

AMPLIFY YOUR COACHING™



SMART VIDEO REPLAY ▶

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SERVER USER MANUAL

MAY 12, 2016

VERSION 3.0

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Before we start...

What we expect from a Smart Video Replay Server user:

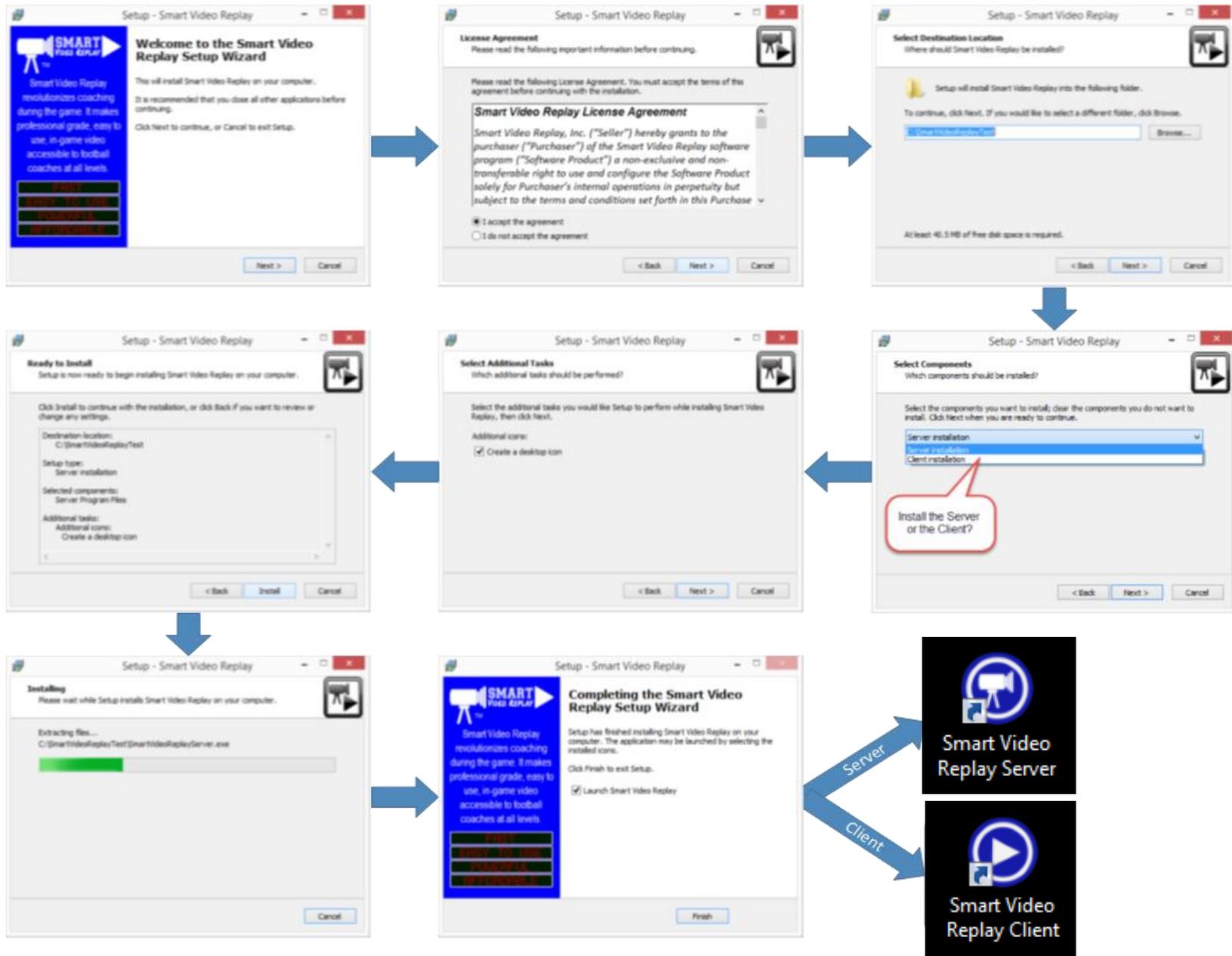
- *You have an understanding of Football.*
- *You have an understanding of the Microsoft Windows™ operating system.*
- *You have an understanding of computer networking.*
- *You have an understanding of wireless networking routers.*

If you are not this person and have been tasked with setting up the Smart Video Replay system, you need to seek the help of someone who meets the above criteria.

Before you read this manual, here are a few things you should know:

- *When you see a (1) or other number, we are more than likely referencing a red circle with the same number on a picture in the manual.*
- *We purposely insert page breaks (leaving lots of white space) where we feel it is necessary to keep text and graphics together on the same page.*
- *“Client” in this manual refers to the Smart Video Replay Client software program running on a computer or tablet.*
- *“Server” in this manual refers to the Smart Video Replay Server software program installed and running on a computer or tablet.*

Installing Smart Video Replay...





Starting the Server

After the successful installation of the Server, there will be an icon on your Windows Desktop. Double Click the Smart Video Replay Server icon to start the application. The Server screen will appear. *Later in this manual we will break down this screen for you.*

The screenshot displays the Smart Video Replay Server interface. It features two main video feeds: "SideLine" on the left and "EndZone" on the right. Both feeds show a football field with the text "AMPLIFY YOUR COACHING" and "SMART VIDEO REPLAY" overlaid. Below the feeds is a control panel with several tabs: "Record Game", "Game Custom Tags", "Game Settings", "Camera Settings", and "System Settings". The "Record Game" tab is active, showing a game status bar with "On Field for Us" (OFFENSE), "Down" (1), "To Go" (10), "Link" (50M), "Qtr" (1), "Us" (0), and "Them" (0). Below the status bar are buttons for "O", "D", "K", "R", "First Down", "Touch Back", "PAT Us", "PAT Them", "2PC Us", and "2PC Them". A play diagram shows the field with "Us" and "Them" positions and a "PRESS TO RECORD" button. To the right of the play diagram is a list of play types: RUN LEFT, RUN RIGHT, RUN MIDDLE, PASS LEFT, PASS RIGHT, PASS MIDDLE, PASS COMPLETE, PASS INCOMPLETE, PASS DEFLECTED, PASS INTERCEPTION, FUMBLE, BLITZ, SACK, QB HURRY, TOUCHDOWN, FG GOOD, FG MISS, PAT GOOD, PAT MISS, SAFETY, PENALTY US, PENALTY THEM, OFFSIDE, and TRICK. On the far right is a table of game statistics for "2016-03-11 VIDEOTEST".

#	Qtr	On Field	Down	ToGo	From	G/L	To	Us	Them
60	1	OFFENSE	4	6	+20M	1	+19M	0	0
61	1	OFFENSE	1	9	+19M	1	+18M	0	0
62	1	OFFENSE	2	8	+18M	1	+17M	0	0
63	1	OFFENSE	3	7	+17M	1	+16M	0	0
64	1	OFFENSE	4	6	+16M	1	+15M	0	0
65	1	OFFENSE	1	9	+15M	1	+14M	0	0
66	1	OFFENSE	2	8	+14M	1	+13M	0	0
67	1	OFFENSE	3	7	+13M	1	+12M	0	0
68	1	OFFENSE	4	6	+12M	1	+11M	0	0

Smart Video Replay Client 0.2.24.2016 (C) Copyright 2014 Smart Video Replay, Inc. All Rights Reserved. www.SmartVideoReplay.com

Step 1: Configuring the Smart Video Replay Server for the First Time

In the next sections, we will go through the tabs on the lower part of the Server main screen and explain the configuration of the system. These configuration tabs are the Game Custom Tags, Game Settings, Camera Settings and System Settings.

