

E-Prime

Extensions for
BRAIN PRODUCTS
User Manual



For Research and Education Only

*Psychology Software Tools, Inc.
311 23rd Street Extension, Suite 200
Sharpsburg, PA 15215-2821
Phone 412.449.0078
Fax: 412-449-0079
Email: info@pstnet.com*

E-Prime Extension for Brain Products 3.0 User Manual
PST-101761
Rev 1

Copyright

Copyright © 2018 Psychology Software Tools, Inc. All Rights Reserved.

The information in this document is subject to change without notice. Except as permitted under the United States Copyright Act of 1976, no part of this publication may be reproduced, or distributed in any form or by any means, or stored in a database or retrieval system, without prior written permission of Psychology Software Tools, Inc.

Psychology Software Tools, Inc.
311 23rd Street Extension, Suite 200
Sharpsburg, PA 15215-2821
Phone: 412-449-0078
Fax: 412-449-0079
E-mail: info@pstnet.com
Web: www.pstnet.com

For questions or comments regarding this manual or installation assistance:
Please e-mail us at support@pstnet.com or visit us at <https://support.pstnet.com>

Software Notice: The enclosed software is provided for use by a single user who has purchased the software. The software MAY NOT be reproduced or distributed to others. Unauthorized reproduction and/or sales of the enclosed software may result in criminal and civil prosecution (17 USC 506).

Trademark

Psychology Software Tools, Inc., the Psychology Software Tools, Inc. logo, E-Prime®, E-Prime Extensions for Brain Products, and the E-Prime Extensions for Brain Products logo are trademarks or registered trademarks of Psychology Software Tools, Inc. Brain Products, the Brain Products logo, BrainVision Recorder, and Remote Control Server are trademarks or registered trademarks of Brain Products GmbH. Windows® is a registered trademark of the Microsoft Corporation in the United States and/or other countries.

This manual describes the installation procedure for E-Prime Extensions for Brain Products 3.0. Please review the manual completely and thoroughly prior to beginning the system installation.

E-Prime Extensions for Brain Products 3.0 Software is for research and educational purposes only.

Table of Contents

1. Getting Started.....	6
1.1. Product Overview	6
1.2. System Requirements.....	7
1.3. Product Service and Support	8
1.4. Resources.....	9
2. Installing E-Prime Extensions for Brain Products.....	10
2.1. Before Installation	10
2.2. During Installation	11
2.3. After Installation	14
3. Setting up the Brain Products System	16
3.1. BrainVision Recorder Installation	16
3.2. Using BrainVision Recorder	17
3.3. Using Remote Control Server	18
4. How to Create Your Own Brain Products Experiment	19
4.1. Overview	19
4.2. Experiment Design.....	19
4.3. Tutorial: Adding Brain Products Support to an E-Prime Experiment	24
5. Troubleshooting.....	55
5.1. Cannot locate E-Prime Samples and Tutorials.....	55
5.2. Finding COM Port Number for Configuring TriggerBox with SerialDevice	56
5.3. Aborting an Experiment.....	57
5.4. Running without a TriggerBox.....	57
5.5. Brain Products Licensing Issues	58
5.6. Missing Parameter Errors	58
5.7. Cannot Start Recording Error.....	59
5.8. Experiment Takes a Long Time to Initialize	60
5.9. Specifying an Object Name and Task Event.....	61
5.10. Unable to Connect Error.....	62
6. Contact Information	63

1. Getting Started

1.1. Product Overview

E-Prime Extensions for Brain Products 3.0 (EEBP), an extension of E-Prime, is made to be compatible with Brain Products. Brain Products software uses electroencephalography to measure the electrical activity in the brain. Electrodes placed on the scalp record brain activity, and the data collected is known as electroencephalogram (EEG) data.

Brain Products uses the software program **BrainVision Recorder** to record the activity occurring in the brain. The application **Remote Control Server** (RCS) is used to allow E-Prime to communicate with BrainVision Recorder. Through the use of premade PackageCalls in the Brain Products PackageFile, E-Prime is capable of interacting with BrainVision Recorder to provide users of E-Prime and Brain Products details of brain activity during an E-Prime experiment.

1.2. System Requirements

E-Prime Extensions for Brain Products 3.0 is compatible **with E-Prime 3.0 only**. It is compatible with versions of E-Prime (with a major version number of 3) prior than 3.0.3.60. However, we recommend E-Prime version 3.0.3.60 or later for best user experience.

NOTE: If allowed by your research institution, we recommend updating to the latest version of E-Prime for new features and bug fixes.

Software Compatibility Requirements

E-Prime 3.0 and E-Prime Extensions for Brain Products 3.0 are compatible with machines running Microsoft® Windows® 7 SP1, 8, 10.

The remainder of this document shows images of E-Prime 3.0 running on a Windows 10 system. Your screen images may vary slightly depending on operating system and E-Prime version.

Computer Requirements for the machine running E-Prime

Additionally, the computer must comply with the minimum E-Prime 3.0 requirements:

[E-Prime 3.0 Requirements](#)

Computer Requirements for the machine running Brain Products

- Full Speed USB Port – for connecting the amplifier to the Brain Products machine
- Brain Products Software Applications – BrainVision Recorder and Remote Control Server are needed on the machine to which E-Prime communicates

NOTE: For further computer requirements for Brain Products software, please refer to your Brain Products documentation.

1.3. Product Service and Support

Technical Support

Psychology Software Tools, Inc. provides technical support for E-Prime via the PST Product Service and Support website. In order to receive technical support, you must register online at:

<https://support.pstnet.com/>

Registration requires a valid E-Prime serial number, an E-Prime Extensions for Brain Products 3.0 serial number, and an e-mail address. A Knowledge Base is available on the Product Service and Support website with release notes and frequently asked questions. The site includes E-Prime sample paradigms available for download, How-To videos, and the E-Prime 3.0 Experiment Library.

The Product Service and Support website offers an additional support forum you can use to post general questions about E-Prime and E-Prime Extensions for Brain Products 3.0:

[Psychology Software Tools Community Forum](#)

Additionally, Psychology Software Tools has a YouTube channel with various Live Stream Webinars and How-To videos:

[PSTNET on YouTube](#)

NOTE: This document contains links to our online Knowledge Base which has articles for E-Prime Extensions for Brain Products 3.0. If you have trouble opening the link, please search the article number on our support site.

1.4. Resources

Brain Products Resources

- Brain Products provides technical support for Brain Products related hardware and software:

techsup@brainproducts.com

- Brain Products product pages:

[Article 26084: Brain Products Product Pages](#)

- Brain Products download links:

[Brain Products Download Links](#)

NOTE: You must be a registered Brain Products user to access downloads.

Psychology Software Tools Resources

- E-Prime Extensions for Brain Products product page:

[E-Prime Extensions for Brain Products 3.0](#)

- E-Prime Extensions for Brain Products download link:

[E-Prime Extensions for Brain Products 3.0](#)

NOTE: You must be a registered E-Prime and E-Prime Extensions for Brain Products 3.0 user to access downloads.

2. Installing E-Prime Extensions for Brain Products

2.1. Before Installation

E-Prime Extensions for Brain Products 3.0 is compatible **with E-Prime 3.0 only**. Prior to installing, determine which version of E-Prime exists on your machine.

For installation, you need either the CD-ROM or the installation that we host on our website. If using the CD-ROM, the installation should automatically begin. However, if it does not you can navigate in Windows Explorer, and run the E-Prime Extensions for Brain Products 3.0 Setup.exe file. If using a download provided by our website, navigate to the Psychology Software Tools Support page and click on the download link (See [Chapter 1: Section 1.4: Resources](#)).

After you have determined if the correct version of E-Prime is installed on your machine, you can install E-Prime Extensions for Brain Products 3.0. Before continuing, be sure that you have administrative rights to install the software on your machine. The software cannot be installed without administrative rights. If you are unaware of your rights, please contact your system administrator.

If during the installation process you encounter issues that prohibit installation, contact your system administrator or contact PST's Product Service and Support at:

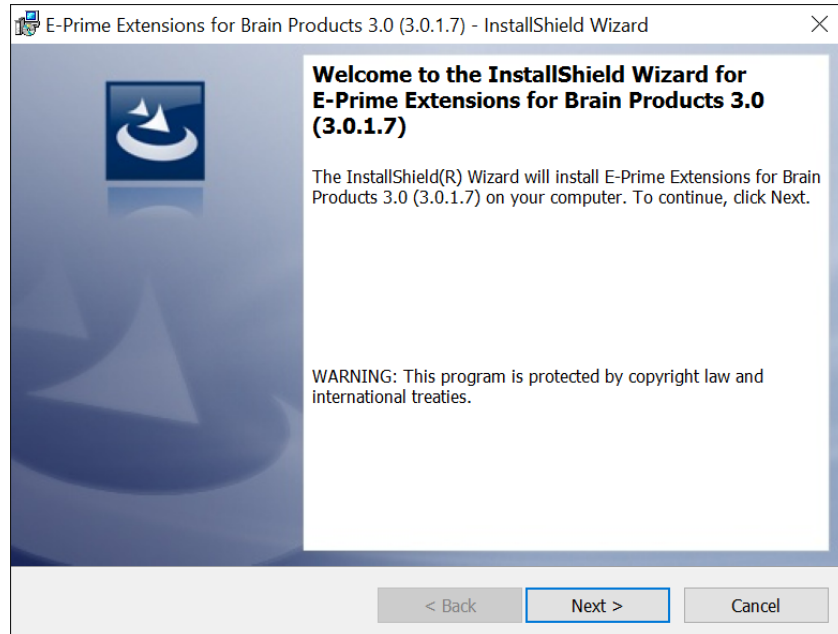
<https://support.pstnet.com/>

NOTE: Please view the **Registration Card** included with your purchase as it contains your serial number required for installation. Additionally, register your serial number on the PST Support Site.

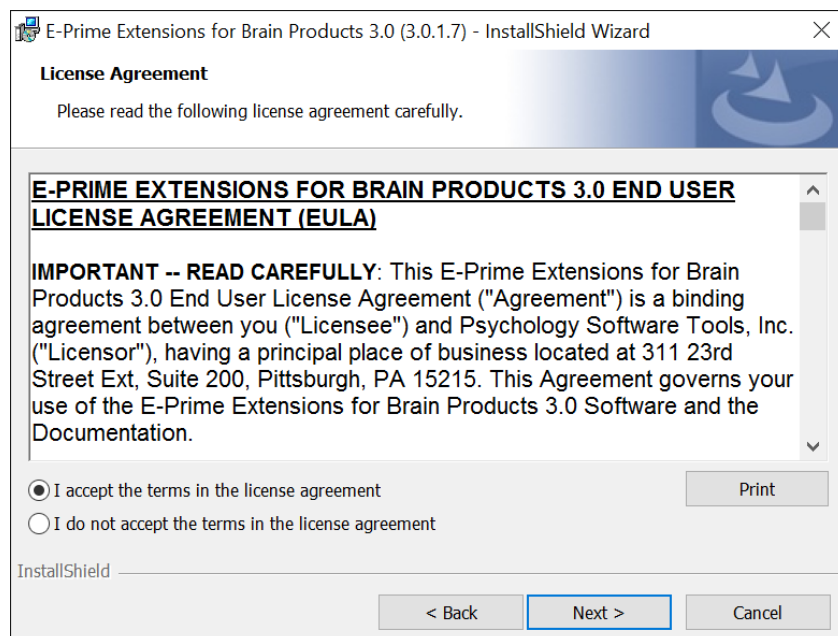
2.2. During Installation

NOTE: The version number on the following images may not correspond to the version you are installing.

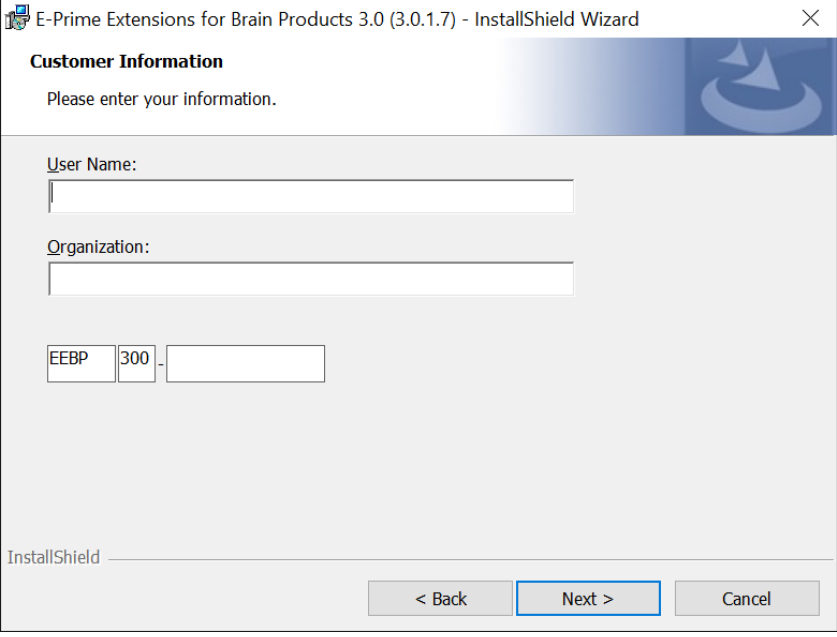
1) **Insert** the **E-Prime Extensions for Brain Products 3.0 CD** into your CD-ROM drive. If the Setup program does not automatically start, **navigate** to your **CD-ROM drive** in Windows Explorer and **double-click Setup.exe** to launch the installer. **Click Next** to continue after the InstallShield Wizard begins.



2) **Read**, and if you agree, **Accept** the **Terms and Conditions**. **Click Next** to continue.



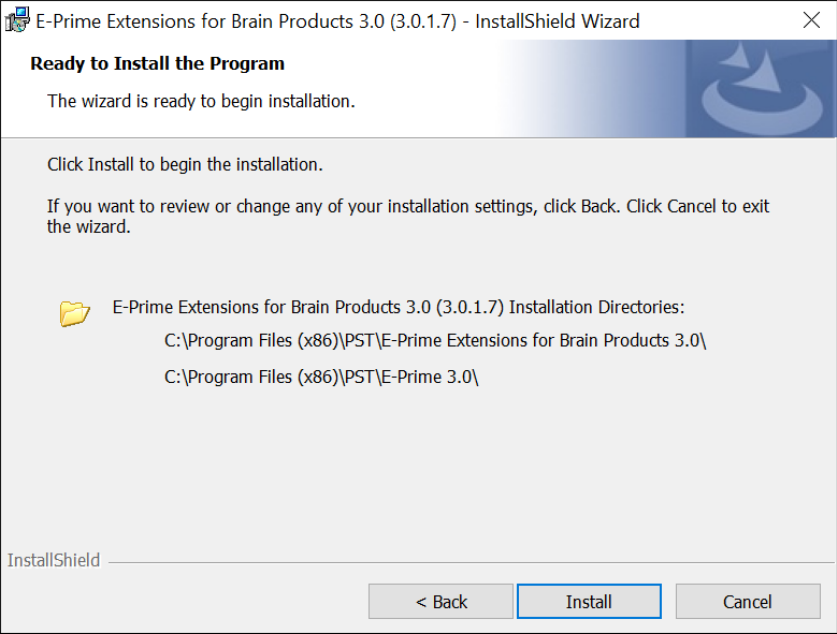
3) **Specify** your **User Name**, **Institution**, and **Serial Number**. **Click Next** to continue.



The screenshot shows the 'Customer Information' screen of the 'E-Prime Extensions for Brain Products 3.0 (3.0.1.7) - InstallShield Wizard'. The window title is 'E-Prime Extensions for Brain Products 3.0 (3.0.1.7) - InstallShield Wizard'. The main heading is 'Customer Information' with a subtext 'Please enter your information.' Below this, there are three input fields: 'User Name:', 'Organization:', and a serial number field labeled 'EEBP' followed by '300' and a hyphen. At the bottom, there are three buttons: '< Back', 'Next >', and 'Cancel'. The 'Next >' button is highlighted with a blue border.

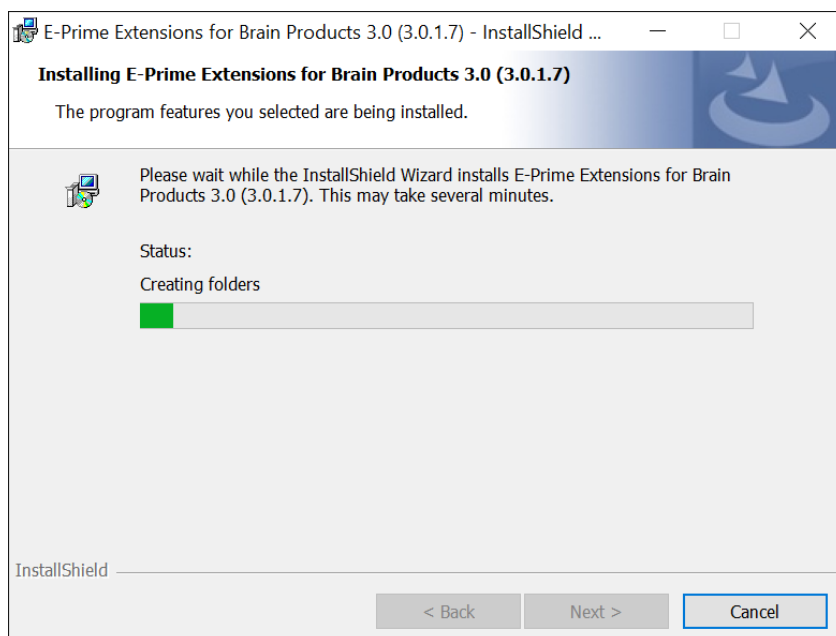
NOTE: Your serial number is provided with your installation. Please view the Registration Card included with your purchase.

