

GAMEVIEWER SERVER\CLIENT SOFTWARE

Game Server

Game Server Software CD

A Game Server Software CD is packed with the Master GameViewer. Run this CD in the Scoring computer. Open the CD in Windows Explorer, and click on the Game Server SETUP Icon. If the Scoring computer does not have a CD drive, copy the setup folder to a memory stick or floppy disk and run GAME SERVER SETUP.

The Server Software will install (it takes about a minute). If selected during set up, a green and gold GV "GameServer" Icon will appear on your Desk Top.

Double clicking the GV Icon will bring up the GV setup screen. (A smaller green and gold GV Icon will appear in the System Tray located on the bottom right corner of the Scoring computer next to the time clock)

When you complete the setup, you can minimize the setup screen. **Do not close (X) the screen,** this will close GameViewer.

If you close GameViewer, double click the green and gold Game Server icon on Desk Top, and GameViewer will restart, and the GV icon will re-appear in the System Tray.

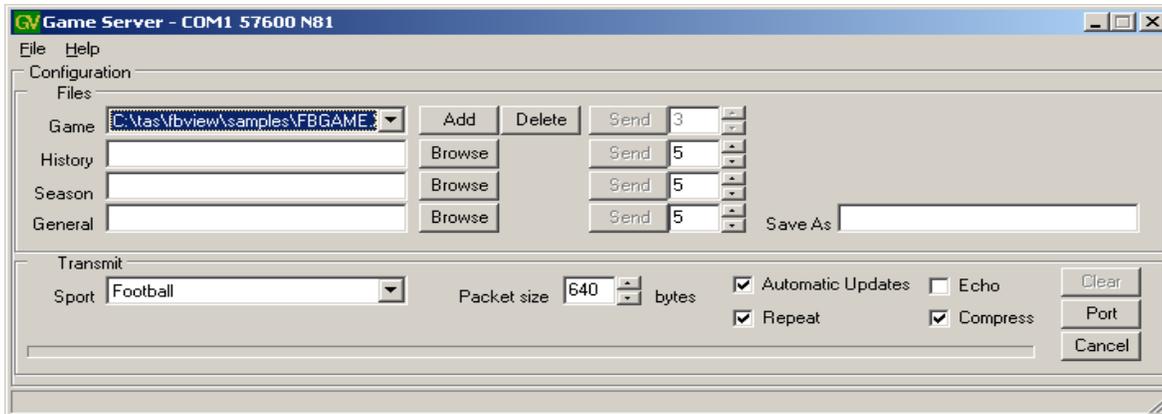
When you are ready to run Game Server, make sure the Master unit is attached and the power supply is plugged in, then click the Game Server icon on the Desktop.

GameViewer Server/Client File transmitter

The GameViewer Server-Client software package has been designed to automate Stat Crew game file transfer. It can be configured to automatically transmit a file via radio attached to a serial port. The user has the ability to set several configuration values to facilitate communications.

Game Server

Attach the Master and plug in the power supply before activating the Game Server icon. Double click the green and gold GV icon. Once the Game Server software is started, it will immediately transmit test data (that is displayed in the scroll box located in the bottom left corner of the GameViewer remote terminals) until you transmit a game file. At this point normal operation logic will begin (described later). The user can define career, season, and the Game file to be transferred. All detailed configuration options are located on the Game Server setup screen.



The Repeat box should not be checked for game time use. Repeat is for test purposes or for the rare case there is significant radio interference and Remotes are not able to receive updates normally.

The Game, Career (or history) and Season files should be sent manually (one time prior to the start of each game) via their respective send button. The Server will repeat the transmission the number of times set in the box next to the Send button. This is to help ensure that all clients receive the entire file. Only the active Game file will be sent when the Send button is clicked or monitored for automatic updates.

If the Repeat box is checked, then the Send option for the Game files is disabled and the file will be transmitted continuously, not just when an update is detected. **Leave the Repeat box unchecked for game use. Repeat is used only for test purposes.**

A General transmission option is available should the need arise to send a file to the client, such as program upgrades or new logos.

Configuration

The Game Server will maintain the list of files to transmit for each sport that is configured via the ini file. **Do not modify ini files.** Please call StatView Technical Support if a situation arises where we need to change GV ini files.

