eeger
NEUROFEEDBACK SOFTWARE

Installation & Setup Instructions
Frequently Asked Questions

eeger.com / 800-789-3456

EEG
Education & Research, Inc.

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NEUROFEEDBACK SOFTWARE

Thank you for choosing EEGer™ Neurofeedback software.

This Installation Instructions guide takes you through EEGer system setup step-by-step and introduces you to the computer terms and equipment you'll be using as a neurofeedback professional.

The guide is divided into sections for easy access to the information you need:

ADDITIONAL SOURCES OF INFORMATION:

- A complete **EEGer™ Manual** is availabe on the EEGer Installation CD or on the web at http://www.eeger.com.

- Your **EEGer™ Quick Start Guide** provides basic instructions for setting up and running a neurofeedback session, including troubelshooting tips and a function key chart.

- The **EEGer™ Quick Reference Guide for Optional Games** includes installation instructions and descriptions of the additional games available for EEGer™.

- The **EEGer™ Tutorial** can be viewed or installed from the EEGer Installation CD or downloaded from the web at http://www.eeger.com.

- Visit the **EEGer™ website for s**oftware updates and other details -- http://www.eeger.com.

- **Technical Support**: Call 800-789-3456 or email support@eeger.com (charges may apply).

Before You Begin

Please review all system requirements on the back.

CHECK THIS LIST TO BE SURE YOU HAVE EVERYTHING YOU NEED TO COMPLETE
THE INSTALLATION AND SETUP OF YOUR NEUROFEEDBACK SOFTWARE.

Software Installation Components

EEGer Security Key

➢ **EEGer™ Neurofeedback Installation CD**
(if not installed by ESS)

➢ **EEGer Security Key (Dongle)**

➢ **EEGer License Keyfile CD** labeled with your dongle number
(if not installed by ESS)

Connection Components

USB-Serial Adapters

Null Modem Cable

USB-Serial Driver CD   **USB Hub**

SERIAL CONNECTION FOR TWO COMPUTER SETUP:

➢ **Null Modem Cable**

Additional computer-dependent connectors:

• 1or 2 USB-Serial Adapter(s) - if needed to convert USB to Serial connector

• Driver CDs for USB-Serial Adapter(s)

• USB Hub - if additional USB ports are needed

(Two computer Serial communication is requred with BeyondVR games.)

Ethernet Cable

ETHERNET CONNECTION FOR TWO COMPUTER SETUP:

➢ Crossover Cable -OR- Direct Cable with Ethernet Hub

USB-Serial Adapter

FOR THOUGHT TECHNOLOGY AMPLIFIERS (ProComp+, ProComp Infiniti, ProComp2)

➢ 1 USB-Serial Adapter - if needed to convert USB to Serial connector

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BrainLynx

esiPRO

ProComps

➢ **AMPLIFIER AND COMPONENTS**

• **ProComp+, Infiniti, ProComp2:** 9-25 Pin Cable, ProSB, Fiber Optic Cable, DIN adapter(s), Electrodes, FlexPro(s) for 8-channel models or use of ChB with ProComp2

• **esiPRO 4.3:** USB Cable, electrodes

• **J&J Amplifiers (including BrainLynx):** Electrodes; some models require TP-60 adapter, shorting plug or XP 1.0 USB-Serial cable

Additional amplifiers are supported by EEGer. Please contact EEG Spectrum for more information.

OTHER CONNECTIONS

SINGLE COMPUTER 2-MONITORS: Secondary video card/input; VGA or DVI

NEUROCYBERNETICS AMPLIFIERS: A/D connection; PCI, PCMCIA, or USB
(A/D available from www.measurementcomputing.com; EEGer instructions available in the complete EEGer manual)

CONNECTION PORTS

Please review the steps on the next page to determine how components are connected to your system(s).

Contact Us: **800-789-3456**

Identify Connection Ports

To use your Neurofeedback equipment, you must attach devices or cables to your computer in various kinds of connection "ports". Each computer has a different set of ports in different locations and even different directions.

The following images and descriptions can help you identify the types of ports on your computer system(s) to ensure you have the necessary connections.

SERIAL PORTS (9-PIN)
Serial communications ports have 9-pins. Your computer may have 2,1, or NO serial ports. If you do not have serial ports, you need USB-Serial adapter cables for each serial connection (two ends of null modem and/or ProComp amplifiers). Serial ports are often confused with VGA Video ports, which are 15-pin female and the same outer dimensions.

USB PORTS
USB ports are located in different places on different computers. Some are positioned horizontally and others vertically. Computers may have the USB ports on the side, front, or back of the computer case. If you do not have enough 9-pin Serial and USB ports for all connections, you may need to add a USB HUB to create more ports.

ETHERNET PORTS
Ethernet communications ports are similar to phone ports, but a little larger. Your computer may have 1 or NO ethernet ports. If you do not have an ethernet port, you can add an Ethernet card to add a port.

VIDEO/MONITOR PORTS
VGA PORT: The VGA socket on the back of a PC uses a 15 hole connector. It is often mistaken for a 9-pin Serial port, which has the same outer dimensions.

DVI PORT: DVI stands for "Digital Video Interface". It is a standard designed to maximize the visual quality of digital display devices such as flat panel LCD computer displays and digital projectors. DVI-D processes digital signal while DVI-I transmits both digital and analog. DVI ports can be converted to VGA ports using a small adapter.

> If your software has been installed by EEG Spectrum Systems, all ports and necessary cables are labeled and color-coded to make it easier to set up your system.

NUMBER OF PORTS ON MY SYSTEM

	My THERAPIST computer	My GAME/CLIENT computer
Serial	☐	☐
USB	☐	☐
Ethernet	☐	☐
VGA	☐	☐
DVI-I or DVI-D	☐	☐
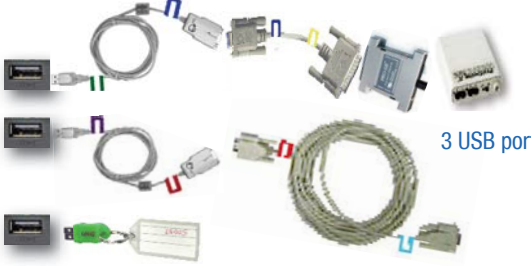
Layout Options for Therapist Computer Connections

ProComp and Other Serial Amplifiers

2 Serial ports
1 USB port

1 Serial port
2 USB ports

3 USB ports

1 Ethernet port
2 USB ports

1 Serial port
1 USB port
USB Hub (4 port)

2 USB ports
USB Hub (4 port)

esiPRO and Other USB Amplifiers

1 Serial port
2 USB ports

1 Ethernet port
2 USB ports

3 USB ports

2 USB ports
USB Hub (4 port)

SOFTWARE INSTALLATION AND SETUP

① Install the Software

*If the computers were **not** set up by EEG Spectrum Systems*, **install the software.**

1. Insert the EEGer Neurofeedback Installation CD into the CD drive of the Therapist computer.

2. When the menu appears, click Install EEGer Therapist Software Package and respond to the prompts to install the software.

3. When the Select Components screen appears, click the circle to select the desired option:

   ○ Install EEGer with 2-computer settings
   ○ Install EEGer with single computer settings
   ○ Install EEGer with single computer, dual monitor settings

4. When the installation is complete, remove the CD from the Therapist computer and, if installing for 2 Computers, insert it in the CD drive of the Client/Game computer and continue. Otherwise, move on to ②

5. When the menu appears, click Install EEGer Game Set Client Software for 2nd computer and respond to the prompts to install the software.