4) **Review** the installation **directory**. **Click Install** to continue.

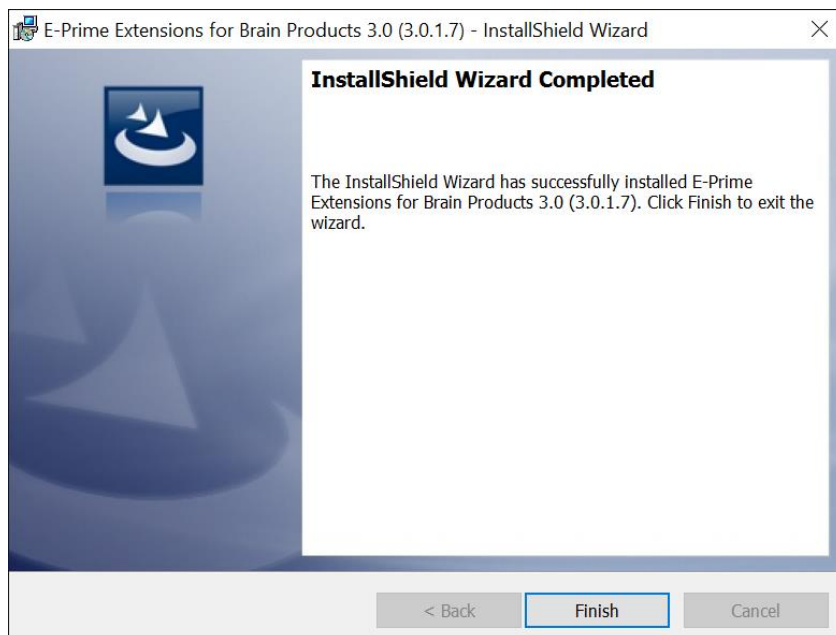


The screenshot shows the 'Ready to Install the Program' screen of the 'E-Prime Extensions for Brain Products 3.0 (3.0.1.7) - InstallShield Wizard'. The window title is 'E-Prime Extensions for Brain Products 3.0 (3.0.1.7) - InstallShield Wizard'. The main heading is 'Ready to Install the Program' with a subtext 'The wizard is ready to begin installation.' Below this, there is a message 'Click Install to begin the installation.' and another message 'If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.' A folder icon is shown next to the text 'E-Prime Extensions for Brain Products 3.0 (3.0.1.7) Installation Directories:'. Below this, two directory paths are listed: 'C:\Program Files (x86)\PST\E-Prime Extensions for Brain Products 3.0\' and 'C:\Program Files (x86)\PST\E-Prime 3.0\' At the bottom, there are three buttons: '< Back', 'Install', and 'Cancel'. The 'Install' button is highlighted with a blue border.

5) **Wait** while the software installs.



6) **Wait** for the confirmation message that the software installs successfully. **Click Finish** to complete the installation process.



2.3. After Installation

Finding the My Experiment Folder

E-Prime 3.0 is compatible with machines running Microsoft® Windows® 7 SP1, 8, 10. The **“My Experiments”** folder is frequently used and is the default location to store new experiments created with E-Studio. E-Prime creates the “My Experiments” folder in your personal documents folder on your PC. This folder also contains the **“Samples”** and **“Tutorials”** folders which stores the experiments discussed in [Chapter 4, Section 4.3: Tutorial: Adding Brain Products Support to an E-Prime Experiment](#).

While the E-Prime documentation directs you to the “My Experiments” folder, it does not include the full path to the folder. Instead, the documentation refers to “My Experiments”, where the “...” indicates the full path up to your personal documents folder. When you see this notation in the documentation, replace the “...” with the path to your personal documents folder.

NOTE: The path on your particular machine may have been modified by your administrator.

The table below shows the default paths to your personal documents folder:

Folder	Path to your personal documents folder (“My Documents” or “Documents”)
*Windows 7/8/10	<drive>\Users\<user name>\Documents\My Experiments\3.0\

**Windows 7 and 8 actually go to “Documents”, but it is visible as “My Documents”.*

E-Prime Extension for Brain Products Samples and Tutorials

The E-Prime Extensions for Brain Products 3.0 folder is located within the “My Experiments” folder, as shown below. The Brain Products folder contains the Samples and Tutorials sub-folders:

Folder Type	Path to Samples or Tutorials
Samples	... My Experiments\3.0\Brain Products\Samples
Tutorials	... My Experiments\3.0\Brain Products\Tutorials

NOTE: This User Manual contains a tutorial. Both the starting point for the tutorial and a finished copy of the tutorial are provided for you (see [Chapter 4, Section 4.3: Tutorial: Adding Brain Products Support to an E-Prime Experiment](#)).

Opening E-Studio

After E-Prime Extensions for Brain Products 3.0 installs, launch E-Studio. When E-Studio launches, it detects that the E-Prime Extensions for Brain Products 3.0 Sample and Tutorial files need to be updated. By specifying 'Yes,' you should allow E-Prime to copy the new Samples and Tutorials into your ...\\My Experiments\\3.0 folder.

NOTE: Copying the Samples and Tutorials upon launching E-Studio overwrites your existing Samples and Tutorials. If you wish to overwrite your files at a later point in time refer to [Chapter 5, Section 5.1: *Cannot locate E-Prime Samples and Tutorials.*](#)

3. Setting up the Brain Products System

You must install BrainVision Recorder and Remote Control Server to use E-Prime Extensions for Brain Products 3.0.

3.1. BrainVision Recorder Installation

NOTE: For a detailed description of installing BrainVision Recorder, please view the BrainVision Recorder User Manual that is provided with your Brain Products system.

Brain Products recommends that Recorder is installed on a standalone computer. They describe this as a machine that does not contain simulation, NIRS, eye-tracking, or similar software.

Before Installation

Before installing BrainVision Recorder, you need to ensure the machine meets the following minimum requirements:

Operating System	Windows® 7 32-bit and 64-bit Windows® 8 64-bit Windows® 8.1 64-bit Windows® 10 64-bit
Processor	Intel Pentium III processor 1 GHz or higher
Graphic Adapter	Min. resolution 1,024 x 768 pixels and 32,768 colors
RAM	Windows® 7: min. 1 GB Windows® 8 / 8.1: min. 2 GB Windows® 10: min. 4 GB
Free Disk Space	Min. 2 GB free hard-disk space Additional storage requirements depend on the extent of the data to be processed.
Monitor	Min. 17" A 21" monitor is recommended for more than 32 channels.

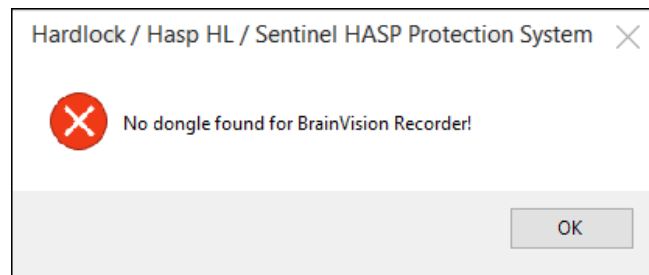
During Installation

- 1) ***Insert*** the **Brain Products media** (e.g., USB drive, etc.) into your machine.
- 2) ***Click*** on **Autorun.exe**.
- 3) ***Select*** the option to **Install BrainVision Recorder & Video Recorder**.
- 4) ***Click*** the option to **Install BrainVision Recorder**.
- 5) ***Follow*** the rest of the prompts in the **InstallShield Wizard**.

NOTE: By default, the installation directory for BrainVision Recorder is **C:\Vision**.

3.2. Using BrainVision Recorder

To use BrainVision Recorder, you first need to attach the dongle to the machine. If you attempt to open the application without the dongle attached, you receive the following error:

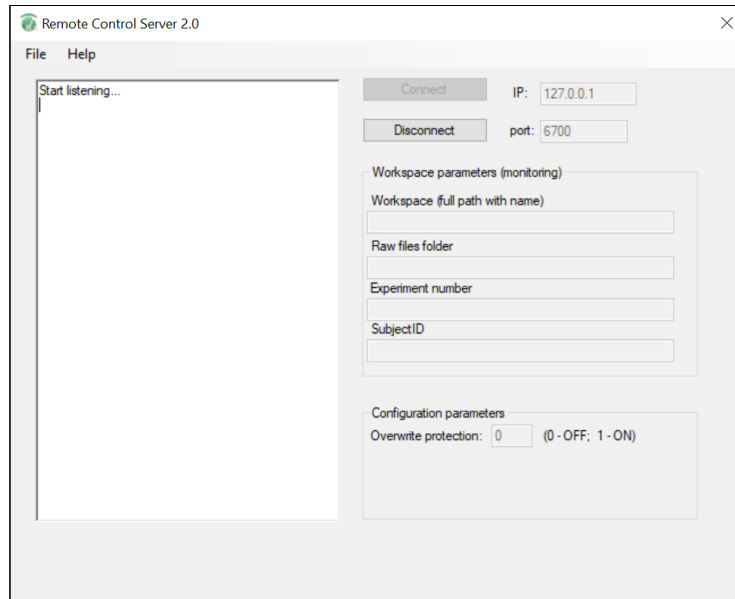


Recorder can be run in 2 modes: Standard and Administrator. To run in Standard mode, double-click on the desktop shortcut. To run in Administrator mode, right-click on the Recorder icon by selecting "Run as Administrator."

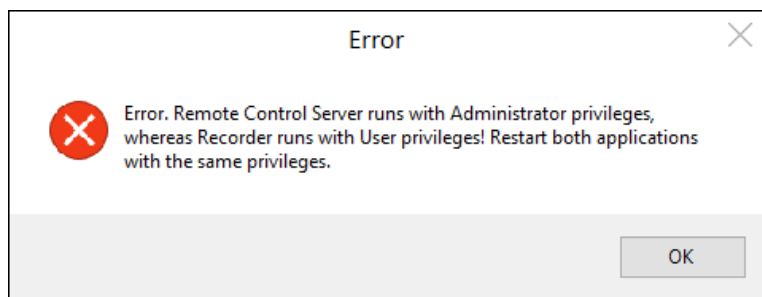
NOTE: We recommend that BrainVision Recorder is run in Administrator mode when using E-Prime Extensions for Brain Products 3.0.

3.3. Using Remote Control Server

Remote Control Server is a simple application that allows E-Prime to communicate with BrainVision Recorder. “Connecting” the application ensures that it is able to interact with E-Prime and BrainVision Recorder. “Disconnecting” means that communication ceases between the two applications.



Similar to BrainVision Recorder, it can be run as either a Standard user or an Administrator. However, if you open the Remote Control Server with different privileges than the BrainVision Recorder, you encounter the following:



Open both applications using the same user privileges to avoid any errors.

4. How to Create Your Own Brain Products Experiment

4.1. Overview

This chapter illustrates the creation of an E-Prime Extensions for Brain Products 3.0 experiment using the PictureRT.es3 sample paradigm provided with your installation.

In order to complete the Tutorial, you need a computer with E-Prime 3.0 and E-Prime Extensions for Brain Products 3.0 preinstalled. If you have not installed E-Prime 3.0, please complete the installation before continuing. If you have not installed E-Prime Extensions for Brain Products 3.0, please refer to the installation section in this manual (see [Chapter 2: Installing E-Prime Extensions for Brain Products](#)).

While this document includes a basic introduction to programming concepts specific to using E-Prime with Brain Products, the Tutorial assumes you are familiar with using E-Prime to build behavioral experiments. If you are new to using E-Prime, we recommend that you work through all of the Tutorials provided on our Support site prior to beginning this Tutorial.

[Article 23282: Experiment Design \(Beginner\)](#)

[Article 22741: Experiment Design \(Advanced\)](#)

4.2. Experiment Design

Overview

To add support for Brain Products to an existing E-Prime experiment, you need the PackageFile feature of E-Prime. An E-Prime PackageFile is a pre-written, cohesive set of E-Basic script routines that are grouped together and distributed in a single file. The PackageFile can be authored and maintained externally and then shared amongst different E-Prime experiments. The routines contained in the PackageFile serve to expand the default functionality offered by E-Prime for building experiments that interact with 3rd Party hardware and software products.

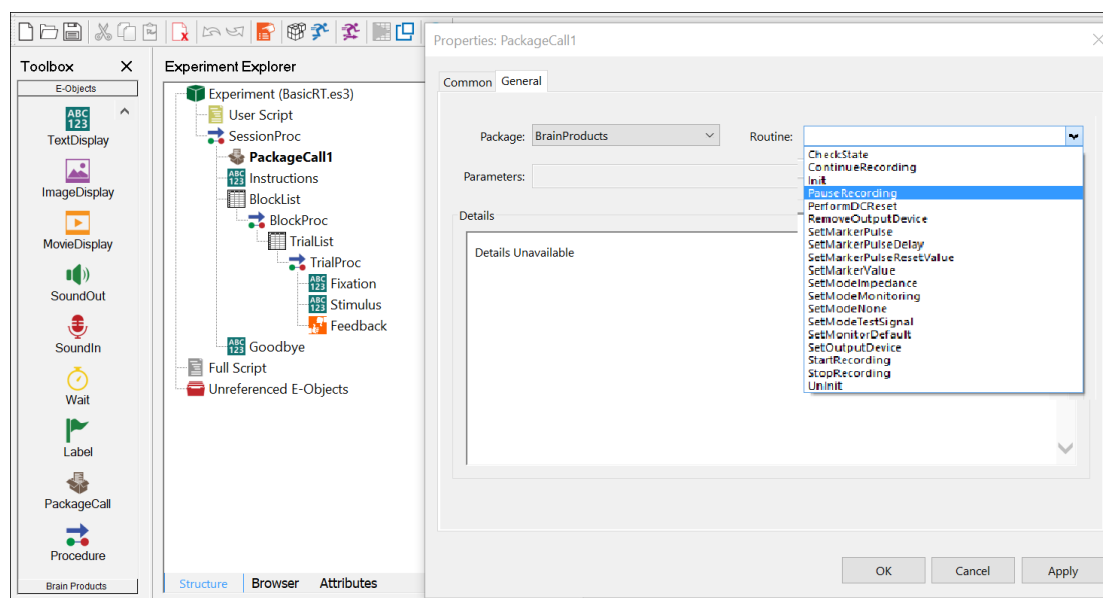
The E-Prime Extensions for Brain Products 3.0 PackageFile is included in the E-Prime Extensions for Brain Products installation. The routines in the PackageFile allow you to automatically perform various functions (e.g., hardware initialization, starting/stopping EEG recording, and configuring/sending event markers). These routines are invoked via graphical representations in the Experiment Explorer window in E-Studio. Some of the routines require you to set or modify parameters to enable them to work within the context of your experiment. Once a PackageFile is added to an experiment, there are

several methods that can be used to access the routines. A brief overview of each method is provided below.

PackageCall Method

Routines contained within a PackageFile are typically called by dragging a **PackageCall** object from the E-Studio Toolbox. The PackageCall is then dropped into a Procedure object at the location within the experiment where the call is to be invoked. Once a PackageCall is added to the experiment, you can double-click on the object to configure its properties. Minimally, you must specify which Package and routine need called and what parameters need sent during the call.

The PackageCall Properties includes a **Details** section which provides information regarding the purpose of the routine. A description of any required or optional parameters that need specified to properly use the routine are also listed. When viewing the Details section, it is helpful to note that a Remarks section exists at the bottom of the window. The **Remarks** section offers further insight on how the PackageCall is used in the experiment.

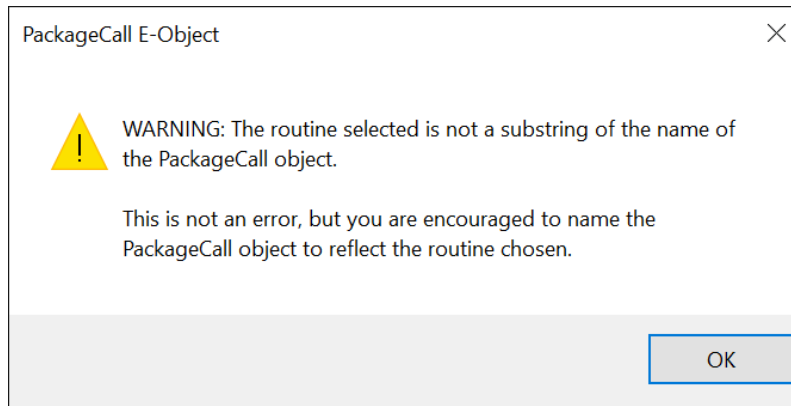


NOTE: In some cases, you may have to scroll down to view Remarks / additional parameters.

Once the Package and routine properties of the PackageCall are set and the Properties dialog is closed, the icon associated with the PackageCall object changes from the default icon to an author specified icon. If there is no author specified icon associated, then the default icon for the entire PackageFile is used.

