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BULLETIN
BUL-026

Kairos Operating System (KairOS)

As of 2014-04-16 not all features have been implemented. Documentation is actively being developed alongside the firmware and may differ from the loaded firmware.

The following is a list of commands that can be entered in to a serial command line for diagnostic operation of the KAOS Rabbit operating system. All commands are executed if possible following a carriage return. It is expected that the command is driven by an ANSI compatible terminal screen that responds to ANSI or VT100 escape sequences.

There are a few common rules that apply to most command entries:

Up/Down	access the list of previously entered commands
ESC ESC	Exit running command and return to the command line
^C	Terminal entry of text

Most values can be entered as decimal, hex or octal

nn	decimal entry of nn
0xnn	hex numerical entry of nn
0nn	octal entry of nnn

There at several types of commands. Each type performs a specific function for the sub-system that they were designed to operate with. All commands and their associated options are entered on the command line followed by a carriage return (<CR> to commit the command and begin its execution.

Informative	Provide a list or status of the system
Simple Command/Response	Single line review or entry of data
Formatted Command/Response	Usually uses ANSI commands for a screen formatting

Commands are followed by their associated options. These options could be additional command words or numerical quantities based upon the requirements of the command. Such as:

command option option<CR>

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NOTES:
- Commands preceded with an asterisk are not working as of 2014-04-10.
- Commands preceded with a question mark have not been validated as of 2014-04-10.

Commands entered by themselves either supply a status of the related subsystem or they return with a list of available commands:

tasks<cr>	Provides a list of all tasks running in the system
devices<cr>	returns a list of all available top level commands for 'devices'

The command line can be accessed via a number of channels. The command channel used does not affect the command's performance. Commands can be entered locally via serial ports, remotely over the network or automatically with batch commands.

Access

Serial Port C	read/write
Telnet Port 23	read/write
UDP Commands to Port 7101	write
Web Page	formatted access
Batch Commands	stored on Flash File System

The system has a number of features and sub-systems that are unique to Kairos Rabbit based systems. The following is a description of the major sub-systems that are available. Kairos Rabbit systems are used on two different types of Rabbit processors, the 3000 or the 6000. These are primarily contained on the RCM3720 and the RCM6700 core modules from Digi International.

There are slight differences between the two processor types and their boards, but for the most part, the differences are transparent.

System Features

Tasker	16 System Tasks, 16 User Tasks, Cooperative Multi Tasker
Pipes	8 named serial pipes
Serial Ports	6 hardware serial ports, 2 virtual serial ports
redirection	Console on any port, terminal on any port
monitoring	Spy on serial traffic on any port

formatting	Formatting of data based upon serial stream
Command Line Console	Extensible command line for manipulating system
Extensible Commands	Commands can be placed on flash file system
Telnet	Access to the command line over standard TelNet protocol
UDP Commands	Ability to send command line commands over UDP
Acknowledge option	Send acknowledge of received command
Echo Option	Echo contents and results of received command
Switches	Named switches for system control
Web Page	Serves web page for hardware access and status
Flash File System (FAT16)	Flash file system for commands and data
create and manage text files	
Line Based File Editor	Simple implementation of Edlin
Batch File Execution	Ability to create batch files that are combinations of command line operations
AUTOEXEC.BAT Batch upon Startup	Execution of startup batch file
I2C	Access to various hardware devices over I2C

Serial EEPROM Configuration	Configuration and personality of system contained on 8 pin DIP serial EEPROM module
RCServo PWM	Output of PWM signal for servo control
FailSafe update of Firmware over UDP	Network or serial download of primary program (Rabbit 3000 only for now)
Beacon of State info to port 1901	Intermittent beacon of system state
Watchdog	Sophisticated watchdog system for failsafe/failknown operation. A failknown operation is a failure to a known state. This may or may not be a safe state. It could be an undefined state, that is known to be an undefined state.
Local I/O and memory management	Access local memory and I/O with read, write, toggle and oscillate commands
Command Repeating	Repeat any command at selected rate with screen formatting
Terminal Emulation	Usage of ANSI terminal emulation commands

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COMMAND DETAILS

All of the commands contained in the Kairos KAOS operating system are detailed below. Each command can be executed with and without various options. Each valid command line combination is provided and its required values explained. Values to be replaced are highlighted with curly brackets (e.g., verbatim command {value to be specified}.)

