# XPS-D

## Universal High-Performance Motion Controller/Driver


ESP COMPATIBLE

Newport®

## User Interface Manual

# Table of Contents

# Universal High-Performance Motion Controller/Driver XPS-D Controller

## 1.0 Introduction

### 1.1 Scope of the Manual

The XPS is an extremely high-performance, easy to use, integrated motion controller/driver offering high-speed communication through 10/100/1000 Base-T Ethernet, outstanding trajectory accuracy and powerful programming functionality. It combines user-friendly web interfaces with advanced trajectory and synchronization features to precisely control from the most basic to the most complex motion sequences. Multiple digital and analog I/O's, triggers and supplemental encoder inputs provide users with additional data acquisition, synchronization and control features that can improve the most demanding motion applications.

To maximize the value of the XPS Controller/Driver system, it is important that users become thoroughly familiar with available documentation.

The present **XPS-D User Interface Manual** describes the Graphical User Interface (also called web interface) of the controller. It applies to several controller versions of the XPS-D family. Therefore, some details of the screenshots presented in this manual may slightly differ from reality (background picture or footer product name for instance).

### 1.2 Prerequisite

It is mandatory that the applicable **Start-Up Manual** (dedicated to your controller version) be thoroughly read and understood before going through the User Interface.

Particularly, Ethernet connection must be established between the computer and the controller, either directly or through a network.

### 1.3 Special case of HXP-ELEC-D controller

In case of XPS-D controller preconfigured to drive a Newport Hexapod (then referenced HXPxxx-ELEC-D), some menus may not be accessible, especially those dedicated to system/stage configuration (to prevent modifying the factory settings) On the other hand, several additional pages or features specific to hexpod group become available: see section 3.0.

### 1.4 System Environment

XPS-D web interface is compatible with Windows 7 and above.

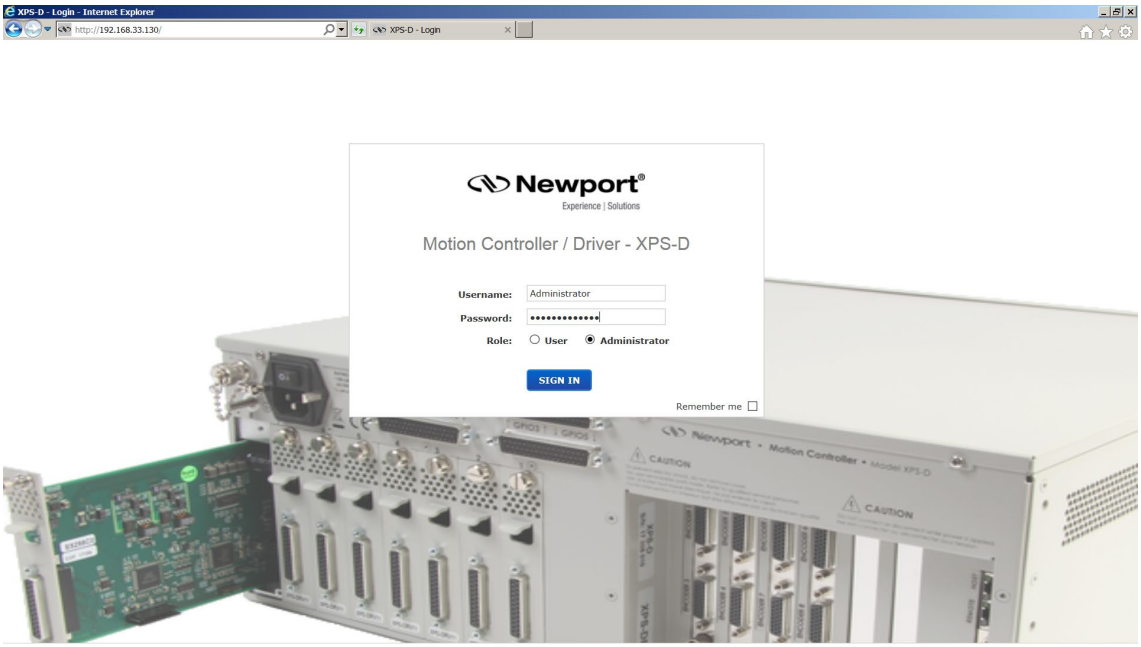
# 2.0 User Interface description

## 2.1 Interface Overview

The XPS software tools provide users a convenient access to the most common features and functions of the XPS controller. All software tools are implemented as a web interface. The advantage of a web interface is that it is independent from the user's operating system and doesn't require any specific software on the host PC.

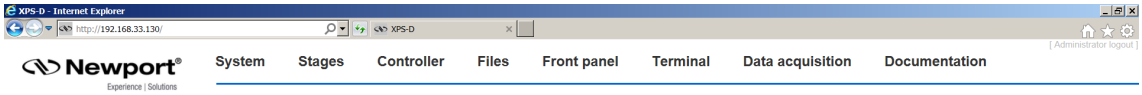
When connected to the controller, a log-in menu pops up. There are two options to log-in to the XPS controller: as “User” or as “Administrator”. Users can log-in only with User rights. Administrators can log-in with User or with Administrator rights by selecting the respective Role in the login page. When logged-in with Administrator rights, you have an extended set of tools available.

The predefined user has the log-in name **Anonymous**, Password **Anonymous**. The predefined Administrator has the log-in name **Administrator**, Password **Administrator**. Both the log-in name and the password are case sensitive. Select **"Remember me"** to save the login credentials.

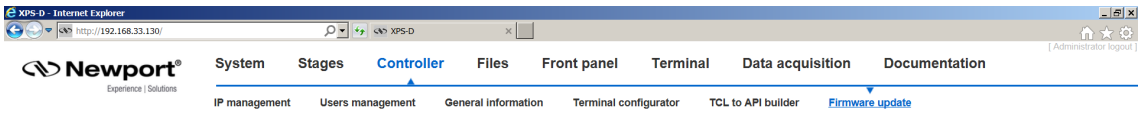



Once logged, the main tab is displayed across the top of the XPS Motion Controller/Driver main program window, and lists each primary interface option. Each interface option has its own pull-down menu that allows the user to select various options by clicking the mouse's left button.

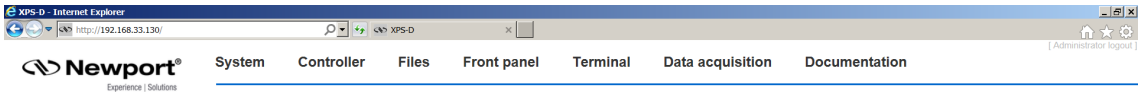
**Administrator Menus (with Administrator Rights)**




**Sub-Menu for CONTROLLER (with Administrator Rights)**



**Restricted set of User Menus**




On the following pages, a brief description of each available tool is provided.

## 2.2 Restart and Reboot

After making changes to the hardware or software parameters a Restart or a Reboot of the controller will be a necessary to apply the changes. Restart is a quicker process than a Reboot.

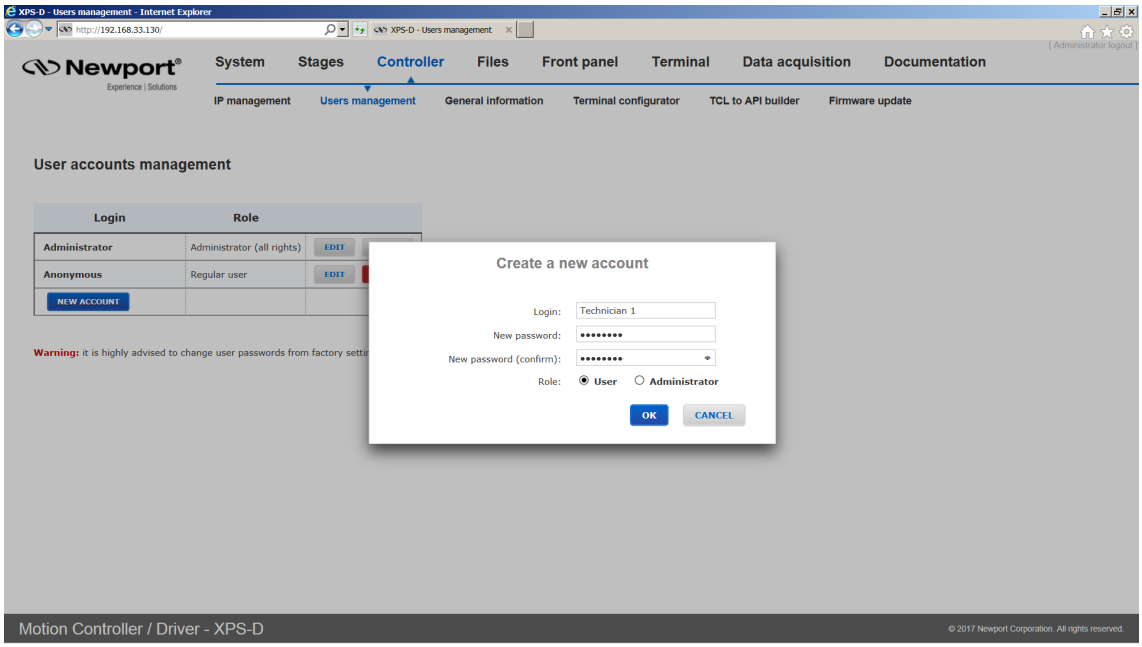
- Restart = reload all configuration files.
- Reboot = reload files + re-initialize hardware.

## 2.3 Controller – Users Management

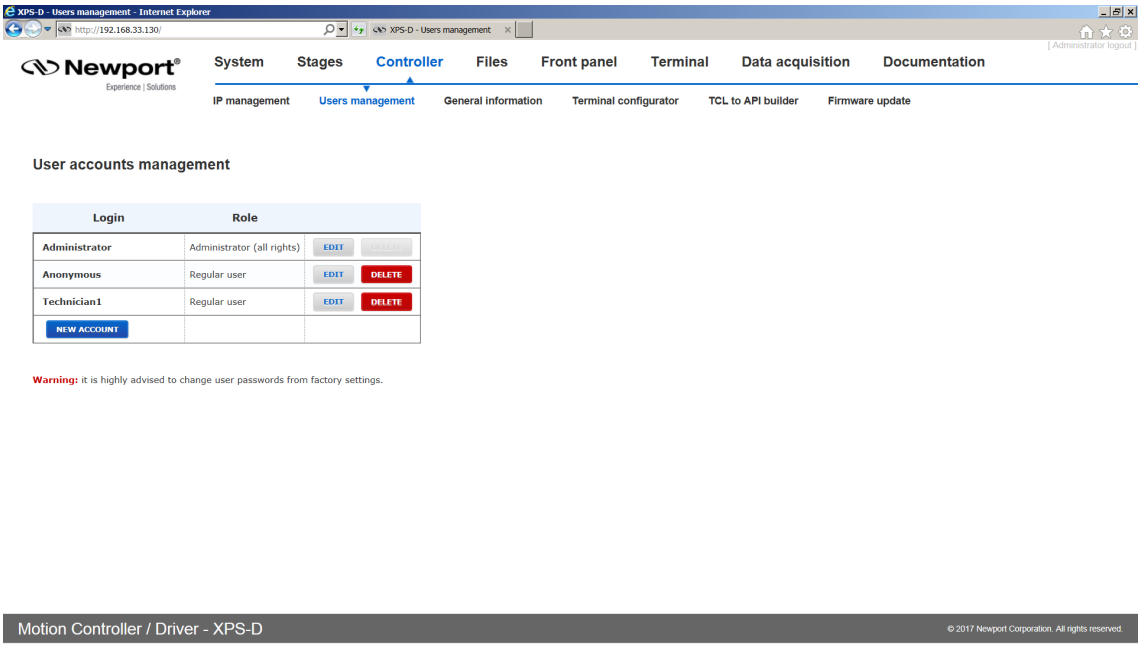
This tool allows managing User accounts. There are two types of users: Administrators and Users. Administrators have configurations rights. Users have restricted rights to use the system.

The following steps are needed to create a new user:

1. Click on "New Account" and the following window appears:

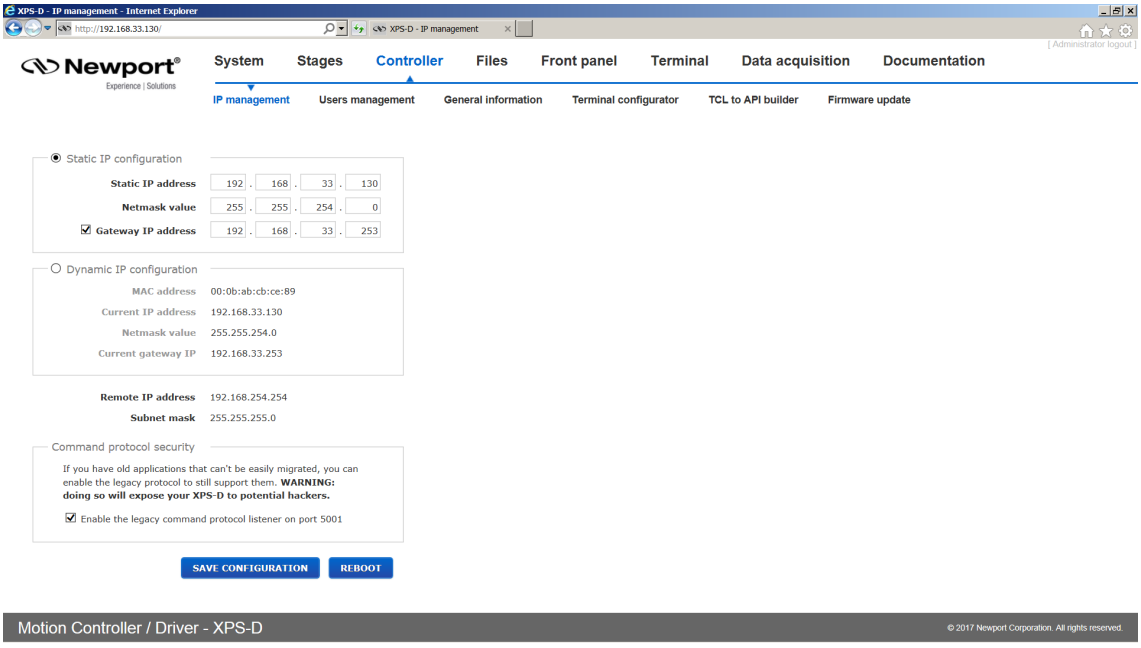



2. Type in a Login name, password, and role (User or Administrator).
3. Click “OK” to add the new access account.



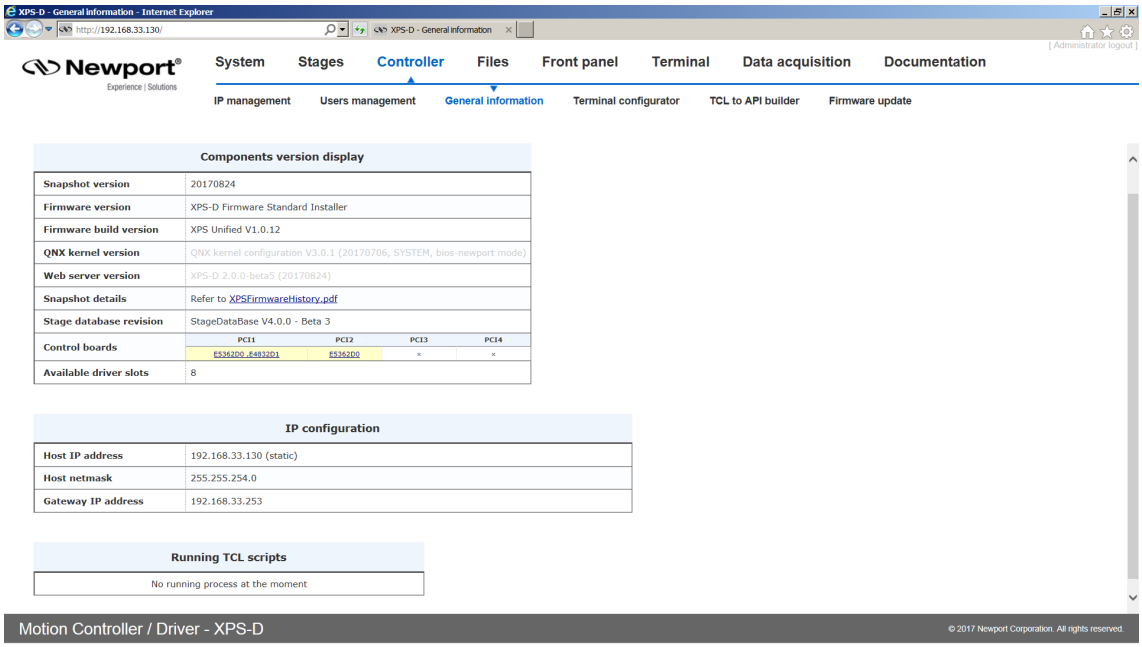

## 2.4 Controller – IP Management

To access this Web Tool, users must be logged in with Administrator rights. This screen allows HOST Ethernet plug IP address management and setting (see **Start-Up Manual** for further details).



## 2.5 Controller – General Information

This screen provides valuable information about the firmware and the hardware of the controller. It is an important screen for troubleshooting the controller. This screen also displays information about the IP configuration as well as TCL scripts which are currently running.

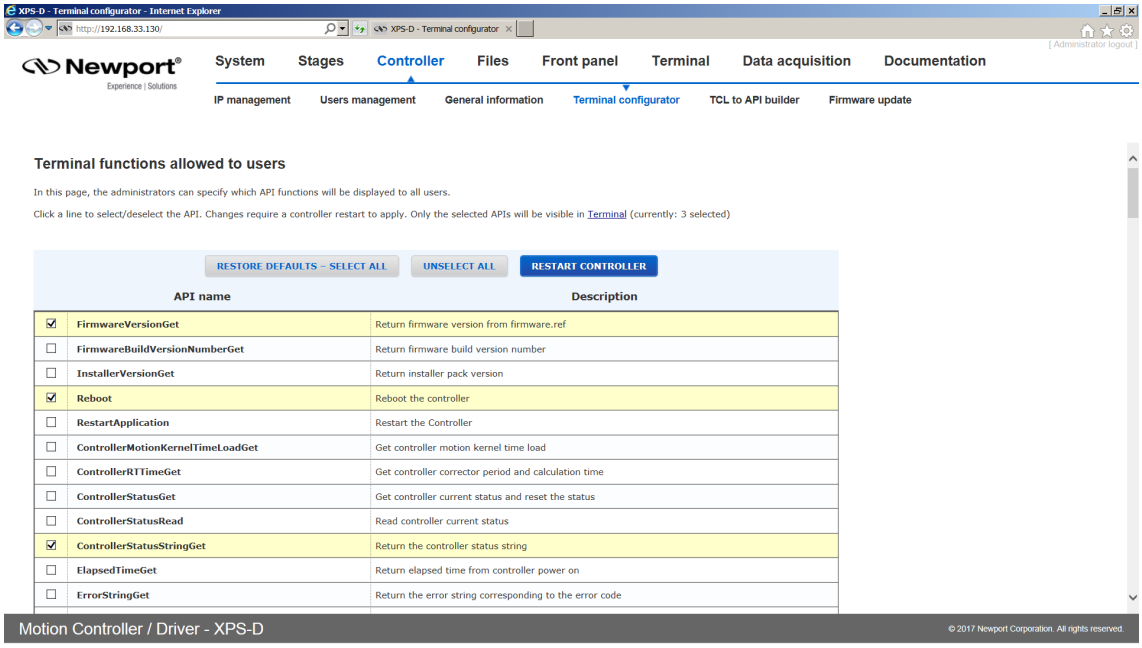


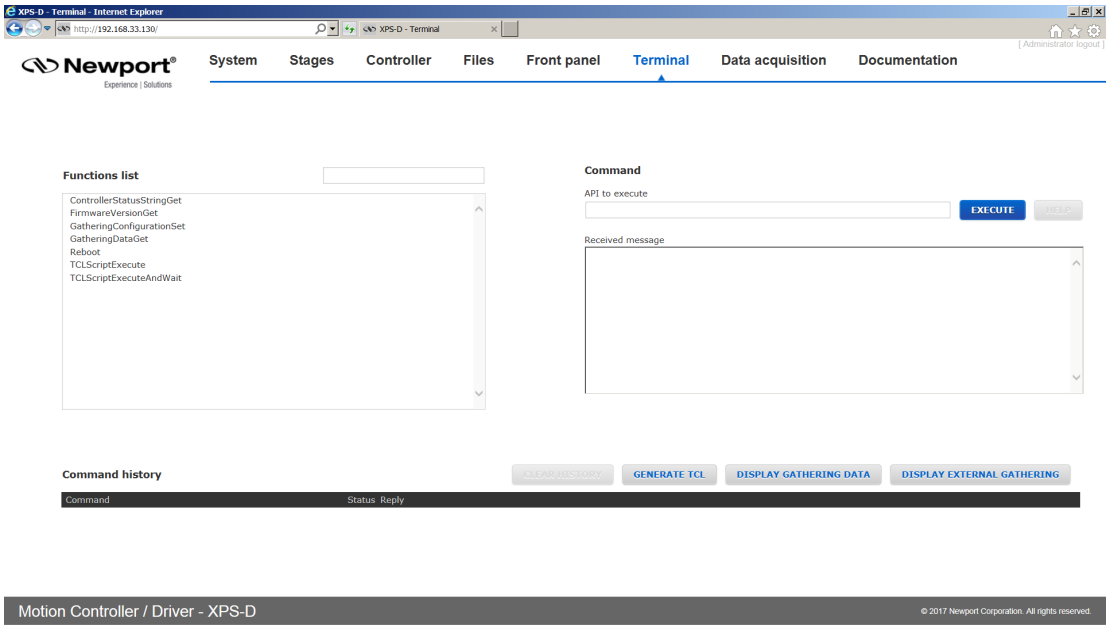

## 2.6 Controller – Terminal Configurator

Under **Controller → Terminal configurator**, an Administrator user can specify which API functions will be displayed to all users in the **Terminal** webpage. Not all API functions may be useful to a given application especially after the application has been developed. For this purpose simplifying the Terminal display may be helpful.