When dragging and manually configuring a PackageCall, it is strongly recommended that you rename the object to reflect the specific PackageFile and routines which are

being referenced within the object. If you do not follow this recommendation, E-Prime issues the following warning:



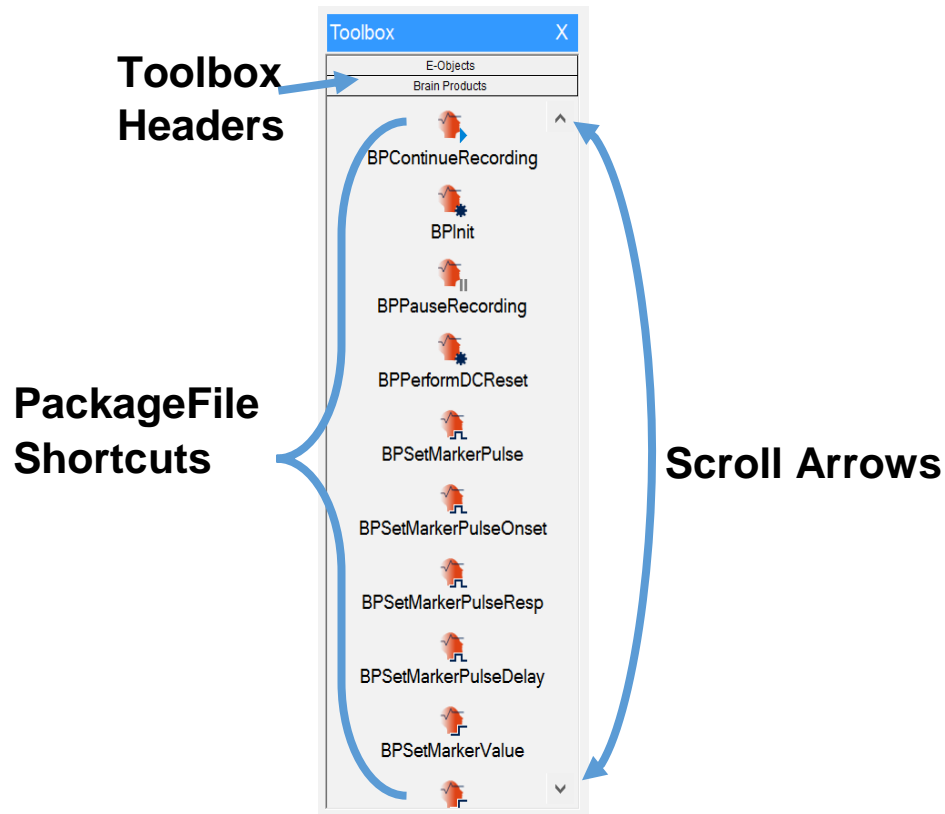
With routines in the Brain Products PackageFile, it is a common convention to create a name for each object by abbreviating “Brain Products” as “BP” and then concatenating the name of the routine being called. For example, the “BrainProducts_Init” routine would be renamed “BPInit”.

PackageFile Toolbox Shortcuts

A PackageFile author can optionally choose to provide a customized Toolbox of PackageFile Shortcuts to make it faster and easier for the experiment author to access and configure the routines supported by the PackageFile. If a custom Toolbox is included with the PackageFile, a new panel is added to the Toolbox window in E-Studio after the PackageFile is added to the experiment. Each panel of the Toolbox window includes a clickable header that indicates which PackageFile is associated with the panel. You can click on the header to show the contents of the Toolbox panel and then drag a Shortcut from the Toolbox and drop it in a Procedure where the call is to be invoked. Scroll Arrows are present on the Toolbox in order for scrolling through the PackageFile Shortcuts.

Each PackageFile Shortcut contained in the Toolbox is simply a PackageCall object (as outlined above) which has been predefined by the PackageFile author to save the experimenter time in renaming each PackageCall and configuring its required Properties. It is important to note that PackageFile Shortcuts that have different names in the Toolbox may be configured to reference the same PackageFile routine (e.g., properties may only differ by the list of default parameters that are specified). Providing multiple PackageFile Shortcuts for the same routine can be useful when a single common PackageFile routine is used in different scenarios with the experiment.

Using PackageFile Shortcuts are the primary programming method used for this Tutorial.



InLine Script Method

An **InLine** is an object used to insert user-defined script into an experiment at a specific point. The object is placed at the desired location in the script. The InLine method can be used to call PackageCalls as well. However, unless there is a need to make a series of PackageCalls in sequence or mingle PackageCalls with additional E-Basic script, we do not typically recommend this calling method.

Calling a PackageFile routine from script is generally the same as calling any other E-Basic Subroutine or Function that could be defined in User Script except that the definition of the routine is contained with the PackageFile rather than within the User Script section of your experiment.

Due to a common naming convention used by PackageFile authors, a Package routine can be invoked directly from an InLine object. This is done by concatenating the name of the Package followed by an underscore (“_”) and then the name of the routine you want to call. Lastly, any parameters are added that are required for the call.

For example, the Brain Products PackageFile includes a call to start the EEG recording. The routine is named “StartRecording” and takes the experiment context (“c”) as a required parameter. To call this routine from an InLine script object, specify the following in the InLine object:

PackageFile Name	Routine	Parameter
		
<i>BrainProducts_StartRecording c</i>		

If you are making direct PackageCalls via E-Basic script please refer to:

[Article 26208: Using PackageCalls via InLine Script](#)

Please view the article mentioned above to see examples of PackageCall parameters and functions invoked by calling the routine from an InLine.

For specific information on PackageCalls in E-Prime Extensions for Brain Products 3.0, please refer to:

[E-Prime Command Reference](#)

4.3. Tutorial: Adding Brain Products Support to an E-Prime Experiment

Summary:

Brain Products enabled experiments can be run locally from E-Studio during development and testing (i.e., without having the Brain Products hardware connected). We recommend testing your experiment locally before running it with the experiment presentation computer connected to your Brain Products hardware. While many Brain Products related errors can be detected while testing locally, some errors are only detected or generated when the actual Brain Products hardware is in use. Thus, you should test your experiment with the Brain Products hardware connected and active prior to scheduling actual participants.

In order to test without Brain Products hardware and software connected, you need to turn off communications by changing the parameter in the BPInit object from “on” to “off” (see [Task 5 of the Tutorial: Add a Brain Products PackageCall to initialize the system](#)).

Goal:

This Tutorial illustrates how to add support for Brain Products into the PictureRT sample experiment that is included with E-Prime.

NOTE: The PictureRT experiment provided with the E-Prime Extensions for Brain Products installation (... My Experiments\3.0\Brain Products\Tutorials) is the same as the one provided with E-Prime.

Overview of Tasks:

- Load the PictureRT tutorial experiment and resave it as BPPictureRT
- Add the Brain Products PackageFile to the Experiment Object
- Add Brain Products PackageCalls to initialize/uninitialize the experiment at the Session level
- Add Brain Products PackageCalls to start/stop recording at the Block level
- Add Brain Products PackageCalls to configure event markers to be sent at the Trial level
- Add Brain Products PackageCalls to check the state of the system at the end of every trial
- Verify the overall experiment structure and run the experiment

Recommended readings:

Before beginning the E-Prime Extensions for Brain Products Tutorial, we recommend that you have read and worked through the other Tutorials provided with E-Prime. Please refer to the following for other available Tutorials:

[Article 23282: Experiment Design \(Beginner\)](#)

[Article 22741: Experiment Design \(Advanced\)](#)

Additionally, it is important to have an understanding of critical timing in E-Prime in order to run experiments under the best possible conditions for accurate timing data. Refer to the following articles on timing:

[Article 22867: E-Prime Timing Test Results](#)

[Article 22852: Timing of E-Objects](#)

[Article 22857: Stimulus Preparation Solutions](#)

Some of the E-Prime Extensions for Brain Products 3.0 PackageCalls create Task Events during the course of the experiment. For an understanding of what a Task Event is refer to:

[Article 23603: Script Task Events](#)

[Article 24789: Configuring Task Events](#)

Estimated Tutorial Time:

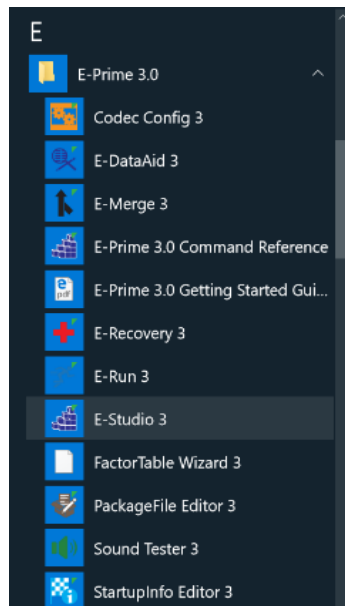
The following Tutorial is expected to take **15-20** minutes.

Task 1: Open the PictureRT.es3 experiment in E-Studio

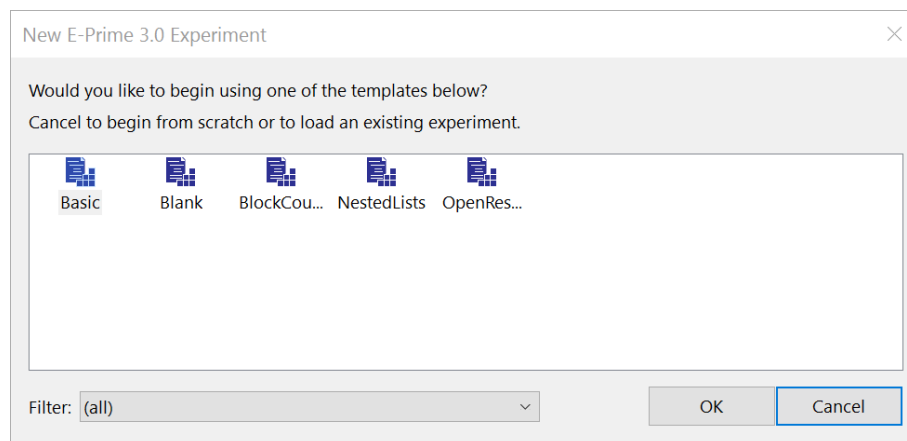
Locate the E-Studio icon in Start > Programs > E-Prime 3.0 menu and launch the application by selecting it. Load the PictureRT.es3 tutorial experiment.

The E-Studio application is installed as part of the typical E-Prime installation. This application is used to create, modify, and test experiments. Open the E-Studio application, navigate to the ...My Experiments\3.0\Brain Products\Tutorials folder, and load the PictureRT.es3 tutorial experiment.

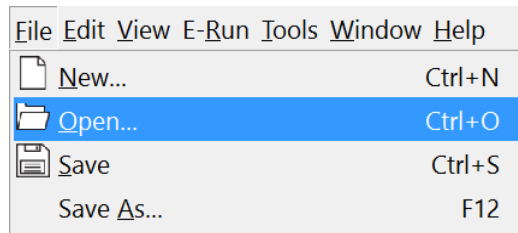
1) **Click** on the Windows **Start** menu, **select Programs**, and then **select E-Prime 3.0**. From the menu, **click** on **E-Studio** to launch the application.



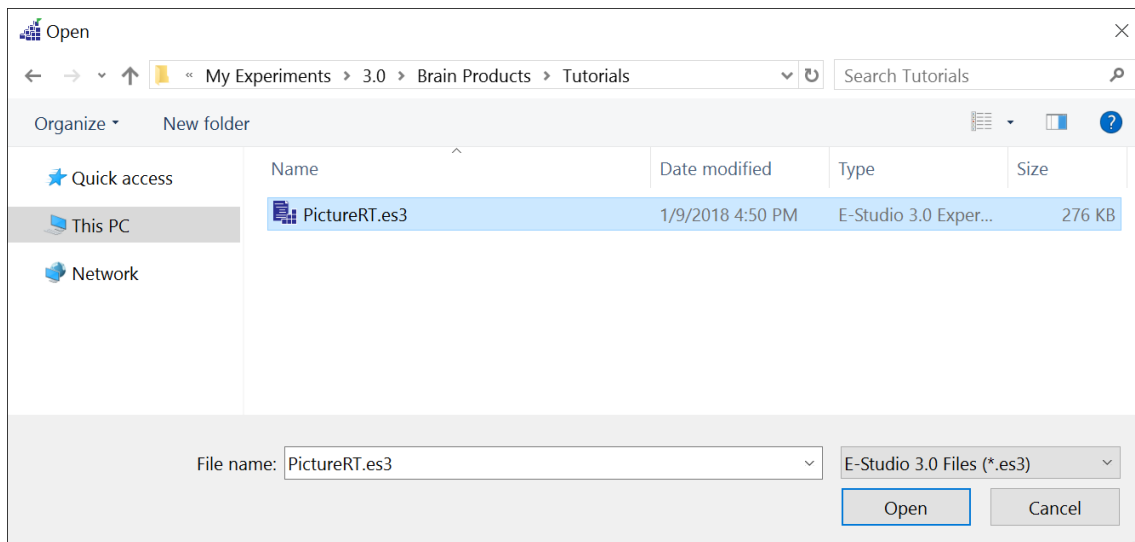
2) **Click** the **Cancel** button on the New E-Prime 3.0 Experiment window.



3) **Select Open** from the **File** menu. **Navigate** to the ... **My Experiments\3.0\Brain Products\Tutorials** folder to load the experiment.



4) **Select** the “**PictureRT.es3**” file and then **click** the **Open** button to load the experiment into E-Studio.



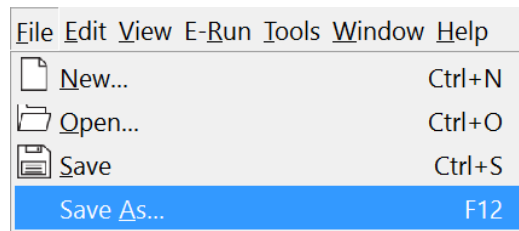
NOTE: If Samples and Tutorials for E-Prime Extensions for Brain Products 3.0 do not exist see [Chapter 5, Section 5.1: Cannot locate E-Prime Samples and Tutorials](#).

Task 2: Save the experiment under a new name

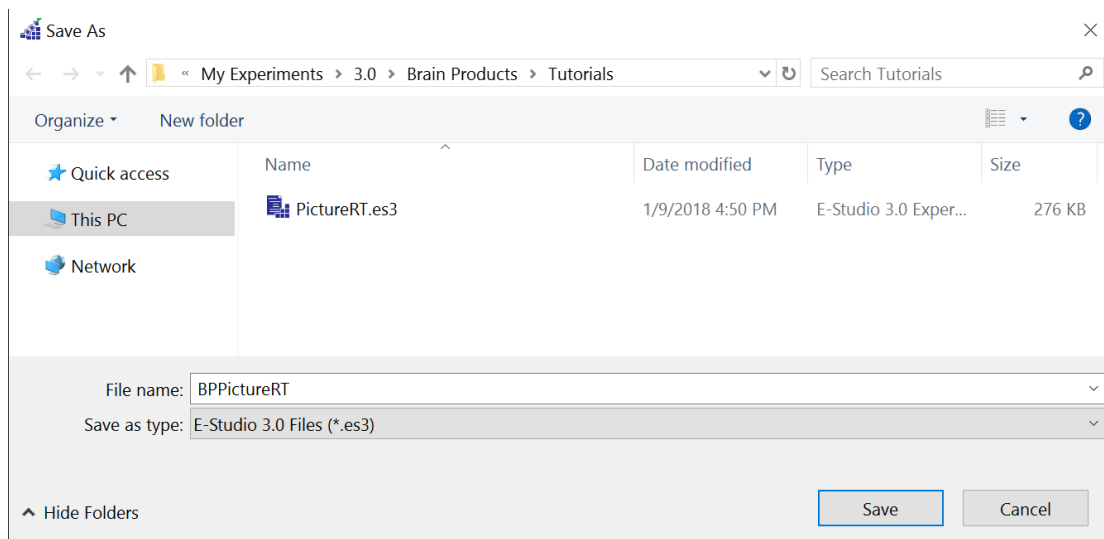
Save the *PictureRT.es3* experiment in the same folder under the new name “*BPPictureRT.es3*”.

The *PictureRT.es3* tutorial experiment requires bitmap resources (i.e., *RedCar.bmp*, *BlueCar.bmp*) that exist in the current folder. Rename the experiment, but be sure to save it in the same folder (...My Experiments\3.0\Brain Products\Tutorials) so the existing bitmap resource references within the experiment remain valid and can be reused.

1) **Select Save As...** from the **File** menu.



2) **Type “BPPictureRT.es3”** as the new name in the **Filename** field. **Click** the **Save** button.

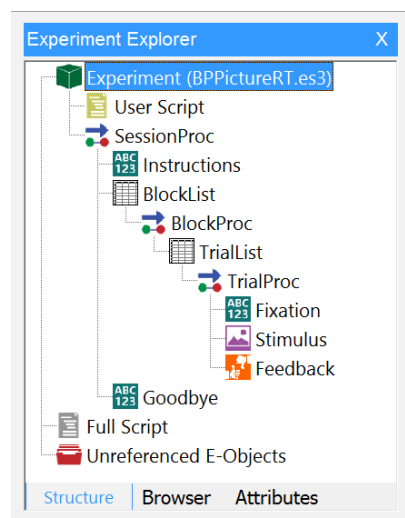


Task 3: Add the Brain Products PackageFile to the experiment

Open the Properties dialog for the Experiment Object and use the Packages tab to add the Brain Products PackageFile to the experiment.

PackageFiles in E-Prime are cohesive sets of E-Basic routines that are grouped together. In order to gain access to the routines within a PackageFile you must first add the PackageFile to the experiment. PackageFiles can be added to an experiment using the Packages tab of the Experiment Object Properties dialog. The routines that are used to communicate with the Brain Products hardware/software at runtime are contained within the Brain Products PackageFile. The PackageFile also includes a customized Toolbox which contains shortcuts that you can drag into Procedure objects within your experiment to invoke routines contained in the PackageFile.