6. When the Select Components screen appears, select the desired option: Install EGS games only

7. When the installation is complete, remove the CD and put it aside for safekeeping.

8. Continue with instructions to set up and attach hardware. There are some additional steps for software setup

> **ℹ** We recommend that you install optional games after you are sure EEGer is working with the EEGer Game Set (EGS). Installation instructions for optional games are provided separately.

② Attach the Amplifier

⊙ ProComp (all models):

ProComp Serial Connection –
Connect the cable with the dark blue tag to the a 9-pin Serial port of the Therapist computer [COM1]. (Figure 1)

Figure 1.

ProComp USB Connection –

1. Insert the SIIG USB-Serial Adapter Driver CD into the CD/DVD drive.

2. Connect the dark green end of the USB-Serial adapter to a USB port in the Therapist computer. (Figure 2-1)*

3. Connect the ProComp connection cable with the dark blue tag (9-25 pin cable) to the dark blue end of the USB-Serial adapter. (Figure 2-2)

SIIG USB-Serial Adapter Driver CD

Figure 2.

⊙ ESS esiPro, BrainLynx, and other USB Amplifiers

Connect the amplifier's USB cable (dark green tag) into a USB port in the Therapist computer. (Figure 3) *

Figure 3.

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* When the *Found New Hardware Wizard* appears:

a. If prompted to connect to Windows to search for a driver, click *No, not this time*, then click *Next*.

b. Click *Next* and follow prompts to install automatically, including *Continue Anyway* on the logo testing message.

c. Once you click *Finish*, if the wizard begins again complete the steps as above until you click *Finish* again.

③ ATTACH A USB HUB (port expander)

If you do not have enough Serial or USB ports for all connections, you need a USB Hub. Connect the cable with the gold tag to a USB port on the Therapist computer. (Figure 4) Connect the AC adapter to your surge protector outlet.

Figure 4.

> ℹ One or two EEGer connections remain. You may also need to use a Hub if you want to attach other devices, such as a USB mouse or printer. A 4-port USB Hub converts one port on the computer to 4 USB ports.

④ ATTACH THE EEGer SECURITY KEY (dongle)

Connect the EEGer Security Key (dongle) to the USB port labeled EEGer Dongle in the Hub -OR- Therapist computer. (Figure 5) *

Figure 5.

⑤ CONNECTIONS FOR GAME COMPUTER OR SECOND MONITOR

🖳🖳 Two Computer System – Connect the Game Computer

Two computers are connected using either Serial communication (9-pin and USB ports) or Ethernet communication. Not all games are available for Ethernet communications.

⊙ OPTION 1: SERIAL CONNECTIONS FOR A TWO COMPUTER SYSTEM

Connect cables to the THERAPIST computer.

» **Serial Port:**

Figure 6.

If you have a 9-pin serial port that is not already in use by the amplifier, connect the red end of the Serial Null Modem Cable to the red serial port on the Therapist computer [COM1 or COM2]. (Figure 6)

Figure 7.

» **USB Port:**

a. Connect the dark purple end of the USB-Serial adapter to the dark purple port on the USB Hub -OR- the Therapist computer. (Figure 7-1) *

b. Connect the red end of the USB-Serial adapter to the red end of the Serial Null Modem cable. (Figure 7-2)

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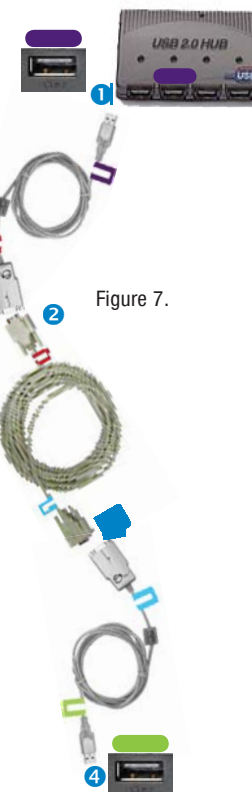
* When the *Found New Hardware Wizard* appears:

a. If prompted to connect to Windows to search for a driver, click *No, not this time*, then click *Next*.

b. Click *Next* and follow prompts to install automatically, including *Continue Anyway* on the logo testing message.

c. Once you click *Finish*, if the wizard begins again complete the steps as above until you click *Finish* again.

Connect cables to the GAME computer (Serial Connection Continued).

  » **Serial Port:**

  If you have a 9-pin serial port that is not already in use, connect the blue end of the Serial Null Modem Cable to the blue serial port on the Game computer [COM1 or COM2]. (Figure 8)

Figure 8.

  » **USB Port:**

  a. Connect the blue end of the Serial Null Modem cable to the blue end of theUSB-Serial adapter. (Figure 9-3)

 b. Connect the bright green end of the USB-Serial adapter to the bright green port on the Game computer. (Figure 9-4)
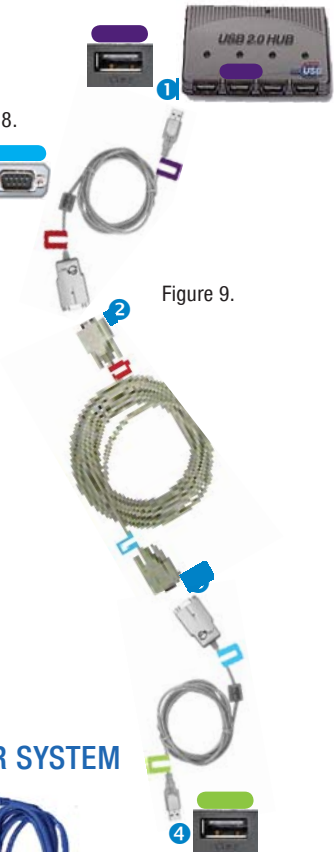
Figure 9.
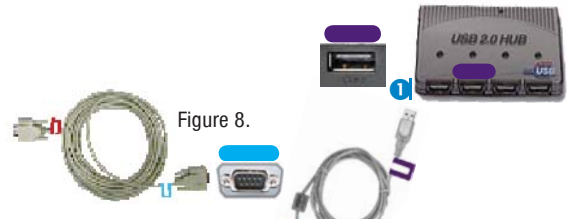
   • The *Found New Hardware Wizard* appears:

   1) If prompted to connect to Windows to search for a driver, click *No, not this time*.
   2) Click *Next* and follow prompts to install automatically, including *Continue Anyway* on the logo testing message.
   3) Once you click *Finish*, the wizard begins again. Complete the steps as above until you click *Finish* again.

OPTION 2: ETHERNET CONNECTIONS FOR A TWO COMPUTER SYSTEM

Connect one end of the the Ethernet Crossover cable to the Ethernet port on the Therapist computer. Connect the other to the Ethernet port on the Game computer. (Figure 10)

Figure 10.

Single Computer, Dual Monitor - Connect the Monitors

  • **LAPTOP COMPUTER**
  Connect the cable for the second monitor to the VGA video port on the back of the computer (Figure 11) -OR- to a DVI port utilizing a VGA adapter. (Figure 12)

Figure 11.

  • **DESKTOP COMPUTER**
  Connect the cable for the secondary monitor to either a second VGA port -OR- a DVI port utilizing a VGA adapter. (Figure 11 or 12)

Figure 12.

