

CPU Release

Notes Firmware

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4v7r9416 (from 4v7r9311) 07-Feb-2024

New Features/Mods:

- General
 - Lock database when accessing FRAM (to eliminate any race conditions)
 - Add support for Significant Figures
- Comms
 - MQTT
 - Added TLS Support
 - Added URL support for MQTT Broker
 - Revise design to allow Publish and Subscribe to be defined and used in a single task.
- Web
 - Changing NMI switch setting now refreshes web pages

Fixes:

- Web
 - Correctly check "read access" setting when processing "appstatus" pins
- General
 - Replace use of deprecated system call
 - Fix various Linux build errors
 - Fix integrated lid display regression from r9213

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4v7r9311 (from 4v7r9239) 23-Nov-2023

New Features/Mods:

- Comms
 - Speed up XML request/reply timings (eg for ProveIt comms)
 - Update OPC-UA version to v1.3.7
- Add support for downloading reports in TSV format
- Account for timezone offset when generating SSL certificates
- Enhance broadcast <ALARMSTATUS> with extra data

Fixes:

- Web
 - Fix URL redirect behaviour
- Comms
 - Fix Truproof comms
- General
 - Fix RS485/422 RTS/CTS handling (requires v5.7.7+ kernel)

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4v7r9239 (from 4v7r9214) 23-May-2023

New Features/Mods:

- Comms
 - OPC-UA: Disable server if the IP Port is set to 0 (zero)

Fixes:

- Web
 - Rework ajax requests to better handle dynamic screen refreshing
 - Fix modal dialogs no longer pre-selecting "current value" (regression from r9025)
 - Fix current value not updating on "Toggle DigOut" modal dialog
- Comms
 - xlink: Make sure the Array Index is correctly honoured when transferring text data

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4v7r9214 (from 4v7r9168) 3-Apr-2023

New Features/Mods:

- General
 - Add support for Report images (viewing & printing)
 - Skip blank lines when generating Postscript
- Web
 - Report placement divs now use transparent background to match VCCure ReportEditor, PDF and Postscript
- Comms
 - OPC-UA: Set client limit to 20

Fixes:

- Web
 - Fix browser back button causing "resubmit post data" messages when login page revisited

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4v7r9168 (from 4v7r9036) 6-Feb-2023

New Features/Mods

- Web
 - Add Right Hand Side banner support in header (appstatus2)
- Comms
 - mastercomms: Add support for "single poll" messages

Fixes

- General
 - Fix issue where SysFlags didn't always update correctly
- Web
 - Ensure menu (in)active status is checked when getting menu hash
 - When list/header hash changes, ignore all other reply values (as they may now be invalid)

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4v7r9036 (from 4v7r8979) 26-Oct-2022

New Features/Mods

- General
 - Add DST settings to Constants Log
 - Prefix "NTP" settings on Constants Log
 - Add Number Format settings to Constants Log
 - Load/save "Number Format" to System settings from SETUPS
- Web
 - Add 'p' style option to denote item is a password (and only show '*****')
- Comms
 - Add OPC-UA Client support
 - Add configurable IPPort to OPC-UA server
 - Add support for multiple XMLLink instances

Fixes

- General
 - Fix handling of stand-alone "scope" blocks "{...}"
- Web
 - Fix line spacing to prevent descender clipping
 - Empty/Blank items now show default panel background (unless 'bg=xxxxx' specified)
 - Fix modal edit box handling
- Comms
 - Fix OPC-UA login handling
 - Fix OPC-UA open62541 socket leak (commit 70db6ac4e97254b468cd7a7ba7ac8998874e815a)

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4v7r8979 (from 4v7r8933) 21-Jun-2022

New Features/Mods

- General
 - Cater for apps where not all ADC pins are defined in the target file
 - Add hooks to load/save System settings from SETUPs
- Comms
 - Rework OPC-UA to support ControlWeb

Fixes

- Web
 - In Constants Log, active menus now shown as "inactive" if parent is inactive
- Comms
 - Add missing event log entries (eg Task Failed) on xmlcomms
 - Strip pipes from table entries on OPC-UA link
 - Increase sanity checks in read/write functions to prevent possible xmlcomms crash