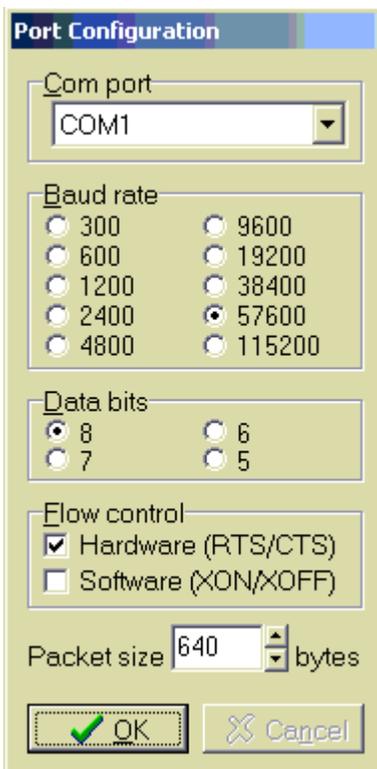
The Sport window defines which sport program to run and maintain.
For example a basketball configuration:

```
[Basketball]
Channel=16
Games=4
GameDestination =c:\GameFiles\game.xml
HistoryDestination=c:\GameFiles\history.xml
YTDDestination=c:\GameFiles\ytd.xml
History=c:\tas\bbview\samples\hcar.xml
YTD=C:\tas\bbview\samples\hseas.xml
Game1=C:\tas\bbview\samples\bbgame.xml
Game2=C:\tas\bbview\samples\hcar.xml
Game3=C:\tas\bbview\samples\hseas.xml
Game4=C:\tas\bbview\samples\VSEAS.XML
```

Details show basketball is set for radio channel 16, is maintaining 4 game files and has both a home team career and season file defined. There is also career and season file destination files for the visiting team, when used. The five destination files and the radio channel are not modifiable from the User interface.

Each time the sport selected is changed to a new sport, the Game Server will change the radio channel and the associated files.

Since radio reception can vary, the option of varying packet sizes is available. The current minimum is 128 bytes with a maximum packet size of 1024 bytes¹. Packet sizes should be left at the default setting of 640, but can be made larger to increase speed, or smaller to improve reception. **The Compress box should be checked for game time use.**



To configure the **serial port**, click the **Port** button, and select the proper serial port. You must select the serial port on the Scoring computer that GameViewer is using. The drop down arrow in the **Com port** window will show all com ports available. If you are not sure which com port to use, try the first com port available, if GV does not connect, switch to another com port and retest. **If the proper com port does not work, it could be in use or locked out by another program, such as TASCOMMS32, AOL or a modem.** If this happens, either close that application or switch to another physical serial port and reboot the Scoring computer. AOL, if running, will prevent the radio from changing sports. You can go to Device Manager (Settings, Control Panel and System) and check the Com ports for problems or Com port numbers.

If you are also running Dumb terminals or StatView wireless terminals running TASCOMMS32, they must use a different serial port, not the same serial port used by GameViewer. If your Scoring computer has only one physical serial port, you can use a USB port with a USB to Serial Adaptor. Serial Adaptors should be installed using the set up disk provided with the Adaptor, do not use default Windows drivers.

After initial setup, the proper com port and all other setting should be default. It is important to note, that **Hardware flow control should be selected**, Software control is not checked. **Do not change Baud rate, Parity, Data bits or Stop bits, unless instructed to do so by StatView Technical Support.** An option to restore all defaults can be found in the File Menu, the Server will ask for confirmation before performing this action.

The required settings on the “port” configuration are;

Com port = **The com port you are using on the Scoring computer.**

Baud rate = 57600

Data bits = 8

Parity = None

Stop bits = 1

Flow control = **Hardware is checked**, Software in not checked.

Note: USB to Serial Adaptors must be installed using the drivers provided by the Manufacturer. Generic Windows drivers do not always work properly.

Game Day Setup

Stat Crew Scoring Program

Open the Stat Crew **scoring** software for the sport to be run. Set up the new game and save. **Make sure options are set to transmit the game files after each play.** “connect comms” must be activated in **Baseball** scoring. Refer to the Stat Crew Software manuals for instructions.

Stat Crew Reports Program

Open the Stat Crew Reports program for the sport to be run. Select the current game from the Games List. The Directory and game will display in the Reports setup screen. If the current game does not show up in the Games List, you may need to change directories or you did not save the game in the Scoring Program. Please refer to Stat Crew manuals for instructions on setting up the Reports Program.

Click the **Live** tab, then **Live Setup**. The **live stats settings** screen will appear.

FTP settings do not affect GameViewer settings. FTP settings are used to upload the “Live XML” or “XMLOUT” file to a Web Site. See Stat Crew manual for instructions.

