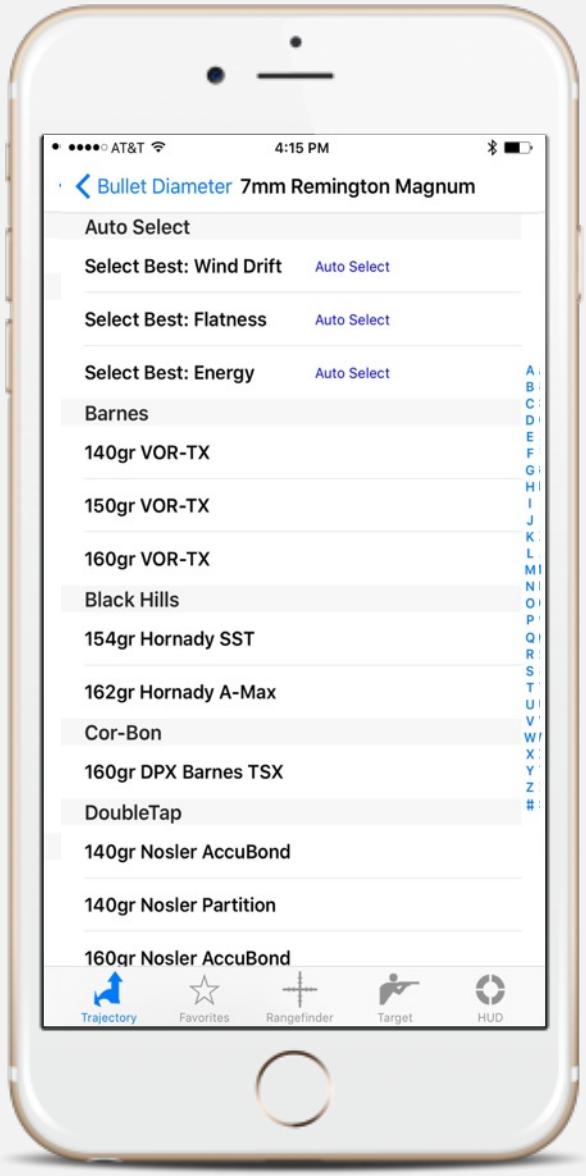


Choosing a Factory Load

To select a Factory load, start by clicking the **Loads** icon and then choose the appropriate cartridge.



You can now select a load you are using, or choose a load based on **Wind Drift**, **Flatness** or **Energy**.



Entering Data for a Selected Bullet

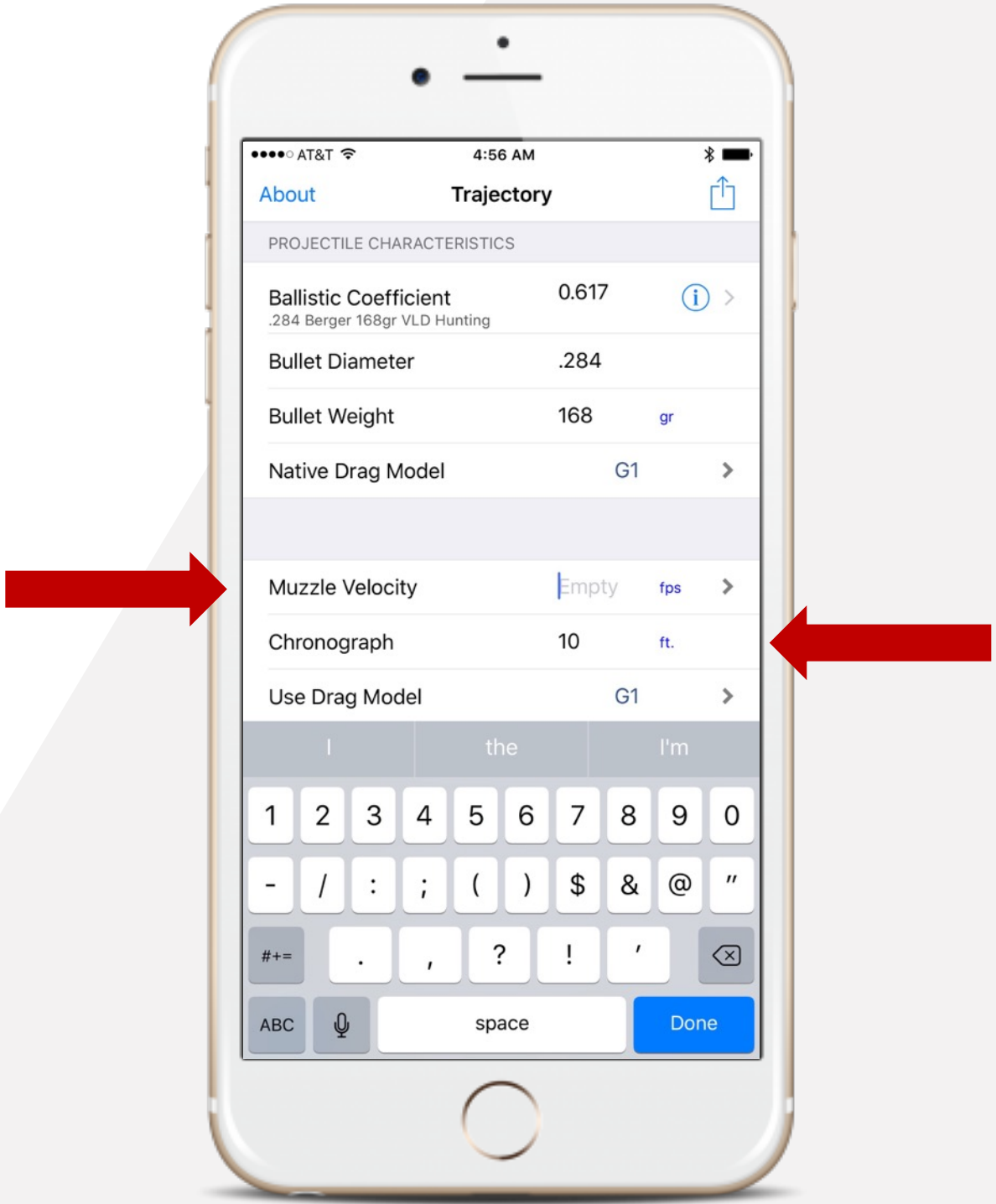
In this example, we have selected the

.284 Berger 168gr VLD Hunting bullet. The data is loaded in from the library. Now all we need to do is give the app a little more information to calculate the ballistics based on some factors.

First, we must enter in the **Muzzle Velocity**. This is critical information and the app must have it to accurately calculate the ballistic trajectory data.

Second, It's also important to set the **Chronograph Distance** correctly. This is the measurement from the muzzle to the chronograph.

NOTE: the "**Use Drag Model**" should be left alone at this point.



Sighting Characteristics

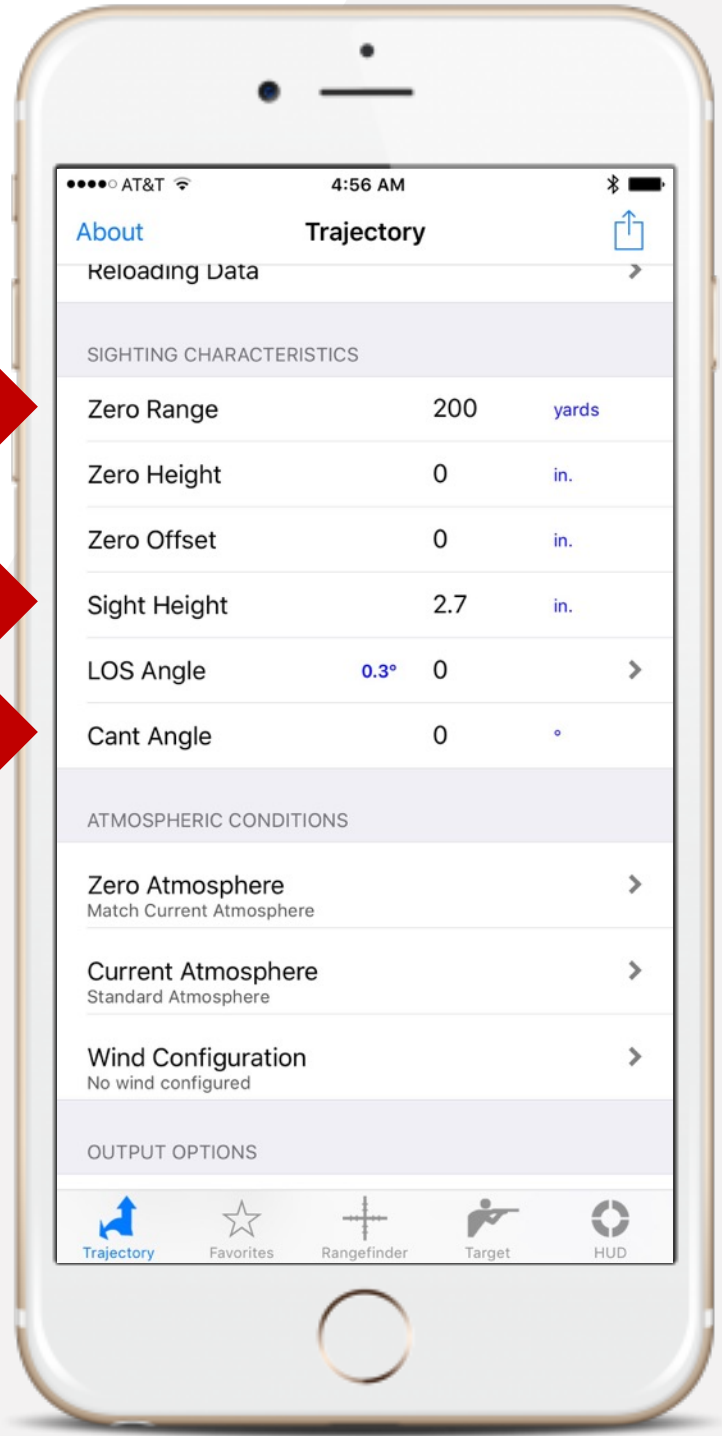
Zero Range: In this example we have selected 200 yards as zero. At 200 yards, the bullet will impact the bulls eye of the target.

Sight Height: The measurement from the centerline bore of the rifle to the centerline of the scope.

If the bullet impacts high or off center by 1” at 200 yds, you can add the measurement in to Zero Height/Offset if you choose. During this introduction, we will leave these both at Zero.

LOS Angle: This stands for Line-Of-Sight. This will allow the app to calculate the angle of the shot, up hill, down hill or flat. You can change LOS by holding the phone on the barrel once centered on target and lock it in.

Cant Angle: Used when the rifle is at a side angle Left/Right. The app will calculate the angle you enter in to the final trajectory data sheet.



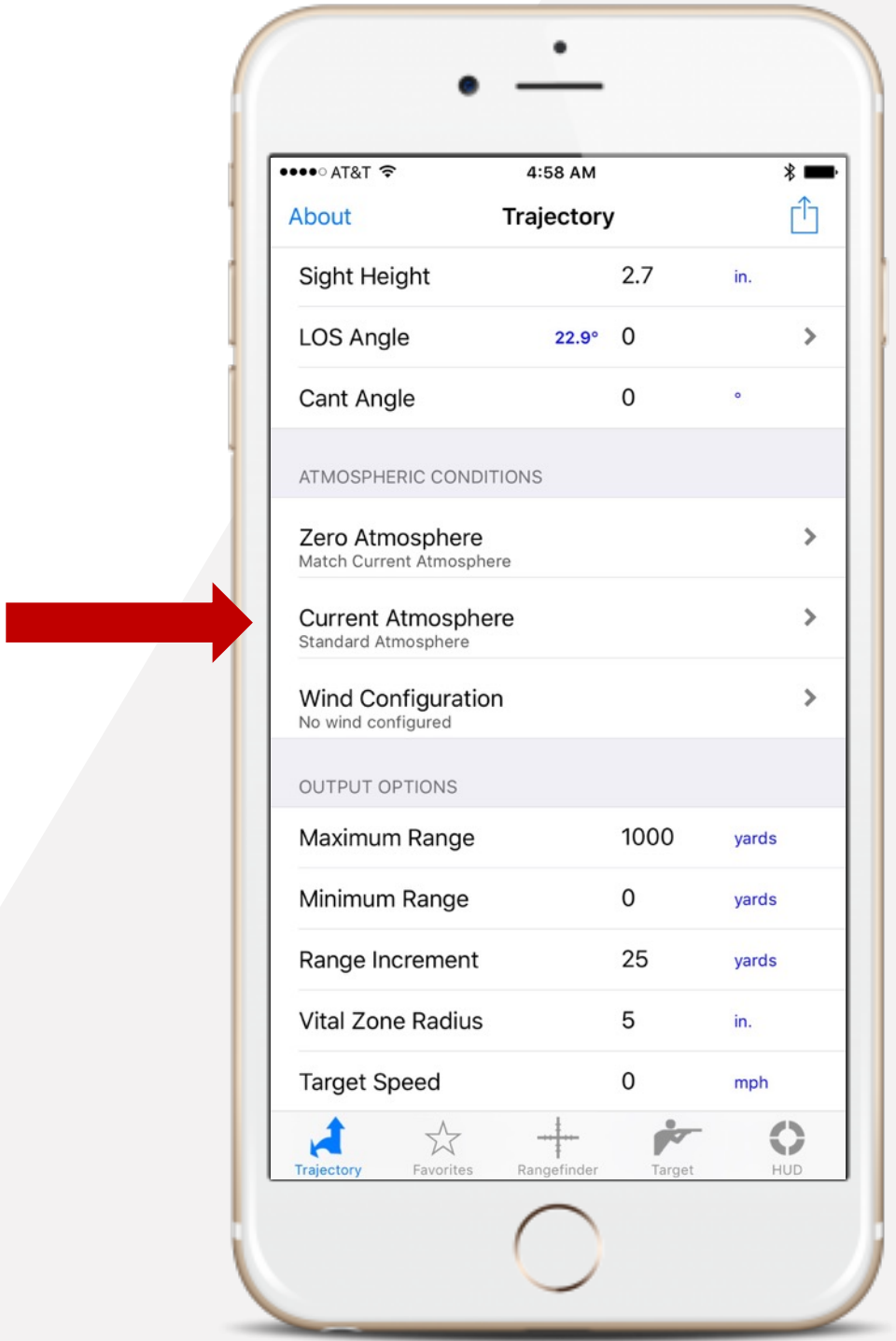
Atmospheric Conditions

This section allows the user to select from **Zero Atmosphere** or **Current Atmosphere**. This is where you will also be able to input wind and updraft data.