Smart Video Replay Server 0.2.24.2016(32)

SideLine

EndZone

AMPLIFY YOUR COACHING

SMART VIDEO REPLAY ▶

Camera Off OFF

Record Game

Game Custom Tags

Game Settings

Camera Settings

System Settings

On Field for Us

Down To Go

From The

Qtr

Us

Them

OFFENSE

1 10

50

1 0

0

D K R

First Down

Touch Back

PAT Us

PAT Them

2PC Us

2PC Them

Us Going Right

Us Going Left

Us

Them

Hash

Hash

Hash

PRESS TO RECORD

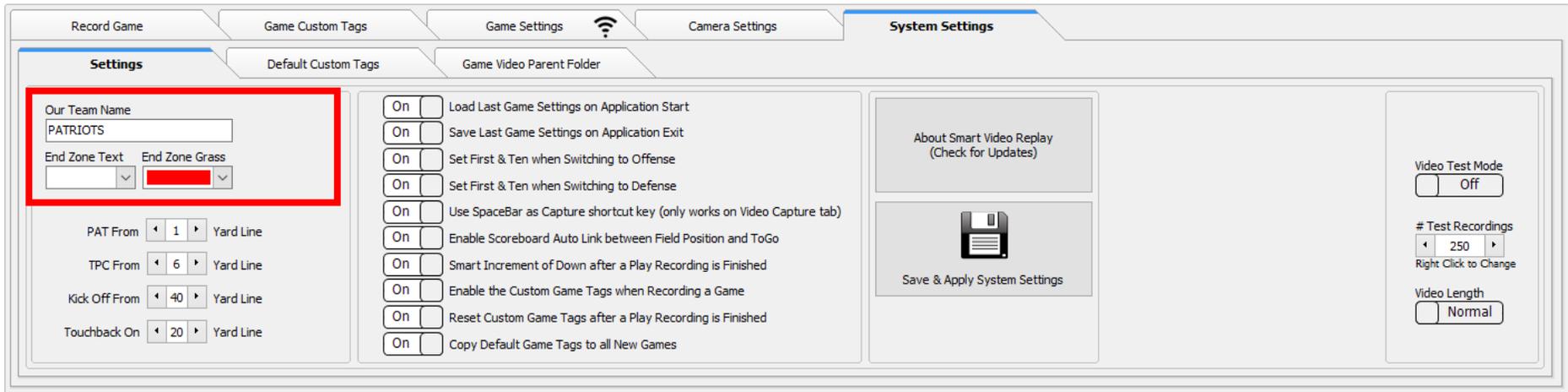
#	Qtr	On Field	Down	ToGo
991	4	OFFENSE	3	7
992	4	OFFENSE	4	6
993	4	OFFENSE	1	9
994	4	OFFENSE	2	8
995	4	OFFENSE	3	7
996	4	OFFENSE	4	6
997	4	OFFENSE	1	9
998	4	OFFENSE	2	8
999	4	OFFENSE	3	7

2016-03-11 VIDEOTEST

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System Settings

System Settings typically never change once they are set. You can access these settings from the main screen, just click on the far right tab on the lower half of the Smart Video Server main screen. There are 3 tabs under System Settings. Settings, Default Custom Tags and Game Video Parent Folder.



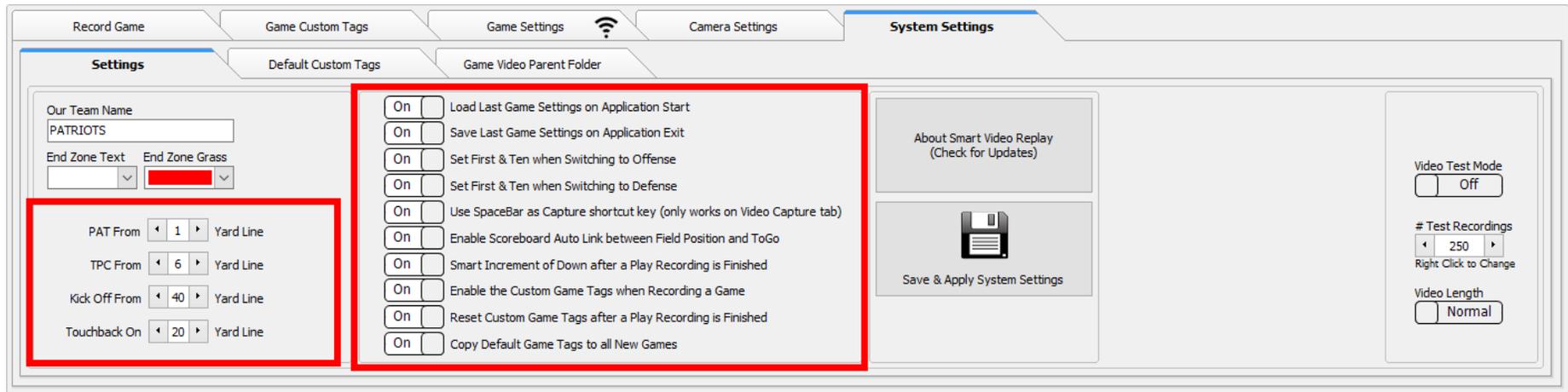
The Settings Tab

Our Team Name Type in your team name. If your team has a very long name, just use initials. We use this above your teams' score and on the Record Game tab for the End Zone lettering.

End Zone Font Color & End Zone Grass Color Set these accordingly. You can check them by clicking on the Record Game.



Also on the Settings tab you will find some configuration choices. They are set, by default, the standard configuration.



Load Last Game Settings on Application Start: Check this if you want the system to load the settings from the last game. Our recommendation – check the box. This will load everything under Game Settings automatically. We always check this box because even if we are going to a new game we can modify the existing settings from the last game. Also, if you shut the computer down to take it to the locker room for video playback during half-time, you want to restart it with the right settings.

Save Last Game Settings on Application Exit: Check this if you want the system to automatically save your game settings when you exit. Our recommendation – check the box. This will save everything under Game Settings automatically. We always check this box so we do not forget to save the game settings and shut down the application and then start it up and wonder where all the games settings went to...

Set First & Ten when Switching to Offense: Check this box if you want the system to automatically set Down to 1 and ToGo to 10 when you click the Offense button when on the Video Capture tab. Basically, if you switch to Offense the computer will set 1&10 for you. Our recommendation – check the box it saves you the head ache of changing the scoreboard manually.

Set First & Ten when Switching to Defense: Check this box if you want the system to automatically set Down to 1 and ToGo to 10 when you click the Defense button when on the Video Capture tab. Basically, if you switch to Defense the computer will set 1&10 for you. Our recommendation – check the box it saves you the head ache of changing the scoreboard manually.

Use SpaceBar as Capture shortcut key: Check this box if you want to automatically start and stop the recording of the plays using the spacebar. Our recommendation – check the box it saves you from having to move the mouse to the record button and clicking.

Enable Scoreboard Auto Link: Check this box if you want to enable the Scoreboard (What?) Auto Link. What is Auto Link? Auto Link is when the To Go yards are linked to the Field Position. That means if you are 1&10 on the -20 and you gain 3 yards, you just change the field position to -23 and the To Go distance will

change to 7. The Auto Link feature can be turned on and off from the Video Capture tab at any time so this setting is more for convenience. The Auto Link feature makes sense to some users and others are freaked out and want to change everything themselves.

Smart Increment of Down after a Play Recording is Finished: If enabled, after each recording where the Down is 1, 2 or 3, the down will increment by 1. This means if it is first down and you record a video, when you are done recording the down will increment to second down. This is a handy feature that saves time for the person running the server. Note: If no down is selected (i.e., you are kicking or receiving, PAT, 2PC) then the down is ignored. If it is fourth down, then the down will not increment – the user is required to press the FIRST DOWN button. (Why? Because there are so many possibilities that can happen after a fourth down [i.e., first down, change of possession, etc.] and for the system to present those options would simply make the system too complicated to understand let alone use).

Enable the Custom Game Tags when Recording a Game: If you want to use the Custom Game Tags to tag each play, enable this option.

Reset Custom Custom tag Buttons after each Play Recording is finished: Check this box if you want the Custom tag buttons to turn off after each play. What is a Custom tag? The Custom Tags are explained later in this manual. Our Recommendation: check the box – the Custom Tags should clear automatically after you have used them. If you feel otherwise as you gain experience with Smart Video Replay, then come back and change the setting.

Copy Default Game Tags to all New Games: When you create a new Game Video Folder, would you like the Default Custom Game Tags to be copied over to the new game?

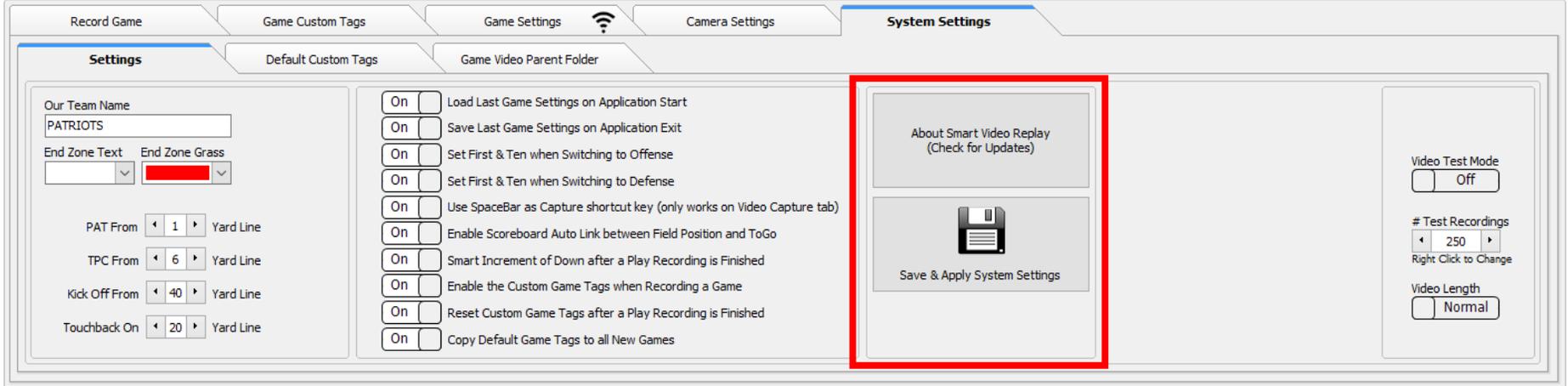
PAT From: What distance (in yards) is the extra point from? When you hit the PAT button on the Video Capture tab, the system will set the field position for you automatically.