Copy File Settings

Auto-copy files should be checked.

Xml should be checked.

Target directory should be the target directory and folder you select for the XML file created by the Reports program.

We recommend that you **create a new folder** in the **root directory** to save game files, such as **c:\XML**. The software programs have problems with long paths and **never** save the copy file in the “**Live XML**” or “**XMLOUT**” directory. This copy XML directory must be selected in Game Server software as discussed below.

If this target directory is not selected in Stat Crew Reports and the copy XML file is not saved in the chosen location, **GameViewer will not function**. Please refer to instructions in the Stat Crew manual for proper setup of the Reports Program.

XML output

Enable XML stats feed should be **checked**.

XML gameid: should be the name given to the current game by the LIVE STATS service that will handle the FTP upload, for example – **fbgame2**. The **copy XML** file is used by Game Server and any computers on your local network running Gameviewer. The “Live XML” file used to upload to the internet is stored in a different location, as specified in the Game Reports program. The Stat Crew scoring programs run in DOS, thus game names and game folders should be 8 or less characters in length. **CSTV dictates the name of the game for each school. It is ok to use this directed game name for the XML game name, the game name will then be the same for the “LIVE XML” folder and the “XML” folder.**

Other settings

The **Poll rate in seconds** is set to 2 by default, and may be changed to longer periods if desired. **Show stats on screen**, **Reverse play-by-play**, and **Generate lastplay.htm**, are personal choices of the Scorer.

Activate

Check the **activate** box, and then click the **OK** button.

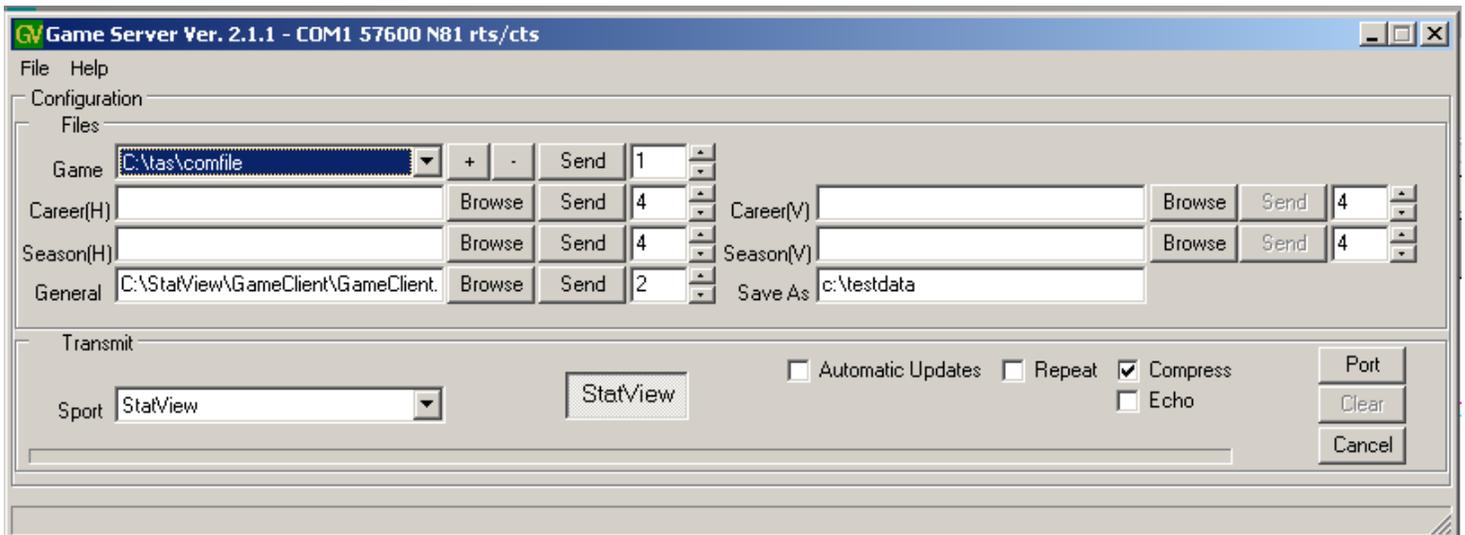
This will activate Reports and create the XML file for use by GameViewer software.

It is best to leave all the program screens open. While scoring, you can see that Reports is copying the file and Game Server is sending the file (there is a blue bar at the bottom when files are transmitted) You can minimize Game Server and Stat Crew Reports while scoring, but do not close the programs.

