

ShotSeer

Usage Notes

ShotSeer Clay Target Training System and ShotSeer/PC software

This documentation is supplied by Durham Systems Management Limited for use alongside the ShotSeer Clay Target Training System.

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Introduction

What is ShotSeer?

A picture is worth a 1000 words. ShotSeer, with its 120 frame per second video imagery provides the coach with a completely new perspective in coaching equipment. ShotSeer automatically detects the client calling for the target and then stops the video once the shot has been taken. Instant playback allows coach and client to see exactly what happened and provides the coach with a way of giving convincing evidence to a client of how they shot, rather than how they *thought* they had.

ShotSeer provides a combination of multiple video streams, audio input to capture both the calling for the target and the shot, a timer to show how long it took to "kill" the target, biometrics to show physiologically what was happening at the time of the shot and other key analytical facilities to make the deconstruction of a shot a breeze.

What Can ShotSeer do?

ShotSeer provides two cameras that provide unique perspectives on the clients performance.

The gun camera, mounted on a specially designed lightweight secure aluminum clamp and set just in front of the fore-end gives a "guns eye" view of the target, and the passage of gun to target. Aiming marks, placed by the coach on the screen and available both on live action and playback show exactly where (a) the gun is pointing and (b) where the client *thinks* the gun is pointing (which as every coach knows, is not exactly the same thing).

The aiming marks, used in conjunction with the "lead mark" can show the client exactly where they should have been and, due to the fast rate of photography, can illustrate the shot path to the target. It's therefore possible, for the first time, to accurately see which part of the shot pattern actually killed the target.

The coach camera can be used by the coach to focus on specific aspects of the shooters preparation, stance or routine. Being synchronised with the gun camera (even if it runs at a different frame rate), the coach camera can be used to illustrate faults that have never before been seen.

Taken together, the two cameras give unique perspectives on the shooting session and enable the experienced coach to provide much more detailed insights into shooting deficiencies.

A key component of ShotSeer is the ability to co-ordinate cameras with specific biometric information. A coach can therefore see a clients alpha-amplitude rhythm at the same time as viewing the video. A key component of the biometrics is an indicator as to whether the client is "in the zone", "transitioning in or out" or "out to lunch". This real-time analysis of a clients mental state allows the coach to make appropriate interventions and enhance the clients mental set-up / set-down routine.

What ShotSeer is *not*

ShotSeer is not a replacement for good coaching Like all accessories, it will enhance a good coaching session and provide the client with more detailed information on their performance. ShotSeer has been designed by seasoned professional coaches who understand what is needed to make the analysis of a shooting session on a par with golf or other sports that have already invested heavily in camera and biometric technology.

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ShotSeer Components

The ShotSeer Clay Target training systems consists of:

- One over/under aluminum gun mount
- A GiGE digital camera capable of running up to 120 frames per second at VGA
- A 3m power and data cable connecting to the PC's Ethernet port
- Battery Pack
- 16mm CS lens with lens adapter
- (Optionally) An active unidirectional lavalier style microphone
- A Vilistus™ Digital Sampling Unit with a single channel bipolar EEG cable and reference
- Shotseer/Pro software for capturing, recording and playback

Optional Accessories include

- Additional biometric capture sensors and visualisation systems
- An IP67 carrying case
- Laser sighting tools to zeroing the cameras
- Vilistus Pro PC software to aid analysis and provide biofeedback
- Additional laptop batterys and battery packs

All equipment is covered by a 24 month *fair-use* return to base warranty for the hardware and an optional maintenance agreement plus technical support for the software.

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Getting Started

The ShotSeer clay target training system is very easy to operate if you use the following routine:

1. Always ensure that the camera and microphone cables are attached to the PC before starting your computer. Failure to do this will mean that the ShotSeer software may not recognise the cameras and you may need to restart the system.
2. Always keep the laptop battery fully charged. A full battery, when new, will last about two hours. While it is certainly possible to always run the computer off the mains, it does somewhat compromise the portable nature of the product.

Setting Up ShotSeer

Attaching the mounts to the gun.

The gun mount supplied with ShotSeer have been especially designed to hold the cameras securely while not impacting the balance of the gun. The mounts can be tightened and loosened using the grub-screws in the side. Loosen the screws and slide the mount over the lower barrel of the shotgun until the mount makes contact with the fore-end. Ensure that the rubber shim is correctly placed between the barrel and the mount. The rubber shim acts both as a protection for the barrel and a means of further securing the mount to the barrel. Tighten the mount so that it grips the barrel. **BE SURE NOT TO OVER TIGHTEN THE GUN MOUNT.**

Attaching the video and audio leads

There are potentially three sets of cables to connect your Shotseer clay target training system to your computer, depending on whether you are using one or two cameras.

1. A combined power and data lead that goes from the digital camera to both the Ethernet port on your computer AND a battery power pack
2. An audio lead from the microphone (if you are using one) that will connect with the microphone socket on your laptop computer
3. Optionally, a USB cable that will connect from your PC to a Video-to-PC convertor box. Your coach camera will then connect directly to the convertor box
4. A Power lead for the coach camera.