TPC From: What distance (in yards) is the two point conversion from? When you hit the TPC button on the Video Capture tab, the system will set the field position for you automatically.

TouchBack On: What field position (yard line) should we put the ball on if you hit the TouchBack button?

Kick From: What field position (yard line) should we put the ball on for kick offs? Note: if there is a penalty called, on Kick or Receive just move the field position back or forward accordingly.

There are two buttons on the Settings tab.



About Smart Video Replay (Check for Updates) Click this button to check your software version and to check for any new updates (must be connected to the internet to get updates)

Save System Settings If you do change any configuration options on the Settings tab, click this button to save them.

Default Custom Tags

See the below section called **What Are Custom Tags?** for more information on what Custom Tags are and how they are used.

The screenshot displays the 'Default Custom Tags' configuration window within the 'System Settings' tab. The window is organized into four main sections, each with a list of tags and associated control buttons:

- Default Offense Custom Tags:**
 - Up Arrow
 - RUN LEFT
 - RUN RIGHT
 - RUN MIDDLE
 - Down Arrow
 - PASS LEFT
 - PASS RIGHT
 - PASS MIDDLE
 - PASS COMPLETE
 - PASS INCOMPLETE
 - PASS DEFLECTED
 - PASS INTERCEPTION
 - FUMBLE
 - BLITZ
 - SACK
 - QB HURRY
 - TOUCHDOWN
 - 50 YARDS
 - Edit Tag
 - Add Tag
 - Sort Tags
 - Delete Tag
 - Load Game Tags
 - Delete All Tags
- Default Defense Custom Tags:**
 - Up Arrow
 - RUN LEFT
 - RUN RIGHT
 - RUN MIDDLE
 - Down Arrow
 - PASS LEFT
 - PASS RIGHT
 - PASS MIDDLE
 - PASS COMPLETE
 - PASS INCOMPLETE
 - PASS DEFLECTED
 - PASS INTERCEPTION
 - FUMBLE
 - BLITZ
 - SACK
 - QB HURRY
 - TOUCHDOWN
 - 50 YARDS
 - Edit Tag
 - Add Tag
 - Sort Tags
 - Delete Tag
 - Load Game Tags
 - Delete All Tags
- Default Kick Custom Tags:**
 - Up Arrow
 - KICK LEFT
 - KICK RIGHT
 - KICK MIDDLE
 - Down Arrow
 - DEEP
 - POOCH
 - SQUIB
 - ON-SIDE
 - FAIR CATCH
 - TOUCHBACK
 - PENALTY THEM
 - PENALTY US
 - Edit Tag
 - Add Tag
 - Sort Tags
 - Delete Tag
 - Load Game Tags
 - Delete All Tags
- Default Receive Custom Tags:**
 - Up Arrow
 - KICK LEFT
 - KICK RIGHT
 - KICK MIDDLE
 - Down Arrow
 - DEEP
 - POOCH
 - SQUIB
 - ON-SIDE
 - FAIR CATCH
 - TOUCHBACK
 - PENALTY THEM
 - PENALTY US
 - Edit Tag
 - Add Tag
 - Sort Tags
 - Delete Tag
 - Load Game Tags
 - Delete All Tags

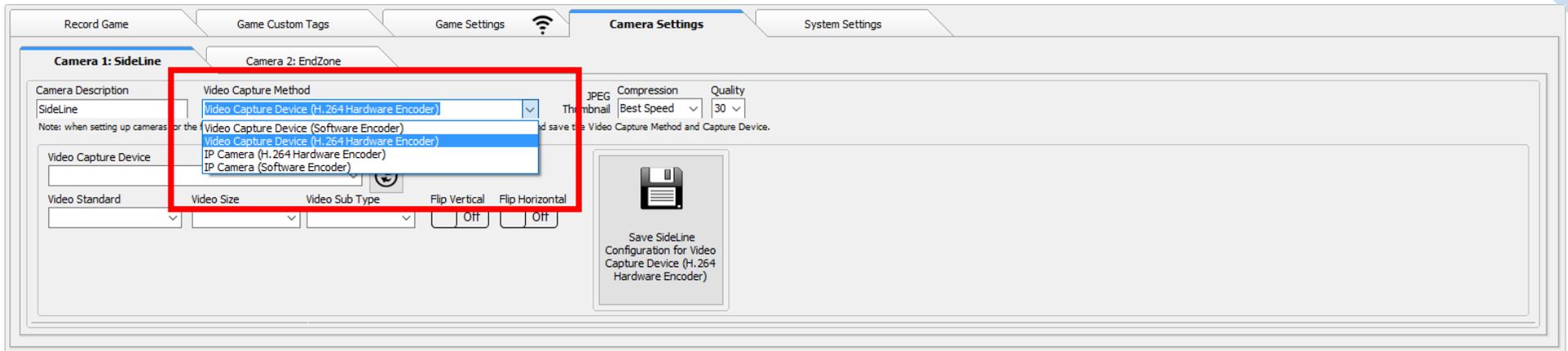
Game Video Parent Folder

You can change the default location where the system creates Game Video Folders. Unless you are a computer guru who wants to store video on a different drive, etc., leave this setting alone. Remember, this drive must be able shared and accessible by users connecting to the Smart Video Replay Server (more on that later).

The screenshot displays the 'System Settings' tab in the Smart Video Replay software. Within this tab, the 'Game Video Parent Folder' sub-tab is active. The main configuration area is titled 'Game Video Parent Folder (this folder is where all Game Video Folders are located)'. It features a 'Set Game Video Parent Folder' button with a folder icon and a text input field containing the path 'C:\SmartVideoReplay\Video\'. Below this, the 'Game Video Folder auto naming settings' section contains four toggle switches: 'Include Game Date' (On), 'Include Our Team Name' (On), 'Include Game Time' (Off), and 'Include Opponent Team Name' (On).

Game Video Folder auto naming settings is where you can specify what data automatically recommended for your Game Video Folder name (see Game Settings tab and Game Video Folder edit box).

Camera Settings



Smart Video Replay supports 1 or 2 cameras. Cameras are connected to Video Capture Devices which in turn are connected to the USB ports of the computer running the Smart Video Replay Server application.

To set up a camera, first give the camera a description (e.g., Sideline, Endzone, etc.).

Next, select the Video Capture Method. There are 2 methods you can use:

Video Capture Method 1: Video Capture Device (H.264 Hardware Encoder)

This is the recommended Video Capture Method. We also recommend the Avermedia Video Capture Devices. Firstly, they produce very good video. Secondly, they require a less powerful computer to run the Smart Video Replay Server application (because no software encoder is required by the server). Best of all, the devices cost a fraction of Video Capture Devices that require a software encoder to be used. The decision is a no brainer to use these devices.

If you choose (and you should) to use these devices, you must get different models for each camera. This is due to the Avermedia device drivers only supporting a single device. Fortunately, Avermedia has two devices that are exactly the same for video input and output – but they have different model numbers and different drivers.

