Piksi Multi Settings

Firmware Version v1.5.12

1 Introduction

Piksi® Multi and Duro® have a number of settings that can be controlled by the end user via the provided Swift Console or through the SBP binary message protocol. This document serves to enumerate these settings and provide a detailed description of the setting plus any relevant notes. If a setting is listed as "Expert" in this document, the "Show Advanced Settings" checkbox must be checked or the –expert command line argument must be passed to the Swift Console in order to see or modify the value. Settings listed as "readonly" cannot be modified by the user and are available for information only.

2 Configure Settings Programmatically

The Swift Binary Protocol (SBP) Settings messages are used to programmatically configure settings. Please refer to the SBP and settings document that corresponds to the firmware version in use Each of the settings messages have a string field that is used to read and/or write a settings based upon its grouping (sometimes referred to as the "SECTION_SETTING"), the name of the setting, and the intended or current value. This string field uses the null termination characters as deliminators

3 Settings Table

Grouping	Name	Description
acquisition		
	bds2 acquisition enabled	Enable Beidou2 acquisition.
	glonass acquisition enabled	Enable GLONASS acquisition.
	qzss acquisition enabled	Enable QZSS acquisition.
	sbas acquisition enabled	Enable SBAS acquisition.
	almanacs enabled	Enable the almanac-based acquisition.
cell modem		
	debug	Additional debug messages for cell modem.
	device override	Override the device used for cell modem connectivity. If left empty, uses default device discovery to determine the correct device to use.
	enable	None
	device	None
	APN	Access point name (provided by cell carrier).
	modem type	The type of cell modem in use.
ethernet		
	gateway	The default gateway for the IP config.
	netmask	The netmask for the IP config.
	ip address	The static IP address.
	ip config mode	Ethernet configuration mode.
ext event a		
	sensitivity	Minimum time between events (0 = disabled).
	edge trigger	Select edges to trigger timestamped event capture.
ext event b		
	sensitivity	Duro only. Minimum time between events (0 = disabled).
	edge trigger	Duro only. Select edges to trigger timestamped event capture.
ext event c		
	sensitivity	Duro only. Minimum time between events (0 = disabled).
	edge trigger	Duro only. Select edges to trigger timestamped event capture.
frontend		
	antenna bias	Enable/Disable 4.85V antenna bias.
	use ext clk	Enable/Disable External Clock Input.
	antenna selection	Determines which antenna to use.
imu		
	imu raw output	Enable/Disable IMU raw data output from onboard Bosch BMI160 IMU.
	mag raw output	Enable/Disable raw data output from onboard Bosch BMM150 Magnetometer.
	mag rate	The data rate (in Hz) for magnetometer raw output.
	acc range	The approximate range of accelerations that can be measured.
	gyro range	The approximate range of angular rate that can be measured.
	imu rate	The data rate (in Hz) for IMU raw output.
ndb		
	erase l2c capb	Erase stored L2C capability mask during boot.
	erase utc params	Erase stored UTC offset parameters during boot.
	erase almanac wn	Erase stored almanac week numbers during boot.
	erase almanac	Erase stored almanacs during boot.

	erase ephemeris	Erase stored ephmerides during boot.
	erase iono	Erase stored ionospheric parameters during boot.
	erase lgf	Erase stored last fix information during boot.
	valid eph acc	None
	valid alm acc	None
	lgf update m	Change in position required to update last good fix.
	valid alm days	Number of days for which Almanac is valid.
	lgf update s	Update period for navigation database last good fix.
nmea		
	gpgga msg rate	Number of Solution Periods between GGA NMEA messages being sent.
	gpgll msg rate	Number of Solution Periods between GLL NMEA messages being sent.
	gpgsv msg rate	Number of Solution Periods between GSV NMEA messages being sent.
	gphdt msg rate	Number of Solution Periods between HDT NMEA messages being sent.
	gprmc msg rate	Number of Solution Periods between RMC NMEA messages being sent.
	gpvtg msg rate	Number of Solution Periods between VTG NMEA messages being sent.
	gsa msg rate	Number of Solution Periods between GSA NMEA messages being sent.
	gpzda msg rate	Number of Solution Periods between ZDA NMEA messages being sent.
ntrip		
	debug	Additional debug messages for NTRIP (sent to /var/log/messages).
	enable	Enable NTRIP client. The interface will receive 1002, 1004, 1005, 1006, 1010, 1012, 1033 and 1230 RTCMv3.1 messages and will not transmit or receive any other messages.
	gga out interval	Interval at which the NMEA GGA sentence is uploaded to the NTRIP server
	url	NTRIP URL to use.
	password	NTRIP password to use.
	username	NTRIP username to use.
pps		
	frequency	Generate a pulse with the given frequency (maximum = 20 Hz).
	polarity	Logic level on output pin when the PPS is active.
	width	Number of microseconds the PPS will remain active (allowed range from 1 to 999999 us).
	offset	Offset in microseconds between GPS time and the PPS.
sbp		
	obs msg max size	Determines the maximum message length for raw observation sbp messages.
simulator		
	mode mask	Determines the types of position outputs for the simulator.
	radius	Radius of the circle around which the simulated receiver will move.
	base ecef x	Simulated base station position.
	base ecef y	Simulated base station position.
	base ecef z	Simulated base station position.
	speed	Simulated tangential speed of the receiver.
	phase sigma	Standard deviation of noise added to the simulated carrier phase.
	pseudorange sigma	Standard deviation of noise added to the simulated pseudo range.
	cn0 sigma	Standard deviation of noise added to the simulated signal to noise. ratio
	speed sigma	Standard deviation of noise addition to simulated tangential speed.
	pos sigma	Standard deviation of simulated single point position.
	num sats	The number of satellites for the simulator.
	enabled	Toggles the receiver internal simulator on and off.
skylark		
	enable	Enable Skylark client.
	url	Skylark URL to use.
solution		
	dgnss filter	Determines the type of carrier phase ambiguity resolution that the receiver will attempt to achieve.

	disable klobuchar correction	Disable Klobuchar ionospheric corrections.
	glonass measurement std downweight factor	Down weights GLONASS measurements by a given factor in the navigation filter.
	enable glonass	Enable GLONASS measurement processing in the navigation filter.
	send heading	Enables SBP heading output. Heading is calculated from base station to rover and represents the inverse tangent of the north and east components of the baseline.
	output every n obs	Integer divisor of solution frequency for which the observations will be output.
	disable raim	Receiver Autonomous Integrity Monitoring.
	heading offset	Rotate the heading output.
	elevation mask	SPP / RTK solution elevation mask.
	dgnss solution mode	Selects the type of RTK solution to output.
	soln freq	The frequency at which a position solution is computed.
	correction age max	The maximum age of corrections for which an RTK solution will be generated.
standalone logging		
	logging file system	Configure the file-system used for standalone logging (SD card only).
	copy system logs	Copy system logs to the SD card at regular intervals.
	file duration	Duration of each logfile.
	max fill	Maximum storage device usage.
	enable	Standalone logging enabled.
	output directory	Standalone logging path.
surveyed position		
	broadcast	Broadcast surveyed base station position.
	surveyed alt	Surveyed altitude of the antenna.
	surveyed lat	Surveyed latitude of the antenna.
	surveyed lon	Surveyed longitude of the antenna.
system		
	log ping activity	If set to true, the network poll service will also log ping activity.
	connectivity check frequency	The frequency at which the network poll service checks for connectivity.
	connectivity retry frequency	The frequency at which the network poll service retries after a failed connectivity check.
	system time	Sources for Linux System Time.
system info		
	firmware version	Firmware version of the receiver.
	firmware build id	Full build id for firmware version.
	hw revision	Hardware revision of the receiver.
	hw version	Hardware version number.
	nap channels	Number of channels in SwiftNap FPGA.
	mac address	The MAC address of the receiver.
	sbp sender id	The SBP sender ID for any messages sent by the device.
	uuid	The UUID of the receiver.
	serial number	The serial number of the receiver.
	nap build date	build date for SwiftNap FPGA bitstream.
	loader build date	build date for boot loader (uboot).
	pfwp build date	build date for real-time GNSS firmware (piksi firmware).
	nap build id	build id for SwiftNap FPGA bitstream.
	loader build id	build id for loader (uboot).
	pfwp build id	build id for real-time GNSS firmware (piksi firmware).

	`firmware build date`	firmware build date.
system monitor		
	`watchdog`	Enable hardware watchdog timer to reset the receiver if it locks up for. any reason
	`spectrum analyzer`	Enable spectrum analyzer.
	`heartbeat period milliseconds`	Period for sending the SBP HEARTBEAT messages.
tcp client0		
	`enabled sbp messages`	Configure which messages should be sent on the port. Does not effect which incoming messages are listened to.
	`address`	IP address and port for TCP client 0 to connect to.
	`mode`	Communication protocol for TCP client 0. The client will initiate a connection with the server and establish bi-directional communications.
tcp client1		
	`enabled sbp messages`	Configure which messages should be sent on the port. Does not effect which incoming messages are listened to.
	`address`	IP address and port for TCP client 1 to connect to.
	`mode`	Communication protocol for TCP client 1. The client will initiate a connection with the server and establish bi-directional communications.
tcp server0		
	`enabled sbp messages`	Configure which messages should be sent on the port. Does not effect which incoming messages are listened to.
	`port`	Port for TCP server 0 to listen on.
	`mode`	Communication protocol for TCP server 0. The server will listen for incoming client connections and establish a bi-directional communications.
tcp server1		
	`enabled sbp messages`	Configure which messages should be sent on the port. Does not effect which incoming messages are listened to.
	`port`	Port for TCP server 1 to listen on.
	`mode`	Communication protocol for TCP server 1. The server will listen for incoming client connections and establish a bi-directional communications.
track		
	`send trk detailed`	send detailed tracking state message.
	`max pll integration time ms`	Controls maximum possible integration time for a measurement.
	`iq output mask`	Output raw I/Q correlations.
	`elevation mask`	Tracking elevation mask.
uart0		
	`enabled sbp messages`	Configure which messages should be sent on the port.
	`mode`	Communication protocol for UART0.
	`flow control`	Enable hardware flow control (RTS/CTS).
	`baudrate`	The Baud rate for the UART 0.
uart1		
	`enabled sbp messages`	Configure which messages should be sent on the port.
	`mode`	Communication protocol for UART 1.
	`flow control`	Enable hardware flow control (RTS/CTS).
	`baudrate`	The Baud rate for the UART 1.
udp client0		
	`enabled sbp messages`	Configure which messages should be sent to the server.
	`address`	IP address for UDP client 0.
	`mode`	Communication protocol for UDP client 0. The client will send packets to a server for uni-directional communications.
udp client1		
	`enabled sbp messages`	Configure which messages should be sent to the server.