When you switch on the ShotSeer computer, the ShotSeer software environment will automatically load. As part of its initialisation, it will attempt to set up communications with the cameras and microphone. It is therefore very important that you attach all the cables to the cameras and the microphone before starting the ShotSeer computer.

Failure to connect the cameras and microphone properly will result in numerous error messages and you will need to stop and re-start the ShotSeer software. (Note that as long as you always use the same cameras on the same leads, ShotSeer will be able to re-connect with the equipment in a subsequent session).

It is therefore important that you always connect the cameras to the same leads. If you don't, you will need to adjust the video properties.

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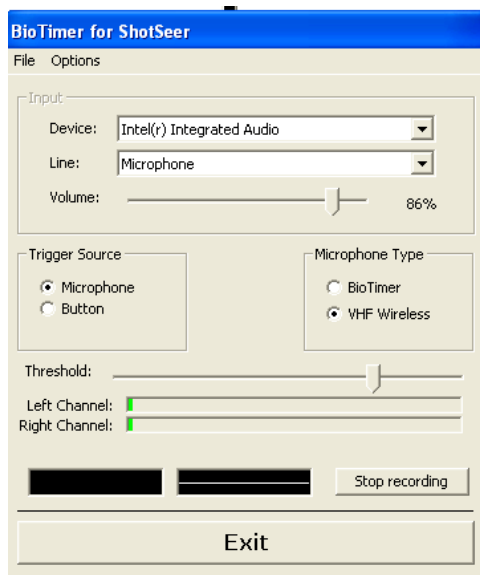
Setting up the software

ShotSeer Recorder

If you select the ShotSeer recorder and, as long as the cameras have been attached to the relevant cables prior to turning on the computer, it will immediately available for use. However, depending on the type of training session, you may need to adjust:

- Audio levels
- Video timings
- Video properties

Audio Levels



The ShotSeer software uses the microphone to detect when to start and stop recording. Microphones, by their nature, tend to pick up background noise which may or not impact on the performance of the system. Note that, in extreme conditions or when there are long gaps between calling for the target and the gun going off, it may be better to use the manual trigger.

There are two levels in the audio settings (reaching by pressing the MENU key on the multi-screen view, followed by SYSTEM SETTINGS and AUDIO SETTINGS)

You can control the volume received from the microphone by adjusting the microphone slider. The volume should be adjusted so that it captures the clients voice but in high winds or noisy conditions is not sensitive enough to pick up other sounds.

You can also adjust the “threshold” which is the point at which the software will either turn on, or off the video recording. The threshold indicator will show the audio level and the threshold adjuster should be set so that the call for the target is the only thing that exceeds the threshold (the gun going off will, of course, also exceed the threshold).

The louder the sound, the more the threshold indicator will move to the right and the more it will be coloured red. In general, if the threshold indicator is constantly showing red, the volume of the microphone should be reduced.

If you are planning on using the manual trigger button rather than the microphone to detect and record shots you should

- Select “Button” from trigger source
- Press “Stop Recording”

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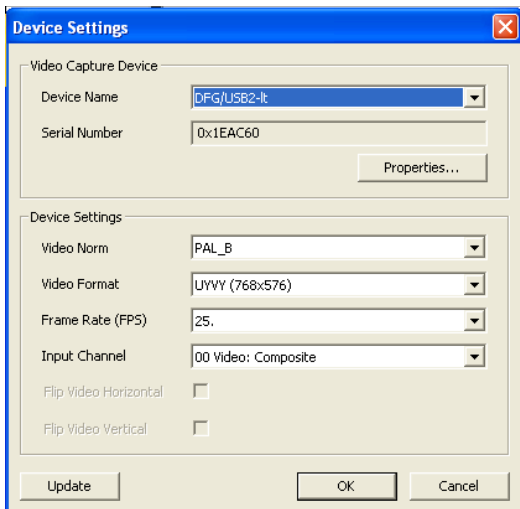
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Video Device Settings

There should be no reason to alter the Video Device Settings (accessed by pressing the MENU button, selecting SYSTEM SETTINGS then VIDEO SETTINGS, selecting the appropriate camera and then DEVICE SETTINGS). The following panel will appear:

The key pieces of information are the DEVICE NAME which should never be blank, the Video Format (which should normally be set to RGB32 640x480) and the frame-rate which should be set to 120 frames per second.

If you are using our older 25 frames-per-second analogue bullet cameras the device name should be as above (DFG/USB2-it), the video format should be Y800 (768x288) and the frame rate should be 25.



In the unlikely event that you need to amend the Video device settings, select the appropriate entries as specified above and press "OK" to register your selections.