Zero Atmosphere is used to tell the ballistics app what the weather (Atmospheric) conditions are during initial sight-in of a selected load.

Current Atmosphere is used to tell the ballistic app what the atmospheric conditions are in real time in relation to what the **Zeroed** conditions were.

Let's first start by clicking on "**Current Atmosphere"**.

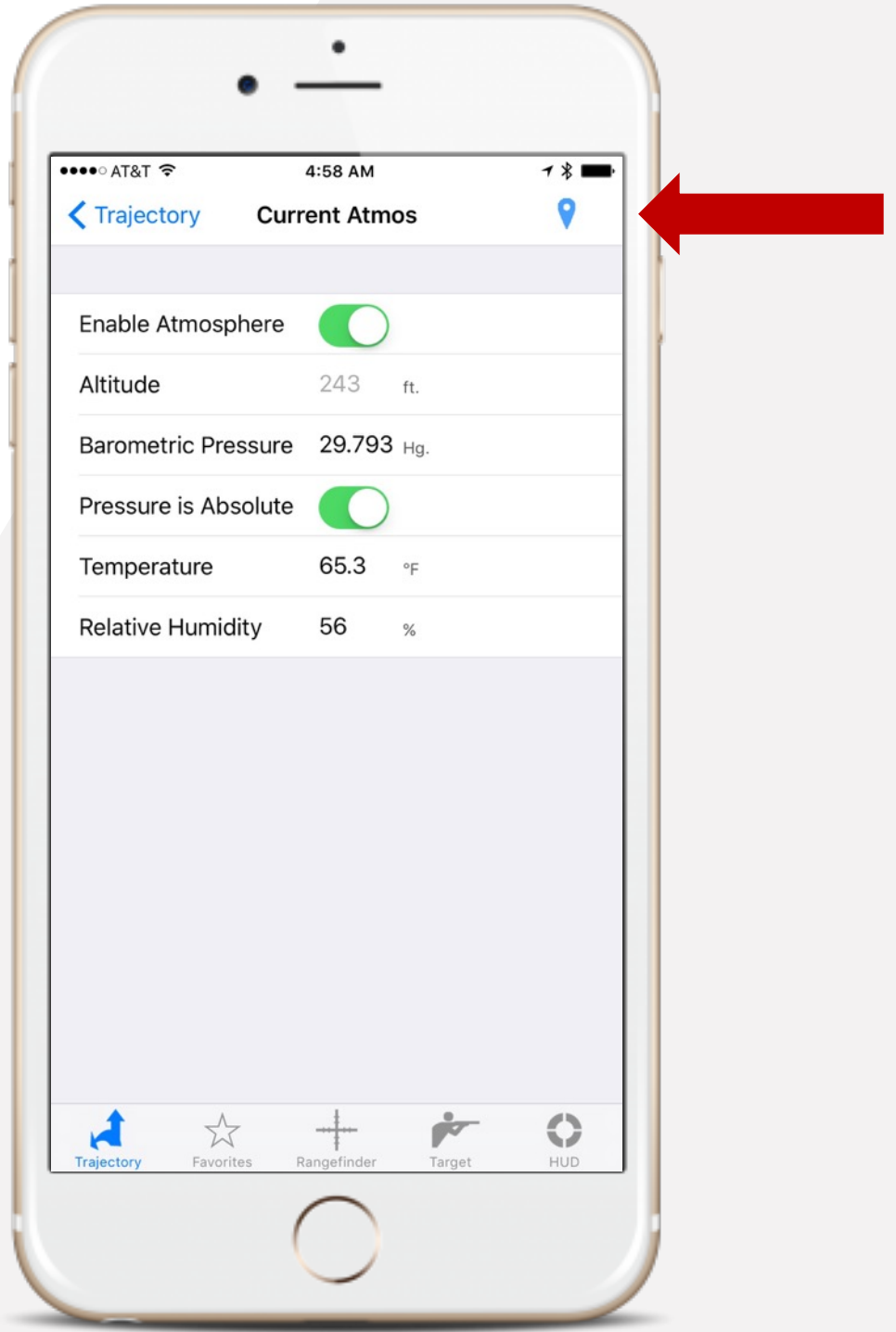


Current Atmosphere

When you select the **Current Atmosphere**, the app can load all the data from the nearest weather station by clicking on in the upper right corner. This is also true in Zero Atmosphere.

You have two other options here. You can manually enter in the data, or connect to Kestrel and the data will load based on the readings it has calculated.

Let's click back to "**Trajectory**", at the top to continue.



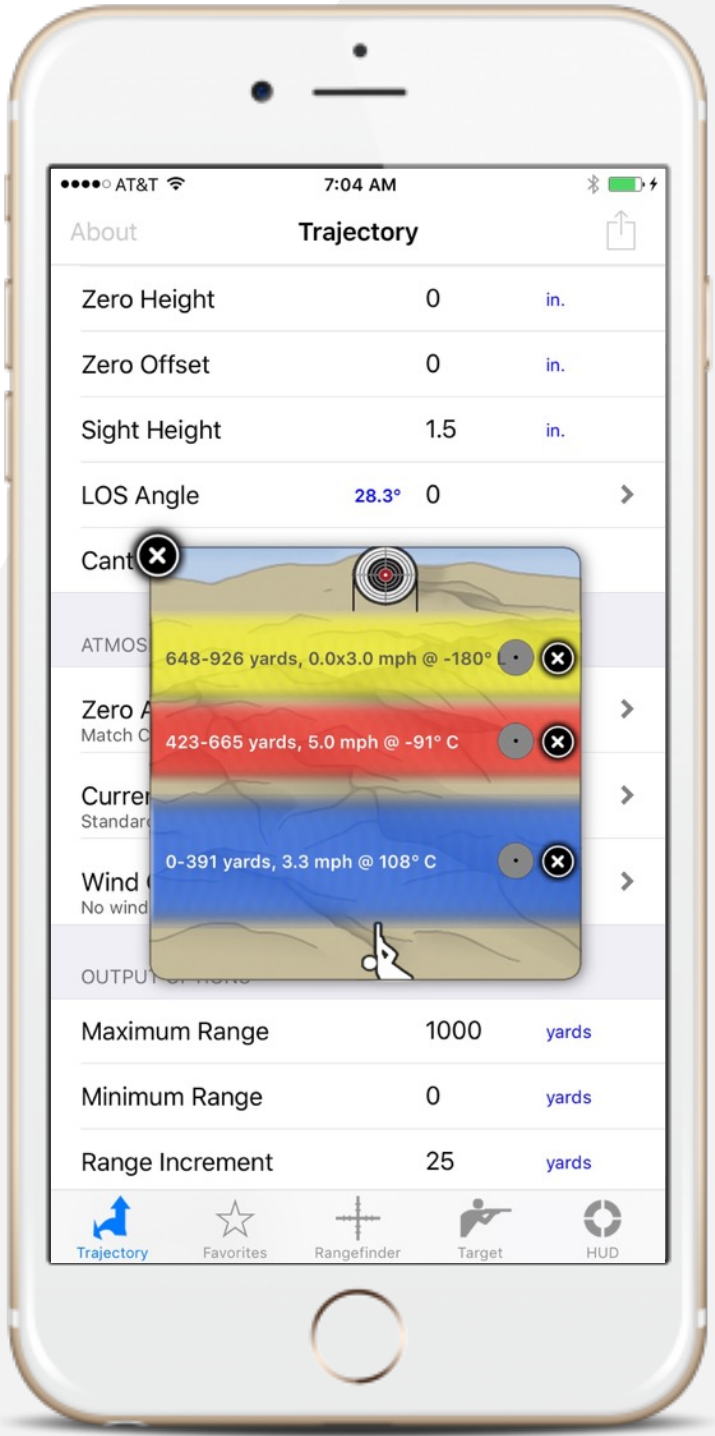
Wind Configuration

When setting up wind values in the app, it's important to know that several entries can be made. Many times when shooting long range or across a canyon the wind can be very different in several locations.

- **Add Wind** by clicking anywhere in the wind chart at one or more locations
- To change the **Yardage** for each of the wind values, pinch or spread the colored line with 2 fingers to the desired yardage.
- Change the **Value** at each location by clicking the grey button.

In this screen shot we have given the app 3 wind values to work with. Right/Left wind blue, Left/Right wind red and the yellow Updraft

Let's look at the information you can work with when the Grey icon is clicked.



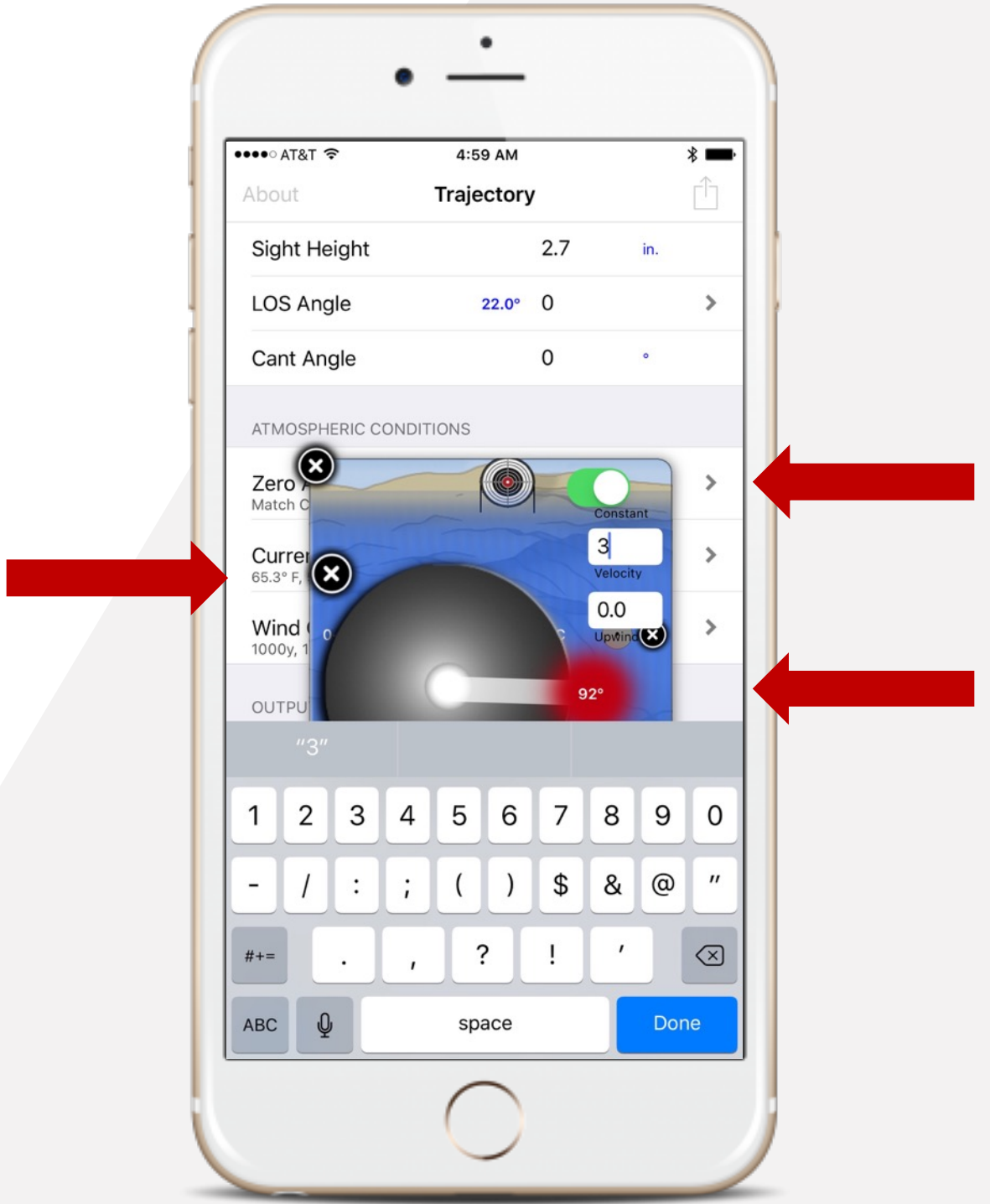
Wind Configuration

Now we have the option of adding in a **Wind Value**.

- **Wind Direction**, you can tell the app what direction the wind is coming from by placing a finger on the red indicator and moving it to the proper location that best represents the wind.
- The wind can be **variable** or **constant**, make this selection from the Constant switch in the wind screen. It will turn green indicating a constant wind value.
- **Speed**, we now need to tell the app how fast the wind is blowing, here we have selected 3mph and constant in the velocity section.

When all of the desired selections are made, click on the "**X**" top left and the app will bring all the data in to calculation back on the trajectory screen.

