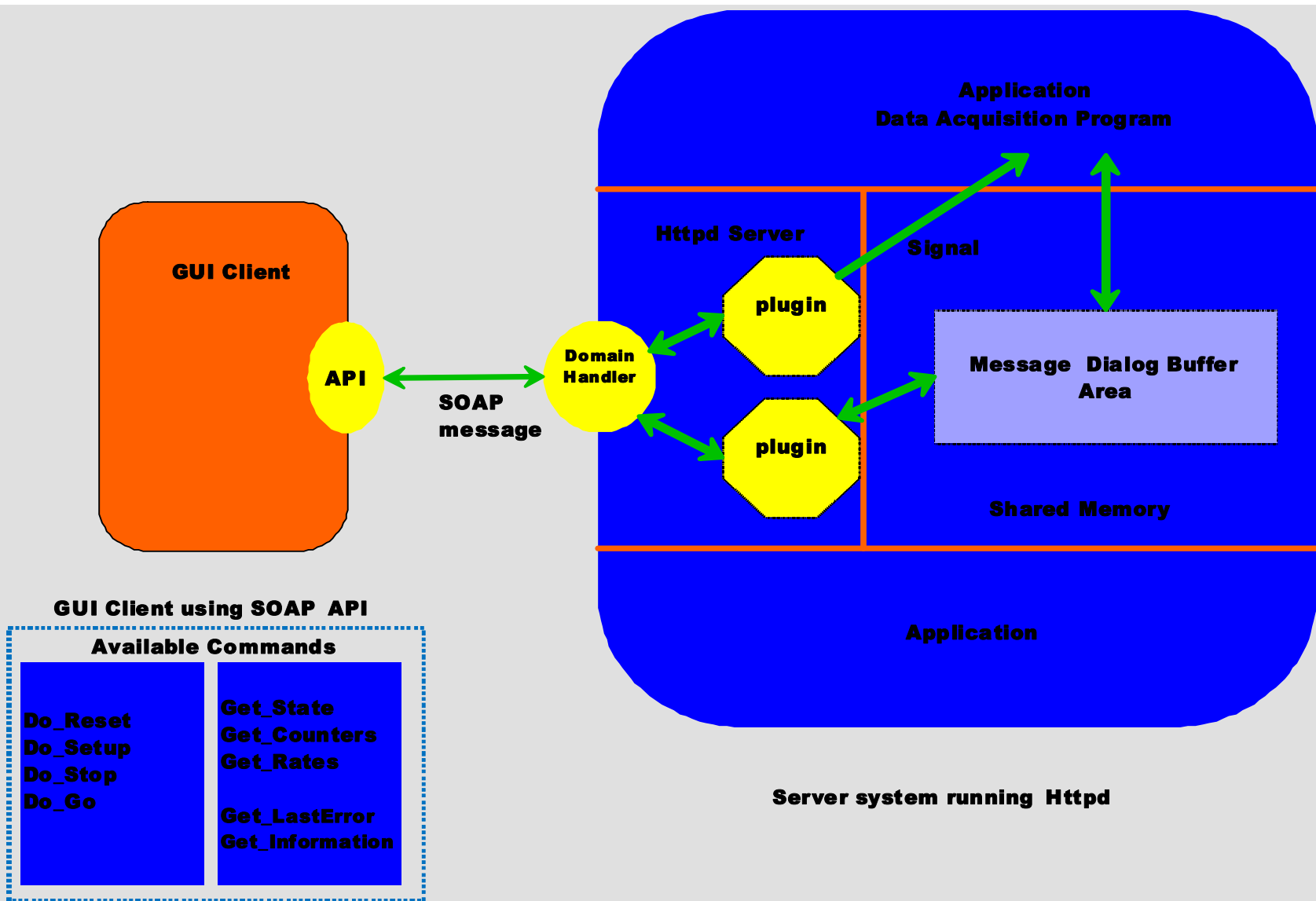


AGATA Slow/Run Control

- Basic service structure
 - based on SOAP/XML protocols
- Service gateway when needed
 - for control of other equipment
- Control
 - Using SOAP/XML based API (C, C++, Java: gSOAP)
 - Using HTML from standard Internet Web Browser
- Diagnostics