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4v7r8933 (from 4v7r8877) 12-Apr-2022

New Features/Mods

- Comms
 - Add support for "ControlWeb" style string-only tagnames and lists in OPC-UA

Fixes

- General
 - Fix broken 'continue' in if() statements
 - Fix ConvertNumberFormat() to handle exponents correctly
- Web
 - Fix column wrapping issue
 - Rework postscript scaling
 - Fix javascript issue with pins containing apostrophes in the pin name

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4v7r8877 (from 4v7r8871) 21-Mar-2022

New Features/Mods

- Web
 - Remove need for "index.html"

Fixes

- Web
 - Allow user names to be changed to the same but with different letter cases (e.g. "Bob" to "bob")
 - Fix issue with pin array dimensions not being set correctly

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4v7r8871 (from 4v7r8787) 14-Mar-2022

New Features/Mods

- General
 - Implement prover timing/count roll-over handling to extend maximum prove length
- Web
 - Vertical centre no longer scales font size by 150%
 - On the local panel mimic, prevent clashing panels (we now only use the first active panel in any particular position)
- Comms
 - Add "ShowPinId" attribute to xmlcomms <TagNames> request
 - Added "Type" to the <Live_Data> xmlcomms request to enable getting only "writeable" pins

Fixes

- General
 - Fix possible crash when report placement is beyond end of background text
 - Fix missing report placement formatting
 - Prevent possible crash when loading alarms
 - Move printer 1 serial port checking into thread to prevent crashes
 - Fix issue with pin array dimensions not being set correctly
- Web
 - Fix incorrect initial ADPs when creating live web reports
 - Live reports now correctly update when placements change active state
 - Don't encode HTML entities when downloading TEXT or TSV files
- Comms
 - Fix hang when doing large numbers of writes by OPC-UA

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4v7r8787 (from 4v7r8770) 19-Jan-2022

New Features/Mods

- No Changes

Fixes

- Web
 - Fix possible crash when creating TSV reports
 - Fix dropdown menus in Internet Explorer
 - Prevent possible crash when changing printer typeno changes

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4v7r8770 (from 4v7r8674) 17-Dec-2021

New Features/Mods:

- General
 - Add "Task Fail" event
 - Add isnan() and isinf() functions
 - Rework print spool handling so each printer has its own thread
- Web
 - Add "Delete Certificate" item to Network page
- Comms
 - Add possibility to see if a comms link is "disabled" rather than in error

Fixes:

- General
 - Harden the IO firmware extract/install process
 - Fix handling of formatting codes (bold, underline, etc) when generating reports
 - Comms
 - OPC-UA: Bug fixes
 - Harden serial port driving for slower links
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4v7r8674 (from 4v7r8665) 1-Oct-2021

New Features/Mods:

- General
 - Sanity check ADC/PRT field calibration data on startup ... if zeros, reset to defaults
- Web
 - Add 'v' style option to vertically centre (and left align) a title, value or unit [to make (eg) a custom separator item]

Fixes:

- Web
 - Fix report placement "left align" formatting truncating data

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4v7r8665 (from 4v7r8310)

New Features/Mods:

- General
 - Support "LEDs" or "Leds" output pin
 - If FRAM processing fails on startup, indicate an FRAM restart (not a coldstart)
 - Remove file size limit when downloading from SD Card
 - Add support for "continue" statement in for() and while() loops
 - Add log10() and ln() functions
 - Add fmin() and fmax() functions
 - Add pi() function
 - Add International support for thousands and decimal separators (comma, point and (thousands) space)
 - Ignore TCPLLogger messages when no log viewer connected
 - Add STRING datamap datatype
 - TCPLLogger, show task name *and* comms name (where applicable)
 - ZeroConf broadcast now informs when new app or firmware installing
 - Add support for PWM mode on PulseOut
- Web
 - Add PDF format to the "Download As ..." options
 - Allow Constants Log to be downloaded as a TSV file
 - Fix HTML warnings (SameSite cookie and CSS zoom)
 - Add support for additional Gen3 RAWOUT modes
 - Add support for 'printing' Constants Log and Sitemap to FTP
 - Add support for 'printing' Alarm/Event logs to FTP
 - Add "metrology blocks checksum" to web System Info page and Constants Log
- Local Panel
 - Add lid chart support
 - Add support for "Lid" display tree
- Comms