Video Timings

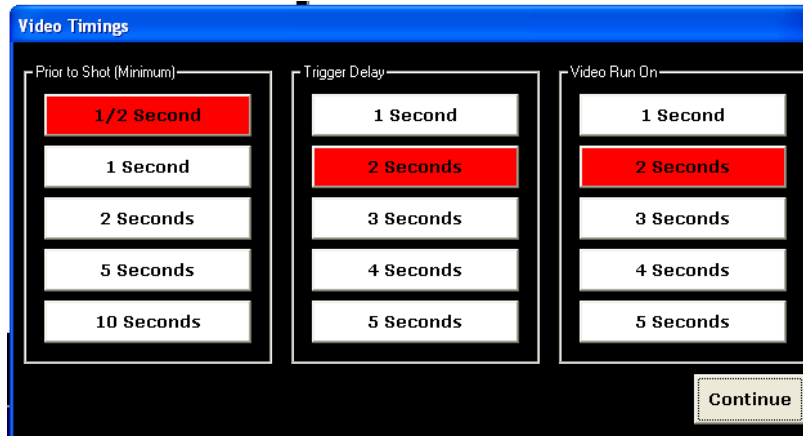
Different shooting disciplines require different timings in terms of how much time is taken between calling for the target and the gun being fired. The coach may also want to examine the set-up routine of the client and, maybe, the after shot routine too. ShotSeer provides a simple three button approach to these three aspects. This menu can be reached by pressing the MENU button, followed by SYSTEM SETTINGS and VIDEO SETTINGS.



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Alternatively, you can use the “V” keyboard shortcut to take you to the VIDEO SETTINGS menu where you can choose VIDEO TIMINGS.



for DTL, for example, it might be appropriate for 1/2 lead, 2 seconds between calling for the target and one or both barrels being discharged and 2 seconds to see the aftermath of the shot. Click on the appropriate button for each of the three phases of photography. When you have completed selecting the timings, press CONTINUE and then either the ESCAPE key to take you back to the multi screen view or RETURN from each of the menus.

Video Properties

If you have followed the instructions to attach the cables prior to starting the ShotSeer computer, you are unlikely to need to access the Video Properties menu (reached by MENU, SYSTEM SETTINGS, VIDEO SETTINGS). You should select which camera you are interested in changing (GUN CAMERA or COACH CAMERA) and you will then see the following screen:



Device settings are used to specify the camera, the video format and the Framer-rate. In general, the frame-rate should have been set to 120 FPS, the video format to RGB32 640x480 and the device name should specify one of the cameras. As mentioned previously, these settings should not need to be changed and should only be attempted under the guidance of your product support office.

The Video Properties can be updated once you are recording a session (and will be covered later in the manual). The other option is to set the camera ACTIVE or INACTIVE. In general, both cameras should be set ACTIVE.

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Image Orientation

The cameras, as supplied with ShotSeer can fit one of two ways into the gun mount. This means that, in the event that the camera is inverted in the mount, the image as displayed in ShotSeer will also be inverted. The settings menu allows you to invert the image from the camera rather than having to change the gun mount by navigating to the Gun (or coach) camera menu and selecting "INVERT IMAGE".

Note that the image will stay inverted from one session to the next and, in the case that the camera has been re-orientated, you can cancel the inversion by, again, going to the Gun (or Coach) camera menu and selecting "RESET IMAGE ORIENTATION".

The software will not allow you to change the orientation of the images while recording.

Setting up Biometric Recording

Biometric data is captured via the Vilistus Digital Sampling Unit. If the "Biometrics" button is greyed-out, use the MENU button, followed by System Settings and press "Set Biometrics Active", then press the ESCAPE key or "return" to go back to the multi-screen view.

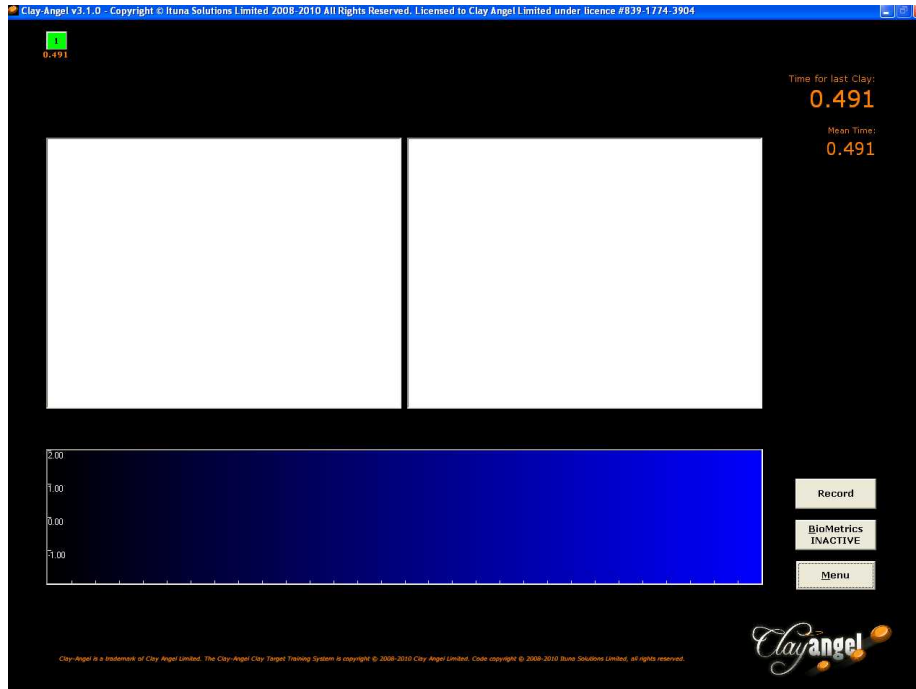
Factory Settings

In the event that it a change to the cameras and/or the ShotSeer configuration needs to be reversed out; it is possible to use the RESTORE FACTORY SETTINGS option to return the software to the state in which it was delivered. Note that if you do restore the factory settings, all the current configuration files will be overwritten. There is no need to re-start the software following a factory reset as the software automatically adjusts to the new (original) environment.