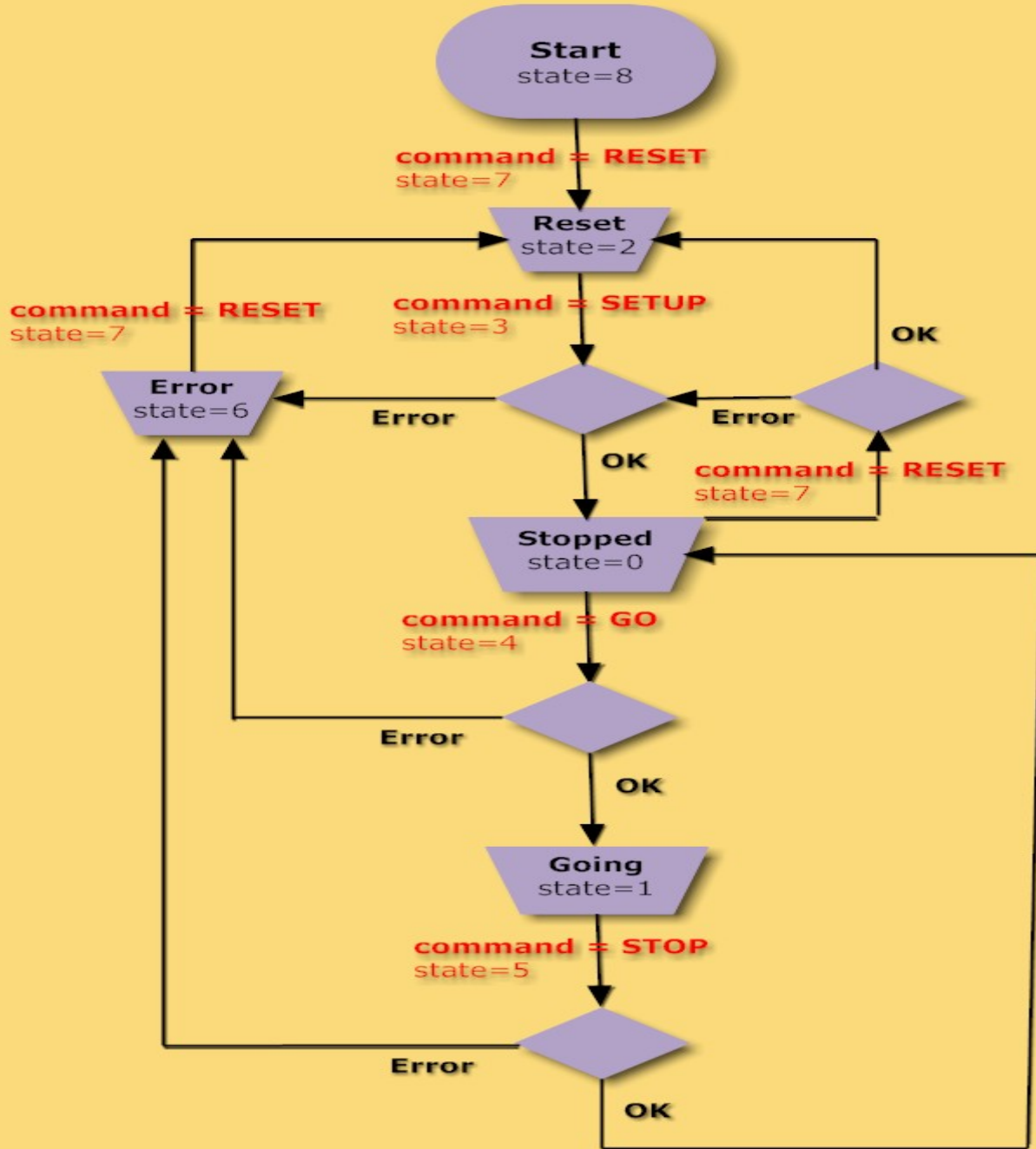


Run Control service using SOAP/XML as the network protocol.

The Client API communicates via the Service Message Dialog Buffer Area and uses a server plugin to send signals to the running application to notify of new messages.