- Skip "system screen" pin map entries in XML <Live_Data> request
- Add OPC UA comms task
- Add MQTT comms task
- Increase security timeout to 30 seconds (to cater for slower network links)
- Reduce minimum inter-message delay (to allow for faster polling)
- Add better support for ASCII strings via (eg) Modbus
- FTP
 - no changes

Fixes:

- General
 - Enhance trap when expansion card not fitted
 - Better support for loading apps with multiple <SETUPS>
 - Fix "Download as ..." typo
 - Improve number handling & fix buffer overflow when archiving historical data
 - Fix parse issue when operator missing RHS before bracket, e.g. $foo = (1 *)$;
 - Fix login issue
 - Fix possible lost FRAM fail flag on startup
 - Add range checking on PWM rate and Pulse Output bucket
 - Make sure display pins in "METROLOGY" group are included in metrology checksum
 - Fix > 100% progress when updating app or Altera
 - Make sure rdserver attaches to TCPLogger correctly
 - Strip full path from pin name when loading TAGNAMES datamap
 - Fix "read-only" pin checking
 - Add missing FTP events
 - Fix FRAM SysInfo version checking
 - Fix string width limit check
 - Correctly initialise FRAM if invalid
 - Ensure TCPLogger closes sockets correctly when link is closed
 - Ensure message queues are closed correctly

- Fix alarm state strings
- Web
 - Fix web threads picking up incorrect information
 - Fix incorrect pipe (|) handling when downloading text events/reports
 - Fix position of spinning "loader"
 - Fix ADC calibration screen
 - Fix SD Card "download" icons
 - Improve number handling when downloading historical data
 - Fix possible incorrect DST status
 - Fix 'Edit User' dialog unable to change security level
 - Fix "Digital Outputs" dialog
 - Fix back-to-front SDCard Install/Remove option (broke in r8235)
 - Fix missing TFX upload format option
 - Fix "undefined" text in "Network Rebooting" window
- Local Panel
 - no changes
- Comms
 - Fix handling of comms links using ASCII string messages
 - Fix "bytes per address" handling in Modbus Modicon mode
 - Trap unused system screens in <Displays> request in XMLComms

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4v7r8310 (from 4v7r7956)

New Features/Mods:

- General
 - Add SYSINFO2 pin to template
 - Return CPU revision at end of OS Version string
 - Detect board types on startup
 - Mods to add support for new Rev3 boards
 - Check for SysTemp input
 - Implement combined "metrology blocks" checksum
 - Add "metrology blocks checksum" to web System Info page and Constants Log
 - Add initial code for comms link to MTI encoder
 - Change various "version" strings to "firmware"
 - various small enhancements
- Web
 - Disallow Metrology pin edits if Metrology bitlink not set
- Local Panel
 - Add support for lid display
 - Comms tx/rx data now sent to TCPLogger
- XML
 - Honour "METROLOGY" group setting
 - OPC XML now splits top level browse into "#Displays" and "#Tagnames"
 - Add "Metrology" support for OPC XML
 - OPC XML now returns date/time and IP addresses as strings
 - Add "sync" command to <Time_Sync> request
 - Return OPC error E_ACCESS_DENIED when Metrology pin check fails

Fixes:

- General
 - Fix offset lookups when scanning arrays
 - Fix displays tree scanning of nested menus
 - Calculate app hash using the same method as VCCure
 - Fix scanning for system screens
 - Fix checking for "read-only" datamap pins
 - Fix array length/dimension scan
 - Fix string extraction from report data
 - Correctly set flags on namemap entries
 - Fix "missing items" when scanning displays tree
 - Fix NTP time handling (timezone offsets and correct epochs)
 - Fix missing TSV header line when downloading historicals (before you've viewed a chart)
 - Remove pipe characters from units when viewing/downloading historicals
 - Check SD Card inserted before saving network debug info
 - Ensure un-initialised variables default to zero
 - Add legacy support for apps with no "SERIAL_BAUD_RATES" table
- Web
 - Fix 'maxlength' values for usernames (max 16 chars) and passwords (increase to 32 chars)
- XML
 - Fix OPC <Browse> of TAGNAMES of array pins
 - Fix bug when reading arrays
 - OPC XML "#Tagnames" browse now honours filter
 - Prevent writes to "read-only" pins
 - Ensure TAGNAMES pins are added to the namemap
 - Fix OPC string array indexing bug
 - Don't hide pins whose name starts with a '!
 - Fix NTP "active value" table (only showed last entry not all but first!!)

- Various minor bugfixes

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4v7r7956 (from 4v7r7787)

New Features/Mods:

- General
 - Add support for new Modbus link template format
 - Add support for "SysControl" output pin
 - Add ACCEPTALARMS on bit 0 of SysControl pin
 - Improvements to syntax, incomplete expression and unary operator parsing
- Web
 - Added "Metrology Checksum" to System Info page
 - Hide TFX FTP options if app has no TFX reports
 - Updated Printer1 Baud Rate to use SERIAL_BAUD_RATES table
- Local Panel
 - no changes
- XML
 - Report "ident" now returned in <Report_Index> request
- FTP
 - no changes

Fixes:

- General
 - general bug fixes
 - Alarm "live" value now correctly updated
 - Report previews and print-outs now show missing placement formatting correctly
 - Fix broken scanning for pins in TOTALS group
 - Only run FRAM check if data was actually written that cycle (fixes false "FRAM FAIL" alarms)
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- Web
 - Honour custom font sizes on menu items
 - Chart series names now generated dynamically (as dynamic units might change)
 - Change to using shared memory network data (fixes issue with multi-threaded web tasks)
 - Fix empty file when downloading snapshot report
 - Fix empty "last 30 reports" zip file
- Local Panel
 - no changes
- XML
 - no changes

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4v7r7787 (from 4v7r7781)

New Features/Mods:

- General
 - no changes
- Web
 - no changes
- Local Panel
 - no changes
- XML
 - no changes
- FTP
 - no changes

Fixes:

- General
 - no changes
- Web
 - Fix web banner handling
- Local Panel
 - no changes
- XML
 - no changes

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4v7r7781 (from 4v7r7768)

New Features/Mods:

- General
 - update restart mechanism when commended via the web browser – now shuts down in a more controlled manner.
- Web
 - no changes
- Local Panel
 - no changes
- XML
 - no changes
- FTP
 - no changes

Fixes:

- General
 - no changes
- Web
 - Make sure all tabs logout when logout occurs on any tab
 - Don't add links to ALARM or TIME/DATE screens when at login page
 - Fix web banner updating
- Local Panel
 - no changes
- XML
 - no changes

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4v7r7768 (from 4v7r7739)

New Features/Mods:

- General
 - no changes
- Web
 - Banner allow use of title, value, unit attributes
- Local Panel
 - no changes
- XML
 - no changes
- FTP
 - no changes

Fixes:

- General
 - Fix time handling to work past 2038
 - Fix NTP sync on startup
- Web
 - Minor fixes
 - Reboot in an orderly manner when requested via the web server
- Local Panel
 - no changes
- XML
 - Fix bug in <Live_Data> request

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4v7r7739 (from 4v7r7621)

New Features/Mods:

- General
 - no changes
- Web
 - no changes
- Local Panel
 - no changes
- XML
 - Add <TABLE> attribute to read-only display pins
 - <Identify> request now returns pinids you can use with <Live_Data> request
- FTP
 - no changes

Fixes:

- General
 - Minor layout fix when using formatting attributes
- Web
 - Minor fixes
 - Reports now hidden from "Report Routing" when report set as not visible
 - Reports now hidden from "Sitemap" when report set as not visible
- Local Panel
 - no changes
- XML
 - no changes

