

July 2007 AcquiSuite Firmware changes.

Firmware for the A8812 and A8811 released after July of 2007, will have a number of substantial changes. Users should be aware of these changes and how these may impact any custom applications that may have been developed. Although great care has been taken to maintain the previous feature set, users should test the firmware update prior to deploying this firmware on production equipment.

The firmware update will be provided at no cost.

Last release prior to changes:

A8811: v1.07.0220

A8812: v2.07.0411

Firmware release with changes

A8811: v01.07.1127

A8812: v02.07.0823

Overview of changes:

The previous AcquiSuite firmware made a number of modbus/485 queries every time a web page display or xml data request was made via http/port80. This had the effect of sending a number of redundant queries on the modbus/485 line as well as taking longer to satisfy the request. The new firmware allows caching of data and will share data between processes on the AcquiSuite to reduce the number of modbus queries required. In addition, several new features have been added that take advantage of the new data cache and shared memory systems.

Data cache:

The new firmware will now cache the data and configuration information from the modbus devices, and can share this information with other processes running on the AcquiSuite. This has the effect of speeding up page display functions when viewing the device data and configuration web pages. In addition, xml data requests are also served from cache and the speed at which they are returned is similarly improved.

When web page or xml requests are serviced, the data cache age is evaluated. Web pages with cached data older than 10 seconds will show “(cached)” to the left of the device status on the top of each page. XML data now includes a tag “<age units="seconds">22</age>” that will report the age of the data, in seconds. Users with custom xml applications may need to adjust the URL used to query data from the AcquiSuite.