Run Control

- DataAcquisitionControl Service
 - WDSL description file
 - Control procedures available map to software state machine
 - Do_Reset
 - Do_Setup
 - Do_Stop
 - Do_Go
 - Get_State
 - Get_Counters
 - Get_Rates
 - Get_LastError
 - Get_Information

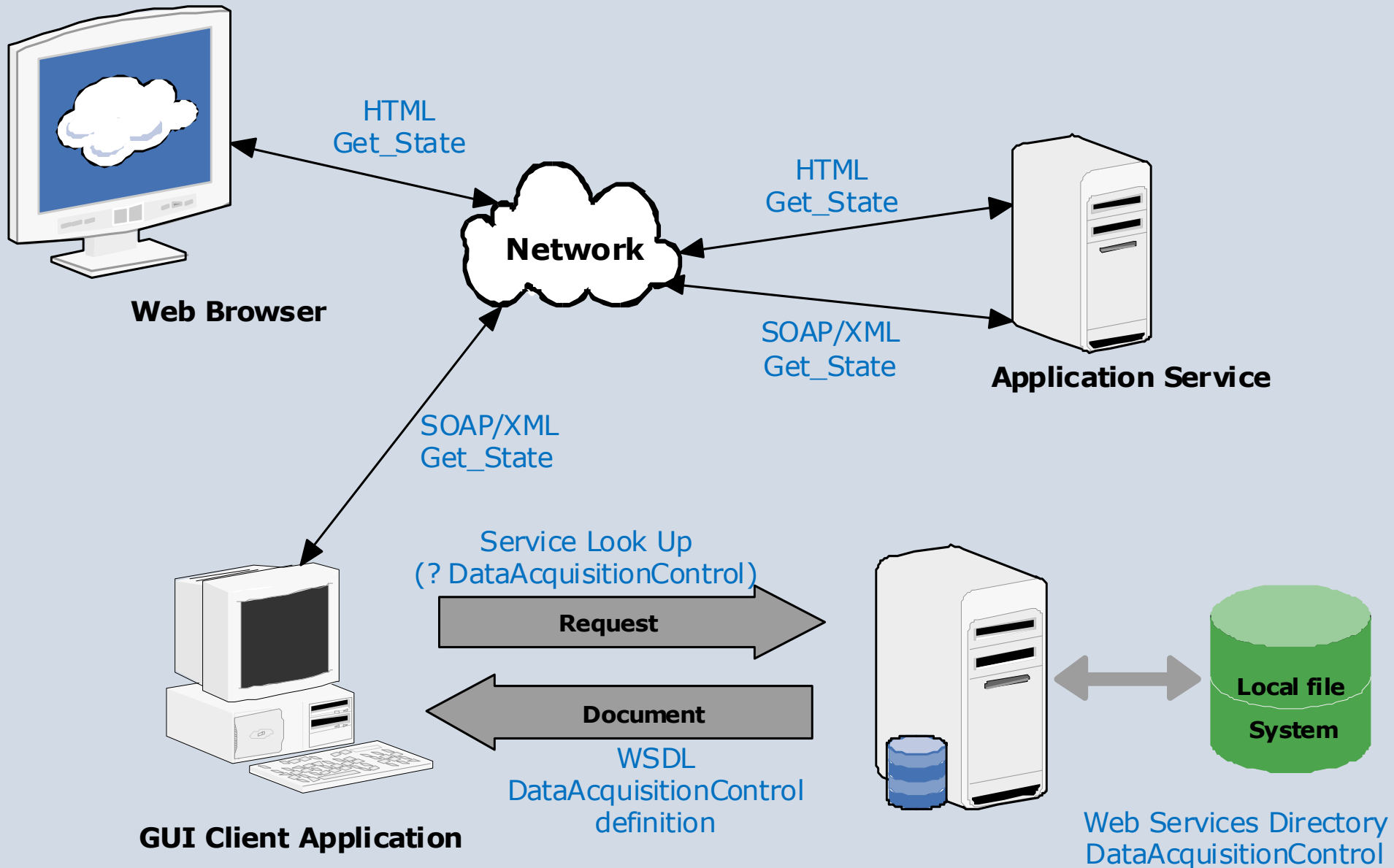


Data Acquisition Control
State Diagram

Run Control

- GUI uses the WSDL file to obtain description of the software interfaces
- Packages such as gSOAP can convert this into C, C++ or Java API implementation
- User Control is available via GUI using this API
- User Control may also be possible using HTML/JavaScript and a standard Web Browser.