For camera 1, use the Avermedia LGB Lite (aka HD & Live Gamer Portable Lite & GL310). You can find them on Amazon.com for around \$105. Search the ASIN of B001OQZMPE on Amazon to order the device.

http://www.amazon.com/AVerMedia-AVerCapture-PlayStation-Hardware-Encoding/dp/B001OQZMPE/ref=sr_1_1?s=pc&ie=UTF8&qid=1458634184&sr=1-1&keywords=B001OQZMPE



For camera 2, use the Avermedia LGP (Live Gamer Portable) (aka C875). You can find them on Amazon.com for around \$145. Search the ASIN of B00B2IZ3B0 on Amazon to order the device.

http://www.amazon.com/AVerMedia-Technologies-Portable-Recording-Directly/dp/B00B2IZ3B0/ref=sr_1_1?s=pc&ie=UTF8&qid=1458634301&sr=1-1&keywords=B00B2IZ3B0



IMPORTANT: Make sure you install the drivers for each device before connecting the devices to your computer's USB ports. You can download the drivers from the Avermedia web site:

Avermedia LGB Lite: https://s3-us-west-2.amazonaws.com/avermedia/web_release_www/GL310/GL310_driver_v3.7.x.22_20160219.zip

Avermedia LGP: https://s3-us-west-2.amazonaws.com/avermedia/web_release_www/C875/GL710_driver_v3.7.x.39_20160219.zip

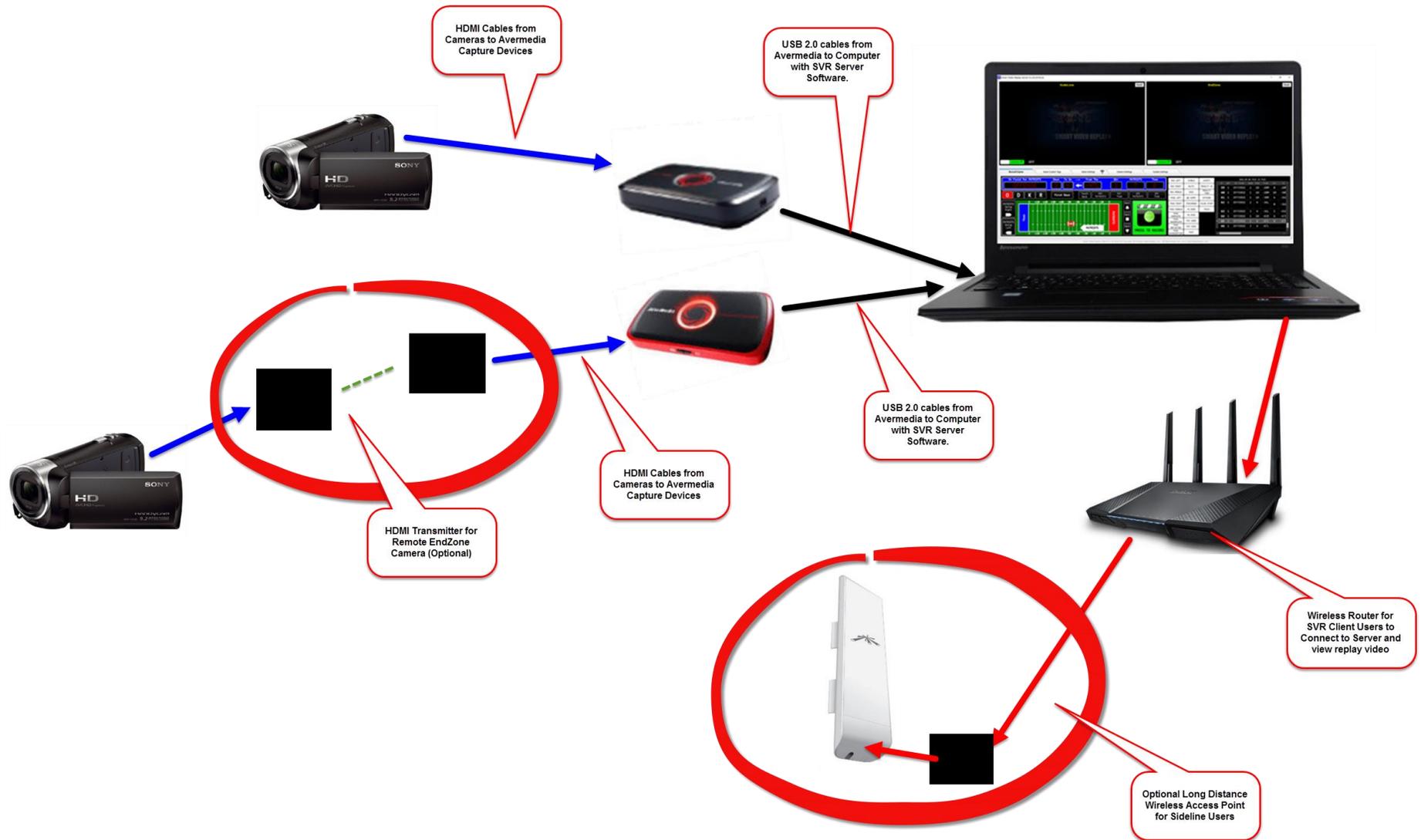
Settings for the Avermedia Video Capture Devices:

Important Note: Plug in your video capture devices to the USB ports before you start the Smart Video Replay Server application. Also, the first time you configure your cameras, you may need to select the Video Capture Method & the Video Capture Device, then save the settings and restart the application and finish configuring the camera settings (exactly as shown below). Make sure you save once they are configured.

The image displays two screenshots of the Smart Video Replay Server application's Camera Settings interface. The top screenshot shows the configuration for Camera 1 (SideLine Camera). The Video Capture Device is set to 'AVerMedia C835 Capture', which is highlighted by a red callout box labeled 'Avermedia LGP Lite'. The bottom screenshot shows the configuration for Camera 2 (EndZone Camera). The Video Capture Device is set to 'AVerMedia C875 Capture', highlighted by a red callout box labeled 'Avermedia LGP'. Both screenshots show various settings like Video Capture Method, Video Standard, Video Size, Video Sub Type, and Flip options, along with a 'Save' button and a device image.

Video Capture Method 2: Video Capture Device (Software Encoder). See Appendix A of this Manual:

Setting up the Server and Hardware for Recording Video



Step 2: Configuring the Smart Video Replay Server to Record a Game

The screenshot shows the 'Game Settings' tab of the Smart Video Replay Server interface. It includes fields for Opponent Team Name (Them), End Zone Text (InterSquad), Game Type / Description (InterSquad), Game Date (Today), and Our Team (Patriots) (Off). The Game Video Folder is set to C:\SmartVideoReplay\Video\2016-03-11 VIDEOTEST. The Windows User Account is SMARTCOPINC\slincke. The Discovery On toggle is turned on.

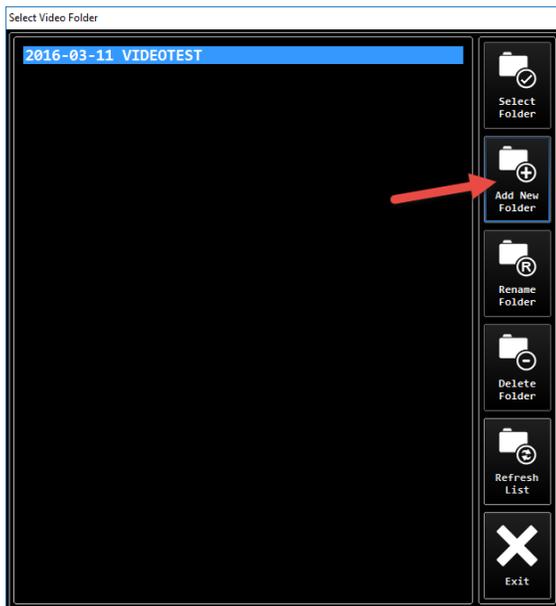
The Game Settings tab is where we setup a game to record: **Who** are we playing and **Where** are we storing the video. For convenience, we also setup the user account and password that clients use to connect to the Smart Video Replay Server (typically only need to set this up one time unless you change the user account). Additionally, you can view the game video (in the configured Game Video Folder) and create a game video export folder for uploading to a cloud based video storage system. You can export 1 angle or 2 angles joined together as 1 video.

So to setup a game, simply follow these steps to enter the game information: Enter the opponent team name (so we can share it with the clients) and the color of the opponent's end zone text and grass (so we can display it nicely on the record game tab for the server operator). You can also enter the Game Type and Game Date (we also use that date to recommend the game video folder name). Lastly, select Home or Away team.