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Recording a session



The screen you should see above should be similar to that which you have on your system. Note that the following components are visible:

- Two video streams; the one on the left is for the gun camera, the one of the right for the coach camera.
- Two timings; the time for last clay and an average (or mean) time for the session. This can be very useful in establishing whether a client is using the same routine before, and during, a shot.
- Three menu buttons; RECORD, BIOMETRICS AND MENU. You will already have used the menu button to access the system settings menu. RECORD, when pressed, will begin the recording, and pressing the “BIOMETRICS” button will start the transmission from the Vilistus biometric recording device.
- In the top left of the screen you will see that a shot has already been taken.

Starting recording

A recording is started by pressing the RECORD button. Depending on how many cameras you have active, the white squares in the graphic above will be replaced by live video from the gun and/or coach camera.

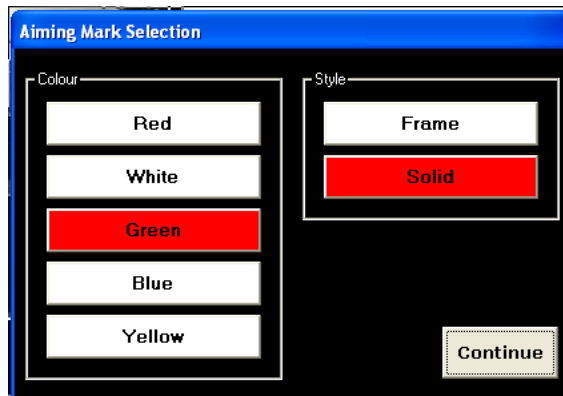
Aiming Marks

ShotSeer has the facility to create aiming marks on the live action window. Clicking the right-hand mouse button on the display will superimpose an aiming mark on the screen; pressing SHIFT RIGHT-CLICK will put an alternative aiming mark on the screen. We recommend that you use one mark to sight the camera so that the mark points at the exact position that the gun is pointing at (this can be achieved either by sighting the gun manually or using a laser sight that we supply as an accessory). The second sight-mark can be used as an aiming mark to show where the client *thinks* the gun is pointing.

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You can change the colour and style of the aiming marks by accessing the Aiming Mark menu (MENU/SYSTEM SETTINGS/VIDEO SETTINGS/AIMING MARKS) or by using the “V” keyboard shortcut to take you to the video menu.



By pressing the relevant colour and style, the aiming marks will be changed to reflect your selection.

Full-screen Video

You can toggle between multi-screen view and full-screen view by LEFT-CLICKING on the video feed. Be aware, however, that although the multi screen view shows good definition of image, enlarging the screen does not increase the number of pixels available and so the full-screen view, while still very useful, is a less crisp image. LEFT-CLICKING on the full-screen view restores the multi-screen view.

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Recording a shot

If you are using the microphone and automatic triggering facility (see above video timings), shots will be recorded if (a) a sound exceeds the threshold (see above AUDIO SETTINGS) and another sound exceeds the threshold within a given period (the TRIGGER DELAY in audio settings) then a shot will be recorded.

If you get a number of random shots recorded you can take the following actions:

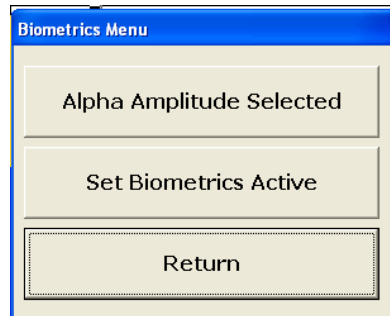
1. Reduce the microphone volume
2. Increase the shot threshold
3. Mute the microphone and use the manual trigger

Points (1) and (2) are covered in the AUDIO SETTINGS section above. The manual trigger can be used by first muting the microphone (press the “A” keyboard shortcut – a message “Audio muted” will appear above the RECORD button) and then pressing the “T” (Trigger) keyboard shortcut twice; the first time to register that the target has been called for and the second when the gun is discharged. Note that if you are using the manual timer, the Time for Last Clay and MEAN TIMES are unlikely to be accurate.

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Biometric Recording

One of the key features of ShotSeer is the ability to integrate biometric information with the recorded video data. Biometrics are activated by navigating to the “Biometric Settings” option in the “System Settings” menu.



The default biometric is “Alpha Amplitude” although this can be changed by repeatedly clicking the button indicating the amplitude and it will cycle in turn through THETA, ALPHA, SMR, BETA and HIGH BETA and GAMMA as well as the THETA/BETA ratio and the ALPHA/THETA ratio.

