



VIDEO CAPTURE AND ANALYSIS MODULE (VCAM) USER GUIDE

Thank you for your support in HitTrax.

This document will walk you through set-up, camera selection, and editing features of the Video Capture and Analysis Module.

Please do not hesitate to call us with any questions.

TABLE OF CONTENTS

<i>Overview</i>	3
<i>Set-up</i>	4
<i>Live Capture</i>	5
<i>Select Camera View</i>	6
<i>Instant Review of Swing</i>	7
<i>Review Videos After a Session</i>	8
<i>Tools to Review Videos</i>	9
<i>Emailing Videos</i>	12
<i>Video Comparison</i>	12
<i>Book Marking Video(s)</i>	13
<i>Video Storage Management</i>	14
<i>Remote Access to Videos via App</i>	15
<i>Trouble Shooting</i>	15

OVERVIEW

One of the primary objectives for us at HitTrax is to provide the user with immediate feedback that will assist during the training process. With that goal in mind, we built the Video Capture and Analysis Module (VCAM) to:

1. Immediately have the video available for review after the event (hit/pitch/throw) is completed
2. Automatically combine the video with the corresponding metrics so that analysis can be filtered and reviewed according to user's preference.

The “cause & effect” result allows players to immediately recognize how small changes in their swing can impact performance and metrics. This undoubtedly produces faster buy-in from the player.

Features of the module include”

- Live capture of the event directly in the HitTrax program
- Immediate playback of the event for quick review
- Automatically edits video with event
- Combines video with corresponding metrics and automatically catalogs the videos into the session list
- Review videos by specific metrics or sections of strike zone
- Illustration tools and voice recordings
- Side by side comparisons and synch features
- External videos (e.g. game videos) can be uploaded and compared to HitTrax capture videos
- Emails videos, notes, and recording directly to player
- Send videos to cloud for players and facilities to access via remote apps

The video feature supports connectivity of up to three freestanding cameras positioned in desired locations. Switching between the views is accomplished by selecting the specific camera within the program.

Please note that an active premium subscription is required for operation of the Video Capture and Analysis Module.

SET-UP

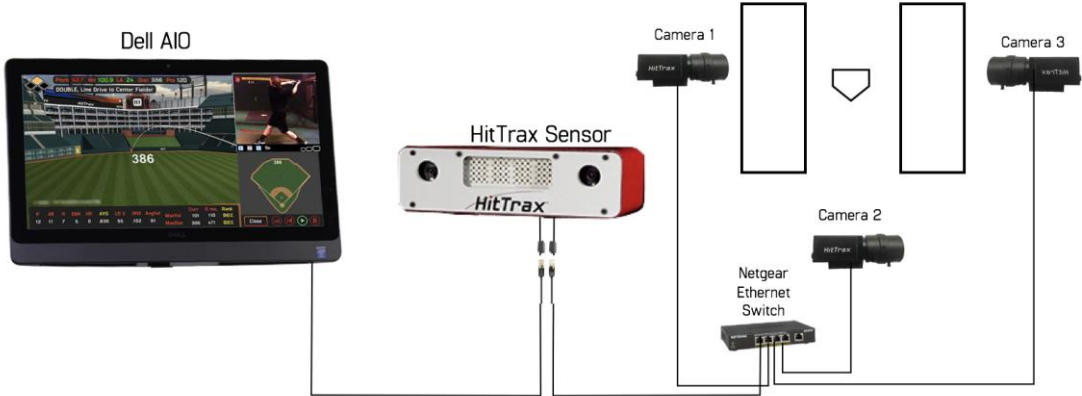
The HitTrax system supports single and/or multi-camera set-ups.

Single Camera Configuration for Gen 3 System



- 1. All cables must be CAT 6
- 2. CAT 6 female adaptors below HitTrax frame are interchangeable

Multiple Camera Configuration



- 1. Supports a maximum of three cameras.
- 2. All cables must be CAT 6
- 3. CAT 6 female adaptors below HitTrax frame are interchangeable
- 4. Netgear ports 1 thru 4 are interchangeable

LIVE CAPTURE

Live capture can be accomplished within a player's hitting, catching, or pitching session. Once in an active session, select the camera icon to turn on the live video feed from the default camera. The video window will then appear in the upper right corner of the HitTrax program.