For commands that generate a data stream control can be regained with a rapid double-press of the “esc” key.

ping {ip address}	Send 4 pings to supplied IP address
telnet	Status of telnet system
telnet on	Enable telnet if turned off
telnet off	Disable telnet system, ignore commands

General Systems Commands

cls	Clear screen with ANSI command
home	Put cursor in top left corner of screen with ANSI command
keys	Begin echoing the hex value of each key pressed, ESC ESC to exit this mode
available	Returns available memory for: - Normal (Not Battery Backed RAM) - BB (Battery Backed RAM - Any
help	Display available commands
repeat dly	Repeat the next command at the default delay rate
repeat dly mode	Repeat the next command at the default delay rate with screen management 1 - Clear screen and goto to 0,0 before each execution 2 - Goto 0,0 before each execution
reboot	Return list of available commands
reboot restart	Restart the console
reboot hard	Hardware watchdog reset

reboot soft	Force software reset
reboot warm	Execute premain() (premain() is a Rabbit specific routine called before main())
reboot exit	Exit current program to Rabbit BIOS
version	Return program version and compile date/time

Build Report Commands

report	Return list of available commands
report addr	Display reporting IP address
report addr {ip}	Set reporting IP address
report port	Display reporting port number
report port {port}	Set reporting port number
report build {bitmap}	Build report based upon bitmap 00000000 - Disable report xxxxxxx1 - Abbreviated Name of Node xxxxxx1x - Servo actual position xxxxx1xx - Servo actual velocity xxxx1xxx - Servo actual motor current xxx1xxxx - Servo actual RC pulse xx1xxxxx - not assigned x1xxxxxx - not assigned 1xxxxxxx - not assigned

e.g. “00000110” provides the Servo actual position and velocity

The Build Report is a single UDP message, comma delimited that begins with "Report, " and each report element is appended to the string. It is terminated with a CRLF pair. The Build Report is transmitted to the IP address and port number assigned to the reporting function. The default transmission rate is 200ms.

report echo on	Echo the entire received UDP command
report echo off	Disable the echo of the received UDP command
report ack on	Send an ACK message when the UDP command is received
report ack off	Disable the acknowledge of the UDP command

ServoPod Commands

svp	Return list of available commands
svp reset	Send reset to ServoPod, toggle DTR to ServoPod
svp cmd	Send command to ServoPod

E-Stop Sub-System

estop	Return list of available commands
estop green {x}	Set green LED to x if supplied or toggle it
estop red {x}	Set red LED to x if supplied or toggle it
estop pause {x}	Set pause relay to x if supplied or toggle it
estop stop {x}	Set stop relay to x if supplied or toggle it
estop switch	Return state of pause switch
estop button	Return state of mushroom button
estop key	Return state of key switch
estop state	Return current state of E-Stop sub-system
estop state {x}	Set E-Stop state to x 0 - Unknown 1 - Run 2 - Stop 3 - Pause -1 - Invalid
estop ip	Return IP address of E-Stop transmission
estop port	Return port of E-Stop transmission

System Switches

switch	Return list of assigned switches and their states
switch {id}	Return id number, id name, and state of switch x (e.g., “switch 14” will return “switch 14 id-beacon 01” where 14 is the id-beacon and its value is 01)
switch {id} {v}	Set switch id to state v