1. Click a line to select/deselect the API function.
2. Once all desired API functions are selected, click RESTART CONTROLLER.

In the following example a total of 7 API functions were selected.






## 2.7 Controller – TCL to API Builder

Under **Controller →TCL to API builder**, users can write custom API functions from a TCL script then add the custom API to the terminal and launch the custom API.

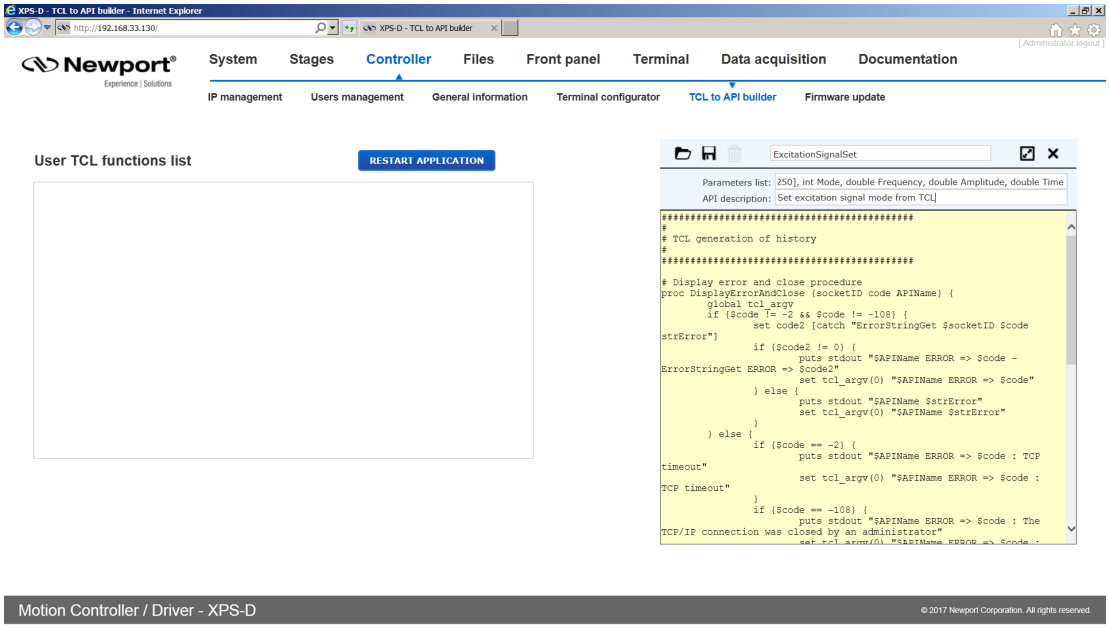
**Example**

For this example, there must be a TCL file “ExcitationSignalSet.tcl” uploaded to the XPS controller.

Go to the XPS **Controller → TCL To API builder** webpage:

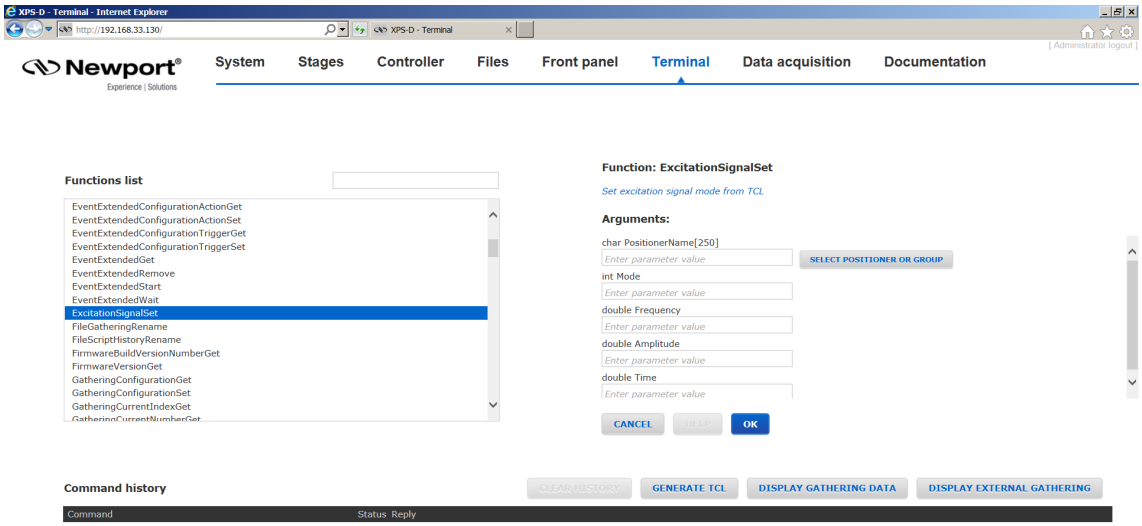
1. Load the existing TCL script named ExcitationSignalSet.tcl by clicking on the folder icon in the text editor.

2. In the Parameters list enter the arguments “char PositionerName[250], int Mode, double Frequency, double Amplitude, double Time”.
3. Enter a description in the API description: “Set excitation signal mode from TCL”.



4. Save the custom API by clicking in the floppy disk icon in the text editor.

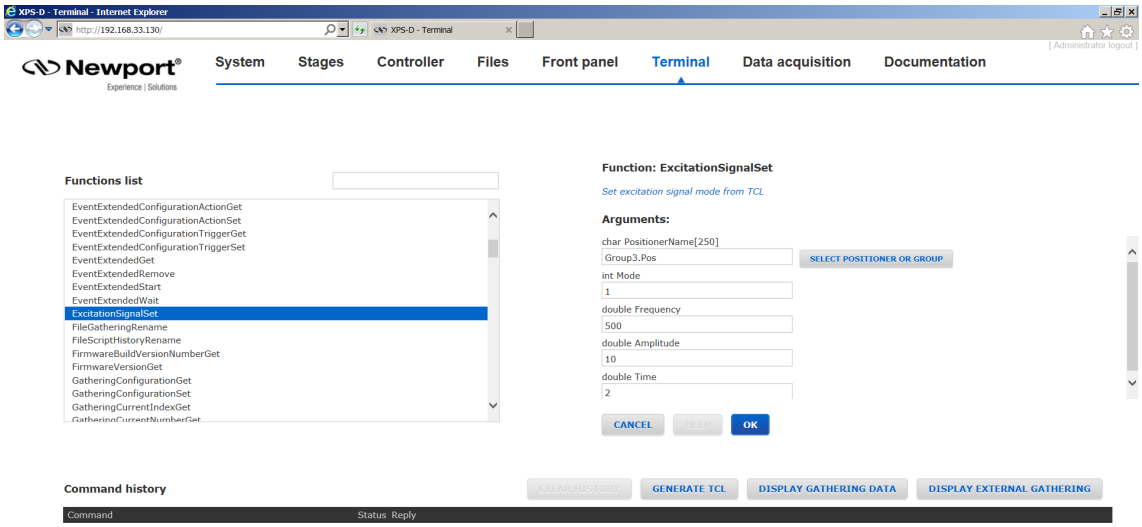
5. In the TCL function list, “int ExcitationSignalSet(char PositionerName[250], int Mode, double Frequency, double Amplitude, double Time) // Set excitation signal mode from TCL” is added.
6. Click “RESTART APPLICATION” to take in account the changes.
7. Connect to the website, go to the “Terminal” page and search for the new API, “ExcitationSignalSet,” in the **Function list**.







8. Select new API and enter the parameters as usual.



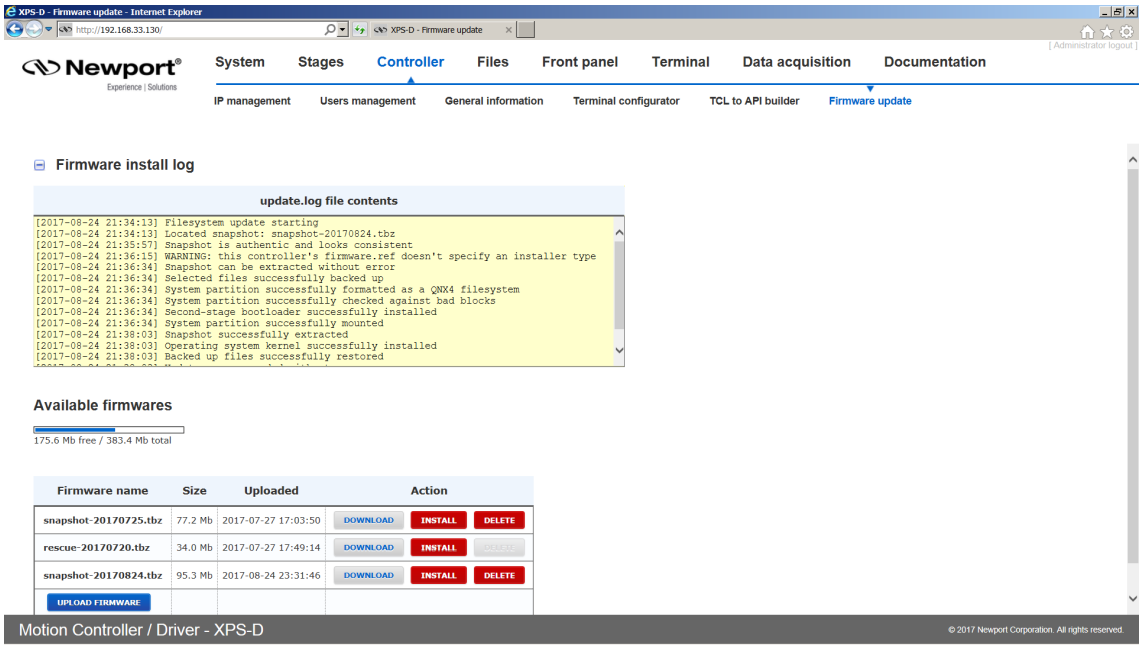
## 2.8 Controller – Firmware Update

Users can regularly update the controller with new firmware releases. Updating the firmware does overwrite the stages.ini or system.ini files if changes are required. The configuration will also be reset when upgrading the firmware hence the Configuration should be backed up prior to the firmware upgrade. Refer to the FirmwareHistory document which explains changes to the stages.ini and system.ini files, if any.

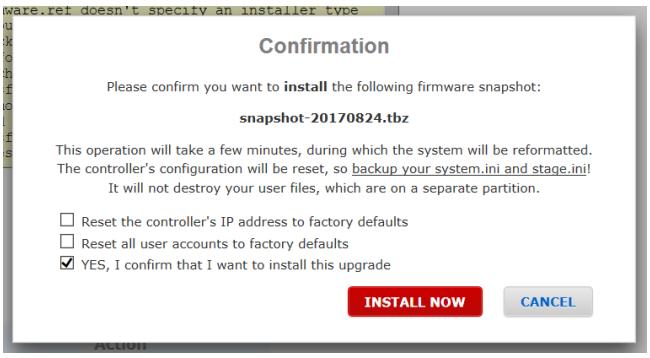
Refer to the XPS webpage at www.newport.com for more information including the FirmwareHistory document, the StageDataBase.txt file and the new firmware installer pack.

### Updating the XPS Firmware

1. Download the firmware installer pack from the XPS webpage at www.newport.com.
2. Connect to the XPS controller. For more information see Start-Up Manual.
3. Login on to the XPS with Administrator rights.
4. Go to Controller → Firmware update.



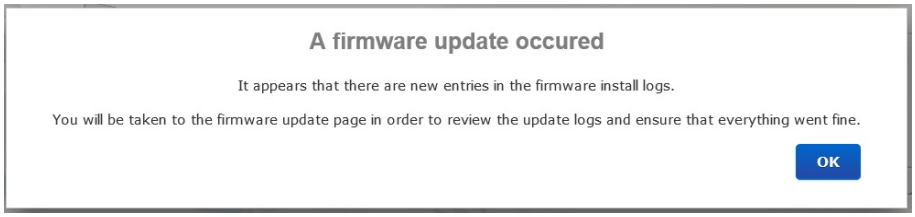

5. Click on UPLOAD FIRMWARE and select the installer pack file saved on the PC.
6. Click INSTALL and the following Confirmation window appears:




7. Select “Yes, I confirm that I want to install this upgrade.” Resetting the controller IP address or user accounts is optional.
8. Click INSTALL NOW.

**NOTE**

**This will reboot the controller and reset the controller configuration.**



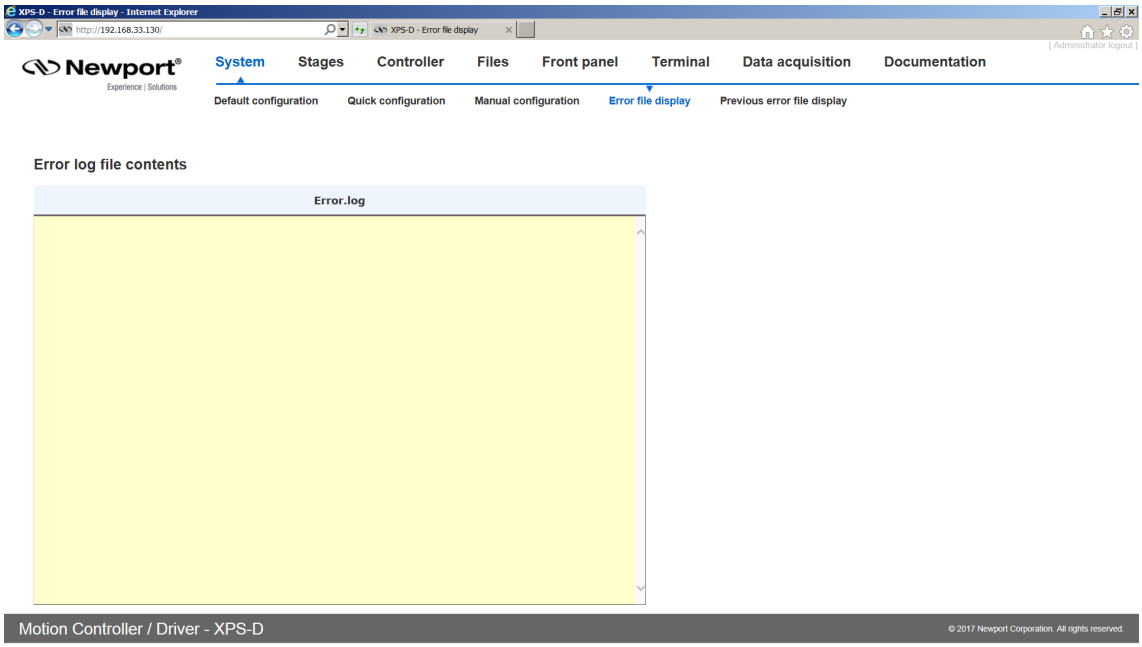

**NOTE**

**Controller configuration files including stages.ini and system.ini files can be downloaded under Files→ Configuration files prior to updating the controller firmware. See chapter 2.31: "Files – Configuration Files" for more information.**

## 2.9 System – Error file Display

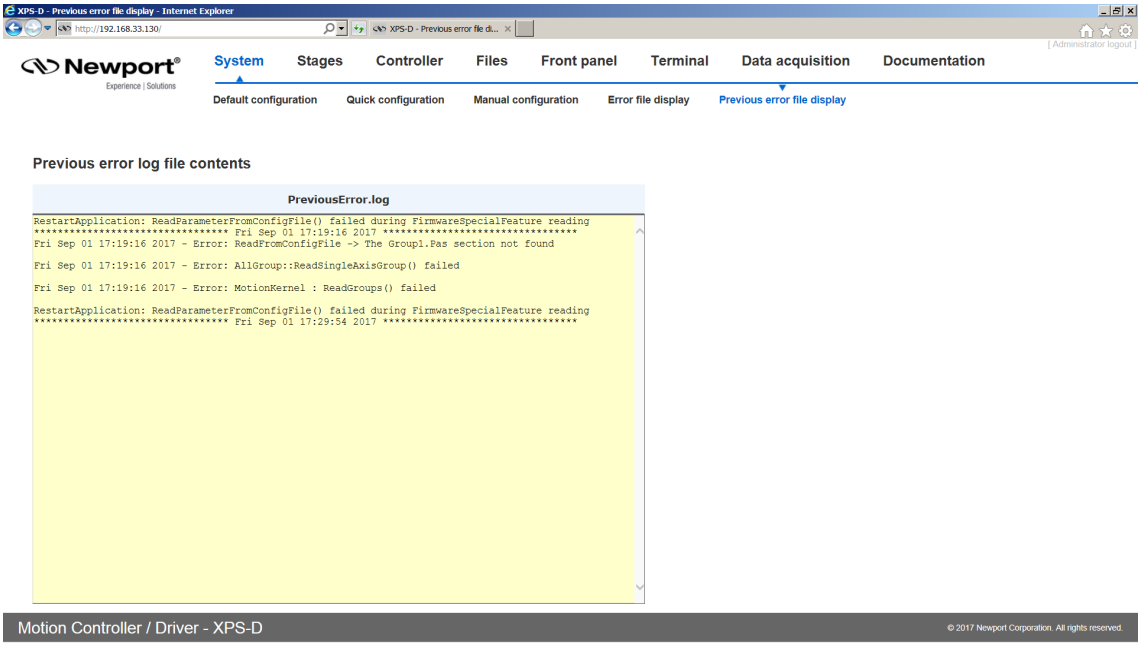
The Error File Display is another important screen for troubleshooting the XPS controller. When the XPS encounters any error during booting, for instance due to an error in the configuration files or because the configuration is not compatible with the connected hardware, there are entries in the error log file that guides you to correct the error. If several consecutive boot sequences contain errors, they are all reported.

When no error is detected during the last system boot, this file becomes blank.



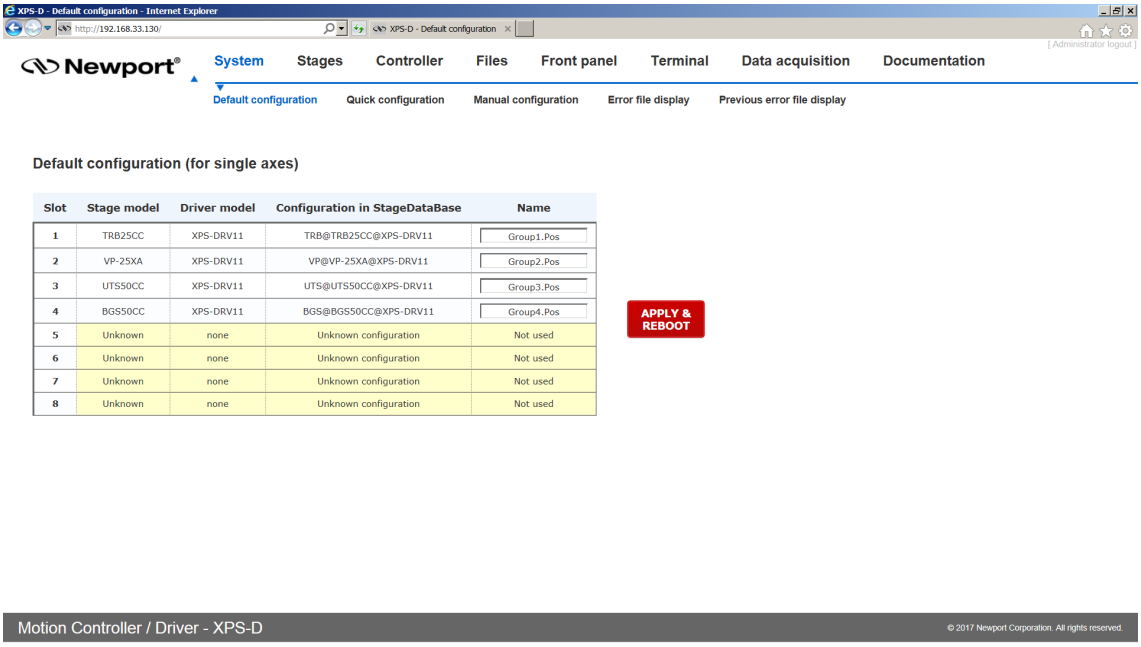
## 2.10 System – Previous Error File Display

The Previous error file display shows all errors encountered during the previous series of consecutive faulty XPS boots once the last is OK. After the following boot (OK or not), this file becomes blank.




## 2.11 System – Default Configuration

With the help of this screen, a fast, basic configuration of the XPS controller can be done. For further information, refer to Configuration Manual.