While the live video is live streaming, the program will automatically clip and save a video once the hit/throw/pitch is detected. That video clip is then automatically attached to that event and can be viewed immediately within the session window or in a post-session report.

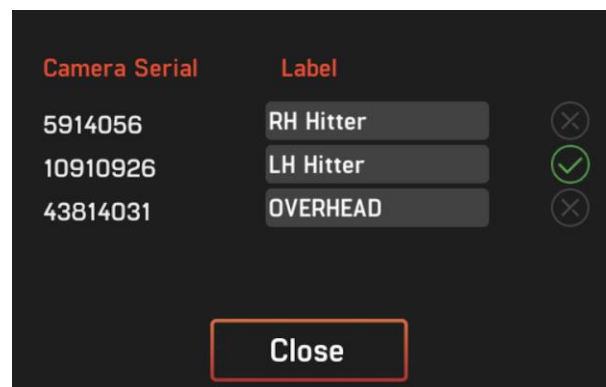
- The video of a HIT will be 2 seconds long capturing load to follow-thru
- The video of a PITCH will be 4 seconds capturing windup to follow-thru
- The video of a CATCHER'S THROW will be 3 seconds capturing time before receipt of the ball thru the catcher's point of release

SELECT CAMERA VIEW *(ONLY APPLIES TO MULTI-CAMERA SET-UP)*

Once the video window is turned on, the user can choose a preferred camera view by selecting the camera icon in the lower portion of the window (see picture on pervious page).

Once selected, a new window will appear listing the cameras available for capture. The user can rename the camera (e.g. right, left, overhead) and select the preferred view to record.

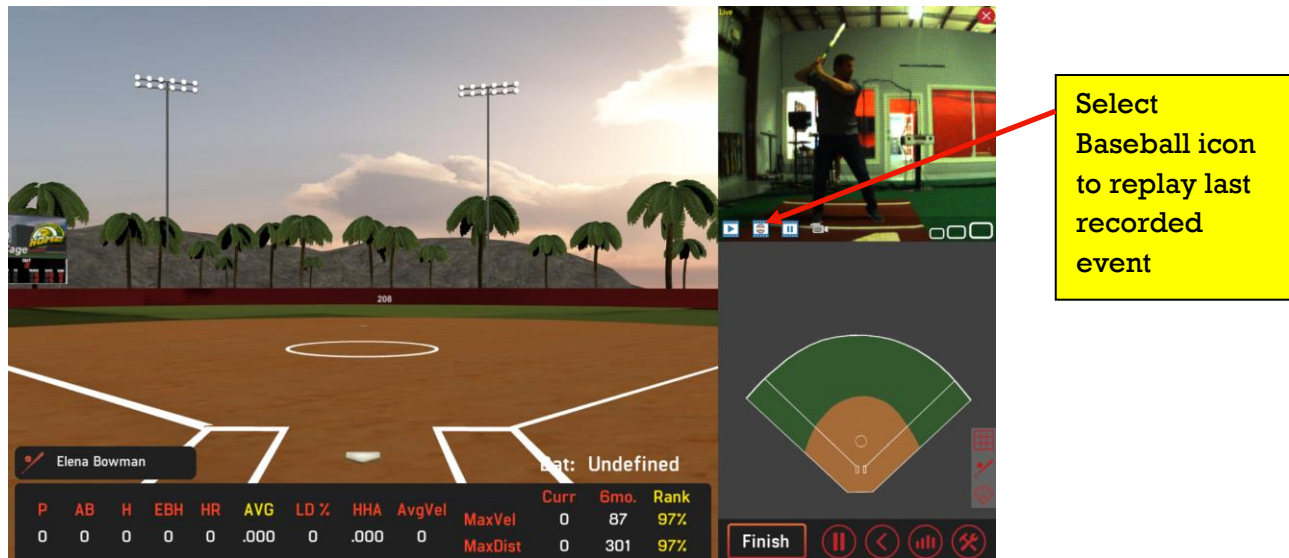
Select 'Close' after the desired camera is selected.