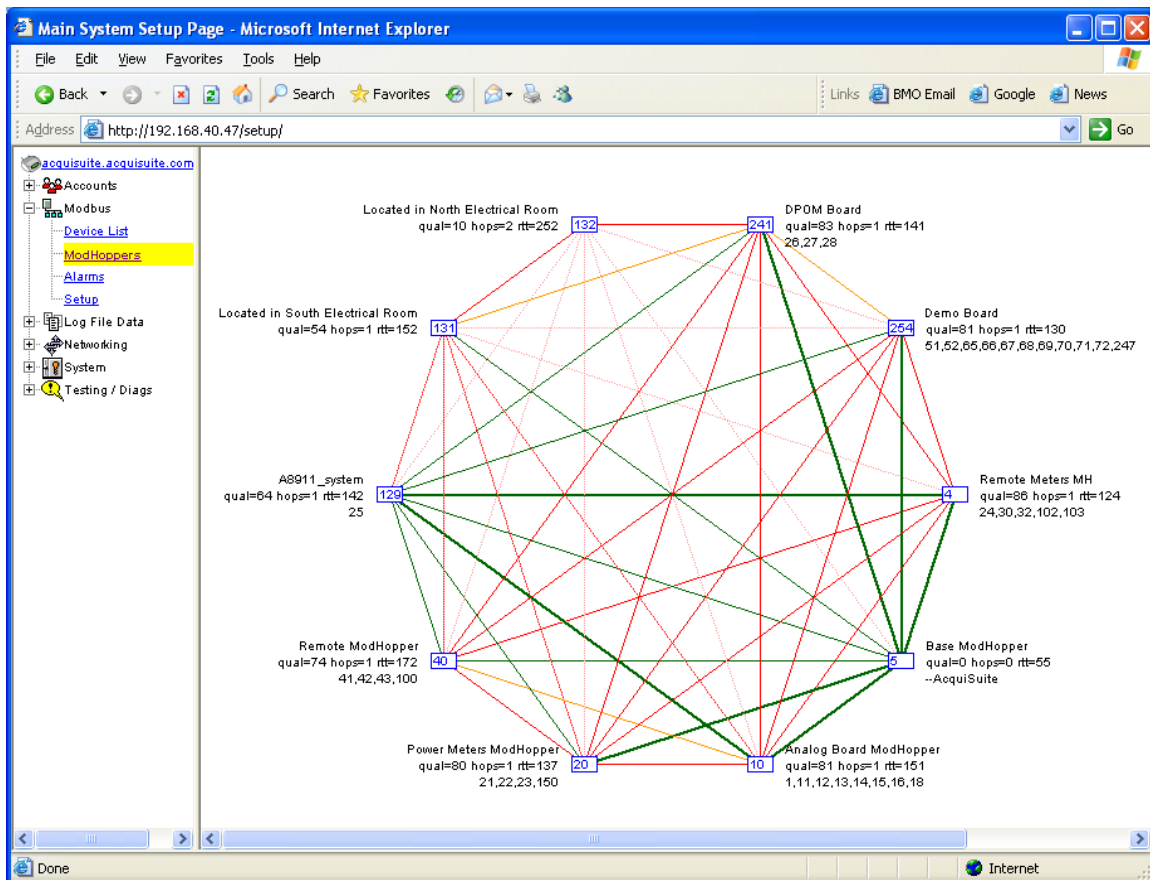


New Features:

The Modbus device list page has been completely reworked. The new page uses an XML data request to update the device status in the background rather than refreshing the entire page. In addition, several options have been added to the lower left of the page. These include display for setup links, device information and device status.

- The Setup option will display configuration and advanced configuration links for all devices.
- The Devinfo option will show communications parameters (baud, stop, parity) for all devices, as well as the device firmware version and serial number (if the device supports these options in the modbus register listing.)
- The Stats option will show the number of modbus packets sent, received, and received in error for each device, as well as the average round trip time per modbus device. The packet counts and RTT values are updated on the display page about every 2 seconds.

The AcquiSuite has an added feature to support ModHopper devices. Included in the modbus menu is an option to show modhopper routing information.



ModHopper routing display includes information about the relative signal quality between nodes in the mesh network, as well as numeric values for link quality and average packet round trip time to each node. The address of attached modbus meters are also shown relative to each ModHopper node.



Relay output control buttons are now javascript enabled and interactive. No page refresh required.

The XML device data URL has changed. This was separated off the device configuration application into a separate app. The new URL is:

<http://192.168.40.50/setup/devicexml.cgi?ADDRESS=1&TYPE=DATA>

The upload data page has a new option to send data after every log cycle. (A8812 only) This will cause a lot of network traffic and should only be used on LAN/Ethernet connected devices.

Note: the BMO service was designed for 15 minute uploads from client devices. For the period of the firmware beta test, the BMO service will not limit uploads, so users may test their firmware with unlimited 1 minute log/upload cycles. At the conclusion of beta testing, and the full release of the firmware, the issue of the BMO data upload frequency will be addressed in one of the following ways. 1) Obvius may limit uploads to BMO to once per 15 minutes; this is the current way the BMO system operates prior to this feature release, or 2) Obvius may include an additional charge for customers who want the ability of uploads of once per minute to BMO, or 3) Obvius may choose to continue to allow unlimited uploads to BMO at no additional charge. Customers who intend to use this feature with BMO should contact Obvius Sales concerning this issue. Customers who use other vendors data collection and aggregation services should contact their service provider regarding this issue.

The Dialout control for modems and GSM Cellular systems now have an option to remain connected after the upload is complete.

The Modem Status page now reports the GSM signal strength and quality.

The GSM signal strength and quality parameters are sent as part of the MODE=STATUS report in the http push data.

All modbus device parameters are stored in ini files. This includes options such as CT scaling, baud rate options, and other related setup parameters. This allows the information to be sent to a database server or downloaded with Enertrax, providing offline confirmation of your meter's configuration. Note: changing parameters in the ini file does not cause the AcquiSuite to re-configure the meter.

A new device driver has been added for the Badger 340MB modbus BTU meter.

The transaction log for the modbus/tcp process now includes a brief description of the modbus query being sent. This includes the request type (read or write) as well as the address and count of the modbus registers being requested.