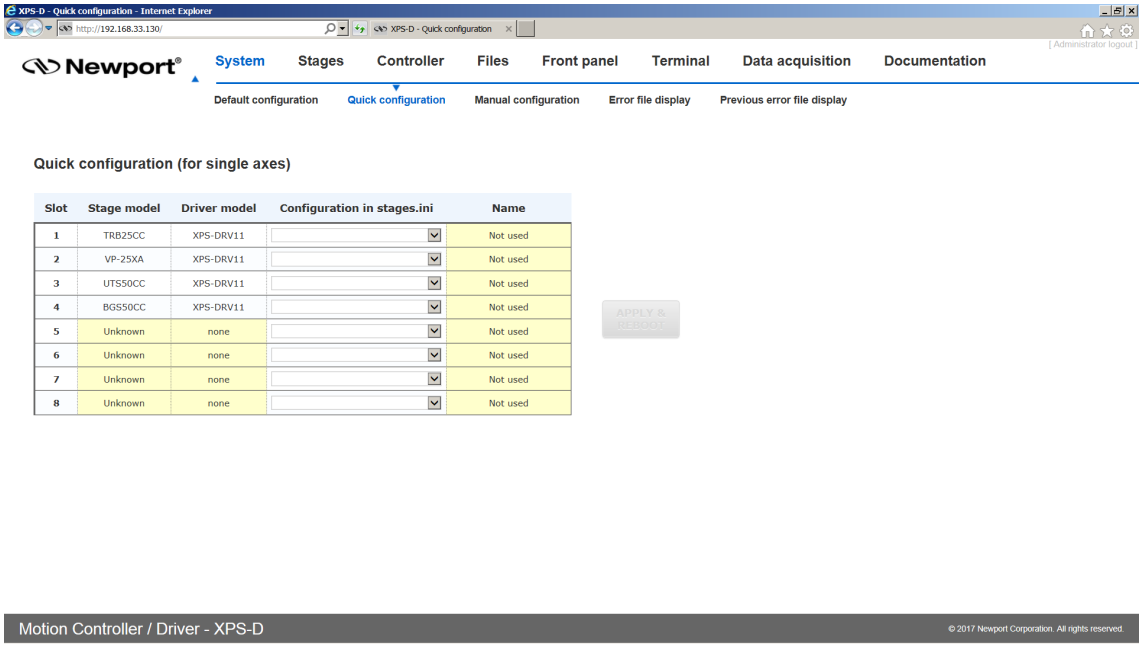


## 2.12 System – Quick Configuration

The Quick configuration is very similar to the Default configuration as it also lists all detected hardware including Newport ESP compatible stages and motor drivers under the respectively columns Stage Model and Driver model. The Quick configuration differs in the source for stage configuration.

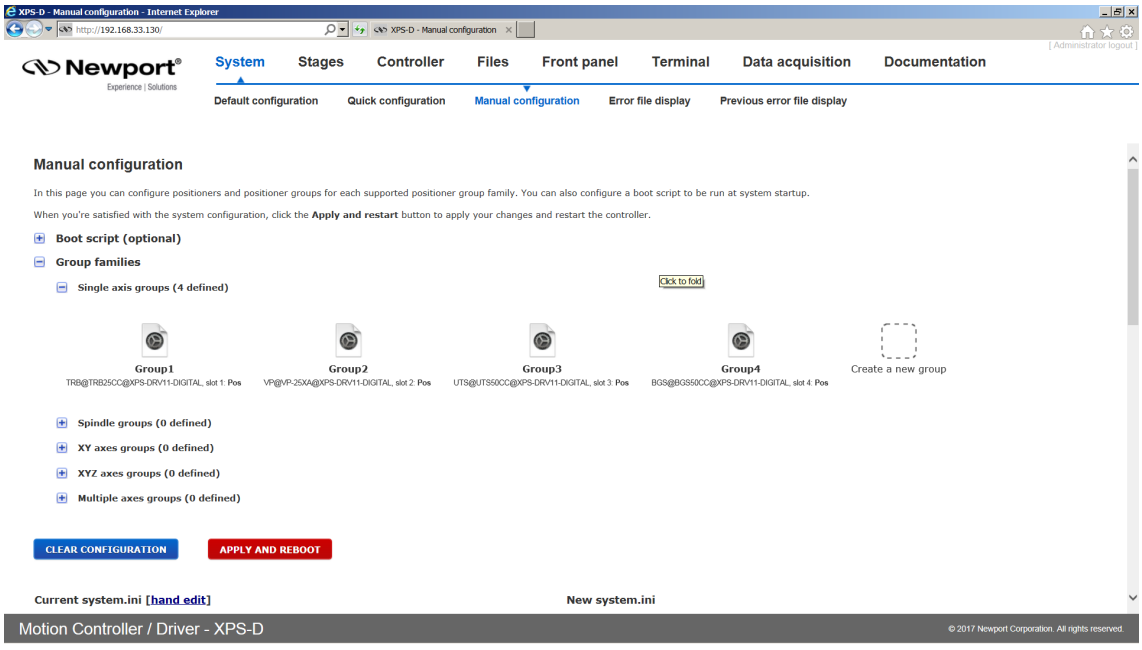
As a result, this screen also provides valuable information for diagnosing or troubleshooting the system.

For further information, refer to Configuration Manual.



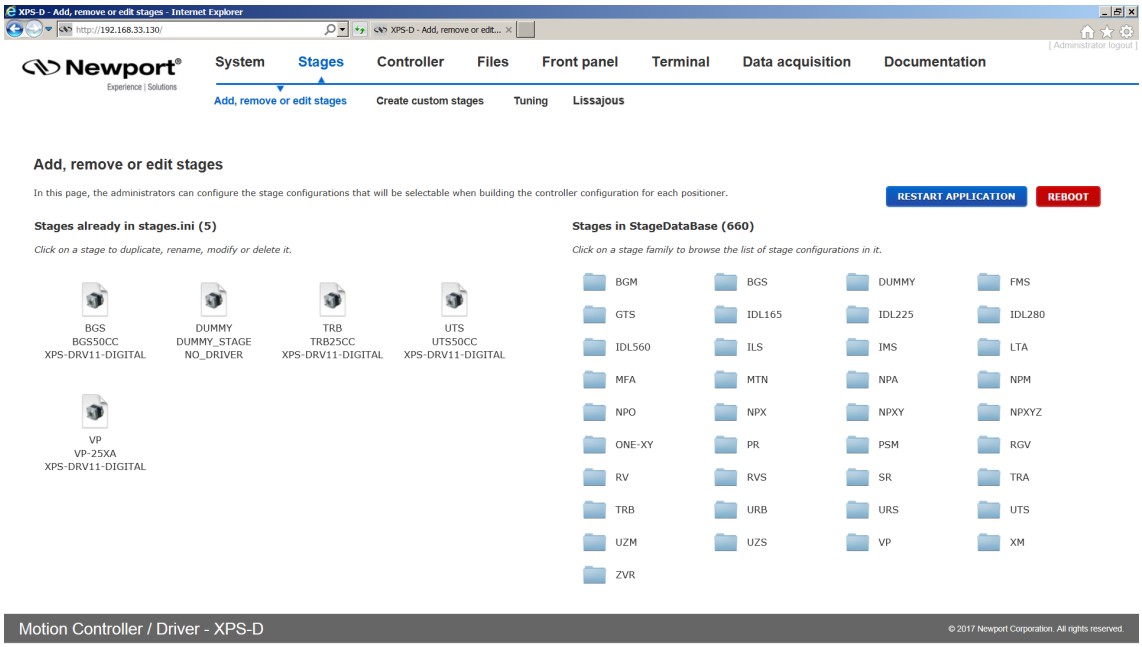

## 2.13 System – Manual Configuration

Manual Configuration allows you to review the current system configuration or to define a new one. See Configuration Manual for further information.



## 2.14 Stage – Add, Remove or Edit Stages

With the help of this screen, a stage from the Newport stage data base can be added to or removed from the personal stage data base, called stages.ini, as well as modified. On the left side of the screen, you can review the name of the stages that are already in stages.ini file. See **Configuration Manual** for details.

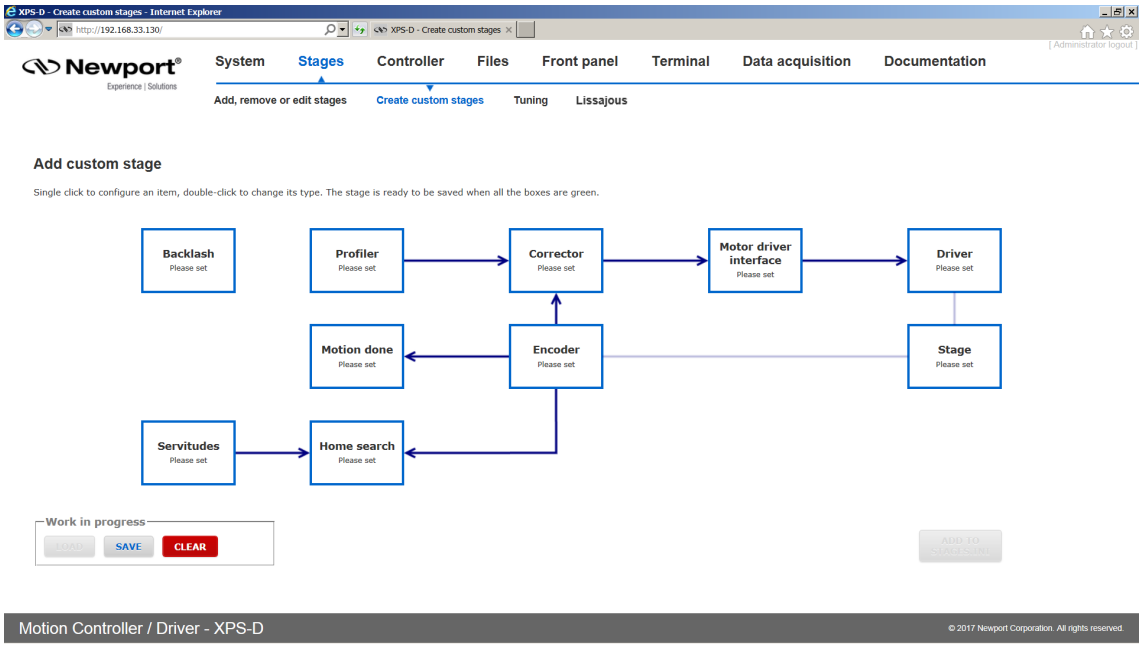



## 2.15 Stages – Create Custom Stages

This web page is used to build stage configuration files for stages not found in the controller's StageDataBase.txt such as non-Newport stages.

The integrated web tool, **Stages → Create custom stages,** is accessible when logged in as administrator. This web tool is designed to help users configure the XPS controller for motors and stages that are not included in the XPS general stage data base such as stages not manufactured by Newport. The tool generates a new entry in the customer's stage database, *stages.ini*, which is stored on the controller and is accessible through the webpage **Files → Configuration files**.

Refer to Configuration Manual for more information.



## 2.16 Stages – Tuning

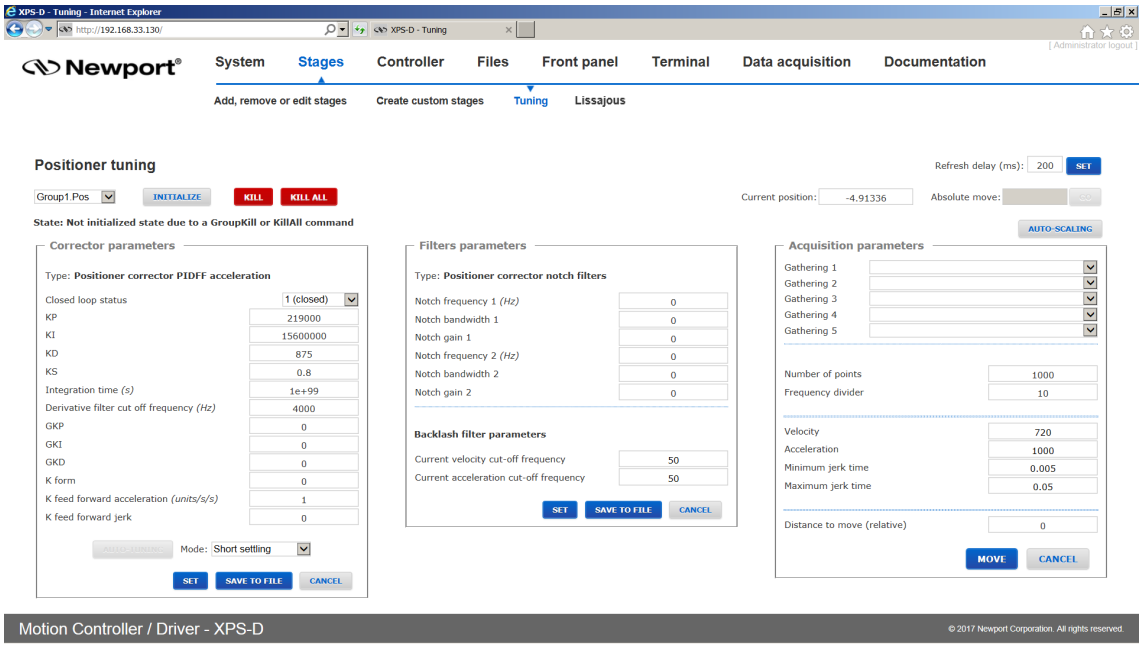
### 2.16.1 Tuning – Auto-Scaling

Auto-scaling is only available with positioners that feature a direct drive motor such as the XM, ILS-LM, IMS-LM or RGV100BL. To guarantee consistent performance of these stages, it is strongly recommended to perform Auto-scaling once the load is attached to the stage. During auto-scaling, the XPS controller measures the mass (inertia for rotation stages) on the positioner and returns recommended values for the Scaling Acceleration parameter.

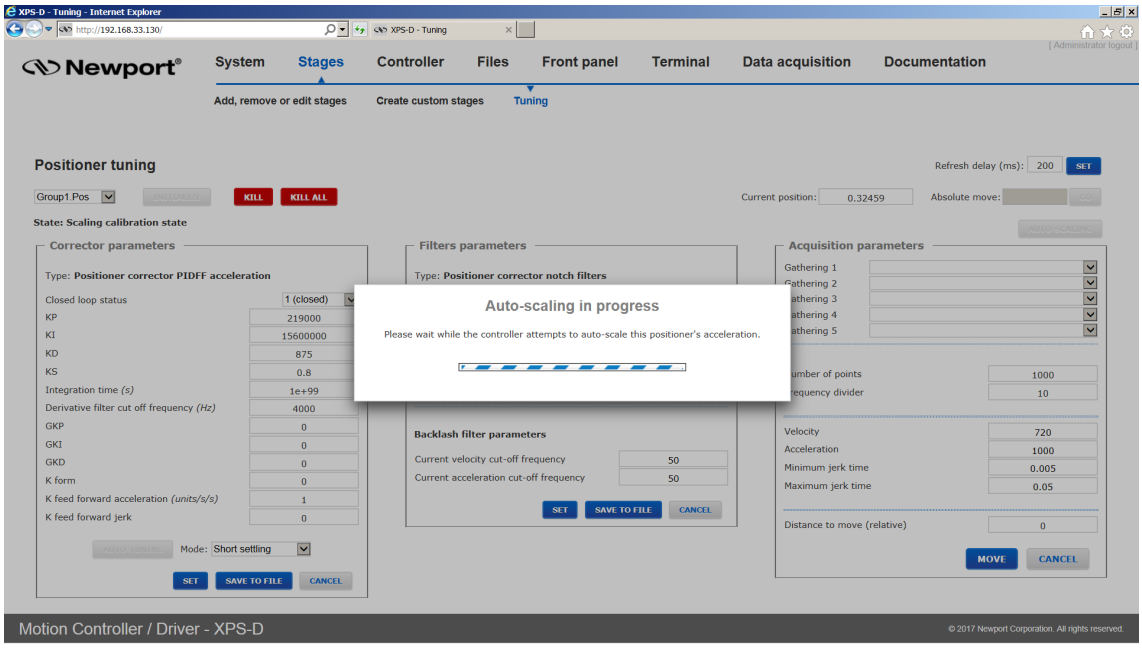
Repeat Auto-scaling with any major change of the payload on the positioner. With no major change of the payload, there is no need to redo Auto-scaling.

To perform Auto-scaling, do the following:

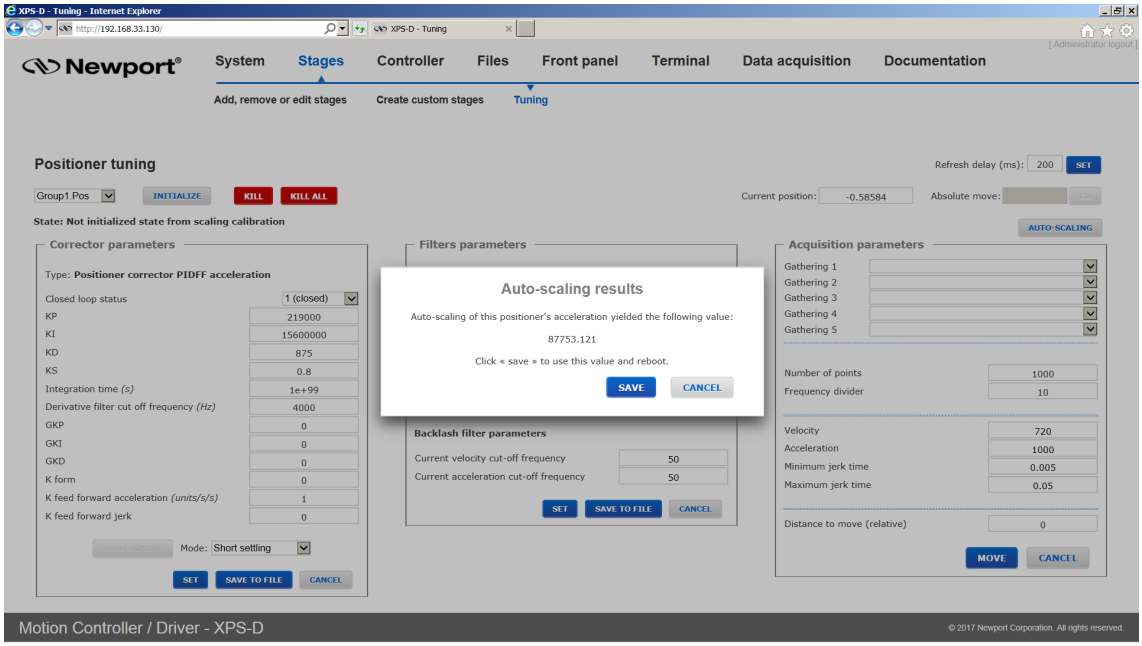
1. Select the main tab TUNING. Then select a positioner name. The following screen appears:




2. Click “Kill” if not in “Not initialized state”, then click “Auto-scaling”. The stage vibrates and an auto-scaling progress bar appears.



3. When the auto-scaling routine is complete, the results are displayed. To save the recommended values and reboot the controller, click “Save”. The positioner should now work properly.




**NOTE**

**All other functions of the tuning page should be used only by experienced users.**

### 2.16.2 Tuning – Auto-Tuning

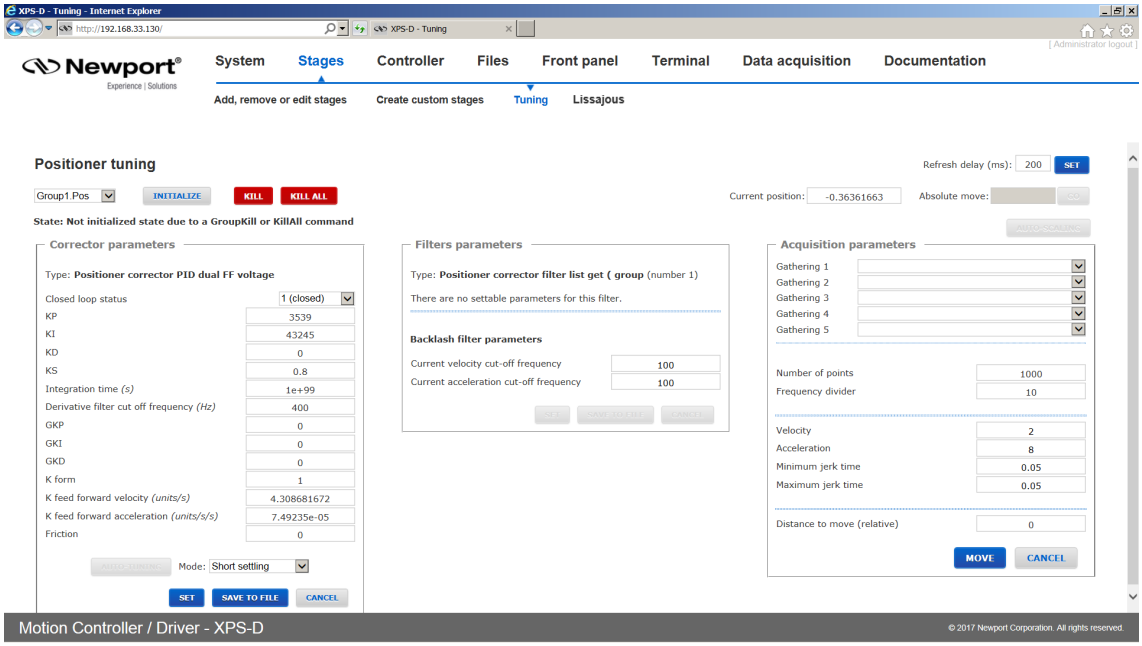
**NOTE**

**Apart from the Auto-scaling feature, which is described in the previous chapter, only experienced motion control users should use the TUNING tool of the XPS controller.**