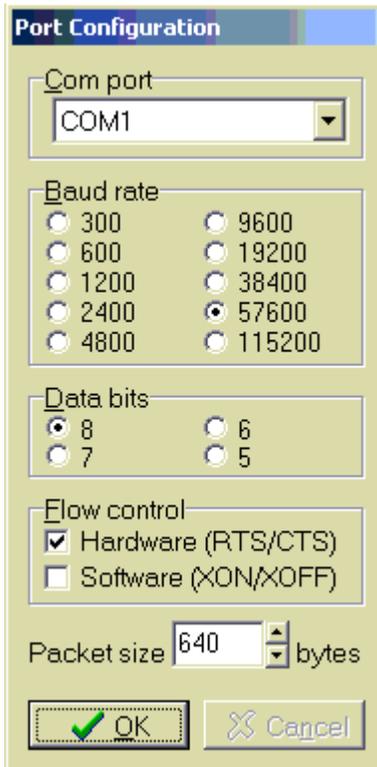
Game Server Program

Attach the Master unit to the Scoring computer serial port, or a USB port and a USB to Serial adaptor, then plug in the power supply. The first LED (the fourth LED is next to the antenna) will glow green and the second LED will glow red. The third and fourth LED will flicker dimly when sending or receiving data. **Do not send a game file or other data file at this time.**

Open Game Server software by double clicking the Game Server icon on the desktop (if it is not already open). This will activate Game Server.



If the COMM port you are using is not the COMM port selected in Game Server, the Port screen will appear.



Click the Com port drop down arrow and select the COM port you are using.

If you are changing sports, do so now before sending any data files. You will receive a message at the bottom of the set up screen stating that radio configuration was successful. **Changing sports is a good test to make sure your serial port is properly configured and is in use by Gameserver. Change to another sport, if the “Radio successfully configured” message appears, all is OK. Then change back to the desired sport.** If you get an error message, you have selected an incorrect com port, your com port is not configured properly or the com port is in use by another program or device.

Turn on the GameViewer IIs and set them up as described below.

If you are changing sports, click on the appropriate sport button. Make sure the Master is on, is set to the proper sport and has not transmitted a data file. An error message will display if the radio does not successfully configure. If that happens, select another sport, close the view screen, then re-select the desired sport. If the radio still does not configure, close the Gameserver software on the scoring laptop, turn off the Master, turn the Master back on, reopen Game Server, then turn off and restart the Remote Viewer. When all Display terminals are set up properly and displaying scrolling numbers in the scroll bar, bottom left on the screen, proceed with Game Server set up.

The current game XML file must be added to the drop down box Game Files in Game Server setup screen. Default settings will show sample games. Click the “-” button to clear out all old games. Click the “+” button next to the Game Files box. This will open Windows Explorer. Go to the folder that holds the XML game file **you created in the Reports program** and select the proper game. In our example the **Game** window will now display **c:\xml\fbgame.xml**.

Uncheck the **Automatic Updates** box and the **Repeat** box, if they are checked. Click the **Send** button next to the **Game** window. This will send the game XML file to the GameViewers. The files will be resent the number of times shown in the box next to the **Send** button. The

default number is 1, if the Remote Terminals are getting excellent reception continually, you can leave the number at 1. If Remotes have trouble updating, set the number to 2. Higher numbers will slow the update time since more packets are being sent.

If you are using **Season** and **Career** stats, Home or Visitor, click the **Browse** button next to the selected set of stats you want to use and display. (Season and Career stats must be available in the Stat Crew programs for the sport you have selected. Some Stat Crew Reports programs do not support Career and/or Season stats.) This will open Windows explorer. Go to the folder that holds the selected Season or Career XML file **you created in the Stat Crew program** and select the proper Season or Career XML file. Click the **Send** button next to the selected Season or Career window. This will send the selected XML file to the GameViewers.

Repeat this procedure for each set of stats you want to use. Season and Career stats (history files) are only sent prior to the game and are not resent during the game. Game Viewer updates history stats on each display terminal.

You must send the updated Season and Career stats before each game. Away games or corrections to stats will not be included in the Gameviewer files previously loaded.