	address	IP address for UDP client 1.
	mode	Communication protocol for UDP client 1. The client will send packets to a server for uni-directional communications.
udp server0		
	enabled sbp messages	Configure which messages should be sent on the port.
	port	Port for UDP server 0 to listen to.
	mode	Communication protocol for UDP server 0. The server will listen for incoming packets from a client for uni-directional communications.
udp server1		
	enabled sbp messages	Configure which messages should be sent on the port.
	port	Port for UDP server 1 to listen to.
	mode	Communication protocol for UDP server 1. The server will listen for incoming packets from a client for uni-directional communications.
usb0		
	enabled sbp messages	Configure which messages should be sent on the port.
	mode	Communication protocol for USB0.

Table 3.0.1: Summary of message types

4 Settings Detail

4.1 acquisition

4.1.1 bds2 acquisition enabled

Description: Enable Beidou2 acquisition.

Label	Value
group	acquisition
name	bds2 acquisition enabled
expert	True
readonly	False
units	N/A
default value	False
type	boolean
enumerated possible values	True,False

Table 4.1.1: bds2 acquisition enabled

Notes: If Beidou2 satellites are already being tracked, this setting will not remove them from tracking or exclude them from being used in positioning - the setting must be saved and the receiver must be restarted for this to take effect.

4.1.2 glonass acquisition enabled

Description: Enable GLONASS acquisition.

Label	Value
group	acquisition
name	glonass acquisition enabled
expert	False
readonly	False
units	N/A
type	boolean
enumerated possible values	True,False

Table 4.1.2: glonass acquisition enabled

Notes: If GLONASS satellites are already being tracked, this setting will not remove them from tracking or exclude them from being used in positioning - the setting must be saved and the receiver must be restarted for this to take effect.

4.1.3 qzss acquisition enabled

Description: Enable QZSS acquisition.

Label	Value
group	acquisition
name	qzss acquisition enabled
expert	True
readonly	False
units	N/A
default value	False
type	boolean
enumerated possible values	True,False

Table 4.1.3: qzss acquisition enabled

Notes: None

4.1.4 sbas acquisition enabled

Description: Enable SBAS acquisition.

Label	Value
group	acquisition
name	sbas acquisition enabled
expert	False
readonly	False
units	N/A
default value	False
type	boolean
enumerated possible values	True,False

Table 4.1.4: sbas acquisition enabled

Notes: If SBAS satellites are already being tracked, this setting will not remove them from tracking or exclude SBAS corrections from being used in positioning - the setting must be saved and the receiver must be restarted for this to take effect.

4.1.5 almanacs enabled

Description: Enable the almanac-based acquisition.

Label	Value
group	acquisition
name	almanacs enabled
expert	True
readonly	False
units	N/A
default value	False
type	boolean
enumerated possible values	True,False

Table 4.1.5: almanacs enabled

Notes: None

4.2 cell modem

4.2.1 debug

Description: Additional debug messages for cell modem.

Label	Value
readonly	False
group	cell modem
name	debug
expert	True
default value	False
type	boolean

Table 4.2.1: debug

4.2.2 device override

Description: Override the device used for cell modem connectivity. If left empty, uses default device discovery to determine the correct device to use.

Label	Value
readonly	False
group	cell modem
name	device override
expert	True
default value	
type	string

Table 4.2.2: device override

4.2.3 enable

Description: None

Label	Value
readonly	False
group	cell modem
name	enable
expert	True
units	N/A
default value	False
type	boolean

Table 4.2.3: enable

4.2.4 device

Description: None

Label	Value
readonly	False
group	cell modem
name	device
expert	True
units	N/A
default value	ttyACM0
type	string

Table 4.2.4: device

4.2.5 APN

Description: Access point name (provided by cell carrier).

Label	Value
group	cell modem
name	APN
expert	True
readonly	False
units	N/A
default value	INTERNET
type	string

Table 4.2.5: APN

4.2.6 modem type

Description: The type of cell modem in use.

Label	Value
group	cell modem
name	modem type
expert	True
readonly	False
default value	GSM
type	enum
enumerated possible values	GSM,CDMA

Table 4.2.6: modem type

4.3 ethernet

4.3.1 gateway

Description: The default gateway for the IP config.

Label	Value
group	ethernet
name	gateway
expert	False
readonly	False
units	N/A
default value	192.168.0.1
type	string

Table 4.3.1: gateway

Notes: The configured gateway in XXX.XXX.XXX.XXX format.

4.3.2 netmask

Description: The netmask for the IP config.

Label	Value
group	ethernet
name	netmask
expert	False
readonly	False
units	N/A
default value	255.255.255.0
type	string

Table 4.3.2: netmask

Notes: The configured netmask in XXX.XXX.XXX.XXX format.

4.3.3 ip address

Description: The static IP address.

Label	Value
group	ethernet
name	ip address
expert	False
readonly	False
units	N/A
default value	192.168.0.222
type	string

Table 4.3.3: ip address

Notes: The configured IP address in XXX.XXX.XXX.XXX format.

4.3.4 ip config mode

Description: Ethernet configuration mode.

Label	Value
group	ethernet
name	ip config mode
expert	False
readonly	False
units	N/A
default value	Static
type	enum
enumerated possible values	Static,DHCP

Table 4.3.4: ip config mode

Notes: If DHCP is chosen the IP address will be assigned automatically. The DHCP assigned IP address cannot be viewed under the Settings tab, instead use the Advanced Tab and click on 'Refresh Network Status'.

4.4 ext event a

4.4.1 sensitivity

Description: Minimum time between events (0 = disabled).

Label	Value
group	ext event a
name	sensitivity
expert	False
readonly	False
units	us (microseconds)
default value	0
type	integer
enumerated possible values	None

Table 4.4.1: sensitivity

Notes: Any event that is triggered within the sensitivity window after the previous event will be ignored and no MSG_EXT_EVENT will be generated.

4.4.2 edge trigger

Description: Select edges to trigger timestamped event capture.

Label	Value
group	ext event a
name	edge trigger
expert	False
readonly	False
units	N/A
default value	None
type	enum
enumerated possible values	None,Rising,Falling,Both

Table 4.4.2: edge trigger

Notes: You can use this to record the exact time that some external event in your system occurred, e.g. camera shutter time. Upon detecting the event, receiver will generate a MSG_EXT_EVENT message reporting the event, including a timestamp accurate to better than a microsecond.

4.5 ext event b

4.5.1 sensitivity

Description: Duro only. Minimum time between events (0 = disabled).

Label	Value
group	ext event b
name	sensitivity
expert	True
readonly	False
units	us (microseconds)
default value	0
type	integer
enumerated possible values	None

Table 4.5.1: sensitivity

Notes: Any event that is triggered within the sensitivity window after the previous event will be ignored and no MSG_EXT_EVENT will be generated.

4.5.2 edge trigger

Description: Duro only. Select edges to trigger timestamped event capture.

Label	Value
group	ext event b
name	edge trigger
expert	True
readonly	False
units	N/A
default value	None
type	enum
enumerated possible values	None,Rising,Falling,Both

Table 4.5.2: edge trigger

Notes: You can use this to record the exact time that some external event in your system occurred, e.g. camera shutter time. Upon detecting the event, receiver will generate a MSG_EXT_EVENT message reporting the event, including a timestamp accurate to better than a microsecond.

4.6 ext event c

4.6.1 sensitivity

Description: Duro only. Minimum time between events (0 = disabled).

Label	Value
group	ext event c
name	sensitivity
expert	True
readonly	False
units	us (microseconds)
default value	0
type	integer
enumerated possible values	None

Table 4.6.1: sensitivity

Notes: Any event that is triggered within the sensitivity window after the previous event will be ignored and no MSG_EXT_EVENT will be generated.

4.6.2 edge trigger

Description: Duro only. Select edges to trigger timestamped event capture.

Label	Value
group	ext event c
name	edge trigger
expert	True
readonly	False
units	N/A
default value	None
type	enum
enumerated possible values	None,Rising,Falling,Both

Table 4.6.2: edge trigger

Notes: You can use this to record the exact time that some external event in your system occurred, e.g. camera shutter time. Upon detecting the event, receiver will generate a MSG_EXT_EVENT message reporting the event, including a timestamp accurate to better than a microsecond.

4.7 frontend

4.7.1 antenna bias

Description: Enable/Disable 4.85V antenna bias.

Label	Value
group	frontend
name	antenna bias
expert	False
readonly	False
units	N/A
type	bool

Table 4.7.1: antenna bias

Notes: Most active antennas require an antenna bias in order to power the amplifier in the antenna.

4.7.2 use ext clk

Description: Enable/Disable External Clock Input.

Label	Value
group	frontend
name	use ext clk
expert	False
readonly	False
units	N/A
default value	False
type	bool

Table 4.7.2: use ext clk

Notes: This setting toggles the hardware switch for Piksi Multi 10Mhz clock source. When true, Piksi Multi will be configured to use an external clock source rather than its onboard oscillator. It is only available on Piksi Multi hardware versions greater than or equal to 5.1 (00108-05 rev 1). The external clock input signal can be provided on the Piksi Multi evaluation board through a labeled SMA connector. It is not exposed on Duro.

