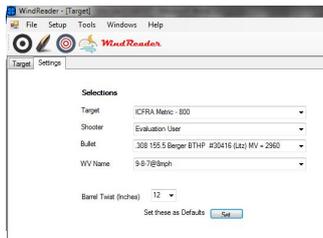
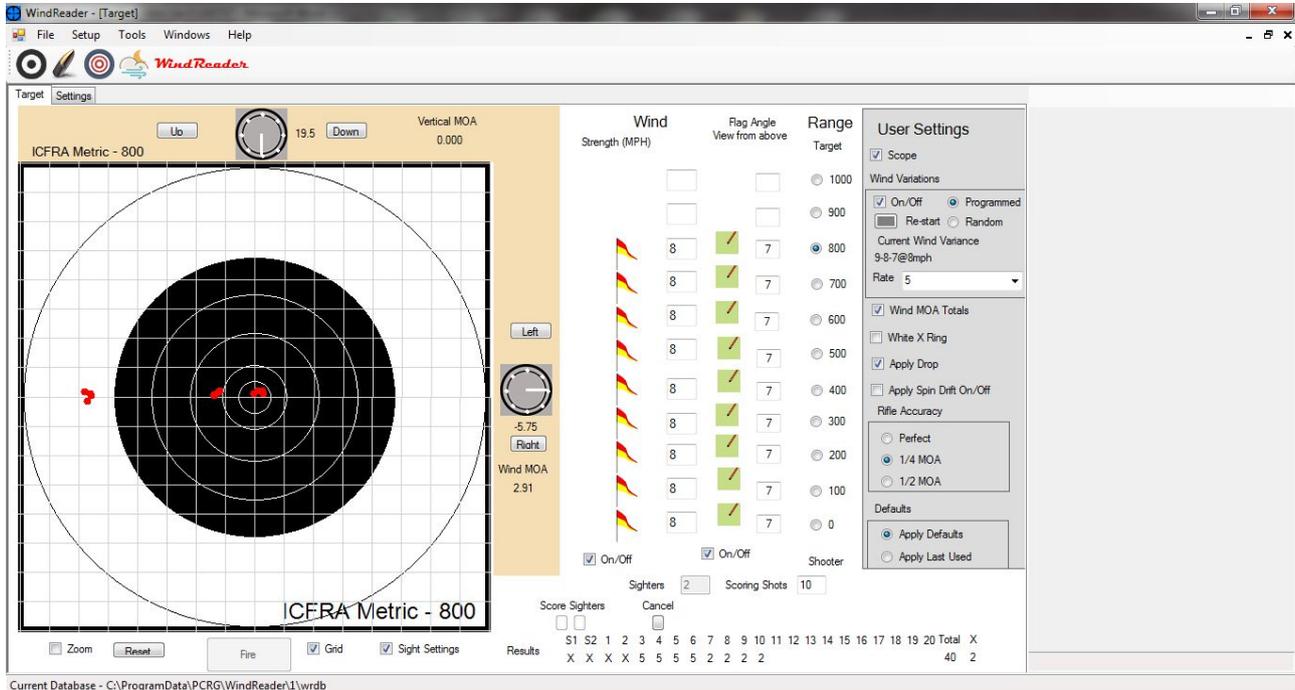


WINDREADER - GETTING STARTED



When you first start WindReader, the screen below will appear **after clicking the Target Icon**, then if the Settings Tab is clicked the adjacent panel appears showing the chosen Target, Shooters Name and Bullet of choice and Wind Variance. Default Settings **that** can be changed by the user when they become familiar with WindReader.

Let's get started!



The results on the Target above are for the following setup conditions

- 308 Win cartridge loaded with 155.5 grain Berger BTHP projectile at 2960 ft/s MV
- 800 Meter ICFRA Target with WV Setting to 9-8-7@8mph
- 3 Groups fired with 8mph wind from 9 o'clock, 8 o'clock and 7 o'clock progressively.
- 2 7/8th MOA left turret wind adjusted put 4 shots in 9 o'clock wind within X ring
- No adjustment made for 4 in 8 o'clock wind, shots all within the Bull ring 9 o'clock side
- No adjustment made for 4 in 7 o'clock wind, shots all hitting the Outer ring 2 7/8 MOA left
- Rifle accuracy is set to 1/4 MOA accuracy but alternately could be set for perfect or 1/2 MOA accuracy.

