



Neuralynx

High Density Electrophysiology Recording Systems

Trial Control Utility Version 1.00

Networking Properties

Computer Name or IP Address:

Trial Properties

☐ Send Event String Event String:

☐ Set TTL Bit Bit Number: Bit State:

☐ Send Command Command Options:

Command:

Delay Post Trial Action (ms): ☐ Use Random Delay Delay Range: Min Max

Experiment Items List

#	Send EV	Event String	Set Bit	Bit #	Bit State	Send Cmd	Command	Delay
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Trial Count: ☐ Run Continuously

Trial Control Users Manual

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INTRODUCTION

Trial Control Description

Trial Control is a utility for controlling certain aspects of an experiment through the use of events, TTL values and cheetah commands.

Trial Control Features

- Send events to the Cheetah data acquisition system.
- Control TTL pulses from the Cheetah data acquisition system.
- Control the Cheetah data acquisition system through the use of ascii commands. Any command that can be used in a cheetah configuration file may be used within Trial Control.
- Create a list of any combination of events, commands and TTL pulses with adjustable delay between each item than can be executed for a given number of trials or that can be run continuously.
- Open or save configurations files.

General Overview

Trial Control is an experiment control program. It uses NetCom (Neuralynx TCP/IP library) as its experiment control interface. Trial Control will connect to the Cheetah data acquisition system either directly or through the use of the Router application. Once Trial Control is connected to Cheetah, it will be able to send events, trigger TTL pulses and send commands to Cheetah to execute. Trial Control allows the user to set up a list of items that can be executed in order with a given time delay between each item. The user may add any number of items to the list in any combination. The user may save his list of items out to a configuration at any time.

Chapter 1 – Networking



Trial control is a client program that makes a connection directly or indirectly to the Cheetah data acquisition system. If Trial Control cannot make a connection to a server, the majority of its functionality will not be able to be used. Trial control uses NetCom which is a TCP/IP library developed by Neuralynx which will allow Trial Control to connect to a server anywhere on a network as long as a valid network connection exists.

Properties

- Computer Name or IP Address – This is the value that NetCom will use when trying to establish a connection with a server.

Connecting to a server

To connect to a server, click the *Connect* button in the Networking Properties area. It may take a moment for the connection to be established. Upon a successful connection, the connect button will then read disconnect.

Disconnecting from a server

To disconnect from a server, Trial Control must first have a connection established. If a connection is established, then the button in the Networking Properties area will read disconnect. Click on the *Disconnect* button and the connection will be terminated. The connection will always be terminated when the program is closed.

Chapter 2 – Item Properties

The screenshot shows a 'Trial Properties' dialog box. It has three main sections for configuring actions:

- Send Event String:** A checkbox is unchecked. Next to it is an 'Event String' text field.
- Set TTL Bit:** A checkbox is unchecked. Next to it are a 'Bit Number' text field (containing '0') and a 'Bit State' dropdown menu (set to 'Off').
- Send Command:** A checkbox is unchecked. Next to it are a 'Command Options' dropdown menu (set to 'No Selection') and a 'Command' text field.

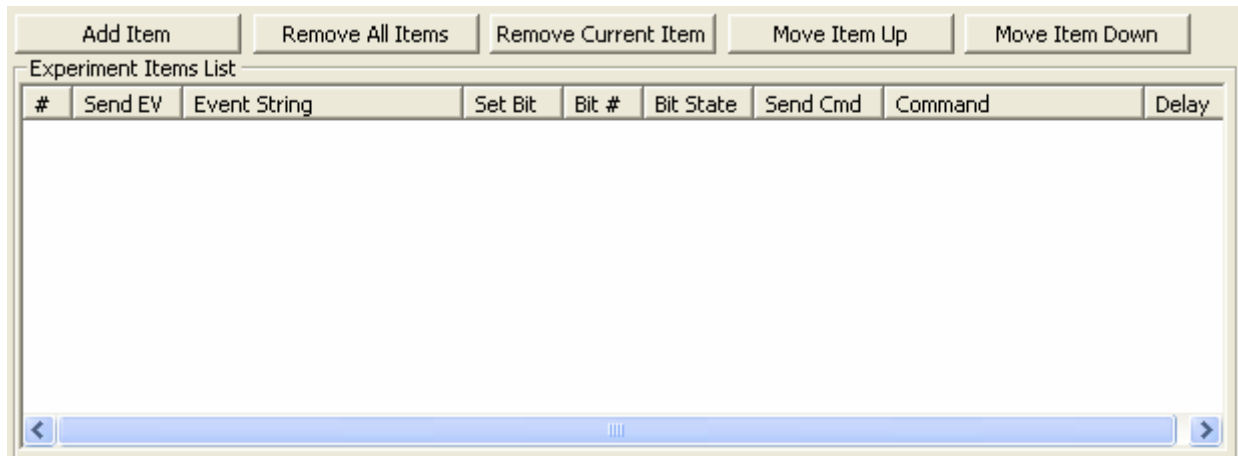
At the bottom of the dialog, there is a 'Delay Post Trial Action (ms)' text field (containing '0'), a 'Use Random Delay' checkbox, and 'Delay Range: Min' (0) and 'Max' (0) text fields.