Serial Port Commands

console	Indicate console serial port
console {x}	Transfer console port to serial port x, 0-5(A-F)
ports	List all serial ports, names, usage, etc
portinp {int}	Read value of internal I/O Port
portout {int} {value}	Set value of internal I/O port, shadow ignored
view	List any assigned serial com views
view rx {x}	Set up view of received data on serial port x which can be serial port 0-5, (A-F)
view tx {x}	Set up view of transmitted data on serial port x which can be serial port 0-5, (A-F)
view pipe {x}	Look at data placed into pipe x
view stop	Reset and stop all viewing activity
terminal	Help information on terminal command
terminal {x}	Enter terminal mode on serial port 0-5 (A-F)
terminal {x} {m}	Enter terminal mode on serial port 0-5 (A-F) with formatting mode m, where m is: 0 - No formatting 1 - 2 character hex with space 2 - decode Dynamixel message
tx_ip	Display main transmission IP address
tx_ip {ip address}	Set main transmission IP address
tx_port	Display main transmission IP port
tx_port {port}	Set main transmission IP port
rx_ip	Display main reception IP address
rx_ip {ip address}	Set main reception IP address
rx_port	Display main reception IP port
rx_port {port}	Set main reception IP port

Bit Operations Commands

bitdir {p} {b} {v}	Set direction of digital I/O port p - port number 0-7(A-H) b - bit number 0-7

	v - 0=input, 1=output
bitout {p} {b} {v}	Set output of digital I/O port
	p - port number 0-7(A-H)
	b - bit number 0-7
	v - bit output, 0 or 1
bittog {p} {b}	Singular toggle of digital I/O port output
	p - port number 0-7(A-H)
	b - bit number 0-7
bitfreq {p} {b} {ms}	Oscillate digital I/O port output
	p - port number 0-7(A-H)
	b - bit number 0-7
	ms - pulse rate in milliseconds
bitinp {p} {b}	Read value of digital I/O port input
	p - port number 0-7(A-H)
	b - bit number 0-7

List Management Commands

dump	dump 16 bytes starting at address 0
dump len	dump (len) bytes starting at address 0
dump addr len	dump (len) bytes starting at address (addr)
edlin	List of available commands
edlin inbound	Edit inbound Shared Link list
edlin outbound	Edit outbound Shared Link list
edlin {filename}	Edit filename

Self Test Commands

selftest	Perform a self test of the system
serialtest	Return a list of commands for serial testing
serialtest reopen {p}	Reopen/reinitialize serial port p, 0-5(A-F)
serialtest all	Send "Port A" to "Port F" out appropriate port at 1 second rate until ESC is entered on the console port
serialtest init	Reinitialize all serial ports

Cooperative MultiTasker Commands

tasks	Show list of all system and user tasks
taskstat	Current task status as binary and hex values disabled, blocked, active
taskcycle {id} {c}	Set task id's next execution to be c ticks away
taskrun {id}	Enable task t
taskstop {id}	Stop task t
taskremove {id}	Remove task t from system

Pipe Sub System Commands

pipes	List all available pipes
pipecr {p}	Print contents of pipe p as string, up to CR
pipecr {p} {string}	Put string into pipe p and append CR
pipestring {p}	Print contents of pipe p as string, up to CR
pipestring {p} {string}	Put string into pipe p
pipeinput {p}	Begin entry into pipe p up to Ctrl-C
pipeoutput {p}	Dump contents of pipe p
pipestate {p}	Show status of pipe p

Performance Measurement

mips	Perform 1000 whetstones and report results (about 30 sec)
mips {x}	Perform x whetstones and report results

Performance Adjustment

fast	Speed up system, clock doubler on
slow	Slow down system, clock doubler off

Time and Counters

time	Return current timer 0
time {x}	Return current timer x, for timers 0-7
decrementer	Return current value of decrementor
duration {x}	Return the duration in ms of system timer x

times	Return seconds, ticks and milliseconds for timer 0
times {x}	Return seconds, ticks, and milliseconds for timer x

Watch Dog Commands

hwdog	Return list of available commands
hwdog init	Initialize hardware watch dog system
hwdog start {x}	Start next hardware watch dog at rate x * 62ms
hwdog hit	Refresh hardware watch do #id, (0-7)
hwdog kill {id}	Stop hardware watch dog #id (0-7)
hwdog task	Install hardware watch dog task as task 12
hwdog task {t}	Install hardware watch dog task as task t (0-15)

