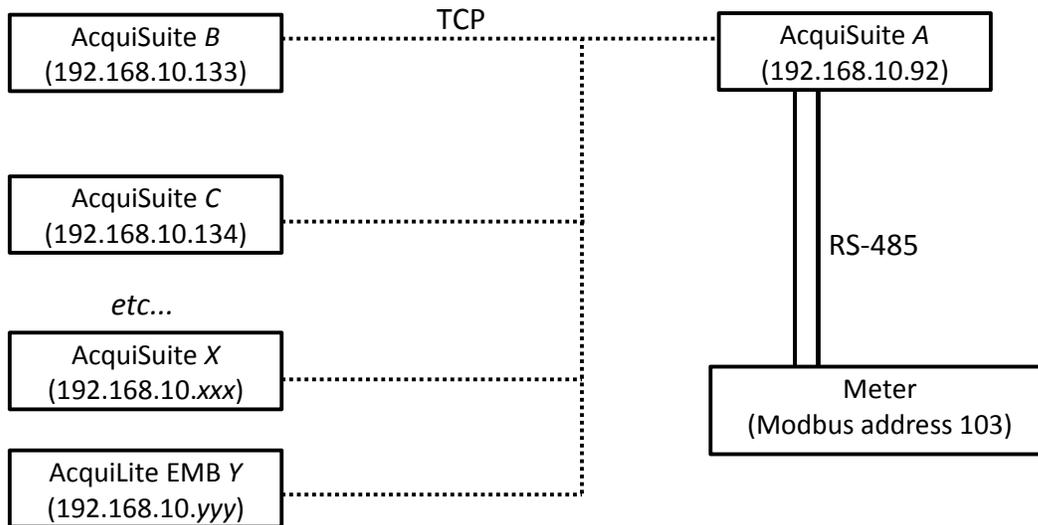# Technote 46 - AcquiSuite Gateways

Author: Michael Hewitt

This document illustrates Data Acquisition Servers acting as servers and as gateways, and discusses related issues.

```
AcquiSuite B          TCP                    AcquiSuite A
(192.168.10.133)                            (192.168.10.92)

AcquiSuite C                                    RS-485
(192.168.10.134)

   etc...
AcquiSuite X
(192.168.10.xxx)                            Meter
                                            (Modbus address 103)
AcquiLite EMB Y
(192.168.10.yyy)
```

| 103 | Ok | Test E5600 via 92 gate | SquareD, E5600 |
|-----|----|----|----|

Meter as logged on AcquiSuite B, using Modbus/TCP to AcquiSuite A

| Device | Status | Name and Purpose | Type | Sent | Received | Errors | RTT |
|--------|--------|------------------|------|------|----------|--------|-----|
| 103 | Ok | Test E5600 | SquareD, E5600 | 17142 | 15336 | 118 | 333ms |

Meter as logged on AcquiSuite A, directly-wired.

| | | |
|---|---|---|
| Modbus Address : | 103 | (1-247) |
| Modbus/TCP Gateway IP: | 192.168.10.92 | |
| Modbus/TCP Gateway Port: | 502 | (default 502) |
| Device Name: | Test E5600 via 92 gat | |
| Device Type: | SquareD E5600 | |

AcquiSuite B configured to read a device via Modbus/TCP

3300 NW 211th Terrace, Hillsboro, OR 97124
Ph: +1-503-601-2099 Fax: +1-503-601-6878
Copyright © 2012 Obvius, All rights reserved.

**DRAFT COPY**

Mar 16, 2011 (draft); Dec 1, 2011; Revised April 13, 2012
Page 1

# Issues related to Modbus/TCP

*Q: Why do DAS queries to RTU devices through a third-party gateway show confusing errors?*

*Several possible reasons:*

*A:  The gateway configuration may need correction, or it may have limiting factors.*

The AcquiSuite EMB A8810, AcquiSuite A8812 and AcquiLite EMB A7810 (using Modbus/TCP) can have 32 devices on the Device List.  Other gateways may not have that capacity.  Also all of the usual RS-485 communications issues can exist from the third-party gateway to the RTU devices.  Gateways have various ways of configuring for those comms characteristics, and various ways of handling – or not handling – any comms issues to TCP-based queries. Troubleshooting methods could include:

- contacting the third-party gateway vendor for troubleshooting tips for that hardware
- verify the RS-485 communications to the RTU devices connected to that gateway
- try reducing the number of devices on that gateway
- try reducing the number of that gateway's Modbus/TCP devices on the DAS Device List, which are creating queries to that gateway.  Like connecting fewer devices to that gateway, this may also ease the traffic burden on that third-party gateway

*A:  The network path to the gateway may need correction, or it may have limiting factors.*

The AcquiSuite EMB A8810, AcquiSuite A8812 and AcquiLite EMB A7810 each have configurable levels of Modbus/TCP access.   Third-party gateways may also have equivalent settings to block or allow various Modbus/TCP connections.   Additionally, since the queries and responses operate over a network, other rules may exist within routers, switches, and firewalls.  That route path between the DAS and the other gateway should be considered, and potentially discussed with I/T Administrators.  Fortunately the AcquiLite EMB A7810, AcquiSuite EMB A8810, and AcquiSuite A8812 provide diagnostics.  Use the Testing / Diags page called Host Lookup, which can show what connections look like from the DAS out to the other gateway.

3300 NW 211th Terrace, Hillsboro, OR 97124
Ph: +1-503-601-2099 Fax: +1-503-601-6878
Copyright © 2012  Obvius, All rights reserved.

*DRAFT COPY*

Mar 16, 2011 (draft); Dec 1, 2011; Revised April 13, 2012
Page 2