4.7.3 antenna selection

Description: Determines which antenna to use.

Label	Value
group	frontend
name	antenna selection
expert	False
readonly	False
units	N/A
default value	Primary
type	enum
enumerated possible values	Primary,Secondary

Table 4.7.3: antenna selection

Notes: This setting selects the antenna input that should be used by the receiver. Piksi Multi boards and Duro units ship with only a "Primary" antenna connector, so this should always be set to "Primary."

4.8 imu

4.8.1 imu raw output

Description: Enable/Disable IMU raw data output from onboard Bosch BMI160 IMU.

Label	Value
group	imu
name	imu raw output
expert	False
readonly	False
default value	False
type	boolean

Table 4.8.1: imu raw output

Notes: The IMU raw data can be seen in the Advanced Tab of the Swift Console

4.8.2 mag raw output

Description: Enable/Disable raw data output from onboard Bosch BMM150 Magnetometer.

Label	Value
group	imu
name	mag raw output
expert	False
readonly	False
default value	False
type	boolean

Table 4.8.2: mag raw output

Notes: The magnetometer raw data can be seen in the Advanced Tab of the Swift Console.

4.8.3 mag rate

Description: The data rate (in Hz) for magnetometer raw output.

Label	Value
group	imu
name	mag rate
expert	False
readonly	False
units	Hz
default value	12.5
type	enum
enumerated possible values	6.25, 12.5, 25

Table 4.8.3: mag rate

4.8.4 acc range

Description: The approximate range of accelerations that can be measured.

Label	Value
group	imu
name	acc range
expert	False
readonly	False
units	g
default value	8
type	enum
enumerated possible values	2, 4, 8, 16

Table 4.8.4: acc range

Notes: When 2 g is chosen, it means the accelerometer is scaled to measure about +/- 2 g of acceleration. Refer to the IMU datasheet for detailed information.

4.8.5 gyro range

Description: The approximate range of angular rate that can be measured.

Label	Value
group	imu
name	gyro range
expert	False
readonly	False
units	deg/s
default value	1000
type	enum
enumerated possible values	125, 250, 500, 1000, 2000

Table 4.8.5: gyro range

Notes: When 125 is chosen, it means the gyro is scaled to measure about +/- 125 deg/s of angular rate. Refer to the IMU datasheet for detailed information.

4.8.6 imu rate

Description: The data rate (in Hz) for IMU raw output.

Label	Value
group	imu
name	imu rate
expert	False
readonly	False
units	Hz
default value	50
type	enum
enumerated possible values	25, 50, 100, 200

Table 4.8.6: imu rate

Notes: It is recommended to use Ethernet or USB for IMU data output for data rates over 25 Hz.

4.9 ndb

4.9.1 erase l2c capb

Description: Erase stored L2C capability mask during boot.

Label	Value
readonly	False
group	ndb
name	erase l2c capb
expert	True
default value	False
type	boolean

Table 4.9.1: erase l2c capb

4.9.2 erase utc params

Description: Erase stored UTC offset parameters during boot.

Label	Value
readonly	False
group	ndb
name	erase utc params
expert	True
default value	False
type	boolean

Table 4.9.2: erase utc params

4.9.3 erase almanac wn

Description: Erase stored almanac week numbers during boot.

Label	Value
readonly	False
group	ndb
name	erase almanac wn
expert	True
default value	False
type	boolean

Table 4.9.3: erase almanac wn

4.9.4 erase almanac

Description: Erase stored almanacs during boot.

Label	Value
readonly	False
group	ndb
name	erase almanac
expert	True
default value	False
type	boolean

Table 4.9.4: erase almanac

4.9.5 erase ephemeris

Description: Erase stored ephmerides during boot.

Label	Value
readonly	False
group	ndb
name	erase ephemeris
expert	True
type	boolean

Table 4.9.5: erase ephemeris

4.9.6 erase iono

Description: Erase stored ionospheric parameters during boot.

Label	Value
readonly	False
group	ndb
name	erase iono
expert	True
default value	False
type	boolean

Table 4.9.6: erase iono

4.9.7 erase lgf

Description: Erase stored last fix information during boot.

Label	Value
readonly	False
group	ndb
name	erase lgf
expert	True
type	boolean

Table 4.9.7: erase lgf

4.9.8 valid eph acc

Description: None

Label	Value
readonly	False
group	ndb
name	valid eph acc
expert	True
units	meters
default value	100
type	int

Table 4.9.8: valid eph acc

4.9.9 valid alm acc

Description: None

Label	Value
readonly	False
group	ndb
name	valid alm acc
expert	True
units	meters
default value	5000
type	int

Table 4.9.9: valid alm acc

4.9.10 lgf update m

Description: Change in position required to update last good fix.

Label	Value
group	ndb
name	lgf update m
expert	True
readonly	False
units	meters
default value	10000
type	int

Table 4.9.10: lgf update m

4.9.11 valid alm days

Description: Number of days for which Almanac is valid.

Label	Value
group	ndb
name	valid alm days
expert	True
readonly	False
units	days
default value	6
type	int

Table 4.9.11: valid alm days

4.9.12 lgf update s

Description: Update period for navigation database last good fix.

Label	Value
group	ndb
name	lgf update s
expert	True
readonly	False
units	seconds
default value	1800
type	int

Table 4.9.12: lgf update s

4.10 nmea

4.10.1 gpgga msg rate

Description: Number of Solution Periods between GGA NMEA messages being sent.

Label	Value
group	nmea
name	gpgga msg rate
expert	False
readonly	False
units	Solution Period
default value	1
type	integer

Table 4.10.1: gpgga msg rate

Notes: This setting represents the integer number of solution periods between each transmission of the NMEA message. For example, if the solution rate is 10 Hz, and this rate setting is 2, the NMEA message will be sent every two solution epochs at a rate of 5 Hz. If this setting is 0, the msg will be suppressed.

4.10.2 gpgll msg rate

Description: Number of Solution Periods between GLL NMEA messages being sent.

Label	Value
group	nmea
name	gpgll msg rate
expert	False
readonly	False
units	Solution Period
default value	10
type	integer

Table 4.10.2: gpgll msg rate

Notes: This setting represents the integer number of solution periods between each transmission of the NMEA message. For example, if the solution rate is 10 Hz, and this rate setting is 2, the NMEA message will be sent every two solution epochs at a rate of 5 Hz. If this setting is 0, the msg will be suppressed.

4.10.3 gpgsv msg rate

Description: Number of Solution Periods between GSV NMEA messages being sent.

Label	Value
group	nmea
name	gpgsv msg rate
expert	False
readonly	False
units	Solution Period
default value	10
type	integer

Table 4.10.3: gpgsv msg rate

Notes: This setting represents the integer number of solution periods between each transmission of the NMEA message. For example, if the solution rate is 10 Hz, and this rate setting is 2, the NMEA message will be sent every two solution epochs at a rate of 5 Hz. If this setting is 0, the msg will be suppressed.

4.10.4 gphdt msg rate

Description: Number of Solution Periods between HDT NMEA messages being sent.

Label	Value
group	nmea
name	gphdt msg rate
expert	False
readonly	False
units	Solution Period
default value	1
type	integer

Table 4.10.4: gphdt msg rate

Notes: This setting represents the integer number of solution periods between each transmission of the NMEA message. For example, if the solution rate is 10 Hz, and this rate setting is 2, the NMEA message will be sent every two solution epochs at a rate of 5 Hz. If this setting is 0, the msg will be suppressed.

4.10.5 gprmc msg rate

Description: Number of Solution Periods between RMC NMEA messages being sent.

Label	Value
group	nmea
name	gprmc msg rate
expert	False
readonly	False
units	Solution Period
default value	10
type	integer

Table 4.10.5: gprmc msg rate

Notes: This setting represents the integer number of solution periods between each transmission of the NMEA message. For example, if the solution rate is 10 Hz, and this rate setting is 2, the NMEA message will be sent every two solution epochs at a rate of 5 Hz. If this setting is 0, the msg will be suppressed.

4.10.6 gpvtg msg rate

Description: Number of Solution Periods between VTG NMEA messages being sent.

Label	Value
group	nmea
name	gpvtg msg rate
expert	False
readonly	False
units	Solution Period
default value	1
type	integer

Table 4.10.6: gpvtg msg rate

Notes: This setting represents the integer number of solution periods between each transmission of the NMEA message. For example, if the solution rate is 10 Hz, and this rate setting is 2, the NMEA message will be sent every two solution epochs at a rate of 5 Hz. If this setting is 0, the msg will be suppressed.

4.10.7 gsa msg rate

Description: Number of Solution Periods between GSA NMEA messages being sent.

Label	Value
group	nmea
name	gsa msg rate
expert	False
readonly	False
units	Solution Periods
default value	10
type	integer
enumerated possible values	None

Table 4.10.7: gsa msg rate

Notes: This setting represents the integer number of solution periods between each transmission of the NMEA message. For example, if the solution rate is 10 Hz, and this rate setting is 2, the NMEA message will be sent every two solution epochs at a rate of 5 Hz. If this setting is 0, the msg will be suppressed.

4.10.8 gpzda msg rate

Description: Number of Solution Periods between ZDA NMEA messages being sent.

Label	Value
group	nmea
name	gpzda msg rate
expert	False
readonly	False
units	Solution Period
default value	10
type	integer
enumerated possible values	None

Table 4.10.8: gpzda msg rate

Notes: This setting represents the integer number of solution periods between each transmission of the NMEA message. For example, if the solution rate is 10 Hz, and this rate setting is 2, the NMEA message will be sent every two solution epochs at a rate of 5 Hz. If this setting is 0, the msg will be suppressed.