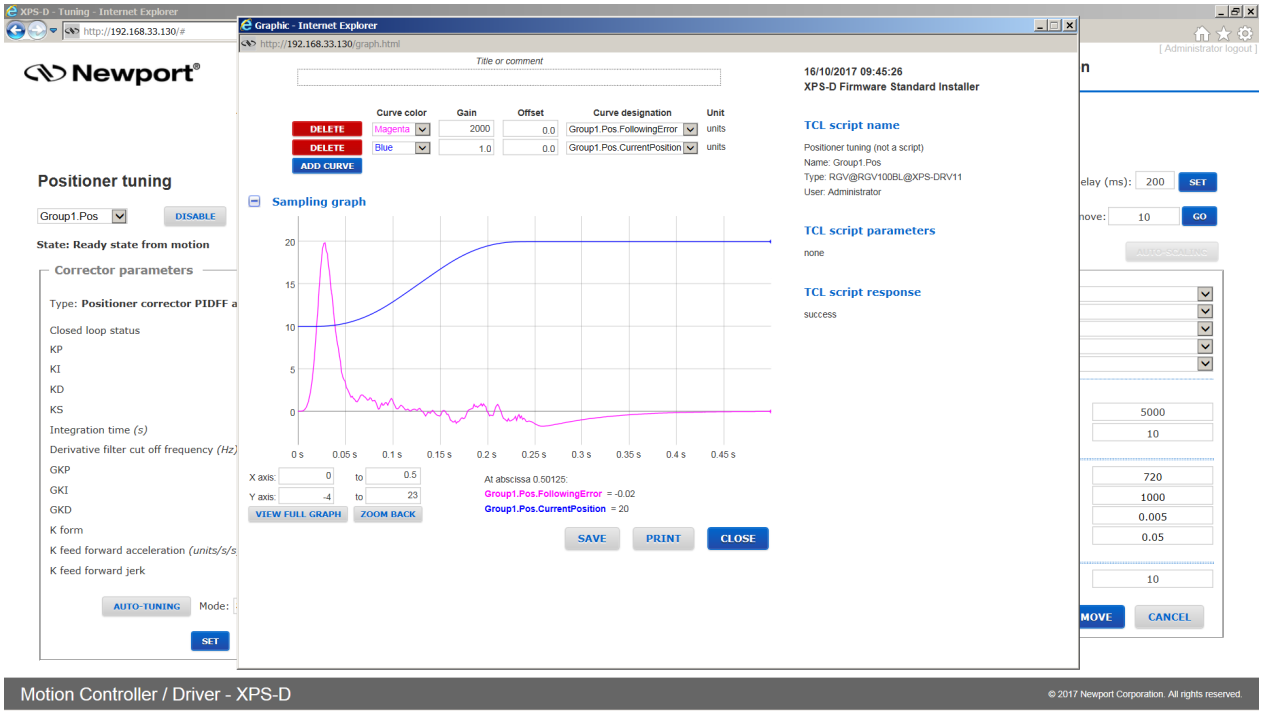
**All Newport positioners are supplied with default tuning parameters that provide consistently high performance for the vast majority of applications. Use the Tuning tool with Newport positioners only when not fully satisfied with the dynamic behavior of the positioners. Auto-Tuning works best with direct drive stages. Friction drive or ballscrew drive systems may not result in optimum tuning using this feature.**

The following is a brief description of the TUNING tool:

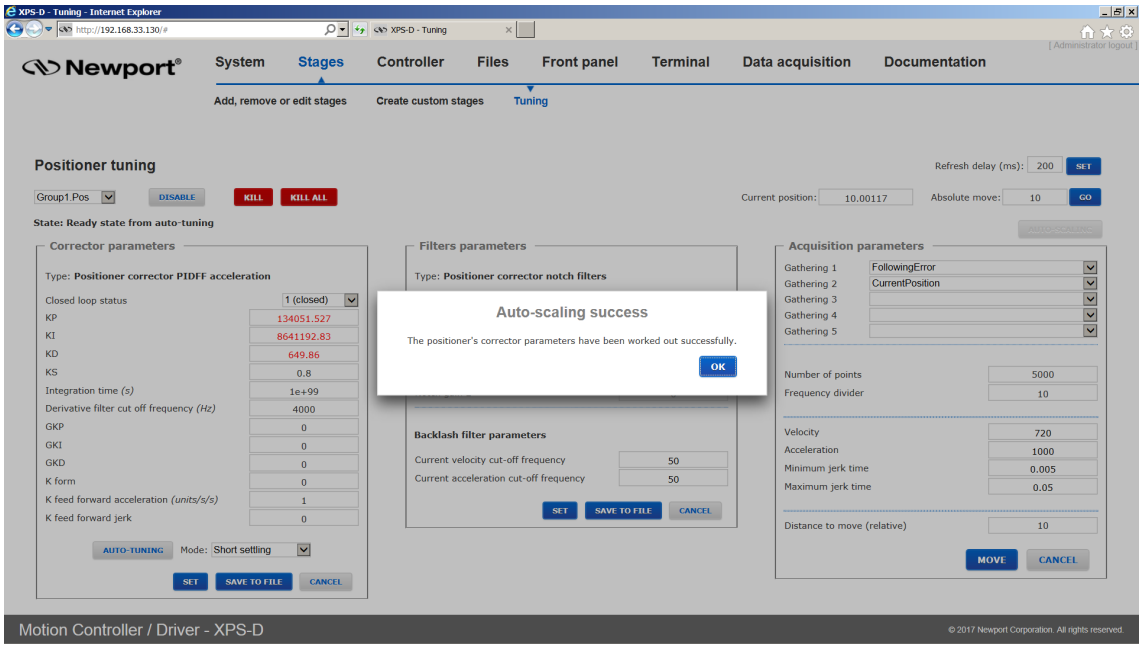
1. Select a positioner name. The following screen appears:




2. Using this screen, perform a data gathering with your current parameter settings:
   1. Initialize and home the positioner, then move to the desired start position (set the position in the “Absolute move” field on top righte and then click “Go”).
   2. Under “Acquisition parameters”, define the gathering data: For the stage tuning, it is recommended to gather only the following error and the current position.
   3. Define the frequency divisor. The frequency divisor defines the sampling rate of the gathering. A frequency divisor equal to one means one data point is gathered every servo cycle. With most positioners, it is sufficient to set a value of 10.
   4. Define the number of points in relation to the distance, the frequency divisor, the velocity and the acceleration.
   5. Define the velocity, acceleration and jerk time.
   6. Define a typical motion distance.
   7. When done, click “MOVE”. The following page appears:



3. If satisfied with the results, there is no need to tune the stage. If not satisfied, return to the tuning page by clicking “Close” and move back to the start position.
4. Next to the Auto-tuning button, there is a Mode field for Auto-tuning. Select “Short settling” or “High robustness”. Choose “Short settling” to improve the settling time after a motion or to reduce the following error during the motion. Short settling will define “high” PID vales for your stage, but there is a risk of oscillation. Choose “High robustness” to improve the robustness of the motion system and to avoid oscillations during or after a motion. “High robustness”, for instance, can avoid oscillations for a rotation stage with high payload inertia.
When done with the selection, click Auto-tuning.
5. The stage vibrates for a couple of seconds. When done the following screen appears:



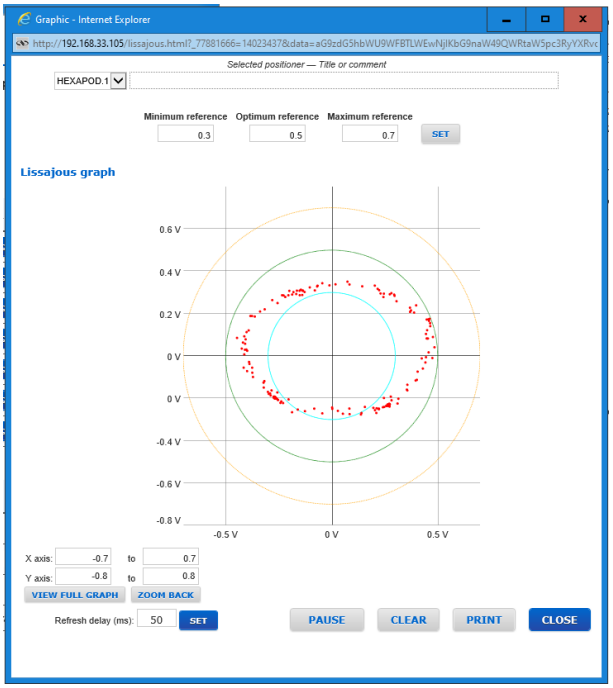

6. Press “OK” in the pop-up window, the proposed modifications are colored in red. You must click “Set” to apply the new parameters. “Set” only changes the working parameters without saving them. Recover the previous parameters by rebooting the system.
7. To test the behavior of the motion system with the new parameters, repeat the same data gathering and compare the results. Make manual changes to the settings if necessary and verify the behavior.
8. To permanently save the settings to the stages.ini, press “SAVE TO FILE”. “SAVE TO FILE” overwrites the current settings in your stages.ini. Press “SAVE TO FILE” only when fully satisfied with the results. For recovery, Newport recommends making a copy of the stages.ini with the old settings.

**NOTE**

**For further information about the meaning of the different tuning parameters, see Features Manual.**

## 2.17 Stages – Lissajous

This page shows the current amalog encoder signals. Refer to Features Manual for more details.

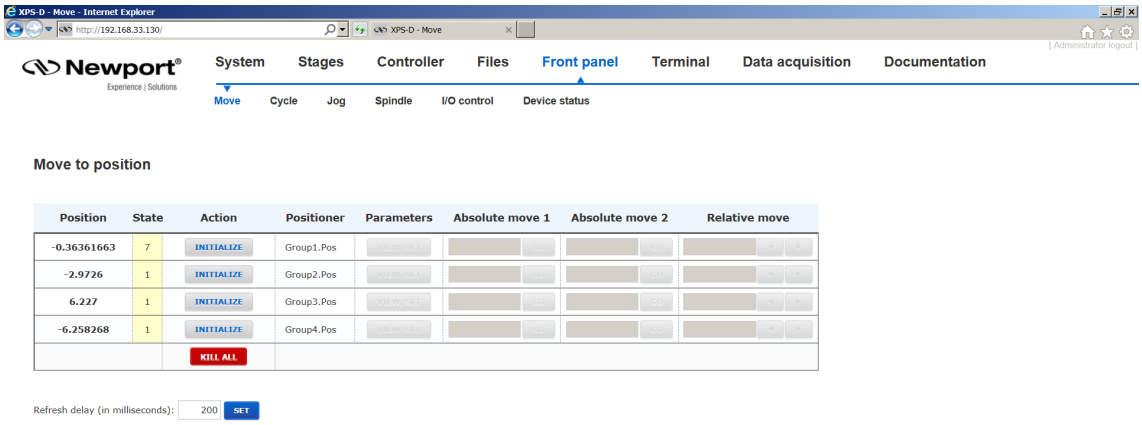


## 2.18 Front panel – Move

The Move page provides access to basic group functions like initialize, home, or motor disable, and executes relative and absolute moves where speed, acceleration and jerk time can be modified during motion (but not during the acceleration period).

The Move page also provides a convenient review of all important group information like group names, group states and positions. All motion groups are listed in the Move page.

- Click “Initialize”. The State number changes from 0 to 42 and the Action button changes from “Initialize” to “Home”.
- Click “Home”. The stage starts moving to find its reference position. When done, the state number is 11 and the action button changes to disable.
- Enter an allowed absolute position value in the “Abs move 1” or “Abs move 2”, or a relative move value in the “Relative move” field and click “Go”. The stage moves to the new position.
- You can click on “Disable” to disable a stage. The Action button changes to “Enable”.
- Click on “Enable” to enable the stage again without loosing encoder position.




**NOTE**

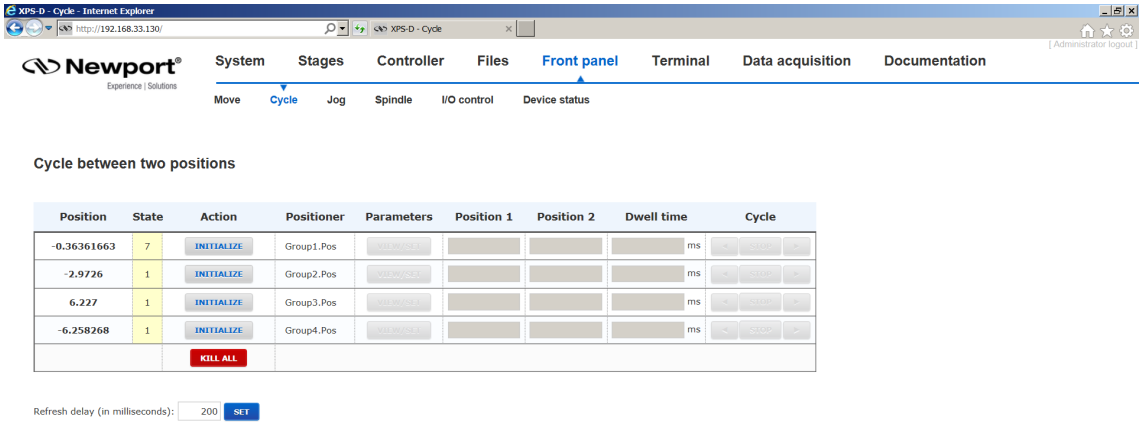
**A spindle group can do relative moves and absolute moves. So, it can be used in the Move page. See Features Manual for more information about Spindle moves.**

**NOTE**

**In case of XPS-D controller driving a hexapod, even though this Move page can be used to move each actuator independently, it is much easier to use HXP Tool or HXP Work page, through which all actuators will be simultaneously controlled to obtain the desired carriage motion.**

## 2.19 Front panel – Cycle

The cycle page allows cycling of a stage. A cycle motion moves back and forth between two defined positions where speed, acceleration and jerk time can be modified during motion (but not during the acceleration period).



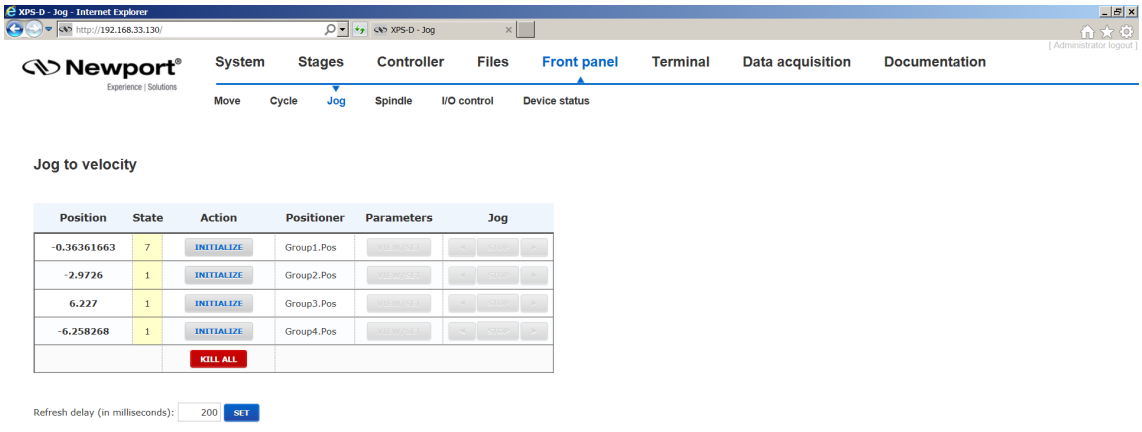




## 2.20 Front panel – Jog

The Jog page allows executing a jog motion. A jog motion is a continuous motion, where only the speed and acceleration are defined, but no target position. Speed and acceleration can be changed during the motion (but not during the acceleration period).

For a Jog motion, the jog mode must be enabled: click on the “Action” button to Initialize, Home and then Enable Jog.

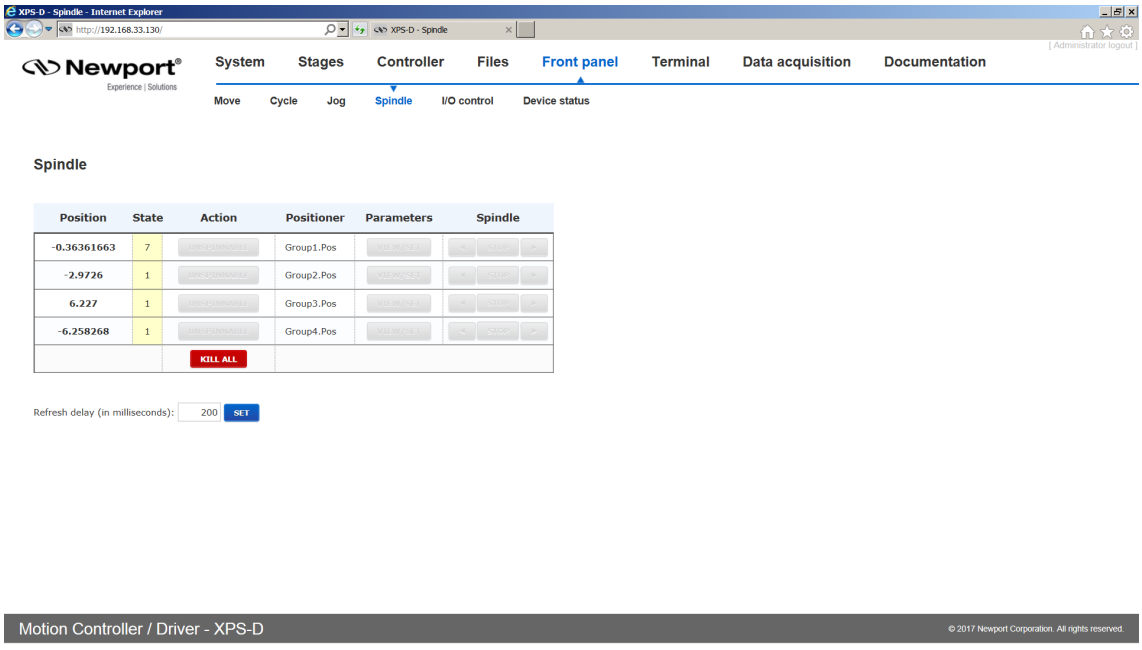


## 2.21 Front panel – Spindle

The Spindle page provides similar functions to the Jog page. However, specific jog actions are replaced by spindle actions that only work for Spindle groups.

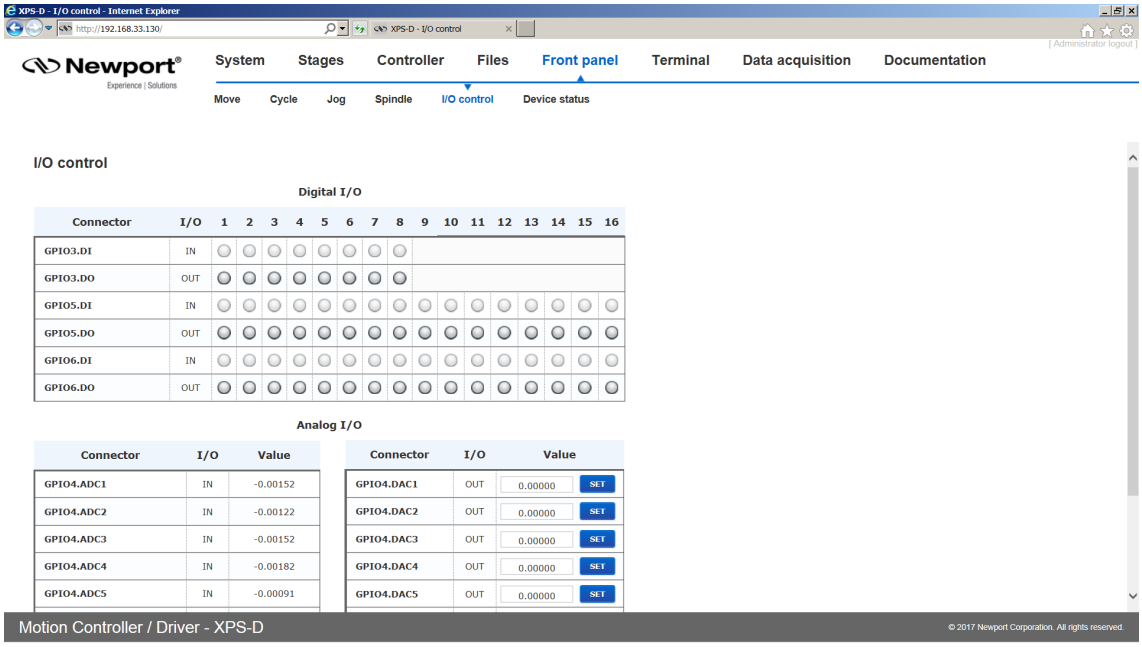
**NOTE**

**Spindle configuration does not allow indexing of the rotary stage. For a rotary stage to have indexing and move more than 360 degrees, the user must configure the stage as a group type other than spindle and change the software travel limits, MinimumTargetPosition and MaximumTargetPosition, in the stages.ini file. Refer to section 2.14: "Stage – Add, Remove or Edit Stages" for more details. Additionally, the rotary may need to have optical travel limits disabled. Refer to the rotary stage User's Manual.**



## 2.22 Front panel – I/O Control

The I/O Control page shows the current states or values of all analog and all digital I/O's of the controller and allows the user to set all the analog and digital outputs of the controller.

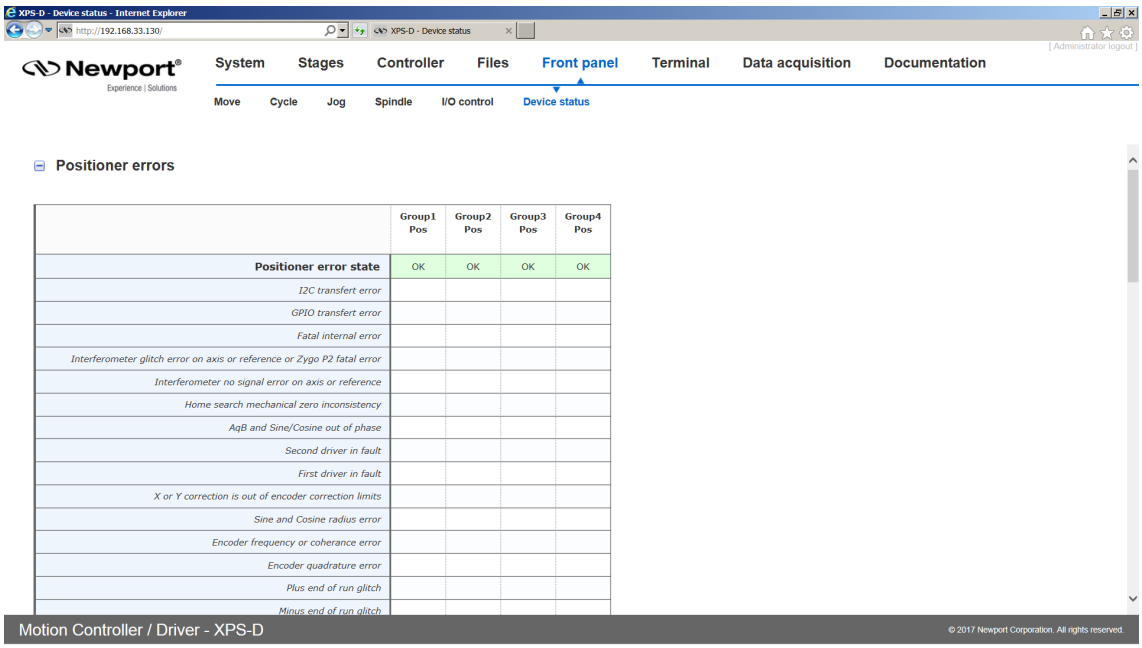



## 2.23 Front panel – Device Status

The Device Status page contains several sections.