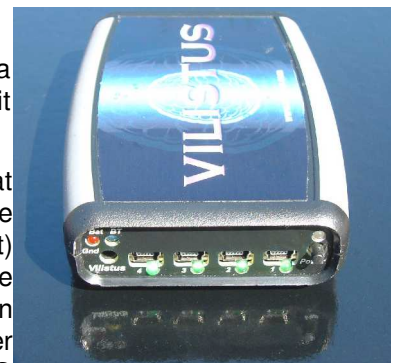
You can activate and deactivate biometrics by clicking the second button on the menu which will switch between “Set biometrics Inactive” and “Set Biometrics Active”. If the biometrics are inactive, the biometric button on the main screen will be “greyed” out. Setting it “active” will re-activate the button.



The Vilistus unit seen on the right has 4-ports (your version may differ) with a white on/off light on the right hand side, a blue “Bluetooth” light which is lit when the unit is on line and an orange “battery low light”.



You will also have at least one EEG cable (seen to the left) which inserts into the Vilistus DSU seen above.



ShotSeer expects that the EEG cable is inserted in Channel 1 which is on the right hand side of the faceplate. The supplied ground reference cable should be inserted in the socket on the left hand side labeled “Gnd”.

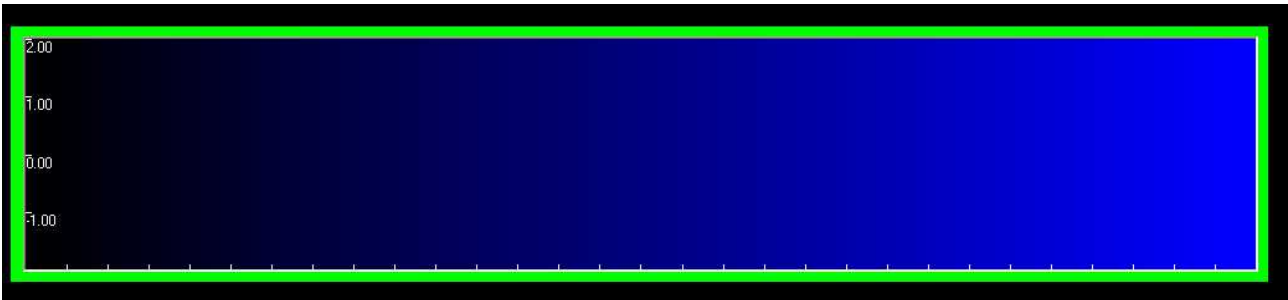
Be sure that the cables are connected and the unit switched on before attempting to use the Biometric facilities within Clay-Angel.

Once you have started the Vilistus unit (by pressing the Power switch on the right hand side) and the white light is on, press the “Biometrics” button on the ShotSeer Multi-screen.

There are two indicators that the Vilistus unit is working; the Blue light on the Vilistus DSU will illuminate and a red, amber or green border will appear around the biometric window:

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Note that you can only capture biometric data when video is being recorded. The following status indicator messages can appear just above the RECORD button:

- **Waiting for DSU** - (*Information*) ShotSeer is scanning to find a Vilistus DSU that is switched on and active
- **End of Memory** - (*Error*) Indicates that maximum recording time has been reached (set at 90 minutes in the current version). The recording will stop but you can continue with ShotSeer/
- **Allocating Memory** - (*Information*) ShotSeer is allocating space to collect biometric information
- **Memory Allocation Failure** - (*Error*) ShotSeer has not been able to allocate the space to collect information from Vilistus. Re-boot the PC
- **Initialising DSU** - (*Information*) ShotSeer is initialising the Vilistus DSU
- **DSU Paused** - (*Information*) ShotSeer has paused the recording of biometric information.
- **Closed-down Complete** - (*Information*) This message can be displayed at the end of a biometric session indicating that the link to the DSU has been successfully shutdown.

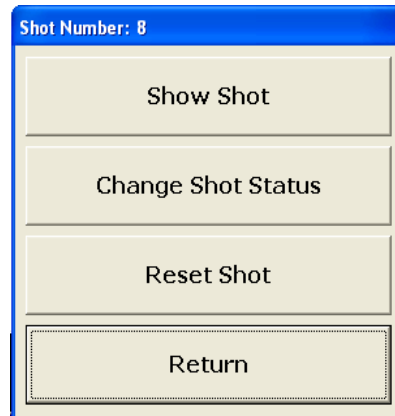
IMPORTANT NOTE: The biometric data recorded with Vilistus is for diagnostic purposes only. Training with biofeedback and neurofeedback should be undertaken with an experienced coach and you should use the Vilistus software (provided separately).

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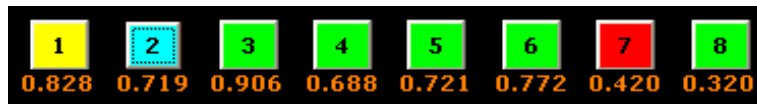
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Categorizing a shot

Once a shot has been taken, an indicator will appear on the top of the ShotSeer multi screen (see below). By clicking the relevant shot using the left mouse button, the following menu will be displayed:



where you can choose to view the shot; change the status or, if it is the latest shot, reset (or remove) it.