Other System Commands

beacon	List of available commands
beacon {task}	Install the beacon ID transmission task as Task 6
beacon {id}	Send ID beacon
forth	Begin operation of Forth System This is a separate command line sub-system
ip	Display IP address and list available commands
ip ?	List of available ip commands
ip id	Show ID IP address and port
ip link	Show SharedLink IP address and port
ip estop	Show E-Stop IP address and port
ip jauslp	Show JAUS Low Power IP address and port
ip svbeacon	Show Shared Variable Beacon IP address and port
ip base {ip address}	Set base IP address
lockout	Return list of available commands
lockout ?	Report the state of the lockout system
lockout on	Lock the Servo/PWM position from changing. Changes are discarded and ignored. Maintains last position
lockout off	Re-enable change to the Servo/PWM position
parvcan	display can sub-system
testcan	

canvalue
canirq
canreset

File Management System

dir	Provide a directory of local flash file system
part	Dump partition information
mount	Attach to the selected or default drive
unmount	Disconnect from the selected or default drive
` append {file} string	Append to file the deformatted string String can have some of the standard 'c' formatting such as /n, /r, /z etc. Deformatting will replace the human readable characters with the actual byte values.
info {file}	Display information about file
create {file} string	Append to file the deformatted string]String can have some of the standard 'c' formatting such as /n, /r, /z etc. Deformatting will replace the human readable characters with the actual byte values.
type {file}	Display the contents of the file in ASCII
typehex {file}	Display the contents of the file in hex bytes
del {file}	Delete the file
format yes	Format the mounted drive

Download/Bootloader System

download	Display list of available commands
download network	Begin download of UDP binary image
download serial	Begin download of Serial binary image

Batch Commands

echo	Ignore text following
@echo	Ignore text following
rem	Ignore text following
batch	Return available commands
batch run {file}	Run batch file
batch once (file) ms	Run batch file once in ms milliseconds
batch timed {file} ms	Run batch file every ms milliseconds

filename	Execute command if .BAT file exists
filename.bat	Execute command if file exists

Unused

- testallled
- testled
- mem32
- mem8
- checkmem
- fillmem
- dumpmem
- testmem

Various Device Specific Commands

pwm	Return available commands
pwm safe0 x	Set state of Gamoto SAFE0 bit to x
pwm safe1 x	Set state of Gamoto SAFE1 bit to x
pwm brkpwr x	Set state of Gamoto SAFE1 bit to x
pwm home 0	Save current servo to default home
pwm home x	Save current servo to x(0-7) home
pwm home x ?	read memory and display value, update home[x]
pwm home x value	Save value to home x(0-7)
pwm set ?	Return current servo value, from shadow value (previous set)
pwm set home	Set servo to default home
pwm set home x	Set servo to home x position
pwm set value	Set servo output to value (0-255)
pwm set	Return available commands
pwm test	Begin slow servo ramp test 0-250, steps of 10
pwm init	Initialize servo PWM output
gamoto	Return all available commands
gamoto read reg len	Return Gamoto register (reg) of length bytes(0-2)
gamoto write reg b1 b2 .. bn	Write bytes to register (reg) b1 to bn
gamoto position	Return current position of Gamoto feedback
gamoto rcpulse	Return current servo PWM pulse width

gamoto trap255 x	Set trapezoidal output x (0-255) Velocity based upon relative distance table from last Acceleration fixed at maximum (127)
gamoto trap	Return current/last executed trapezoidal values relative move, velocity, acceleration, current position
gamoto trap pos	Set desired relative position (±24 bit value) velocity based upon relative distance table from last acceleration fixed at maximum (127)
gamoto trap pos vel	Set desired relative position (±24 bit value), velocity (0-255) velocity based upon relative distance table from last acceleration fixed at maximum (127)
gamoto trap pos vel accel	Set desired relative position (±24 bit value), velocity (0-255) and acceleration (0-127)
gamoto mode	Return list of available commands
gamoto mode reg	Set direct position mode (non-PWM)
gamoto mode reg x	Set position if entered, Kairos Motors 100-900 is valid
gamoto mode trap	Set trapezoidal mode, ramp/velocity/ramp stop
gamoto mode trap x	Select trapezoidal profile x; currently only 0 is supported
gamoto mode pid	Return values of the PID - KP, KD, KI, il, ds
gamoto mode pid kp x	Set PID proportional gain as x
gamoto mode pid kd x	Set PID derivative gain as x
gamoto mode pid ki x	Set PID integral gain as x
gamoto mode pid iL x	Set PID current limit as x
gamoto mode pid ds x	Set PID sample speed as x
gamoto mode reset	Reset the Gamoto to power up conditions
gamoto mode save	Save current Gamoto values
gamoto mode rc	Return current received PWM values Received pulse, set min, set max, pulse min, pulse max
gamoto mode rc smin x	Set the value that is used when the received pulse is min