INSTANT REVIEW OF SWING

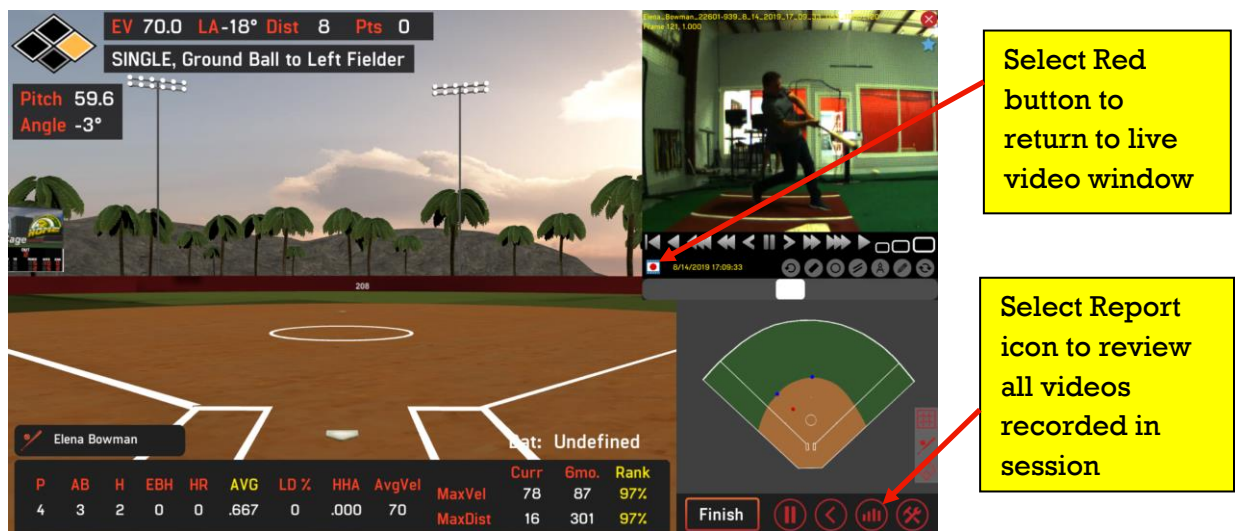
Once a video is captured, the user has the option to review the video for immediate feedback or continuing with the session.

To replay the most recent video, select the 'baseball' icon at the bottom of the video window. The recorded video will then appear and the user can review the event by either advancing or rewinding the event frame by frame, or illustrating/reviewing mechanics.



Select Baseball icon to replay last recorded event

The user can return to a live mode by selecting the red button.



Select Red button to return to live video window

Select Report icon to review all videos recorded in session

REVIEW OF VIDEOS AFTER A SESSION

After a training session is complete, the user can review all videos captured during the session.

To review your videos, select the 'Report' icon in the lower right corner of the training session window (see picture on previous page). This will open the Reports window for the training session (see picture below).

To review the events & videos captured during the session, select the 'Session Review' report from the pull-down menu. A list of all events along with the corresponding videos will be listed on the right side of the report.

The Session Review report will display the list of hits/pitches/throws in a line-by-line summary. These events can be sorted chronologically, or by individual columns by selecting the metric on the header. The camera icon to the right of each line represents the corresponding video for that event. Select the camera icon to view the video.

The screenshot displays the HitTrax Reports interface. On the left, a yellow callout box points to a 'Session Review' dropdown menu. Below it is a velocity grid showing '77 mph 1/1' in red. The center features a video player with a baseball player in a batting stance. On the right, a table lists hits with columns for #, Pitch, Velo, LA, Dist, Res, and Type. A second yellow callout box points to a camera icon in the table, and a third points to the table header. At the bottom, a 'Refresh' button is highlighted.

#	Pitch	Velo	LA	Dist	Res	Type
15	61.0	76.5	30	265	HR	FB
6	58.8	74.7	29	252	HR	FB
31	0.0	74.7	23	231	HR	LD
35	60.1	74.0	31	253	HR	FB
7	59.5	73.8	29	247	HR	FB
13	59.5	73.7	33	256	HR	FB
17	60.2	73.7	-5	23	1B-7	GB
9	59.6	72.4	19	192	2B-8	LD
25	60.2	71.0	22	199	2B-8	LD
10	60.1	71.0	12	137	2B-8	LD
26	58.6	69.9	22	196	2B-7	LD
27	59.6	69.0	44	233	HR	FB
33	58.5	68.7	42	233	HR	FB
19	58.6	67.0	10	108	1B-7	LD
2	60.2	63.4	52	189	F8	FB
24	59.4	58.5	66	120	F9	FB
14	59.3	53.5	4	49	1B-8	GB

As with the immediate replay, illustrations and playback can be shown along with resizing of the window for a larger image.