ShotSeer provides four options for indicating the status of a shot. These are:

Shot with the first barrel (green)

Shot with the second barrel (yellow)

A shot that is of interest (blue)

A miss (red)

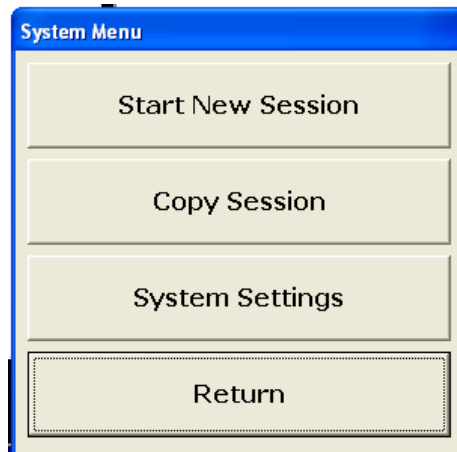
You can also "reset" or delete a shot providing it is the most recent one (it is currently not possible to remove a shot previous to the latest).

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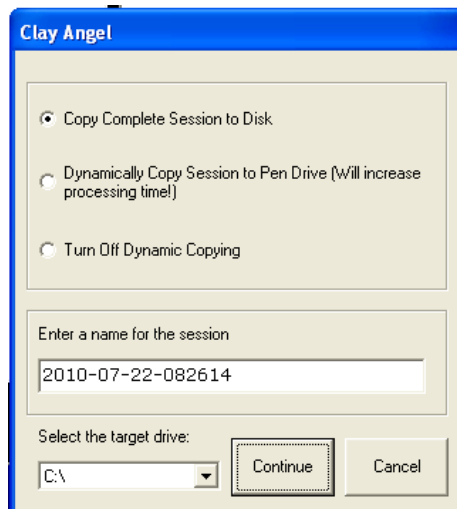
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Saving a session

Once a session has been recorded, it can either be deleted or copied to another location on your hard disk. Both options are to be found on the main menu (accessed by pressing "MENU" on the recording screen)



If you select "Start New Session", the current session will be immediately deleted; there is no facility for recovering a deleted session. If you wish to store the session, press "Copy Session" and the following window will appear:



Make sure that "Copy Complete Session to Disk" is selected and either enter a name for the session, or keep the name that ShotSeer has selected. Finally, select the target drive (usually "C" if you are copying to your hard disk) and ShotSeer will copy the session to the root directory of the selected target drive under the name of CLAYANGELVIEWER.

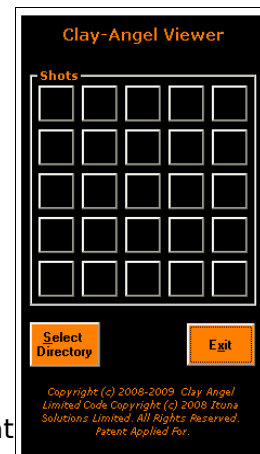
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Reviewing a Session

You can review a session (while it is still current) by clicking on the relevant shot as indicated at the top of the ShotSeer recording screen.

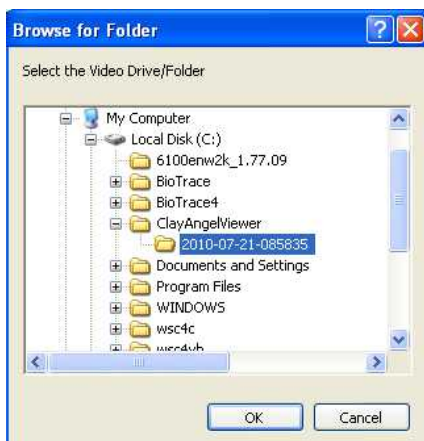
Select the ShotSeer Viewer from your desktop and press continue.

The following screen will then be displayed:

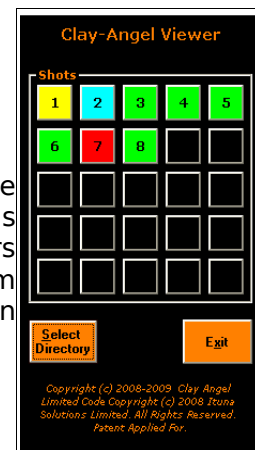


Press the “select directory” button and navigate to the session that you have previously stored.

The stored session will be under a directory named “ShotSeer Viewer” as can be seen in the image below:



Pressing OK will then populate the ShotSeer viewer main menu as seen here. Notice that the colours of the buttons match those from the ShotSeer recorder screen above