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4r7621 (from 4v6r6-6970)

New Features/Mods:

- General
 - TCP Logging feature added
 - Changed "Application Setup" to "Dataset" to match other descriptions
 - Added support for "clog" attribute to show/hide inactive constants log items
 - Add support for hardware temperature sensor
 - Add 128K/512K FRAM size detection
 - Check FRAM size on app install
 - SD Card now supports: EXT4/3/2, FAT32, FAT
 - Various Comms improvements
 - Reset Real Time Clock to epoch when doing FAILSAFE restart
 - Use 2018 as Real Time Clock reset year.
 - Move to new firmware version format (e.g. 4v7r7515-R, B or A, where R=Release, B=Beta, A=Alpha)
 - Add Licence check function `nflcisvalid()`
 - Add support for ASCIIx2, ASCIIx4, ASICIx8 formats to assist with interfacing to other modbus text protocols.
 - Add RAM based Historical Zone
 - Add Constants Log checksum for all keypad constants (not just Metrology constants)
 - Add support for "file='??'" report attribute
 - Allow qrcode reports to be printed to Postscript printers
 - Add support for "FTPFORMATS" table
 - Add support for "print only" reports
 - Rework pipe -> newline handling
 - Add support for report custom font size (use "fs=?" in report attribute)
 - Update Postscript glyphname for Unicode 03BC (μ)
 - Each "printer" now has its own spool (avoids lost jobs if another printer gets stuck)
 - Add SD Card "write protect" detection

- Add FTP info to Constants Log
- Add alarm "live" value to alarm state
- Set "RTC Error" flag (SysAlarms bit 15) if Real Time Clock is invalid on startup
- Add app Alarm Status to top two bits of SysAlarms pin
- Add NTP "sync on startup" option
- Reset FTP settings on FAILSAFE restart
- Web
 - Add support for table sorting (normal, reverse, A-Z, Z-A)
 - Add "Software Checksums" to System Info screen
 - Remove DigOut edit from "manual" System Info page
 - Remove 60sec auto-update from trending charts
 - SD Card "install" option now only shows Install or Remove (depending on current status)
 - Add auto-shrink to breadcrumb trail
 - Added report download options (eg Text, TSV, TFX)
 - Support background/foreground colours on menu items
 - Add destination printer name when showing spool files
 - Change DST status from "(not) in effect" to just "enabled / disabled"
 - Add FTP "Send Test File" option
 - Print spool reworked (expand/collapse per printer)
 - Add support for "date" pins on the display trees
- Local Panel
 - Add support for TCP connection
 - Add support for "Alarms" page
 - Add support for "local panel version" ... passed into SysInfo[] array if present
 - Add "style" attribute to Live Report item xml
- XML
 - Add support for Master/Slave XML link
 - <Report_Index> now shows any report attributes
 - Add missing "Report Routing" from default system setup screen

- Add missing "Analog Inputs" from default system setup screen
- Add support for "Show Digital I/O" system screen
- <Alarms> request: replace "Set" and "Accepted" tags with "State"
- Add language support
- FTP
 - "%" formatting codes can be used in FTP upload directory

Fixes:

- General
 - Fix various comms issues
 - Prevent database writes on slave comms being stored in the Operator Event Log
 - Make sure we check for "SERIAL_PORTS" and/or "SERIALPORTS" tables
 - Fix placement leading zeros / left-align handling
 - soft functions supported in variable declaration, e.g. `int x = myfunc();`
 - soft functions supported in existing variable non-equals equal types, e.g. `x += myfunc();`
 - 'else' within 'for' loops issue fixed
 - Make sure we "always run" when processing iterative containers
 - Fix initialisation of volatile database pins
 - Fix incorrect time offset
 - Ignore print to SD Card if not inserted or read-only
 - Fix reply message byte count checking
 - Flush comms buffer before sending new poll
 - Fix incorrect network port indexing
 - Ensure we don't save files to SD Card when it's not mounted
 - Remove SDCARD and FTP from "All Printers" alarm flags
 - Fix report placement bold/underline (download and print)
 - Fix ADP handling
 - Fix "System Screen" detection
 - Ensure table items starting with a "!" are hidden