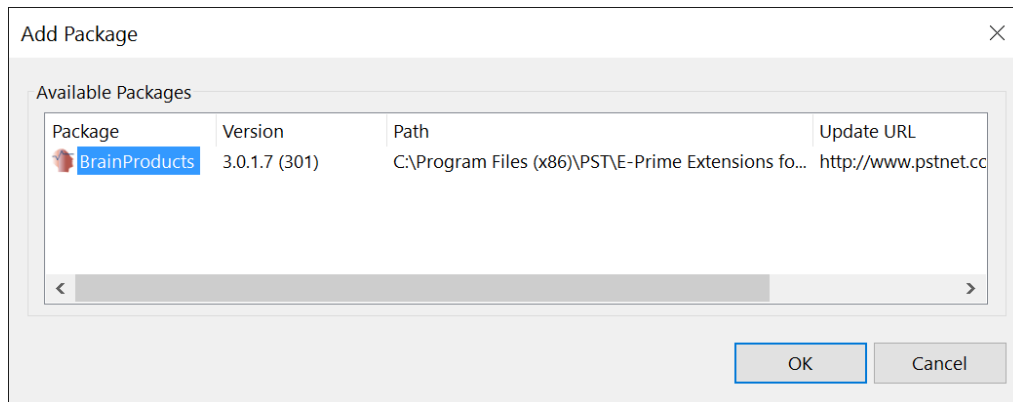
1) **Double-click** the **Experiment** object at the top of the tree in the **Experiment Explorer** window.



2) **Click** on the **Packages** tab of the **Experiment Object Properties** dialog.

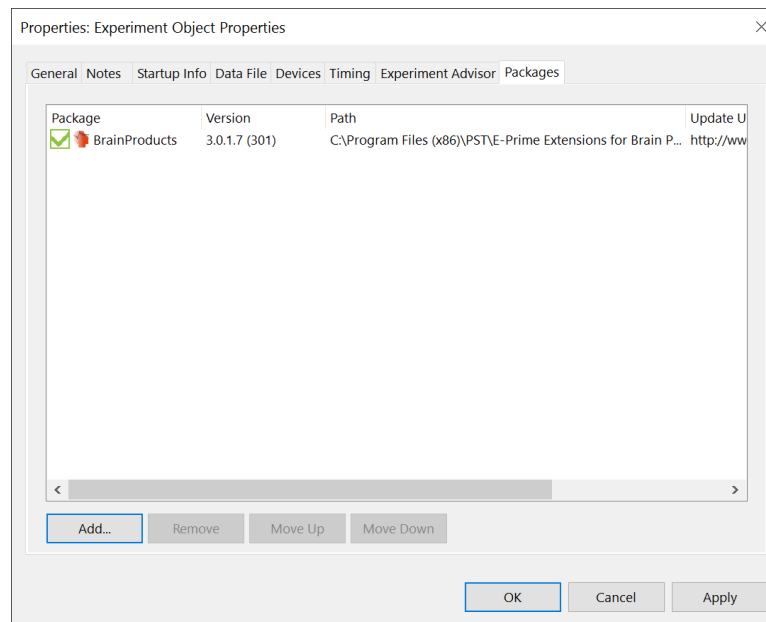
3) **Click** the **Add...** button.

4) **Select** the **Brain Products** PackageFile in the **Add Package** dialog.



5) **Click** the **OK** button to accept the dialog.

6) **Verify** the **Brain Products** PackageFile has been added and is checked (**Do not** yet click **OK** or dismiss the dialog).



NOTE: The PackageFile version number that is displayed by E-Studio reflects the version of the Brain Products PackageFile that is currently installed on your machine and may not match the picture.

Task 4: Add a device to the experiment to use to send markers

Use the *Devices* tab to add the output device that will be used to send markers to the Brain Products software.

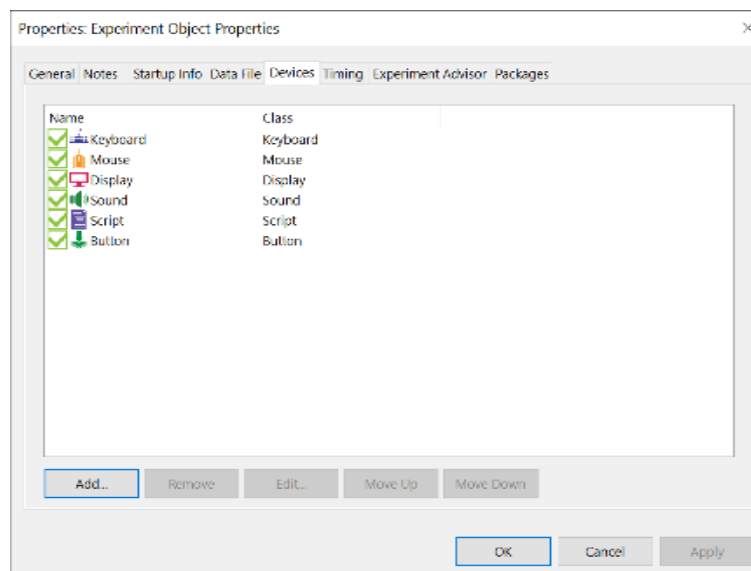
It is typical to send event markers from E-Prime to the EEG recording software when events of interest occur during the experiment (e.g., start of a new trial, stimulus presentation, response collection, etc.). An output device must be used and configured in E-Prime to send these markers to the Brain Products system. Typical devices used to interface between E-Prime and Brain Products are the Brain Products TriggerBox, a ParallelPort, or the PST Chronos® device. Each of these devices must have the correct interface cable(s) and related interface hardware connected between the two systems in order to properly send markers. Please consult your device's documentation for details on connecting and configuring the device being used.

This Tutorial assumes the use of a Brain Products TriggerBox which appears to E-Prime as a standard Serial device. Use the Device tab of the Experiment Object Properties dialog to add a Serial device to the experiment and rename it to "TriggerBox". When using TriggerBox, COM3 is the typical COM Port value which means the E-Prime default value of COM1 needs changed. For further information on the TriggerBox, refer to:

[Article 26084: Brain Products Product Pages](#)

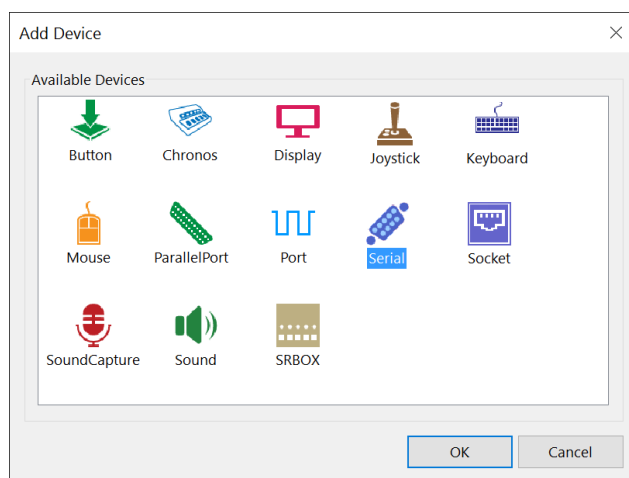
Please refer to [Chapter 5, Section 5.2: Finding COM Port Number for Configuring TriggerBox with SerialDevice](#) for information on how to find the COM Port value.

1) **Click** on the **Devices** tab of the **Experiment Object Properties** dialog.



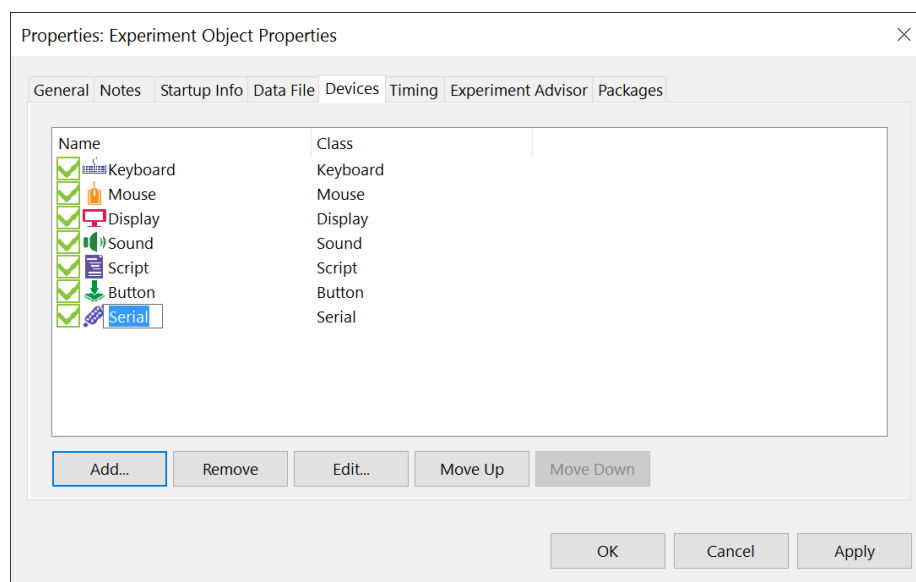
2) **Click** the **Add...** button.

3) **Select** the **Serial** device in the **Add Device** dialog.



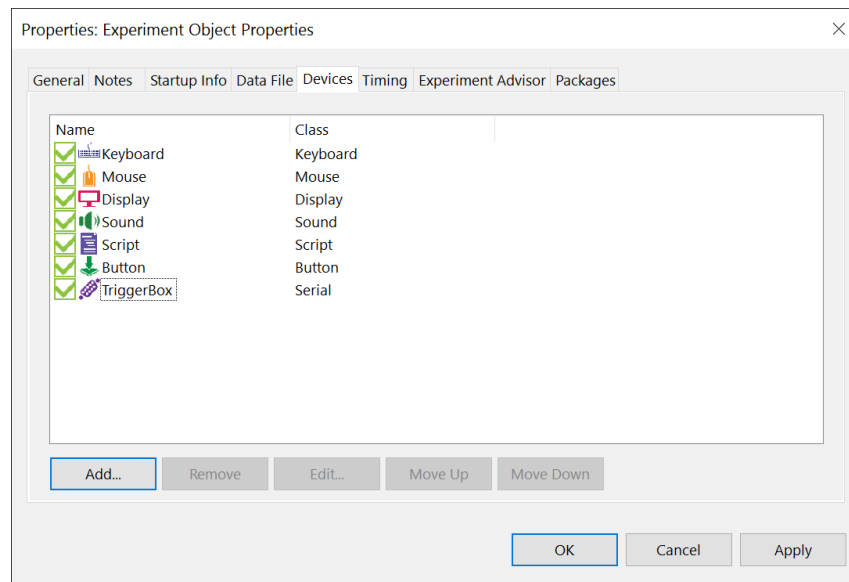
4) **Click** the **OK** button to dismiss the dialog.

5) **Click** on the **Serial** device to select it, then **press F2** to rename the device.



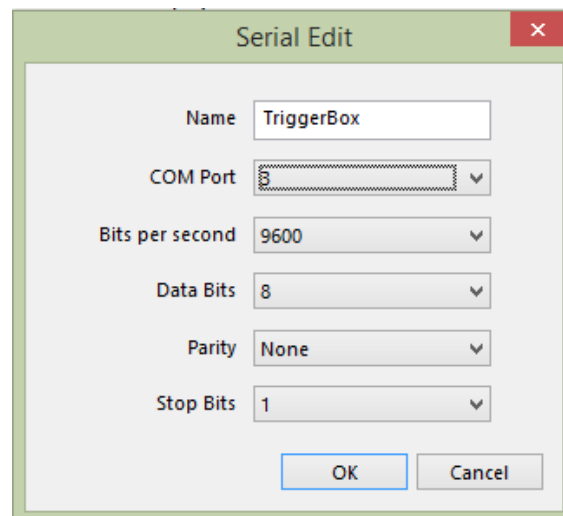
6) **Type** “**TriggerBox**” as the new device name.

7) **Verify** the **TriggerBox** device has been added and is checked.



8) **Double-click** the **TriggerBox** device to open the device Properties pages.

9) **Change** the **COM Port** value from “1” to “3”.



10) **Click** the **OK** button to accept the Serial device dialog. **Click** the **OK** button again to accept the Experiment Object Properties.

Task 5: Add a Brain Products PackageCall to initialize the system

Add a PackageCall at the beginning of the SessionProc to initialize the system for use with Brain Products and establish a connection to the Recorder application.

The Brain Products PackageFile must be initialized at the start of the experiment by making a call to the BrainProducts_Init routine. The **BPIinit** object contained in the Brain Products Toolbox is preconfigured to call the Init routine.

The BPIinit object's default parameters include placeholder values (contained in angle brackets "<>") indicating specific information to your machine configuration or experiment. After dragging the object to the beginning of the SessionProc, open the object and edit its list of parameters. The purpose of each parameter is summarized below, but you can refer to the Details field of the PackageCall for further information about each required or optional parameter.

NOTE: Any parameter value shown in double quotes (") indicates string data is required and the parameter value must be enclosed in double quotes.

The first parameter ("c") is the common to most PackageCall routines and simply passes in the current experiment Context.

The second parameter (*strState*) is useful when testing your experiment without being connected to the Brain Products hardware/software. This parameter is specified as "on" by default and the system attempts to establish communications with the Brain Products system during the call. If you change the parameter to "off" then all Brain Products related routines are effectively disabled when called at runtime (i.e., each PackageFile routine is called but immediately returns without performing any of its normal functions). When specifying "off", you may additionally have to uncheck/disable the output device on the Devices tab of the Experiment Object Properties dialog to avoid a runtime error if the device is not present on the experiment computer.

The third parameter (*strWorkspace*) specifies the name of the Workspace that you load remotely in Recorder. You can specify a full path on the remote machine as needed. If no path is specified, the system attempts to load the Workspace from the default workspace folder on the remote computer. In this example, change the parameter from "<filename>.rwksp" to "Standard Workspace.rwksp". See the following for more information on .rwksp files:

[Article 26251: Brain Products Recorder Workspace \(.rwksp\) Files](#)

The fourth parameter (*strSocketCommParams*) specifies the IP Address or DNS of the remote computer that is running the Remote Control Server and Recorder software. For more instructions on how to identify the appropriate IP address for the remote computer:

[Article 26087: Configuring Remote Control Server \(RCS\) with E-Prime](#)

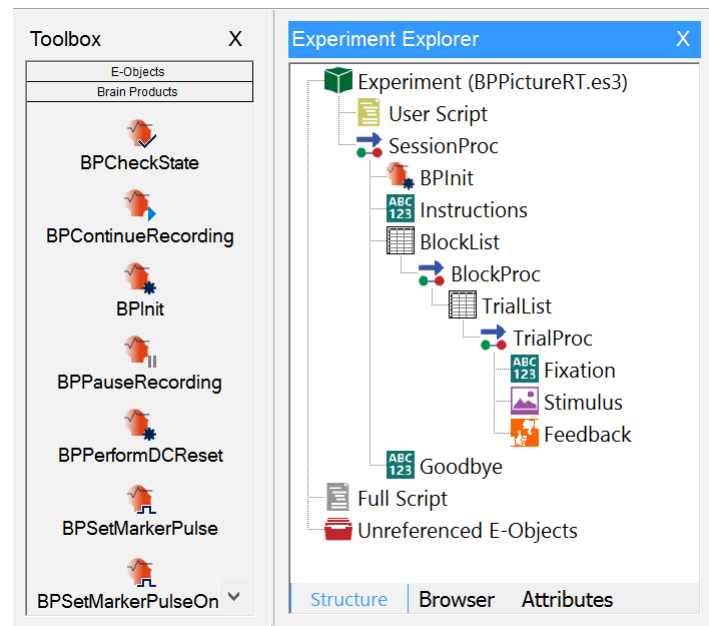
Once you have determined the correct IP address, change the parameter from “<ipaddress>” to the IP address of the remote computer in the format “xxx.xxx.xxx.xxx”.

NOTE: A Port address can be optionally appended using the format “xxx.xxx.xxx.xxx:pppp”, but if no port is specified the default port address assumed by the Remote Control Server is used.

The fifth and sixth parameters (*vDataFilePrefix* and *vDataFileSuffix*) are optional but can be used to control the naming of your EEG recording/output file. If you do not specify these parameters, the name of your EEG recording file defaults to the base name of your E-Prime EDAT file, “[*DataFile.BaseName*]”, with the string “_EEBP.eeg” appended. For example, if you collected data from the BPPictureRT.es3 experiment specifying Subject=5 and Session=1, your resulting E-Prime EDAT file would be named “BPPictureRT-5-1.edat3”. The corresponding EEG file on the remote computer would be named “BPPictureRT-5-1_EEBP.eeg”.

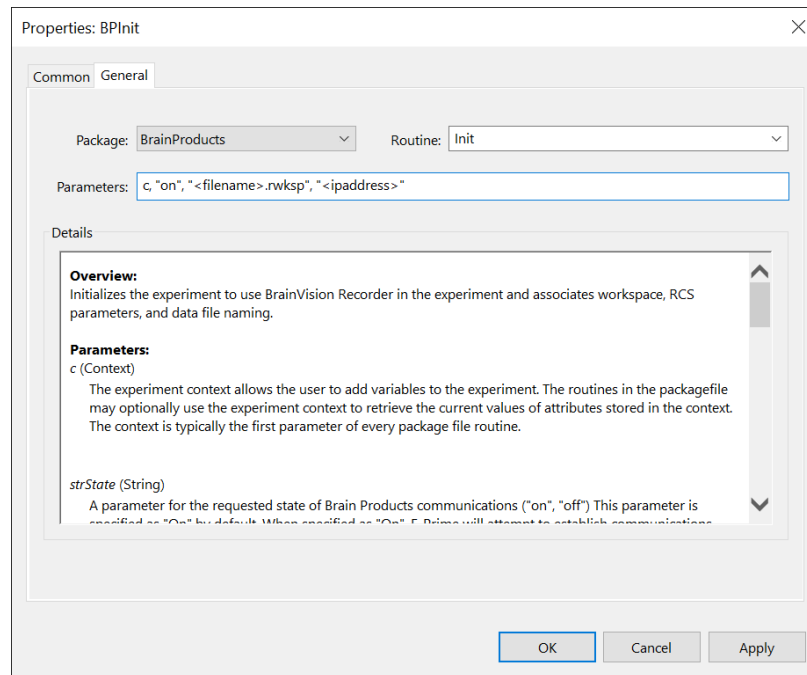
The seventh parameter (*vOverwriteProtection*) is optional and specifies whether or not the EEG data file should be overwritten. By default, this value is “No”, but if “Yes” is specified the resulting file is appended with an underscore and incrementing number.