gamoto mode rc smax x	Set the value that is used when the received pulse is max
gamoto mode rc rmin x	Set the minimum received pulse width
gamoto mode rc rmax x	Set the maximum received pulse width
arduino	Return list of available Arduino commands
arduino test	Cyclic Arduino output test for test shield board
spi	Return list of available commands
spi test	Execute SPI test (not implemented)
spi read	Return 1 byte
spi read x	Return x bytes
spi write b1 b2....bn	Write bytes b1 to bn
i2c	Return list if I2C commands
i2c init	Initialize I2C sub-system
i2c addr	Return current I2C base address
i2c addr x	Set current I2C base address
i2c read	Return 1 byte from base address
i2c read off	Return 1 byte from base address + offset
i2c read off len	Return len bytes from base address+ offset
i2c write off b1	Write 1 bytes to base address + offset (not fully implemented)
mem	Return list of available commands
mem test	Write and read 0123456789 to 0x100 of I2C serial EEPROM device
mem dump	
mem dump len	Dump len bytes starting at address 0
mem dump x len	Dump len bytes starting at address x
mem erase	Erase (set to FF) entire I2C memory
mem update	Read I2C and update from fixed locations 0 - 2 byte header, should be 0xAA55 Name Abbreviation IP Address Megamixel ID

mem writeip ip	Set I2C memory IP address to supplied IP
mem writestr x str	Write string at address x
mem writearray x b1 b2 .. bn	Write bytes b1 to bn starting at address x
mem read x len	Read len bytes starting at address x
mem write x b1	Write byte to address x
magpos	Return list of available commands
magpos read x	Read 1 byte from address x
magpos write x b1	Write 1 byte to address x
magpos position	Return position of magnetic position sensor
magpos zero	Zero current position of magnetic position sensor
magpos fix	Permanently fix current position of magnetic position sensor as zero (not implemented)
chuha	Return list of available commands
chuha init	Initial visual odometery system
chuha light x	Set the ground illumination on-1 or off-0
chuha pos	Return the current X/Y position of the
chuha zero	Zero current X/Y position
chuhap	Return list of available prototype commands
chuhap init	Initialize visual odometery prototype
chuhap pos	Return the current X/Y position of the prototype
chuhap zero	Zero prototype's current X/Y position
gy7	Not implemented
9dof	Not implemented
encoder	Return list of available commands
encoder init	Initialize quadrature encoder sub-system
encoder range	Set range of encoder sub-system, max count
encoder clear	Clear encoder counts
encoder read	Read encoder position
encoder read x	Read encoder register x
encoder count	Read encoder count
i2c2spi	Return list of available commands
i2c2spi gpio x	Set all outputs as GPIO and set to bitwise x
i2c2spi mode x	Set mode to x