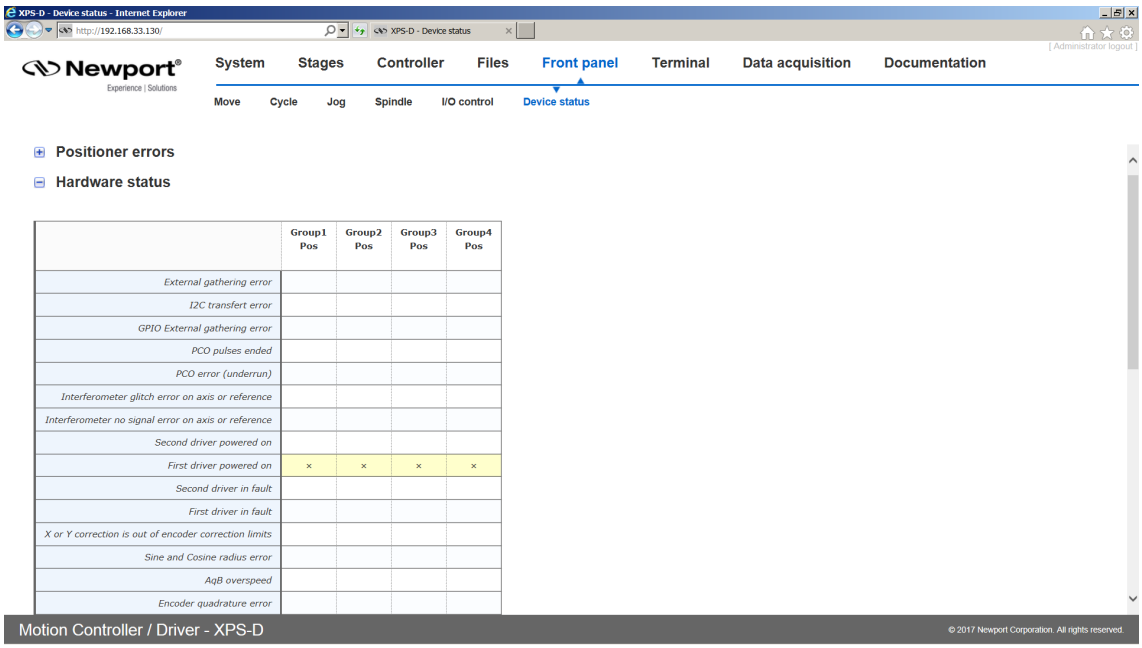
### 2.23.1 Device Status – Positioner Errors

The Positioner Errors section is an important page for trouble-shooting. When encountering any problems during the use of the system, information about the errors related to the positioners are found in this page.



### 2.23.2 Device Status – Hardware Status

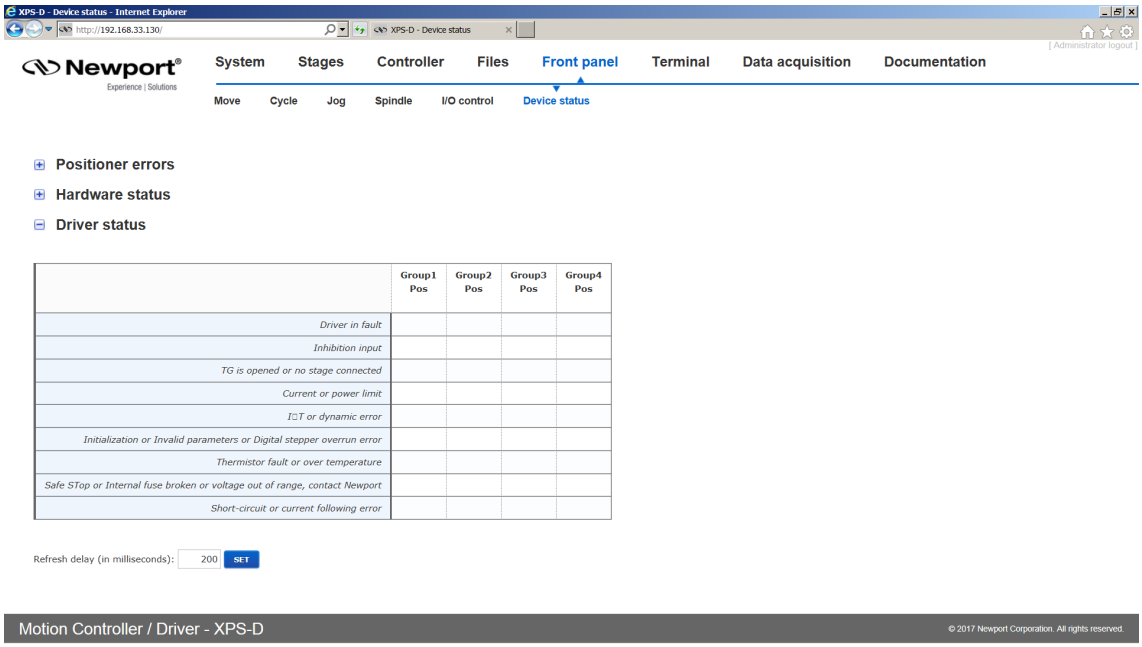
The Hardware Status section is another important page for trouble-shooting, but not all information is related to an error.




### 2.23.3 Device Status – Driver Status

The Driver Status section is another important page for trouble-shooting, but not all information is related to an error.

The type of status information that you can get depends on the drivers used.



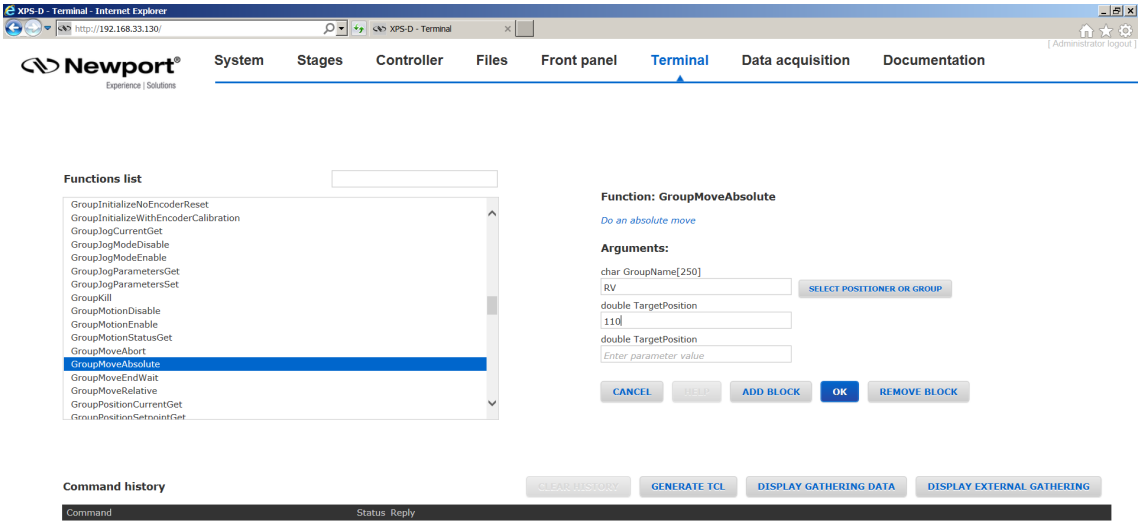
## 2.24 Terminal

The Terminal screen allows the execution of all XPS controller functions. It also provides a convenient method for generating executable TCL scripts. For more details about TCL scripts, see **Features Manual**.

To execute a function from the Terminal, do the following:

1. Click to select a function, which then appears in the "API to execute" window.
2. Define the arguments for the function.

- For functions with dynamic arguments “ADD BLOCK” and “REMOVE BLOCK” buttons are available. Alternatively, you can use a “,” as a separator between different arguments.



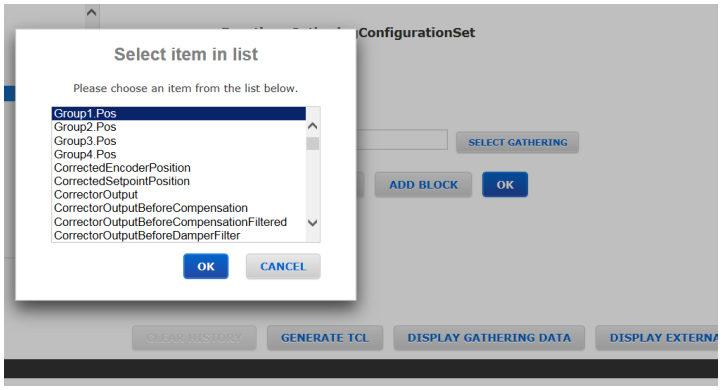




- For some arguments like ExtendedEventName, ExtendedActionName or GatheringType, the argument name is not directly accessible. In these cases, define the first part of the argument name, then click in the field again and define the second part of the argument name. See the example below for defining the GatheringType with the function GatheringConfigurationSet():

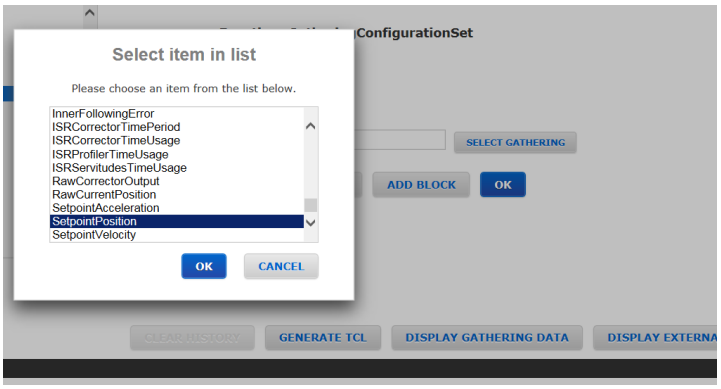
**Step 1:**

Click **“SELECT EXTERNAL GATHERING”** then select the positioner name and click **“OK”**.



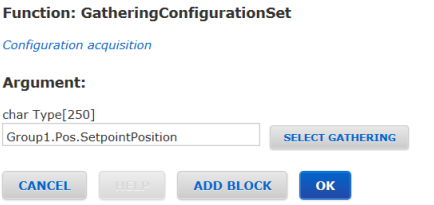

**Step 2:**

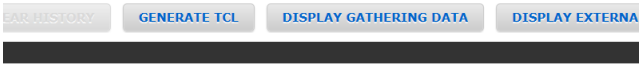
Click **“SELECT EXTERNAL GATHERING”** again then select the parameter name and click **“OK”**.



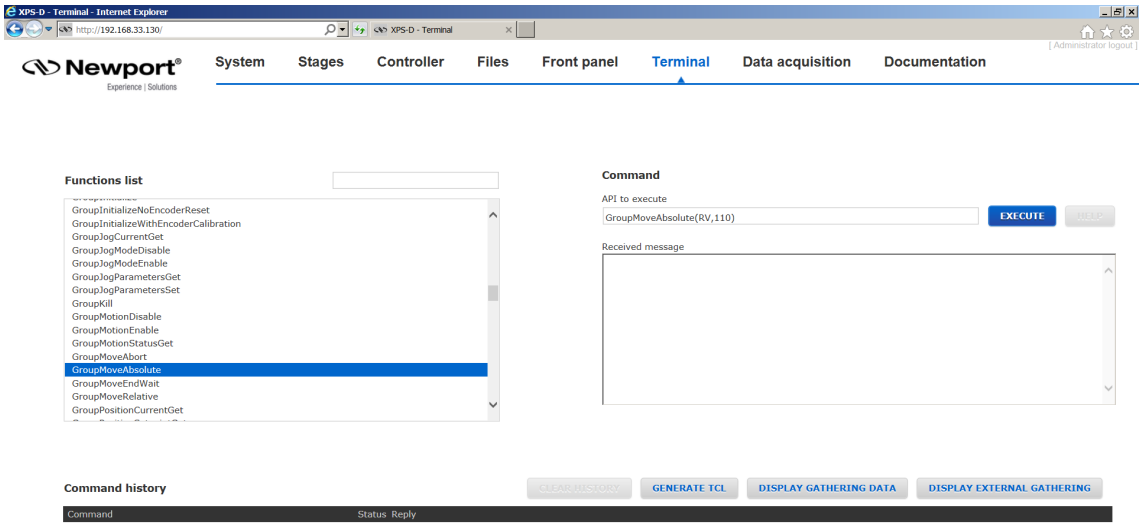

**Step 3:**

To add another parameter, click **"ADD BLOCK".**
Repeat Step 1 and Step 2.

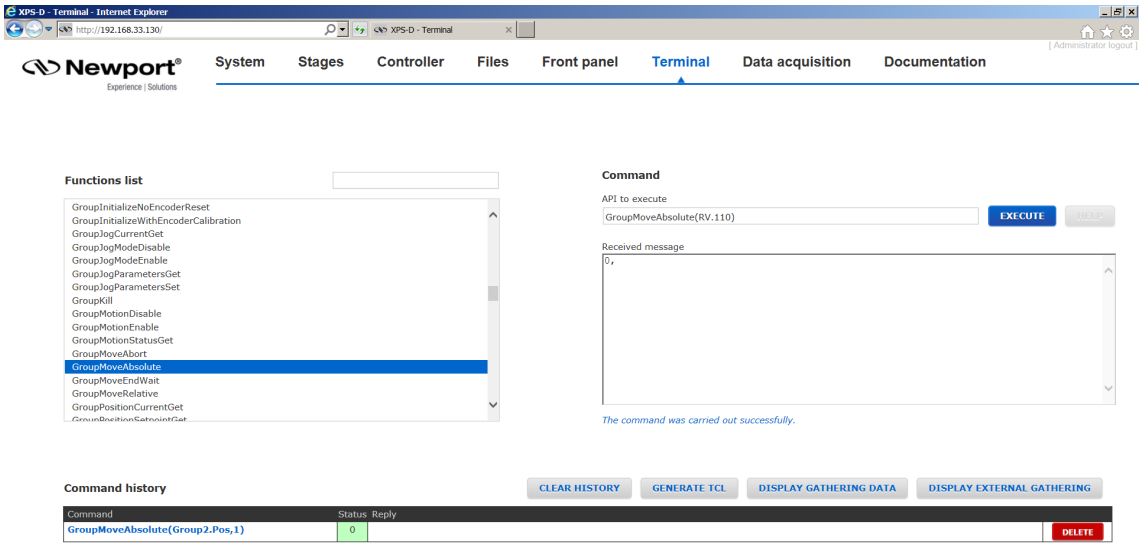



3. When all arguments are defined, click "OK". Now review the final syntax of the function and make final text changes, as needed. When done, click "Execute".




4. When the function is executed, the controller's response code will appear in the Received message window and a description will appear below the Received message window. If the command was carried out successfully, 0 is returned. In all other cases, there will be an error code. Use the function ErrorStringGet() to get the error code description.



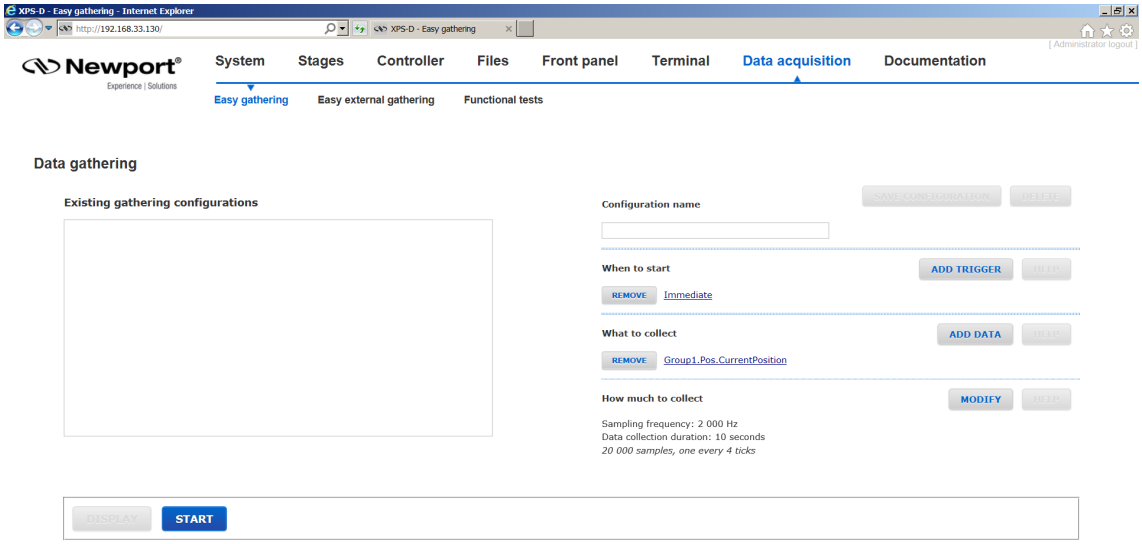




The functions are listed in alphabetical order and can be searched for using the search bar at the top of the Function list. Functions listed are those available for display through the **Controller → Terminal configurator** or functions available for the current system configuration. For example, if the system consists only of SingleAxis groups, no group specific functions for Spindles, XY groups, XYZ groups or MultipleAxis groups will be listed.

## 2.25 Data Acquisition – Easy Gathering

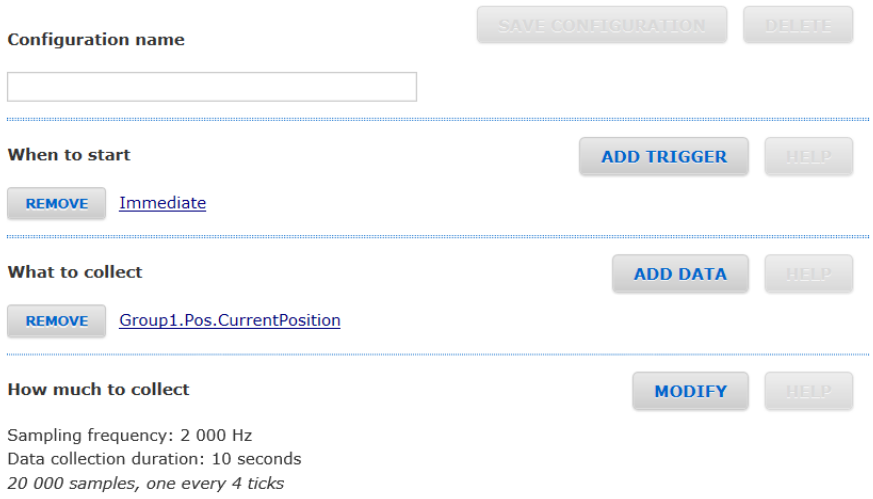
Under **Data acquisition → Easy gathering,** users can define and save servo synchronous data gathering configurations for routine data acquisition operations including: time-based, event-based, or function based gathering. For more in-depth information regarding data gathering types, refer to **Features Manual**.





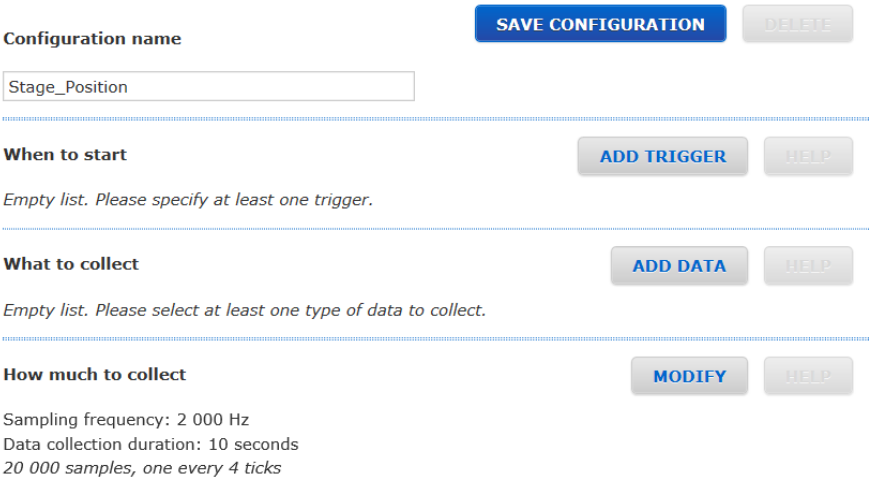


The following procedure describes how to use the webpage to configure easy data gathering. In the initial factory configuration, an example trigger and data configuration is set (see example in the image below). It should be deleted before starting a new gathering.