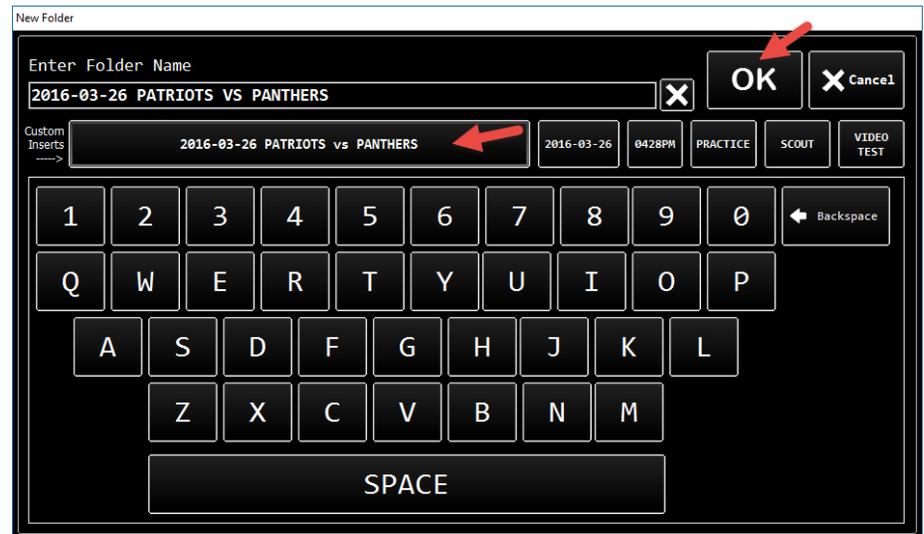
The screenshot shows the 'Game Settings' tab of the Smart Video Replay Server interface. A red box highlights the Opponent Team Name (PANTHERS), End Zone Text (black), End Zone Grass (yellow), Game Type / Description (District), Game Date (03/26/2016), and Our Team (Patriots) (On) fields. A red arrow points to the Opponent Team Name field.

Next, we need to Set the Game Video Folder. Each game should have its own folder. Click the “Set Game Video Folder” button.

Game Video Folder is the folder where the current game video files will be stored. For each game you record, you should have a different folder. (Advanced users, these are sub folders under the Game Video Parent Folder – which we mentioned earlier in this document and is found under the System Settings tab).



A dialog box will appear with all the game video folders listed. For a new game, click the “Add New Folder” button. Another dialog box will appear. This is where you specify the name of the game video folder. A recommended name will appear (and you should use this name) based on the game info you have already entered (Date and Who you Play). Press Ok and you have set up your game video folder.



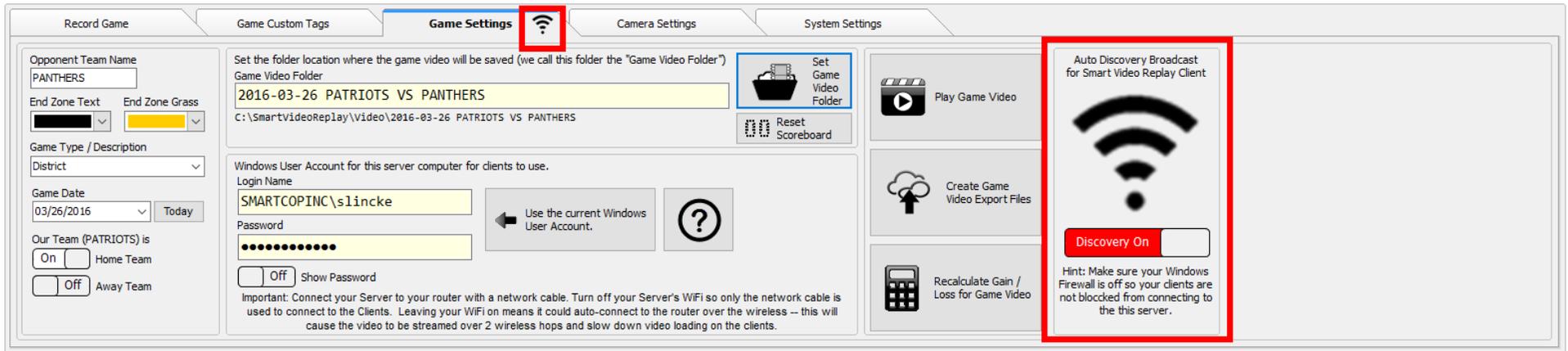
Next thing you want to do is make sure your clients can connect to the computer that is running the Smart Video Replay Server application. The Smart Video Replay Server application actually sends a network broadcast message to all Smart Video Replay Clients with instructions on how to connect to the server and view the video in the game video folder. This broadcast message is called the auto discovery broadcast message.

To allow clients to connect to your server, they need a Windows login and password (you cannot leave the password blank in Windows because the clients cannot connect using an account with no password). Enter the Windows User Account for the server computer that the clients can use. If you want to use the current logged in Windows User Account, simply click the "Use the current Windows User Account" button.

The screenshot shows the 'Game Settings' tab of the Smart Video Replay Server application. The 'Windows User Account for this server computer for clients to use' section is highlighted with a red box. A red arrow points to the 'Use the current Windows User Account' button. The login name is SMARTCOPINC\slincke and the password is masked with dots. The 'Discovery On' button is also visible.

Note that the format is ComputerName\UserName. In the example above, the computer name is **SMARTCOPINC** and the user is **slincke**. Once this Windows User Account is set it should not have to be set ever again (unless you use a different computer for the server).

Client Auto Discovery is a simple broadcast on the connected network (wireless, wired) that the Smart Video Replay Client software (Windows or iPad) listens for when a user attempts to connect to the server so they can see video. Typically, every time the Client software is started, the user will need to connect to the server using the Auto Discover Server option on their client. The Client Auto Discovery will typically start just a few seconds after the Server software is started. The Game Settings tab has a little “WiFi” image that appears when the auto discovery is turned on (for convenience so you know it is working without having to click on the Game Settings & Game Video Folder tab).



The Smart Video Replay Server application is now sending out Auto Discovery Broadcasts to clients so they can connect. If your clients are having a problem connecting, do the following:

- 1) **Make sure the Windows User Account information you entered is correct.**
- 2) **Make sure the server firewall is disabled (turned OFF) so it is not blocking the clients from connecting.**
- 3) **Make sure the server is connected to the network (via network cable is best).**
- 4) **Make sure the clients are connected to the same network (wireless or cable is fine).**
- 5) **For the iPad to see video, the Smart Video Replay Server software must be running.**

There are 3 buttons on the Game Settings tab that provide some nice features for the Server user.

The screenshot shows the 'Game Settings' tab in the Smart Video Replay Server interface. The interface is divided into several sections:

- Opponent Team Name:** PANTHERS
- End Zone Text / End Zone Grass:** Black / Yellow
- Game Type / Description:** District
- Game Date:** 03/26/2016 (Today)
- Our Team (PATRIOTS) is:** On (Home Team) / Off (Away Team)
- Game Video Folder:** 2016-03-26 PATRIOTS VS PANTHERS (C:\SmartVideoReplay\Video\2016-03-26 PATRIOTS VS PANTHERS)
- Windows User Account:** SMARTCOPINC\slincke
- Buttons:** Set Game Video Folder, Reset Scoreboard, Play Game Video, Create Game Video Export Files, Recalculate Gain / Loss for Game Video.
- Auto Discovery Broadcast:** Discovery On (with a hint to turn off Windows Firewall).

The **Play Game Video** button starts up a copy of the Smart Video Replay Client inside the server and automatically points to your Game Video Folder. This is a very easy way for you to “see” what you have recorded.

The **Create Game Video Export Files** button allows you to create a folder and export game video and play data to that folder so you can upload it to HUDL. Check out our website for an instructional video – or just figure it out... it is super easy.

The **Recalculate Gain/Loss for Game Video** button goes through all the game video and makes sure that the gain / loss calculation for each play is correct. The system automatically does this after every game recording and when a user changes the field position for a play – we just give you this button in case you import a game that has incorrect data.

Step 3: Recording a Game

- a. Turn Cameras On.
- b. For each play, you simply press record to start recording and press again to stop recording.
- c. IMPORTANT: For each play, set the Scoreboard information you want saved with the play video. You can set the scoreboard for the current play up until the play is finished recording. **When you stop recording a play, the scoreboard information is written to the game video folder with the video(s) for the play.** Don't worry, if you miss something you can go back and fix it or they can fix it from a client.

So recording a play is easy and so is updating the scoreboard for each play. How does it work?

For each play, you simply need to make sure the information on the scoreboard is correct before that play is finished recording. The scoreboard information seldom changes for many of the items – it is very easy for one person to record the game and keep the scoreboard accurate (BUT not if they are being distracted by people, etc., that prevent them from focusing on the task at hand).

Here is the scoreboard with all items numbered. In the next few pages we will explain each item. Remember, for the custom tags, we will explain that in the section dedicated to that topic. For now, let's just go through the basic scoreboard items.

Video Capture While covered the Video Capture tab somewhat in the Custom tags section, there are a few more things you need to know. This picture will explain all the screen.