Shots can be fired by clicking the Fire button or holding the mouse cross hairs at the selected position on the target and left clicking. This facilitates "aiming off" practice

Note the number of counting score shots is adjustable between 0 and 20 shots

The score per shot is recorded as well as the total X count

Sighter's Sighters can be counted or discarded. To keep both, click in box above S1, to keep 2nd only, click in box above S2

Now it's your turn, see if you can duplicate the results

TRAINING EXERCISES

Exercises 1.

1. select 900 meter ICFRA Metric Target
2. select 308 155.5 gr Berger Bullet
3. select 3&9ocl@0,2,5,10,15, 20mph from the wind variance drop down table

Tick User Settings as follows,

- Scope, ON
- Wind Variations, ON
- Wind MOA, ON
- White X ring, OFF
- Apply Drop, ON
- Apply Spin Drift, OFF
- Rifle Accuracy 1/4 MOA, ON

- select Rate 5 (seconds) from wind variance down table
- watch flags and press red pause button when wind speed is 2 mph coming from 9 o'clock
- fire shot by clicking Fire button
- note WR beeps
- Bullet Wind deflection is 1.71 MOA right, and Bullet Drop is 25.3 MOA
- Adjust Vertical turret up by 25.25 MOA and Horizontal Turret 1.625 MOA Left
- Fire a shot using fire button resulting in a centre X ring Bull.



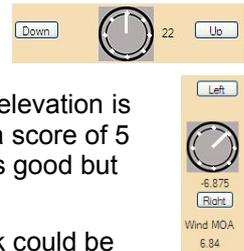
Continue this exercise with increasing wind speeds so familiarising yourself with the program

Exercise 2.

Maintaining the same User Settings choose 9-8-7oc@10mph from Settings/ WV Name drop down table and the ICFRA 800 Meter Target

WV Name 9-8-7oc@10mph

- Press the Red Pause button when the wind is coming from 9 o'clock
- Fire a shot
- Note Bullet Wind deflection is 7.28 MOA right, and Bullet Drop is 19.5 MOA
- Adjust Vertical turret up by 19.5 MOA and Horizontal Turret 7.25 MOA Left
- Fire a shot using Fire button resulting in a centre X ring Bull
- Deactivate Pause then fire a shot when the wind is coming from 8 o'clock, note, elevation is good but bullet deflection is 1.0 MOA left to the 9 o'clock side of the Bull ring for a score of 5
- Pause action when wind swings to 7 o'clock, fire a shot and note that elevation is good but bullet is deflected 3 5/8 MOA left on the Outer ring for a score of 2