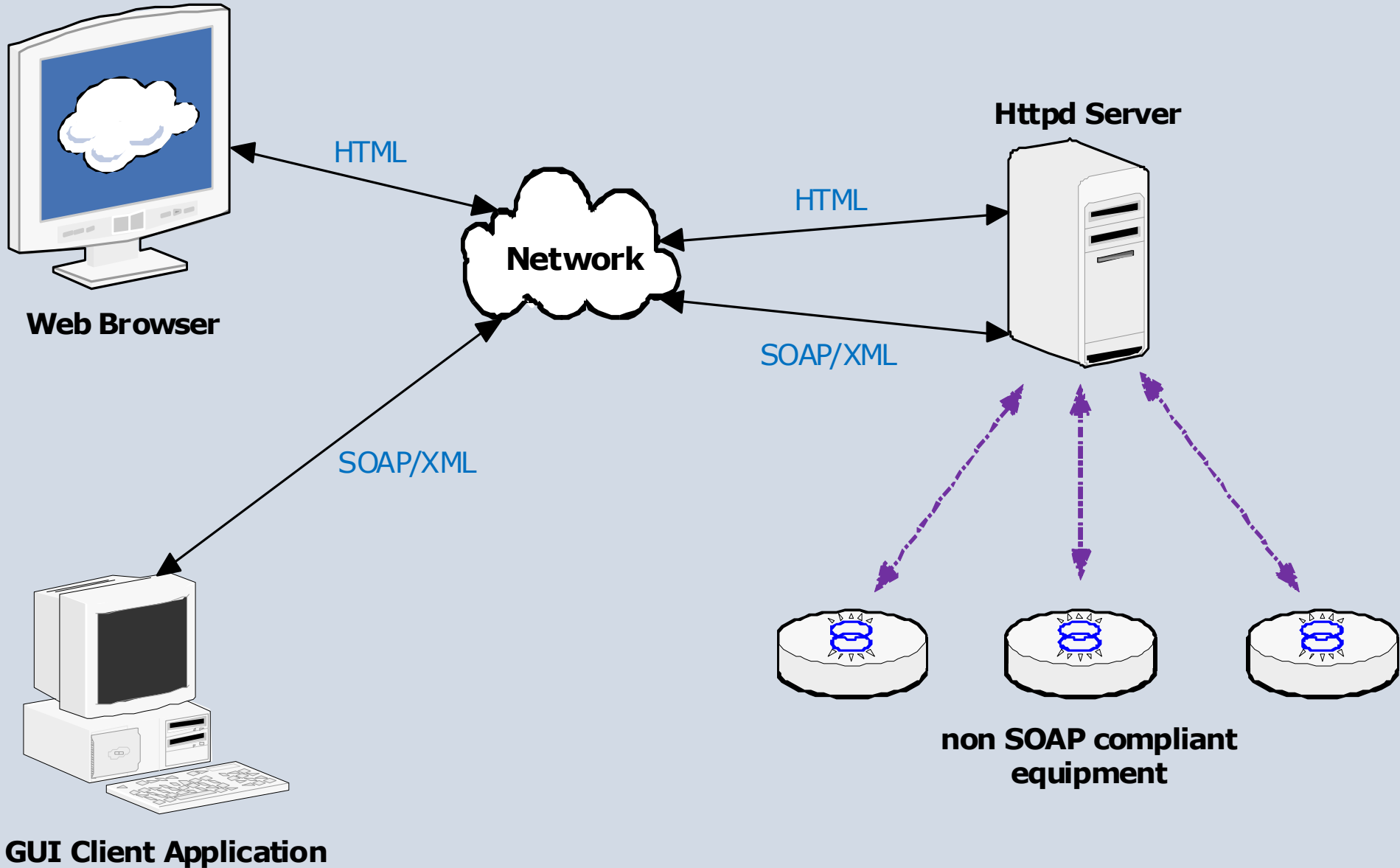
Run Control Example



SOAP/XML Gateway

- For equipment which does not or can not directly support SOAP/XML and/or an embedded Httpd service a gateway between the SOAP/XML domain and the non SOAP compliant equipment can be provided.
- From the user GUI all equipment appears to support the standard SOAP/XML control