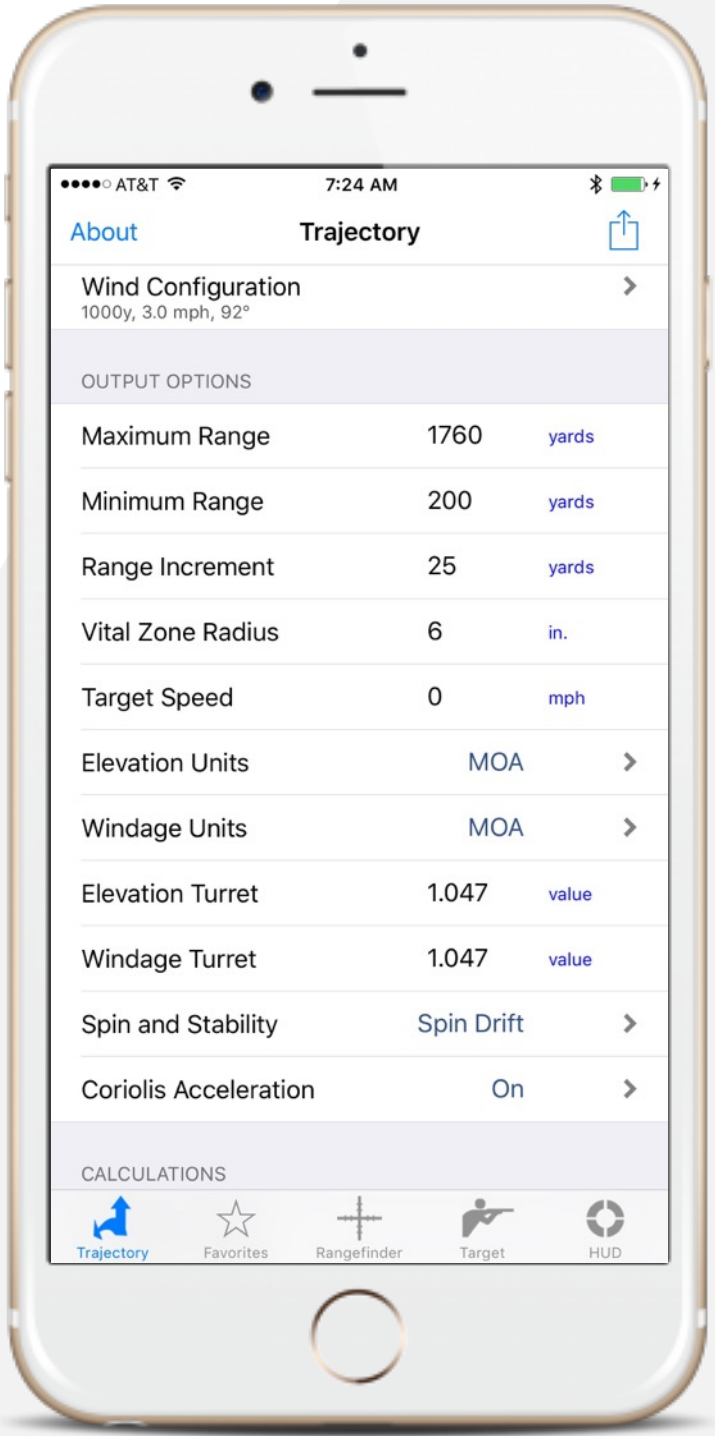
NOTE: it is common to change wind several times during a shooting event.



Output Options

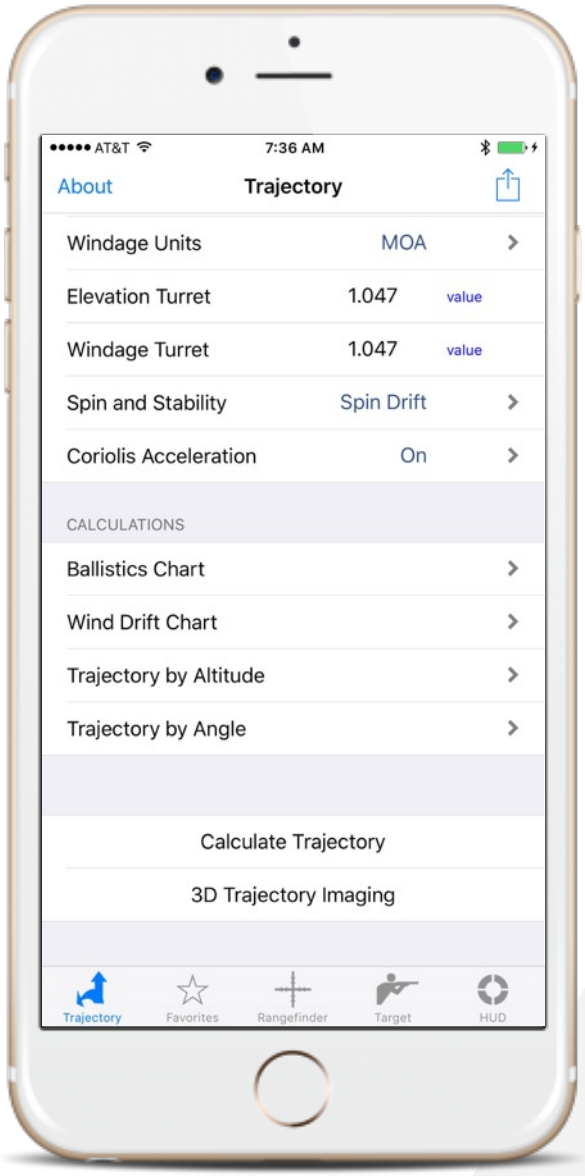
Here are some of the final steps before we can calculate the trajectory.

- Start by selecting the **maximum range**, here we selected 1760 yards and the **minimum range** is 200 yards.
- The **Vital Zone** is where the bullet will impact with a 6” drop.
- We are using **MOA**, however you can select from several options by clicking in each field.
- The scope used is a **true MOA scope**. A true MOA is 1.047. It’s important to know this measurement and most manufactures will provide this to you.
- If you know the bullet or projectile length and rate of twist in the barrel, you can calculate **Spin** and **Stability** by entering in that data.
- **Coriolis Acceleration** is the spin of the earth and can have an affect of bullets when shooting at greater distances. We will leave this off for now.



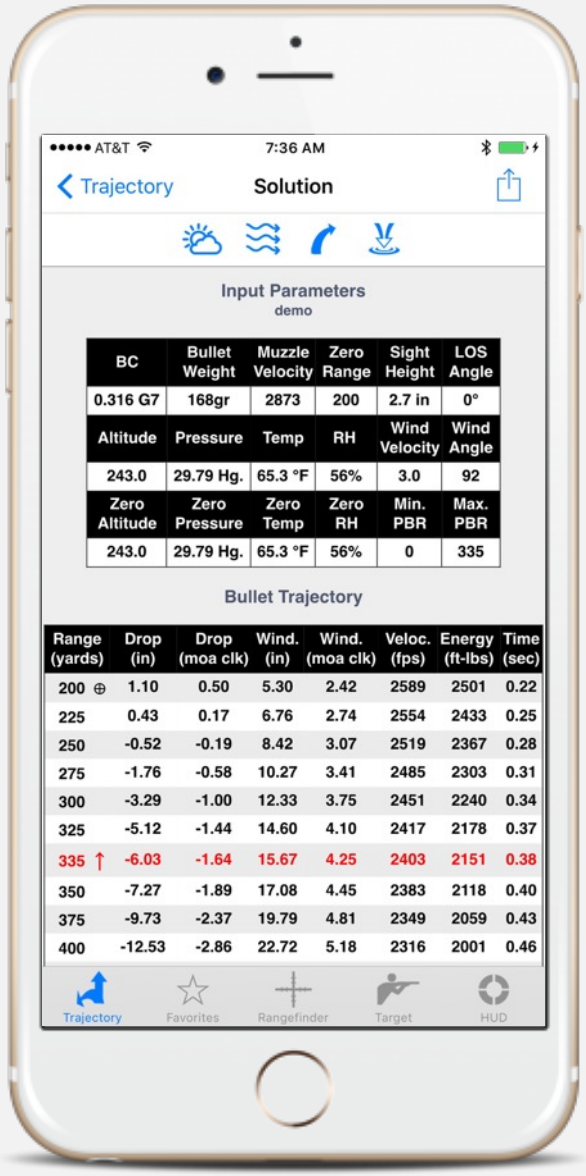
Calculating Trajectory

Now that we have all the data entered in, we can calculate the trajectory by clicking on the **Calculate Trajectory** button at the bottom.



Now you will see the data in the **Parameters** with the **Bullet Trajectory** chart below.

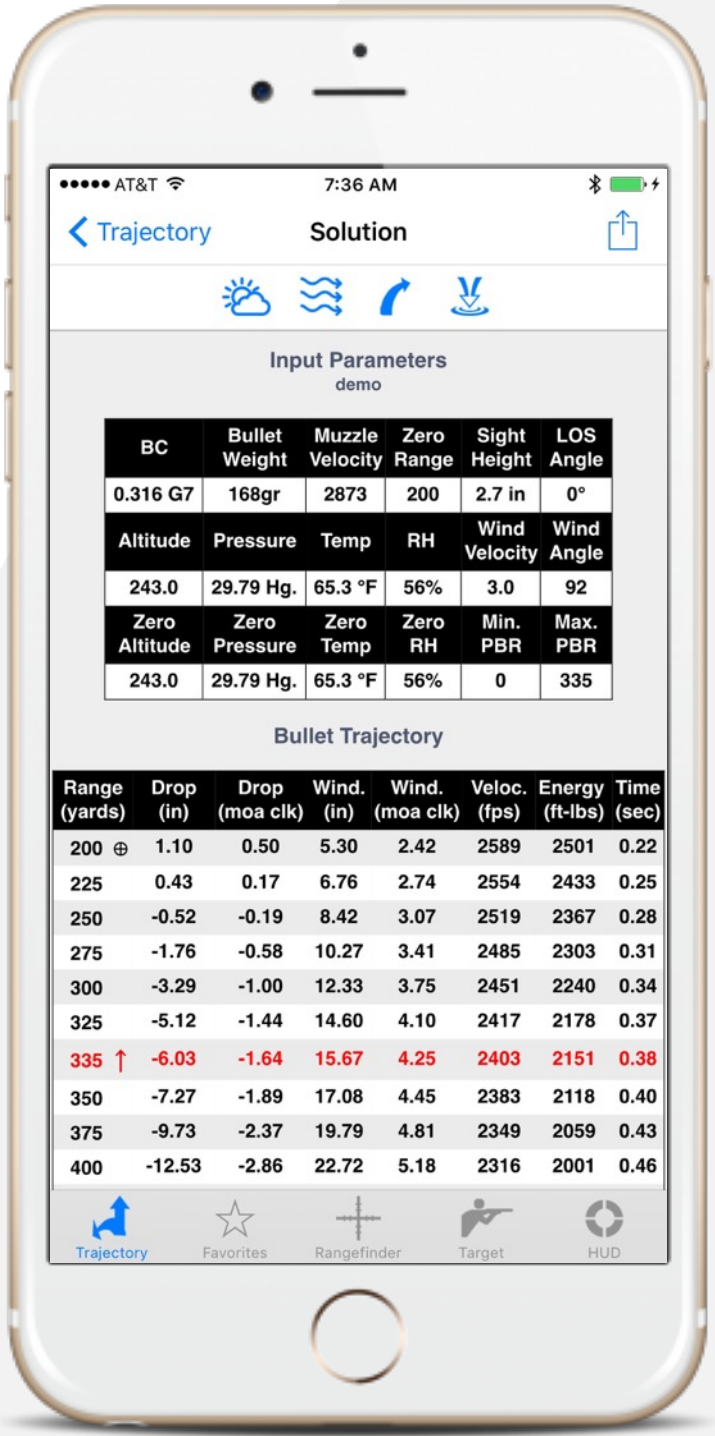
The red line is the **Vital Zone** we selected (6" from zero).



Trajectory Information

Let’s take a look at the information the App has provided us with with data we have input. If you look at the input data, here are the “**Input Parameters”** calculated in the final data.

BC	- Bullet Co-efficiency
Bullet Weight	- 168gr (Berger 168 VLD)
Muzzle Velocity	- 2873 FPS (feet per second)
Zero Range	- 200 (200 yards)
Sight Height	- Center bore to Center Scope
LOS Angle	- Line Of Sight
Altitude	- 243’ Above Sea Level
Pressure	- 29.79 Hg.
Temperature	- 65.3 Deg F
RH	- Relative Humidity



Solution Tools

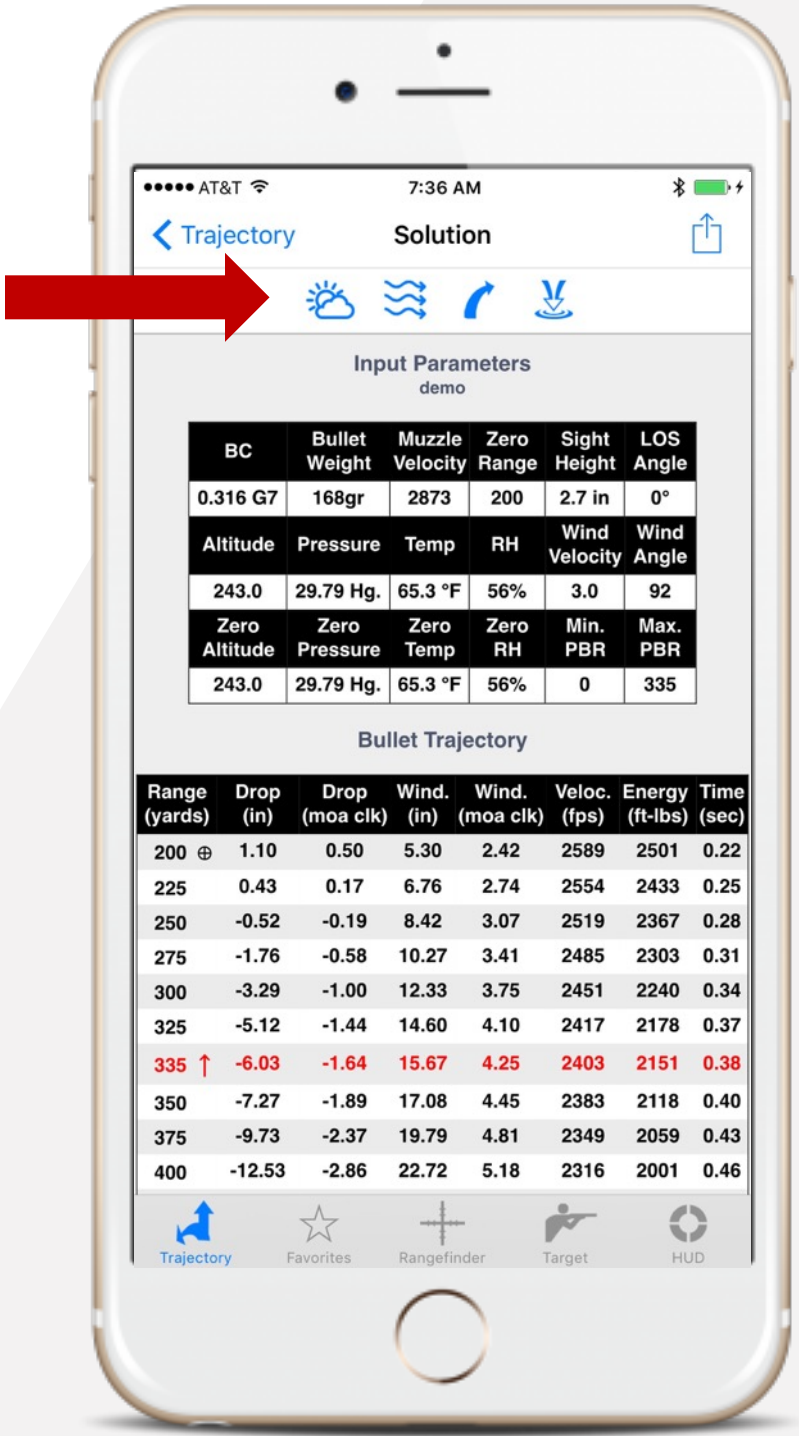
Here we will look at the 4 options available to us that we can use as conditions change in the field. In order from left to right. These are very useful tools when that will allow you to make quick and accurate changes.