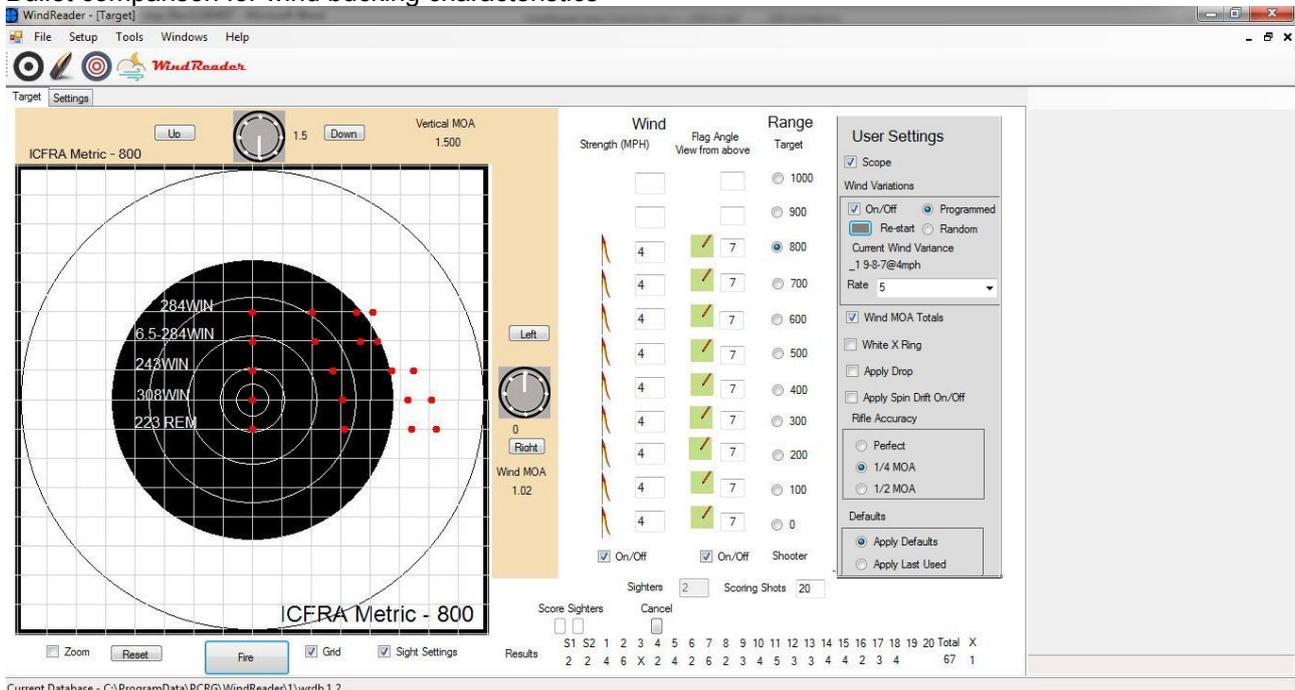


This exercise demonstrates how at 800 Meters a 10 mph wind shifting from 9 to 8 o'clock could be compensated for by holding right by 1/2 MOA but the wind shift to 7 o'clock would require either aiming off or winding right by 3 1/2 MOA. The shift from 9 to 8 reduces deflection by 14% and to 7 o'clock a further 36% for a total of 50% (i.e. Sin 30 degrees = 0.5)

WR can help break the habit of adjusting off the last shot which is the equivalent of driving a motor vehicle using the rear vision mirror! With WR you must anticipate the effect of wind strength and direction changes adjusting sights or Point of Aim (POA) prior to your next shot!

Exercise 3

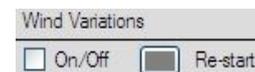
Bullet comparison for wind bucking characteristics



Five projectiles from the Bullet Library are compared using the 9,8,7oc@4mph Wind Variance Profile with the Bullet Drop switched off and Rifle accuracy set to perfect. The results clearly show that the 284 180 grain Bullet MV 2840 fps is a significantly better performer than the 308 155 grain Bullet MV 2960 fps. Note that the 224 80 grain Bullet performance is a close match to the 308 155 grain for the same muzzle velocity of 2960 f/ps

This Exercise is to set up and duplicate these results,

NOTE, to Fire on Zero Wind, temporarily switch Wind Variations OFF



WindReader can be setup to simulate wind conditions for any Rifle Range as both wind strength and direction are individually settable for every range between zero and 1000 meters or yards

i.e. 12 Wind Strengths, 24 clock positions (1/2 hour increments) and 10 ranges gives hundreds of possible combinations

User Features

- **Telescopic sight 1/8th MOA** turret adjustment clicks.
- **Bullet Drop And Wind Deflection** for every shot is calculated and displayed on the front panel
- **Programmable Rifle Accuracy** from perfect to 1/4 MOA or 1/2 MOA increasing the reality of the training experience
- **User Settings** can be varied and some switched off or on as required by the user to vary the degree of difficulty hence experience
- **Target Features switchable** 1/2 MOA grid and Zoom, Metric and Imperial sizes.
- **Selectable Defaults** for Target, Bullet, last used

The WindReader training concept is to initially practice using the program with the User Setting controls set to progressively more difficult situations so that finally only the flag angle and direction are visible and their numeric values switched off.

Initially, Bullet Drop and Spin Drift can be left switched off as wind reading isn't affected by drop and spin drift is best appreciated after getting familiar with the program and the marginal benefit of its offsetting value at longer ranges appreciated.

NOTE Barrel twist rate and bullet length are critical ingredients in the Wind Drift calculation, twist rate is selectable on the Selections dialogue box and bullet length is one of the Bullet Library required parameters. When enabling Spin Drift ensure the appropriate Twist Rate is chosen

We recommend learning about WindReader using the 308 Win 155.5 gr Berger trying all the pre programmed Wind Variation Programs selectable from the Drop Down Table.

There is a range of projectiles within WindReader selectable by clicking on the Settings Tab which opens the Selections Dialogue Box showing the Bullet Drop Down list

A selection of popular F Open Class Bullets is available listed at typical muzzle velocities.

There are a number of very competitive shooters who only practice with a rifle in one calibre to become absolutely familiar with the rifle and calibre characteristics. These folks often switch barrels between practice and competition situations

The WindReader User Setting Panel has a Red Pause Button to enable additional practice or settings adjustment for any condition. This feature greatly increases program user flexibility



Bullet Library

The Bullet Library configuration is a 28 column wide array best populated by copying and pasting from an XL spreadsheet although data can be typed into individual cells.