1) Drag the **BPInit** object from the **Brain Products Toolbox** and **drop** it as the first object in the **SessionProc** procedure.

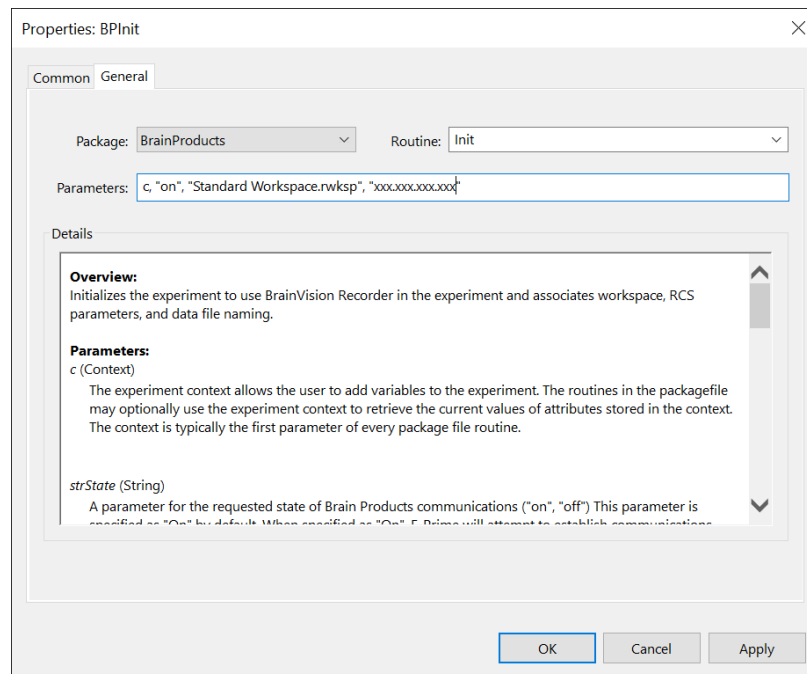


NOTE: If you do not see the contents of the Brain Products Toolbox pane as displayed within E-Studio Toolbox, then click on the Toolbox header named “Brain Products” to expand the pane. The objects contained in the Toolbox are listed in alphabetical order.

2) **Double-click** on the **BPIInit** object to open its **Properties** dialog.



3) **Edit** the **Parameters** field to be **c, “on”, “Standard Workspace.rwksp”, “xxx.xxx.xxx.xxx”** (replacing xxx.xxx.xxx.xxx with the IP address of the remote EEG computer).



4) **Click** the **OK** button to accept the dialog.

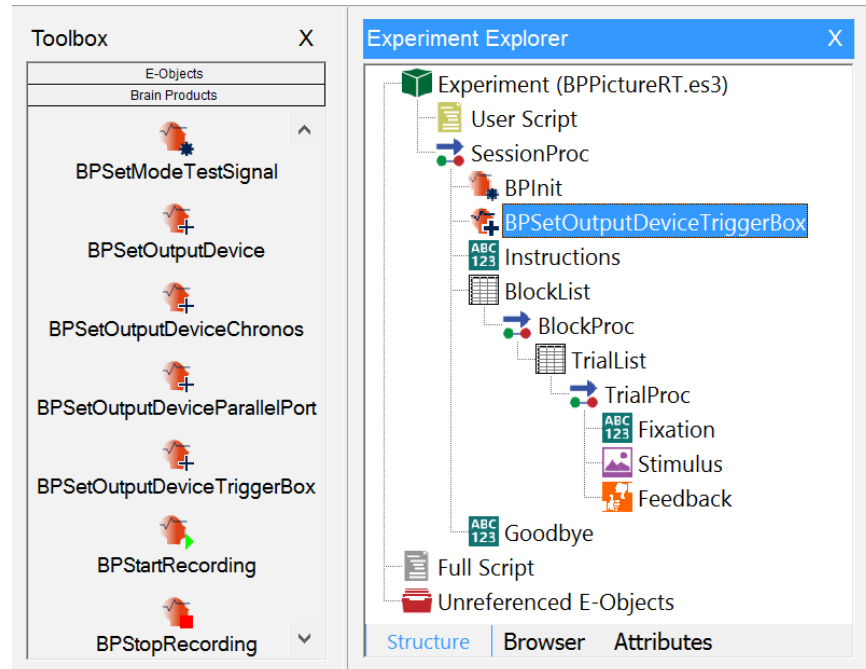
Task 6: Add a Brain Products PackageCall to designate the output device used to send event markers

Add a PackageCall to the SessionProc to set the output device in the experiment that will be used to send event markers.

After the Brain Products PackageFile is initialized you must designate which output device (specified on the Devices tab of the Experiment Object Properties dialog) is used to send event markers from the E-Prime experiment to the Brain Products system. Typical devices used to interface between E-Prime and Brain Products are the Brain Products TriggerBox, a ParallelPort, or the PST Chronos® device.

It was earlier specified that the Brain Products TriggerBox is used in this Tutorial. The **BPSetOutputDeviceTriggerBox** object in the Brain Products Toolbox is preconfigured to call the BrainProducts_SetOutputDevice routine. Specify “TriggerBox” as the parameter that indicates the name of the output device.

- 1) **Click** the **up/down arrows** in the upper/lower right corners of the **Brain Products Toolbox** to scroll through the list of objects in the Toolbox until you can locate the **BPSetOutputDeviceTriggerBox** object.
- 2) **Drag** the **BPSetOutputDeviceTriggerBox** object from the **Brain Products Toolbox** and **drop** it after the **BPInit** object in the **SessionProc**.

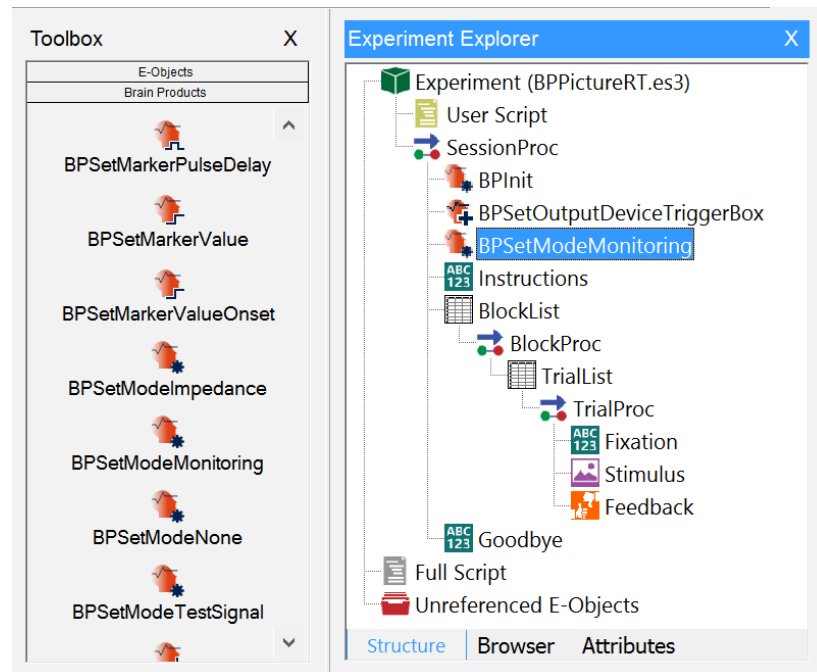


Task 7: Add a Brain Products PackageCall to enter Monitoring Mode

Add a PackageCall to the SessionProc to place the Recorder application in Monitoring mode to prepare the system for EEG recording.

Before starting the EEG recording from the E-Prime experiment, the Recorder software must be in Monitoring mode. The **BPSetModeMonitoring** object in the Brain Products Toolbox is preconfigured to call the BrainProducts_SetModeMonitoring routine.

- 1) **Drag** the **BPSetModeMonitoring** object from the **Brain Products Toolbox** and **drop** it after the **BPSetOutputDeviceTriggerBox** object in the **SessionProc**.

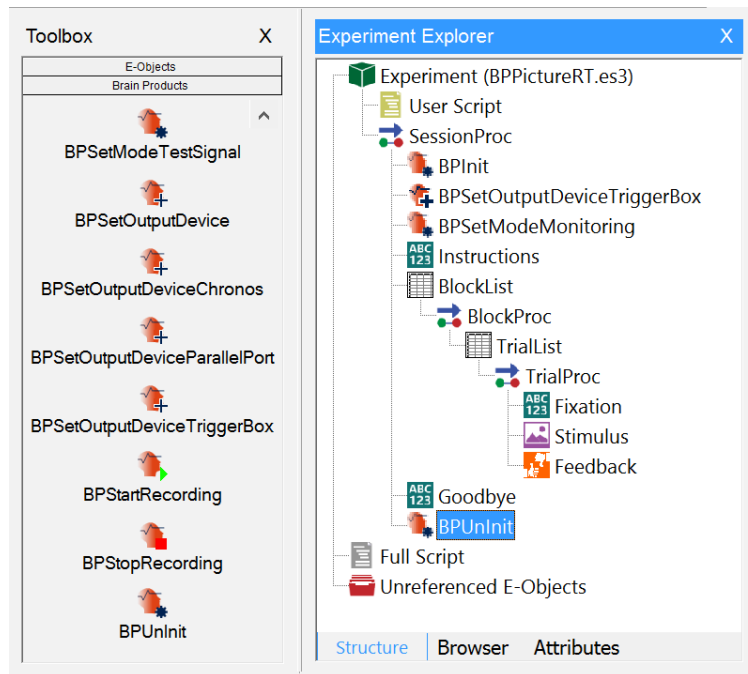


Task 8: Add a Brain Products PackageCall to uninitialized the system

Add a PackageCall at the end of the SessionProc to uninitialized the system

At the end of a Brain Products enabled experiment the system should be uninitialized. The BrainProducts_UnInit call sends a message to Brain Products to indicate that the experiment is complete. The **BPUnInit** object in the Brain Products Toolbox is preconfigured to call the BrainProducts_UnInit routine.

1) **Drag** the **BPUnInit** object from the **Brain Products Toolbox** and **drop** it as the last object in the **SessionProc**.



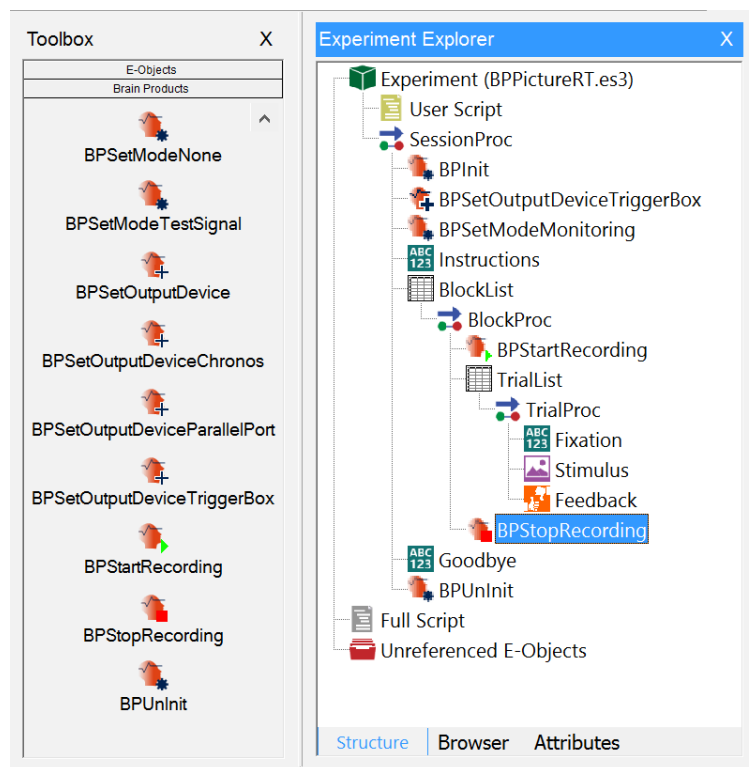
Task 9: Add a Brain Products PackageCalls to start/stop recording

Add a PackageCall at the beginning and end of the BlockProc to start/stop the EEG recording.

When you want start or stop recording EEG data within your experiment, the routine's BrainProducts_StartRecording or BrainProducts_StopRecording must be called to direct the Recorder. The **BPStartRecording** and **BPStopRecording** objects in the Brain Products Toolbox are preconfigured to perform these functions.

In many experiments it is common to record EEG data for the entire experiment session, but you may start and stop recording as many times as you would like within your experiment. In this Tutorial, recording is started at the beginning of each block of trials and is stopped at the end of each block.

- 1) **Drag** the **BPStartRecording** object from the **Brain Products Toolbox** and **drop** it as the first object in the **BlockProc**.
- 2) **Drag** the **BPStopRecording** object from the **Brain Products Toolbox** and **drop** it as the last object in the **BlockProc**.



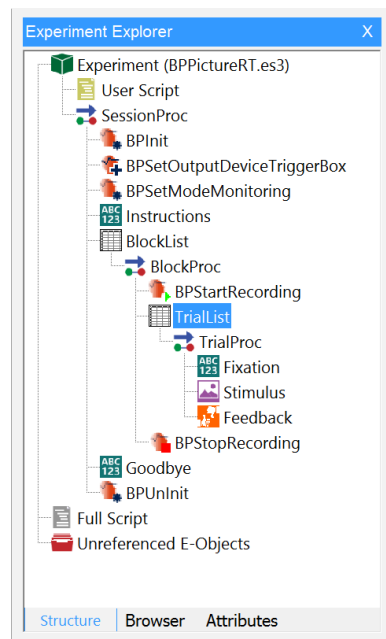
Task 10: Add an Attribute to a List object to associate an event marker with each type of trial or stimulus

Create a new attribute on the List object in the experiment that used to control stimulus presentation. Assign values to the attribute that will associate an event marker with each unique trial/stimulus type used in the experiment.

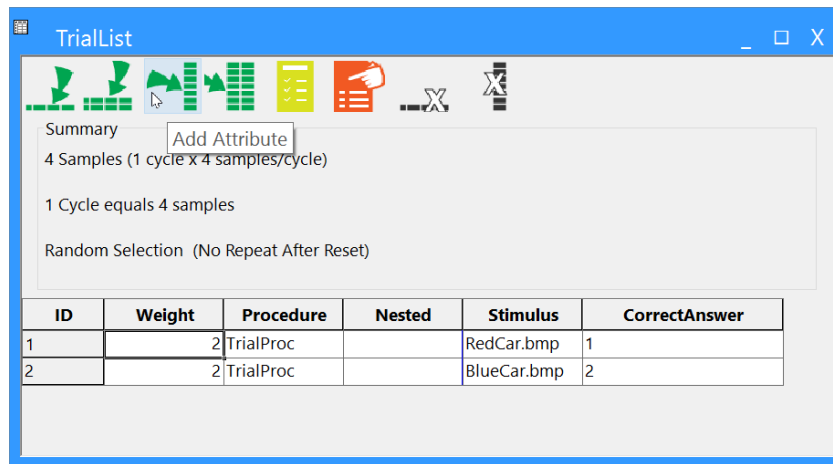
It is common to send an **event marker** from the experiment to the EEG recording that indicates which type of trial or stimulus is presented on each trial. Because the stimuli that are presented within different conditions of an experiment are often randomized, it is convenient in E-Prime to specify this type of information using an Attribute on the List object that controls the selection of stimuli.

In this Tutorial, the TrialList object defines which stimulus image (i.e., Red car, Blue car) is presented on each trial. An attribute named “Marker” is added to this List and the values of the attribute identify which unique event marker value is sent to the EEG system at the onset of each stimulus presentation. A marker value of “2” is assigned to trials presenting stimulus images of a Red car, and a marker value of “4” is assigned to trials presenting stimulus images of a Blue car.

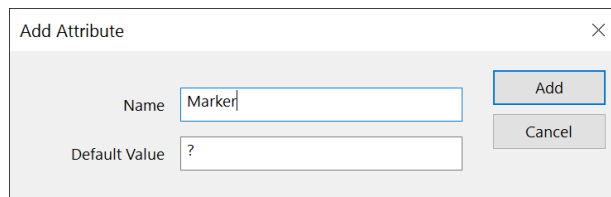
1) **Double-click** the **TrialList** object to open it in the workspace.