4.11 ntrip

4.11.1 debug

Description: Additional debug messages for NTRIP (sent to /var/log/messages).

Label	Value
readonly	False
group	ntrip
name	debug
expert	True
default value	False
type	boolean

Table 4.11.1: debug

4.11.2 enable

Description: Enable NTRIP client. The interface will receive 1002, 1004, 1005, 1006, 1010, 1012, 1033 and 1230 RTCMv3.1 messages and will not transmit or receive any other messages.

Label	Value
group	ntrip
name	enable
expert	False
readonly	False
units	N/A
default value	False
type	boolean
enumerated possible values	True,False

Table 4.11.2: enable

Notes: If True, NTRIP client will be used.

4.11.3 gga out interval

Description: Interval at which the NMEA GGA sentence is uploaded to the NTRIP server

Label	Value
group	ntrip
name	gga out interval
expert	False
readonly	False
units	seconds
default value	0
type	integer
enumerated possible values	None

Table 4.11.3: gga out interval

Notes: The interval (in seconds) at which the NMEA GGA sentence is uploaded to the specified NTRIP server. The default of 0 disables the GGA sentence upload.

4.11.4 url

Description: NTRIP URL to use.

Label	Value
group	ntrip
name	url
expert	False
readonly	False
units	N/A
default value	N/A
type	string
enumerated possible values	None

Table 4.11.4: url

Notes: URL to use with NTRIP client. NTRIP must be enabled to use this setting. URLs should be HTTP URLs with a port, and a mountpoint path such as example.com:2101/BAZ_RTCM3.

4.11.5 password

Description: NTRIP password to use.

Label	Value
group	ntrip
name	password
expert	False
readonly	False
units	N/A
default value	N/A
type	string
enumerated possible values	None

Table 4.11.5: password

Notes: Password to use with NTRIP client. NTRIP must be enabled to use this setting.

4.11.6 username

Description: NTRIP username to use.

Label	Value
group	ntrip
name	username
expert	False
readonly	False
units	N/A
default value	N/A
type	string
enumerated possible values	None

Table 4.11.6: username

Notes: Username to use with NTRIP client. NTRIP must be enabled to use this setting.

4.12 pps

4.12.1 frequency

Description: Generate a pulse with the given frequency (maximum = 20 Hz).

Label	Value
group	pps
name	frequency
expert	False
readonly	False
units	Hz
default value	1.0
type	double
enumerated possible values	None

Table 4.12.1: frequency

Notes: None

4.12.2 polarity

Description: Logic level on output pin when the PPS is active.

Label	Value
group	pps
name	polarity
expert	False
readonly	False
units	Logic Level
default value	1
type	integer
enumerated possible values	0, 1

Table 4.12.2: polarity

Notes: None

4.12.3 width

Description: Number of microseconds the PPS will remain active (allowed range from 1 to 999999 us).

Label	Value
group	pps
name	width
expert	False
readonly	False
units	us (microseconds)
default value	200000
type	integer
enumerated possible values	None

Table 4.12.3: width

Notes: None

4.12.4 offset

Description: Offset in microseconds between GPS time and the PPS.

Label	Value
group	pps
name	offset
expert	False
readonly	False
units	us (microseconds)
default value	0
type	integer
enumerated possible values	None

Table 4.12.4: offset

Notes: None

4.13 sbp

4.13.1 obs msg max size

Description: Determines the maximum message length for raw observation sbp messages.

Label	Value
group	sbp
name	obs msg max size
expert	True
readonly	False
units	bytes
default value	255
type	integer
enumerated possible values	None

Table 4.13.1: obs msg max size

Notes: This parameter is useful for tuning observation messages for compatibility with radio modems. Some serial modems will internally split serial packets for their protocol and this parameter allows the size of the message to be reduced as to prevent the modem from sending multiple packets. If the parameter exceeds 255 bytes (the maximum size of an SBP message), the receiver firmware will ignore the parameter and use 255 bytes. If the parameter is set smaller than the size of one observation, the firmware will ignore the parameter and use the size of one observation as the maximum message size.

4.14 simulator

4.14.1 mode mask

Description: Determines the types of position outputs for the simulator.

Label	Value
group	simulator
name	mode mask
expert	False
readonly	False
units	N/A
default value	$15(decimal), 0xF(hexadecimal)$
type	packed bitfield
enumerated possible values	None

Table 4.14.1: mode mask

Notes: bit 0 (decimal value 1) turns on single point position PVT simulated outputs
bit 1 (decimal value 2) turns on the satellite tracking simulated outputs
bit 2 (decimal value 4) turns on Float IAR simulated RTK outputs
bit 3 (decimal value 8) turns on Fixed IAR simulated RTK outputs

4.14.2 radius

Description: Radius of the circle around which the simulated receiver will move.

Label	Value
group	simulator
name	radius
expert	False
readonly	False
units	meters
default value	100
type	double
enumerated possible values	None

Table 4.14.2: radius

Notes: None

4.14.3 base ecef x

Description: Simulated base station position.

Label	Value
group	simulator
name	base ecef x
expert	False
readonly	False
units	meters
default value	-2706098.845
type	double
enumerated possible values	None

Table 4.14.3: base ecef x

Notes: Earth Centered Earth Fixed (ECEF) x position of the simulated base station.

4.14.4 base ecef y

Description: Simulated base station position.

Label	Value
group	simulator
name	base ecef y
expert	False
readonly	False
units	meters
default value	-4261216.475
type	double
enumerated possible values	None

Table 4.14.4: base ecef y

Notes: Earth Centered Earth Fixed (ECEF) y position of the simulated base station.

4.14.5 base ecef z

Description: Simulated base station position.

Label	Value
group	simulator
name	base ecef z
expert	False
readonly	False
units	meters
default value	3885597.912
type	double
enumerated possible values	None

Table 4.14.5: base ecef z

Notes: Earth Centered Earth Fixed (ECEF) z position of the simulated base station.

4.14.6 speed

Description: Simulated tangential speed of the receiver.

Label	Value
group	simulator
name	speed
expert	False
readonly	False
units	m/s
default value	4
type	double
enumerated possible values	None

Table 4.14.6: speed

Notes: None

4.14.7 phase sigma

Description: Standard deviation of noise added to the simulated carrier phase.

Label	Value
group	simulator
name	phase sigma
expert	False
readonly	False
units	cycles
default value	0.03
type	double
enumerated possible values	None

Table 4.14.7: phase sigma

Notes: None

4.14.8 pseudorange sigma

Description: Standard deviation of noise added to the simulated pseudo range.

Label	Value
group	simulator
name	pseudorange sigma
expert	False
readonly	False
units	meters
default value	4
type	double
enumerated possible values	None

Table 4.14.8: pseudorange sigma

Notes: None

4.14.9 cn0 sigma

Description: Standard deviation of noise added to the simulated signal to noise. ratio

Label	Value
group	simulator
name	cn0 sigma
expert	False
readonly	False
units	dBm-Hz
default value	0.3
type	double
enumerated possible values	None

Table 4.14.9: cn0 sigma

Notes: None

4.14.10 speed sigma

Description: Standard deviation of noise addition to simulated tangential speed.

Label	Value
group	simulator
name	speed sigma
expert	False
readonly	False
units	$meters^2/s^2$
default value	0.15
type	double
enumerated possible values	None

Table 4.14.10: speed sigma

Notes: None

4.14.11 pos sigma

Description: Standard deviation of simulated single point position.

Label	Value
group	simulator
name	pos sigma
expert	False
readonly	False
units	$meters^2$
default value	1.5
type	double
enumerated possible values	None

Table 4.14.11: pos sigma

Notes: None

4.14.12 num sats

Description: The number of satellites for the simulator.

Label	Value
group	simulator
name	num sats
expert	False
readonly	False
units	N/A
default value	9
type	integer
enumerated possible values	None

Table 4.14.12: num sats

Notes: None

4.14.13 enabled

Description: Toggles the receiver internal simulator on and off.

Label	Value
group	simulator
name	enabled
expert	False
readonly	False
units	N/A
default value	False
type	boolean
enumerated possible values	True,False

Table 4.14.13: enabled

Notes: The simulator will provide simulated outputs of a stationary base station and the Local receiver moving in a circle around the base station. The simulator is intended to aid in system integration by providing realistic looking outputs but does not faithfully simulate every aspect of device operation.

4.15 skylark

4.15.1 enable

Description: Enable Skylark client.

Label	Value
group	skylark
name	enable
expert	False
readonly	False
units	N/A
default value	False
type	boolean
enumerated possible values	True,False

Table 4.15.1: enable

Notes: If True, Skylark client will be used. Klobuchar correction must be disabled if order for Skylark to function properly, set solution.disable_klobuchar_correction to True before enabling Skylark.

4.15.2 url

Description: Skylark URL to use.

Label	Value
group	skylark
name	url
expert	True
readonly	False
units	N/A
default value	N/A
type	string
enumerated possible values	None

Table 4.15.2: url

Notes: URL to use with Skylark client. Skylark must be enabled to use this setting.

4.16 solution

4.16.1 dgnss filter

Description: Determines the type of carrier phase ambiguity resolution that the receiver will attempt to achieve.

Label	Value
group	solution
name	dgnss filter
expert	True
readonly	False
units	N/A
default value	Fixed
type	enum
enumerated possible values	Fixed,Float

Table 4.16.1: dgnss filter

Notes: If "fixed", the receiver will output a integer fixed ambiguity estimate. If no fixed solution is available, it will revert to the float solution. If "float", the device will only output the float ambiguity estimate.

4.16.2 disable klobuchar correction

Description: Disable Klobuchar ionospheric corrections.