Current Atmos: By clicking the you can update the current atmospheric conditions, this will recalculate the trajectory.

Wind: Wind can constantly change, by clicking the you can update the wind values in the shooting solution.

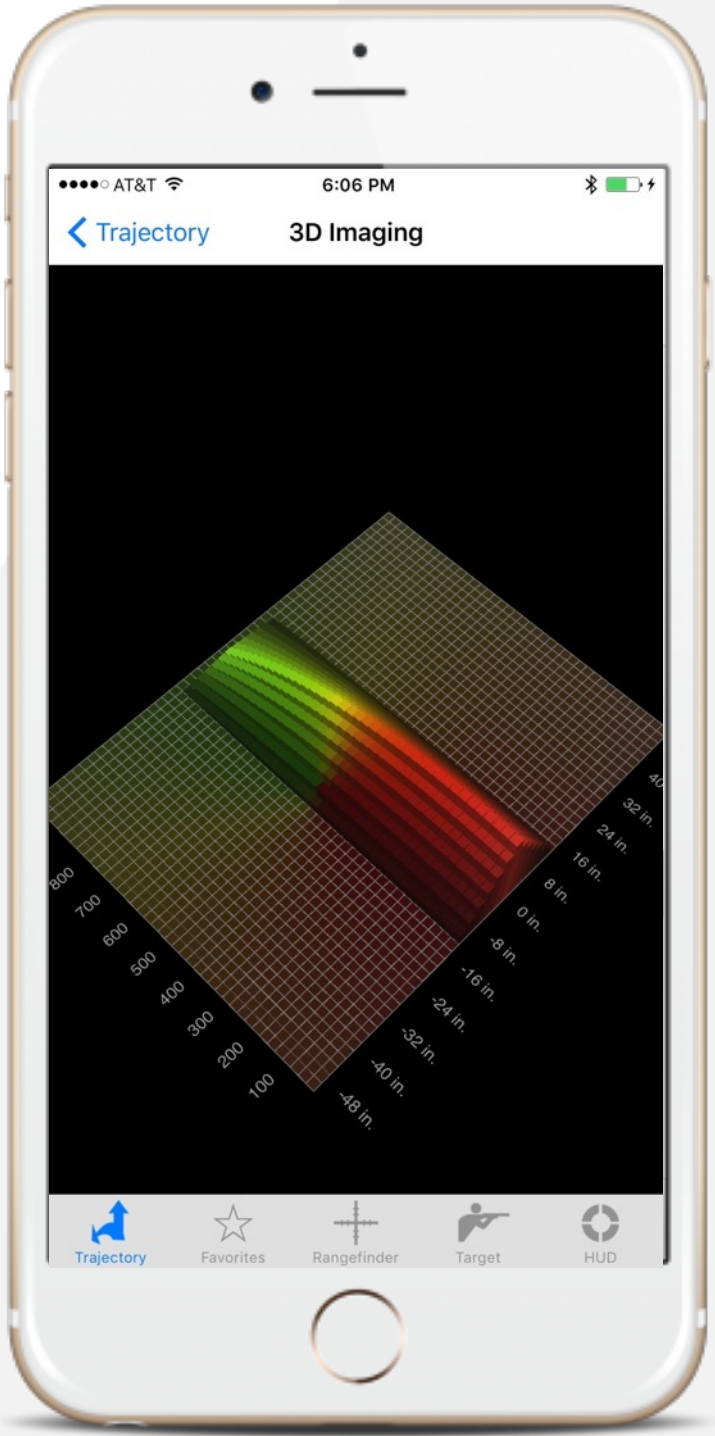
Coriolis: For those long shots, Coriolis should be calculated. Click the and the app will calculate the Coriolis in to the solution.

Zeroed Load: will take you to the zeroed load and along with all the data during that shooting event you have saved in the favorites.



Trajectory Imaging

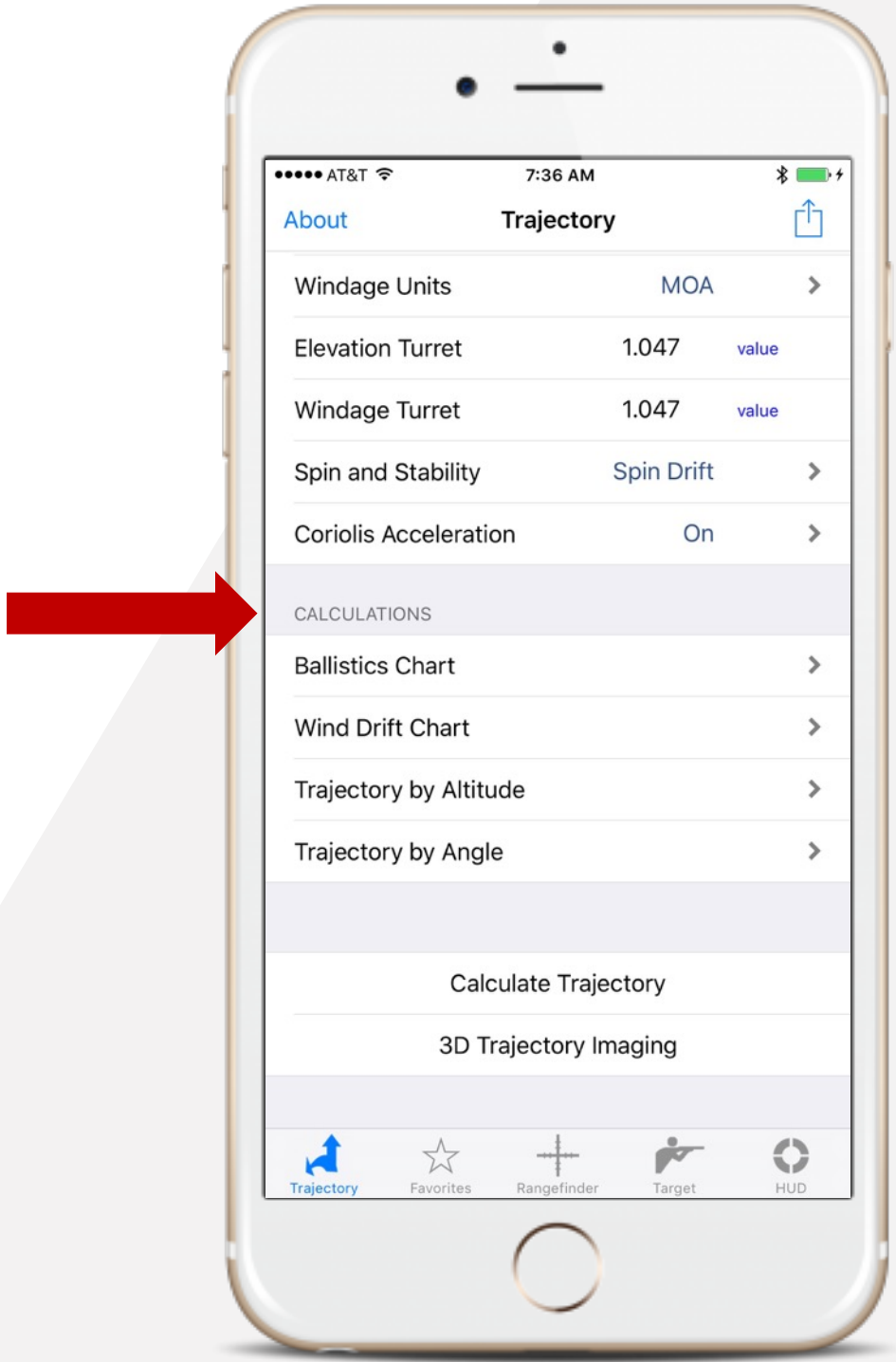
Trajectory Imaging – Once you have the ballistic data loaded you can click on trajectory imaging to view a 3 dimensional imaging of a fired bullet over a given or selected distance. This image can be rotated for a visual experience.



Calculations

In the **Calculations** section, you will find 4 options available to you. These are graphs that will give you an informational snapshot of bullet trajectory under different circumstances.

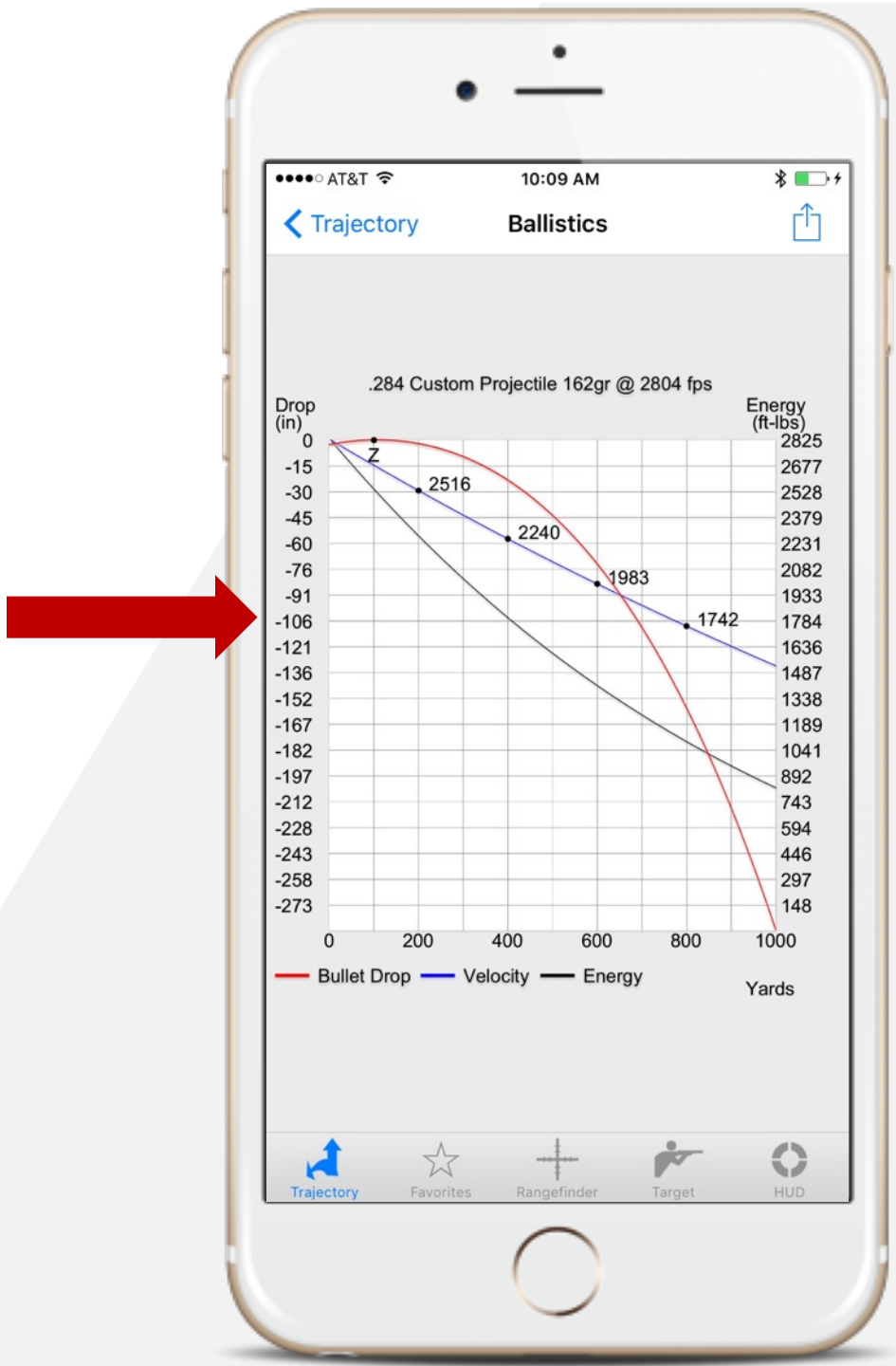
Let’s start by looking at the **Ballistic Chart** option first.



Ballistic Chart

Once you have the desired ballistic data entered, you can see the performance of that bullet on the graph in this **Ballistic Chart**. This is a great way to compare different loads or factory ammunition.

This will allow you to see **Bullet Drop, Velocity** and **Energy** over the selected distance in the data.