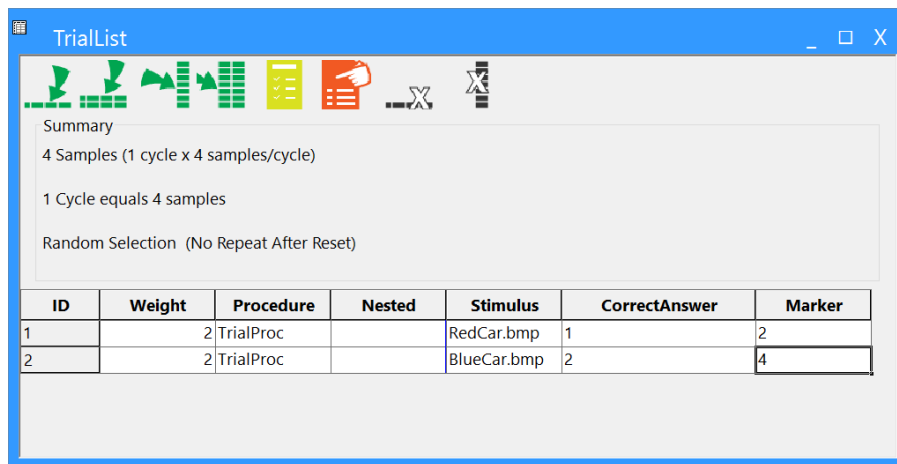
2) **Click** the **Add Attribute** button to add a new attribute to the List.



3) **Type “Marker”** in the **Name** field of the **Add Attribute** dialog and **click** the **Add** button to accept the change.



4) **Click** in each cell under the **Marker** attribute and **edit** the values to match those shown.



Task 11: Add Brain Products PackageCalls to assign a marker to each object or event of interest with the TrialProc

Add a PackageCall in the TrialProc to set a marker on the Fixation object that will be sent at the onset time of the Fixation. Name the object “BPSetMarkerPulseOnsetFixation”.

Each stimulus presentation object within E-Prime can send event markers at various time points within the execution of the object. The most common time point of interest is the OnsetTime of the object (i.e., the time at which a synchronized stimulus is presented to the participant). When you want an object in E-Prime to send a marker to the EEG system during its execution, you must call either BrainProducts_SetMarkerPulse or BrainProducts_SetMarkerValue prior to the object executing to associate the marker value with the stimulus presentation object. While both of these routines associate markers with stimulus presentation objects and take similar parameters, there is a critical difference in their runtime functionality.

The BrainProducts_SetMarkerPulse routine instructs the object to send the marker at the specified time point and then later (after a predetermined number of milliseconds) send a reset value (typically a 0). This minimal delay period followed by the send of a reset value is required by the Brain Products system to assure consistent receipt of sequential marker values.

The BrainProducts_SetMarkerValue routine instructs the object to send the marker at the specified time point but does NOT automatically send the reset value after a minimal delay period.

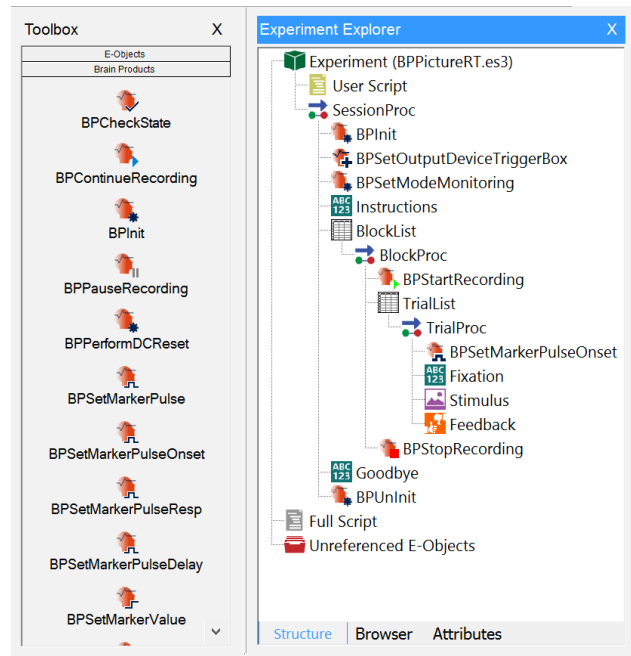
In general we recommend the BrainProducts_SetMarkerPulse routine by default. If or when you choose to use the BrainProducts_SetMarkerValue routine, it is your responsibility to assure that the reset value (0) is sent after the minimal number of milliseconds has elapsed, yet prior to the next event marker being sent. If you do not design your experiment to adhere to these guidelines you risk BrainVision Recorder either missing or misinterpreting your event marker values.

The **BPSetMarkerPulse** and **BPSetMarkerValue** objects in the Brain Products Toolbox can be used to call these routines. The parameters specified for these objects in require you to fully specify the name of the object, the event/time point, and the marker to send. The **BPSetMarkerPulseOnset** and **BPSetMarkerValueOnset** objects are similar except that they are partially preconfigured to specify that the marker should be sent at the “OnsetTime” of the stimulus object. Since marking the onset time of the stimulus object is most often the case, BPSetMarkerPulseOnset is used by this Tutorial.

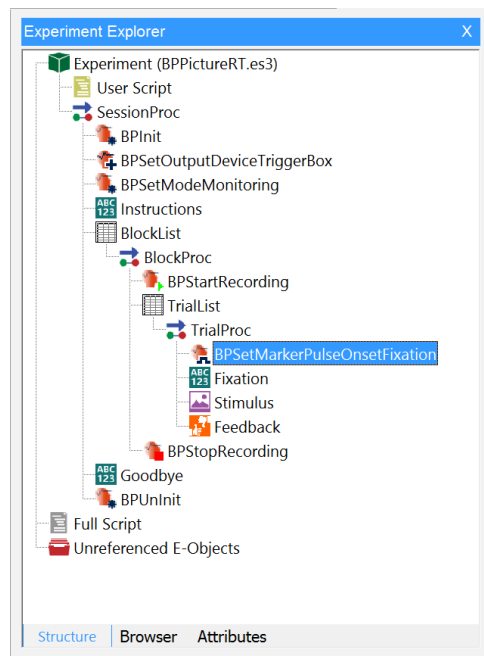
In this Tutorial, the Fixation object is responsible for presenting a brief fixation cross prior to the presentation of the critical stimulus on each trial. The BPSetMarkerPulseOnset object is used to associate a marker of “1” with the Fixation object and the marker is sent at the object’s onset time (Fixation.OnsetTime).

NOTE: Onset time is relevant to when the object (e.g. Slide object) paints to the screen.

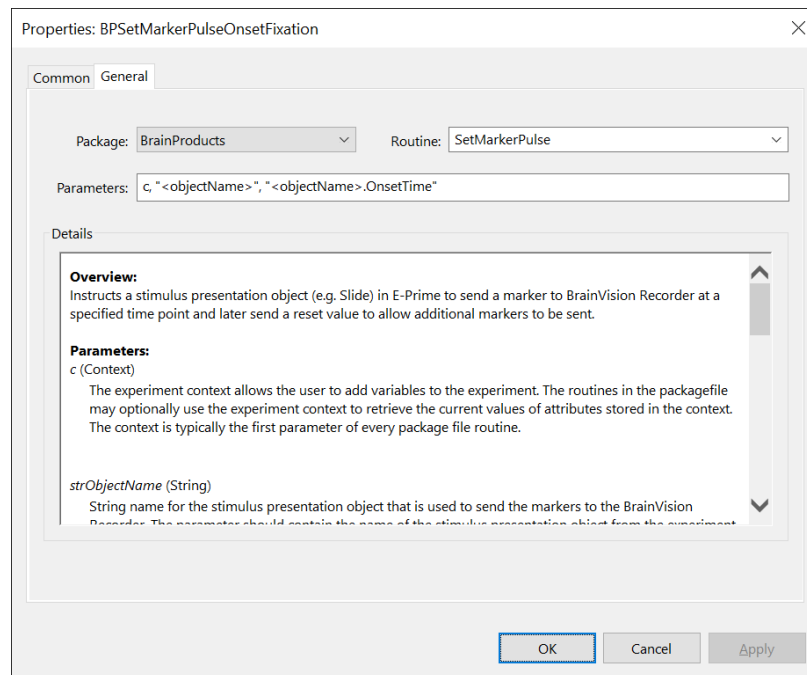
1) **Drag** the **BPSetMarkerPulseOnset** object from the **Brain Products Toolbox** and **drop** it as the first object in the **TrialProc**.



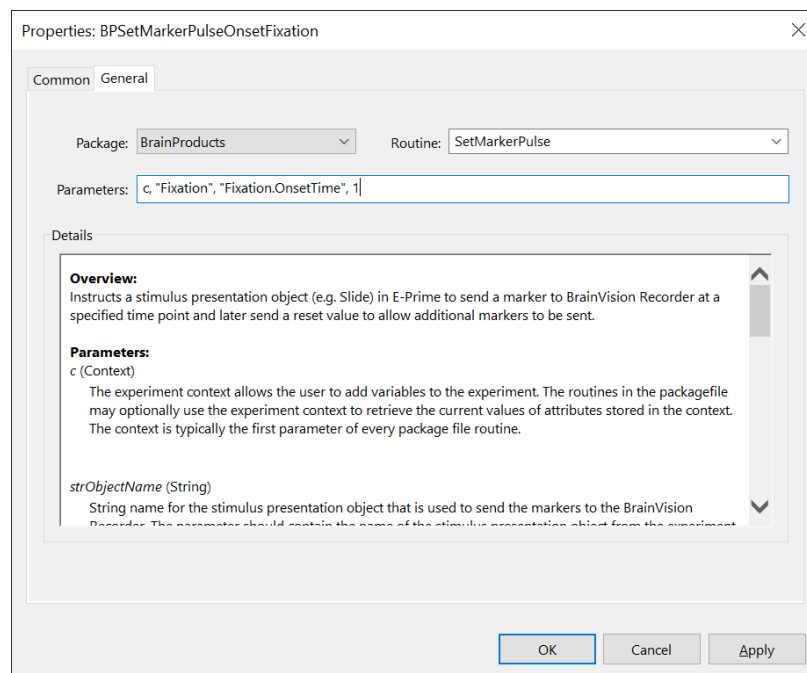
2) **Click** on the new object to select it then **press F2** and **rename** the object as **"BPSetMarkerPulseOnsetFixation"**.



3) **Double-click** on the **BPSetMarkerPulseOnsetFixation** object to open its **Properties** dialog.



4) **Edit** the **Parameters** field to be **c, "Fixation", "Fixation.OnsetTime", 1**



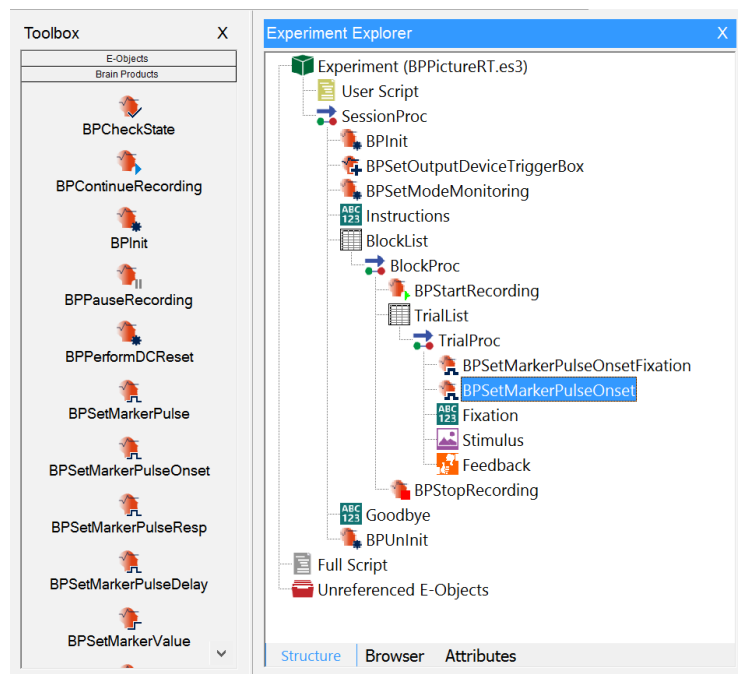
5) **Click** the **OK** button to dismiss the dialog.

Task 11 (continued): Add Brain Products PackageCalls to assign a marker to each object or event of interest with the TrialProc

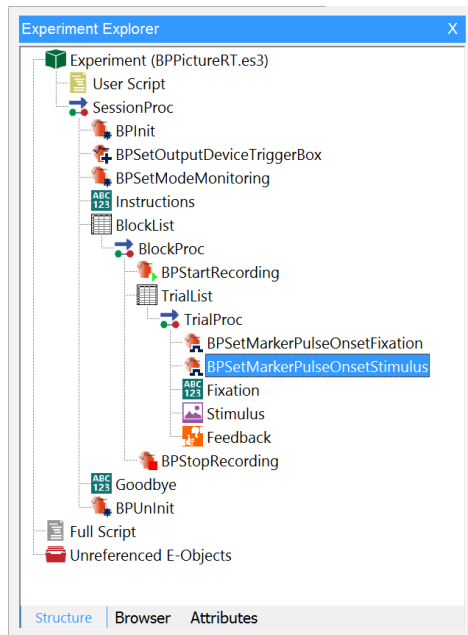
Add a PackageCall in the TrialProc to set a marker on the Stimulus object that is sent at the onset time of the Stimulus. Name the object “BPSetMarkerPulseOnsetStimulus”.

In this Tutorial, the Stimulus object is responsible for presenting the critical stimulus as well as enabling a Keyboard InputMask to collect a response from the participant. The **BPSetMarkerPulseOnset** object in the Brain Products Toolbox is used to associate a marker with the Stimulus object, and the marker is sent at the object's onset time (Stimulus.OnsetTime). However, because the stimulus image that is presented on each trial varies with trial type (i.e., Red car, Blue car) the marker that is sent must also vary on each trial. The previously created “Marker” attribute is used to specify the marker value.

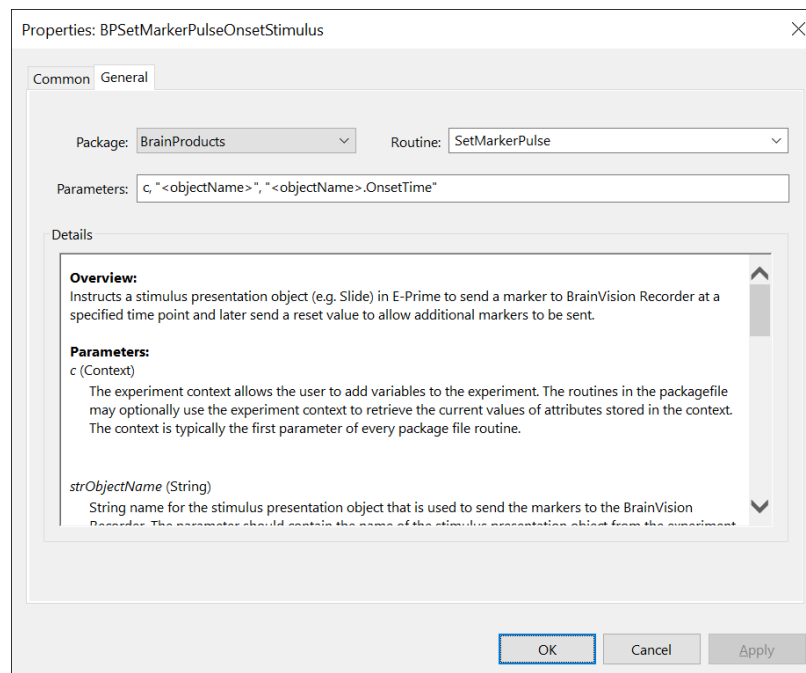
6) **Drag** the **BPSetMarkerPulseOnset** object from the **Brain Products Toolbox** and **drop** it after the **BPSetMarkerPulseOnsetFixation** object in the **TrialProc**.



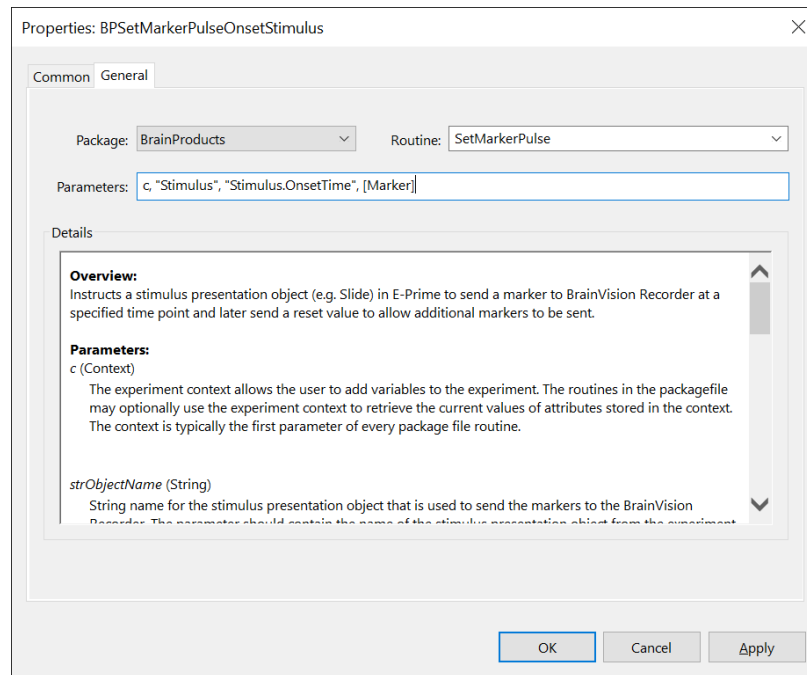
7) **Click** on the new object to select it then **press F2** and **rename** the object as “**BPSetMarkerPulseOnsetStimulus**”.



8) **Double-click** on the **BPSetMarkerPulseOnsetStimulus** object to open its **Properties** dialog.