When set up is complete and you are ready to enter plays, check the **Automatic Updates** box. This will send an updated game XML file each time an entry is made in the Stat Crew Scoring software. **Make sure the Repeat box is not checked. Repeat is for test purposes only.**

You can left click and hold the blue bar at the top of the Game Server setup screen and move the screen to one corner of your Windows screen. This will allow you to see that data is being sent to the Remotes by watching for the blue progress bar at the bottom of the Server screen. This blue bar will display a few seconds after a play is entered. If you prefer, you may minimize the Game Server setup screen. **Do not close (X) the screen, doing so will turn Game Server off.**

Game Client

Game Client software for GameViewer IIs has been designed to be as thin as possible. In essence, its main function is to listen on its configured port and radio channel for incoming packets sent by a Game Server. It chooses which Radio channel to use by keeping track of the last GameViewer that was launched by a user. When the user launches a GameViewer, the game client will switch to the radio channel defined in its ini file for that sport.

Configuration

Game Client is shipped to you pre-configured. GameViewers are preloaded with 7 sports supported by Stat Crew GameViewer software: Football, Baseball, Basketball, Soccer, Volleyball, Ice Hockey and LaCrosse. **Do not change the configuration settings.**

StatView stats (box score) are also selectable as the 8th sport. StatView stats use the Comfile, so StatView stats transmit and display faster than Gameviewer stats. StatView stats are limited to basic box scores (comfile) and do not use the XML file or display the complete Gameviewer stats.

Single clicking the StatView button will open a **Tascomms32** screen. Set the Com port in **Tascomms32** to Com 2 or Com 3. The radio (Game Server Port screen) uses Com 1. If all stats

do not display on the screen, go to the “Miscellaneous” tab in **Tascomms32**, click the “Change display font” button and change the font size to 9 or less.

Communication Settings

For testing and trouble-shooting, you may access more advanced information on the Game Client’s communication screen. Click on the satellite dish next to the scroll bar (bottom left), then check the echo box. When sending **game data (packets)** files from the Master, each packet will register. A good data packet will show “Packet Received”, bad data packets will show a Check Sum or Header Parse error. There will be an occasional failed packet due to radio interference. If 25% or more of the packets fail, the unit needs to be moved to another location, the antenna needs to be installed, or the Master need to be moved to a better location. If the unit still has many failed packets, call us for help. The more packet failures you have the slower the unit will post new data. **The test pattern sent to the Remotes by the Master when Gameserver is opened will always show every packet as failed. The test pattern (a stream of numbers 1 through 9) is a data stream, not packets.**

This window will also display the Game Client software version.



Mouse Pad

The mouse pad is located on the middle front of the GameViewer II keyboard. The mouse has a finger pad to move the mouse cursor and a left and right select button. This mouse pad functions like a mouse pad on standard laptops. The mouse pad is very sensitive, be sure to use only one finger. Placing the palm of your hand or several fingers on the pad will confuse the mouse pad sensors

GameViewer II has a mouse pad and keyboard, accessible by opening the LCD cover. The mouse pad, left/right arrow keys or select keyboard keys may be used to select the desired stats. For example, the “O” key selects offensive stats, the “D” key selects defensive stats.

Game Day Setup

The antenna should be attached when the GameViewer is located 20 feet or more from the GameViewer Master, or is in another room. If the GameViewer is within 10 to 20 feet of the Server, the antenna is usually not needed on the GameViewer II. The radios operate at full power and generate a strong radio field. **If the GameViewer II is too close to the GameViewer Master (10 feet or less), communication between the Master and GameViewer could be interrupted and the game files may not be received and updated.**

Turn the **GameViewer II** on by plugging in the power supply and opening the lid. If power is interrupted during the game, the Game Viewer II will reboot when power is restored. The Game Viewer II must then be reset to the proper GameViewer sport

GameViewer IIs turns on by opening the top.

The first LED on the radio (there are four LED’s located in a slot on the left end of the laptop, near the front) will glow green. If the GameViewer is set to the correct sport and the GameViewer is communicating with the Master, **the second LED will glow red**. If the second LED is not red, allow the GameViewer to boot to the screen with your school logo. Then, make sure that the Master is not transmitting game data and click on the proper sport bar. (If the Master is set to football, then the Remote must be set to football for the units to communicate.) The second LED should now glow red. **When changing sports, be sure the Game Server software is not transmitting data, turn automatic updates off and do not send a game file until the radio has been set to the proper sport.** If you change sports on the Remote before changing sports on the Master, you will have a green light and no red light. Start Game Server, and then change the Transmit Sport to the same sport selected on the GameViewer IIs. The Remotes should now have a red and green light, which indicates the radio on the Remotes and Master are locked on the same sport.

If the Server has been turned on, Game Server is open and no files have been sent, you will see numbers scrolling on the scroll bar at the bottom left of the screen. This indicates the GameViewer is working properly and is receiving test data. When you send the game file, you will see the data file scrolling on the scroll bar (this is unreadable data).