There are several properties that make up an item. There are 3 actions that any item may perform. The item may do any number of these actions if applicable. Each action also has an associated set of parameters to accompany it. Each item then has the option to set a delay to be executed after the items actions have been preformed. The following is a listing of each action and its associated parameters.

- Send Event String – This will send an event string to cheetah and will create an event.
 - Event String – this is the string that will be sent to cheetah and that will be stored in the event that is created.
- Set TTL Bit – This will send a command to cheetah to adjust the setting for the appropriate bit on the digital IO port.
 - Bit Number – this is the bit number that will have its value adjusted.
 - Bit State - This is the bits state that will be set. This may be set to on or off.
- Send Command – This will send a command to cheetah and cheetah will process it accordingly. This may be any ascii command that is used in configuration files.
 - Command Options – This is a listing of commands that may be useful. When one is selected it will update the command parameter.
 - Command – This is the command that will be sent to cheetah to be executed.

When an action is selected, the parameters related to that action will become editable. Therefore, if a checkbox for an item is not checked, the user will not be able to modify any of its parameters. The last parameter that may be modified is the delay. A delay may be entered in milliseconds and when the action(s) is completed, the program will pause for the time value in the delay parameter. The user may also choose to incorporate a random delay that will fall into a selected range.

Chapter 3 – Item List Management



Adding Items to the list

To add an item to the list, select the *Add Item* button. This will append the item to the bottom of the list.

Removing all items from the list

Select the *Remove All Items* button and all items in the list will be deleted.

Removing a single item

To remove a single item from the list, select the item in the list box. The item will become highlighted. Then select the *Remove Current Item* button and the item will be deleted.

Move item up in the list

To move a single item up in the list, select the item in the list box. The item will become highlighted. Then select the *Move Item Up* button and the item will be moved up one position.

Move item down in the list

To move a single item down in the list, select the item in the list box. The item will become highlighted. Then select the *Move Item Down* button and the item will be moved down one position.

Chapter 4 – Item List Execution



The screenshot shows a control panel for item list execution. It features a 'Trial Count' label followed by a text input box containing the number '1'. To the right of the input box is a checkbox labeled 'Run Continuously', which is currently unchecked. Further to the right are three buttons: 'Start', 'Pause', and 'Stop', arranged horizontally.

There are 2 different ways to execute the items within your list. The first is to enter a number into the trial count edit box for the number of iterations through the list that you wish to see executed. The second is to click the *Run Continuously* check box. This will cause the item list to be executed until it is stopped by the user. To start the execution of the item list, click the *Start* button. The execution of the list may be paused or stopped at any time by clicking the appropriate button. Any time the start button is clicked execution will begin with the first item in the list.

Chapter 5 – Configuration Files

Open .cfg File

Save .cfg File

Opening a configuration file

To open a configuration file, click the *Open .cfg File* button. This will bring up a dialog box allowing the user to select the file to be opened.

Saving a configuration file

To save the current list setup to a configuration file, click *the Save .cfg File* button. This will bring up a dialog box allowing the user to select the location and name of the file to be saved.

Configuration file commands

The following is a list of commands for the configuration files

- -CreateTrialItem – This will create a new blank item in the list without any actions to be preformed.
- -SendEventString – This will set the last item in the list to send an event string as an action. This command takes one parameter string that should be surrounded by double quotes.
 - Example: -SendEventString "Turn On Light 1"
- -SendTTLBit – This will set the last item in the list to send a ttl request as an action. This command takes two parameters. The first is the bit number that is to be set. The second is the bit state. This can be represented by either the word “on” or “off”.
 - Example -SendTTLBit 0 On
- -SendCommand – This will set the last item in the list to send a command as an action. This command takes one parameter. The parameter is the command that will be sent to cheetah and must be surrounded by double quotes.
 - Example -SendCommand "-ProcessSourceLine -StopAcqAll"
- -SetDelay – This command will set the delay for the last item in the list. This command takes one parameter. The parameter is the delay which should be executed after the items actions have completed. This value is in milliseconds.
 - Example –SetDelay 20000