To review video from a previously recorded session, go to your user list under “Users and Reports” in the Administrator menu, choose a player, and then choose “session review”. Sessions that have recorded videos associated with them will have a camera icon to the right of the session. Select the camera icon to go to the Session Review report to review the videos.

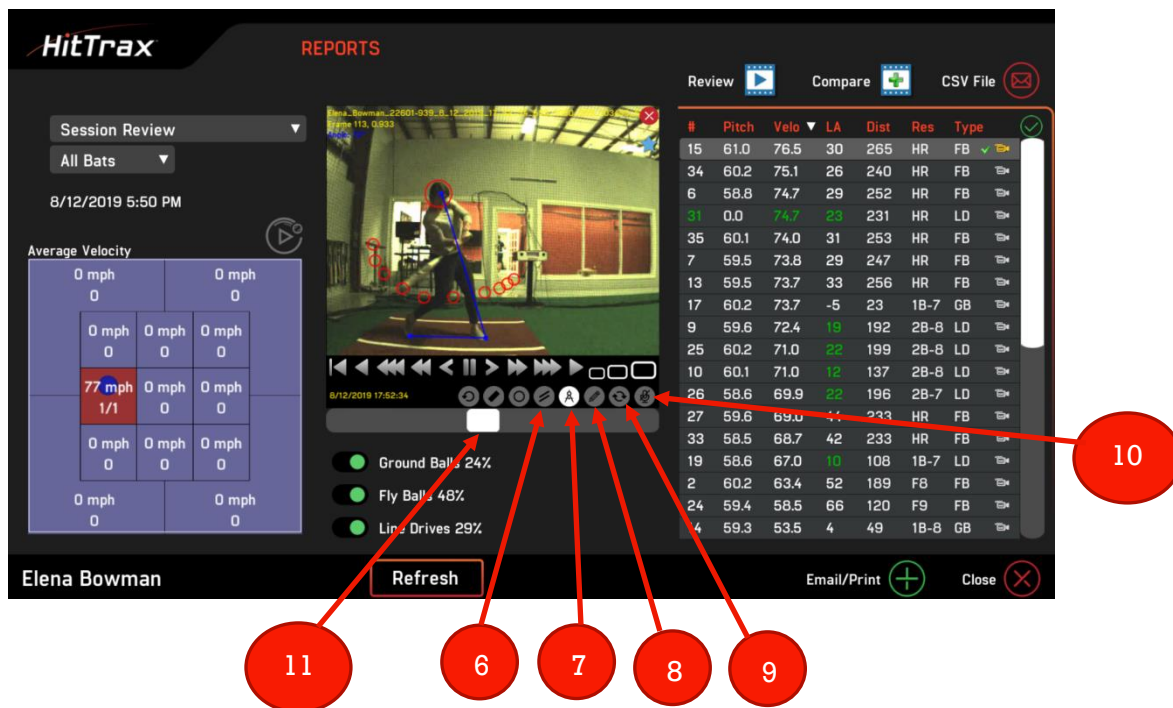
TOOLS TO REVIEW VIDEOS

The video window offers several tools to review and break down the hit/throw/pitch.

#	Pitch	Velo	LA	Dist	Res	Type
15	61.0	76.5	30	265	HR	FB
34	60.2	75.1	26	240	HR	FB
6	58.8	74.7	29	252	HR	FB
31	0.0	74.7	23	231	HR	LD
35	60.1	74.0	31	253	HR	FB
7	59.5	73.8	29	247	HR	FB
13	59.5	73.7	33	256	HR	FB
17	60.2	73.7	-5	23	1B-7	GB
9	59.6	72.4	19	192	2B-8	LD
25	60.2	71.0	22	199	2B-8	LD
10	60.1	71.0	12	137	2B-8	LD
26	58.6	69.9	22	196	2B-7	LD
27	59.6	69.0	44	233	HR	FB
33	58.5	68.7	42	233	HR	FB
19	58.6	67.0	10	108	1B-7	LD
2	60.2	63.4	52	189	F8	FB
24	59.4	58.5	66	120	F9	FB
14	59.3	53.5	4	49	1B-8	GB

The features are as follows:

1. Playback controls – these buttons allow you to forward or reverse the video one frame at a time, half speed, or full speed
2. Resizing windows – small, medium, or large view of video window
3. Video Loop – restarts and loops video playback
4. Eraser: erases marks from whichever drawing tool is currently selected
5. Circle tool: draws a series of circles for reference of bat path or head movement.