DISPLAY SETTINGS FOR DUAL MONITOR USE
1. Use the right mouse button to click a blank area on the Windows desktop display. With the left mouse button, select Properties or, in Vista, Personalize, then Display Settings. The Display Settings window is displayed.
2. For monitor 1, set the resolution to 1024x768 pixels and click Apply.
3. Click the icon for monitor 2. Click to check the checkbox for Extend my Desktop... Change the resolution to 1024x768 pixels for best performance. Click OK.
NOTE: Some video hardware requires lower settings. Minimum functional resolution for EEGer software is 800x600, 16-bit color quality.
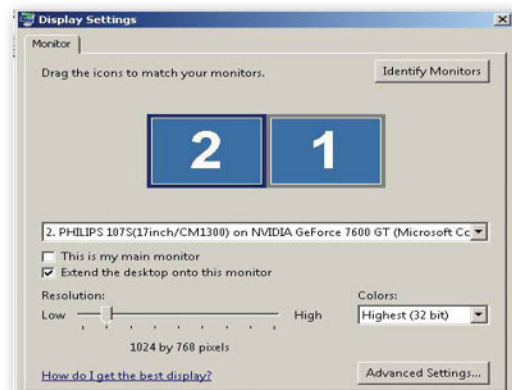
⑥ SERIAL PORT SETTINGS

For **Two-Computer** systems, **ProComp** and **BrainMaster Atlantis** amplifier connections - Ethernet/USB Amplifier connections, proceed to step 7B

⊙ IDENTIFY SERIAL COMMUNICATION PORTS

» Serial ports are assigned the first available communications (COM) port numbers. If there is more than one 9-pin serial port, the left or upper-most port is COM1.

» USB ports adapted for serial communications are assigned a number by Windows when the devices are installed. COM port settings can be determined by viewing the Windows Device Manager. For systems using USB ports, esp. with XP, unplugging or moving devices can cause the COM port number to change. You need the COM number of the device to set up EEGer communications.

Confirm the COM ports assigned using the Device Manager:

1. Click Start.

2. Go to the Device Manager;

   a. WINXP: Right-click My Computer, then left-click Properties in the menu of options to bring up System Properties. Click the Hardware tab then the Device Manager button.

   b. VISTA: Right-click Computer, then left-click Properties, Click the Task link for Device Manager.

3. Click the + next to *Ports (COM & LPT)* to expand the list. (List is alphabetical).

4. Write down the numbers of the COM ports available.

5. If you have more than one device attached, remove one to see which number is assigned to that item and confirm that the same number is assigned when you reattach the device. Or, if you know which adapter was attached first, that one has the lower COM number.
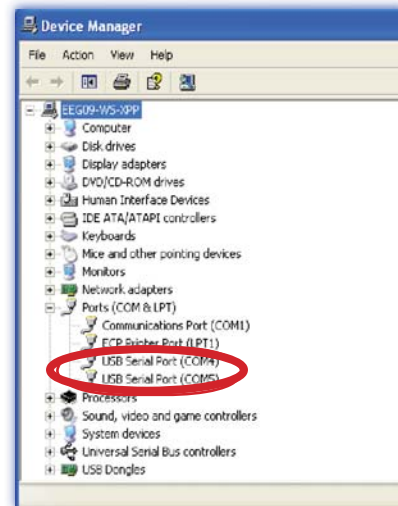
THERAPIST COMPUTER PORT FOR CONNECTION TO AMPLIFIER: COM_____
THERAPIST COMPUTER PORT FOR CONNECTION TO GAME COMPUTER: COM_____
GAME COMPUTER PORT FOR CONNECTION TO THERAPIST COMPUTER: COM_____

⑦ COMMUNICATION SETUP

• **Setup Option 1: Two Computer Setup Serial Communications:** Proceed to (7A) (page 13)

• **Setup Option 2: Two Computer Setup, Ethernet Communications:** Proceed to (7B) (page 14)

• **Setup Option 3: Single Computer or Dual Monitor Setup:** Proceed to (7C) (page 15)

7A SETUP OPTION 1: SERIAL COMMUNICATIONS FOR TWO COMPUTER SETUP

A. GAME SETUP FOR TWO-COMPUTER SYSTEMS:

1. Launch EGS by double-clicking the EGS icon on the Game computer's Windows Desktop.

2. The first time EGS is opened, you must press F9 to open the Game Initialization Tool. When the list of games appears on a gray background, click DONE-Save Configuration.

3. When the game menu appears (blue background), press F3 until the correct COM port displays in the upper-left corner. This is the port where the cable that goes to the Therapist computer is connected on the Game computer. *NOTE: It does not have to match the number of the port used on the Therapist computer.*

B. THERAPIST SETUP:

1. Launch EEGer by double-clicking the EEGer icon on the Therapist computer's Windows Desktop. *NOTE: If a message appears, click OK or Ignore.*

2. Click the Preferences menu and select Configuration. Click the Devices tab.

3. Set Kind of connection to game computer as Serial.

4. For COM port setting for Serial/Modem port for game computer, select the correct COM port for the Serial or USB port where the cable to the Game computer is connected on the Therapist computer.

5. For Source of EEG/Peripheral data, select the correct amplifier (e.g., esiPro, ProComp, etc.).

6. For ProComp or BrainMaster Atlantis amplifiers, select the correct COM port to connect to the amplifier for Serial port for data source connection. For other USB amplifiers, select None.

7. Device Options:
    » ProComp amplfiiers: If your amplifier is set for Biograph mode (DIP switch 2 ON and 1,3,4 OFF) click the Device Options tab to change the ProComp/Infiniti Communications Protocol. Our default is Spectrum mode (DIP switch 1 ON and 2,3,4 OFF).
    » BrainMaster amplifiers: Click the Device Options tab to enter the Serial Number and Passkey you obtained from BrainMaster.
    » NeuroCybernetics amplifiers (manufactured by Biofeedback Systems, Inc.); Click the Device Options tab to enter the A/D Board Number.

8. Click STORE settings and close the window. *NOTE: If a message appears, click Ignore.*
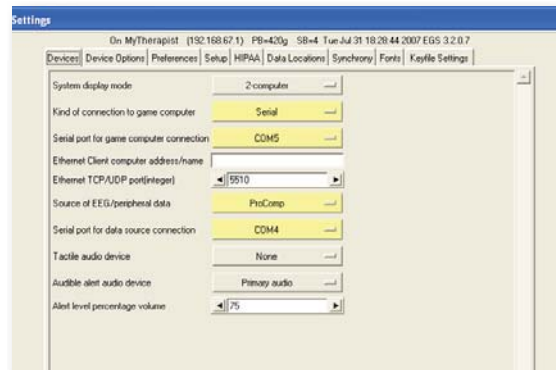
Preferences - Devices Tab
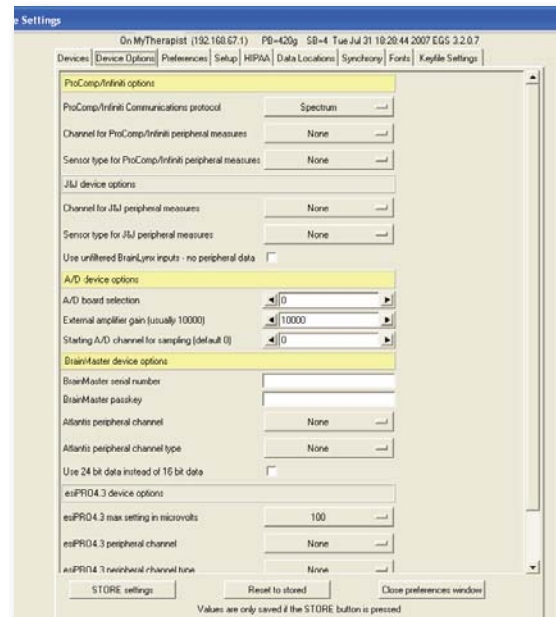
Preferences - Devices Options Tab

7B SETUP OPTION 2: ETHERNET COMMUNICATIONS FOR TWO COMPUTER SETUP

A.   GAME SETUP FOR TWO-COMPUTER SYSTEMS:

1.   Launch EGS by double-clicking the EGS icon on the Game computer's Windows Desktop.

2.   The first time EGS is opened, you must press F9 to open the Game Initialization Tool.   When the list of games appears on a gray background, click DONE-Save Configuration.