Truncated view of the 28 column wide Bullet Library.

Description	Set As Default	Cal.	Length in Inches	Enter a weight in grams	Scale	MV	Drop 0	Drop 100	Drop 200	Drop 300	Drop 400	Drop 500	Drop 600	Drop 700	Drop 800	Drop 900	Drop 1000
▶ .224, 80, JLK VLD 2280 (Litz)	<input type="checkbox"/>	0.224	1.136	80	Imperial	2960	0	3.5	2.2	0	-2.6	-5.5	-8.8	-12.6	-17	-21.9	-27.6
.224, 80, Homady A-MAX 22832 (Litz)	<input type="checkbox"/>	0.224	1.162	80	Imperial	2960	0	3.5	2.2	0	-2.6	-5.5	-8.8	-12.6	-16.9	-21.8	-27.5
.224, 80.5, Berger LRBT #22427 (Litz)	<input type="checkbox"/>	0.244	1.117	80	Imperial	2960	0	3.5	2.1	0	-2.6	-5.5	-8.8	-12.5	-16.8	-21.7	-27.3
.224, 90, Berger VLD G7 #22423 (Litz)	<input type="checkbox"/>	0.224	1.263	90	Imperial	2810	0	3.9	2.4	0	-2.8	-5.9	-9.3	-13.2	-17.6	-22.5	-28
.243 108 Berger BT (Litz)	<input type="checkbox"/>	0.243	1.225	108	Imperial	2960	0	3.4	2.1	0	-2.4	-5.2	-8.3	-11.7	-15.6	-19.9	-24.7
.243, 105, Berger BTHP #24428 (Litz)	<input type="checkbox"/>	0.243	1.185	105	Imperial	3000	0	3.3	2	0	-2.4	-5.1	-8.2	-11.6	-15.5	-19.8	-24.7
.243, 87, Homady V-MAX 22440 (Litz)	<input type="checkbox"/>	0.243	1.052	87	Imperial	3150	0	3.2	2	0	-2.4	-5.2	-8.4	-12.2	-16.6	-21.8	-28
.264 140 Berger VLD #26401 (Litz)	<input type="checkbox"/>	0.264	1.426	140	Imperial	3000	0	3.1	1.9	0	-2.2	-4.7	-7.5	-10.5	-13.7	-17.3	-21.2
.264, 130, Berger VLD G7 #26403 (Litz)	<input type="checkbox"/>	0.264	1.4	130	Imperial	3190	0	2.7	1.7	0	-2	-4.3	-6.8	-9.5	-12.5	-15.9	-19.6
.284, 180, Berger Hybr #28407	<input checked="" type="checkbox"/>	0.284	1.529	180	Imperial	2840	0	3.6	2.2	0	-2.5	-5.2	-8.1	-11.4	-14.8	-18.6	-22.8
.284, 180, Berger Hybr #28407	<input type="checkbox"/>	0.284	1.529	180	Imperial	2730	0	4.6	2.7	0	-3	-6.4	-10.1	-14.1	-18.6	-23.4	-28.8
.284, 180, Berger VLD G7 #28405 (Litz)	<input type="checkbox"/>	0.284	1.525	180	Imperial	2840	0	3.7	2.2	0	-2.5	-5.3	-8.4	-11.8	-15.5	-19.6	-24
.284, 180, Berger VLD G7 #28405 (Litz)	<input type="checkbox"/>	0.284	1.525	180	Imperial	2730	0	4	2.4	0	-2.7	-5.7	-9	-12.5	-16.4	-20.6	-25.2
.308 155gr HBC Australia	<input type="checkbox"/>	0.308	1.225	155	Imperial	2960	0	3.5	2.1	0	-2.5	-5.4	-8.7	-12.4	-16.7	-21.5	-27
.308, 155, Sierra HPBT MK 2156 (Litz)	<input type="checkbox"/>	0.308	1.21	155	Imperial	2960	0	3.5	2.2	0	-2.6	-5.5	-8.9	-12.7	-17	-22	-27.8
.308, 155.5, Berger BTHP #30416 (Litz)	<input type="checkbox"/>	0.308	1.25	155.5	Imperial	2960	0	3.5	2.1	0	-2.5	-5.4	-8.7	-12.4	-16.6	-21.4	-26.9