i2c2spi read x len	Read len bytes from i2cspi device x
i2c2spi write x b1 b2 .. bn	Write bytes b1 to bn to device x
pcf8574	Return list of available commands
pcf8574 read	Read device 0 as digital inputs
pcf8574 read x	Read device x as digital inputs
pcf8574 write x b1	Write device x as pseudo digital outputs, active low
pcf8574 toggle x	Toggle/Invert device x digital outputs
pcf8574 inc x	Increment device x digital outputs
mega	Return list of available commands
mega init	Initialize Dynamixel protocol
mega read	Read register 30, goal position, 2 bytes
mega read x	Read register x, 2 bytes
mega read x len	Read register x, 1 or 2 bytes
mega write x b1	Write to register x, byte b1
adns2051	Return list of available commands
adns2051 read	Read byte from register 0
adns2051 read x	Read byte from register x
adns2051 pos	Return X and Y position, if changed
adns2051 image	Dump image of sensor, 16x16
adns2051 image ip	Send image to IP address
adns2620	Return list of available commands
adns2620 status	Get status of sensor
adns2620 pos	Return current X/Y position of sensor
adns2620 image	Dump image of sensor, 18x18
distance	Return list of available commands
distance ir	Return distance from IR sensor
distance usound	Return distance from ultrasound sensor
zigbee	
test	Toggle all bits for zigbee test board
txd {x}	Set bit to x if supplied otherwise toggle bit
rts {x}	Set bit to x if supplied otherwise toggle bit
dtr {x}	Set bit to x if supplied otherwise toggle bit
reset {x}	Set bit to x if supplied otherwise toggle bit
cts {x}	Set bit to x if supplied otherwise toggle bit
rxd {x}	Set bit to x if supplied otherwise toggle bit

sensor	Initialize and read SparkFun nDOF sensor

JAUS Commands

GENERAL INFORMATION AND COMMANDS

jaus auto	Place the robot into Auto mode
jaus manual	Place the robot into Manual mode
jaus init	Re-initialize the JAUS system
jaus vehiclename	Get the name of the current JAUS node or vehicle
jaus name	Shortcut for “jaus vehiclename”
jaus vehiclename {vehicle name}	Set the name of the current JAUS node or vehicle
jaus name {vehicle name}	Shortcut for “jaus vehiclename {vehicle name}
jaus ip	Get the IP of the current JAUS robot
jaus ip {#.#.#.#}	Set the IP of the current JAUS robot
jaus port	Get the port of the current JAUS robot
jaus port {#}	Set the port of the current JAUS robot
jaus discovered	List of all nodes and subsystems visible on the JAUS network
jaus subsystemid	Get the JAUS SSID of the current robot
jaus subsystem	Shortcut for “jaus subsystemid”
jaus subsystemid {#}	Set the JAUS SSID of the current robot (The typical Kairos scheme sets the JAUS SSID to the last octet of the IP, thus a robot with the IP of 192.168.200.112 would have a JAUS SSID of “112”.)
jaus subsystem {#}	Shortcut for “jaus subsystemid {#}”
jaus nodeid	Get the JAUS Node ID of the current robot
jaus node	Shortcut for “jaus nodeid”

jaus nodeid {#}	Set the JAUS Node ID of the current robot (The typical Kairos scheme leaves the node set to a default value of “1”.)
jaus node {#}	Shortcut for “jaus node {#}”
jaus save	Save the current JAUS configuration
jaus resend {on|off}	Enable/disable the resending of UDP messages upon internal TCP/IP stack error
jaus stdio {on|off}	Enable/disable the display of named JAUS message traffic on the STDIO device (PortA)
jaus status	List of various internal parameters as the current state of the JAUS system
jaus events	List of events the OCU has registered with this JAUS system

JAUS TIME INFORMATION

jaus time show	Display the current system date and time
jaus time gps	Display the current GPS date and time
jaus time sync	Synchronize the current system date and time with the GPS date and time
jaus time get	Get the OCU’s current date and time across the JAUS network

JAUS PAYLOAD INFORMATION

jaus payload information list	Display a list of all payload information variables (i.e. all ids and corresponding variable descriptions)
jaus payload information	Shortcut for “jaus payload information list”
jaus payload inf list	Shortcut for “jaus payload information list”
jaus payload inf	Shortcut for “jaus payload information list”
jaus payload information {id}	Get the content of the specified payload id

	value
jaus payload inf {id}	Shortcut for “jaus payload information {id}”
jaus payload information {id} {v}	Set the value of the specified payload id
jaus payload inf {id} {v}	Shortcut for “jaus payload information {id} {v}”