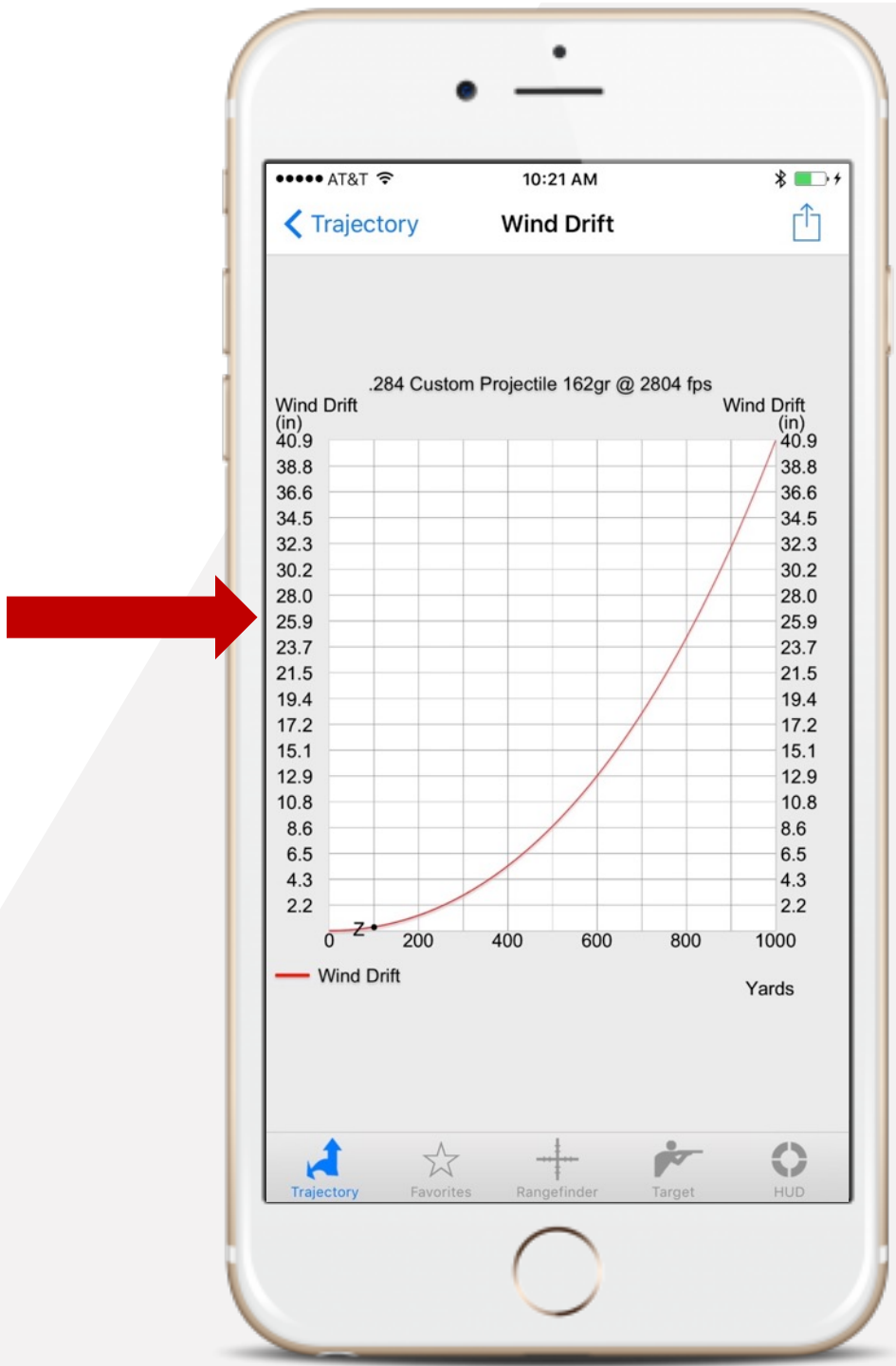
Ballistic Chart

Here we have entered in a wind value. With the load data and BC of this bullet, we are able to view total **Wind Drift** over the selected shooting distance.

The other 2 chart options are:

Trajectory by Altitude – This will give you a graph showing the ballistic difference based on the altitude the bullet is being fired at.

Trajectory by Angle – This will give you a graph showing the ballistic difference when shooting and mild to extreme angles.



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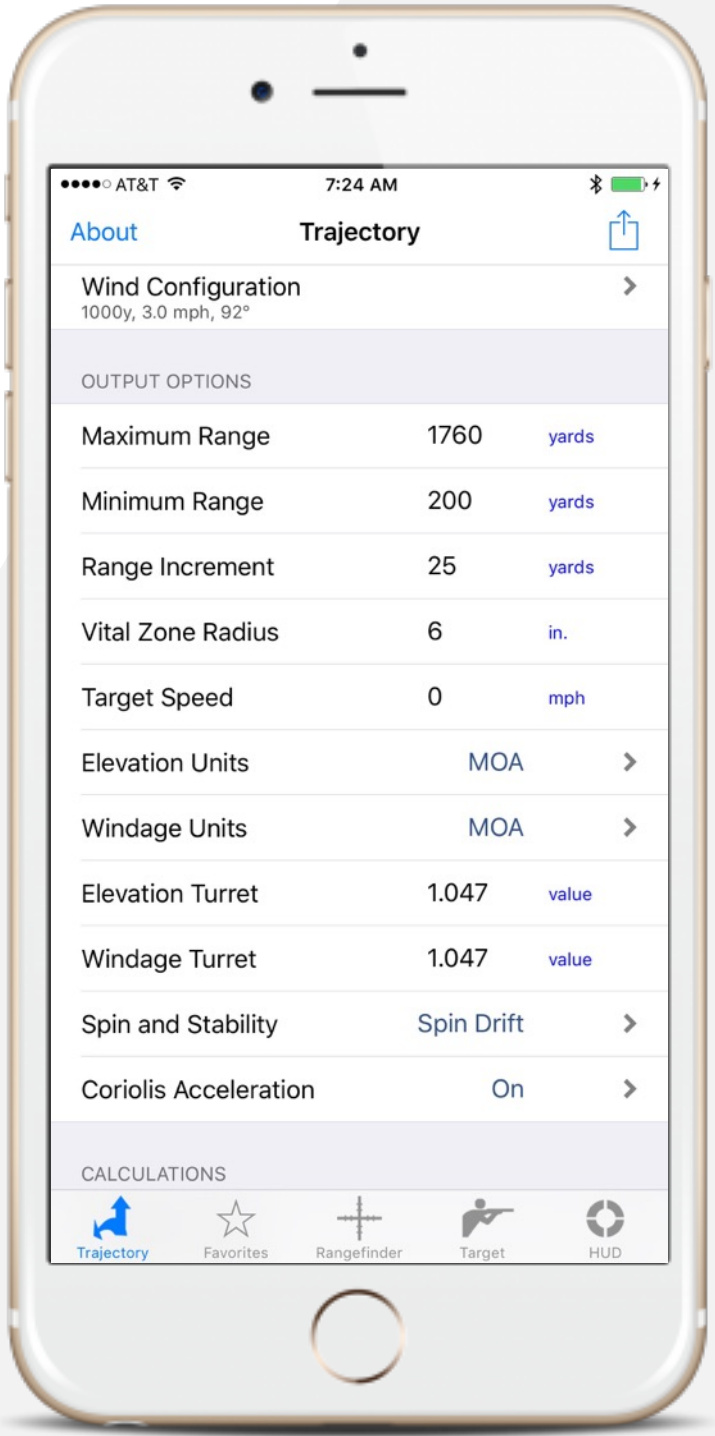
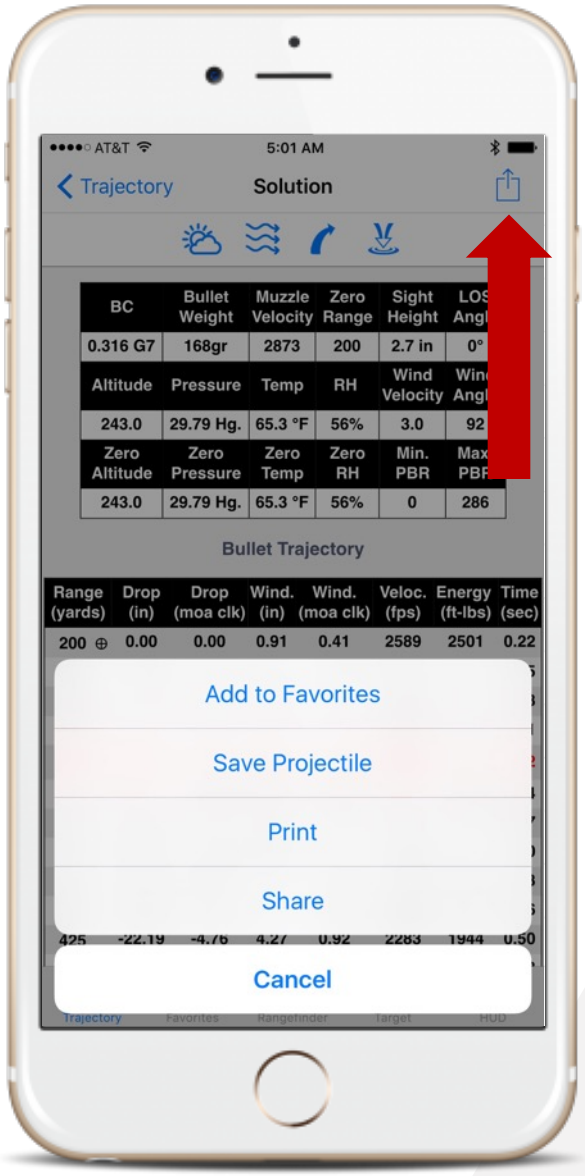
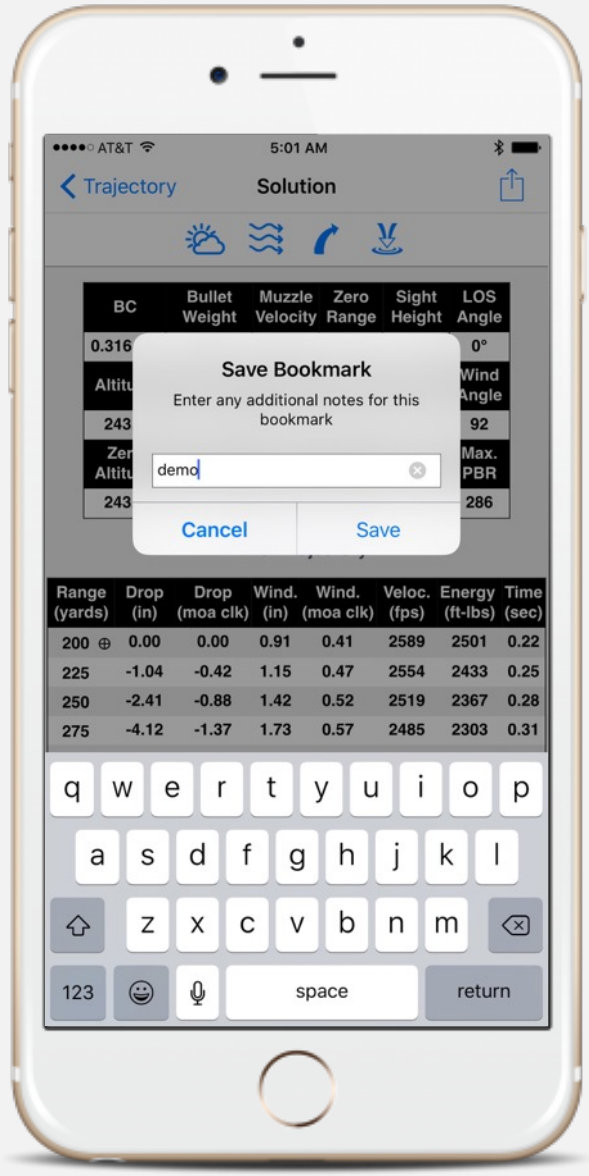


Saving and Adding to Favorites

By clicking the icon, upper right, you will have the option to save this **ballistic profile** and add it to **Favorites**. You also have the option to share or print the ballistic chart.

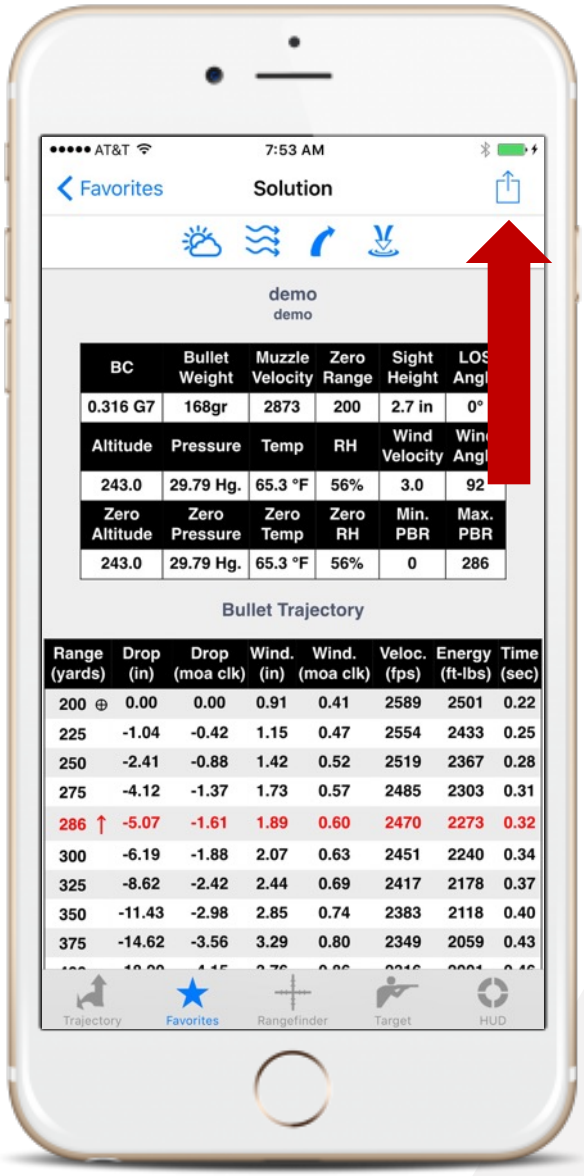


Select the function desired, in this case we are saving it. Now you have the option to name it. Once you have this profile saved, now is the time to add it to **Favorites**.

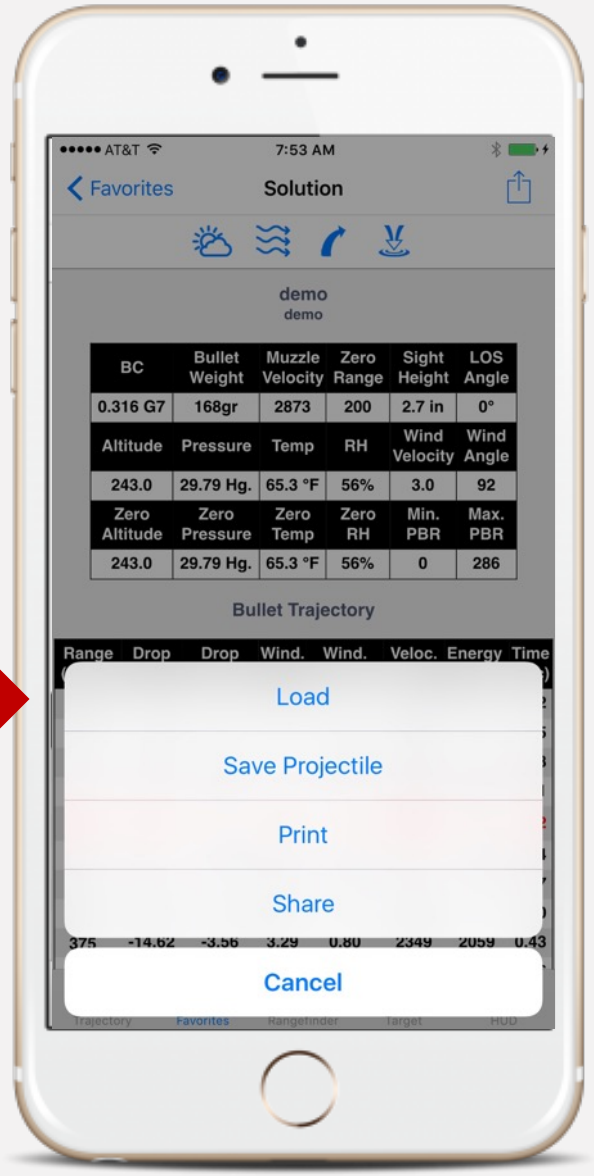


Loading a Favorite

When you click on **Favorites**, you will find a library of all the favorite loads you have added. Select the load you want to use and click the icon upper right.