### Step 1: Configuration name

1. Enter a name for the Gathering Configuration. *Example: Stage_Position*.

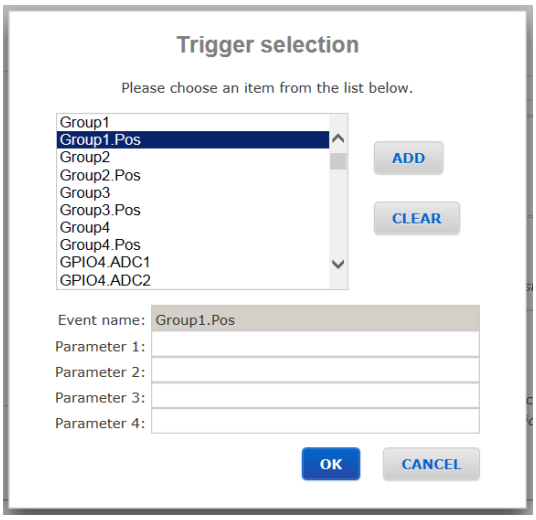



### Step2: When to start

This step configures the data collection trigger and is based upon the API function EventExtendedConfigurationTriggerSet([Actor].[Category].Event Name, Parameter1, Parameter2, Parameter3, Parameter4). For more information regarding this API, refer to **Features Manual**. If this section is not empty, delete example event trigger by clicking REMOVE.

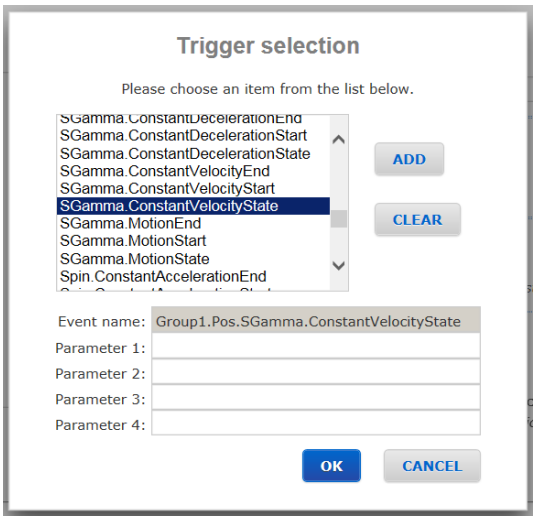
1. Click on ADD TRIGGER and the following window appears.
2. From the list, highlight the group name, positioner name, TimerX or GPIO that triggers when to start collecting data and then click ADD. If the trigger selection is Immediately or Always, click OK and skip down to **Step 3: What to Collect**.

*Example: Group1.Pos*

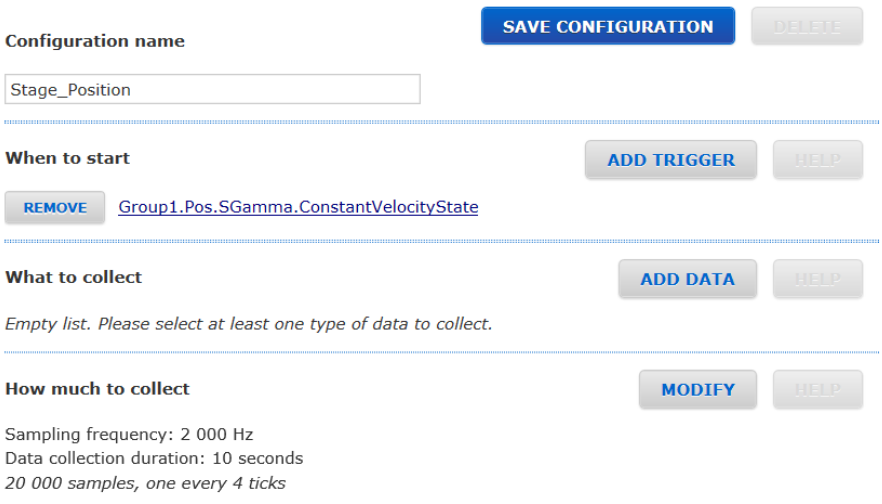



3. From the list, highlight the event that starts the data gathering and then click ADD. Depending on the event selection, Parameters 1 through Parameter 4 need to be filled in.

   *Example: SGamma.ConstantVelocityState*



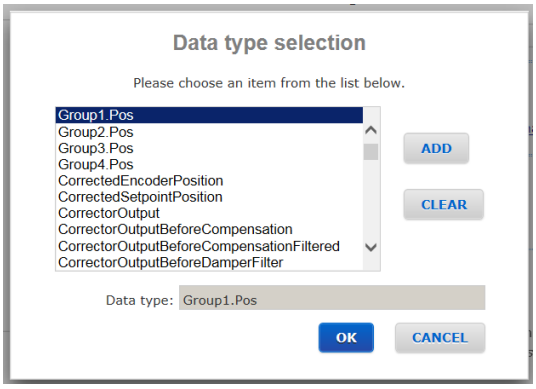

4. Click OK when the trigger has been specified. Example: Gathering starts when the constant velocity state is reached for positioner Group1.Pos.



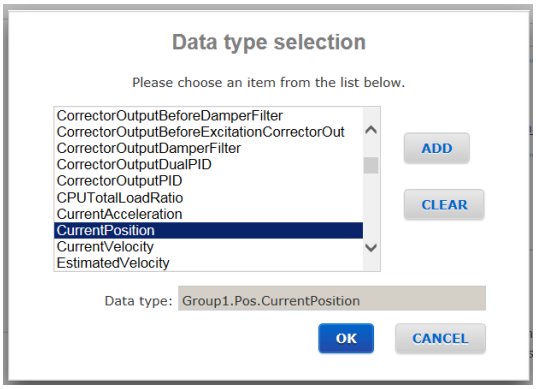
**Step 3: What to collect**

This step configures the data type to be collected and is based upon the API function GatheringConfigurationSet([DataType]). Refer to **Features Manual** for more information. If this section is not empty, delete example data collection type by clicking REMOVE.

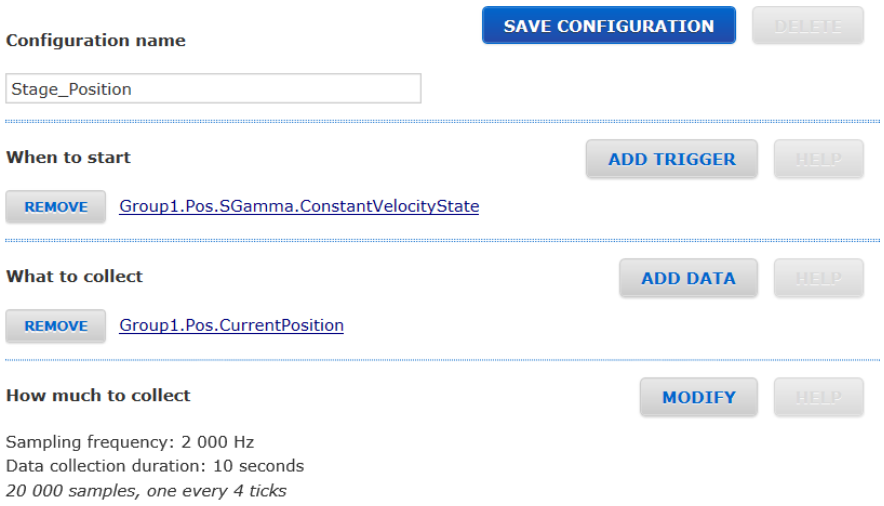
1. Click on ADD DATA and the following window appears.
2. From the list, highlight the positioner name or GPIO from which data will be collected and then click ADD. Example: Group1.Pos




3. If a positioner name is selected, from the list, highlight the data type to be collected and then click ADD. Example: CurrentPosition




4. Click OK when the data type has been specified. Example: once the trigger event occurs, current position values will be collected for positioner Group1.Pos.

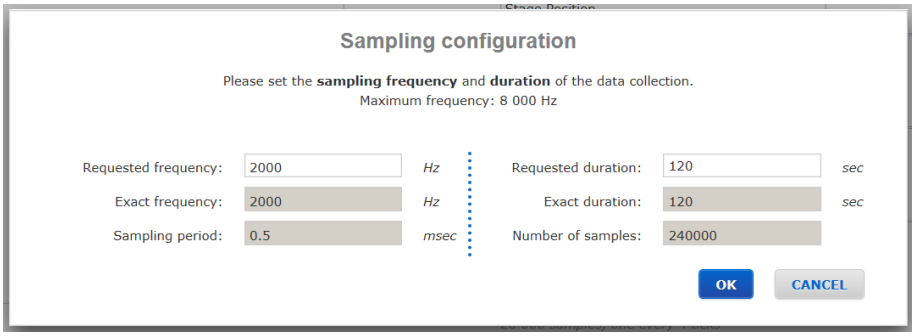



5. Repeat Step 3 Add Data to add other data types to be collected under this specific Gathering Configuration.

### Step 4: How much to collect

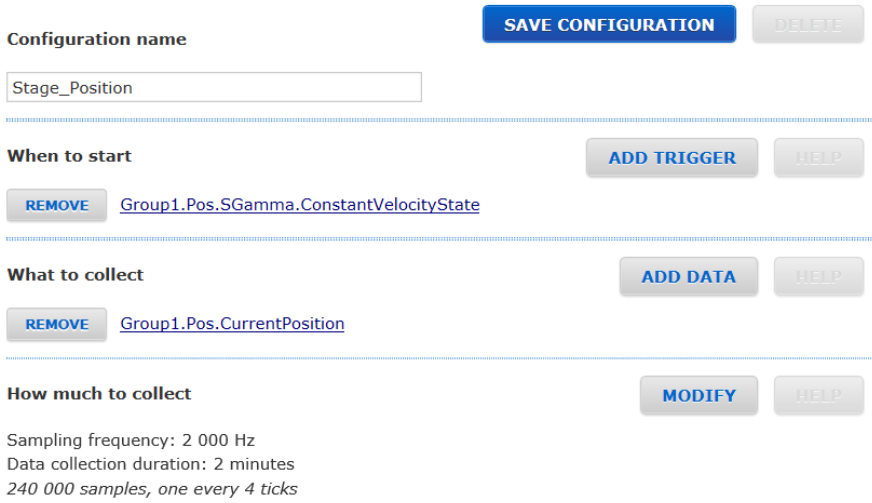
This step specifies the sampling frequency and sampling duration for the gathering configuration and is based upon the API function EventExtendedConfigurationActionSet(GatheringRun, Nb of points, Divisor, 0, 0). Refer to **Features Manual** for more information.

1. Click on MODIFY to specify the frequency at which data is collected and the duration of the data sampling. The maximum sampling frequency is at the XPS servo rate. *Example: Data will be collected at 2 kHz frequency for a total of 2 minutes.*



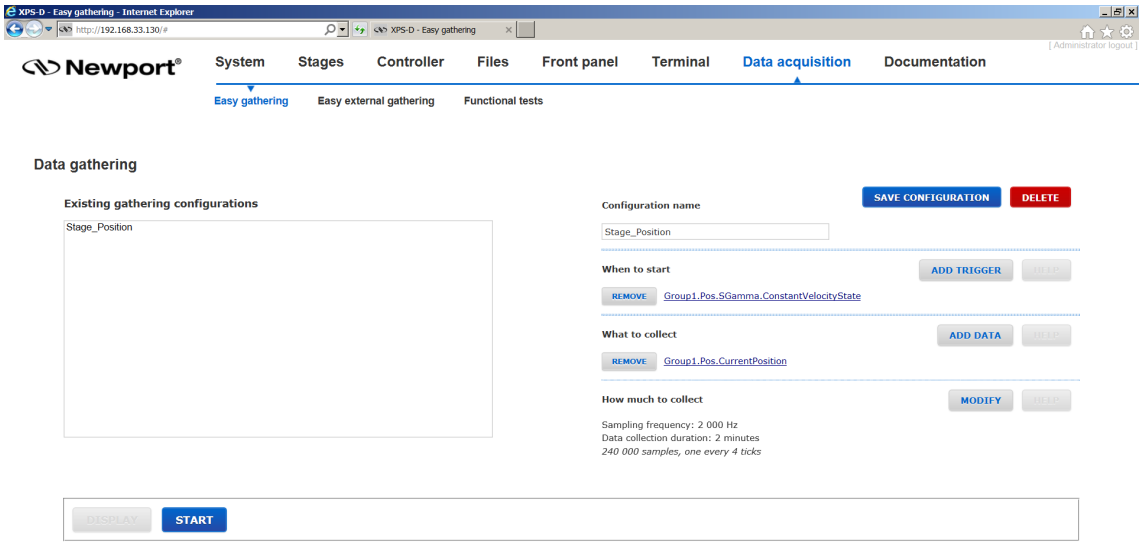

### Step 5: Save Configuration

1. Click on SAVE CONFIGURATION to save the gathering configuration. Example: Gathering starts when the constant velocity state is reached for positioner Group1.Pos. Once the trigger event occurs, current position values will be collected for positioner Group1.Pos. Data will be collected at 2 kHz frequency for a total of 2 minutes.



### Step 6: Start Gathering

1. To begin gathering data, click on START.



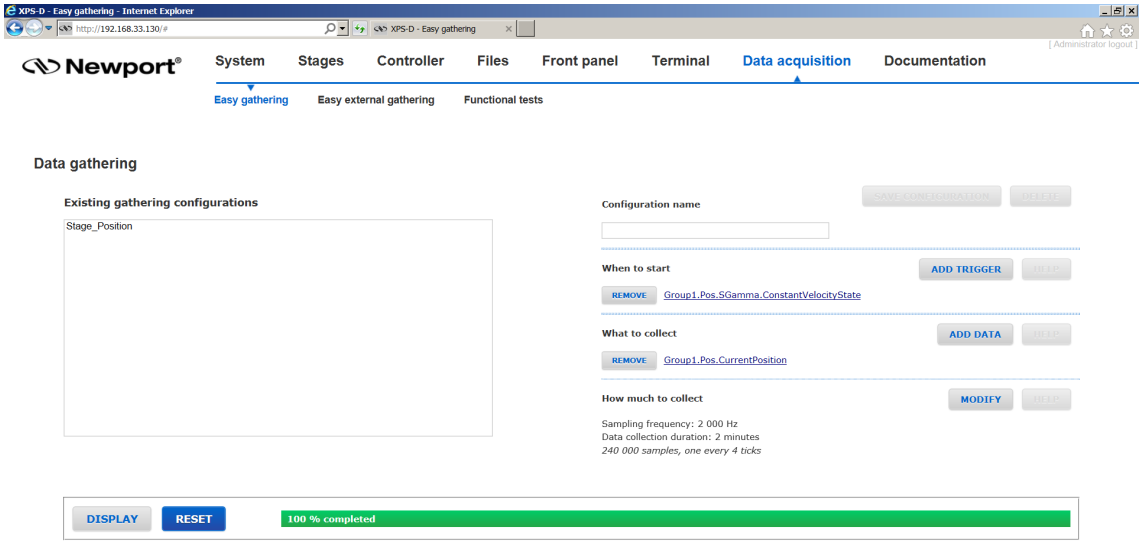




2. The controller then begins to monitor for the configured trigger.


3. Once the trigger event occurs, the data acquisition begins and a status bar appears.

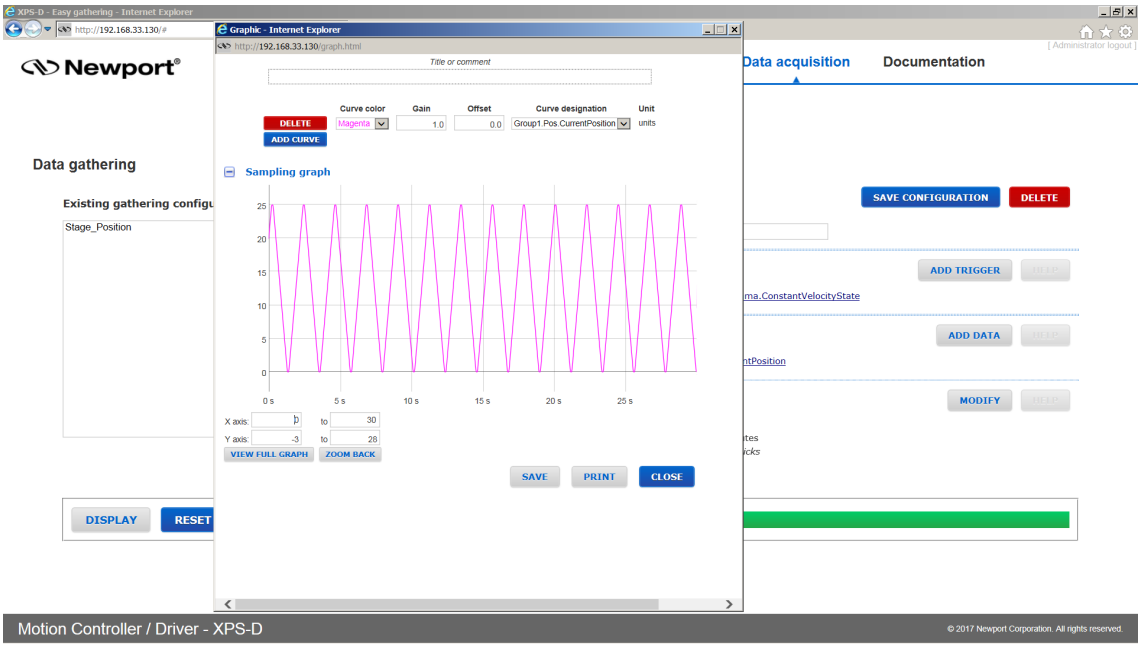

4. Once the data acquisition is complete, click on DISPLAY to view the data.





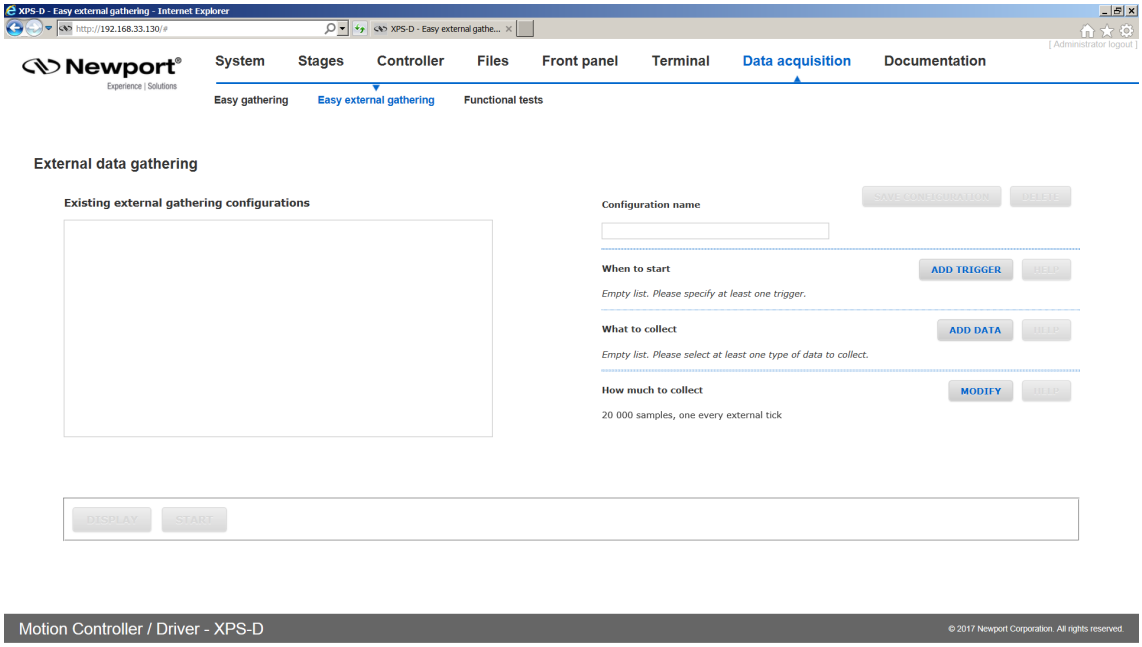


5. The Data Graph is displayed. Colors, cales, gains and offsets can be changed. The graph can be saved or printed. Click “Close” to return to Easy Gathering screen.




## 2.26 Data Acquisition – Easy External Gathering

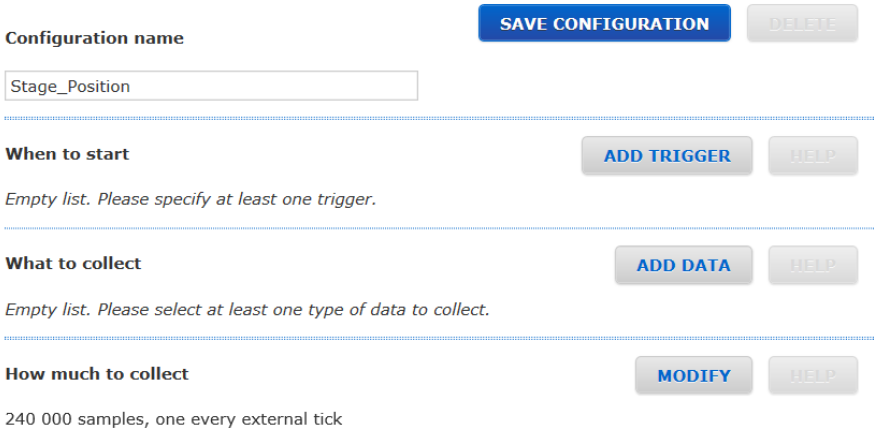
Under **Data acquisition → Easy external gathering,** users can define and save data gathering configurations for routine data acquisition operations triggered by an external device. For more in depth information regarding data gathering types, refer to **Features Manual**. In the initial factory configuration, an example trigger and data configuration is set. It should be deleted before starting a new gathering.




The following procedure describes how to use the webpage to configure easy external data gathering.

