Series 4 JANOS Operating System Release Notes

Updated as of Thursday, May 18, 2017

May 17, 2017 – Released 1.6.1

Benefits

- **RECOMMENDED UPDATE FOR ALL SERIES 4 CONTROLLERS.** Continues to enhance the INTEG JANOS operating system and JNIOR functionality and makes it the most robust and secure release of JANOS to-date.
- Updated Dynamic Control Page (DCP). The DCP is the main JNIOR web page and very helpful.

All-In-One Update Project Changes (Loads OS and all software on Series 4)

- Updated the Dynamic Control Page (DCP) which is the new web page for the Series 4 to version 1.4.3. Fixed a few bugs and added a few minor new features.
- Updated the Task Manager program to version 5.3.3 and Task Manager web page applet to version 3.9.314.1234 to fix a variety of issues and added a new "Other" commands as an Action. This field allows you to enter and execute JNIOR telnet/commands.
- Updated the Modbus Server (slave) program to version 1.3.1 to fix a minor issue.
- Updated the Slave Service program to version 1.3.0 to automatically use default settings for the JNIOR port (9200) and username and password when 'localhost' is used. Localhost is used when slaving outputs to I/O on the localJNIOR and not a remote JINOR.

New Features

- Created public WebServer area
- Added support for v3 SSL Certificates
- Supports adding SSL Alternative Name certificate extensions using SSL/Cert/SAN Registry key
- Updated TLS to eliminate the POODLE vulnerability
- TLS now supports Secure Renegotiation per RFC 5746
- Access control IpConfig/Allow expanded allowing complex filtering
- Hidden files are possible now
- Added low-level RS485 AUX port driver control

Changes

- Extended java.util.Json class to support Enumeration
- JANOS.setInputCounter() method now updates monitor packet/message content
- More stringent Registry Key validation

Bug Fixes

- Corrected TLS for CVE 2016-2107 to eliminate associated crash
- Addressed the possibility of a BRK assertion occurring at process creation
- Corrected occasional ERR_INCOMPLETE_CHUNKED_ENCODING encountered with PHP rendering

February 1, 2017 – Released 1.6

Benefits

- Improved Real Time Clock (RTC) programming maintaining accurate time over longer periods.
- Enhanced Time Management tools so time can be set and checked easily in more ways.
- Programmatic access to the active IoLog with filtering providing for fast precision event reporting.
- Added Websockets support for File access and Syslog monitoring. The JNIOR can now be completely maintained through the DCP connection port eliminating the need for separate Telnet and FTP connections.
- Added NETSTAT pro-active network packet capture with filtering. The resulting capture file is compatible with Wireshark and therefore easily reviewed and analyzed.

All-In-One Update Project Changes (Loads OS and all software on Series 4)

- Updated the Dynamic Control Page (DCP) which is the new web page for the Series 4 to version 1.3.5. Added Folders, Syslog, Peers and About tab. The Folders tab allows the user to view, delete and transfer files. The Syslog tab provides a real-time view of the jniorsys.log. Added more expansion modules and ability to edit descriptions for expansion module I/O.
- Updated the Task Manager program to version 5.3.2 and Task Manager web page applet to version 3.8.509.1134 to fix a variety of issues.
- Updated the Modbus Server (slave) program to version 1.3.0 to fix the 90 second timeout on the Modbus connection and to automatically create three configuration registry keys when the program starts – Timeout duration, Modbus login enabled – true or false, and Modbus port.
- No longer load the older JNIOR Monitor, Control, and Configuration applet. The applet is still available via the JNIOR Support Tool.