9) **Edit** the **Parameters** field to be **c, "Stimulus", "Stimulus.OnsetTime", [Marker]**



10) **Click** the **OK** button to dismiss the dialog.

Task 11 (continued): Add Brain Products PackageCalls to assign a marker to each object or event of interest with the TrialProc

Add a PackageCall in the TrialProc to set a marker on the Stimulus object that will be sent at after a response is collected by Stimulus object.

While it is most common to send markers at the OnsetTime of stimulus presentation objects, it may also be appropriate in some experiments to send a marker at a time point corresponding to a response event (e.g., when the participant responds to the stimulus by pressing a key). Every time a response is accepted by E-Prime the “.Press” event is fired by the InputMask that collects the response. The BrainProducts_SetMarkerPulse routine can be used to associate a marker with this response related event.

The **BPSetMarkerPulseResp** object in the Brain Products Toolbox is partially preconfigured to perform this function. The parameters list of this object is edited to send a marker value of “8” every time a Press event is detected from the Keyboard InputMask that is defined within the Stimulus object. If your experiment does not require Keyboard input, the Keyboard InputMask listed in the BPSetMarkerPulseResp parameter can be reconfigured to suit your experiments needs (e.g. Mouse, Button, etc.).

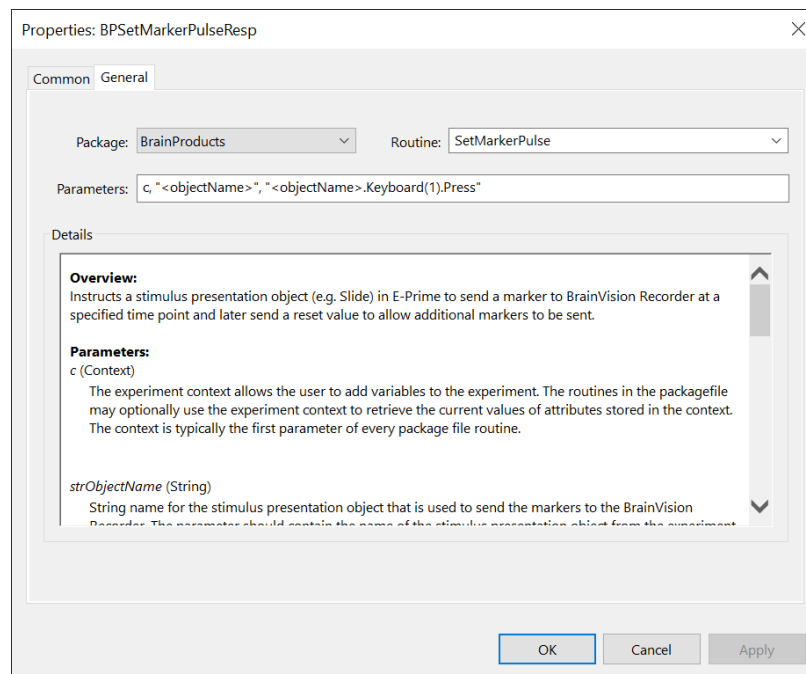
This Tutorial focuses on marking the “.Press” response event, however, there are a number of more advanced responses that can also be used (e.g., send a marker only upon the Release of a response key, send a marker which corresponds to whether the response is scored as “Correct” or “Incorrect”, send a marker only when a specified TerminationResponse key is pressed, etc.). For a complete list of response related events to which markers can be associated and sent, you can open the Properties of any stimulus presentation object in your experiment that contains an InputMask. Then, select the Task Events tab and click the “Add...” button. The resulting dialog provides a list of all events that are related to the object and its associated devices or InputMasks.

If you choose to send markers associated with response related events, be aware that there is a possibility that the guidelines outlined earlier, with respect to assuring Recorder receives consistent marker values, could be violated (e.g., since participant responses are considered asynchronous events with respect to stimulus presentation). If a participant happens to respond precisely at the moment another stimulus object is attempting to send a marker or multiple responses occur that are faster than the sampling rate of the amplifier and pulse delay values, then the delay time between markers may not be sufficient to assure consistent receipt of markers by Recorder.

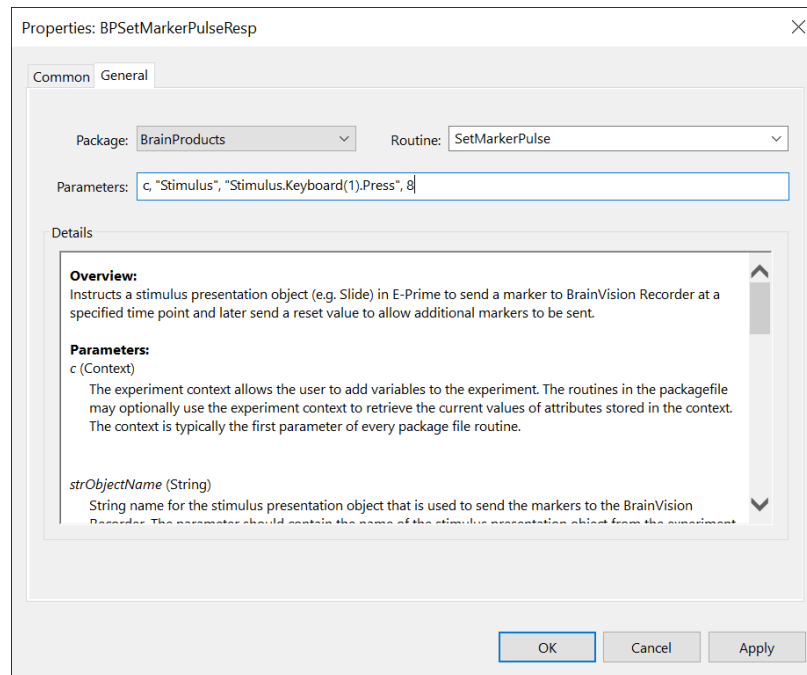
11) **Drag** the **BPSetMarkerPulseResp** object from the **Brain Products Toolbox** and **drop** it after the **BPSetMarkerPulseOnsetStimulus** object in the **TrialProc**.



12) **Double-click** on the **BPSetMarkerPulseResp** object to open its **Properties** dialog.



13) **Edit** the **Parameters** field to be **c, "Stimulus", "Stimulus.Keyboard(1).Press", 8**



14) **Click** the **OK** button to dismiss the dialog.

Task 12: Add a Brain Products PackageCall to Check for a Valid system State

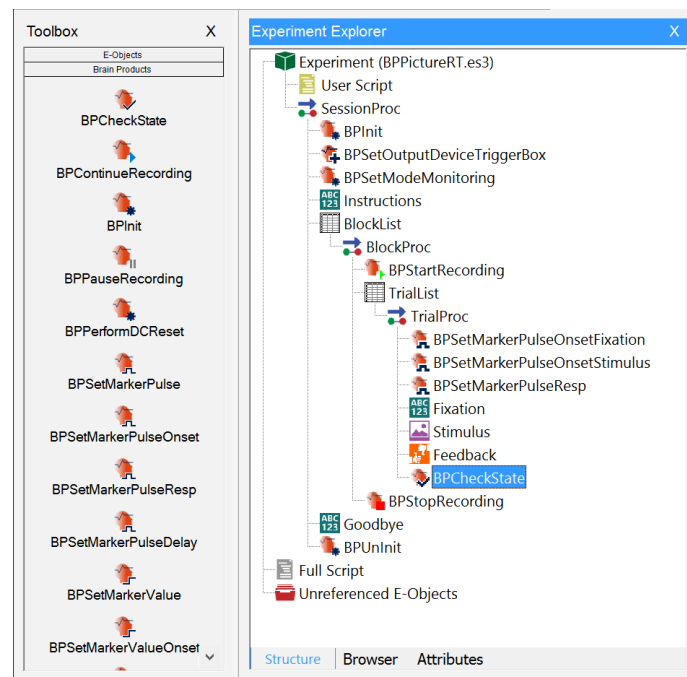
Add a PackageCall at the end of the TrialProc to verify that no errors occurred during the trial and that a valid connection to Brain Products system remains active and the system is recording.

If an error is detected by the Brain Products system a notification is sent to E-Prime. Most routines in the Brain Products PackageFile automatically check the state of the system during their execution and display errors or warnings if an error or invalid system state is reported. It is good practice to explicitly verify the state of the system at the end of each trial (e.g., allow the experimenter to take corrective action if necessary before the next trial is presented).

The BrainProducts_CheckState routine can be used at any time during an experiment to check and report to the experimenter about error or warning information. The **BPCheckState** object in the Brain Products Toolbox is used to perform this function.

By default, the BPCheckState object is configured to check the last system state that was reported by the system or prior package routine. To obtain the current system state at the time of the call, you can edit the object's parameters list to force the system state. This option is disabled by default as the query and response cycle time may be long and should not typically be done at a time critical point in the experiment.

1) **Drag** the **BPCheckState** object from the **Brain Products Toolbox** and **drop** it as the last object in the **TrialProc**.

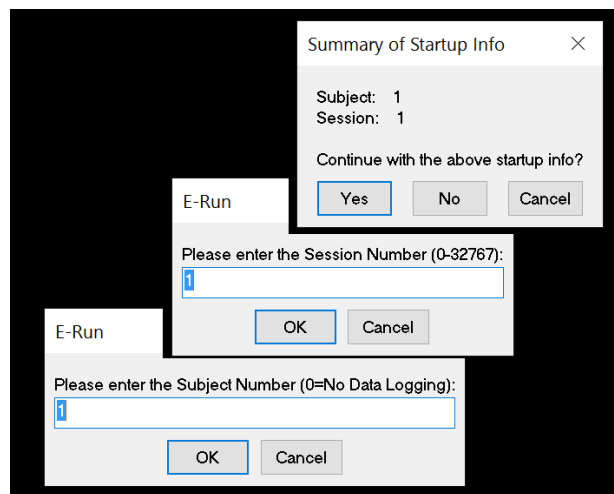


Task 13: Run the experiment

Run the experiment to verify that the appropriate markers are sent and no runtime errors are generated.

Your experiment should now be enabled for use with Brain Products hardware and software! Once you launch the experiment, you are presented with a series of initialization prompts. Press Enter or click OK to accept the default values during testing. Read and respond to any instructions presented then observe the stimulus presentation sequence to verify the experiment is functioning correctly and that no errors are generated. If you have the Brain Products hardware and software properly connected and active you should be able to see the marker values being received by Recorder while the experiment is running.

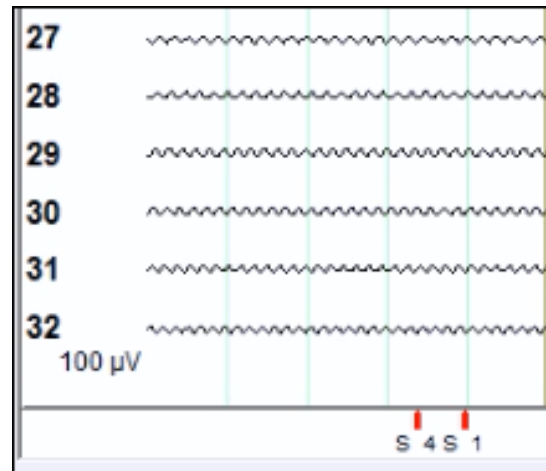
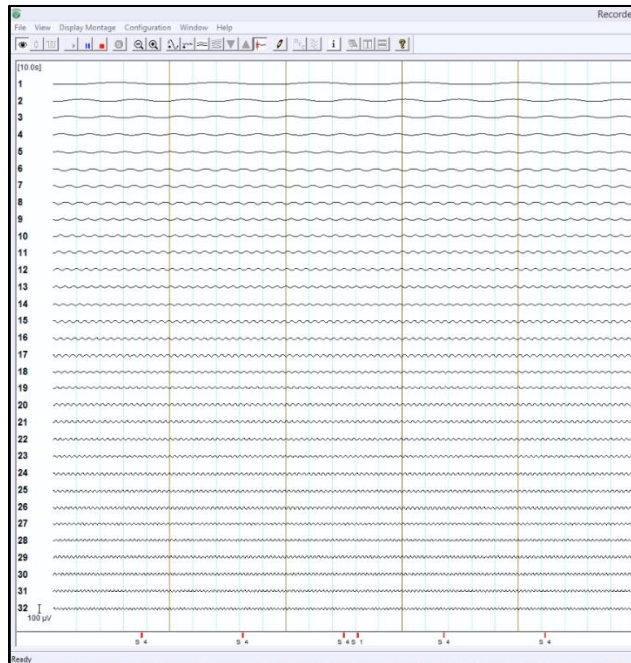
- 1) **Click** the **Run icon** on the toolbar to generate and run the experiment locally.
- 2) **Press Enter** to **accept** the **default values** for each of the initialization prompts presented.



3) **Observe** the **stimulus presentation sequence** to **verify** the **experiment** is **functioning** correctly and **completes** with **no errors** being generated.



4) **Observe BrainVision Recorder** to verify that **markers** are sent correctly and 'simulated' data is being collected.



5) **Save** the **experiment**.

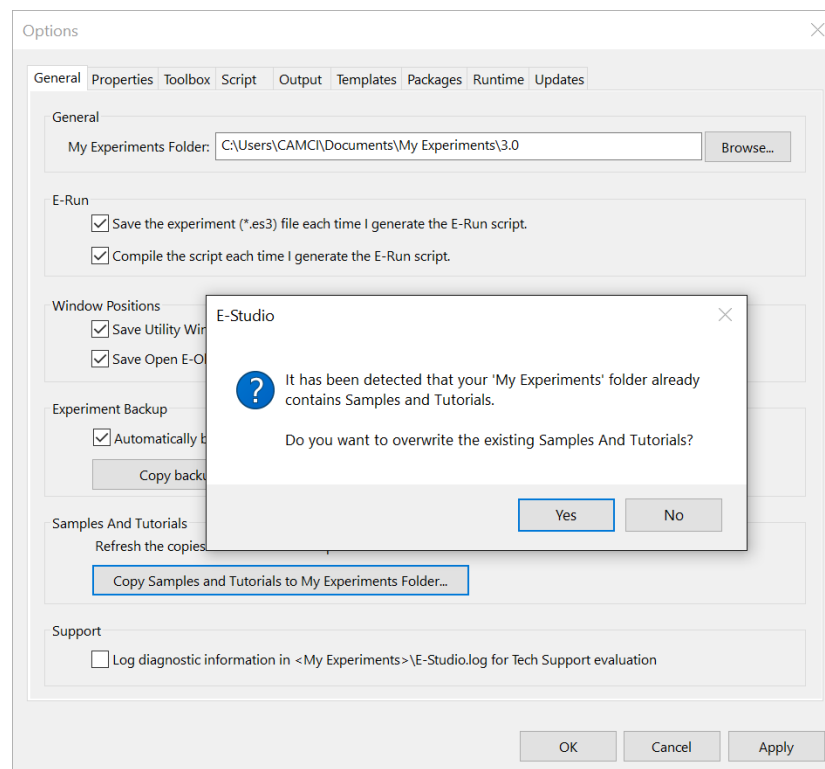
5. Troubleshooting

The following topics are common issues and solutions to help you when implementing and testing experiments with Brain Products. In the case that one of the topics below cannot fix your issue, Psychology Software Tools recommends saving and closing the experiment and closing both BrainVision Recorder and the Remote Control Server. If any issue persists please contact support (See [Chapter 1, Section 1.3: Product Service and Support](#)).

5.1. Cannot locate E-Prime Samples and Tutorials

When you launch E-Studio for the first time after installing E-Prime Extensions for Brain Products 3.0, you are prompted to update the Samples and Tutorials experiments. If you choose to not update at this time, you can force another update of the Sample and Tutorials at any time from within E-Studio. Forcing a refresh of the Samples and Tutorials can be helpful if you cannot locate the Samples and Tutorials. This feature is also helpful if you make changes to a Sample or Tutorial but then wish to revert back to the original Sample or Tutorial.

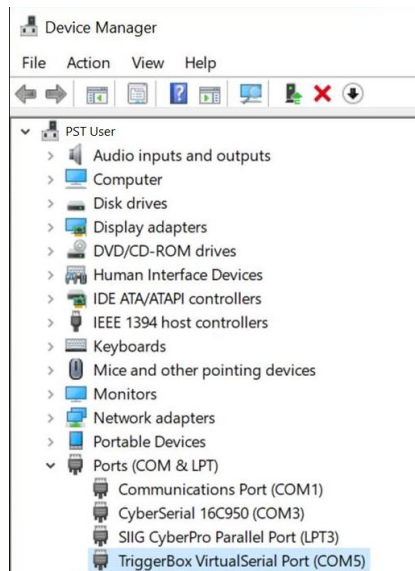
- 1) **Open E-Studio** and **select Tools > Options...** from the application menu bar.
- 2) **Click** on the “**Copy Samples and Tutorials to ...My Experiments Folder...**” button at the bottom of the Options dialog.
- 3) **Click** on **Yes** if prompted to overwrite the Samples and Tutorials.



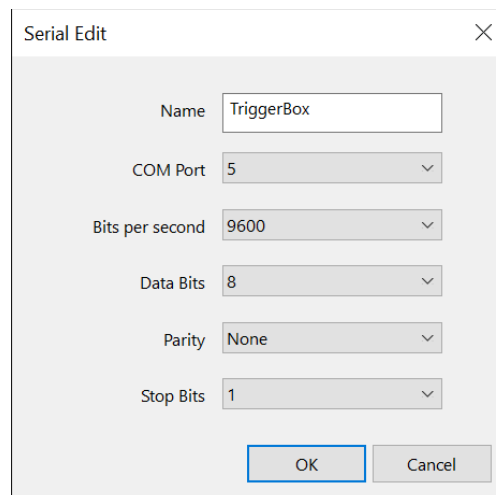
5.2. Finding COM Port Number for Configuring TriggerBox with SerialDevice

If E-Prime does not recognize the TriggerBox connected to the E-Prime computer, which therefore prohibits markers from being sent to BrainVision Recorder, then you may have an incorrect COM port setting. By default, the experiments provided with your installation have a COM Port value of “3”. In the case your COM Port is not correct, find the value by using the Device Manager.