### Step 1: Configuration name

1. Enter a name for the Gathering Configuration. *Example: Stage_Position.*

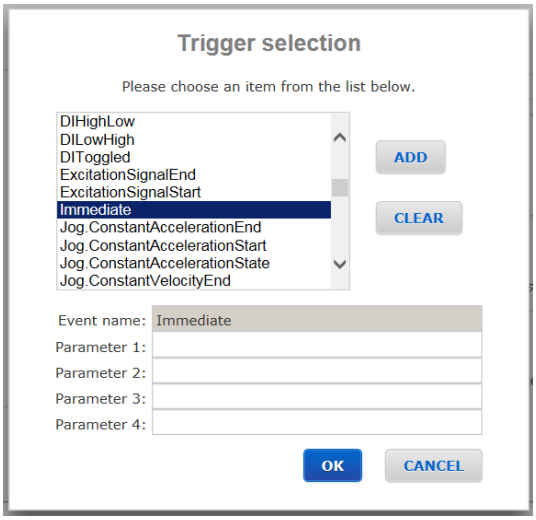



### Step 2: When to start

This step configures the data collection trigger and is based upon the API function EventExtendedConfigurationTriggerSet([Actor].[Category].Event Name, Parameter1, Parameter2, Parameter3, Parameter4). For more information regarding this API, refer to **Features Manual**. If this section is not empty, delete example event trigger by clicking REMOVE.

1. Click on ADD TRIGGER and the following window appears.
2. From the list, highlight Immediate or Always. Click ADD and then click OK.

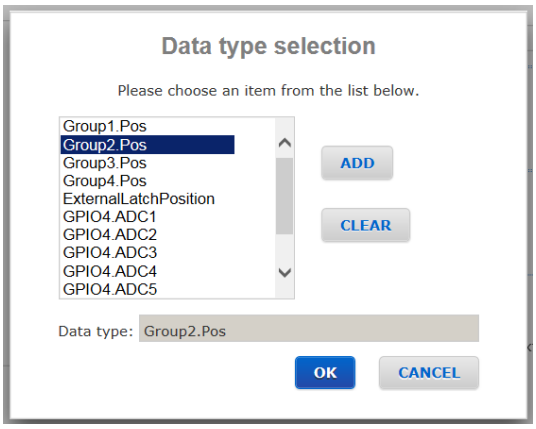
   *Example: Immediate*



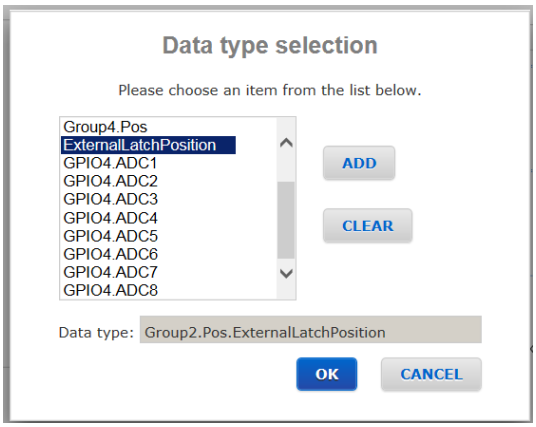

### Step 3: What to collect

This step configures the data type to be collected and is based upon the API function GatheringExternalConfigurationSet([DataType]). Refer to **Features Manual**. If this section is not empty, delete example data collection type by clicking REMOVE.

1. Click on ADD DATA and the following window appears.
2. From the list, highlight the positioner name from which position data will be collected and then click ADD. *Example: Group2.Pos*




3. From the list, highlight the data type ExternalLatchPosition, and then click ADD.
*Example: ExternalLatchPosition*

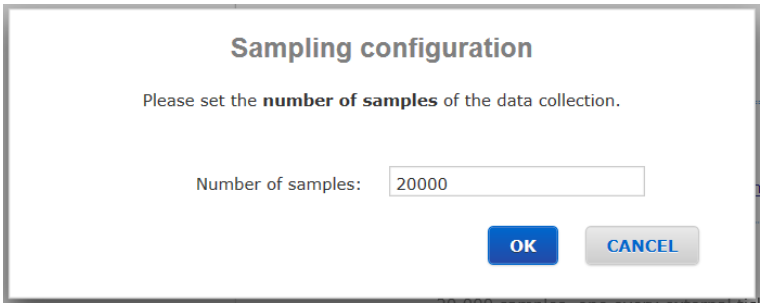



4. Click OK when the data type has been specified.
5. Repeat **Step 3 Add Data** to add other data types to be collected under this specific Gathering Configuration.

**Step 4: How much to collect**

This step specifies the number of data points per set. This step is based upon the API function EventExtendedConfigurationActionSet(ExternalGatheringRun, Nb of points, 1, 0, 0). Refer to **Features Manual** for more information.

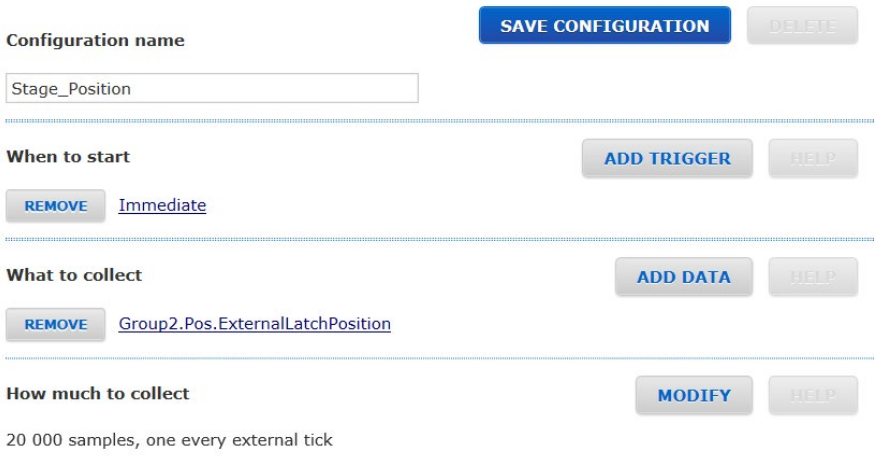
1. Click on MODIFY to specify the number of data points to be collected. Example: 20000 data samples will be collected for every external trigger.



### Step 5: Save Configuration

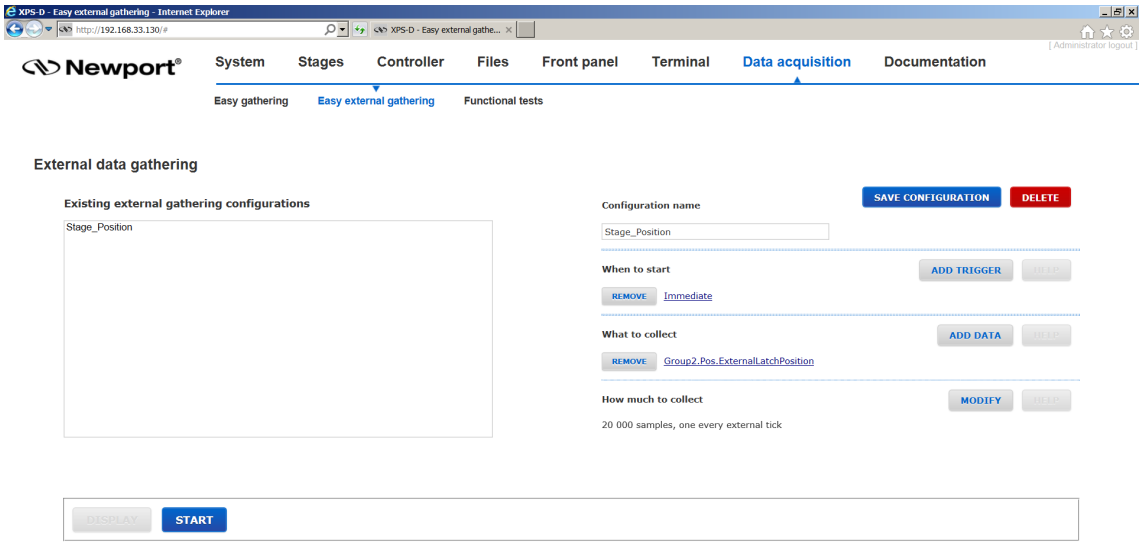
1. Click on SAVE CONFIGURATION to save the gathering configuration.

*Example:*




### Step 6: Start Gathering

1. To begin gathering data, click on START.







2. The controller then immediately begins to monitor for the configured external trigger.

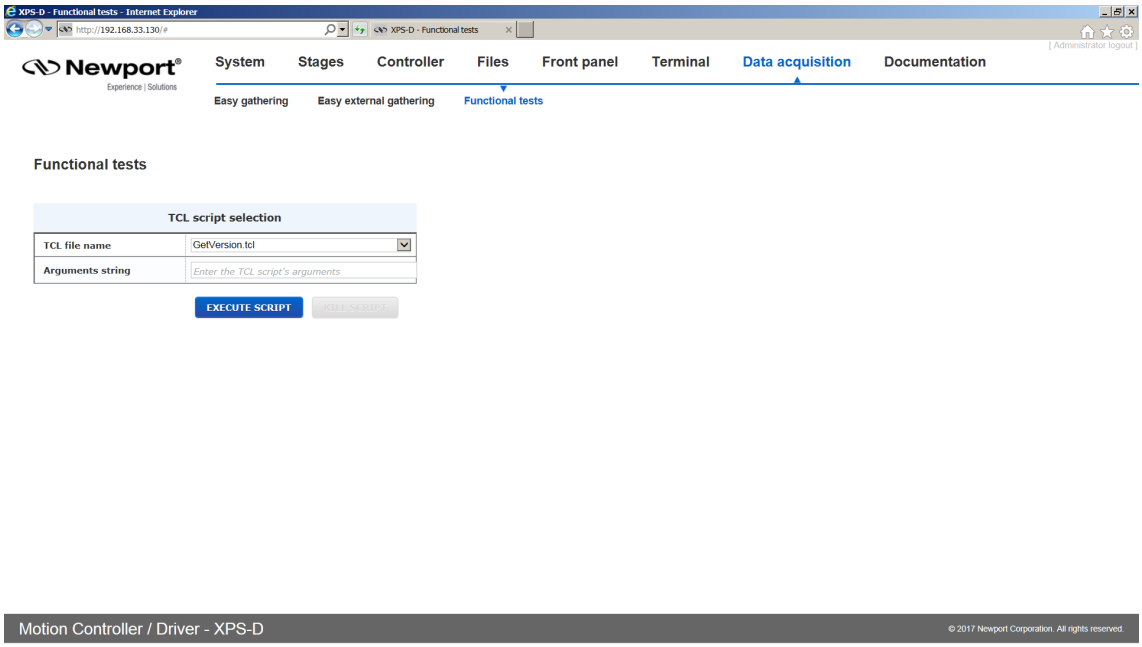

3. Once the trigger event occurs, the data acquisition begins and a status bar appears.


4. Once the data acquisition is complete, click on DISPLAY to view the data just like for Easy Gathering.

## 2.27 Data Acquisition – Functional Tests

The FUNCTIONAL TESTS page allows running TCL scripts saved in the "/Admin/Public/Scripts/ FunctionalTests" folder of the XPS controller. Supplied in the firmware, the Functional Tests scripts will then display the results of a gathering file.

Select the TCL Script name then press "Execute script" to run the script or "Kill script" to stop its execution.



## 2.28 Files – Gathering Files

In this webpage gathering files stored on the XPS controller can be downloaded, viewed, edited or deleted. To generate gathering files refer to **Features Manual**.

### Download/Edit/View/Delete

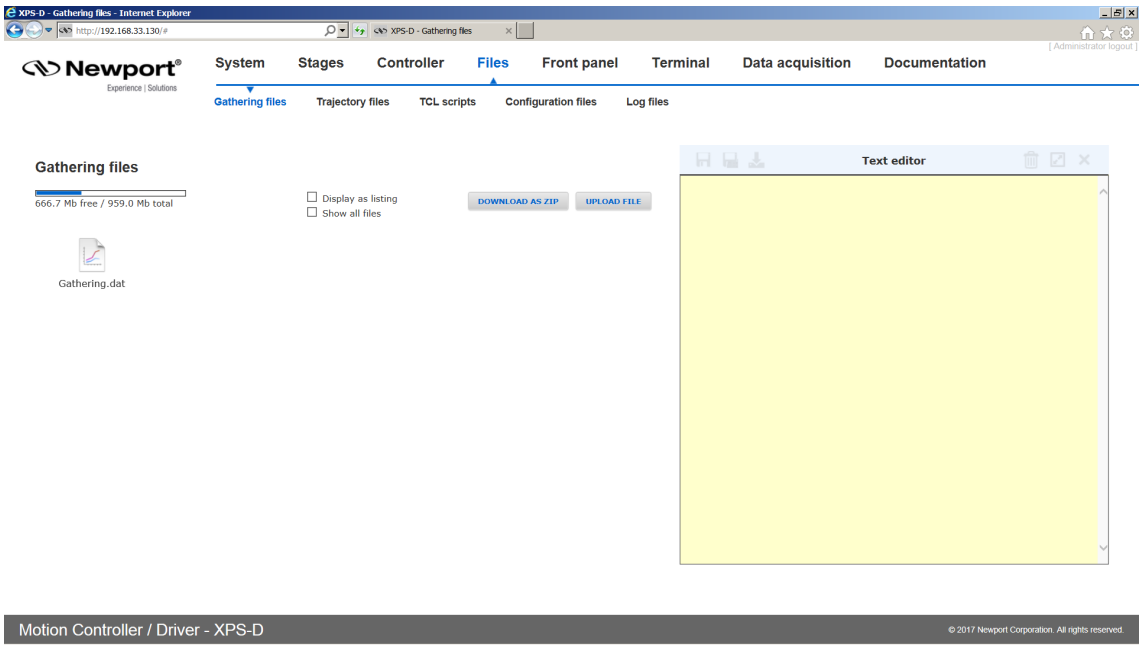
Click on the gathering file name to open the file in the text editor and a window will appear with a graphical representation of the data. In the text editor the user can view, edit, save, save as or delete the gathering file (in the controller) and download it to the user's PC.

### UPLOAD FILE

Click UPLOAD FILE to upload a gathering file from the user's PC to the XPS controller.

### DOWNLOAD AS ZIP

Click DOWNLOAD AS ZIP to download all gathering files to the user's PC.




**NOTE**

**Ensure the web browser zoom is set at 100% to avoid image corruption when displaying a gathering file.**

## 2.29 Files – Trajectory Files

In this webpage trajectory files stored on the XPS controller can be downloaded, uploaded, viewed, edited, created or deleted.

### Download/Edit/View/Delete

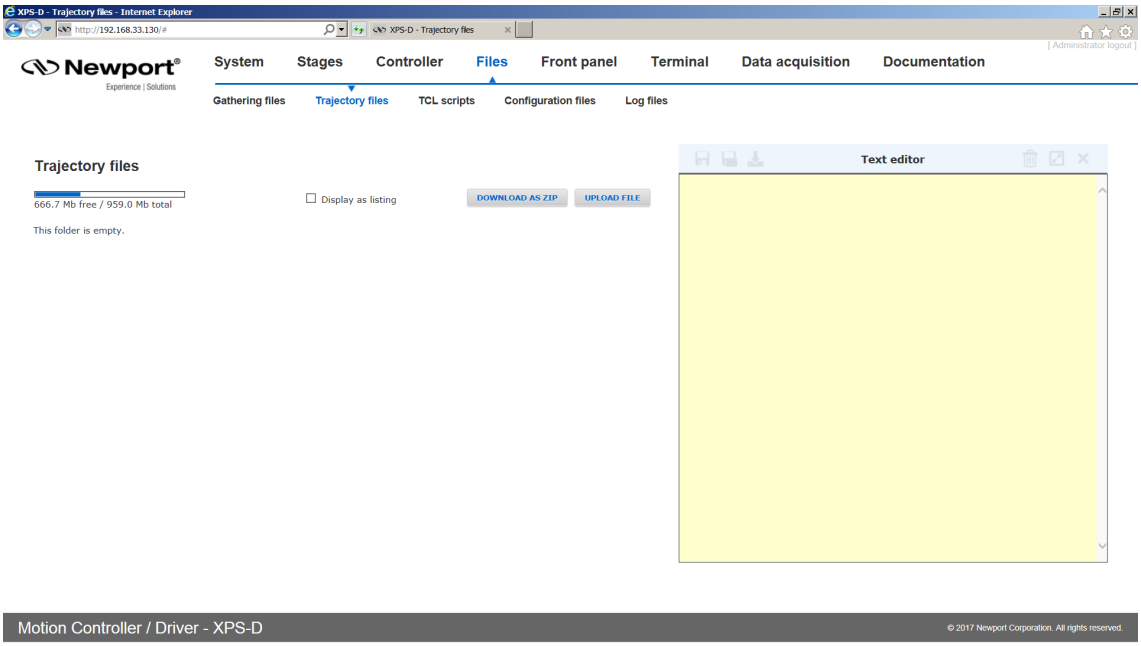
Click on the trajectory file name to open the file in the text editor. In the text editor the user can view, edit, save, save as or delete the trajectory file (in the controller) and download it to the user's PC.

### UPLOAD FILE

Click UPLOAD FILE to upload a trajectory file from the user's PC to the XPS controller.

### DOWNLOAD AS ZIP

Click DOWNLOAD AS ZIP to download all trajectory files to the user's PC.



## 2.30 Files – TCL Scripts

In this webpage TCL script files stored on the XPS controller can be downloaded, viewed, edited or deleted. TCL scripts could also be uploaded through this webpage.

### Download/Edit/View/Delete

Click on the TCL script file name to open the file in the text editor. In the text editor the user can view, edit, save, save as or delete the TCL script (in the controller) and download it to the user's PC.

### UPLOAD FILE

Click UPLOAD FILE to upload a TCL script file from the user's PC to the XPS controller.

### DOWNLOAD AS ZIP

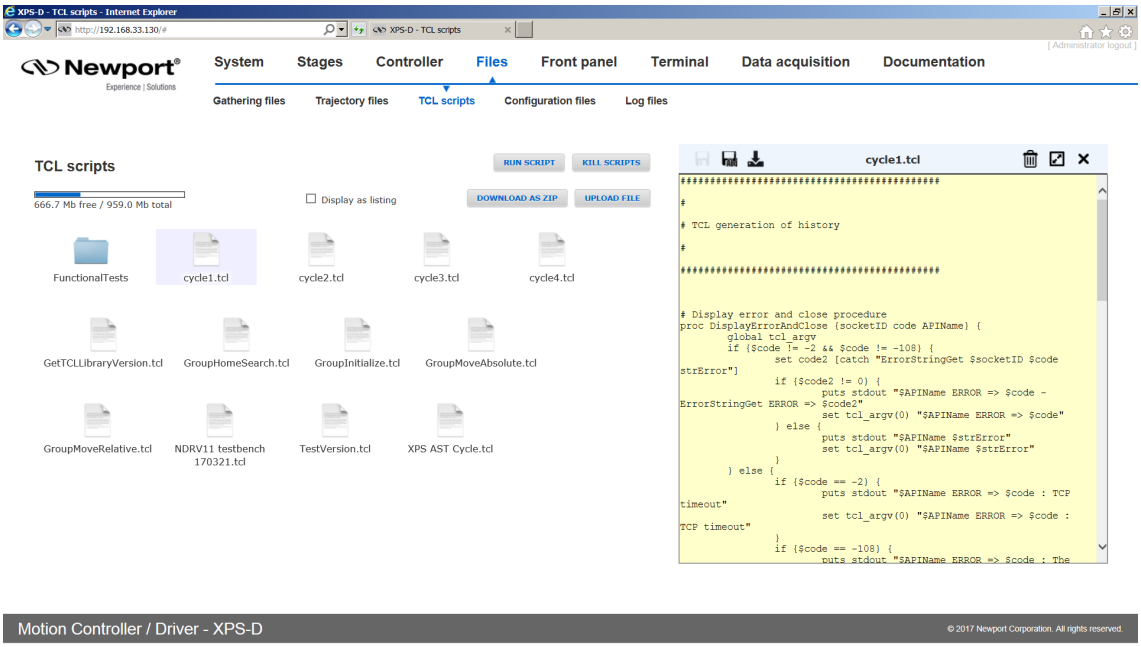
Click DOWNLOAD AS ZIP to download all TCL script files to the user's PC.

### RUN SCRIPT

Click RUN SCRIPT to launch the selected script. Several scripts can be launched.

### KILL SCRIPTS

Click KILL SCRIPTs to stop all scripts.



## 2.31 Files – Configuration Files

In this webpage Configuration files stored on the XPS controller can be downloaded, uploaded, viewed, edited or deleted. Note: Users must be logged in with Administrator rights in order to access this webpage.

### Download/Edit/View/Delete

Click on the configuration name to open the file in the text editor. In the text editor the user can view, edit, save, save as or delete the configuration file (in the controller) and download it to the user's PC.

### UPLOAD FILE

Click UPLOAD FILE to upload a configuration file from the user's PC to the XPS controller. When uploading a file, take note of the file extension.

### LOAD CONFIG

Click LOAD CONFIG to upload all configuration files as a zip file from the user's PC to the controller.

### SAVE CONFIG

Click SAVE CONFIG to download all configuration files as a zip file from the controller to the user's PC.