3.   When the game menu appears (blue background), press F5 to display Communication Setup. Click the Ethernet button.

4.   Note the computer name and IP address (numbers in parentheses) for this computer. In this example, "*MyGameLT (192.168.67.2)*". You will need this for setup on the Therapist computer.   Remain on this screen and proceed with the Therapist setup instructions.
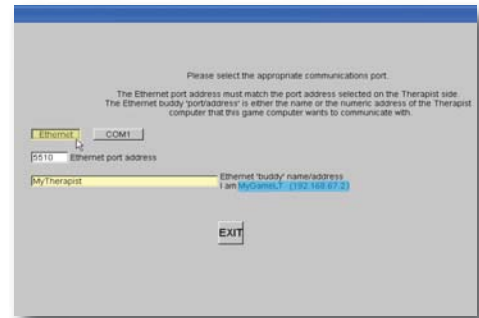
Game Communication Setup Screen

B.   THERAPIST SETUP:

1.   Launch EEGer by double-clicking the EEGer icon on the Therapist computer's Windows Desktop.
     NOTE: If a message appears, click Ignore or OK.

2.   Click the Preferences menu and select Configuration. Click the Devices tab.

3.   Choose Ethernet for Kind of connection to game computer.

4.   For COM port setting for Serial/Modem port for game computer, select None.

5.   For Ethernet Client computer address/name, enter either the game computer name or IP address noted from the EGS Communication Setup screen, but not both.

7.   Note the computer name and IP address for the Therapist computer at the top of the display (highlighted in blue). You need this to complete setup on the Game computer.

8.   For Source of EEG/Peripheral data, select the correct amplifier (e.g., esiPro, ProComp, etc.).

Preferences - Devices Tab

9.   For ProComp and BrainMaster Atlantis amplifiers, select the correct COM port to connect to the amplifier for Serial port for data source connection. For other USB amplifiers, select None.
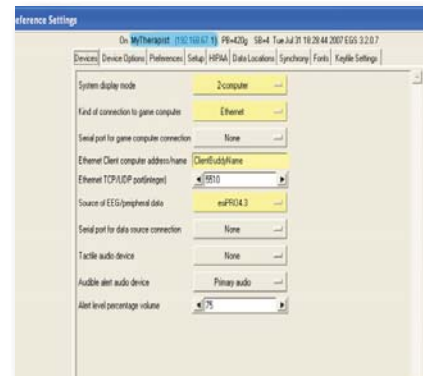
10.   Device Options:
      »   ProComp amplfiiers: If your amplifier is set for Biograph mode (DIP switch 2 ON and 1,3,4 OFF) click the Device Options tab to change the ProComp/Infiniti Communications Protocol. Our default is Spectrum mode (DIP switch 1 ON and 2,3,4 OFF).
      »   BrainMaster amplifiers: Click the Device Options tab to enter the Serial Number and Passkey you obtained from BrainMaster.
   »   NeuroCybernetics amplifiers (manufactured by Biofeedback Systems, Inc.); Click the Device Options tab to enter the A/D Board Number.

11.   Click STORE settings and close the window.

12.   Return to the *Game Communication Setup* display on the Game computer (see image above, press F5 if you returned to the Game Menu). Enter the therapist computer name or IP address in the bottom field, but not both. Click Exit.

Preferences - Devices Options Tab

7c SETUP OPTION 3: SINGLE COMPUTER AND DUAL MONITOR

A.   THERAPIST SETUP:

   1.   Set your display to use Extended Desktop:

        a.   Click Start. Select Control Panel and double-click the Display Control Panel.

        b.   Click the Settings tab.

        c.   Click the second display icon (2) and check the box to "Extend my desktop to this monitor".

        d.   Click OK to save changes.

   2.   Launch EEGer by double-clicking the EEGer icon on the Therapist computer's Windows Desktop.
        NOTE: If a message appears, click OK or Ignore.
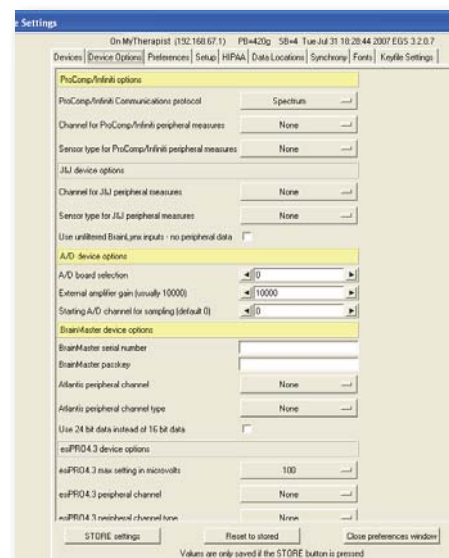
   3.   Click the Preferences menu and select Configuration. Click the Devices tab.

   4.   System display mode should be Single monitor or Dual monitor.

   5.   For Source of EEG/Peripheral data, select the correct amplifier (e.g., esiPro,ProComp, etc.).

   6.   For ProComp or BrainMaster Atlantis amplifiers, select the correct COM port to connect to the amplifier for Serial port for data source connection. For other USB amplifiers, select None.

Preferences - Devices Tab

   7.   Device Options:

        »   ProComp amplfiiers: If your amplifier is set for Biograph mode (DIP switch 2 ON and 1,3,4 OFF) click the Device Options tab to change the ProComp/Infiniti Communications Protocol. Our default is Spectrum mode (DIP switch 1 ON and 2,3,4 OFF).

        »   BrainMaster amplifiers: Click the Device Options tab to enter the Serial Number and Passkey you obtained from BrainMaster.

        »   NeuroCybernetics amplifiers (manufactured by Biofeedback Systems, Inc.); Click the Device Options tab to enter the A/D Board Number.

   8.   Click STORE settings and close the window.
        NOTE: If a message appears, click Ignore.

Preferences - Devices Options Tab

⑧ INSTALL LICENSE AND RUN A DEMO (The Last Step!)

A. INSTALL THE LICENSE

1. Insert the CD labeled EEGer Keyblock File Disk in the CD/DVD drive of the Therapist/Single computer.
   NOTE: If Windows displays the disk options/contents, click the X to close that window.

2. In EEGer, click the Files menu and select Read EEGer Keyblock Files.

3. When the Open dialog appears, select the CD/DVD drive in the field at the top of the window by clicking the drop-down arrow to select the drive under My Computer. (e.g., Look in: E:\EEGerKeyfiles)

4. Once the drive is selected, your EEGer keyfile appears in the window. Left-click the filename once to highlight, then click the Open button.

B. INITIALIZE GAMES

   » SINGLE COMPUTER OR DUAL MONITOR CONFIGURATION

   1. From the Tools menu, select Game Initialization Tool.

   2. On the list of games, click DONE - Save configuration.

   3. Game Tailoring comes next. Click SAVE all games to initialize your default settings.

   » TWO-COMPUTER CONFIGURATION

   1. The EGS game menu should be displayed on the Game/Client computer.

   2. On the EEGer Therapist computer display, select the Tools menu and choose Retrieve Installed Game List. EEGer checks for communication with the Game/Client computer and retrieves the list of installed games.

   NOTE: If you receive a Failure message, try once more. Another failure means you must check your setup:
   Serial COM ports or Ethernet addresses
   Firewall settings - turn off or check exception list for EGS.
   Physical connection of cables
   Turn off both computers, count to 10 and power on. Start EGS and EEGer then try again.

