HttpClientExample

README

Last Updated August 9th, 2019

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# Overview

This HttpClientExample project was created to exercise the HttpClient class and related types from the SIMPL# Pro library. This program is designed to interact with the HttpCwsServerExample project running on a separate control system; specifically, it consumes the HttpCwsServerExample’s REST API in order to begin monitoring a relay port. It is recommended that the reader first go through the README for the HttpCwsServerExample program to familiarize themselves with the server’s REST API before reading the source code of the HttpClientExample, as this program is designed to consume the RESTful interface served by the HttpCwsServerExample program.

**Note:** SSL must be set to OFF for this program to work correctly.

This program provides a console command, **monitor**, which causes the client to begin monitoring a relay on the server control system.

The other console command, **stop**, causes the client to unsubscribe from the relay and release the HttpClient object.

All SIMPL# Pro source code defining the program is provided in the following files:

* ControlSystem.cs
* RelayMonitor.cs

These source files are thoroughly commented and are intended to demonstrate one of many possible applications of the SIMPL# Pro APIs.

## Console Commands

The HttpClientExample program provides two console commands; they allow the user to begin monitoring a relay on the server control system via the REST API, and to unsubscribe from the relay and deactivate the client.

### Monitor

*monitor <hostname>*

The user must provide the <hostname> parameter—this must be the hostname (or IP address) of the control system running the HttpCwsServerExample project. If a hostname is provided, it may be necessary to provide the fully qualified domain name of the server.

Once invoked, this console command causes the client control system to retrieve a representation of the collection of relays via a GET request to the resource located at /cws/api/relays on the server. If the response is successful, the client proceeds to parse the response payload (which has the Collection+JSON media type) to determine the number of relays on the server control system. Next, the client subscribes to a relay with a RESTful WebHook by making a POST request to /cws/api/relays/{id}/web-hooks, where {id} is a randomly selected integer ranging between 1 and the total number of relays on the server, which was determined from the previous GET response. If the subscription is made successfully, the client will now print any future notifications from the server control system to the console. The user may then observe the WebHook in action by changing the state of the relay either via the server control system’s **rlyopen**/**rlyclose** console commands, or by making a PUT request to the relay with another HTTP client, such as Postman.

### Stop

*stop*

This console command simply unsubscribes the client from the server’s relay WebHook and releases the HttpClient’s resources. The WebHook to the relay is discarded via a DELETE request to the server’s /cws/api/relays/{id}/web-hooks/{subid} endpoint, where {id} is the ID of the relay that the monitor initially subscribed to, and {subid} is the ID of the resource representing the subscription, which is known only to the client and server.

# Equipment

This program is designed to work with the following hardware/software:

## Devices

* 3-Series Control System running the HttpClientExample program
* 3-Series Control System running the HttpCwsServerExample program

## Software / Firmware

|  |  |
| --- | --- |
| Device | Firmware Version |
| 3-Series Control System | 1.601.xxx or later |

|  |  |
| --- | --- |
| Software | Version |
| Toolbox | 3.03.xxx or later |

# Important Notes

## Before Loading the Program

* Turn off SSL on the control systems running the HttpClientExample and the HttpCwsServerExample
* Since this program makes use of the HttpClient class, which sends requests over HTTP rather than HTTPS, it is necessary to turn SSL off for this program to function correctly.

# Loading the Program and Project Files

1. Open the top-level solution file, HttpClientExample.sln, in Visual Studio 2008.
2. Press F6 to Build All. This will place the .cpz file in the HttpClientExample\bin\Debug folder.
3. Transfer the .cpz file to one of the control system’s program slots.
4. On the control system, invoke **progload -p:#**, where **#** is the number of the slot into which you placed the .cpz file.