The Table below shows the layout across an XL spreadsheet starting in the top left corner under column A and proceeding to enter data in each cell left to right as labelled extending out to column AB = 28 columns wide. The XL array line is then copied and pasted into WR Bullet Library

A	B	C	D	E	F	G	H	I	J
Description	Default	CAL	Length	Wt	Scale	0 mts	100 mts	200 mts	300 mts
.308, 155.5, Berger BTHP #30416 (Litz)	TRUE	0.308	1.25	155.5	Metric	2960	2740.5	2529.6	2327.9
	K	L	M	N	M	N	P	Q	R
	400 mts	500 mts	600 mts	700 mts	800 mts	900 mts	1000 mts	0 mts	100 mts
	2135.9	1953.4	1779	1611.9	1451.9	1299.8	1158.1	0	4.1
	S	T	U	W	X	Y	Z	AA	AB
	200 mts	300 mts	400 mts	500 mts	600 mts	700 mts	800 mts	900 mts	1000 mts
	2.4	0	-2.9	-6.2	-10.1	-14.4	-19.5	-25.3	-32.1

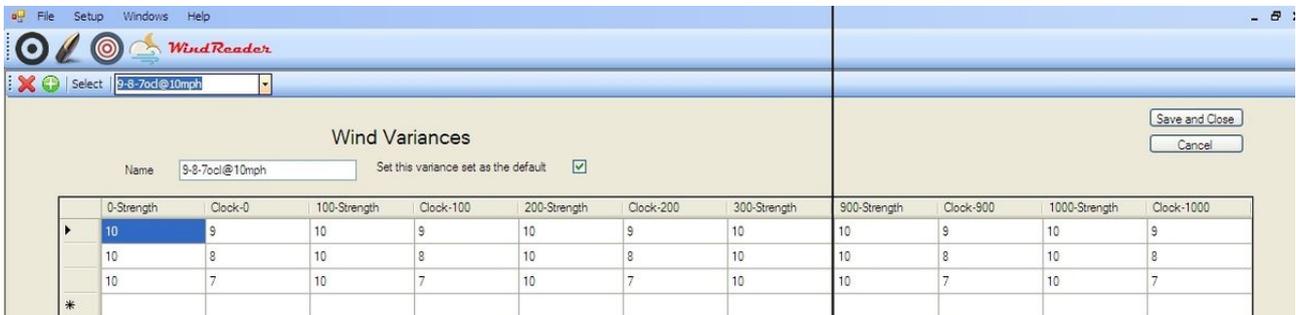
Bullet Library data is sourced from Bullet manufactures websites and can usually be either hi-lighted and pasted into an XL spreadsheet or alternately instead typed into WR a cell at a time.

Note, All Bullets in the WR Library have a 300 Metre or Yard zero and so should your additions.



Wind Variance Library

Likewise the Wind Variance Library Data is copied into WR from a 22 column wide XL spreadsheet or can be typed in manually one cell at a time. Empty cells will default to zero value.



Example 1, The truncated screen shot above of the 9,8,7ocl@10mph Wind Variance Program was installed from a 22 column wide XL spread sheet represented below shown in 2 sections one above the other to fit the page

9,8,7ocl@10mph										
A	B	C	D	E	F	G	H	I	J	K
Strength-0	Clock-0	Strength-100	Clock-100	Strength-200	Clock-200	Strength-300	Clock-300	Strength-400	Clock-400	Strength-500
10	9	10	9	10	9	10	9	10	9	10
10	8	10	8	10	8	10	8	10	8	10
10	7	10	7	10	7	10	7	10	7	10
L	M	N	M	N	P	Q	R	S	T	U
Clock-500	Strength-600	Clock-600	Strength-700	Clock-700	Strength-800	Clock-800	Strength-900	Clock-900	Strength-1000	Clock-1000
9	10	9	10	9	10	9	10	9	10	9
8	10	8	10	8	10	8	10	8	10	8
7	10	7	10	7	10	7	10	7	10	7

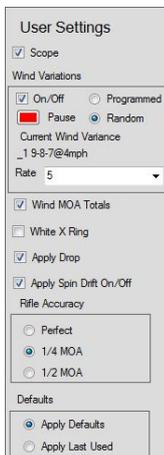
This array has 3 lines of data for a flag that alternates direction between 9,8 and 7 o'clock with a constant wind speed of 10 mph switched at the Rate (in seconds) chosen from the Drop down table in the User Settings menu on the front panel.