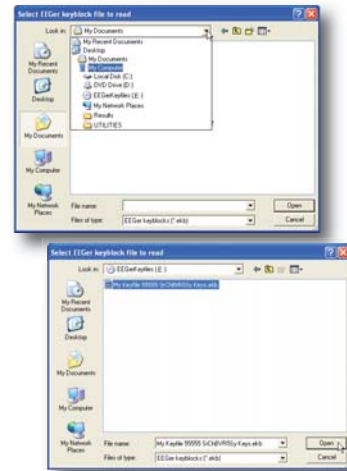   3. Game Tailoring comes next. Click SAVE all games to initialize your default settings.

C. RUN A DEMO

1. Complete any attachments remaining to connect your amplifier to the Therapist computer (e.g., connect ProComp ProSB and fiber optic cable).

2. Click Select Client. Choose sample client SMR EEGDEMO.

3. Click Replay Raw Data. Double-click a sample file, such as Theta Excess.

4. Double-click any game, such as Island.

   Two-Computer and Dual Monitor Systems: The game is initialized on the Game/Client display screen.
   Single-Computer Systems: Press the Space Bar to see the game display and again to return to the EEG display.

4. For battery-powered amplifiers, a number representing the battery charge displays in the lower-right corner of the EEG display. For others, a connection indicator is displayed. If there is a power switch on your amplifier, turn it ON to see the battery voltage displayed.

   ⚠ If you see NONE in the lower-right or notice an error message in the lower-left corner of the EEG display, check the Troubleshooting Tips at the back of this guide.

5. Start the Session:

   ➤ Press F9 to scale the lower traces. Press F11 to set the goals. Press F5 to RUN and start the game.

CONNECT / RECONNECT

Once your EEGer™ software and hardware has been installed, follow these steps to connect.

> ℹ️ For systems set up by EEG Spectrum Systems, all ports and necessary cables were labeled and color-coded to make it easier to set up your system.
>
> ⚠️ Optimally, the computer should be OFF to connect/disconnect devices that have already been installed.
>
> ⚠️ If you use a ProComp amplifier, make sure it is also OFF until you open the EEGer program.

① CONNECT THE AMPLIFIER

> #### ◉ ProComp (all models):
>
> *ProComp Serial Connection -*
>
> Connect the ProComp connection cable from the ProComp box that has a dark blue tag to the dark blue 9-pin Serial port [COM1]. (Figure 1)
>
> *ProComp USB Connection -*
>
> 1. Connect the ProComp connection cable from the ProComp box that has a dark blue tag (9-25 pin cable) to the dark blue end of the USB-Serial adapter. (Figure 2-1)
>
> 2. Connect the dark green end of the USB-Serial adapter to the USB port labeled dark green or the upper/left USB port. (Figure 2-2) *Requires installed device driver for adapter*
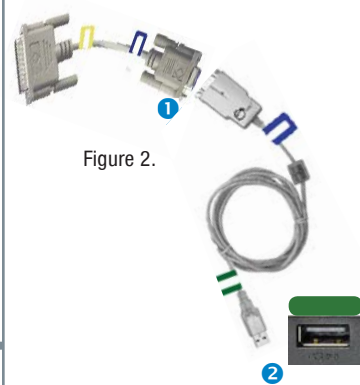
Figure 1.

Figure 2.

> #### ◉ ESS esiPro Amplifier:
>
> Connect the amplifier's USB cable with the dark green tag to the dark green USB port (or upper/left USB port). (Figure 3)

> #### ◉ BrainLynx, J&J amplifiers:
>
> Connect the amplifier's USB cable with the dark green tag to the dark green USB port (or upper/left USB port). (Figure 3)

Figure 3.

② ATTACH THE USB HUB (port expander)

If you do not have enough Serial or USB ports for all connections, you need a USB Hub. Connect the cable with the **gold** tag to the **gold** USB port on the Therapist computer (or lower/right USB port). (Figure 4)

Figure 4.

③ ATTACH THE EEGer SECURITY KEY (dongle)

Connect the EEGer Security Key (dongle) to the USB port labeled EEGer Dongle in the Hub -OR- USB port in the Therapist computer. (Figure 5)

EEGer Dongle

EEGer Dongle
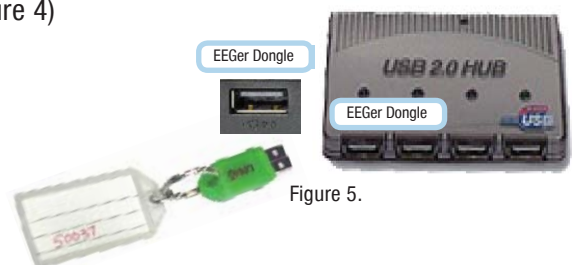
Figure 5.

4 CONNECTIONS FOR A GAME COMPUTER OR SECOND MONITOR

Two Computer System – Connect the Game Computer

OPTION 1: SERIAL CONNECTIONS FOR A TWO COMPUTER SYSTEM

Connect cables to the THERAPIST computer.

» **Serial Port:**

If you have a 9-pin serial port that is not already in use by the amplifier, connect the red end of the Serial Null Modem Cable to the red serial port on the Therapist computer [COM1 or COM2]. (Figure 6)

Figure 6.

» **USB Port:**

a. Connect the dark purple end of the USB-Serial adapter to the dark purple port on the USB Hub -OR- directly to the Therapist computer. (Figure 7-1)

b. Connect the red end of the USB-Serial adapter to the red end of the Serial Null Modem cable. (Figure 7-2)
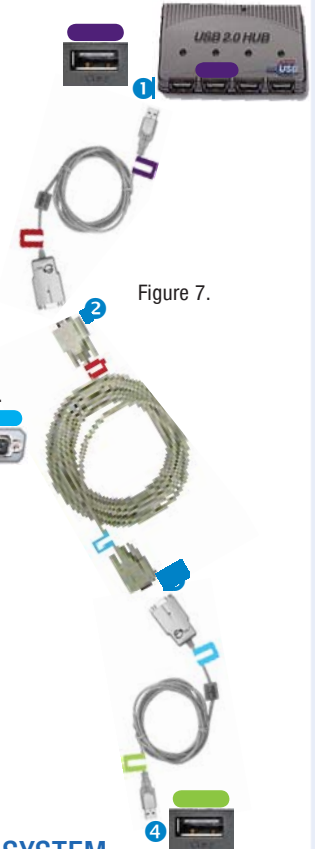
Figure 7.

Connect cables to the GAME computer.

» **Serial Port:**

If you have a 9-pin serial port that is not already in use, connect the blue end of the Serial Null Modem Cable to the blue serial port on the Game computer [COM1 or COM2]. (Figure 8)

Figure 8.

» **USB Port:**

a. Connect the blue end of the Serial Null Modem cable to the blue end of the USB-Serial adapter. (Figure 7-3)

b. Connect the bright green end of the USB-Serial adapter to the bright green port on the Game computer (or left/upper USB port). (Figure 7-4)

OPTION 2: ETHERNET CONNECTIONS FOR A TWO COMPUTER SYSTEM

Connect one end of the the Ethernet Crossover cable to the Ethernet port on the Therapist computer. Connect the other to the Ethernet port on the Game computer. (Figure 9) *(Note: BeyondVR games do not operate in Ethernet mode.)*

Figure 9.

Single Computer, Dual Monitor - Connect Monitor

• **LAPTOP COMPUTER**
Connect the cable for the secondary monitor to the VGA port on the back of the computer -OR- a DVI port utilizing a VGA adapter. (Figure 10 or 11)

Figure 10.

• **DESKTOP COMPUTER**
Connect the cable for the secondary monitor to either a second VGA port -OR- a DVI port utilizing a VGA adapter. (Figure 10 or 11)

Figure 11.

RECOMMENDED COMPUTER PERFORMANCE SETTINGS

Technical Support recommends the following steps to optimize the performance of EEGer Neurofeedback Software.