To access more advanced information on the Game Client’s communication, click on the satellite dish located at the bottom of the main window. This will open a window that reports current software version and status of a file being downloaded. An echo option allows for detailed observation on communication and displays whether data packets are received with or without errors. If data is being properly received, the echo screen will display many “packed processed” messages. If you receive a large number of “header parse” or “failed checksum” errors, move the unit to a better reception area or add /remove the antenna on the GameViewer II. **A high percentage of “header parse” errors also indicate problems with the serial port on the scoring laptop. If this occurs, swap the USB port on the scoring laptop and select the new com port in Gameserver.**

The first time you select a sport for which you have not previously loaded a game XML file, you may receive an **error message**. Click OK on each error message, and then click the **VIEW** button. The Remote will display a data screen with no stats. Once you send the game XML file from the Master, game data will populate the screen.

The first LED on the radio must be green (power on) and the second LED must be red (radio connected) for game file transfer.

Single click the desired **sport bar**; **do not double click, double clicking will open the client software two times**. The first opened GameViewer will grab the com port and the second opened GameViewer will display on the screen but will not update because it cannot access the com port. If this happens, move the mouse cursor to the bottom of the screen. The System tray will pop up. Move the mouse cursor to the second Gameviewer, right click and close the game. Move the mouse back up and the System tray will disappear.

The **View button** setup screen will appear. The default setting for the data files will show in each window. Default for the game XML file is C:\GameFiles\game.xml. **Do not change this setting**. The game file will not load if this setting is changed, and the game file will not update. The window is only used for program updates as needed.

The Visitor and Home files should be left at default settings. If you are not using Season or Career files, a message will appear stating the file could not be found. Click OK each time this message appears. If you are not using Career or Season stats, you can prevent this message every time you open a game by deleting the default file name. Place the mouse cursor on either end of the Career or Season file name, push down and hold the left mouse button, run the mouse cursor over the entire file. The file will be highlighted. Push down the **right** mouse button and click Delete. If you later decide to use Career or Season stats, you will need to re-enter the default file name. Call StatView for instructions.

Click the **View** button. The GameViewer screen for that sport will appear. If you have not sent the game XML file, the screen will appear with no data or data from the last game. When the current game XML file is sent, the current game data will appear.

The Basketball GameViewer must be sent a Basketball XML file before clicking the view button. Windows will display an error message and shut down the GameViewer program. If this happens, send a Basketball XML file from Game Server software on the scoring laptop. Then single click basketball, then the view button.

When you set up for new games in the same sport, you only need to single click the appropriate sports bar and then click the **View** bar on the View screen. When you change sports, clicking the selected sports bar will change the radio setup to that sport and the View screen for that sport will appear. When changing sports, make sure automatic updates and repeat are **not** checked in GameServer, and that no data is being transmitted.

If the GameViewer is not receiving data, make sure the first LED is green and the second LED is red. If the second LED is not red, change to another sport, then change back to the desired sport. The second LED should now be red.

Since each sport has its unique setup, multiple sports can be scored at the same time, even if the facilities are very close, without interfering with each other. Each scoring computer must have a GameViewer Master unit connected.

As the game progresses, the user can select which data screen to view by moving the mouse cursor over the appropriate tab (Visitor, Home, Play-by-Play, for example), then click the left mouse button or tap the mouse pad.. You can use the keyboard to browse through stats on the GameViewer II. Tap the "O" key for offensive stats, for example, or use the left/right arrow keys.

The PRINT or COPY buttons do not function on the Remote Terminals.

DISPLAY SCREEN BRIGHT/DIM CONTROL

GameViewer II brightness can be adjusted by holding down the "Fn" (Function) key, then the "F3" or "F4" key.

These units use a DSTN LCD panel which tends to get brighter after being on for 5 to 10 minutes. Always set the screen a little dark at initial setup, it will get brighter as it warms up.

Shutdown

It is important to shut down *Windows* before turning off the GameViewer. Move the mouse cursor to the bottom of the screen. The System tray will appear. Click on the **Start** button and **Shut Down**. When windows shuts down, close the LCD lid and unplug the power supply

GameViewer II's are turned off by closing the lid, then unplugging the power supply.