- Web
 - Fix missing NTP sync mode "startup & daily"
 - Catch when trying to display non-existent live report
 - Fix "Unknown" spool type for Historical and Alarm/Event archives
 - Fix report placement bold/underline
 - Fix Edit box "Accept" button grey starts for numbers/dates/etc
 - Fix web printing indexing bug
- Local Panel
 - Fix possible incorrect "display active" flag on start-up
 - Fix memory leak
 - Fix report preview xml
 - Fix qrcode xml
- XML
 - Fix default ADC slot in <ADC_Calibrate> request
 - Fix missing NTP sync mode "startup & daily"
 - Fix memory leak
 - Fix bug when sending <Notify> packet to server

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4v6r6-6970 (from 4v5)

New Features/Mods:

- General
 - Add support to be able to update OS via firmware update.
 - Add support for multiple tar files per zip file.
 - Web calendar now shows "creating archive" box when downloading zipped reports.
 - Add support for Report/Live Screens "Visible" pins.
 - Improve support for modbus formats in comms.
 - Allow qrcode reports to be printed to Postscript printers
 - Add "force visible" tag for TFX report items
 - Add FTP info to Constants Log
 - Add SDCard and FTP error flags
- Web
 - Re-instate "Show Last 30 Reports" now we're using calendar view.
 - When no web printer routing set, hide the printer icon.
 - Add support for "appstatus" pin. This allows custom messages/status to be shown in the header section of the web displays (where the Device ID, Alarm Indicator and Time/Date are shown).
 - Add support for "FTP Upload".
 - Remove 60sec auto-update from trending charts
- XML
 - Added following requests;
 - <Alarm_Log_Index>
 - <Event_Log_Index>
 - <Report_Routing>
 - <Constants_Log>
 - <ADC_Calibrate>
 - Only allow admin/metrology logins.
 - Add FTP support to <Report_Routing> request.

- Add FTP support to <Printers> request.
- FTP
 - Add support to push reports in TFX format (with fallback to Text or TSV)

Fixes:

- General
 - Fix TFX "real" to "alpha" conversion.
 - Rework spool filenames to prevent filename re-use (and hence lost print jobs).
 - Handle issue when LanguageInUse <= 0 on local panel.
 - Fix bug on local panel mimic not showing "value + units" style.
 - Fix post-boot network check so it rescans network settings before checking validity.
 - Increase post-boot network check to 30 seconds.
 - Allow Slave Comms to close gracefully when signalled.
 - Ensure printer routing setup correctly on coldstart.
 - Ensure database updated on comms timeout.
 - Improve support for Table lookups.
 - Various Time/Date handling improvements.
 - Fix display of "default" system screens.
 - Add missing ALVs on DST change-over events.
 - Allow entry of empty strings, where applicable.
 - Fix missing edit name if changing Languages pinid.
 - Various smaller bug fixes.
 - Fix incorrect TFX epoch.
 - Fixed Network Port Indexing.
 - Fixed Web Printing Indexing.
 - Fix Modbus Master/Slave
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- Web
 - Fix menu "read access" checking.
 - Fix sitemap "active item" checking.
 - Fix table popup for reset-to-n pins.
 - Don't show "invalid" event info.
 - Fix "site icon" favicon.
 - Fix missing "delete" icon in printer spool.
 - Web calendar improvements to prevent lost report items.
 - Fix system menu column spanning.
 - Add CSS to support "centered button-only" items.
 - Fix incorrect parsing of cookies.
 - Fix HTML when display tree empty.
 - Limit max # columns on web displays.
 - Reposition and resize edit 'gear' icon to top-right of each entry.
 - Various CSS tweaks.
- XML
 - Remove/fix redundant code.
 - Check NMI link for metrology pins.
 - Ensure logged events always have a username.
- Licensing
 - Fix issues when changing license type.
 - Correctly initialise license info.

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