New Features

- Added JANOS.setCtrlC() programmatic control of Ctrl-C use
- Method added to the Timebase class for setting the clock
- NTP update period is now configurable
- Registry keys added to disable Websocket Files and Console functionality
- Registry key added to disable BEACON announcements
- Wide listing option added for DIR and LS commands
- NETSTAT -U option enumerates open UDP ports
- NETSTAT -C generates packet capture file
- Added packet capture filtering and promiscuous mode
- Websocket interface supports file management
- Added SENDMAIL -S to skip text entry
- Iolog class refresh provides for timestamp filtering

Changes

- Trimmed RTC for better accuracy
- Existing files opened with "w+" will now be empty
- Programs (and batch files) without Execute attributes now cannot be run

Bug Fixes

- Corrected memory leak associated with syslog server reports
- Eliminated risk of command line buffer overrun
- Corrected issue impacting TLS secure connections to 2MB/4MB units

- Corrected small network memory leak
- Fixed updating Domain Name through Support Tool
- Network retries no longer block thread progress
- Iolog correctly shows inputs after reboot
- Corrected PHP string comparisons using logical operators
- Corrected TCP/IP received packet order issue with connection close
- Corrected WebServer random loading delays
- Corrected memory issue associated with the enumeration of alarmed external devices
- Corrected potential buffer overrun with WebServer authorization and large URI
- Corrected PHP short-circuit handling of logical expressions
- Resolved major TLS issue that impacted system integrity
- Eliminated possible buffer overrun on username/password entry
- Corrected JNIOR Protocol memory issue with device read error

August 11, 2016 – Released 1.5 Build 0.1

Bug Fixes

- Corrected the buffer length issue for loading the DCP web page on small memory JNIOR Series 4 built in 2013 and 2014.

All-In-One Update Project Changes (Loads OS and all software on Series 4)

- Released the NEW Dynamic Control web Page (DCP) that replaces the Java Applets as the main JNIOR web page for monitoring and controlling I/O and configuration. The Java Applets coming from the JNIOR no longer run in Chrome and soon Firefox and Internet Explorer due to an overall industry concern for security. The Java Applets are still loaded on the JNIOR and can be accessed by typing JNIOR_IP_address/configure in your browser (Internet Explorer). Or launching the standalone Java Applets from the JNIOR Support Tool using versions already loaded on the PC.

July 20, 2016 – Released 1.5

New Features

- Application watchdog logs additional text information
- Added PHP unpack() function used in extracting binary data
- Added Math.asin, Math.acos, Math.atan, and Math.atan2
- Adds printf formatting for applications
- Added JANOS.getFreeFlash()
- Enable PHP ereg_replace

Changes

- Lowered priority of the scheduled Security Update
- Better handles PHP temporary values improving performance
- ArrayUtils will now throw ArrayIndexOutOfBoundsExceptions
- Socket assigned port number if not specified
- JAR integrity check revised

Bug Fixes

- Corrected Immutable bounds checks to prevent negative address, offset or length
- Issues with Application Watchdogs and update/reboot procedures eliminated
- Corrects PHP exit and die statement issue

- Corrected swapEndian for sign extension issues
- Corrected JAR file issues with IntelliJ and Eclipse
- Corrected guest WebServer login
- Corrected memory bug in file decompression
- Eliminated memory contention related to millisecond polling routines

All-In-One Update Project Changes (Loads OS and all software on Series 4)

- No changes with this release. All files, except the OS, are the same as release 1.3 and 1.4

April 7, 2016 – Released 1.4

New Features

- Web Server supports compressed ZIP folders/libraries
- PHP now supports floatval() and doubleval()
- WebServer SSL port no longer fixed at 443
- PHP now supports the foreach statement
- Added PHP isset() and empty() variable tests
- PHP strings now support all 256 byte codes and are no longer ASCIIZ
- PHP array initialization supports '=>' syntax
- PHP count() function supports recursion
- Added Octal and Hexadecimal character entry in PHP double-quoted strings
- Added PHP functions bin2hex() and hex2bin()
- Added PHP urldecode() function
- PHP return statement is now functional
- Implemented Latching Reset and Clearing Counters/Usage through Websockets
- ConsoleProcess class added to provide access to session streams
- Application access to console Environment added
- Jumper (between LAN and RS-232 ports) now functions as a RESET SWTICH
- You can optionally specify a username in Registry keys for user IDs
- Implemented PHP exit() and die() constructs
- The $_SERVER array is now available in PHP
- Added Externals/$Devices key for tracking device presence
- Socket connection timeout can be adjusted
- TLS v1.2 is now supported including SHA2 (SHA256) signed certificates.