JAUS PAYLOAD COMMANDS

jaus payload command list	Display a list of all payload command variables (i.e. all ids and corresponding variable descriptions)
jaus payload command	Shortcut for “jaus payload command list”
jaus payload cmd list	Shortcut for “jaus payload command list”
jaus payload cmd	Shortcut for “jaus payload command list”
jaus payload command {id}	Get the value of the specified payload id
jaus payload cmd {id}	Shortcut for “jaus payload command {id}”
jaus payload command {id} {v}	Set the value of the specified payload id
jaus payload cmd {id} {v}	Shortcut for “jaus payload command {id} {v}”
jaus payload information events	List the attached payload information events related to transmission on change
jaus payload inf events	Shortcut for “jaus payload information events”
jaus payload information timed	List the attached payload information events related to time transmission
jaus payload inf timed	Shorcut for “jaus payload information timed”
jaus payload safety list	Display a list of all loaded JAUS safety alerts
jaus payload safety	Shortcut for “jaus payload safety list”
jaus payload safety {id}	Get the value of the specified payload safety alert id
jaus payload safety {id} {v}	Set the value of the specified payload safety alert id

jaus payload safety update	Send all active safety descriptors
jaus payload safety events	Display a list of all safety descriptor events

JAUS SAFETY FLAGS

jaus safety list	Display a list of all safety flag related payload information variables (i.e. all ids and corresponding variable descriptions)
jaus safety	Shortcut for “jaus safety list”
jaus safety {id}	Get the value of the specified {id} safety value
jaus safety {id} {value}	Set the value of the specified {id} safety value

JAUS DKS INFORMATION

jaus dks list	Display a list of all DKS variables (i.e. all ids and corresponding variable descriptions)
jaus dks	Shortcut for “jaus dks list”
jaus dks {id}	Get the value of the specified DKS id
jaus dks {id} {value}	Set the value of the specified DKS id
jaus dks persist	Save the current DKS values to flash memory
jaus dks revert	Revert to the current flash memory DKS values (i.e. undo edits that have not been persisted)
jaus dks dump	Dump byte detail of the current DKS compared to the saved DKS
jaus dks clear	Clear all DKS entries to 0 or null
jaus dks erase	Clear all DKS entries to 0 or null
jaus dks delete	Delete the stored DKS file.

WARNING: The DKS file will NOT auto load upon subsequent startup or revert

JAUS DIAGNOSTICS

jaus stdio {on|off}	Have diagnostics messages sent to the Rabbit’s StdIO

	output
jaus sc {show|on}	Show JAUS service connections messages to the STDIO device (PortA)
jaus sc {hide|off}	Disable display of JAUS service connections messages to the STDIO device (PortA)
jaus hb {show|on}	Show JAUS ReportHeartbeat messages to the STDIO device (PortA)
jaus hb {hide|off}	Disable display of JAUS ReportHeartbeat messages to the STDIO device (PortA)
debug {on|off}	Show/hide internal Dynamic C diagnostic messages
debug trace {on|off}	Show/hide limited diagnostic execution tracing to the STDIO device (PortA)
debug on {n}	Set internal Dynamic C debug value

SAMPLE JAUS COMMISSIONING

jaus subsystem 101	Set current subsystem as “101”
jaus node 1	Set current node as “1”
jaus name JT3_SN101	Set current bot’s name as “JT3_SN101”
jaus ip 192.168.200.101	Set current bot’s IP as “192.168.200.101”
jaus port 3794	Set current bot’s Port as “3794”
jaus save	Save changes

SAMPLE JAUS CALIBRATION

jaus dks 516 16	Set DKS variable 516 (TicksPerDegree) to “16”
jaus dks 200 0	Set DKS variable 200 (ParkSetpoint) to “0”
jaus dks 501 30	Set DKS variable 501 (ReverseSetpoint) to “30”
jaus dks 502 50	Set DKS variable 502 (NeutralSetpoint) to “50”
jaus dks 205 80	Set DKS variable 205 (DriveSetpoint) to “80”
jaus dks persist	Save and persist current DKS settings

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Technical Support

Kairos Autonomi offers telephone support for hardware issues. We are available from 8 a.m. to 5 p.m., M-F, MST. Many days we are available outside of these hours (but that is not guaranteed). You can reach us at 801-255-2950.