The screenshot shows the Smart Video Replay Server interface with two video feeds and the Smart Video Replay Client interface below. Numbered callouts (1-14) identify key features:

- 1: On Field Unit
- 2: Camera 1 On/Off
- 3: Down & Distance (ToGo)
- 4: Auto Link button to link ToGo and Field Position
- 5: Field Position the play is starting from...
- 6: Camera 2 On/Off
- 7: Score
- 8: Current Quarter
- 9: Quick Buttons
- 10: Game Video Tags for On Field Unit
- 11: Change Field Direction buttons
- 12: Possession and Field Direction Indicator
- 13: Field Position Hash Buttons
- 14: Record Start and Stop button

The client interface includes a scoreboard with the following data:

On Field for PACE	Down	To Go	Play Starting on the:	PACE	MILTON	Quarter			
0:00	4	20	20	7	7	4			
OFFENSE	DEFENSE	KICK	RECEIVE	1st & 10	Touchback	Point After Attempt PACE	2 Point Conversion PACE	Point After Attempt MILTON	2 Point Conversion MILTON

The field diagram shows possession for PACE at the 20-yard line, with yard markers from 6 to 50 and 10 to 6. A 'PRESS TO RECORD' button is visible on the right side of the field diagram.

Numbers 1 through 8 our Scoreboard displays. When a video recording is stopped, the values in these displays are saved with the videos (and the custom tags too). IMPORTANT: Changing the values for these requires a left mouse click to increase the value and a right mouse click to decrease the value. If you press and hold the mouse button the value change will repeat and speed up to make it easy to make big value jumps.

- (1) Displays your teams On Field Unit of Offense, Defense, Kick or Receive. This display is the only exception to the “press the mouse to change” option. To change this value you must press one of the 4 buttons below the display for OFFENSE, DEFENSE, KICK or RECEIVE.
- (2) Camera 1 on/off button (camera must be configured correctly to turn on)
- (3) The Down of the current play. You can blank it by increasing value past 4 or previous to 1. To Go yardage for the current play. You can set it to G for Goal by decrementing it past 1. You can blank it by decrementing it past G.
- (4) The Auto Link button: when this is on, the button is an arrow left & right. When off, the arrow has a red X. Basically the button links the ToGo yards and the Field Position. When you increase or decrease the field position (6) the To Go will change accordingly (and vice-versa). Confusing for some but invaluable to others...
- (5) Field Position and the Hash the ball is on. This is set to what the field position is at the start of each play. The yardage is numbered from -1 to the -49, the 50, then the +49 to the +1. When your ball is in the plus (+) numbers, it is in your opponents “territory” (on their side of the field) and closer to the opponents end zone so plus (+) is good for your offense and defense. On the contrary, the minus numbers are in your “territory” (on your side of the field) and closer to your end zone so minus (-) is not so good for your offense and defense. IMPORTANT: Field Position must be accurate if you want the automatic calculation of the Gain/Loss to be accurate.
- (6) Camera 2 on/off button (camera must be configured correctly to turn on)
- (7) The Game Score
- (8) Quarter: What quarter is it... the last value is OT for overtime.
- (9) Quick Buttons
 - a. 1st & 10 pressed sets down on 1 and To Go on 10.
 - b. Touchback pressed sets the ball on the configured Touch Back yardage (see System Settings). The system is smart enough to figure what side to put the ball on based on what unit you have on the field when the button is pushed. For example, if you are Receive and you press Touchback, the ball will go to the -20 and you will go on Offense. If you are on Kick, the ball will go to the +20 and you will go on Defense. Note: now you know why we just don’t have O, D, K for the On Field Unit.
 - c. PAT <Your Team Name> pressed sets the ball on the PAT yardage (+) for a Field Goal attempt (see System Settings).
 - d. PAT <Their Team Name> pressed sets the ball on the PAT yardage (-) for a Field Goal attempt (see System Settings).
 - e. TPC <Your Team Name> pressed sets the ball on the TPC yardage (+) for a Two Point Conversion attempt (see System Settings).
 - f. TPC <Their Team Name> pressed sets the ball on the TPC yardage (-) for a Two Point Conversion attempt (see System Settings).
- (10) Custom tags are displayed for your On Field Unit setting. When the On Field Unit is changed, the Custom tags change accordingly.
- (11) Change Field Directions buttons. Press the appropriate red arrow to set the field up to the direction your team is going at the start of the first and third quarters. We will figure out direction for the second and third for you when you change the Quarter on the score board.
- (12) Possession and Field Direction indicator. This arrow will have the name of the team who has the ball and point in the direction of their possession. This helps the server operator make sure they have the right info on the scoreboard so when the coaches see the play list on the Client the information is correct.

(13) The Hash setting for the Field Position. If the Offense is going Right, then the top button is Left Hash and bottom button is Right Hash. If the Offense is going left, then top button is Right Hash and bottom button is Left Hash. The middle button is always the Middle of the Field. The ball on the field will move to the appropriate location on the field display. Also, the Field Position will have the letter L, M or R after the yardage. If you push any of the buttons 2 times, the Hash indicator on the Field Position will simply be blank.

The Football on the field is the graphical Field Position display. This shows you where the ball is and makes it easy for server operators who get lost in all the Plus and Minus jargon. You can grab the ball with the mouse and move it around the field too. Your end zone (where they want to go) and their end zone (where you want to go) are colored according to the System Settings (for yours) and Game Settings (for theirs).

The Field Position display Yardage Markers. The yardage is numbered from -1 to the -49, the 50, then the +49 to the +1. When your ball is in the plus (+) numbers, it is in your opponents "territory" (on their side of the field) and closer to the opponents end zone so plus (+) is good for your offense and defense. On the contrary, the minus numbers are in your "territory" (on your side of the field) and closer to your end zone so minus (-) is not so good for your offense and defense. When the field direction changes, the yardage will adjust accordingly.

(14) Press this button (the entire green one) to record. When recording the button turns red. Press it when recording again to stop recording. The one button controls both video camera feeds. If you have turned on the Spacebar quick key (see System Settings) then you can control this button with the spacebar too. **IMPORTANT NOTE: WHEN THE RECORDING IS STOPPED, THE VIDEO FILES FOR THE PLAY ARE SAVED AND ALL THE SCOREBOARD DATA FOR THAT PLAY (INCLUDING CUSTOM TAGS) ARE SAVED WITH THE PLAY (This means you can still change the tags and scoreboard data while the play is recording because it will save with the play WHEN YOU STOP RECORDING the play).**

What are Custom Tags?

Custom Tags are customizable data tags (we just happen to call them Custom Tags) you can configure for each game. So what is a data tag? Basically it is a word or phrase or number that you can stick to a video of a play so you can identify the play and search for plays with similar “tags.”

You get 30 tags each for Offense, Defense, Kick and Receive (in future versions that will be unlimited). For example, when you are on Offense and a play is being recorded, you can quickly assign one or more tags to the play record. From the client, you can filter plays by tags.

The easiest way to really understand Custom Tags for Smart Video Replay is to show you with pictures.

In this picture, we are on (1) OFFENSE so the (2) Custom tags we have set up for OFFENSE appear to the right of the (3) Video Record button.

When a play we are recording is over, we press the Video Capture button to STOP recording, the scoreboard (down, distance, etc.) is saved with the play video and the selected Custom tags are saved, in this case the RUN tag.

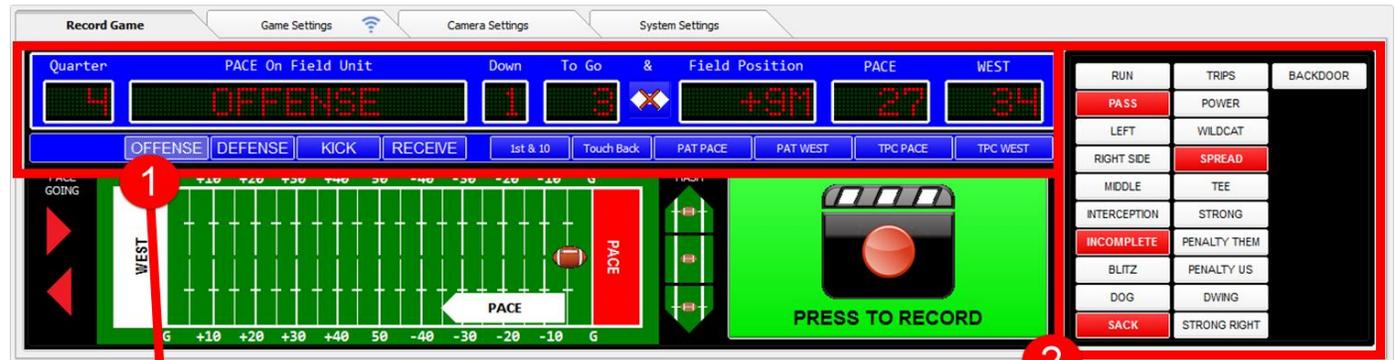
The top screenshot shows the 'Custom Tags' configuration screen. It has four columns: Offense Custom Tags, Defense Custom Tags, Kick Custom Tags, and Receive Custom Tags. Each column has a list of tags, a 'Refresh List' button, 'Load Default Tags', 'Delete All Tags', 'Edit Tag', 'Add Tag', 'Sort Tags', and 'Delete Tag' buttons. The 'Offense Custom Tags' column is highlighted with a red box and a red circle labeled '2'.