### UPDATE STAGE DB

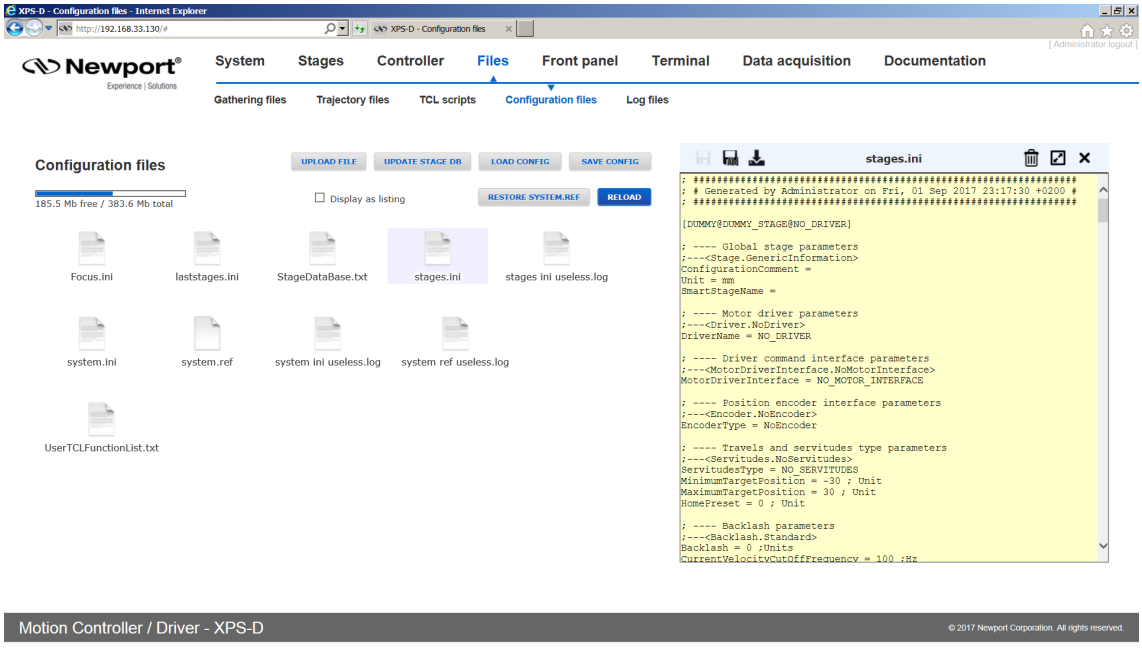
Click UPDATE STAGE DB to upload a new StageDataBase.txt file from the user's PC to the controller.

### RESTORE SYSTEM.REF

Click RESTORE SYSTEM.REF to restore the original System.ref file as it was upon delivey.

### RELOAD

Click RELOAD to reboot or restart controller to apply configuration changes.



## 2.32 Files – Log Files

In this webpage log files stored on the XPS controller can be downloaded, uploaded, viewed, edited or deleted. Note: Users must be logged in with Administrator rights in order to access this webpage.

### Download/Edit/View/Delete

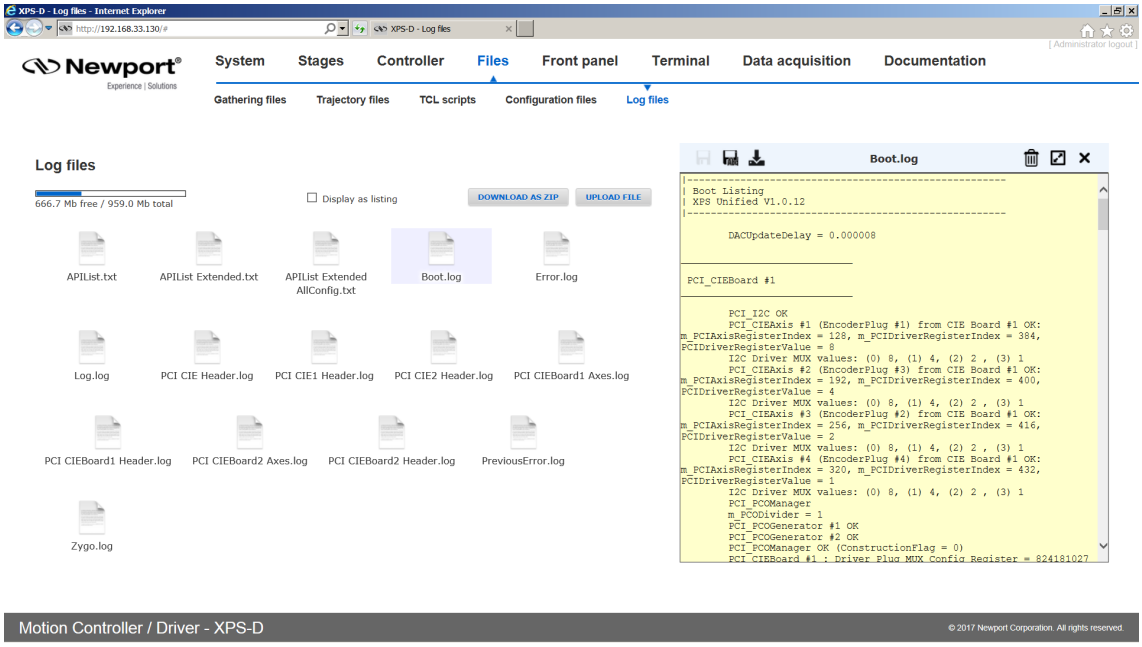
Click on the log file name to open the file in the text editor. In the text editor the user can view, edit, save, save as or delete the log file (in the controller) and download it to the user's PC.

### UPLOAD FILE

Click UPLOAD FILE to upload a log file from the user's PC to the XPS controller. When uploading a file, take note of the file extension.

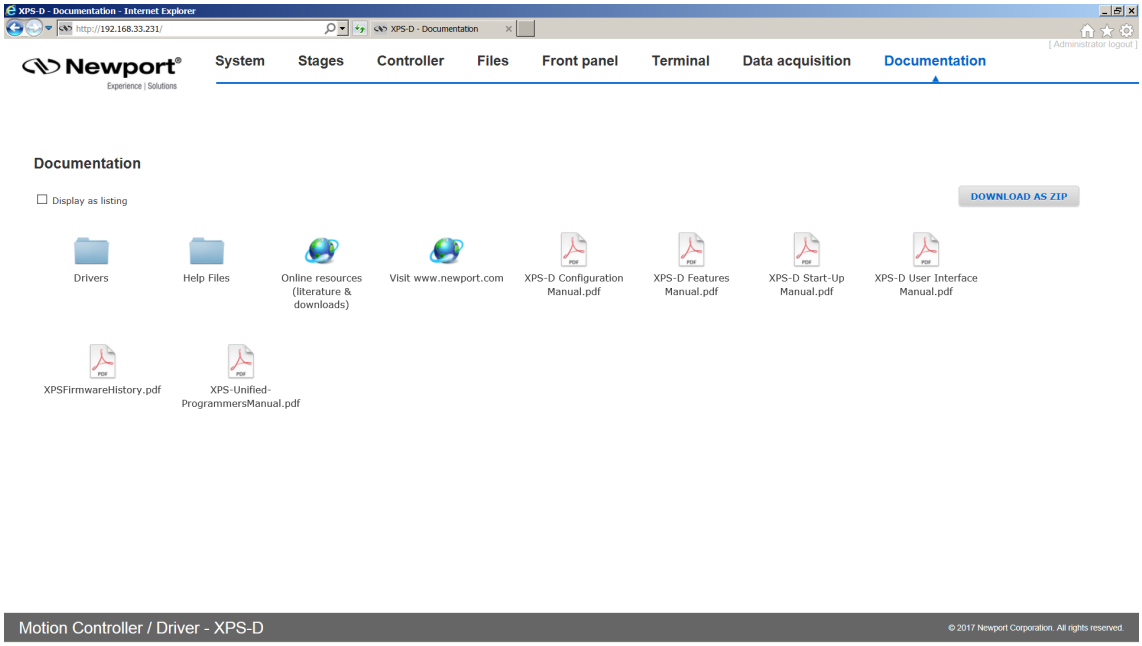
### DOWNLOAD AS ZIP

Click DOWNLOAD AS ZIP to download all log files to the user's PC.



## 2.33 Documentation

Under the webpage Documentation users can open and download XPS-D manuals, help files, drivers and example code.



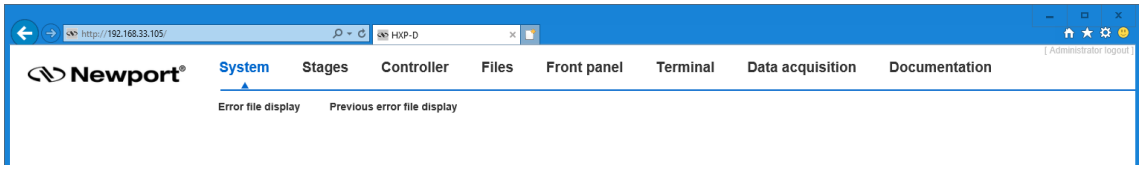
# 3.0 HXP-ELEC-D specific menus

When an XPS-D controller is preconfigured to drive a hexapod (referenced HXP-ELEC-D), some menus are different. They are described in this section.

## 3.1 System menu

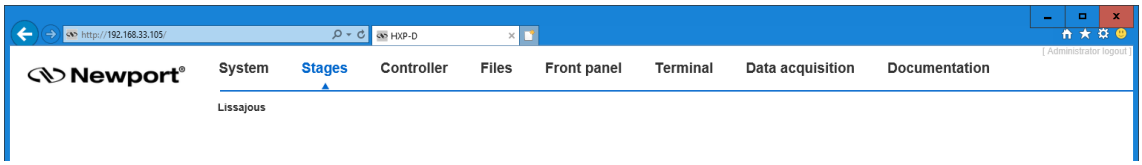
Since the configuration is built in factory, the configuration pages of the XPS-D standard "System" menu are no longer available.

This menu only includes "Error file display" and "Previous error file display" pages:



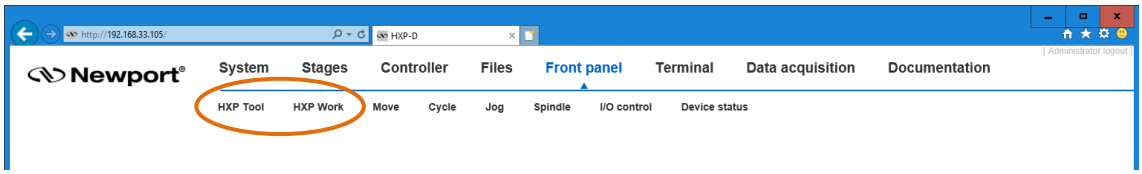

## 3.2 Stages menu

For the same reason, the "Stages" menu (Administrator only) is restricted to "Lissajous" page:




## 3.3 Front panel menu

This main menu is emphasized with pages dedicated to hexapod which are described after:



### 3.3.1 Front panel – HXP Tool

The HXP Tool page provides access to incremental moves and RightPath Trajectory moves along and around the axes of the Tool coordinate system. See Features Manual for details. A couple of comments about this page:

**Position** refers to the position of the Tool coordinate system in the Work coordinate system.

**State** refers to the state of the Hexapod group.

**Action** gray field next to Group state is a dynamic action button. Its function changes according to the group state. It allows to Initialize, Home and Disable the hexapod.

**KILL ALL** stops all motion and sets the Hexapod to the “Not Initialized” state.

**Coordinate** lists the coordinate (X, Y, Z, U, V, or W).

Under **Incremental move,** it is possible to increment individual coordinates by entering a value in one of the six fields and pressing the “<” or “>” button next to the input window. It is also possible to increment all six coordinates at the same time (“<” and “>” button next to the “All togheter” mention).

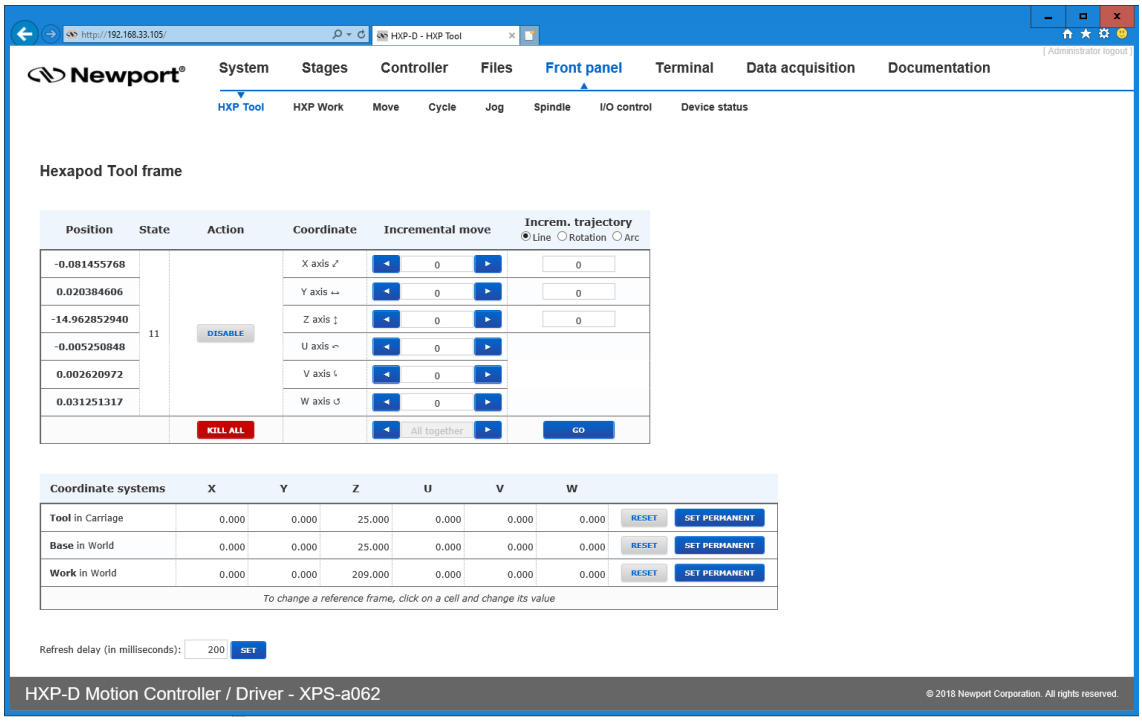
**Increm. trajectory** allows executing RightPath Trajectory motions. After choosing the type of trajectory (Line, Rotation or Arc), and entering the definition parameters, the motion is launched by pressing “GO” button.

**Coordinate systems** area displays and allows changing the different coordinate systems. These changes are not saved automatically in "system.ini" file.

**Reset** buttons reloads the genuine coordinate system (saved in system.ini).

**Set permanent** saves the coordinate system in system.ini file

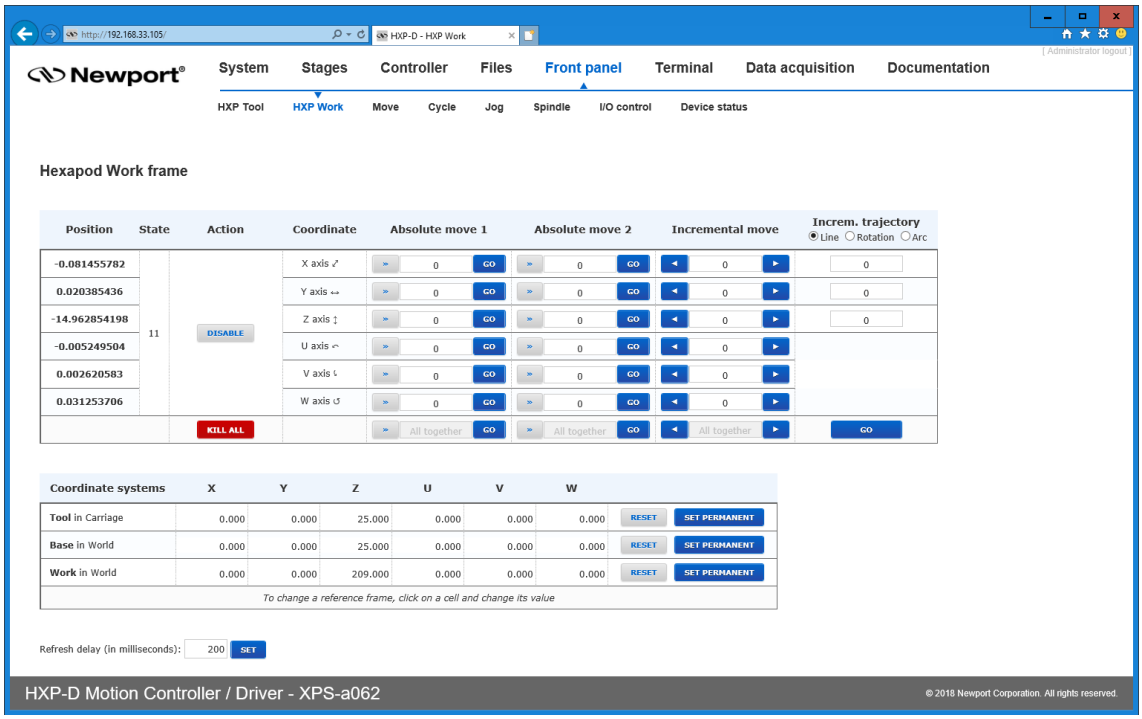
**Refresh delay (in milliseconds)** sets screen update delay for position and group state.



### 3.3.2 Front panel – HXP Work

The HXP Work page is similar to the HXP Tool page. It provides access to incremental moves and RightPath Trajectory moves along and around the axes of the Work coordinate system, but also to absolute moves in Work. See Features Manual for details.

More over, the “>>” buttons can be used to fill the “Absolute move” parameters with current position values, either individually or “All together”.

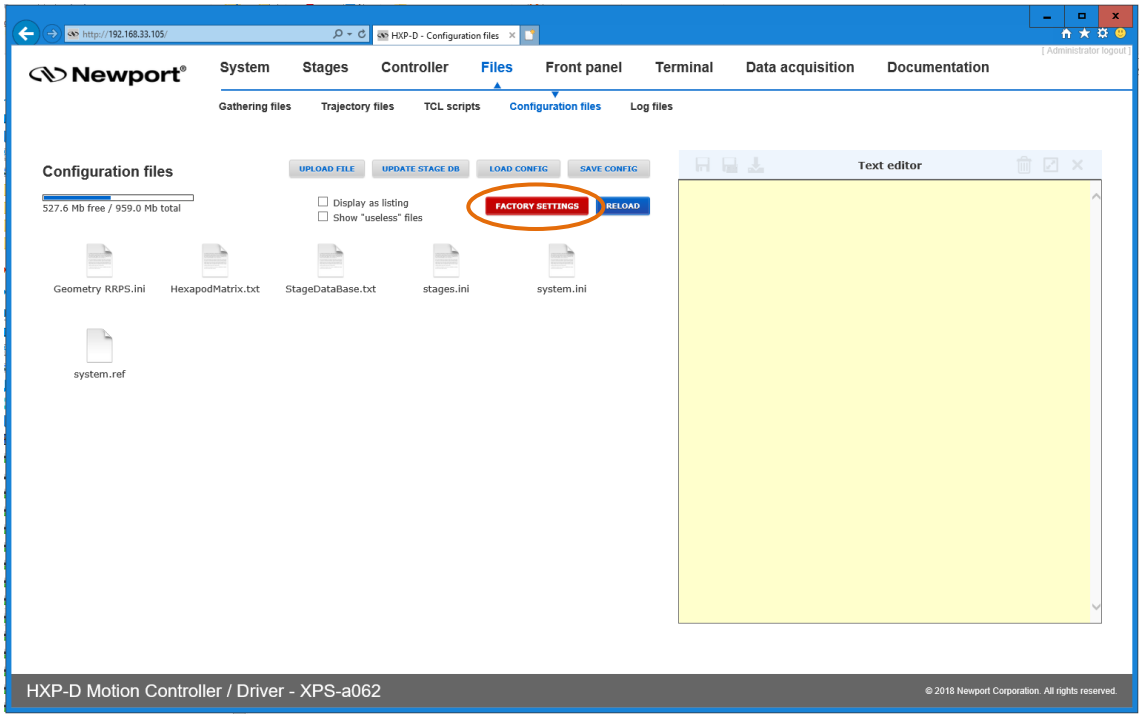


## 3.4 Files menu

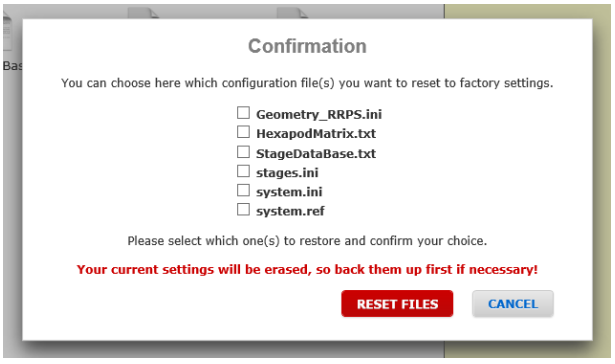
### 3.4.1 Files – Configuration files

This page remains available (for Administrator only) even though the configuration is built in factory. It may be used by experimented users or with the help of Newport support to make configuration changes directly in the configuration files.

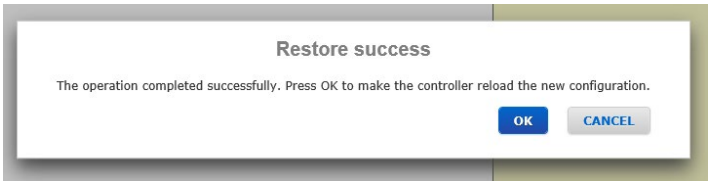
However, a "**FACTORY SETTINGS**" button is added to simply allow retrieving all the original configuration files. This affects the HEXAPOD group but also the additional single axes if any.




After pressing this button, the following window appears. Tick the files you want to restore and click "RESET FILES".




A message pops up to inform restore success. Click OK to restart the controller and reload the new configuration.



# Service Form

**Your Local Representative**

Tel.: _____

Fax: _____

Name: _____

Company: _____

Address: _____

Country: _____

P.O. Number: _____

Item(s) Being Returned: _____

Model#: _____

Return authorization #: _____
*(Please obtain prior to return of item)*

Date: _____

Phone Number: _____

Fax Number: _____

Serial #: _____

Description: _____

Reasons of return of goods (please list any specific problems): _____

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