POWER SUPPLY

The Power Supply is specifically designed for the GameViewer II. It provides proper voltage to power the unit. Some Power Supply cases have an LED that will glow green when plugged into a 120v outlet. When the DC plug is plugged into the GameViewer II, the LED will glow orange if the unit is drawing power from the power supply. If the LED remains green after about 15 seconds after the DC plug is plugged in, there is possibly damage to the DC plug or the power supply. If the GameViewer II is not receiving power, the GameViewer II will not boot. This is usually the result of pulling or jerking on the Power supply cable to unplug the DC jack, or the power supply has blown a fuse.

GameViewer Master and GameViewer II power supplies have a different DC jack and are not interchangeable.

You must hold the DC Power Supply jack by the plug to unplug the Power supply. Do not unplug by pulling on the cable. Pulling on the Power Supply cord will damage the wire or plug. When a Power Supply is damaged, the GameViewer II will not boot or the Master will not transmit the data files.

BATTERY

GameViewer II does not have a main battery and the power supply must be plugged into a 110/120 volt outlet to operate.

All GameViewers have an internal CMOS battery. These non-rechargeable batteries usually last several years. If you receive a CMOS error on a black screen, the CMOS battery must be replaced. This must be done by Statview, call Statview for instructions on returning the unit.

The CMOS error can be bypassed on the **GameViewer II** by pressing the F1 key to continue or the F2 key to enter set up. This must be done every time the Game Viewer is booted until the CMOS battery is replaced.

MAINTENANCE

Clean the plastics with eye glass cleaner or original Windex and a soft cotton cloth. Lens cleaner is available at Walmart for about \$2 a bottle. Cleaning the clear plastic cover over the LCD panel with course cloth or rough paper towels can scratch the lens.

There is no internal maintenance that can be performed by the user. Contact StatView Tech Support if you have any setup issues that can not be resolved using this manual.

When unplugging the Power Supply, always grab the hooded plug and pull straight out. Do not unplug by pulling on the power cord!!!! Yanking on the cord will cause damage to the plug and the Battery will not charge and the Remote will not display data.

WARRANTY

All GameViewers carry a 1 year warranty. The warranty includes parts and labor for any repairs that occur under normal wear and tear.

Shipping cost is not covered under warranty. You are responsible for shipping cost incurred to ship the units back to us and for us to ship the repaired unit back to you.

Repairs for damage caused by rough treatment or replacement of lost components, such as antennas, are not covered under warranty.

Replacement parts are available for all GameViewers. Call or email for pricing.

Replacement antennas are \$26 and Power Supplies \$22.

Office phone 662-429-9015 Ask for Bill or Elton. 9-5 M-F

Cell phone 901-486-2129 24\7

Email bill@statviewinc.com

NOTES – General Info

March 1, 2008

SYSTEM REQUIREMENTS FOR PLAY UPDATES TO DISPLAY ON THE REMOTE UNITS

GameServer software version 2.1.1. or higher
Remotes have software version 2.2.1 or higher
The Com Port on the scoring laptop must be set up properly
The copy XML file in Game Reports is saved in a sub folder in the root directory, such as C:\XML.
Long multidirectory paths cause problems. Do not use the game Xml fie in the LIVEXML or XMLOUT folder.
The GameViewers with batteries are fully charged between games. Gameviewers may operate with power supplies connected, which will extend run time, but they must be fully charged before game time use.

GameViewer uses 4 separate programs to function: Stat Crew scoring, Stat Crew Reports, Game Server, and Stat Crew Gameviewer. All 4 must be set up properly for stats to post and update.

Updates take time to post.

Timing is dependant upon:

The speed and proper setup of the scoring laptop.
Time taken by the scorer to input the play.
Time for Stat Crew scoring to generate and transmit the game file.
Time for Stat Crew Reports to receive the file, create and copy the XML file.
Time for Game Server to recognize a new time stamp on the XML file and send the data by radio to the Remote units.
The quality of radio signals in the arena or stadium. Radio interference may not allow the XML file to be received on the first of multiple transmissions.
Stat Crew Gameviewer running on the Remote to recognize a new time stamp on the XML file and update the stats on the screen.

Typically it takes about 4 to 15 seconds from the time Stat Crew scoring accepts the play and the Remotes post the update. If there is radio interference it may take 15 or 30 seconds. Due to the nature of the entire system, stats are not going to post immediately after a play. Radio\TV personnel should be advised of the time delay and should not expect instant updates.

AOL If your scoring laptop has AOL loaded, you must turn AOL off when changing sports. Computers running AOL can not send executable files through the Serial port, therefore Gameserver can not reconfigure the radio.