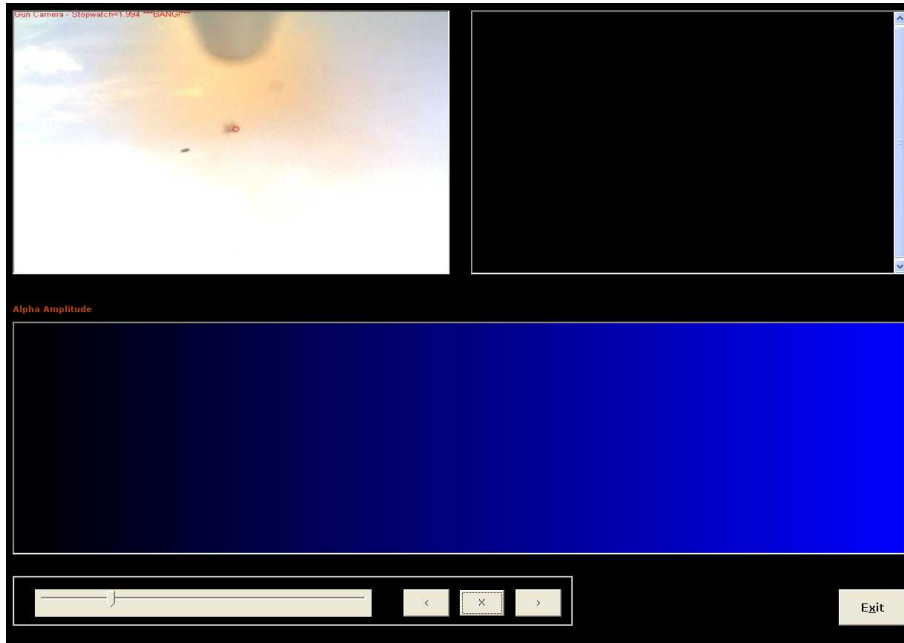


A shot can be selected either from the recording menu or from the ShotSeer viewer “controller”. The ShotSeer viewer screen is then displayed.

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This example shows a shot in progress:



There are four controls (apart from the jog-wheel) that can be used on this screen. In the lower left corner is a slider that allows you to specify the speed at which the shot will be replayed. Next to that are three buttons; play backwards, stop and play-forwards. You can use the jog-wheel to move at any speed either forward or backward through the session.

In the case of this shot, the following sequence shows the client tracking the clay, the gun being fired and the the target being broken:



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Appendix A - Keyboard shortcuts and mouse clicks

ShotSeer Recorder

Key	Action
A	Toggle Microphone input On/Off
M	Show the Menu
R	Toggle Record On/Off
T	Manual Trigger
X	Exit system
V	Video Settings Menu
Left arrow	Decrease time interval on biometrics
Right arrow	Increase time interval on biometrics
Esc	Exit context sensitive menu / ShotSeer

Mouse when used in video window

Left Click	Toggle Full Screen
Right Click	Add aiming mark to video window
Shift-Right Click	Place alternative aiming mark in video window

Mouse action on shot buttons

Left Click	Show Shot Menu
Right Click	Show shot

ShotSeer Viewer

Key	Action
B	Back a frame
F	Forward a frame
P	Play shot as video (at current frame rate)
R	Rewind shot to beginning of recording
S	Stop video playback
X	End Viewer session
ESC	End Viewer session
Ctrl-B	Back a frame
Ctrl-F	Forward a frame
Ctrl-X	End Viewer Session

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Appendix B- Messages

ShotSeer Recorder

CA1: Fatal Error: Cannot write to \images sub directory. Have you set the correct permissions or is the disk full This error message is displayed when ShotSeer is unable to write the recorded images to disk. Check that the disk is not full and, if it is, delete some files.

CA2: Cannot write to Memory Stick, Is it correctly inserted into a USB drive? Turning off dynamic copying now. You will receive this error if you specify a memory stick for dynamic copying and it cannot be used by ShotSeer

CA3: *error number - error description* - Cannot save Properties The specified error has occurred and the video properties cannot be saved. It is generally issued after ShotSeer has attempted to write the properties of the video session to disk

CA4: Error: *errorNumber - errorDescription - screentitle* cannot be opened The specified camera cannot be activated. ShotSeer will attempt to continue without the camera.

CA5: Camera Properties Locked ShotSeer is unable to change the device settings. The settings have been locked.

CA6: Device Settings cannot be accessed when video is running You attempted to access the Device settings of a camera while recording a session. Stop recording and try again.

CA7: Vilistus DSU cannot be found. Check that the DSU is switched on, that Bluetooth is enabled and the DSU is paired with the PC. If you receive this error message, check that the Vilistus DSU is switched on (there should be a white light on the faceplate) and that either a Bluetooth "dongle" is in the computer or the internal Bluetooth ariel is active. You can tell whether Bluetooth is active because the little blue on white "B" should appear in the system tray at the bottom right of the windows screen. If Bluetooth is active and the DSU is switched on, it is possible that the units are no longer paired. Re-pair the devices or call technical support for assistance.

CA8: Vilistus DSU Initialisation Failure. Return Code is x This message, if it appears, means that a serious communications error has occurred. Please call technical support with the return code.

CA9: Biometrics cannot be captured while recording is inactive Biometric processing is tied to the recording of the video stream. It cannot be used independently. If you wish to use Vilistus without ShotSeer, download the Vilistus software from www.vilistus.com.

CA10: No Shots have been taken Invalid attempt to reset a shot when none are available.

CA13: No Cameras are active All Cameras have been disabled. Use the Video menu to re-activate the gun and/or coach camera.

CA14: No cameras found; please check video settings and/or connections The implicit frame rate is zero; no cameras are attached to the system. Check connections.

CA15: System Frame Rate insufficient for capturing video stream - altering system frame rate The maximum frame rate of the camera exceeds the internally calculated frame rate (taken from the video timing menu). ShotSeer will automatically adjust the frame rate.

CA16: System Frame Rate (*frame rate*) exceeds maximum video frame rate - altering system frame rate The cameras attached to ShotSeer are not fast enough to record at the rate dictated by the internally calculated frame rate (taken from the video timings menu). ShotSeer will automatically adjust the frame rate.