Label	Value
group	solution
name	disable klobuchar correction
expert	False
readonly	False
units	N/A
default value	False
type	boolean
enumerated possible values	True,False

Table 4.16.2: disable klobuchar correction

Notes: If True, Klobuchar ionospheric corrections will not be applied.
This setting must be set to True when Skylark is enabled (skylark.enable == True)

4.16.3 glonass measurement std downweight factor

Description: Down weights GLONASS measurements by a given factor in the navigation filter.

Label	Value
group	solution
name	glonass measurement std downweight factor
expert	True
readonly	False
units	N/A
default value	4.0
type	float
enumerated possible values	None

Table 4.16.3: glonass measurement std downweight factor

Notes: This parameter down weights GLONASS observations relative to GPS observations by this factor.

4.16.4 enable glonass

Description: Enable GLONASS measurement processing in the navigation filter.

Label	Value
group	solution
name	enable glonass
expert	False
readonly	False
units	N/A
type	boolean
enumerated possible values	True,False

Table 4.16.4: enable glonass

Notes: If set to True, GLONASS measurements are processed in the navigation filter for SPP and RTK.

4.16.5 send heading

Description: Enables SBP heading output.
Heading is calculated from base station to rover and represents
the inverse tangent of the north and east components of the baseline.

Label	Value
group	solution
name	send heading
expert	False
readonly	False
units	N/A
default value	False
type	boolean
enumerated possible values	True,False

Table 4.16.5: send heading

Notes: No smoothing or additional processing is provided to improve heading output.
The heading feature requires the following additional settings
Time Matched Mode
Equal Observation rate between both base and rover
The observation rate will also determine the heading output rate and is defined as "soln freq" / "output every n obs"

4.16.6 output every n obs

Description: Integer divisor of solution frequency for which the observations will be output.

Label	Value
group	solution
name	output every n obs
expert	False
readonly	False
units	N/A
default value	2
type	integer
enumerated possible values	None

Table 4.16.6: output every n obs

Notes: For instance, if the solution frequency (soln_freq) is 10 Hz, and the output_every_n_obs setting is 10, it means that the observation output will occur at a rate of 1 Hz. This parameter is designed to tune the rate at which correction information is passed from one receiver to the other as to efficiently use radio modem bandwidth and fit with user applications.

4.16.7 disable raim

Description: Receiver Autonomous Integrity Monitoring.

Label	Value
group	solution
name	disable raim
expert	True
readonly	False
units	None
default value	False
type	boolean
enumerated possible values	True,False

Table 4.16.7: disable raim

Notes: If True, RAIM checks will not be performed.

4.16.8 heading offset

Description: Rotate the heading output.

Label	Value
group	solution
name	heading offset
expert	False
readonly	False
units	degrees
default value	0.0
type	double
enumerated possible values	N/A

Table 4.16.8: heading offset

Notes: Adds an offset to the heading output to rotate the heading vector to align the baseline heading with a desired 0 heading. Valid values are -180.0 to 180.0 degrees

4.16.9 elevation mask

Description: SPP / RTK solution elevation mask.

Label	Value
group	solution
name	elevation mask
expert	False
readonly	False
units	degrees
default value	10
type	float
enumerated possible values	None

Table 4.16.9: elevation mask

Notes: Satellites must be above the horizon by at least this angle before they will be used in a solution.

4.16.10 dgnss solution mode

Description: Selects the type of RTK solution to output.

Label	Value
group	solution
name	dgnss solution mode
expert	False
readonly	False
units	N/A
default value	Low Latency
type	enum
enumerated possible values	Low Latency, Time Matched, No DGNSS

Table 4.16.10: dgnss solution mode

Notes: A "Low Latency" solution uses an internal model of anticipated satellite observations to provide RTK output with minimal latency but slightly reduced accuracy. "Low Latency" mode assumes that the base station is stationary. For applications where accuracy is desired over timeliness or when both receivers are moving, "Time Matched" mode should be chosen. This means that the RTK output will require a corresponding set of correction observations for each timestamp. When "No DGNSS" is chosen, no differential output will be attempted by the receiver.

4.16.11 soln freq

Description: The frequency at which a position solution is computed.

Label	Value
group	solution
name	soln freq
expert	False
readonly	False
units	Hz
default value	10
type	integer
enumerated possible values	None

Table 4.16.11: soln freq

Notes: None

4.16.12 correction age max

Description: The maximum age of corrections for which an RTK solution will be generated.

Label	Value
group	solution
name	correction age max
expert	False
readonly	False
units	seconds
default value	30
type	float
enumerated possible values	None

Table 4.16.12: correction age max

Notes: None

4.17 standalone logging

4.17.1 logging file system

Description: Configure the file-system used for standalone logging (SD card only).

Label	Value
group	standalone logging
name	logging file system
expert	True
readonly	False
units	N/A
default value	FAT
type	enum

Table 4.17.1: logging file system

Notes: Configures the file-system used for standalone logging. Setting this to F2FS will reparition and the reformat any SD card that is not formatted with F2FS upon system reboot. Settings must be persisted for this to take effect.

4.17.2 copy system logs

Description: Copy system logs to the SD card at regular intervals.

Label	Value
group	standalone logging
name	copy system logs
expert	True
readonly	False
units	N/A
default value	False
type	boolean

Table 4.17.2: copy system logs

Notes: Setting this to true will cause the device to copy the system logs to the SD card at regular intervals. Setting this to false will stop the device from copying the systems logs to the SD card.

4.17.3 file duration

Description: Duration of each logfile.

Label	Value
group	standalone logging
name	file duration
expert	False
readonly	False
units	minutes
default value	10
type	int

Table 4.17.3: file duration

Notes: Sets the number of minutes to output to each standalone log file before opening the next one. If this setting is changed while logging is enabled, it will go into effect immediately which will close the current file if its length exceeds the new duration.

4.17.4 max fill

Description: Maximum storage device usage.

Label	Value
group	standalone logging
name	max fill
expert	False
readonly	False
units	percent
default value	95
type	int

Table 4.17.4: max fill

Notes: Sets a limit on how full the storage device can be before logging is stopped. If the drive is more than this percent full, no new log files will be created and a warning will be logged every 30 seconds. If this setting is changed while logging is enabled, it will go into effect on the next file that is created.

4.17.5 enable

Description: Standalone logging enabled.

Label	Value
group	standalone logging
name	enable
expert	False
readonly	False
units	N/A
default value	False
type	boolean

Table 4.17.5: enable

Notes: Setting this to true triggers the logger to start trying to write logs to the output_directory. Setting this to false will immediately close the current file and stop logging. Reenabling logging will increment the session counter which is reflected in the log file names (see USB Logging File Output section).

4.17.6 output directory

Description: Standalone logging path.

Label	Value
group	standalone logging
name	output directory
expert	False
readonly	False
units	N/A
default value	/media/sda1/
type	string

Table 4.17.6: output directory

Notes: Sets the paths in which to write logs. A warning will be logged every 30 seconds if this path is invalid or unavailable. The system will not create a folder that does not exist. If this setting is changed while logging is enabled, it will go into effect on the next file that is created.

4.18 surveyed position

4.18.1 broadcast

Description: Broadcast surveyed base station position.

Label	Value
group	surveyed position
name	broadcast
expert	False
readonly	False
units	None
default value	False
type	boolean
enumerated possible values	True,False

Table 4.18.1: broadcast

Notes: This flag ultimately determines whether the SBP message with identifier MSG_BASE_POS_ECEF will be calculated and sent. Logically, setting this attribute to "true" sets the Local receiver as a base station and configures the unit to send its surveyed position coordinates to the other receiver(s) with which the base station is communicating. If "true", the remote receiver that receives the surveyed position will calculate and communicate a pseudo absolute RTK position based upon the received position.

4.18.2 surveyed alt

Description: Surveyed altitude of the antenna.

Label	Value
group	surveyed position
name	surveyed alt
expert	False
readonly	False
units	meters
default value	0
type	Double
enumerated possible values	None

Table 4.18.2: surveyed alt

Notes: This setting represents the altitude of the receiver's antenna above the WGS84 ellipsoid, in meters. If surveyed position "broadcast" is set to "true", this coordinate will be communicated to remote receivers for use in calculating their pseudo-absolute position. This value should be precise to 1 cm. Any errors in the surveyed position will directly affect the pseudo-absolute RTK position measurement reported by the Rover.

4.18.3 surveyed lat

Description: Surveyed latitude of the antenna.

Label	Value
group	surveyed position
name	surveyed lat
expert	False
readonly	False
units	degrees
default value	0
type	Double
enumerated possible values	None

Table 4.18.3: surveyed lat

Notes: This setting represents the latitude of the local receiver's antenna, expressed in decimal degrees relative to the equator (north = positive, south = negative). If surveyed position "broadcast" is set to "true", the coordinate will be communicated to remote receivers for use in calculating their pseudo-absolute RTK position. The value should be as accurate as possible and should have precision to at least 7 digits following the decimal point. For reference, 1e-7 degrees of latitude is about 1.1 cm on the surface of the earth. Any errors in the surveyed position will directly affect the pseudo-absolute RTK position measurement reported by the remote receiver.

4.18.4 surveyed lon

Description: Surveyed longitude of the antenna.

Label	Value
group	surveyed position
name	surveyed lon
expert	False
readonly	False
units	degrees
default value	0
type	Double
enumerated possible values	None

Table 4.18.4: surveyed lon

Notes: This setting represents the longitude of the local receiver's antenna, expressed in decimal degrees relative to the Prime Meridian (east = positive, west = negative). If surveyed position "broadcast" is set to "true", the coordinate will be communicated to remote receivers for use in calculating their pseudo-absolute RTK position. The value should be as accurate as possible and should have precision to at least 7 digits following the decimal point. For reference, 1e-7 degrees of longitude at 35 degree latitude is about 1 cm. Any errors in the surveyed position will directly affect the pseudo-absolute RTK position measurement reported by the remote receiver.

4.19 system

4.19.1 log ping activity

Description: If set to true, the network poll service will also log ping activity.