When setting up Game Server, changing sports is a good test to make sure your serial port is properly configured and is in use by Gameserver. Change to another sport, if the “Radio successfully configured” message appears, all is OK. Then change back to the desired sport.

If you are having any problems, please call me on my cell phone – 901-486-2129.

Thanks
Bill

RADIO AND FCC DATA

FCC = KQL-AC4490
 IC = 2268C-44901000

| TRANSCEIVER | | | | | | | | | | | | | |
|--|--|--------------------------|------------------------|--------------------------|--------------------------|--------------|---|-------------|---------------|---------------|--------------|---------------|----------------|
| Frequency Band | 902 – 928 MHz | | | | | | | | | | | | |
| RF Data Rate | 76.8kbps fixed | | | | | | | | | | | | |
| RF Technology | Frequency Hopping Spread Spectrum | | | | | | | | | | | | |
| Output Power | <table border="1"> <thead> <tr> <th></th> <th>Conducted (no antenna)</th> <th>EIRP (3dBi gain antenna)</th> </tr> </thead> <tbody> <tr> <td>AC4490-1x1:</td> <td>10mW typical</td> <td>20mW typical</td> </tr> <tr> <td>AC4490-200:</td> <td>100mW typical</td> <td>200mW typical</td> </tr> <tr> <td>AC4490-1000:</td> <td>743mW typical</td> <td>1486mW typical</td> </tr> </tbody> </table> | | Conducted (no antenna) | EIRP (3dBi gain antenna) | AC4490-1x1: | 10mW typical | 20mW typical | AC4490-200: | 100mW typical | 200mW typical | AC4490-1000: | 743mW typical | 1486mW typical |
| | Conducted (no antenna) | EIRP (3dBi gain antenna) | | | | | | | | | | | |
| AC4490-1x1: | 10mW typical | 20mW typical | | | | | | | | | | | |
| AC4490-200: | 100mW typical | 200mW typical | | | | | | | | | | | |
| AC4490-1000: | 743mW typical | 1486mW typical | | | | | | | | | | | |
| Supply Voltage | <table border="1"> <tbody> <tr> <td>AC4490-1x1:</td> <td>3.3V, ±50mV ripple</td> </tr> <tr> <td>AC4490-200:</td> <td>3.3 – 5.5V, ±50mV ripple</td> </tr> <tr> <td>AC4490-1000:</td> <td>Pin 10: 3.3 – 5.5V ±50mV ripple Pin 11: 3.3 ±3%, ±100mV ripple</td> </tr> </tbody> </table> | AC4490-1x1: | 3.3V, ±50mV ripple | AC4490-200: | 3.3 – 5.5V, ±50mV ripple | AC4490-1000: | Pin 10: 3.3 – 5.5V ±50mV ripple Pin 11: 3.3 ±3%, ±100mV ripple | | | | | | |
| AC4490-1x1: | 3.3V, ±50mV ripple | | | | | | | | | | | | |
| AC4490-200: | 3.3 – 5.5V, ±50mV ripple | | | | | | | | | | | | |
| AC4490-1000: | Pin 10: 3.3 – 5.5V ±50mV ripple Pin 11: 3.3 ±3%, ±100mV ripple | | | | | | | | | | | | |
| Sensitivity | -99dBm typical @ 76.8kbps RF Data Rate | | | | | | | | | | | | |
| Range, Line of Site (based on 3dBi gain antenna) | <table border="1"> <tbody> <tr> <td>AC4490-1x1:</td> <td>1 mile</td> </tr> <tr> <td>AC4490-200:</td> <td>4 miles</td> </tr> <tr> <td>AC4490-1000:</td> <td>20 miles</td> </tr> </tbody> </table> | AC4490-1x1: | 1 mile | AC4490-200: | 4 miles | AC4490-1000: | 20 miles | | | | | | |
| AC4490-1x1: | 1 mile | | | | | | | | | | | | |
| AC4490-200: | 4 miles | | | | | | | | | | | | |
| AC4490-1000: | 20 miles | | | | | | | | | | | | |
| ENVIRONMENTAL | | | | | | | | | | | | | |
| Temperature (Operating) | -40°C to 80°C | | | | | | | | | | | | |
| Temperature (Storage) | -50°C to +85°C | | | | | | | | | | | | |
| Humidity (non-condensing) | 10% to 90% | | | | | | | | | | | | |



WARNING: This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.



WARNING: This equipment has been approved for mobile applications where the equipment should be used at distances greater than 20cm from the human body (with the exception of hands, wrists, feet and ankles). Operation at distances less than 20cm is strictly prohibited.