ShotSeer

Usage Notes

CA17: Camera frame rates are incompatible The cameras attached to ShotSeer have been set at incompatible frame rates. ShotSeer cannot continue. In general, ShotSeer will allow various frame rates to be used on cameras as long as the speed of the slowest divides in the speed of the fastest.

CA18: No Shots have been taken You attempted to reset a shot that is not available to be reset OR you attempted to reset shots when none have yet been taken.

CA19: The manual time can only be used when video is being recorded You attempted to use the manual timer without the video recording being active. Activate recording and try again.

CA20: End of session You have taken 25 frames. Either reset some frames or start a new session

CA21: 'Record' hot-key is not available in full screen mode. You attempted to toggle recording while in full screen mode. Return to the multi-screen view (by clicking the left mouse button on the full screen image) and then press "R".

CA22: ShotSeer instance already active. Do you wish to continue?" If you receive this message either (a) ShotSeer is already active in which case you should answer "No" to the question or (b) ShotSeer abnormally ended its last session. In the latter case you are safe to answer "Yes".

CA23: Saved frame rate is 0; substituting 25" ShotSeer has incorrectly stored the frame rate as 0 and is substituting 25 FPS. This may, or may not, be appropriate depending on the cameras being used. Stop recording and adjust the video properties (frame rate).

CA24: Video Properties can only be updated while images are being recorded" You attempted to change the video characteristics without recording images. You should return to ShotSeer, press "record" and then return to change the Video Properties

CA25: Please select a directory for dynamic copying You should select a directory on your local "C" drive to store images as they are being recorded.

CA26: Please select the directory where you wish to copy the session Select the directory which will receive the images from the session

CA27: Drive missing or Invalid Name Check that the disk drive you wish to write to exists OR that the name of the session you are creating contains only the following characters : (A-Za-z0-9.-)

CA28: No Drives were found! An internal windows error has occurred. No disk drives are available to be written to. Check that at least one disk drive is available to be used.

CA29: File paths in .INI file could be wrong. Please correct them and re-try ShotSeer was unable to open it's log file. This could be the result of incorrect authorisations on the directory or the disk being full.

CA30: Warning, subsystems name will be truncated in the log The subsystem name in the log can be a maximum of 8 characters. ShotSeer will truncate the subsystem name.

CA31: Version of DLL is x.y.z Indicates the version of the Vilistus DLL

CA32: Critical Error: 'ShotSeer.ini' contains invalid data. ShotSeer is terminating The ShotSeer control file has corrupt or invalid data. Please call technical support.

CA33: Couldn't select audio device ShotSeer was unable to access the microphone. Check the microphone connection

CA34: Couldn't select mixer line The audio mixer line is unavailable. Check the microphone connections

CA35: Write error (no disk space left?)! The ShotSeer bio-timer was unable to spool data to disk. Check that the disk is not full.

ShotSeer

Usage Notes

CA36: Could not stop recording ShotSeer was unable to switch off the microphone. This is probably due to a conflict and/or multiple microphones being active,

CA37 - Output File missing The bio-timer temporary output file is missing. Check file authorisations and that the disk is not full

CA38 - No Device Selected The ShotSeer Bio-timer is not associated with any microphone. Check the audio settings and ensure that a microphone is selected.

CA39: Could not initialise the encoder There is no microphone associated with the ShotSeer session. Check the audio sessions and ensure that a microphone is selected.

CA40: Could not start recording An invalid sample rate has been set for the recording and ShotSeer is unable to use it. Check the audio sample rate settings in the audio menu.

CA41: *msg Error in name.routine* An error has occurred in the Audio recorder. Check the microphone connections and that the microphone is activated in the audio settings.

CA42: Invalid Licence Key This copy of ShotSeer does not have a valid software licence. It can be obtained from your local product support office.

CA43: Cannot Restore Factory Settings: Data has not been saved. Factory settings have not been saved on this machine and the defaults cannot be restored.

CA44: Factory Settings have been restored. Camera and initialisation files have been reset to their factory settings (or the previous time the settings were saved).

CA45: Factory Settings Saved. The factory settings have been saved

CA46: Cannot Create Settings Directory. ShotSeer has been unable to create the settings directory. This can be due to lack of authorisation or the disk may be full

CA47: Button trigger selected, no trigger delay. Having selected the button trigger, only one trigger event is recognised and, therefore, there is no inter-trigger delay

ShotSeer Viewer

CAV1- Cannot find *picture* The ShotSeer viewer cannot find the image in the image directory. The viewer will close.

CAV2 -Biometrics file missing The biometrics recording for this shot cannot be found

CAV3 - The selected directory does not contain a ShotSeer Session You have selected a sub-directory that does not contain any ShotSeer images. Please select another directory

EEG Stream

EEGStream/1 - The EEG data could not be written to disk as the shot number has not been initialised. ShotSeer has encountered an error and should be re-started.

EEGStream / 2 -Data Array contains no data No EEG data has been recorded. Check that the Vilistus unit is switched on, online at that the devices have been paired.

EEGStream/3 - Channel Number not initialised An internal error has occurred in the recording of EEG data. Re-start ShotSeer and try recording a session again. If the error continues, please call technical support