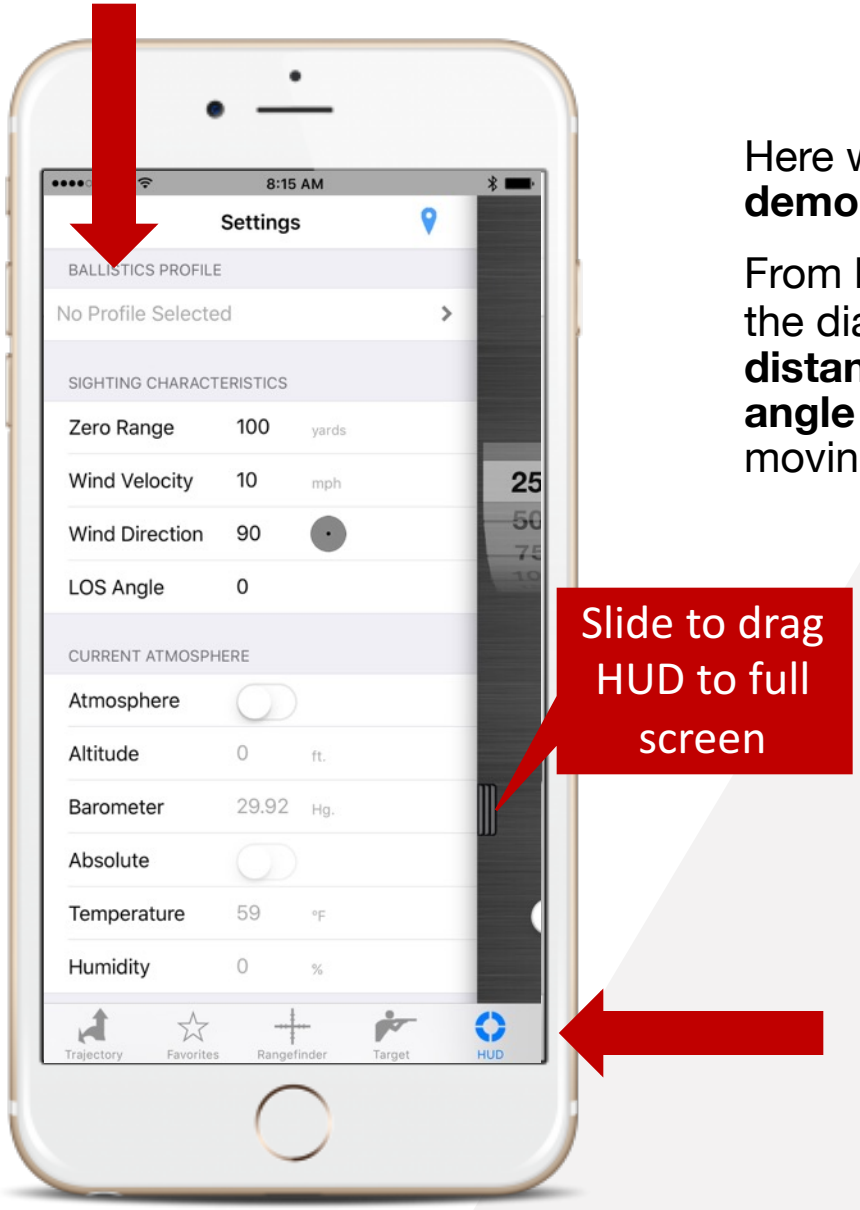
When you select “**Load**” this will bring that selected load in to the trajectory screen. From here you can alter data or update the current atmospheric conditions.



HUD or “Heads Up Display”

The **HUD** is designed for a quick reference. Start by clicking the HUD in the lower menu.

You now need to select a **Profile**, this will take you to the Favorites screen for a selection.



Slide to drag HUD to full screen

Here we selected the **demo load** we created.

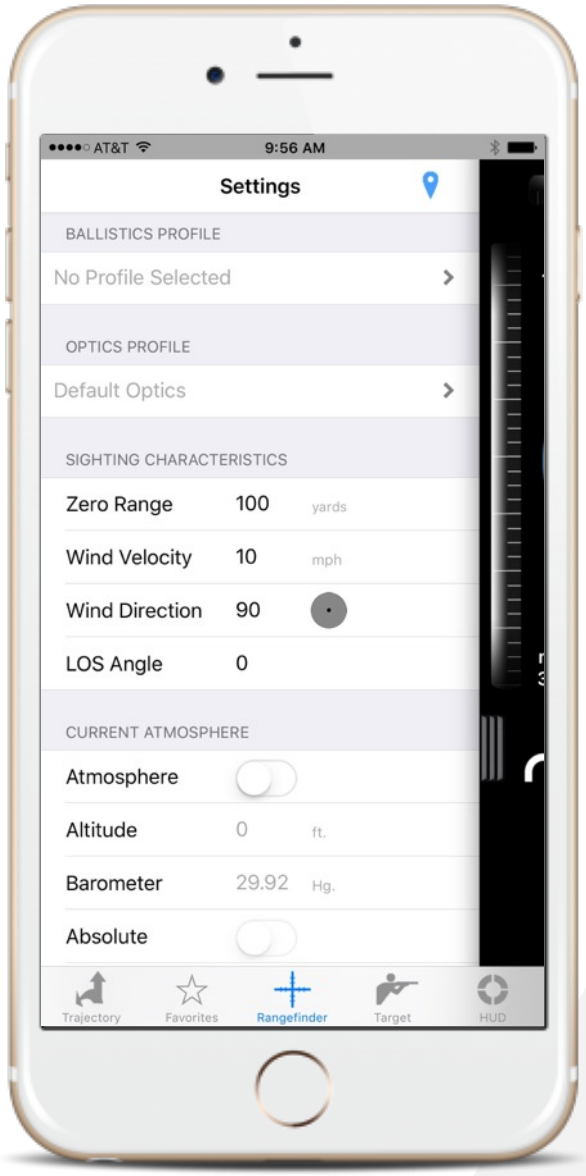
From here you can use the dial to select **distance**, **wind speed**, **angle** and **lead** for a moving target.

Rangefinder

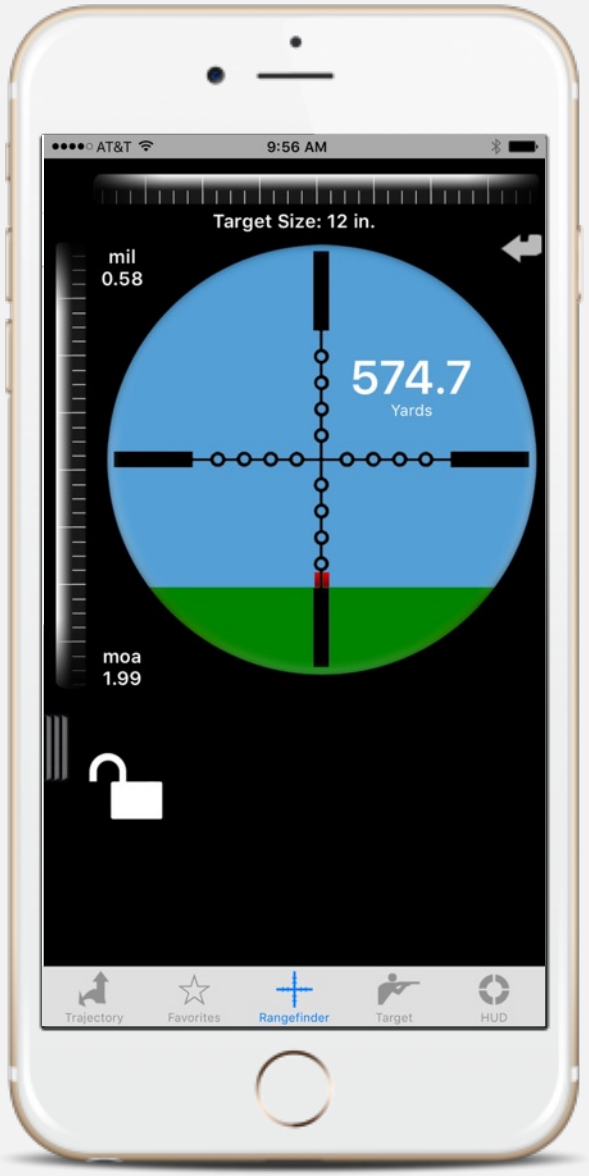
Start by selecting **Rangefinder** from the bottom menu.

Then select the ballistics profile you intend to use.

You can upload a reticle from a saved image and create your own using the **Optics Profile** seen on the next screen.



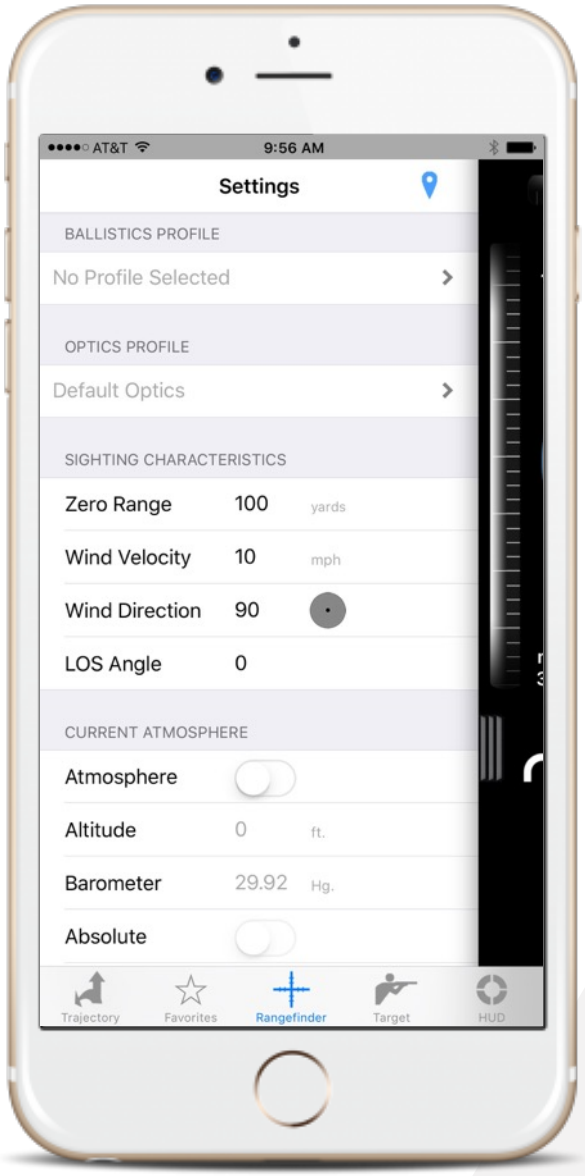
This is the default reticle provided.



Rangefinder

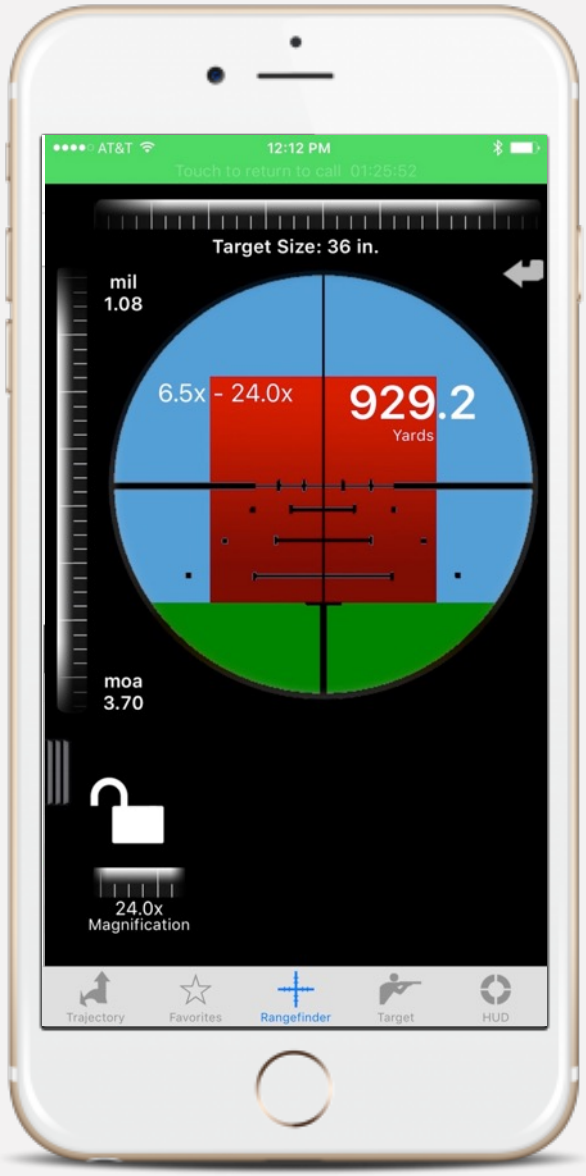
To add a reticle, you'll need to obtain a reticle image, typically available from the manufacture

By clicking on **Default Optics**, you have the option to upload a reticle from a saved image and create your own using the **Optics Profile**.



Here is an example of a saved and uploaded image.

You will need to have all the information from the scope manufacture for correct scaling of the scope sub-tensions and values.



Operating the Rangefinder

Change the **Target Size** by sliding the ruler in either direction across the top.