Changes

- Events/Services key now disables OnAlarm and OnUsage events
- Wesockets authentication remains valid after reboot

Bug Fixes

- Corrected Email Retry Delay to use correct Registry Key Email/RetryDelay
- Corrected issue with REBOOT through HTML5 Command Console
- Eliminates SYSLOG packets when the SYSLOG server is not configured
- Corrected OnBoot notification when DHCP in use
- Corrected Registry corruption issue with name conflicts
- PHP now properly performs comparisons between doubles
- Corrected assertion issue with PHP header(), syslog() and var_dump() statements which have void return
- Corrected DNS timeout utilization
- Corrected websocket external device read to consistently return an empty string for absent devices
- Corrected WebServer/Path use

- Corrected memory leak associated with JAR file use
- Corrected PHP getRegistryList() with node or wildcard specifications
- Corrects JNIOR Protocol issue reading Registry keys longer than 255 characters
- Corrected Beacon Reboot issue

All-In-One Update Project Changes (Loads OS and all software on Series 4)

- No changes with this release. All files, except the OS, are the same as release 1.3

August 17, 2015 – Released 1.3

New Features

- Applications can specify minimum OS requirements
- Support for Syslog Servers
- Added Watchdog class for applications
- Added limited batch file (.BAT) functionality
- Added ECHO command
- Implemented TCP/IP Keepalive
- Added ability to recover from a corrupt Flash File System
- Console access now possible through Websocket interface
- An application can check if other instances of the application are running
- Unit registers with the local network
- Added array() construct to PHP
- Added $LastNtpSuccess Registry functionality

Changes

- Improved reliability of FTP upload in Passive Mode
- Now supports TLS v1.1
- FTP Server supports MLST and MLSD

Bug Fixes

- Corrected time zone abbreviations for DST in Date class
- Corrected implementation of java.lang.Math.IEEEremainder
- Corrected IllegalMonitorStateException that occurs when creating thousands of new threads
- Fixed issue preventing assertions from setting the Attention flag
- Corrected issue that ignores the '\u0000' character formatting in JSON strings
- DATE command -N option no longer corrupts the IpConfig/NTPServer key
- Corrected missing native for JANOS.killProcess
- Corrected NTP request to be Version 4 compliant
- Corrected issue with array usage in PHP
- Corrected issue with NULL assignment in PHP

All-In-One Update Project Changes (Loads OS and all software on Series 4)

- Updated the Java Applets used for the web pages to the new security requirements. Updated JNIOR configuration web page and Task Manager web page.
- Updated the Task Manager application program to fix a variety of issues.

May 7 2015 – Released 1.2.2

New Features

- Beacon protocol enhanced with Attention_Required flag
- Graceful handling of corrupt/truncated JAR file

Changes

- Adjusted JRMON counter display to handle large count values
- Reboot via JNIOR Protocol or Beacon performs coordinated process shutdown
- Unrecognized HTTP-Request no longer causes watchdog

Bug Fixes

- Corrected entry of large (>1,000,000,000) counter setting in JRMON
- Corrected MSS issue in the TCP stack
- Corrected cache locking issue with renaming files in flash
- Corrected edit access to '$' Registry keys

All-In-One Update Project Changes (Loads OS and all software on Series 4)

- Updated SNMP Application to fix multiple issues
- Updated Configuration web page (Java applets) to handle LED Dimmer Module in External I/O tab, corrected handling of SNMP enabling, and added enhancements to JNIOR e-mail configuration on Configuration/Misc tab