Label	Value
group	system
name	log ping activity
expert	True
readonly	False
units	N/A
default value	False
type	boolean

Table 4.19.1: log ping activity

Notes: Configures the network poll service to log ping activity to /var/log/ping.log.

4.19.2 connectivity check frequency

Description: The frequency at which the network poll service checks for connectivity.

Label	Value
group	system
name	connectivity check frequency
expert	True
readonly	False
units	Hz
default value	0.1
type	float

Table 4.19.2: connectivity check frequency

Notes: The network poll service will perform a connectivity check with a well known IP address at the frequency configured by this setting.

4.19.3 connectivity retry frequency

Description: The frequency at which the network poll service retries after a failed connectivity check.

Label	Value
group	system
name	connectivity retry frequency
expert	True
readonly	False
units	Hz
default value	1.0
type	float

Table 4.19.3: connectivity retry frequency

Notes: If a connectivity check fails, this settings controls the frequency at which a new connectivity check is performed.

4.19.4 system time

Description: Sources for Linux System Time.

Label	Value
group	system
enumerated possible values	GPS+NTP,GPS,NTP
expert	False
readonly	False
units	N/A
default value	GPS
type	enum
name	system time

Table 4.19.4: system time

Notes: Configures the possible sources for Linux system time on the Swift Device. Linux system time is required for HTTPS certification validation and other Linux system functionality.

4.20 system info

4.20.1 firmware version

Description: Firmware version of the receiver.

Label	Value
group	system info
name	firmware version
expert	False
readonly	True
units	N/A
default value	N/A
type	string
enumerated possible values	None

Table 4.20.1: firmware version

Notes: The git hash is removed from this version identifier. This is a read only setting.

4.20.2 firmware build id

Description: Full build id for firmware version.

Label	Value
group	system info
name	firmware build id
expert	False
readonly	True
units	N/A
default value	N/A
type	string
enumerated possible values	None

Table 4.20.2: firmware build id

Notes: For user generated images, this will appear the same as the command "git describe –dirty". This is a read only setting.

4.20.3 hw revision

Description: Hardware revision of the receiver.

Label	Value
group	system info
name	hw revision
expert	False
readonly	True
units	N/A
default value	N/A
type	string
enumerated possible values	None

Table 4.20.3: hw revision

Notes: This is a read only setting that refers to the product family of the hardware.

4.20.4 hw version

Description: Hardware version number.

Label	Value
group	system info
name	hw version
expert	True
readonly	True
units	N/A
default value	N/A
type	string
enumerated possible values	None

Table 4.20.4: hw version

Notes: This is a read only setting that corresponds to the version number printed on the oem module hardware version sticker.

4.20.5 nap channels

Description: Number of channels in SwiftNap FPGA.

Label	Value
group	system info
name	nap channels
expert	True
readonly	True
units	N/A
default value	40
type	string
enumerated possible values	None

Table 4.20.5: nap channels

Notes: This is a read only setting.

4.20.6 mac address

Description: The MAC address of the receiver.

Label	Value
group	system info
name	mac address
expert	False
readonly	True
units	N/A
default value	N/A
type	string
enumerated possible values	None

Table 4.20.6: mac address

Notes: This is a read only setting.

4.20.7 sbp sender id

Description: The SBP sender ID for any messages sent by the device.

Label	Value
group	system info
name	sbp sender id
expert	False
readonly	True
units	N/A
default value	N/A
type	string
enumerated possible values	None

Table 4.20.7: sbp sender id

Notes: ID value is equal to the lower 16 bits of the UUID. This is a read only setting.

4.20.8 uuid

Description: The UUID of the receiver.

Label	Value
group	system info
name	uuid
expert	False
readonly	True
units	N/A
default value	N/A
type	string
enumerated possible values	None

Table 4.20.8: uuid

Notes: The UUID is a Universally Unique IDentifier for this receiver. The lower 16 bits of the UUID are used for the SBP Sender ID. This is a read only setting.

4.20.9 serial number

Description: The serial number of the receiver.

Label	Value
group	system info
name	serial number
expert	False
readonly	True
units	N/A
default value	N/A
type	integer
enumerated possible values	None

Table 4.20.9: serial number

Notes: This number should match the number on the barcode on the board and cannot be modified.

4.20.10 nap build date

Description: build date for SwiftNap FPGA bitstream.

Label	Value
group	system info
name	nap build date
expert	True
readonly	True
units	N/A
default value	N/A
type	string
enumerated possible values	None

Table 4.20.10: nap build date

Notes: This is a read only setting.

4.20.11 loader build date

Description: build date for boot loader (uboot).

Label	Value
group	system info
name	loader build date
expert	True
readonly	True
units	N/A
default value	N/A
type	string
enumerated possible values	None

Table 4.20.11: loader build date

Notes: This is a read only setting.

4.20.12 pfwp build date

Description: build date for real-time GNSS firmware (piksi_firmware).

Label	Value
group	system info
name	pfwp build date
expert	True
readonly	True
units	N/A
default value	N/A
type	string
enumerated possible values	None

Table 4.20.12: pfwp build date

Notes: This is a read only setting.

4.20.13 nap build id

Description: build id for SwiftNap FPGA bitstream.

Label	Value
group	system info
name	nap build id
expert	True
readonly	True
units	N/A
default value	N/A
type	string
enumerated possible values	None

Table 4.20.13: nap build id

Notes: This is a read only setting.

4.20.14 loader build id

Description: build id for loader (uboot).

Label	Value
group	system info
name	loader build id
expert	True
readonly	True
units	N/A
default value	N/A
type	string
enumerated possible values	None

Table 4.20.14: loader build id

Notes: This is a read only setting

4.20.15 pfwp build id

Description: build id for real-time GNSS firmware (piksi_firmware).

Label	Value
group	system info
name	pfwp build id
expert	True
readonly	True
units	N/A
default value	N/A
type	string
enumerated possible values	None

Table 4.20.15: pfwp build id

Notes: This is a read only setting.

4.20.16 firmware build date

Description: firmware build date.

Label	Value
group	system info
name	firmware build date
expert	False
readonly	True
units	N/A
default value	N/A
type	string
enumerated possible values	None

Table 4.20.16: firmware build date

Notes: This is a read only setting.

4.21 system monitor

4.21.1 watchdog

Description: Enable hardware watchdog timer to reset the receiver if it locks up for. any reason

Label	Value
group	system monitor
name	watchdog
expert	True
readonly	False
units	N/A
type	boolean
enumerated possible values	True,False

Table 4.21.1: watchdog

Notes: You must reset the receiver for this change to take effect.

4.21.2 spectrum analyzer

Description: Enable spectrum analyzer.

Label	Value
group	system monitor
name	spectrum analyzer
expert	True
readonly	False
units	N/A
default value	False
type	boolean
enumerated possible values	True,False

Table 4.21.2: spectrum analyzer

Notes: This setting enables the on-device spectrum analyzer and associated SBP output. The spectrum analyzer is available from the "Advanced" tab of the console.

4.21.3 heartbeat period milliseconds

Description: Period for sending the SBP_HEARTBEAT messages.

Label	Value
group	system monitor
name	heartbeat period milliseconds
expert	True
readonly	False
units	ms
default value	1000
type	integer
enumerated possible values	None

Table 4.21.3: heartbeat period milliseconds

Notes: None

4.22 tcp client0

4.22.1 enabled sbp messages

Description: Configure which messages should be sent on the port. Does not effect which incoming messages are listened to.

Label	Value
group	tcp client0
name	enabled sbp messages
expert	False
readonly	False
units	N/A
default value	23, 29, 65, 72, 74, 81, 117, 134, 136, 144, 163, 165, 166, 167, 171, 175, 181, 185, 18
type	string

Table 4.22.1: enabled sbp messages

Notes: The enabled sbp messages settings is a list of message types and rate divisors that will be sent out of the interface. If left blank, all messages will be sent. If not blank, a comma separated list of SBP message IDs in base 10 integer format should be provided. Optionally, a divisor can be specified after the / character for each id. For example, an entry of 3456/10 would provide message with ID 3456 at 1/10th the normal rate. For Ethernet, the default value is optimal for logging and communication with the console.

4.22.2 address

Description: IP address and port for TCP client 0 to connect to.

Label	Value
group	tcp client0
name	address
expert	False
readonly	False
units	N/A
default value	
type	string

Table 4.22.2: address

Notes: The address setting is defined according to the convention "hostname:port". For example, it should match the format 192.168.0.222:55555 or xxxxx.net:2101 .

4.22.3 mode

Description: Communication protocol for TCP client 0. The client will initiate a connection with the server and establish bi-directional communications.

Label	Value
group	tcp client0
name	mode
expert	False
readonly	False
units	N/A
default value	Disabled
type	enum
enumerated possible values	SBP,NMEA OUT,RTCMv3 IN

Table 4.22.3: mode

Notes: "SBP" configures the interface to transmit messages specified in the 'enabled_sbp_messages' setting and to receive incoming SBP messages. If the mode is changed from SBP the console will no longer be able to communicate over the interface.

"NMEA OUT" configures the interface to transmit the GGA, RMC, GGL, VTG, ZDA, GSA, and GSV NMEA 0183 messages. The interface will not receive incoming messages.

"RTCMv3.1 IN" configures the interface to receive RTK corrections in RTCM format. The interface will receive 1002, 1004, 1005, 1006, 1010, 1012, 1033 and 1230 RTCMv3.1 messages and will not transmit or receive any other messages.

The connection is bi-directional so these modes behave the same as the UART modes.

4.23 tcp client1

4.23.1 enabled sbp messages

Description: Configure which messages should be sent on the port. Does not effect which incoming messages are listened to.

