CPU Release

Notes Firmware

Table of Contents

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

    - xmllink: 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 apostrohpes 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 TCPLogger messages when no log viewer connected

  - Add STRING datamap datatype

  - TCPLogger, 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 SDCard 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 (mu)

    - 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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