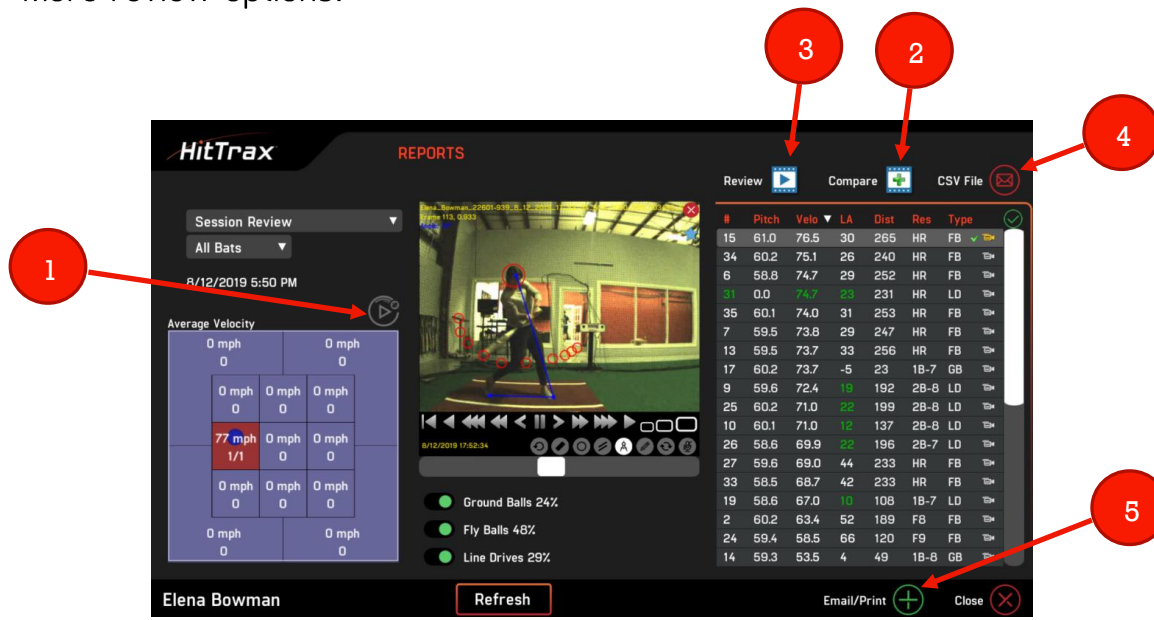
6. Parallel lines: draws parallel lines on different body segments. Once drawn, the program will give you the angle between those lines.
7. Protractor: select and connect three points to outline a desired angle. The angle will be measured and displayed in video window.
8. Pencil: allows the user to sketch freehand on the video
9. Flip: mirrors the video from a RH hitter to a LH hitter. Used to compare different hitters in side by side comparison window.
10. Microphone: allows the user to record comments and attach to the video
11. Slider: allows the user to manually move through the video forward/reverse

By turning on or off the hit types (ground/fly balls or line drives), the program will update the hit list accordingly.

Strike zone allows you to manually turn each section on or off. The videos shown in the event list will be updated according to which sections are on.

*Note: You must hit the 'refresh' button after selecting sections of the strike zone in order to update the event list.

More review options:



1. Forward Key - provides the stadium view with playback of the event once you hit play on the video.
2. Compare Icon - Selects the video(s) that you would like to compare in the 'side by side' comparison window. Add as many as you wish to the list.
3. Review Icon - Once selected, it will open the side by side comparison window. User then can select the videos they wish to compare.
4. CSV File - Select to email a .CSV file of the data recorded in the session. The file contains all metrics of each event recorded in the session. Once selected, the program will bring you to an email window with the .csv file attached.
5. Email/Print - Select the email/print button to move the report/video to the email 'Queue' list (not shown). Select 'Queue' to bring you to the email list and then select email to email the report/video.

* Not shown in the above picture - selecting 'edit' will allow the user to delete one or more events that were recorded in error or you do not wish to save.