Label	Value
group	tcp client1
name	enabled sbp messages
expert	False
readonly	False
units	N/A
default value	23, 29, 65, 72, 74, 81, 117, 134, 136, 144, 163, 165, 166, 167, 171, 175, 181, 185, 18
type	string

Table 4.23.1: enabled sbp messages

Notes: The enabled sbp messages settings is a list of message types and rate divisors that will be sent out of the interface. If left blank, all messages will be sent. If not blank, a comma separated list of SBP message IDs in base 10 integer format should be provided. Optionally, a divisor can be specified after the / character for each id. For example, an entry of 3456/10 would provide message with ID 3456 at 1/10th the normal rate. For Ethernet, the default value is optimal for logging and communication with the console.

4.23.2 address

Description: IP address and port for TCP client 1 to connect to.

Label	Value
group	tcp client1
name	address
expert	False
readonly	False
units	N/A
default value	
type	string

Table 4.23.2: address

Notes: The address setting is defined according to the convention "hostname:port". For example, it should match the format 192.168.0.222:55555 or xxxxx.net:2101 .

4.23.3 mode

Description: Communication protocol for TCP client 1. The client will initiate a connection with the server and establish bi-directional communications.

Label	Value
group	tcp client1
name	mode
expert	False
readonly	False
units	N/A
default value	Disabled
type	enum
enumerated possible values	SBP,NMEA OUT,RTCMv3 IN

Table 4.23.3: mode

Notes: "SBP" configures the interface to transmit messages specified in the 'enabled_sbp_messages' setting and to receive incoming SBP messages. If the mode is changed from SBP the console will no longer be able to communicate over the interface.

"NMEA OUT" configures the interface to transmit the GGA, RMC, GGL, VTG, ZDA, GSA, and GSV NMEA 0183 messages. The interface will not receive incoming messages.

"RTCMv3.1 IN" configures the interface to receive RTK corrections in RTCM format. The interface will receive 1002, 1004, 1005, 1006, 1010, 1012, 1033 and 1230 RTCMv3.1 messages and will not transmit or receive any other messages.

The connection is bi-directional so these modes behave the same as the UART modes.

4.24 tcp server0

4.24.1 enabled sbp messages

Description: Configure which messages should be sent on the port. Does not effect which incoming messages are listened to.

Label	Value
group	tcp server0
name	enabled sbp messages
expert	False
readonly	False
units	N/A
default value	23, 29, 65, 72, 74, 81, 117, 134, 136, 144, 163, 165, 166, 167, 171, 175, 181, 185, 18
type	string

Table 4.24.1: enabled sbp messages

Notes: The enabled sbp messages settings is a list of message types and rate divisors that will be sent out of the interface. If left blank, all messages will be sent. If not blank, a comma separated list of SBP message IDs in base 10 integer format should be provided. Optionally, a divisor can be specified after the / character for each id. For example, an entry of 3456/10 would provide message with ID 3456 at 1/10th the normal rate. For Ethernet, the default value is optimal for logging and communication with the console.

4.24.2 port

Description: Port for TCP server 0 to listen on.

Label	Value
group	tcp server0
name	port
expert	False
readonly	False
units	N/A
default value	55555
type	integer

Table 4.24.2: port

Notes: None

4.24.3 mode

Description: Communication protocol for TCP server 0. The server will listen for incoming client connections and establish a bi-directional communications.

Label	Value
group	tcp server0
name	mode
expert	False
readonly	False
units	N/A
default value	SBP (Swift Binary Protocol)
type	enum
enumerated possible values	SBP,NMEA OUT,RTCMv3 IN

Table 4.24.3: mode

Notes: "SBP" configures the interface to transmit messages specified in the 'enabled_sbp_messages' setting and to receive incoming SBP messages. If the mode is changed from SBP the console will no longer be able to communicate over the interface.

"NMEA OUT" configures the interface to transmit the GGA, RMC, GGL, VTG, ZDA, GSA, and GSV NMEA 0183 messages. The interface will not receive incoming messages.

"RTCMv3.1 IN" configures the interface to receive RTK corrections in RTCM format. The interface will receive 1002, 1004, 1005, 1006, 1010, 1012, 1033 and 1230 RTCMv3.1 messages and will not transmit or receive any other messages.

The connection is bi-directional so these modes behave the same as the UART modes.

4.25 tcp server1

4.25.1 enabled sbp messages

Description: Configure which messages should be sent on the port. Does not effect which incoming messages are listened to.

Label	Value
group	tcp server1
name	enabled sbp messages
expert	False
readonly	False
units	N/A
default value	23, 29, 65, 72, 74, 81, 117, 134, 136, 144, 163, 165, 166, 167, 171, 175, 181, 185, 18
type	string

Table 4.25.1: enabled sbp messages

Notes: The enabled sbp messages settings is a list of message types and rate divisors that will be sent out of the interface. If left blank, all messages will be sent. If not blank, a comma separated list of SBP message IDs in base 10 integer format should be provided. Optionally, a divisor can be specified after the / character for each id. For example, an entry of 3456/10 would provide message with ID 3456 at 1/10th the normal rate. For Ethernet, the default value is optimal for logging and communication with the console.

4.25.2 port

Description: Port for TCP server 1 to listen on.

Label	Value
group	tcp server1
name	port
expert	False
readonly	False
units	N/A
default value	55556
type	integer

Table 4.25.2: port

Notes: None

4.25.3 mode

Description: Communication protocol for TCP server 1. The server will listen for incoming client connections and establish a bi-directional communications.

Label	Value
group	tcp server1
name	mode
expert	False
readonly	False
units	N/A
default value	SBP (Swift Binary Protocol)
type	enum
enumerated possible values	SBP,NMEA OUT,RTCMv3 IN

Table 4.25.3: mode

Notes: "SBP" configures the interface to transmit messages specified in the 'enabled_sbp_messages' setting and to receive incoming SBP messages. If the mode is changed from SBP the console will no longer be able to communicate over the interface.

"NMEA OUT" configures the interface to transmit the GGA, RMC, GGL, VTG, ZDA, GSA, and GSV NMEA 0183 messages. The interface will not receive incoming messages.

"RTCMv3.1 IN" configures the interface to receive RTK corrections in RTCM format. The interface will receive 1002, 1004, 1005, 1006, 1010, 1012, 1033 and 1230 RTCMv3.1 messages and will not transmit or receive any other messages.

The connection is bi-directional so these modes behave the same as the UART modes.

4.26 track

4.26.1 send trk detailed

Description: send detailed tracking state message.

Label	Value
group	track
name	send trk detailed
expert	True
readonly	False
default value	False
type	boolean

Table 4.26.1: send trk detailed

Notes: None

4.26.2 max pll integration time ms

Description: Controls maximum possible integration time for a measurement.

Label	Value
group	track
name	max pll integration time ms
expert	True
readonly	False
units	N/A
default value	20
type	integer
enumerated possible values	None

Table 4.26.2: max pll integration time ms

Notes: This can be used to configure the sensitivity and dynamic tracking modes permitted to be used by receiver. Lower values provide lower sensitivity and noisier phase measurements but better performance in dynamic conditions.

4.26.3 iq output mask

Description: Output raw I/Q correlations.

Label	Value
group	track
name	iq output mask
expert	True
readonly	False
units	N/A
default value	None
type	integer
enumerated possible values	None

Table 4.26.3: iq output mask

Notes: Bitmask of channel IDs (not PRNs)

4.26.4 elevation mask

Description: Tracking elevation mask.

Label	Value
group	track
name	elevation mask
expert	True
readonly	False
units	degrees
default value	0
type	float
enumerated possible values	None

Table 4.26.4: elevation mask

Notes: Satellites must be above the horizon by at least this angle before they will be tracked.

4.27 uart0

4.27.1 enabled sbp messages

Description: Configure which messages should be sent on the port.

Label	Value
group	uart0
name	enabled sbp messages
expert	False
readonly	False
units	N/A
default value	72, 74, 117, 65535
type	string

Table 4.27.1: enabled sbp messages

Notes: The enabled sbp messages settings is a list of message types and rate divisors that will be sent out of the interface. If left blank, all messages will be sent. If not blank, a comma separated list of SBP message IDs in base 10 integer format should be provided. Optionally, a divisor can be specified after the / character for each id. For example, an entry of 3456/10 would provide message with ID 3456 at 1/10th the normal rate. For uart1, the default value is optimal for logging and communication with the console.

4.27.2 mode

Description: Communication protocol for UART0.

Label	Value
group	uart0
name	mode
expert	False
readonly	False
units	N/A
default value	SBP (Swift Binary Protocol)
type	enum
enumerated possible values	SBP,NMEA OUT,RTCMv3 IN

Table 4.27.2: mode

Notes: "SBP" configures the interface to transmit messages specified in the 'enabled_sbp_messages' setting and to receive incoming SBP messages. If the mode is changed from SBP the console will no longer be able to communicate over the interface.

"NMEA OUT" configures the interface to transmit the GGA, RMC, GGL, VTG, ZDA, GSA, and GSV NMEA 0183 messages. The interface will not receive incoming messages.

"RTCMv3.1 IN" configures the interface to receive RTK corrections in RTCM format. The interface will receive 1002, 1004, 1005, 1006, 1010, 1012, 1033 and 1230 RTCMv3.1 messages and will not transmit or receive any other messages.

4.27.3 flow control

Description: Enable hardware flow control (RTS/CTS).

Label	Value
group	uart0
name	flow control
expert	False
readonly	False
units	NA
default value	None
type	boolean
enumerated possible values	None,RTS/CTS

Table 4.27.3: flow control

Notes: None

4.27.4 baudrate

Description: The Baud rate for the UART 0.

Label	Value
group	uart0
name	baudrate
expert	False
readonly	False
units	bps
default value	115200
type	integer
enumerated possible values	None

Table 4.27.4: baudrate

Notes: None

4.28 uart1

4.28.1 enabled sbp messages

Description: Configure which messages should be sent on the port.