Modbus logfile error code has been implemented. Error #165 indicates a modbus device has rebooted. This is logged whenever a device's uptime register rolls backwards rather than incrementing. Devices that have an uptime value available include the A8812 onboard io, A8923-4 IO module, and all versions of the ModHopper.



The device display page for the A8812 onboard io and A8923-4 io module now implement an over-range and broken-wire alarm on the webpage display.

The device detection process has been changed. Now, the modbus TCP process keeps track of any modbus device that responds as well as manages the “ping” for new devices. Any change in device availability will cause the Modbus TCP process to signal the logger process to re-check the list of known devices and re-load drivers, if needed. This allows the AcquiSuite to process valid data requests before any device detection pings are sent, improving interactive response for data display purposes. Users should not notice any difference except that new device detection may take longer on heavily loaded systems.

XML data now includes attributes for low alarm, high alarm, and errors for each point.

A8923-4 and H8923-4 io module driver change:

The new firmware has device class #3 removed. This was an 8 data point driver to support the A8923-4 and H8923-4 with firmware prior to v1.11. The new 8923-4 firmware v1.11 and later, started shipping in Oct 2002 and supports a number of additional features such as average/min/max values for each analog input, and runtime values for pulse inputs. In order to simplify support for the older versions of this module, the original driver has been discontinued, and the driver for the new feature set will now support the older hardware devices. The driver data table for the current 8923-4 has 32 data points including min/max/average. For older hardware, the instantaneous values will be populated, and data points that are not available will be marked as “invalid” on the display pages, and logged as empty/null values in the corresponding log files.

Users with older 8923-4 devices who wish to upgrade will need to delete the configuration for the old device and allow the AcquiSuite to re-detect the 8923-4 with the new driver. If you do not wish to re-configure the device, do not upgrade your firmware.

To determine if you have an older firmware version on the 8923-4 io module, look at the device in the device list. Old firmware versions are titled “4A4P-M” new versions include “4A4P-M2”

Untested Drivers:

Some drivers in the new firmware have not been tested, for lack of available test hardware to work with. Obvius is working on obtaining additional test equipment to resolve this in the future. The following list of hardware devices have not been tested, and users should not install the firmware update if these devices are present in their system.

GE KV2c meter:	Obvius test meter stopped working, meter discontinued
PDI BCMS v1:	Obvius test meter stopped working, meter discontinued
PDI BCMS v2 basic:	Obvius test meter firmware update required.
ADAM 4068 relay:	Obvius test equipment out on loan.
ADAM 4051 i/o:	Obvius test equipment out on loan.



Changes to the final release version.

The following changes were made after the initial beta release. These changes include features not yet implemented in time for the first beta release and bugfixes added prior to the final release.