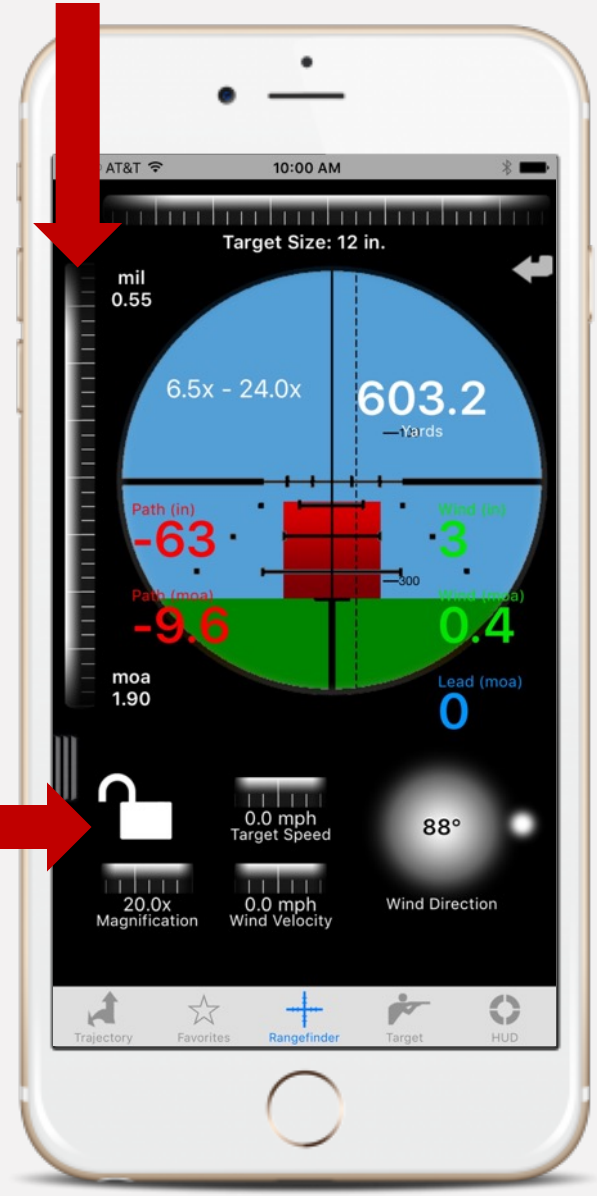
Here we have selected a 12” target. On the top and left scale, you can slide them to increase or decrease the target size and distance.

Wind and T**arget** speed can also be selected here.

By sliding the ruler on the left, we can bring the target to scale in the reticle, that will provide us with a distance. Notice here we have a 6.5x24.0 magnification on the scope. Based on the distance, this selected bullet will drop 63” or 9.6 MOA. The Wind hold values are on the right in green.

It’s important to note the magnification must be set to the scope.

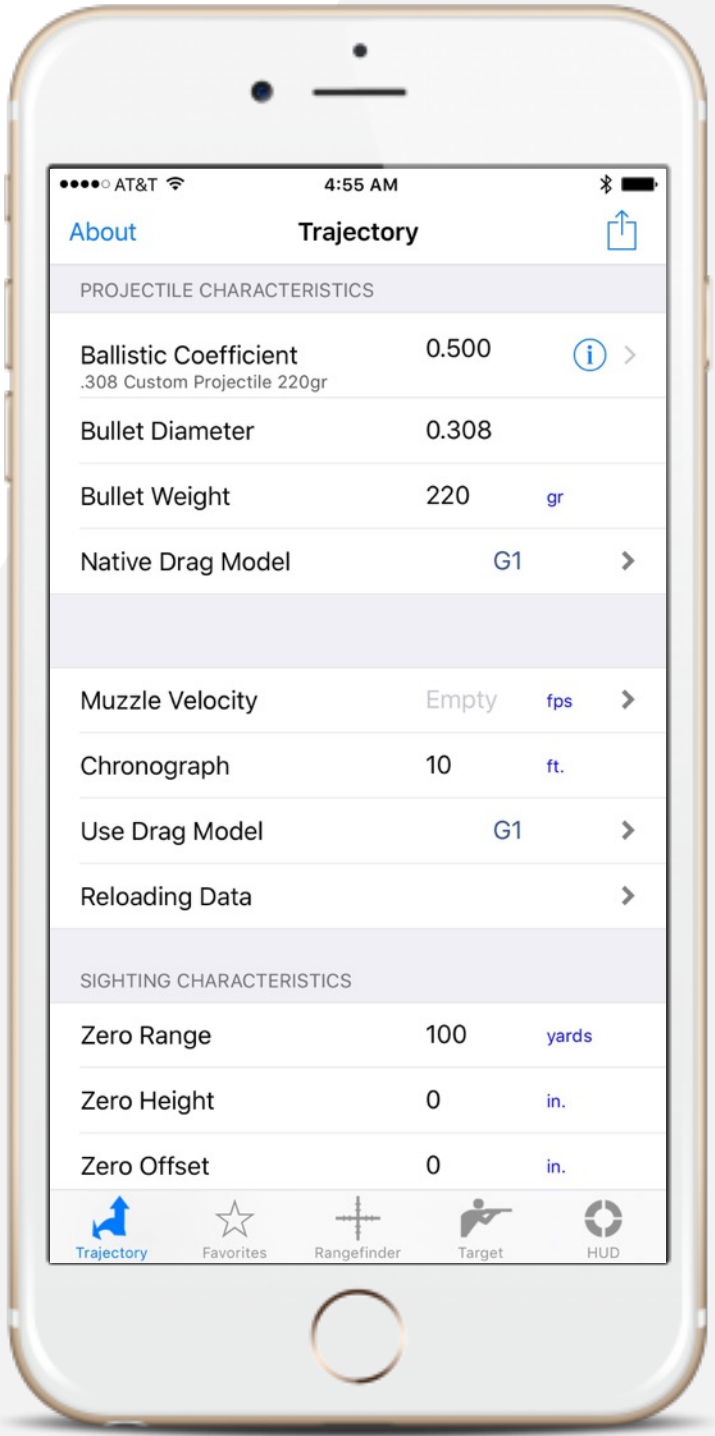
Click the lock to lock on the selected range.



Target Log

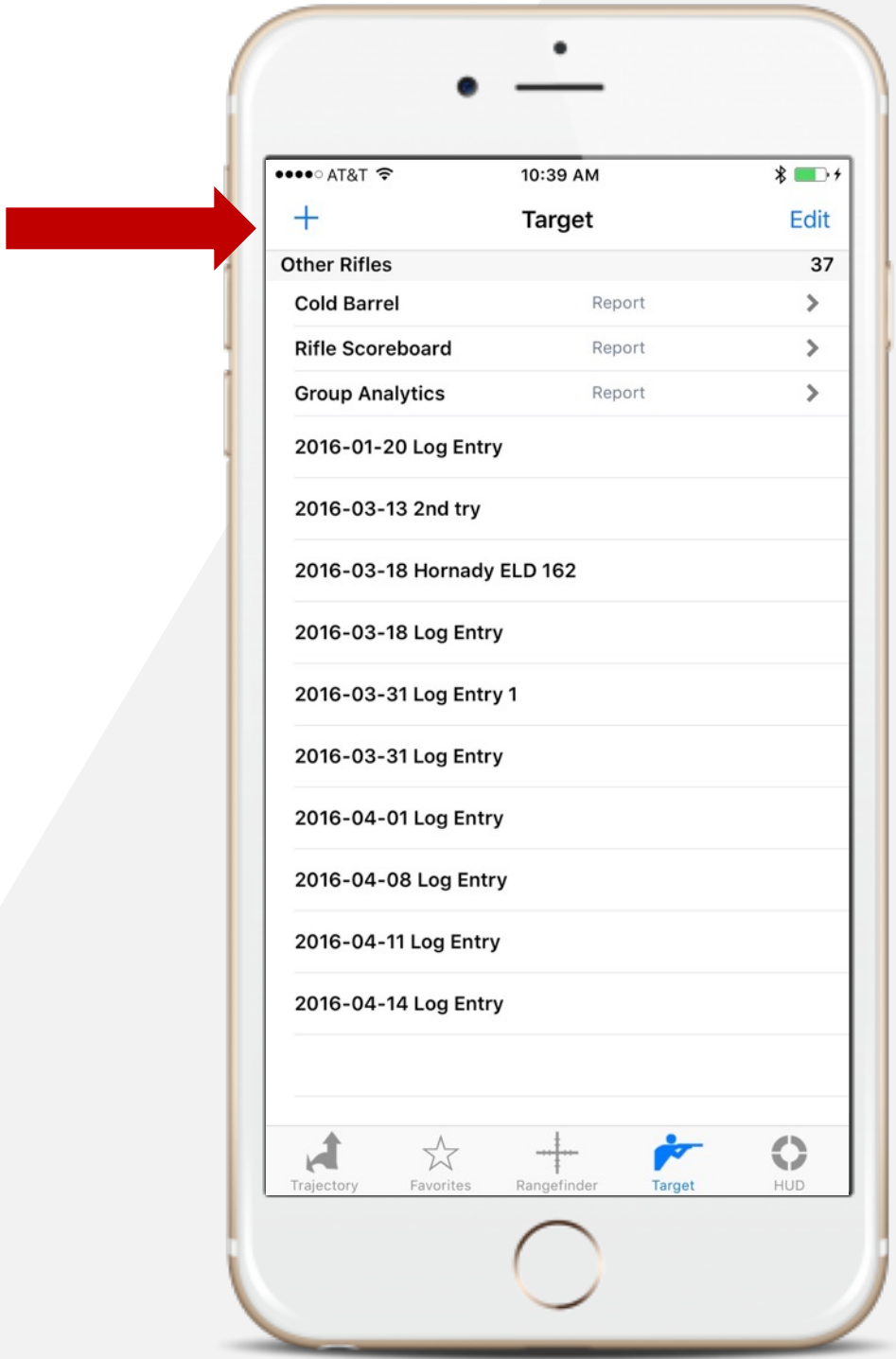
- On the bottom Menu you'll find the **Target Log**. This is tool is designed to record bullet performance on target, range data, group size etc.

- Let's start by clicking on the **Target** in the bottom menu.



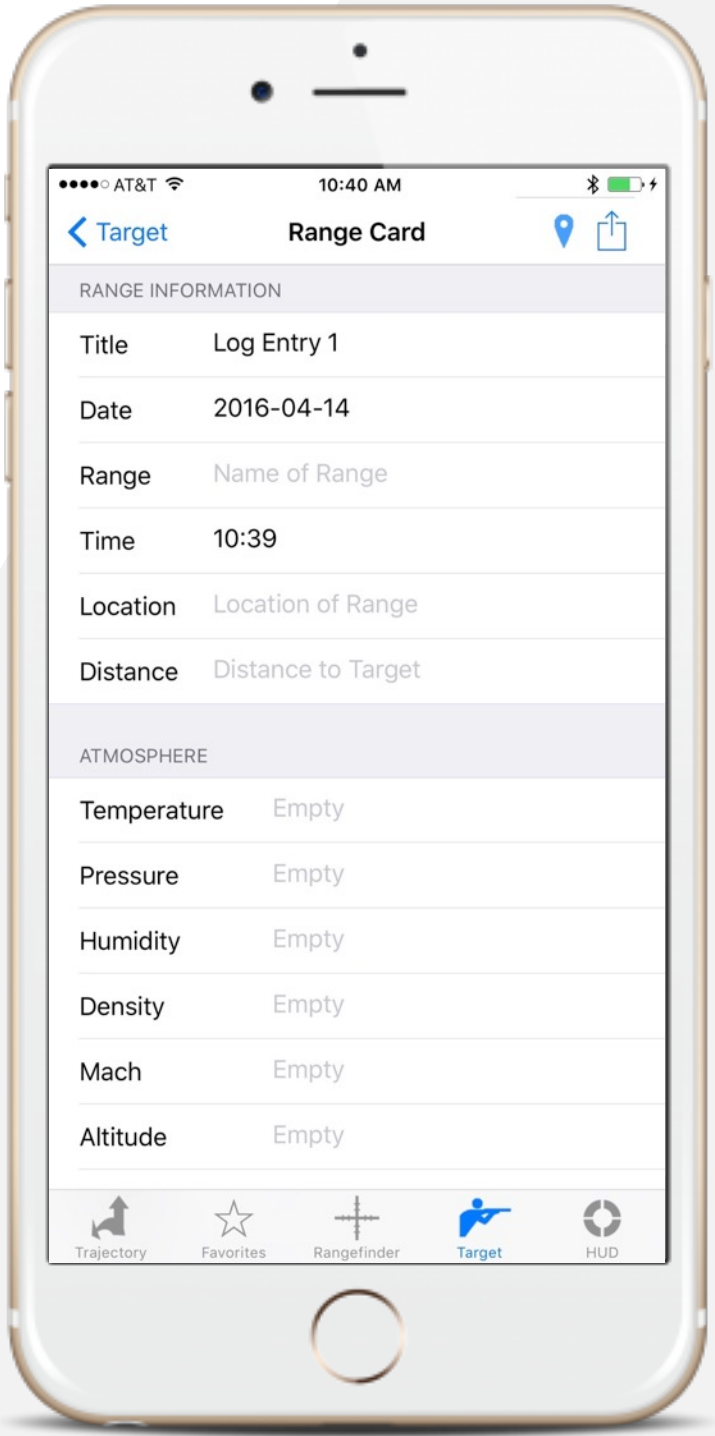
Target Log

- This is the Main **Target Screen**, here you will have access to all the saved data from previous log entries or develop a new entry.
- In this section you can also see data and information on **Cold Barrel, Rifle Scoreboard** and **Group Analytics** as you continue to build a library of information.
- Let's start by clicking on the + to add a new range entry.