Label	Value
group	uart1
name	enabled sbp messages
expert	False
readonly	False
units	N/A
default value	23, 29, 65, 72, 74, 81, 117, 134, 136, 144, 163, 165, 166, 167, 171, 175, 181, 185, 18
type	string

Table 4.28.1: enabled sbp messages

Notes: The enabled sbp messages settings is a list of message types and rate divisors that will be sent out of the interface. If left blank, all messages will be sent. If not blank, a comma separated list of SBP message IDs in base 10 integer format should be provided. Optionally, a divisor can be specified after the / character for each id. For example, an entry of 3456/10 would provide message with ID 3456 at 1/10th the normal rate. For uart1, the default value is optimal for logging and communication with the console.

4.28.2 mode

Description: Communication protocol for UART 1.

Label	Value
group	uart1
name	mode
expert	False
readonly	False
units	N/A
default value	SBP (Swift Binary Protocol)
type	enum
enumerated possible values	SBP,NMEA OUT,RTCMv3 IN

Table 4.28.2: mode

Notes: "SBP" configures the interface to transmit messages specified in the 'enabled_sbp_messages' setting and to receive incoming SBP messages. If the mode is changed from SBP the console will no longer be able to communicate over the interface.

"NMEA OUT" configures the interface to transmit the GGA, RMC, GGL, VTG, ZDA, GSA, and GSV NMEA 0183 messages. The interface will not receive incoming messages.

"RTCMv3.1 IN" configures the interface to receive RTK corrections in RTCM format. The interface will receive 1002, 1004, 1005, 1006, 1010, 1012, 1033 and 1230 RTCMv3.1 messages and will not transmit or receive any other messages.

4.28.3 flow control

Description: Enable hardware flow control (RTS/CTS).

Label	Value
group	uart1
name	flow control
expert	False
readonly	False
units	NA
default value	None
type	enum
enumerated possible values	None,RTS/CTS

Table 4.28.3: flow control

Notes: None

4.28.4 baudrate

Description: The Baud rate for the UART 1.

Label	Value
group	uart1
name	baudrate
expert	False
readonly	False
units	bps
default value	115200
type	integer
enumerated possible values	None

Table 4.28.4: baudrate

Notes: None

4.29 udp client0

4.29.1 enabled sbp messages

Description: Configure which messages should be sent to the server.

Label	Value
group	udp client0
name	enabled sbp messages
expert	False
readonly	False
units	N/A
default value	23, 29, 65, 72, 74, 81, 117, 134, 136, 144, 163, 165, 166, 167, 171, 175, 181, 185, 18
type	string

Table 4.29.1: enabled sbp messages

Notes: The enabled sbp messages settings is a list of message types and rate divisors that will be sent out of the interface. If left blank, all messages will be sent. If not blank, a comma separated list of SBP message IDs in base 10 integer format should be provided. Optionally, a divisor can be specified after the / character for each id. For example, an entry of 3456/10 would provide message with ID 3456 at 1/10th the normal rate. For Ethernet, the default value is optimal for logging and communication with the console.

4.29.2 address

Description: IP address for UDP client 0.

Label	Value
group	udp client0
name	address
expert	False
readonly	False
units	N/A
default value	
type	string

Table 4.29.2: address

Notes: The address setting is defined according to the convention "hostname:port". For example, it should match the format 192.168.0.222:55555 or xxxxx.net:2101 .

4.29.3 mode

Description: Communication protocol for UDP client 0. The client will send packets to a server for uni-directional communications.

Label	Value
group	udp client0
name	mode
expert	False
readonly	False
units	N/A
default value	Disabled
type	enum
enumerated possible values	SBP,NMEA OUT,RTCMv3 IN

Table 4.29.3: mode

Notes: "SBP" configures the interface to transmit messages specified in the 'enabled_sbp_messages' setting.

"NMEA OUT" configures the interface to transmit the GGA, RMC, GGL, VTG, ZDA, GSA, and GSV NMEA 0183 messages. The interface will not receive incoming messages.

"RTCMv3.1 IN" has no effect for UDP clients.

4.30 udp client1

4.30.1 enabled sbp messages

Description: Configure which messages should be sent to the server.

Label	Value
group	udp client1
name	enabled sbp messages
expert	False
readonly	False
units	N/A
default value	23, 29, 65, 72, 74, 81, 117, 134, 136, 144, 163, 165, 166, 167, 171, 175, 181, 185, 18
type	string

Table 4.30.1: enabled sbp messages

Notes: The enabled sbp messages settings is a list of message types and rate divisors that will be sent out of the interface. If left blank, all messages will be sent. If not blank, a comma separated list of SBP message IDs in base 10 integer format should be provided. Optionally, a divisor can be specified after the / character for each id. For example, an entry of 3456/10 would provide message with ID 3456 at 1/10th the normal rate. For Ethernet, the default value is optimal for logging and communication with the console.

4.30.2 address

Description: IP address for UDP client 1.

Label	Value
group	udp client1
name	address
expert	False
readonly	False
units	N/A
default value	
type	string

Table 4.30.2: address

Notes: The address setting is defined according to the convention "hostname:port". For example, it should match the format 192.168.0.222:55555 or xxxxx.net:2101 .

4.30.3 mode

Description: Communication protocol for UDP client 1. The client will send packets to a server for uni-directional communications.

Label	Value
group	udp client1
name	mode
expert	False
readonly	False
units	N/A
default value	Disabled
type	enum
enumerated possible values	SBP,NMEA OUT,RTCMv3 IN

Table 4.30.3: mode

Notes: "SBP" configures the interface to transmit messages specified in the 'enabled_sbp_messages' setting.

"NMEA OUT" configures the interface to transmit the GGA, RMC, GGL, VTG, ZDA, GSA, and GSV NMEA 0183 messages. The interface will not receive incoming messages.

"RTCMv3.1 IN" has no effect for UDP clients.

4.31 udp server0

4.31.1 enabled sbp messages

Description: Configure which messages should be sent on the port.

Label	Value
group	udp server0
name	enabled sbp messages
expert	False
readonly	False
units	N/A
default value	blank - all messages are enabled
type	string

Table 4.31.1: enabled sbp messages

Notes: Has no effect for a UDP server.

4.31.2 port

Description: Port for UDP server 0 to listen to.

Label	Value
group	udp server0
name	port
expert	False
readonly	False
units	N/A
default value	55557
type	integer

Table 4.31.2: port

Notes: None

4.31.3 mode

Description: Communication protocol for UDP server 0. The server will listen for incoming packets from a client for uni-directional communications.

Label	Value
group	udp server0
name	mode
expert	False
readonly	False
units	N/A
default value	SBP (Swift Binary Protocol)
type	enum
enumerated possible values	SBP,NMEA OUT,RTCMv3 IN

Table 4.31.3: mode

Notes: "SBP" configures the interface to receive incoming SBP messages.

"NMEA OUT" has no effect for a UDP server.

"RTCMv3.1 IN" configures the interface to receive RTK corrections in RTCM format. The interface will receive 1002, 1004, 1005, 1006, 1010, 1012, 1033 and 1230 RTCMv3.1 messages and will not receive any other messages.

4.32 udp server1

4.32.1 enabled sbp messages

Description: Configure which messages should be sent on the port.

Label	Value
group	udp server1
name	enabled sbp messages
expert	False
readonly	False
units	N/A
default value	
type	string

Table 4.32.1: enabled sbp messages

Notes: Has no effect for a UDP server.

4.32.2 port

Description: Port for UDP server 1 to listen to.

Label	Value
group	udp server1
name	port
expert	False
readonly	False
units	N/A
default value	55558
type	integer

Table 4.32.2: port

Notes: None

4.32.3 mode

Description: Communication protocol for UDP server 1. The server will listen for incoming packets from a client for uni-directional communications.

Label	Value
group	udp server1
name	mode
expert	False
readonly	False
units	N/A
default value	SBP (Swift Binary Protocol)
type	enum
enumerated possible values	SBP,NMEA OUT,RTCMv3 IN

Table 4.32.3: mode

Notes: "SBP" configures the interface to receive incoming SBP messages.

"NMEA OUT" has no effect for a UDP server.

"RTCMv3.1 IN" configures the interface to receive RTK corrections in RTCM format. The interface will receive 1002, 1004, 1005, 1006, 1010, 1012, 1033 and 1230 RTCMv3.1 messages and will not receive any other messages.

4.33 usb0

4.33.1 enabled sbp messages

Description: Configure which messages should be sent on the port.

Label	Value
group	usb0
name	enabled sbp messages
expert	False
readonly	False
units	N/A
default value	blank - all messages are enabled
type	string

Table 4.33.1: enabled sbp messages

Notes: The enabled sbp messages settings is a list of message types and rate divisors that will be sent out of the interface. If left blank, all messages will be sent. If not blank, a comma separated list of SBP message IDs in base 10 integer format should be provided. Optionally, a divisor can be specified after the / character for each id. For example, an entry of 3456/10 would provide message with ID 3456 at 1/10th the normal rate. For uart1, the default value is optimal for logging and communication with the console.

4.33.2 mode

Description: Communication protocol for USB0.

Label	Value
group	usb0
name	mode
expert	False
readonly	False
units	N/A
default value	SBP (Swift Binary Protocol)
type	enum
enumerated possible values	SBP,NMEA OUT,RTCMv3 IN

Table 4.33.2: mode

Notes: "SBP" configures the interface to transmit messages specified in the 'enabled_sbp_messages' setting and to receive incoming SBP messages. If the mode is changed from SBP the console will no longer be able to communicate over the

interface.

"NMEA OUT" configures the interface to transmit the GGA, RMC, GGL, VTG, ZDA, GSA, and GSV NMEA 0183 messages. The interface will not receive incoming messages.

"RTCMv3.1 IN" configures the interface to receive RTK corrections in RTCM format. The interface will receive 1002, 1004, 1005, 1006, 1010, 1012, 1033 and 1230 RTCMv3.1 messages and will not transmit or receive any other messages.