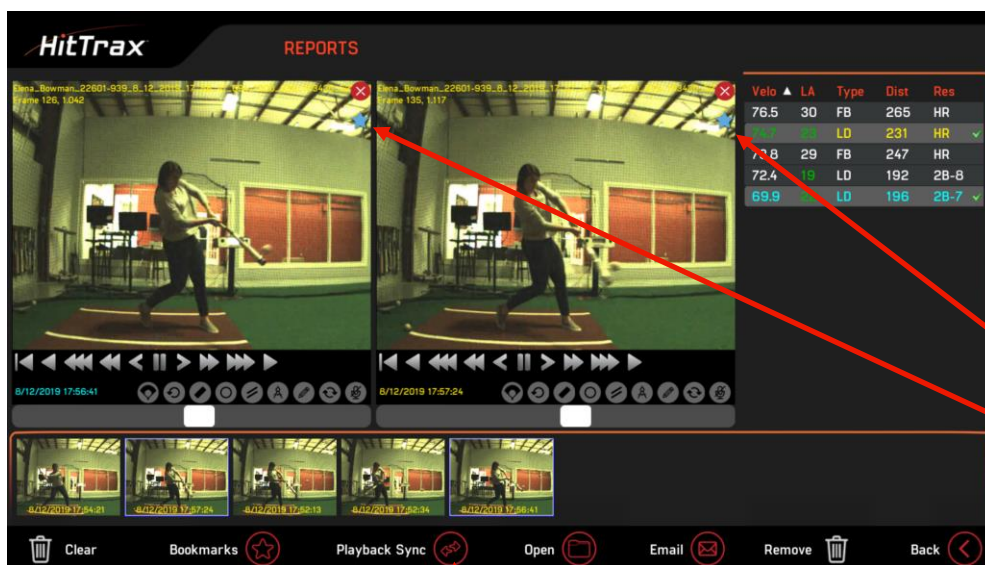
EMAILING VIDEOS

Videos can be emailed to players and/or coaches from the session review report. With the desired video active, click the 'email/print' button in the lower right corner and the video will then be added to the queue. When ready, select the 'queue' button and press 'email' to email the video(s). The email window will appear with the player's email shown in the upper left-hand corner. There is an option to enter in additional email addresses in the lines below. Click on 'yes' to send the video.

VIDEO COMPARISON

The video comparison feature allows you to bring videos to a video comparison window and select any two for a side by side analysis.

After selecting the desired video from the session list, press the 'compare' button on the top of the event list. Multiple videos can be added to the list by selecting the video and hitting 'compare'. Once all videos are selected, press the 'review' button. This will open the comparison window.



Blue Star icon will allow you to Bookmark (save) videos

Playback Sync button to synch videos

All editing and illustration features are available in the comparison window.

You can synch the two videos to the same point of interest (e.g. point of impact) by manually moving each video to an appropriate point. Once both videos are matched, select the 'Playback Sync' icon on the bottom the window. The two videos are now synched and will be move together with the playback buttons or the slider.

BOOKMARKING VIDEO(S)

If you wish to save a specific video for future reference, select the blue star icon (see above picture) in the upper right of the video window. Once selected, the star will turn gold and a window will appear where you can title the video and then list notes for reference.

Selecting 'save' will officially bookmark the video and permanently save the file on the local hard drive as well sending it the HitTrax Cloud.

Once on the cloud, bookmarked videos will be available on other HitTrax systems within the facility as well as to the HitTrax player and facility remote apps.

Gold Star indicates bookmarked/saved video

The screenshot displays the HitTrax interface. The main video player shows a person on a treadmill. A gold star icon in the top right corner of the video window indicates a bookmarked video. A modal window is open for editing the bookmark, with the following details:

- Title: Great Connection 76.5/30/265'
- Note: On time, HR LC gap

Below the modal window, there is a table of performance metrics:

Velo	LA	Type	Dist	Res
76.5	30	FB	265	HR
				31 HR
				47 HR
				52 2B-8
				56 2B-7