SOAP/XML gateway



Data Acquisition System Control



Current Data Acquisition State RESET Please Setup

y

Reload Page

ResetPage

Update State

Update Counters

```
STATE returned 0 2 reset {please setup}
```

Last Updated:

AGATA Digitizer: Diagnostics

Digitizer 0 ▾

Probe Hardware

FPGA Segment: Virtex for Segment ADC card 1 ▾

Select

Read PROM

Address Modifier A16 ▾

Address/Command: 0x807

Set Data: 0x0000

Read Block Length: 1

Write Block Data: 0x0000

Do Get

Do Set

Do Read Block

Do Write Block

Shutdown Power


Show Status Registers

Select Internal Clock

Select External Clock

SetUp Current FPGA Offsets

SetUp Digitizer

Offset Ch1:  30947


Offset Ch2:  49151

Offset Ch3:  4854

Offset Ch4:  29127

Offset Ch5:  6675

Offset Ch6:  16384

Offset Ch7:  27306

```
Digitizer= 0
Read PROM
Prom Read back into RAM
This is a Segment ADC board
Serial number : 0037
Revision      : B
Mod state    : 03
Test Complete .....
```

command:

Empty Log Window

Reload

Reset

Debug

Data Communications Control

Temperature Monitoring

Last Updated: June 05, 2008 11:59:53

AGATA Digitizer: Data Communications Control

Digitizer:- 1 FPGA:- Core: Virtex for Segment ADC card 1

Current FADC Channel **1** ▼

```
Global Control = 5 (0x5)
Global Status = 57345 (0xe001)
Inspection A = 0 (0x0)
Inspection B = 0 (0x0)
Inspection Enables = 0 (0x0)
Spare Allocation = 0 (0x0)
Optical Offset = 16384 (0x4000)
Gain & Buffer Control = 65280 (0xff00)
Analogue Channel Select = 0 (0x0)
Inter-Board Link Status = 125 (0x7d)
RX Rocket I/O General Status = 0 (0x0)
SYNC Control = 57416 (0xe048)
SYNC Status = 57416 (0xe048)
Clock Control #1 = 57416 (0xe048)
Clock Control #2 = 57416 (0xe048)
Firmware = 57416 (0xe048)
```

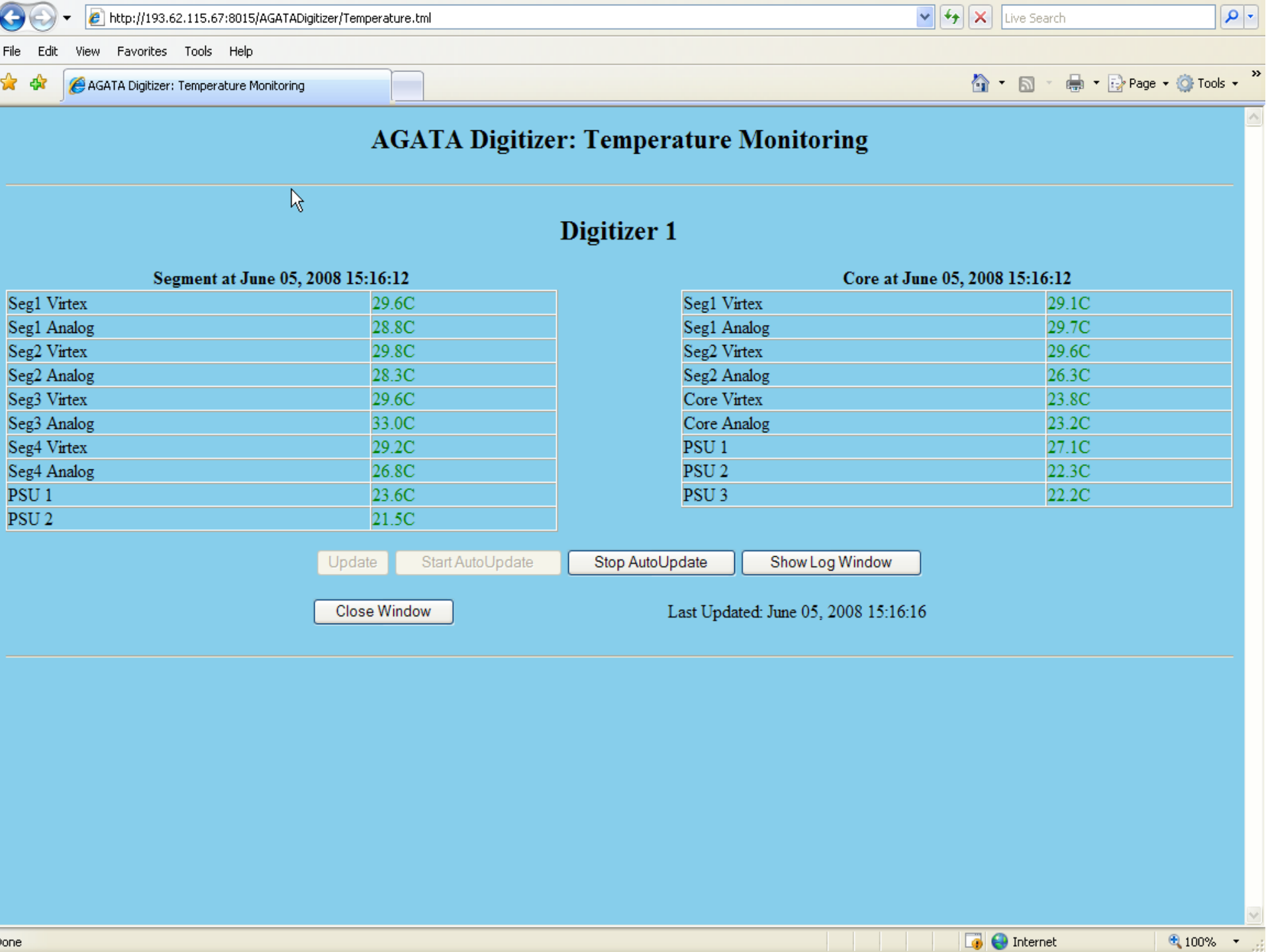
```
Channel Status = 0 (0x0)
Channel Control = 0 (0x0)
Rocket I/O Status = 0 (0x0)
Rocket I/O Control = 0 (0x0)
Test Data Source Select = 1 (0x1)
Insert Error = 0 (0x0)
```