⬤ PERFORM THESE STEPS ON COMPUTERS WITH PERFORMANCE PROBLEMS:

A. Windows XP Video Settings:

1. Click Start. Right-click on My Computer in the menu and select Properties from the menu. System Properties should be displayed.

2. Click the Advanced tab, then the first Settings button for Performance Settings.

3. On the Video Settings tab. Select "Adjust for best PERFORMANCE" and click OK.

4. This will cause other change; for example, the Control Panel will change to Classic view. You can change it back when not running EEGer if you wish.
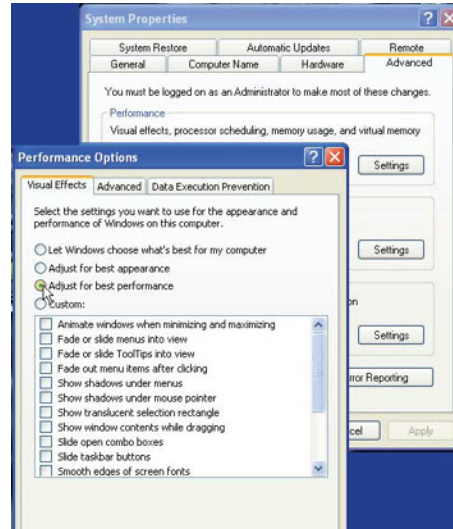
B. Video Resolution:

1. Click Start and select Control Panel.

2. Double-click the Display Control Panel.

3. Click the Settings tab.

4. Screen area/resolution minimum requirement is 800x600 with 16-bit color. The best setting depends on the computer equipment, but we generally stay at or below 1024x768 pixels, 32-bit color. Note: If your system is already set to 800x600, 16-bit color, you may need to upgrade your desktop video card or laptop computer.

5. If you make a change, click OK. Be sure to respond to any prompts to confirm the change or the system automatically reverts to the previous setting (It does that in case you couldn't see the screen with the new setting.)
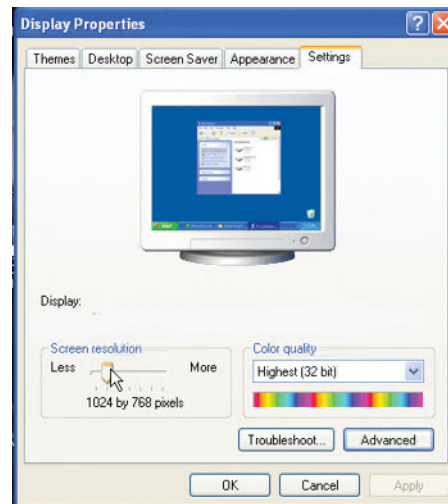
C. Video Acceleration: New, Fast Video - Only If Problems

1. Click Start and select Control Panel.

2. Double-click the Display Control Panel.

3. Click the Settings tab, then click the Advanced button.

4. On the video attributes display, click the Troubleshooting tab. (Note: The appearance of this screen varies with different video manufacturers and models.)

5. Slide the indicator for Hardware Acceleration one notch to the left of Full.
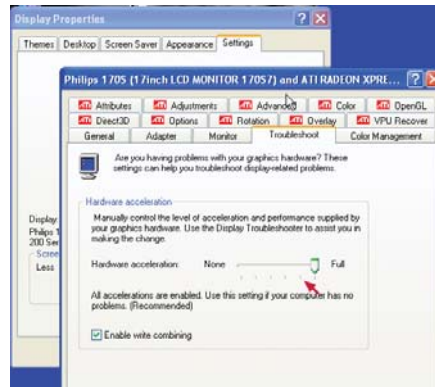
⊙ PERFORM THESE STEPS ON ALL NEUROFEEDBACK COMPUTERS

A. Power Management Settings:

1. Click Start and select Control Panel.

2. Double-click the Power Control Panel. (For Toshibas, use the Toshiba Power Management Control Panel.)

3. *Setting Options Vary with Manufacturer and Model.* Set all options to Never turn off or to a high enough setting that it will not occur during a session. (For Toshibas, you'll need to select the Power Save Mode option, such as Full Power, and edit the details for that Power Save Mode). Note: This is particularly important for a Game computer since the keyboard and mouse are rarely used.

4. Click OK to save changes.

B. Screen Saver:

1. Click Start and select Control Panel.

2. Open the Display Control Panel.

3. Click the Screensaver tab.

4. Set the Screen saver name to "None" or enter a Wait time long enough to avoid the screensaver during a session (e.g., 120 minutes). Note: This is particularly important for a Game computer since the keyboard and mouse are rarely used.

5. Click OK if you've made a change.
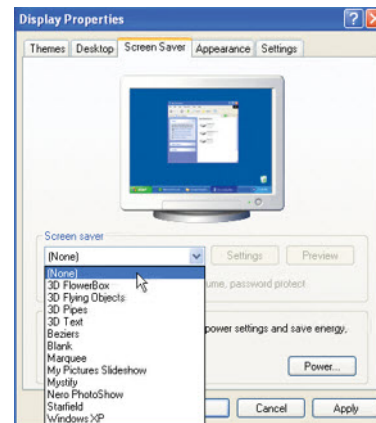
C. Virus Protection and Firewalls:

Follow the manufacturer's instructions to disable virus protection and configure your firewall to avoid interference during a Neurofeedback session. If you access the Internet with the system, disable virus protection only when actively running a session. Firewalls can be configured using "exceptions" to allow access for specific programs.

D. Wireless Internet Devices

We recommend that you disable Wireless access to your computer when running a Neurofeedback session. Some computers have a switch to do so. For others, go to the Windows Device Manager (see Other Performance Tips below to creat a shortcut). Expand the list of Network Adapters. Right-click the Wireless adapter and select Disable.

E. System Memory

If the system has the minimum requirement of system memory to run the operating system, you may wish to add additional memory. Recommended are Windows 98, 128mb and Windows XP, 512mb. If the system uses Integrated Video or an AGP video card, the video may share the system memory. Increasing the system memory may be necessary for optimal performance.

⊙ Create a Shortcut to the Windows Device Manager

1. Right-click a blank spot on the Windows Desktop.
2. Select New - Shortcut.
3. In the field, type: c:\windows\system32\devmgmt.msc
4. Click Next.
5. Change the name to Device Manager. **and click Finish.**
6. **Double-click the shortcut when you need to access the Device Manager to check ports, disable/enable hardware, update drivers, etc. Do not change or disable items unless it is recommended.**

INSTALLATION and COMMUNICATION FAQ's

● Licensing, Warning and Error Messages

- **Why do I have a Red (or Yellow) message on the screen?**

- **Why can't I run a live session?**

  If you have RED or YELLOW messages displayed on the screen, it is likely you will not be able to run properly. Yellow messages are informational only. Red messages are fatal in that no new sessions can be run (but Replay works OK).

  RED MESSAGES:

  Demonstration Only: Dongle not found

  > No dongle found.

  > Dongle not installed or configured properly by Windows.

  > => Unplug, pause, reattach. Watch for Found New Hardware Wizard

  Demonstration Only: License not installed

  > No license file, wrong license file for dongle, or expired license

  > => Check license file number against EEGer Dongle number, check for expiration date.

  Games not tailored or Game definitions vary

  > Games not initialized or differ between Therapist and Client.

  > => Run Game Initialization Tool (EEGer: Tools-Game Initialization Tool or EGS: press F9),
  >   EEGer: Tools-Retrieve Installed Game List, Tailor Installed Games and SAVE All Games.