Target Log

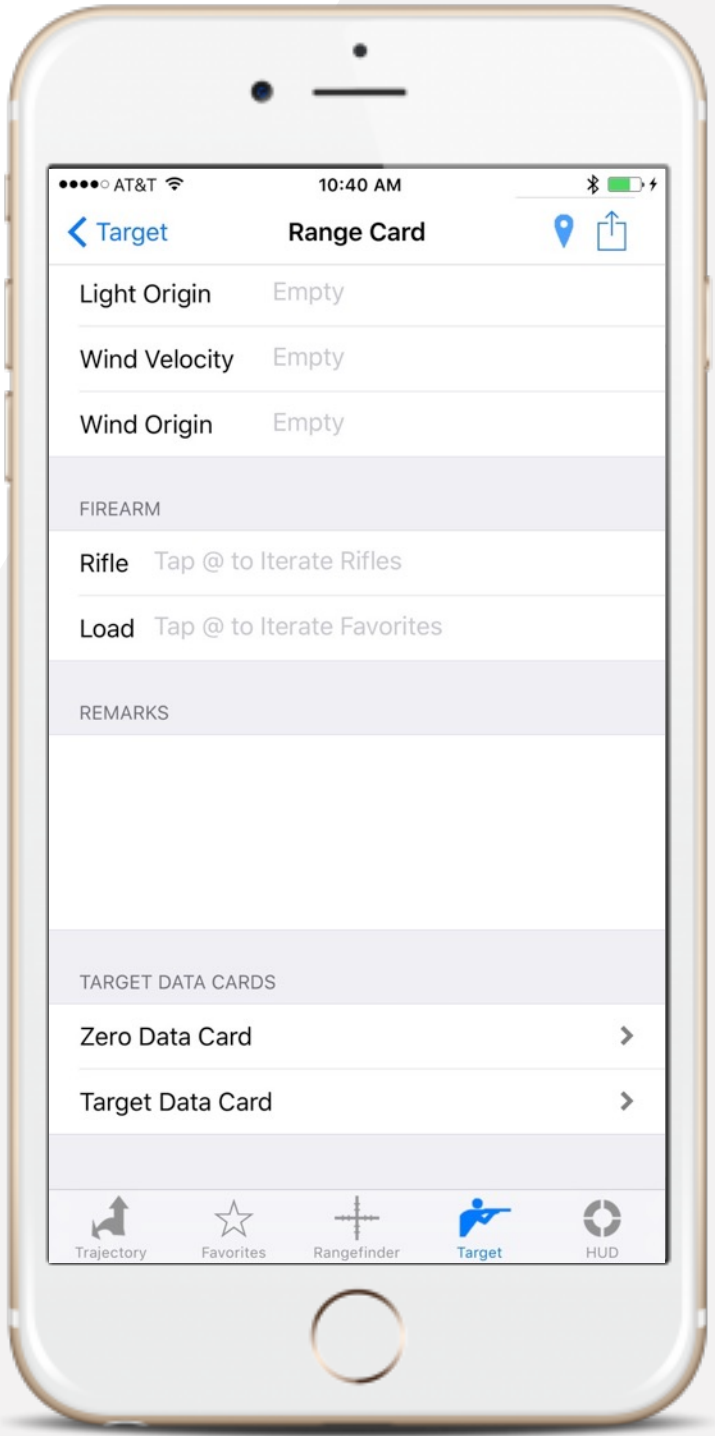
- Here you can name the Log Entry and by clicking the and bring in all the current Atmospheric conditions. As you scroll down you will have options to add **Rifle** and **Load** notes.
- Let's start by clicking on the **Target** in the bottom menu.



Target Log

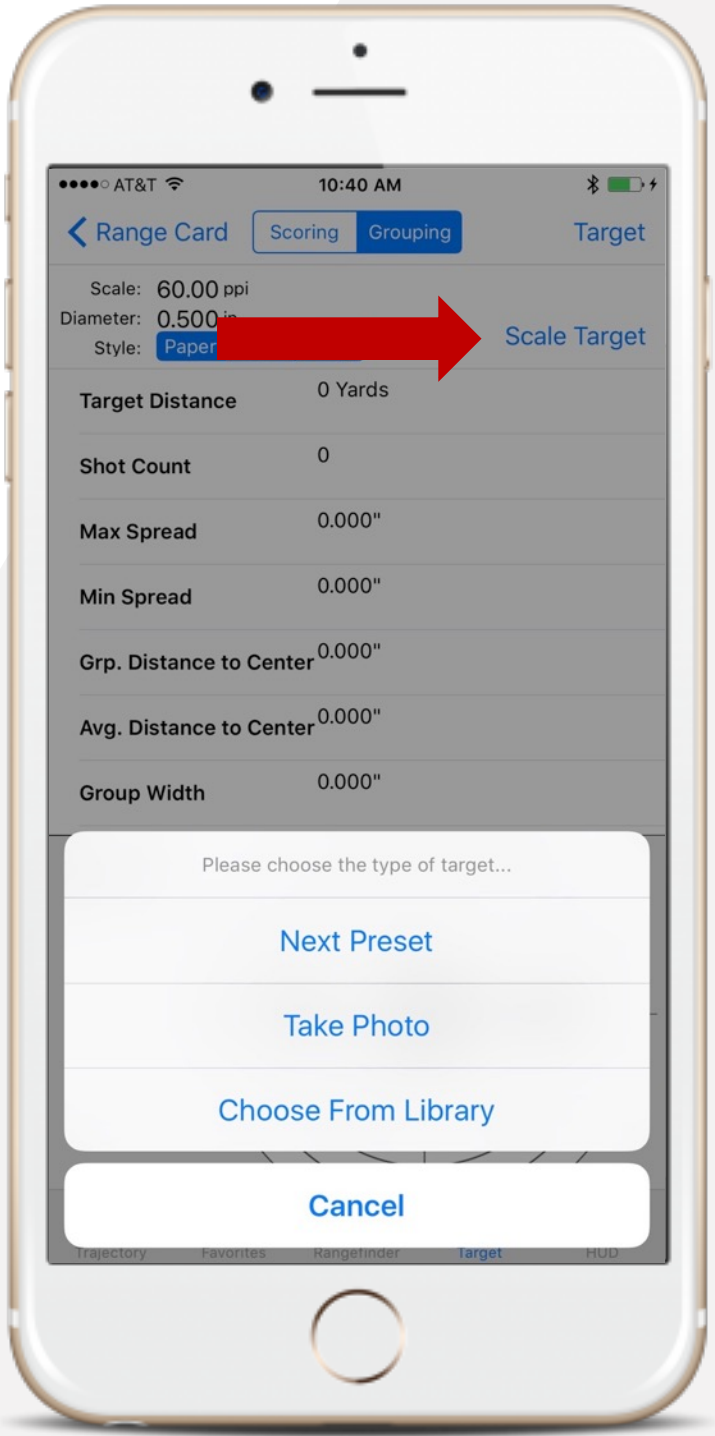
- At the bottom of the **Range Card**, you will have the option to select **Zero Data Card** and **Target Data Card**. Either of these will allow you to add a target images and data to create a saved log entry.

- Let's start by clicking on the **Target Data Card**.



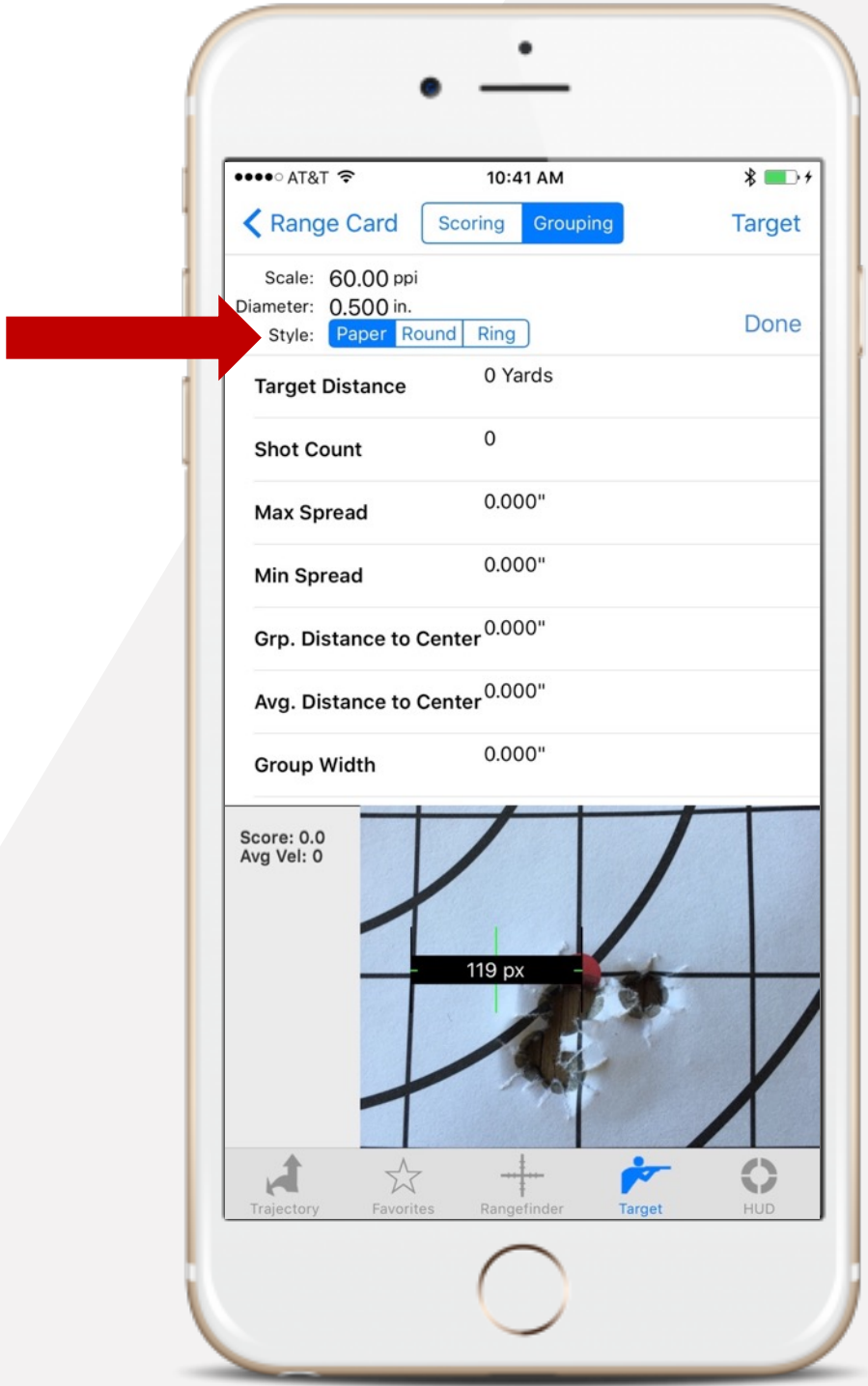
Target Log

- By clicking on the **Target** “upper right” Target you will have the option to take a photo or select a saved photo from the library of a target. Once you have selected or taken a photo you can scale the target and select the desired bullet diameter size for scoring. You will need to click on **“Scale Target”** once the photo has been selected.
- Let’s take a look by selecting a photo and scaling the target.



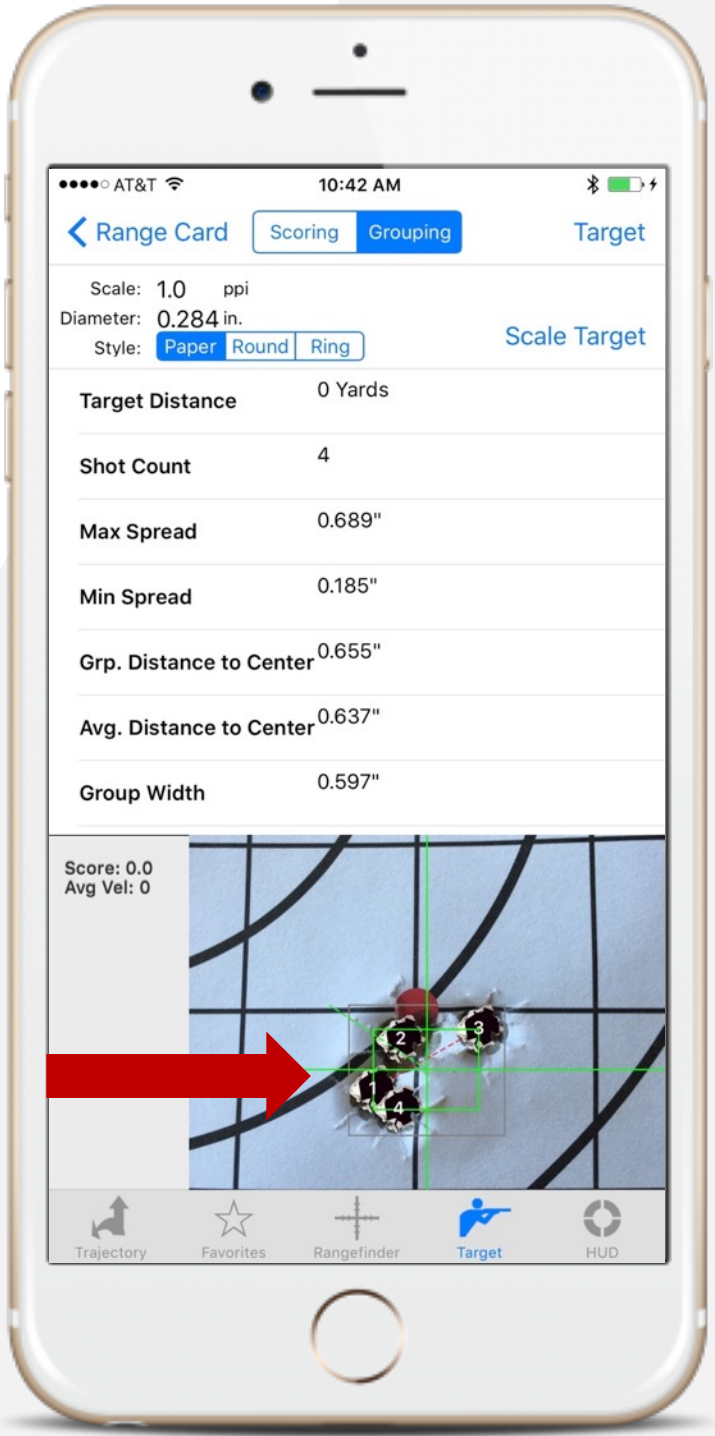
Target Log

- Once you have a picture of the target selected, you will need to scale it for scoring. You can move the scaling by sliding your fingers together or apart to set the scale. You can also select the style of impact to be shown on the target.
- Let's take a look by selecting a photo.



Target Log

- Once you have a all the scaling completed and bullet diameter added, you can now measure the shot group. Under the **Scoring** tab, upper left click on the + icon to add shots on paper. Click the + to add more shots. The shots will appear in the upper left of the target, you can then drag them in to place over the shot hole on the target.
- As you add shots to the target, you will start to develop data above. This will include shot count, max spread, min spread etc..



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#1 Ballistics app for iPhone, iPad, & iPod Touch

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