Register **Test Data Source Select** ▼

Value:

Last Updated: June 05, 2008 15:14:38

Last Updated: June 05, 2008 15:14:39



AGATA Digitizer: Temperature Monitoring

Digitizer 1

Segment at June 05, 2008 15:16:12

Seg1 Virtex	29.6C
Seg1 Analog	28.8C
Seg2 Virtex	29.8C
Seg2 Analog	28.3C
Seg3 Virtex	29.6C
Seg3 Analog	33.0C
Seg4 Virtex	29.2C
Seg4 Analog	26.8C
PSU 1	23.6C
PSU 2	21.5C

Core at June 05, 2008 15:16:12

Seg1 Virtex	29.1C
Seg1 Analog	29.7C
Seg2 Virtex	29.6C
Seg2 Analog	26.3C
Core Virtex	23.8C
Core Analog	23.2C
PSU 1	27.1C
PSU 2	22.3C
PSU 3	22.2C

Last Updated: June 05, 2008 15:16:16

Digitizer Diagnostics

- An engineering GUI coupled to a scripting facility has been provided which is being used by technicians commissioning the digitizers as they are built.
- These tests will be available for checking hardware in the event of suspected faults.



FPGA Segment: Virtex for Segment ADC card 1

Empty Log Window



Current Script

Select Script

Previous

Next

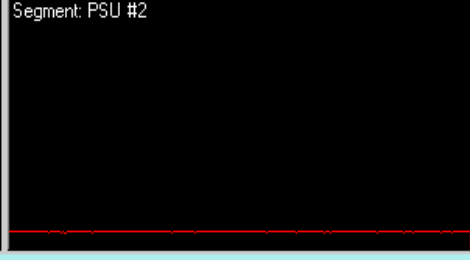
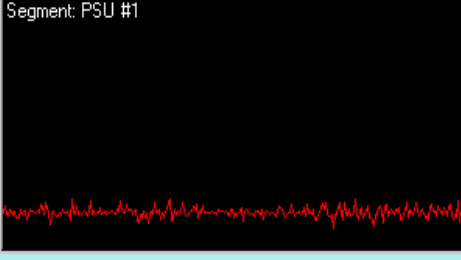
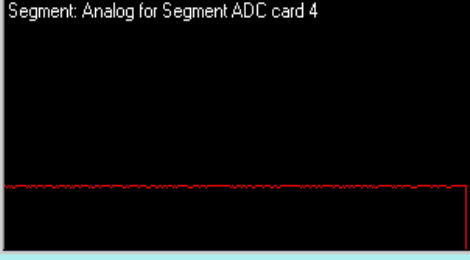
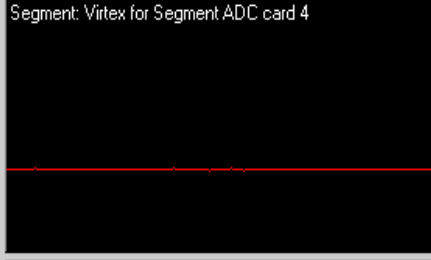
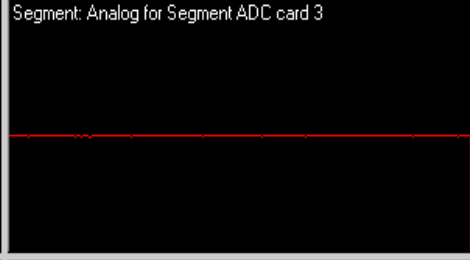
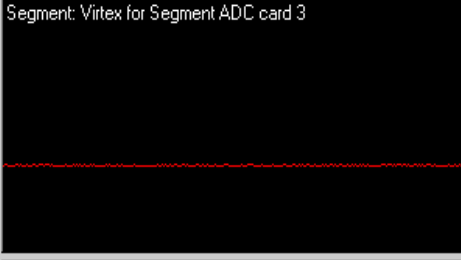
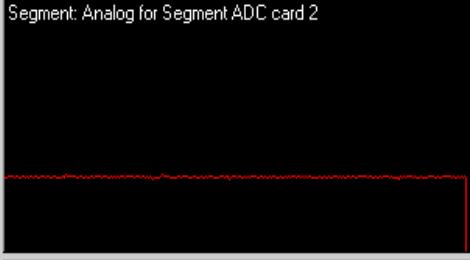
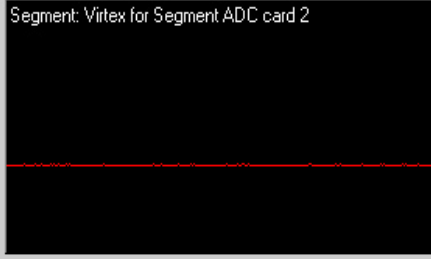
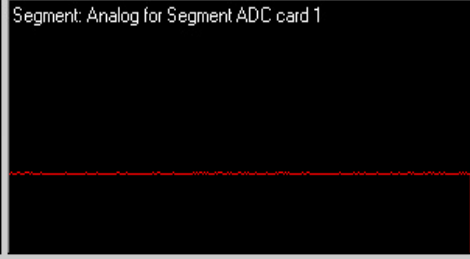
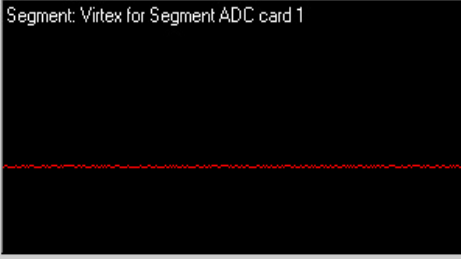
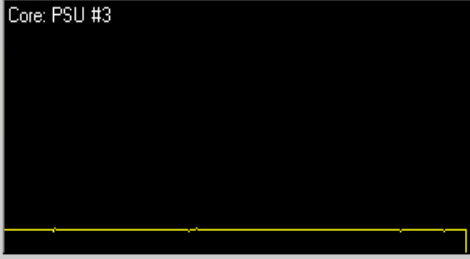
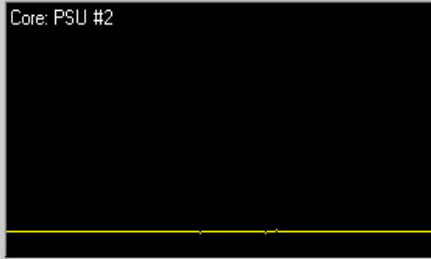
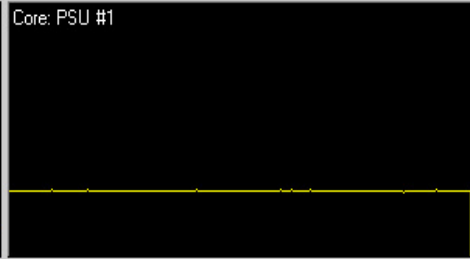
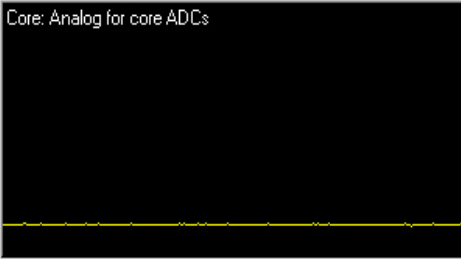
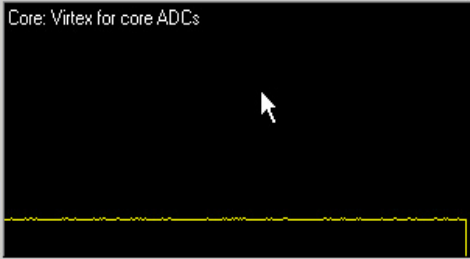
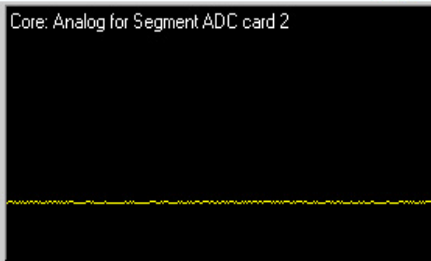
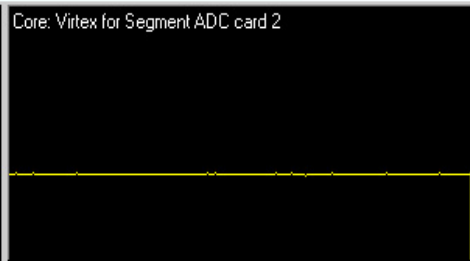
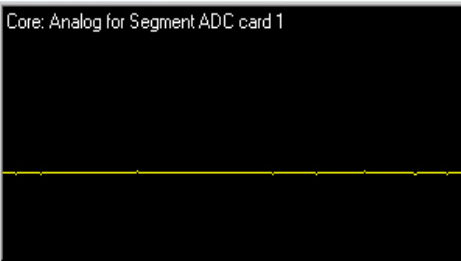
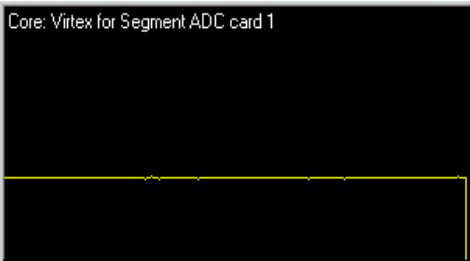
Run Script