April 6 2015 – Released 1.2.1

Changes

- Reboot through JNIOR Protocol now closes connections and applications
- Input counters set using raw (not scaled) counts

Bug Fixes

- Corrected TCP retransmission algorithm
- Corrected IP checksum error in delayed carry recursion
- Bug corrected in text to floating-point interpretation

April 2 2015 – Released 1.2

New Features

- FTP Server OPTS command implemented
- Implement Regex Registry search to the REGISTRY command
- Added assertion text for message pump related dump
- Implement setIn(), setOut() and setErr() in java.lang.System class
- Issues RST packets on attempts to communicate with non-existent connections
- Vector and Hashtable classes support generic typing

- Support enum enumerations
- Implemented input counter multiplier

Changes

- Eliminate potential network deadlock on connect
- Generate Registry INI file content in alphabetical order
- com.integpg.system.Immutable.exists() no longer throws unwanted IOException
- Java application source level restrictions have been lifted. Was 1.4
- Adjusted Telnet options for compatibility with Series 3
- Adjusted TCP Retransmit Timer algorithm per RFC 6298
- Monitor packet sent when counter set via JRMON

Bug Fixes

- Some connections were not being gracefully closed on reboot
- Correct serial port read timeout issue
- Removes residual /temp folder content on old 2MB/4MB units
- Releases residual LISTENER sockets after application termination
- Corrected potential memory corruption in java.lang.Object.clone()
- Correct issue with lastIndexOf(int) with substrings
- JANOS.getInputCounter() returns counters for Model 414 channels 9-12
- JANOS.setInputCounter() handles 414 extended channels
- Eliminate potential deadlock on IO interrupt
- Corrected issue where processor would run at 100% if telnet connection was dropped while client was at the registry command prompt
- Corrected REBOOT command trying to terminate non-existent processes
- Fixed Web Server blocking issue
- Corrected reboot procedure used by JNIOR Protocol

January 29 2015 – Released 1.1

Critical

- There was a critical memory bug fix to the JNIOR protocol server. All customers that use the JNIOR Protocol are advised to upgrade to this version.

New Features

- Add Device/TimeZone Registry key
- Implemented command line escape character '\'
- Allows KILL by program name
- Adds -R option to CERTMGR to reset credentials to factory default

Changes

- Object serialization in Java no longer supported
- Backslash '\' path separator no longer supported

Bug Fixes

- Correct below freezing Type 28 temperature sensor readings
- Fix JNIOR Protocol device enumeration issue that occurs with 4 or more modules
- Corrects Protocol Server memory corruption on reconnect
- Counter change now forces Websocket Update

January 8 2015 – Released 1.0.7

Moderate

- There was bug fix to the FTP server where it would not work well OS X, UNIX, LINUX, Android and IOS clients. All customers that use clients on these platforms to FTP files are encouraged to upgrade to this version.

New Features

- implemented FTP SITE command for DIRSTYLE
- added the Registry Key FTP/UnixStyle to configure the default system style

Changes

- reports DIN 9-12 in JNIOR Protocol external/extended monitor packet
- improved assertion macros to provide textual descriptions

Bug Fixes

- corrected FTP SYST command to report the proper system style
- corrected FileInputStream.available() to include pending buffer data
- Beacon reports actual JNIOR Protocol port when it is changed from default
- corrects I/O configuration issues with 412 and 414. Fixes Inversion of din4 for the 412.

November 24 2014 – Released 1.0.6

Critical

- There was a critical fix to the statuses of outputs 9 – 12 on the 412. All customers using the JNIOR model 412 are advised to upgrade to this version.