- Changed init sequence to start senddata process after startup (modem) script has completed. This will prevent the upload from attempting to start prior to the modem being initialized.
- Fixed a bug in the modbus tcp connect library that didn't dispose of a socket handle upon failed connection attempt. Only shows up when running the logger on a remote tcp gateway.
- Added feature to strip autoreboot tag from loggerconfig.ini file.
- Changed http server to print stats in syslog only once per day.
- zImage v2.6.8-r3 Fixed problem with modem reset pin. Kernel now sets output mode of port H correctly, and properly sets the modem reset pin to high on init to allow the modem to operate. This should fix a potential problem where modem would have to dial, reset, and dial again on startup if the reset pin was not in the correct state.
- Updated webserver software to return HTTP/1.1 responses to all CGI requests. Should fix a timeout problem with MSIE clients on slow connections (gsm/dialup)
- Added verify and wipe commands to use new lpc21isp features. Updated lpc21isp arm7 firmware tool to new v1.48. New version includes features to wipe entire flash and verify flash checksum after write. Used in upgrade procedure for onboard IO processor.
- NTP client: Added patch to fix reverse dns when time server is supplied as an IP address.
- Updated ppp dialout script. made changes that better manage GSM connections Does not clear dns settings until connection is made. Does not clear connections when called and connection is already in use. does not delete default route on entry if none is set in the config file. Added LCP/PPP request packets at 1 minute intervals, 5 dropped packets causes hangup.
- Set dhcp fallback/init ip to 0.0.0.0
- Fixed a broken script handler for dhcp assigned addresses. Old script appears to get stuck on broadcast addresses assigned by the server. Not needed, so using ip/mask only should allow this to work.
- Changed alarm timeout to allow dialin connection to run for 2 hours before resetting.
- Fixed bug in pulse multiplier that was introduced with background data gather feature. affected output when mult was not one.
- Changed hangup procedure to test for failure>success not failure>0. Senddata process will dial modem on startup if stay-connected and dialout are enabled. This should allow dialout to resume if the senddata process terminates on timeout or hangup.
- Fixed syslog formatting issue that prevented % marks from being handled properly.
- Updated device probe to catch config files that are present but no driver loaded. This can be caused by someone putting the files in with FTP or by devices that are non-supported and not responding.
- Updated device detect, look for either cts or dsr for valid modem Re-probe if modem init is requested but no modem type known. Set GSM modem option to use DSR when modem is on.
- Added feature to report modem control line status. Exit device probe if modem DSR is not set after reset to speed things up when no modem is installed. Added test to place modem in reset mode long term if modem is stuck with DCD on, CTS/DSR off.
- Updated logger process to handle console alarms and display points.
- Updated set name function to update name in ini file upon change



- Changed A8812 onboard io driver, if device is 250 and present, but un-named then rename it "internal i/o". This takes care of default configurations.
- Fixed a bug in the modbus tcp connect library that didn't dispose of a socket handle upon failed connection attempt. Only shows up when running the logger on a remote tcp gateway.
- Updated modem reset feature to hangup if data upload process gets stuck and terminates on a signal.
- Added feature to strip autoreboot tag from loggerconfig.ini file.
- Added more work on keeping modem active but hanging up and resetting modem gracefully on upload failure.
- Added some modem setup strings to turn on "hangup on bad link", V42, MNP5, and modem level CTS/RTS control. Added some comments about modem tower status info, but not implemented.
- Added upload on 8 and 12 hour interval feature. Added test to upload process to hang up modem, even if "no hangup is selected" if the upload failures outnumber successes, *AND* there are more upload sessions remaining. Added test to verify md5 sum reported by busybox is not blank.
- Modified gsm debrief procedure, now checks network registration status after call disconnect. Returns error number to caller, to allow for caller to hardreset modem on failure.
- Updated device ID strings to include Siemens ION 95xx and 93xx id values.
- Changed export file name to have a .csv extension and not .txt This should eliminate some tech support calls for MISE users who's browser has wrong default .txt handler installed.
- Added test for null pointers in all IPC commands. Syslog message included if it should happen.
- Fixed a typo in an error message that reports a8923-4 device config info
- Updated some modbus error 139 with macros. Added feature to reschedule background device type/class check when a device reports an error for "unsupported modbus function" or "invalid register" to help locate device class mismatch errors faster.
- Updated device list to not print comms params and RTT when modbus serial device is not responding.
- Increased modem reset time from 500ms to 1s on the A8812.
- Added etag parameters and fixed upper/lower case params for http 1.1 headers Updated banner copyright date.
- Updated dialout test procedure to observe "stay connected" feature and not hangup if selected.
- Changed procedure to set device firmware version items into the ini file when changed, causes items to update in ini file quickly if new firmware is loaded on the modbus device.
- Fixed default input names on the A8812 onboard io driver
- Removed all relay set control functions from modbus logger drivers. Now in relay lib completely. Fixed bug in relay widget that prevented MB902 point 0 from being able to be set.
- Added force default to off for the dialout-stay-connected feature.
- Fixed driver ONTIME in ion6200. Was implemented as uptime, but feature is actually total-
Overtime that never resets to zero