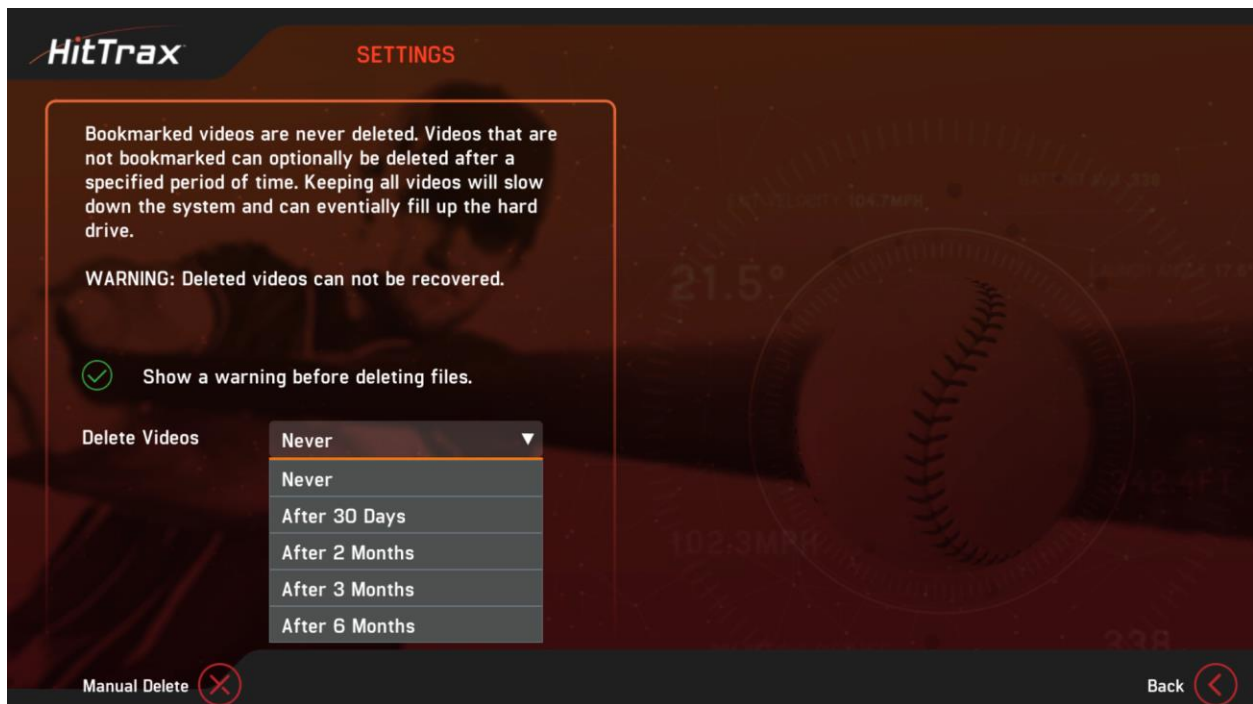
The bottom navigation bar includes icons for Clear, Bookmarks, Open, Email, Remove, and Back.

VIDEO STORAGE MANAGEMENT

To manage the storage of your videos, go to the 'settings' icon in the main Administrator window. Select the 'video options' icon in the lower left corner of the screen.

In this window, you can elect to never delete an un-bookmarked video, or delete at a specified time frame listed in the pulldown menu. It is important to note that bookmarked videos will never be deleted. And by selecting "show a warning before deleting files" the program will inform you that there are a certain number of files scheduled to be deleted that day which you can either approve or decline.

At any point in time you can manually delete un-bookmarked videos by selecting the 'manual delete' button.



REMOTE ACCESS TO VIDEO VIA APPS

To access videos remotely, HitTrax users may download the HitTrax desktop app (available for Mac and PC). The desktop app can be downloaded from the HitTrax website in the user portal. This requires a standard or premium subscription. The player's email address and password will be required to log into the account.

TROUBLESHOOTING

Problem: The 'video camera' icon is not shown in the HitTrax program

A premium subscription is required in order to access the video features. To check your subscription, go to the administrator menu on your HitTrax and choose "Check Subscription" in the lower left corner. The 'camera' icon will not appear if you do not have an active subscription.

Problem: "I tried to activate video during a session and I got a black screen"

- Check that all cameras are plugged in.
- If you are using an external PoE adapter, make sure it is plugged in and powered on.
- Check physical lens on camera to ensure the aperture is open (slider should be set to '0').
- Press the "detect camera" button to connect to camera.
- Try manually connecting to camera by right clicking on HitTrax Server icon in system tray and choosing the configuration item that refers to your camera type. For VCAM version 1, choose Device Settings in the Video Capture window, then Device... Use the Device Name drop down menu to choose the appropriate camera. For Teledyne camera, a camera drop-down is available in the Vision preview window.