  No Dongle Sessions Remaining

  > No more sessions remaining on a remote or session-limited dongle

  > => Order more sessions from EEG Spectrum Systems

  No Remote Use Sessions Remaining

  > No Remote Use Sessions remaining on a remote use dongle

  > => Request a Remote Use Session Update from the supervising clinician

  Remote Use Session Date Expired

  > Last date for Remote Use Session Plan has passed

  > => Request a Remote Use Session Update from the supervising clinician

  Dongle Expired

  > Dongle expiration past date

  > => Request a renewal or extension from EEG Spectrum Systems

  YELLOW MESSAGES:

  XX Dongle Sessions remaining

  > Less than 30 sessions remain on a remote or session-limited dongle

  > => Order more sessions from EEG Spectrum Systems

  XX Remote Use Sessions remaining on a remote use system

  > Less than 30 sessions remain in your Remote Use Session Plan

  > => Request a Remote Use Session Update from the supervising clinician

  License expires in XX days

  > License expires in less than 30 days

  > => Initial Upgrade License expires: return DOS dongle; request an extension from EEG Spectrum

LICENSE FAQ Continued

If a system is not "licensed" or does not have a dongle or a particular game is not "licensed" or... whatever, you cannot run a live session. Replay always works but there is no live input during replay (and data does not get saved).

To check for "correct" licensing, start EEGer and click on Preferences->Configuration. Select the Keyfiles tab and make sure that a dongle number is shown AND that it reports either a Clinical or Remote User license type.

To see which games are enabled, go to Preferences->Configuration->Keyfiles tab. Scroll down to the games section and look for a "1" as the first digit of the second field of each game. This means a game keyfile was found that had not expired and for which the dongle number matched the currently installed dongle. The list of games displayed in the "Replay" game selection choice list shows all the games installed regardless of licensing. You have to Retrieve and Tailor the games at least ONCE to "license" the EEGer Game Set to work with EEGer.

The hardest problem is due to people installing the USB dongle BEFORE installing the dongle software. The *fix* involves a lot of steps (including going into a hidden windows directory and deleting some files!). Call Technical Support for assistance.

COM Port Settings and 2-Computer Therapist/Client Communications

- Why doesn't the game computer flash when I do Tools-Reset game computer?
- Why do I get the message "Failure getting game list. No Data received" when I try to retrieve games?
- When I use Run Session, why doesn't the game start?
- Why do I get the message "Unable to Communicate with Game Computer - Abort/Retry/Ignore"?

You must have the correct COM port or Ethernet address settings on both the Therapist and Client/Game computer to communicate properly. If you're having problems, try the following options:

1. The Game/Client computer setting is not correct:

    - Serial communication settings display the COM port that is currently selected in the upper-left corner of the Game/Client computer game menu. Press F3 to cycle the next available COM port. Return to the Therapist and try Tools-Reset Game Computer. You can try different combinations until the game computer successfully refreshes.

    - For ENET, press F5 on the game menu to check the Ethernet name/address displayed is correct for the Therapist computer. Turn OFF both computers. Sometimes this is necessary to reset the COM ports after hardware is connected. With both your Therapist and Client computer on and at their main neurofeedback screen, use Tools-Reset Game Computer to see if a screen flash indicates a connection.

2. The Therapist computer setting is not correct:

    If there is still no connection, select Configuration from the Preferences menu on the Therapist. Check that your "Serial/Modem port for game computer connection" or "Ethernet client computer address/name" is set correctly. Change and save if needed, then close the window. The COM port from the Therapist is usually COM1 or COM2 if it is a 9-Pin Serial port. Try selecting each and see if you can reset the game computer. (For USB-Serial adapter connections, refer to p. 12 for instructions to check port assignments.)

    - For ProComp amplifiers, make sure the selection for game communication is not the same as the ProComp choice. Use Tools-Reset Game Computer to see if a screen flash indicates a connection.

Other Reasons Game Might Not Respond

1. **Game does not come up at all.**

   a. Make sure the Therapist screen displays RUN in the lower left corner after F5 is pressed.

   b. If the first stage seems to be skipped, make sure the first RUN stage in the Plan Session is not set to 0 minutes.

   c. The computers are not communicating. Review communication setup in the installation section of this guide.

   d. A computer firewall is active and the application is blocked. Disable the firewall and try communications. If it works, re-enable the firewall and follow the manufacturer's directions to allow EEGer or EGS.

   e. You've installed a newer version of EEGer and did not install it on both systems. The version number displayed in the lower-left of the EEGer Therapist main screen and the upper-right of the EGS menu should be one integer off. For example, EEGer 4.1.5H works with EGS 3.1.5H. If not, install the update on the appropriate system.

2. **Game initializes (title is displayed) but does not start when the Therapist is in RUN mode**.

   a. It may be because adjustments were made on the brainwave screen before the game has finished initializing. When F9, F11, or F5 are pressed to adjust traces, a signal is sent to the game which sometimes interferes with communication if it is not ready to receive the signal. Press Esc on the Therapist computer to exit the session and begin again.

   b. EEGer version prior to 4.1.5H. Try pressing F5 on the game menu, delete 5510 and enter 0 then exit. If you can communicate after that, the problem can be resolved by updating your EEGer software.

3. **Game starts but is sluggish or not responding.**

   a. Adjust the traces to provide better feedback. With no traces highlighted (press Enter twice to be sure), press F9 to autoscale the lower traces. Then press F11 to autothreshold. Remember, it's a 30-second average so you'll need a decent signal for some time to be sure the values are useful.

   b. If adjustments are made and the Reward band is not responding, the game might not be properly licensed. You can check for the licenses on the configuration screen under "Keyfiles". Note that this is only checked during RUN stages. You can Replay with any game.

   c. Therapist score is increasing faster than the Game screen. There is a communications problem that must be resolved for proper feedback. One possible cause is the video resolution on the Game computer. Adjust the resolution to the minimum requirement (800x600, 16-bit color). Another cause is mismatched computer processors. If that does not resolve the problem, please contact Technical Support.

   d. A computer firewall is active and the application is blocked. Disable the firewall and try communications. If it works, re-enable the firewall and follow the manufacturer's directions to allow EEGer or EGS.

> **We recommend that you remove devices when traveling with laptops. Be sure to Shut Down your computer before removing any devices (particularly USB devices). Then, before starting your laptops again, you should attach all devices to THE SAME PORTS from which they were removed. Always carry driver CDs for USB devices, in case you need to reinstall.**

Ethernet Communication Problems

1. If the first digits in the IP address do not match, the computers are not "on the same network". This can occur if there is an active Wireless connection as well as the Crossover/Direct cable connection.

   a. Disable the Wireless connection(s), turn off the computer and turn on again. If the IP addresses match, you should be able to communicate.

2. If the system has been used to connect to a network or the Internet, there may be a specific address entered in the network setup properties that prevents it from communicating with a direct connection to the other computer.

   a. Go to the Windows Control Panel for Network Connections.

   b. Access the Properties for the LAN connection.

   c. Select Internet Protocol (TCP/IP) and click Properties.

   d. If there is a specified IP address that was not set for using EEGer, click to select "Obtain an IP address automatically.

c. To force the IP address for both computers:

   a. Go to the Windows Control Panel for Network Connections.

   b. Access the Properties for the LAN connection.

   c. Select Internet Protocol (TCP/IP) and click Properties.

   d. Click "Use the following IP address". You can specify the IP address to use for each system to set up a matching network configuration, For example, enter 10.10.10.1 for the Therapist computer and 10.10.10.2 for the Game computer. Enter 255.255.255.0 for Subnet Mask and leave the Gateway entry blank.

   e. Click OK to save changes. Shut down the system (turn off completely) and start up again.

Signal Problems

RAW SIGNAL IS DISPLAYED BUT LOWER TRACES ARE FLAT

If there is a red line in the Raw trace, it usually indicates too much artifact. This is considered an invalid signal and the program stops providing data and feedback for the lower traces.   If there is too much EEG signal being clipped, adjust the threshold lines for the Raw trace to include more of the signal. If the signal is very large, check impedance.