Continue

Abort

Show Variables

Set Variable =



To Do

- Save/Restore parameters via digitizer PROM
- Save/Restore parameters to/from data base
- Make temperature monitoring a background task
- Power off digitizer if any temperature sensor exceeds its critical limit (40C?)
- Structure HTML interface better so that “user” and engineering parameters are not on the same screen
- Provide graphical configuration screen via HTML interface (to allow digitizers to be added and removed dynamically from control subsystem)
- Check performance (simulated?) with full number of digitizers

Data Base Access

- WSDL file available
- Server now included in the Run Control Demo package
- See <http://npg.dl.ac.uk/MIDAS/DataAcq/DataBase/DataBase.html>
- Operations available modelled on Windows registry
- Server implementation uses OS file system for management of database nodes.
- CONTENTS file contains parameters and values in plain text.

Data Base Access Service

node

Create Node Delete Node Show Nodes SH

Show Matching Nodes Show Matching

Get Value Delete Value

type

```
Last Updated: July 07, 2008 15:57:21
EXPERIMENTS\Test: v1 set to hello world (type = string)
Last Updated: July 07, 2008 15:57:25
EXPERIMENTS\Test: v1 = string
Last Updated: July 07, 2008 15:57:27
EXPERIMENTS\Test: v1 = hello world
```

Reload Page Reset Page