- 1) **Open Device Manager.** **Expand** all of the **nodes** if needed.
- 2) **View** the **Ports.** **Locate** the TriggerBox and take note of the **COM Port value.**

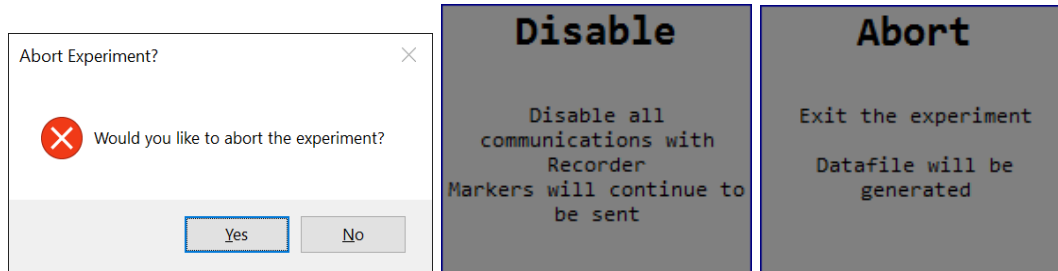


- 3) **Switch** the **COM Port value** in the experiment **to match** the value listed in the Device Manager.



5.3. Aborting an Experiment

If you run a test session and encounter a situation where you need to abort the experiment or disable Brain Products, be aware that BrainVision Recorder may still be running/recording after the test session. The Recorder may still be collecting EEG data because some PackageCalls might not be executed that tell the Recorder to stop recording (e.g. BPUntit, etc.). In this situation, BrainVision Recorder and Remote Control Server need to be shut down manually after the aborted test session. If you do not restart, any subsequent test sessions show an error dialog.

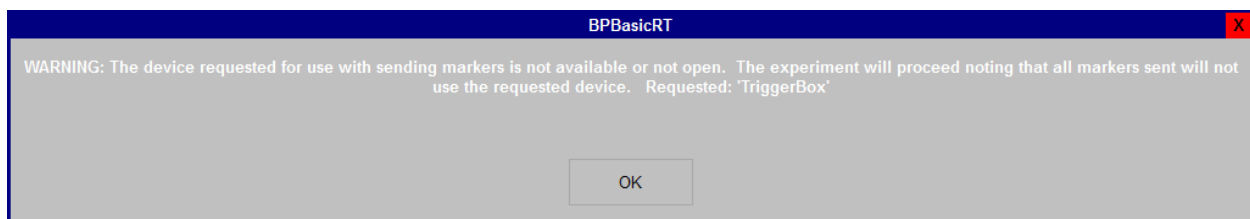


5.4. Running without a TriggerBox

Before running your Brain Products-enabled experiment with participants, it is recommended to test them thoroughly beforehand. Running without a TriggerBox attached is an effective way to test your experiment without all necessary equipment. By default, an error occurs if you run without a TriggerBox attached. To correct the error, you need to uncheck the TriggerBox from the list of devices in the experiment.

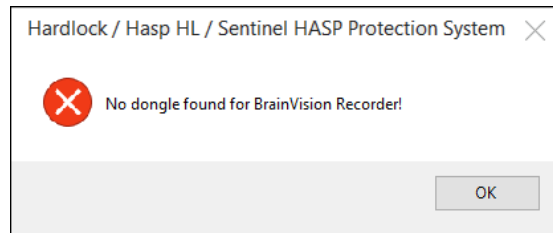
- 1) **Open** the **Experiment Object** and **Navigate** to the **Devices** tab.
- 2) **Uncheck** the Serial Device named **TriggerBox**.

Once the TriggerBox is unchecked from Devices, you can run an experiment. However, when you run a warning message occurs. The message states that because the TriggerBox is not enabled, markers are not sent to the BrainVision Recorder. You can dismiss the warning and continue the experiment by selecting "OK."

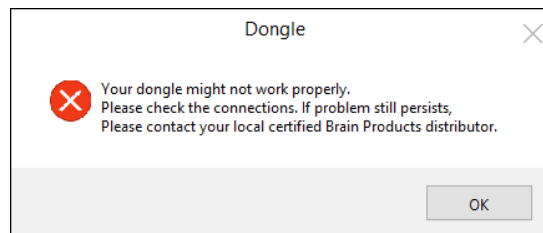


5.5. Brain Products Licensing Issues

Be sure to have your hardware key for Brain Products attached when you open BrainVision Recorder. If it is not attached, the following occurs:



Additionally, if a hardware key was previously attached to BrainVision Recorder and was detached during a test session, you may receive an error from E-Prime. Be sure to check BrainVision Recorder for further information on the license error.



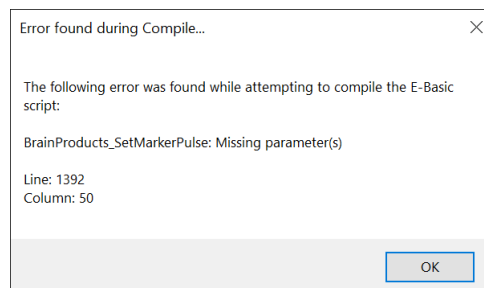
NOTE: In some cases, the experiment may 'lock up' or freeze without a Brain Products license attached. In this case, you need to abort out of the experiment. Please refer to:

[Article 17943: Conditional Exit](#)

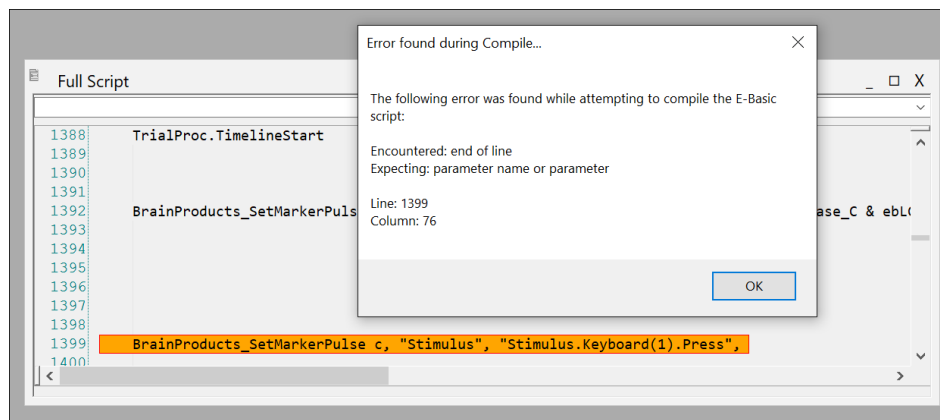
5.6. Missing Parameter Errors

Some PackageCalls require additional information specified in the parameters. For example, BPInit requires you to specify the IP Address and BPSetMarkerPulse requires 2 additional parameters: the Object and the Task Event.

When designing an experiment, be sure to check the Properties of the PackageCall for any additional parameters. When a PackageCall has "<>" for the parameters, then more information is needed. The angle brackets ("<>") are placeholders for more information to your machine or experiment configuration.



Some PackageCalls require additional information for a parameter, but the parameter is not overtly specified in angle brackets. Whenever you generate the experiment and do not specify a parameter that was not in angle brackets a generic error occurs. In the example below, the error message does not indicate what routine generated the error, however, this information can be known by looking in the Full Script window. The routine missing the parameter is highlighted. Additionally, you can scroll up in the Full Script window to determine which Procedure the error occurred on.



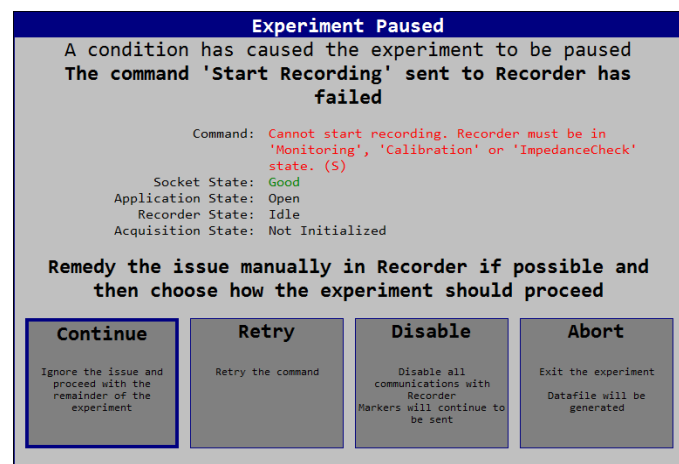
NOTE: When designing your experiment, we recommend reading through the Details of the PackageCall's properties. **Details** provides descriptions and remarks of all required and optional parameters.

5.7. Cannot Start Recording Error

The error message shown below is one of the most common and can occur for multiple reasons:

- The proper Workspace (.rwksp) file was not specified in **BPIInit**
- The order of the PackageCalls is not correct
- A previous test run was aborted and another was started directly after (i.e., not relaunching the applications)
- An issue with the amplifier occurred that needs fixed

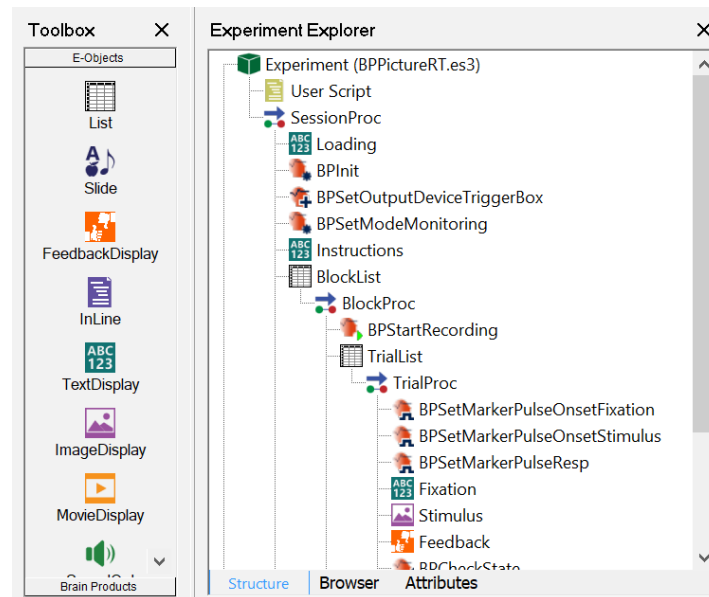
NOTE: If you receive this error, attempt to fix the issue in BrainVision Recorder. Occasionally, the issue can be remedied in the Recorder application so the test session does not need to be aborted.



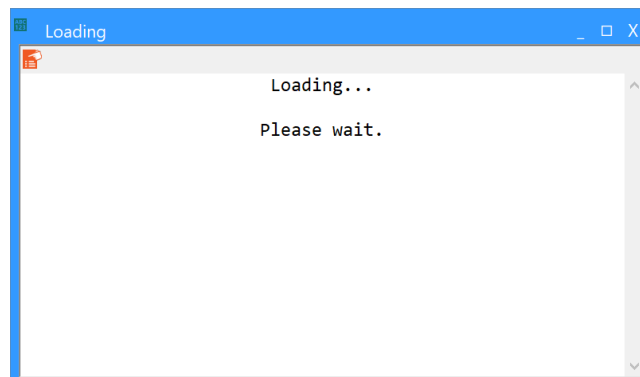
5.8. Experiment Takes a Long Time to Initialize

In some experiments, the initialization period (i.e., BPInit) may take many seconds because BrainVision Recorder requires processing time to initialize the amplifier. No error is occurring during this time, but to avoid confusion with users and participants, who might interpret the delay as an error, we recommend adding a “0” second duration ‘loading’ screen beforehand. This TextDisplay requires no input from participants and is cleared at the onset of the next stimulus display object in the experiment.

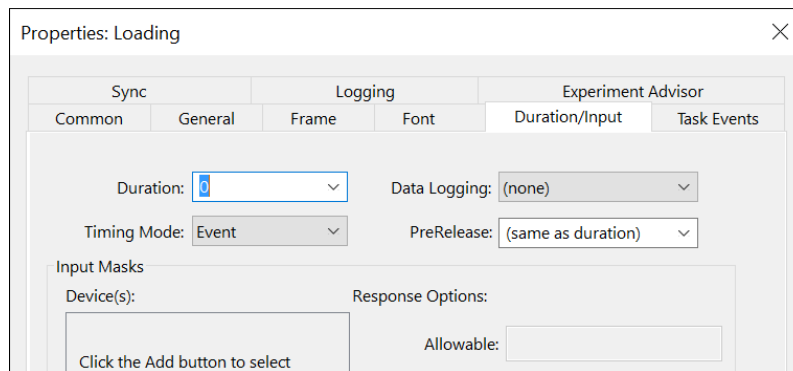
- 1) **Drag** a **TextDisplay** object from the main **Toolbox** and **drop** it as the first object in the **SessionProc** procedure (i.e., drop it **before** BPInit).
- 2) **Click** on the new object to select it then **press F2** and **rename** the object as “**Loading**”.



- 3) **Double-Click** the **TextDisplay** to open it. In the text entry area, **Type** the following: “**Loading... Please Wait**”.



4) **Click** on **Properties** to open the TextDisplay's properties. **Click** on the **Duration/Input** tab and **specify** the Duration to be “0”.

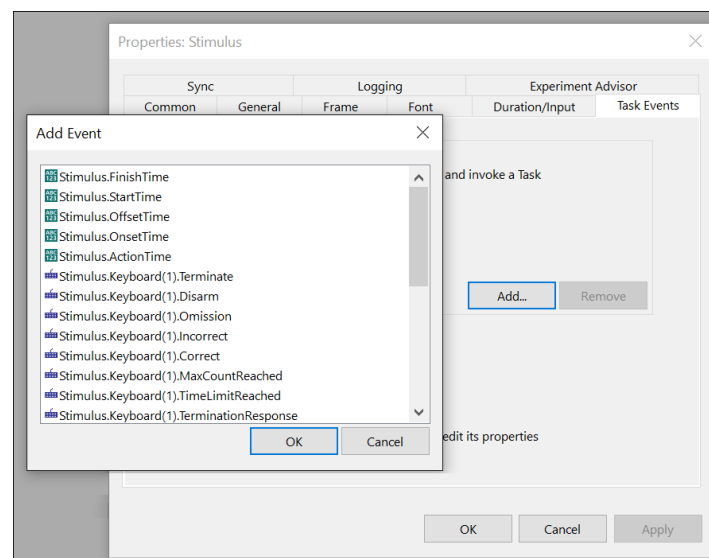


5.9. Specifying an Object Name and Task Event

BPSetMarkerValue and BPSetMarkerPulse require two parameters: “<objectName>” and “<objectName>.<events>”. Without specifying these parameters, an error occurs when generating the experiment (See [Chapter 5, Section 5.6: Missing Parameter Errors](#)).

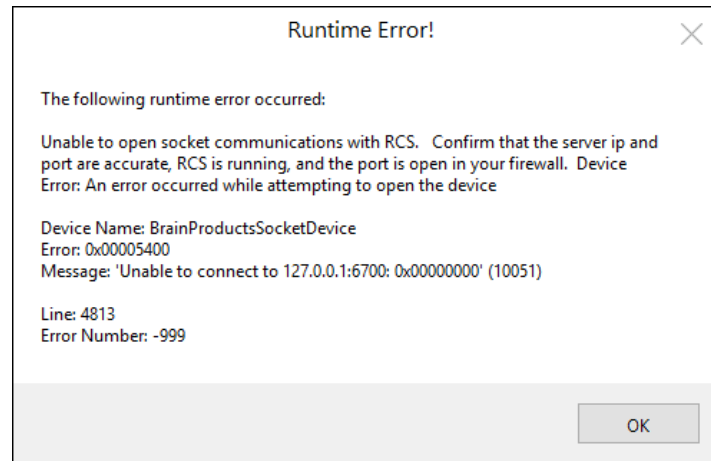
The first parameter requires the name of the E-Object being referenced in the experiment. For example, if the PackageCall is supposed to send a marker from a Slide named “StimSlide”, then “<objectName>” should be set to “StimSlide”.

The second parameter requires the name of the Task Event. The Task Event is the event that specifies when the PackageCall routine should occur. For example, to send a marker at the StimSlide’s StartTime, then specify the “<objectName>.<events>” parameter value as “StimSlide.StartTime.” A full listing of available events for an E-Object can be found in the object’s Properties/Task Events page.



5.10. Unable to Connect Error

The following runtime error is one of the more common errors that could occur during with a Brain Products enabled experiment:



Whenever this error is encountered, verify the following:

- The Remote Control Server is **running** and connected
- The **IP Address** and **Port value** are correct
- The **Windows Firewall** settings allows the Port to be open

Please refer to the following for more information on Windows Firewall settings:

[Article 26269: Windows Firewall Permissions with E-Prime](#)

6. Contact Information



For additional information or support contact us at:

Psychology Software Tools, Inc.
311 23rd Street Extension, Suite 200
Sharpsburg, PA 15215-2821
Phone: 412-449-0078
Fax: 412-449-0079
www.pstnet.com

For Product Service and Support:
<https://support.pstnet.com>