New Features

- Added Type F9 LED Dimmer Module to read/write device block library
- native socketRead() throws IOException if socket closes
- implements the model 414
- JSON string escapement implemented
- Websocket Monitor message includes alarms ONLY when alarm triggered
- Websocket Monitor message includes a Model string
- implemented Websocket access for external devices
- Websocket Meta data carried in Requests and Responses
- Added Registry reset operation for use in sanitizing
- Added EGREP command with GREP and FIND aliases
- Regular Expression classes have been added to the Java Library and PHP

Changes

- application assertions are emphasized in the log
- eliminated extra Registry message when a key is removed
- increased maximum message pump queue count to 200
- sends monitor packet when input counters reset by application
- improves handling of model differences for the 410, 412 and 414

- iolog transition flags now an option
- Security Update delayed until 8 hours after boot

Bug Fixes

- corrected Registry restore allowing the full set of valid characters
- corrected ROUT9 thru ROUT12 status issues on the 412
- resolved issue with an assertion within a critical section
- corrects JVM issue with loading large class files
- Correct potential memory issue with the external device array
- JanosClasses.jar is now consistent no longer containing reference issues
- corrected issue with pulsed external relay mask
- corrected reporting of external 4ROUT pulsing in the iolog

September 22 2014 – Released 1.0.5

New Features

- Implemented legacy *sendMail()* method which appears now in the **JANOS** class
- added serial port notification handling

Changes

- changed getChar() blocking to wait-notify to eliminate 100% CPU indication

Bug Fixes

- corrected *send()* and *reset()* method names in MailComposer class to conform to standards
- corrected version number in dump.log
- fixed issue with flash file system verification
- corrected issue with logging assertions for non-system processes
- fixed issue with flash file system block mapping
- corrected flash segment reclaim algorithm

August 12 2014 – Released 1.0.4

New Features

- Application onClose() notification is sent when RST packet received.
- FTPClient class now available in the library.
- Command line FTP client application available - must be loaded
- Added *Network.isActive()* method so applications can check network availability
- You can now define User Functions in PHP.
- Added *File.setLastModified()* method.
- PHP can include files.
- Added PHP File listing functions and much more.
- Added -S option to the RMDIR command to recursively remove an entire directory tree.
- Opening a ServerSocket on a random port by setting port=0 now works

Changes

- expanded search paths for application commands to include /flash and /etc.

- Restored default admin:admin account.
- Enabled ability to change RS-232 port input buffer size.

Bug Fixes

- Corrected issue with renaming folders.
- Corrected JNIOR Protocol monitor packet scheduling.
- Fixed issue with /temp folder memory allocation.
- Corrected FTP NLST abbreviated directory listing format.
- Corrects lock-up when closing a Java socket that hasn't been used for output.
- Corrected loss of data when Secure connections are closed too quickly.
- Fixed issues with *Date.parse()*
- Fixed glitch with command line TAB.
- Corrected display of identifiers in NV command.
- Corrected issue with setting invalid floating point values.
- Corrected PHP issue with '$' jquery statements in double-quoted strings.
- Corrected JVM issues with casting multi-dimensional arrays.
- Corrected GC issue with object arrays stored as an object.
- *SocketOutputStream.write()* methods are now blocking so data is not lost.

July 3 2014 – Released 1.0.3

New Features

- Secure Telnet sessions are indicated as secure in the log.
- Can now configure Digitial Input Conditioning through Registry
- Added memory testing during boot

Changes

- PHP sever-side scripting enhancements
- Improved TCP packet blocking for transmission

Bug Fixes

- Web Server now properly detects closing connections in the TIME_WAIT state
- Corrected ASN.1 issue resulting from cstring class modifications in v1.0.2
- Corrected issue where external devices stopped responding
- Removed extra FIN-ACK in FTP (closing after write)
- Corrected duration of TCP timeouts

June 4 2014 – Released 1.0.2

New Features

- Implementation of the JNIOR Model 412
- Server side scripting expanded so PHP can be used for file downloads

Changes

- Enhanced Java and PHP use of strings
- Input inversion now takes effect immediately
- DATE command option –N now provides clock sync status

Bug Fixes

- A variety changes to miscellaneous items.