The bottom screenshot shows the 'Record Game' screen. It has a scoreboard at the top with 'On Field for PACE', 'Down 4', 'To Go 20', 'Play Starting on the: PACE MILTON Quarter 1'. Below the scoreboard are buttons for 'OFFENSE', 'DEFENSE', 'KICK', and 'RECEIVE'. The 'OFFENSE' button is highlighted with a red box and a red circle labeled '1'. Below the buttons is a football field diagram with 'PACE' and 'MILTON' labels. To the right of the field is a 'PRESS TO RECORD' button, which is highlighted with a red box and a red circle labeled '3'. A red arrow points from '2' to '3'.

In this picture, you can see where the (1) Scoreboard Data and (2) Custom tags are saved with the video for play 167 and when viewed on the Client software application, they are visible with the video. Now imagine if you said give me all Offense plays for First Down where we have a BLITZ on the Client... that is the power of the Custom tag and Scoreboard data when we assign them to the video of the plays.

NOTE: The custom tags are saved to the play at the time the play recording is complete. So the server operator can change tags and scoreboard up to the point where they press the recording button to stop the recording.

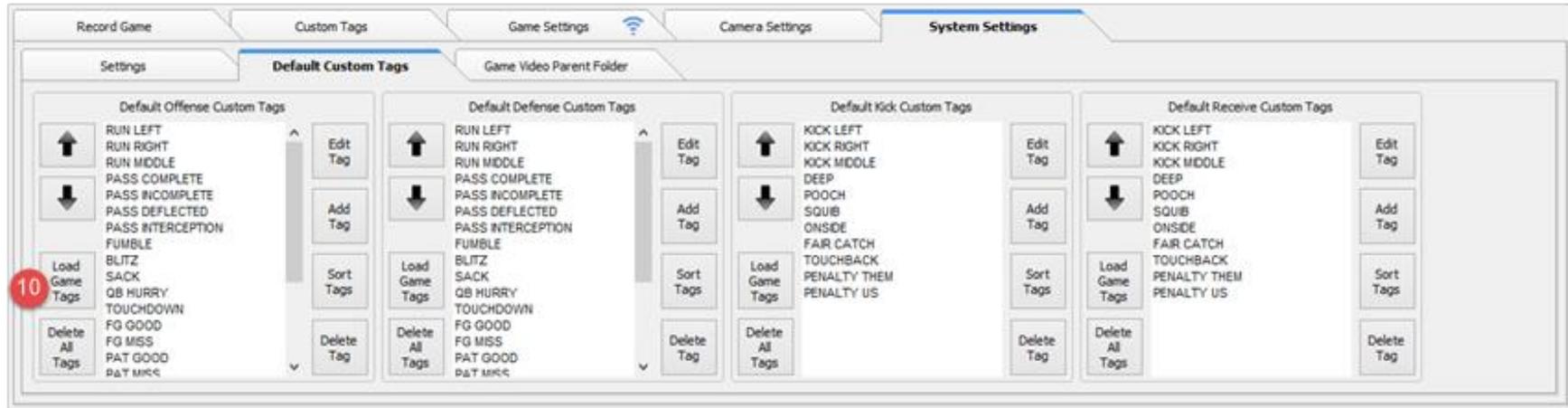
While you need to understand the Scoreboard Data and Custom tags so you know why we use them on the Server, we will talk about the Client filter capability in that specific user manual.



So what are those ‘Default Custom Tags’ for under the System Settings tab? Well, the Game Custom Tags are tags that are configured and saved for each game. This allows you to customize the tags for each game according to whom your opponent is. That means each game can have a different set of tags – this is good when you change your defensive coverage, etc., to adjust for the different opponents you face.

So the Default Custom Tags are your “baseline” set of Custom Tags. You can simply copy them over to the Game Custom Tags. That simply.

In the next section we will go over all the buttons on the Custom Tag tabs so you can learn how to manage them and how to copy the default ones to a game.



To maintain the Game Custom tags (or the Default Custom tags under System Settings), there are some buttons you need to know:

- (1) Move the selected Custom tag up in the list.
- (2) Move the selected Custom tag down in the list.
- (3) Refresh the Game Custom Tags list... you will want to press refresh in case any new tags have been added by client users.
- (4) Load Default Tags -- replace the Game Custom Tags for this game with the Default Custom Tags from System Settings. This helps when we need to replace custom tags for a specific game with our default ones (which we can then modify to for the next game we play). Don't worry, if we ever review game video, the specific tags for the game are saved with the game video too.
- (5) Delete All Tags will delete every Game Custom Tag for the current Game.
- (6) Edit the selected Custom tag. If you have no tag selected, nothing happens. You can also double click on the tag you want to edit.
- (7) Add a new Custom tag. You can also right click on the list and select Add Custom tag from the pop up menu.
- (8) Sort the Custom tags in Alphabetical Order. You cannot undo this (but you can still move them around with the Move buttons).
- (9) Delete the selected tag. You can also right click on the list and select Delete Custom tag from the pop up menu. If you have no tag selected, nothing happens.
- (10) Load the Custom Game Tags into the Default Custom Tags. Do this is you want the current Game Custom Tags to be set as your Default Custom Tags.
All the other buttons on the Default Custom Tags screen function the same as the Game Custom Tag buttons.

So the Default Custom tags under the System Settings tab are merely our base list of defaults that we can always go back to and then tweak for a game. You do not have to use them but they are there if you want them.

Night before the Game Check List

- Charge your batteries!! (e.g., HDMI transmitter battery packs, cameras, etc.)
- For an away game, pack everything up and have it ready to travel.

Game Day Check List (Setup & Run Test)

- Set up your server computer and plug in your Video Capture Devices to the Server USB ports.
- Setup the Game Settings – make sure you have the opponent name, colors and the specific Custom tags to be used for this game.
- Select/Create the Server Game Video Folder – this is the location on the server drive where the game video will be stored.
- Set up and connect your video cameras to the server computer.
- Turn on the video cameras and ensure both video feeds are correctly displaying in the video feed windows.
- Set up your wireless router. Make sure you have the antennas are connected tightly and correctly positioned to point towards your sideline. Connect your server computer via a network cable (and make sure it is not connected wirelessly to the router or that slows things down a quite bit).
- Get your client tablets (or whatever they are -- computers, laptops, etc.) and turn them on.
- Make sure your clients are connected to the correct WiFi.
- Auto Discover your clients to the server (so they know where the video is on the server).
- Now everything is ready, record some sample video and verify all the clients are connected and reading the video. When you are done, you can delete the video from the server by going to the Game Settings tab and selecting the Play Game Video button, which will start the Client inside the Server.

Appendix A: Camera Settings for the Video Capture Device (Software Encoder)

If you have the Inogeni or the Magewell video capture devices, you can use them with this option. However, you must have a computer powerful enough to capture and encode video before writing it to the drive. While this is possible, the setup can be complex and the results can be disappointing if you do not have the proper hardware. *Your best bet is to use method one described above with the Avermedia capture devices that encode the video before it gets to your computer (Video Capture Device with H.264 Hardware Encoder).*

VERY IMPORTANT NOTE: When selecting your camera settings, they will need to be connected to your server computer and turned on so the software can sense then and read their setting options. **Important Note: When choosing your camera settings, unless you have the devices we recommend, you will need to experiment with the settings that produce the best video for your needs and of course hardware capabilities.**

Camera Description What do you want to call the camera? This name will be associated throughout Server & Client applications with the video taken with this camera so name it accordingly (e.g., Sideline Camera, End Zone Camera, etc.).

Enabled (Camera 2 Only): If you only have 1 camera, you can unclick this check box so the system will not show a video screen for the second camera.

Camera / Video Input Device: Select the Camera or Video Device that is feeding the video into the computer.

Video Encoder: A video encoder is a software program that enables the compression of the video that is being recorded. The video encoder we recommend is x264. You must download this software, install and configure it accordingly. This only takes a few minutes.