FLAT OR WEAK EEG SIGNAL

Communications Input device not working

Faulty components between amplifier and client

ProComp Connect Error -200

1. Does NONE or DEAD display in the lower right-hand corner of the EEG brainwave screen?

   a. Check batteries in the amplifier.

   b. Select Configuration from the Preferences menu and click the Devices tab. Be sure your amplifier settings are correct.

- ProComp amplifiers:

    1) Make sure the "Serial port for ProComp connection" is set correctly.

    2) The ProComp port cannot be the same port as the game computer connection.

    3) Make sure the ProComp protocol selection on the Device Options tab is correct for the DIP switch settings of the amplifier. (Spectrum = 1 ON, 2,3,4 OFF; Biograph = 2 ON, 1,3,4 OFF)

    4) Check the Windows Device Manager to make sure the port specified in Configuration, Preferences is available and functioning properly.

- BrainMaster amplifiers:

    1) Make sure the Serial Number and Pass Key are correctly entered on the Device Options tab.

- esiPro,BrainLynx and other USB amplifiers:

    1) Make sure the correct model is selected.

    2) Check the Windows Device Manager for a "Human Interface Device". If it is not there, remove the cable from the USB port, pause for Windows to acknowledge the disconnect and reinsert it. If it is there, try another battery. If still not responding, the unit may require repair.

- A/D Card with NeuroCybernetics Amp:

    1) Check the setup in InstaCal.

    2) Make sure you have the correct A/D card number as defined in the InstaCal software.

  c. Reset the amplifier connection:
    1) Esc to ext the session.
    2) Unplug the device from the computer (A/D amps - computer must be OFF; Amplifier power switch should be OFF).
    3) Pause for Windows to acknowledge the disconnect then reattach the amplifier.
    4) Return to the EEG training display.

2. For battery-operated amplifiers, if you see the battery voltage in the bottom right corner of the EEG brainwave screen, the amplifier is communicating with the program.

   a. ProComp amplifiers may have the wrong DIP switch settings for Spectrum software. The DIP switch settings must be the same as the protocol selection in setup (see next item.)

   b. The voltage reading indicates the amplifier is working. Troubleshoot the connections between the amplifier and the client. Tag the items in use and swap out backup parts until you identify the part(s) that impact the signal. Check impedance.

3. ProComp amplifier specific issues:

   a. If the ProComp was ON when connected or when the computer was started, turn the amplifier OFF and Restart the computer. This usually displays as a "ProComp Connect Error"

   b. Remove the fiber optic cable from the ProComp and make sure there is a red light illuminated inside.

   c. Make sure both ends of the fiber optic cable are fully-inserted (about 1/2 inch).

   d. ProComp2: Do not use a FlexPro pre-amplifier in Channel A. You must use a FlexPro pre-amplifier in Channel B.

4. A/D Card with NeuroCybernetics amplifier specific issues:

    a. If the status line shows a red STOP, the A/D board is not running (and there should be an error message somewhere). This may occur if you did not properly complete board setup in the InstaCal software. Refer to the COMPLETE EEGer manual or the User Wiki at www.eeger.com for more information.

5. Other devices: If the status line shows NONE or DEAD, the device is not communicating (there should be an error message).

⊘ System Environment

- **Why isn't my display working?**
- **My keyboard doesn't work on the brainwave screen.**
- **I get a Graphics Overrun error on the training screen.**
- **I get a Realtime Overrun error on the training screen.**

If your system does not meet the minimum requirements to run EEGer, or if video resolution is set too high, you might not get the desired response from the system.   Key requirements are system memory and video card memory.   If your video memory is low, try selecting the minimum display requirements of 800x600, 16-bit color.   If you do not have enough card memory, it is possible that the video card will access the system for more memory. If you do not have enough system memory, you might not be able to run a session.   Requirements are higher for single computer mode.

For Dual Monitor mode, make sure you've checked "Extend my desktop..." in the Display setup or, if you are using the video manufacturer's settings to set the second display, select span horizontally or an equivalent setting.

Windows XP Systems: It is sometimes an advantage to turn change the default XP Visual Effects Performance Setting. Go to System Properties, Advanced Tab and click the Performance Settings button. On the Visual Effects tab, select "Adjust for best PERFORMANCE" and click OK.

REALTIME OVERRUN ERROR

1. This message appears if the amplifier is not responding in an acceptable amount of time and the feedback can no longer be considered "realtime". This usually occurs on computers that just meet the minimum requirements. It can also be caused by another program interfering by taking system resources that are needed to run EEGer (e.g., virus protection, background updates). Another possibility is video taking additional memory from the system to run properly.

2. If youi have a battery-operated amplifier, this message can appear when the battery voltage is too low. For J&J Technologies or other USB amplifiers, unplug the device, change the battery and reattach to the computer.   Be sure to keep an eye on the battery voltage reading in the lower-right corner of the EEG training screen to help avoid this cause of an overrun error.

Setting Screen Resolution

A number of problems, such as Graphics Overrun errors, can be resolved by lowering the display resolution to decrease the amount of memory required to run.

1. From the Windows Desktop, right-click a blank spot on the Desktop display:
    - XP/2000: Select Properties then click the Settings tab.
    - VISTA: Select Personalize-Display Settings
    (Also accessible from the Windows Control Panel - Display control panel)

2. Lower the screen area to 800x600 pixels and set color choice to 16-bit. Click OK and respond to prompts to keep the settings.

System Requirements

MINIMUM Recommendations
Processor - Pentium 1.8 GHz or greater *(2 GHz or greater recommended)*
Operating System & RAM *(memory)* -   XP: 512MB if 2-computer configuration,1GB single-computer configurations
                                         Windows 7/Vista: 2GB 2-computer configuration, 3GB single-computer configurations
Video - DirectX 9.0 supported, accelerated video card with at least 64MB memory for 800x600 with 15/16-bit *(or greater)* color
Mid-level game graphics recommended for 2-computer configuration; High-level game graphics recommended for single-computer
configurations; do not use Intel graphics for Dual monitor mode. Dedicated video memory preferred.

VIDEO CARD REQUIREMENTS
Video cards are the most significant factor in "usability" since they directly affect the therapist and game display. Feedback is independent of
video speed, but responsiveness to keystrokes is not.

1. You must be able to use DirectX version 9.0. However, if you upgrade your version of DirectX to the current version, you must first be sure
   that your card has drivers that are compatible with that version of DirectX. If not, it will be necessary to replace your video card.

2. Displays are affected by the amount of on-card memory and the resolution you choose. You must have at least 64mb of on-card memory, but
   if you use larger resolutions *(e.g., 1024x768)* or higher color sets, you'll need more memory. Most currently available cards provide 256 MB of
   memory.

Example: The minimum resolution of 800x600 with 16-bit color setting requires 64 MB of memory. An increase to 32-bit color setting requires
128 MB of video card memory.

Connections
Communications *(each computer)* - 1 Serial or USB-serial adapted port *-or-* 1 Ethernet port (Ethernet Recommended)
Video for Dual Monitor system - Secondary VGA or DVI port with VGA adapter.
Licensing - 1 USB slot *(each computer)*
Amplifier Connection *(Therapist computer only)*
    1 USB *-or-* 1 Serial or USB-serial adapted port *(depending upon amplifier)*

Laptops may be used instead of desktops. Most newer laptops will work for the Therapist or Client computer with the EEGer™ software.

Technical Support: EEGER Affiliates - Free   Non-Affiliates - $100 per hour (15 minute increments)

*NOTE: While the vast majority of systems will support our software, there are too many variations to test them all. It could happen that a particular system
configuration will be unable to support operation of EEGer™ as with any retail software.*

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