Example 2, A WR Wind Variance (WV) can have a different flag-clock direction and wind speed for every range. Whereas the array below for the 1-11ocl-progressive@2mph has a constant wind speed of 2 MPH, the wind speed could be made different at each or any clock setting.

Wind 1-11 progres've@2										
A	B	C	D	E	F	G	H	I	J	K
Strength-0	Clock-0	Strength-100	Clock-100	Strength-200	Clock-200	Strength-300	Clock-300	Strength-400	Clock-400	Strength-500
2	12	2	12	2	12	2	12	2	12	2
2	11	2	11	2	11	2	11	2	11	2
2	10	2	10	2	10	2	10	2	10	2
2	9	2	9	2	9	2	9	2	9	2
2	8	2	8	2	8	2	8	2	8	2
2	7	2	7	2	7	2	7	2	7	2
2	6	2	6	2	6	2	6	2	6	2
2	5	2	5	2	5	2	5	2	5	2
2	4	2	4	2	4	2	4	2	4	2
2	3	2	3	2	3	2	3	2	3	2
2	2	2	2	2	2	2	2	2	2	2
2	1	2	1	2	1	2	1	2	1	2

L	M	N	M	N	P	Q	R	S	T	U
Clock-500	Strength-600	Clock-600	Strength-700	Clock-700	Strength-800	Clock-800	Strength-900	Clock-900	Strength-1000	Clock-1000
12	2	12	2	12	2	12	2	12	2	12
11	2	11	2	11	2	11	2	11	2	11
10	2	10	2	10	2	10	2	10	2	10
9	2	9	2	9	2	9	2	9	2	9
8	2	8	2	8	2	8	2	8	2	8
7	2	7	2	7	2	7	2	7	2	7
6	2	6	2	6	2	6	2	6	2	6
5	2	5	2	5	2	5	2	5	2	5
4	2	4	2	4	2	4	2	4	2	4
3	2	3	2	3	2	3	2	3	2	3
2	2	2	2	2	2	2	2	2	2	2
1	2	1	2	1	2	1	2	1	2	1

The User Setting Panel enables selection of



- **Switch off/on** Wind variance program
- **Program Pause** and **Random Sequencing** of Wind Variance program
- **Scope**, visibility of Scope Turrets on Front Panel
- **Wind Variations**, programs switch ON/OFF
- **Rate**, cycle time in seconds of this program
- **Wind MOA Totals** displayed below Wind Turret, ON/OFF
- **White X Ring**, option for F Class of NBRSA shooters On/OFF
- **Apply Drop**, Bullet applied and displayed below Vertical Wind Turret
- **Apply Spin Drift on/Off**, calculation offsets displayed wind drift.
- **Rifle Accuracy**, choices of Perfect, ¼ and ½ MOA accuracy
- **Defaults**, choice on closing WR and saving Default values or Last Used

TARGET PROFILES

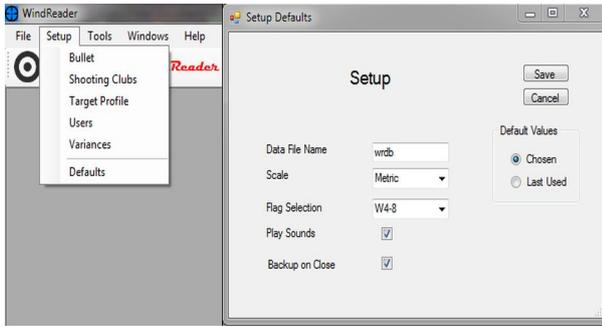


Target Profiles are accessed by clicking the Setup Tab at the top left hand side of the screen adjacent to the File Tab as shown in the adjacent frame

A new target is created by first clicking on the Green Cross Icon which gives a clean dialogue box in which to enter target ring dimensions in millimetres for Metric and inches to 2 decimal places for Imperial.

The names typed in red are for information only and don't appear in the Target Profile box. Note the tick boxes at the side of each ring size are to designate the black background colour. The example has white rings on a black background extending out to the Outer ring

DEFAULTS How to swap between Metric & Imperial, Targets, Bullets & Wind Variations



To swap between Metric and Imperial units

1. close the Target Screen
2. click on the Setup Tab,
3. click Defaults on the drop down menu
4. click on the Scale drop down menu choosing either Metric or Imperial
5. Click on Flag Selection, choose W4-8 or W5-10
6. Click Save