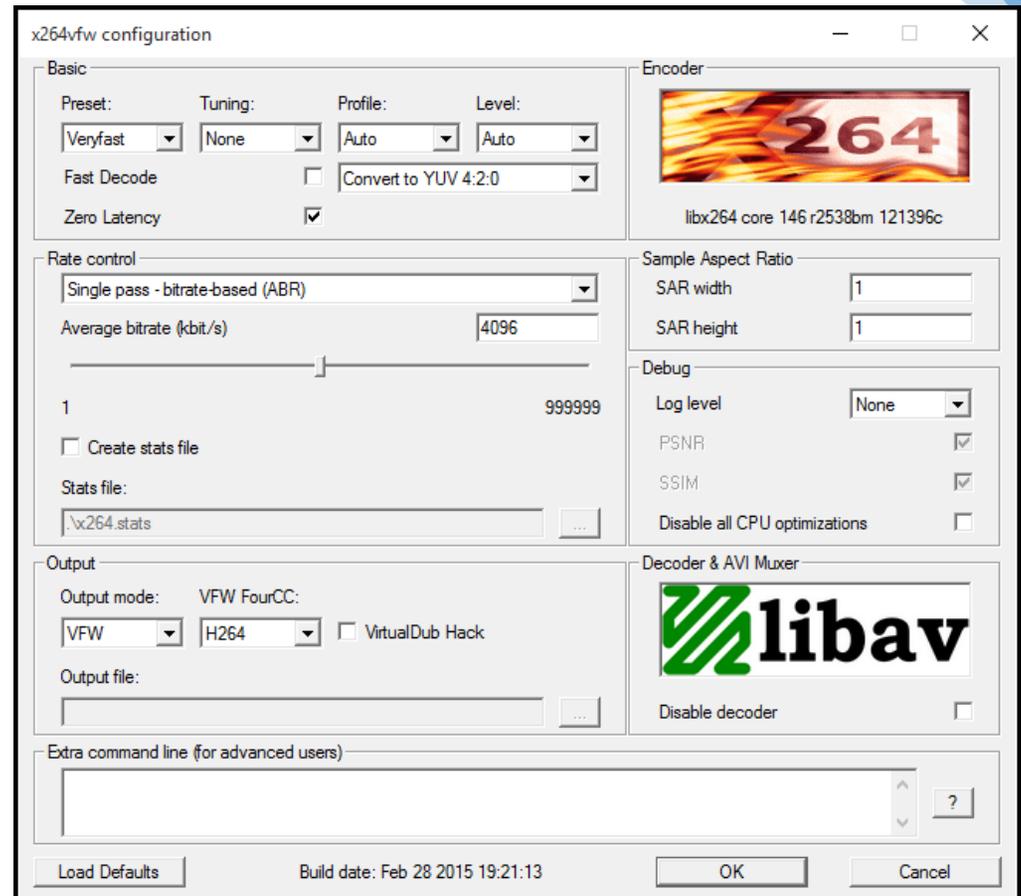
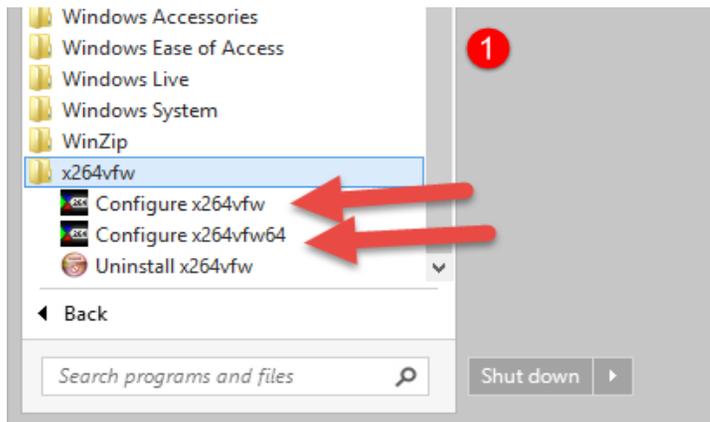
YOU MUST INSTALL A VIDEO COMPRESSOR (CODEC) ON YOUR SERVER: We use the **x264 Codec**. X264 is free to use. It is a video decoder and encoder library aimed at providing the best compression efficiency and picture quality possible. In short, x264 produces great quality and small video files. A link to the download can be found at <http://www.smartvideoreplay.com/documentation/>. The image to the right shows you the link location.

Download and run the application. Once the codec is installed on your server computer, you will see it as a choice under the Video Compressor (see above image) as x264vfw.

IMPORTANT: AFTER INSTALLATION, YOU MUST CONFIGURE THE x264 CODEC CONFIGURATION: once you have installed the x264 codec (install the 32 and 64 bit), you need to start up the x264vfw configuration and make a few setting changes... this is only a onetime thing you have to do. The configuration applications are installed on your computer when you install the x264 codec.



- 1) **Right click** on the **Configure x264vfw** application and select **“Run as Administrator”**. Note: the reason you run as administrator is the settings are saved in your Windows Registry. If you do not run as administrator the settings will not save. Even if your user is an administrator, you must still “Run as Administrator” when using this application.
- 2) When the program comes up, change the values to the exact values in the screen to the right and then press the OK button. Now repeat these steps with the **Configure x264vfw64** program.



Video Size: Options here will depend on the actual video cameras you have and their video output. If you don't care or don't know what to use, then skip to the "Video Size Recommendation" paragraph below. You are looking for a balance of quality and video size. Too much quality and the size can be 100's of megabytes of video that is very slow to stream even over wired networks. Too little quality and you will have a very small video size but the video will simply be unusable. The perfect settings is different for everyone because it depends on your wireless router and your server hardware. Fortunately the balance is easy to find. Choose a setting, turn the camera on, record some video and then play it back on one of your client computers/tablets over your wireless. If the video is good and the speed is good and you are happy with the aspect ratio (wide, narrow, etc.) then go with that setting.

Video Size Recommendation: We have a couple of settings we like to use but we always maintain a 16:9 aspect ratio because it looks better. We typically go with 640x360 when the wireless transmission from the server to our sideline is very far away so the video streams fast and there are no delays. If we get closer (normally at home) you can go with 1280x720. However, your video size truly depends on your server hardware power and wireless network coverage – even weather can affect your wireless range and throughput in different ways. Aspect Ratio Note: When we divide 640 by 16 we get 40 and 360 by 9 we get 40. That means we have a 16:9 resolution. Same for 1280x720. While not necessary to have the 16:9 aspect ratio, it looks good and gives a wide view and if a line coach wants just the line they can zoom in on the play back.

Analog Video Standard: Unless you are using a StarTech HDMI to USB3 device, this is blank.

Frame Rate: Leaving this value at 0 is best. When set to 0, the system will set the frame rate to the according to the video feed..

Video Recording Method: What type of output do you want to record? This depends on your Codec and you can get that information from your codec documentation. If you use our Xvid recommendation, then the output is MP4. Your choices are AVI, MP4, MPG, MOV. You can do an internet search on these formats to learn more about them.

Video Sub Type: If you are going with our recommendations of MP4, then set this to YUY2. What type of Video Subtype does your Video Input Device subtype. Video Recording Method will determine this and your choices will vary. You can experiment with these and select the one you like the best. If you are going with our recommendations of MP4, then set this to YUY2.

JPEG Compression Performance: Set this to Best Speed. When you start a recording, we take a snapshot of the first video frame. This snapshot we use on the Client to display in the list of plays. We do this for purposes of speed – we want to show the first frame of the video but we sure do not want to load each and every video until you play them. When we take the picture, do you want us to concentrate on quality or speed? Truthfully, speed is the right answer as the image is only used in a grid and is not that big so the quality or speed does not really matter they all look the same.

JPEG Image Quality: Set this to 30. This is about compression of the first video frame snapshot (described about in JPEG Compression Performance). 10 is the lowest quality (highest compression) and 100 is the highest quality (lowest compression). After the 30 setting, the quality or speed does not really matter they all look the same due to the size of the image that is displayed so why waste time and space...

Flip Vertical: If your camera is upside down (for some reason or another) you can flip the video feed vertically.

Flip Horizontal: If your camera is shooting the image from a mirror you can correct it by flipping the video feed horizontally. Obviously our video engineers had too much time on their hands one day...

Thank you for purchasing this product. Our goal is to provide the best replay system and at best break even -- in the best interest of football. In other words, we are not doing this to make a profit on high school football. Spend your money on the things that are important to football: coaches and equipment.

While the Smart Video Replay software program does some very powerful things, it is simple to understand and use. Most persons become Power Users in just 30 minutes or less.