Crimson UHD Server API

This API utilizes UDP as the transport layer. Please code your respective software according to your machine's network sockets to enable UDP interactions. It is important to note that properties take time to update, if too many subsequent commands are sent in a short time, there will be dropped UDP packets.

	UDP Transact	ion (CSV in string		
Transmit	Sequence Number	Operation	Property	[Data]
Receive	Sequence Number	Status	[Data]	

Setting Properties						
Step 1	Transmit	Command	1,set,rx_a/rf/gain/val,65			
Step 2	Receive	Acknowledge	1.0			

Reading Properties						
Step 1	Transmit	Command	78,get,rx_a/rf/gain/val			
Step 2	Receive	Acknowledge	78,0,65			

Command Description						
Sequence	uint32_t value to reference on acknowledge steps just in case commands were executed out of order.					
Operation	"get" or "set"					
Property	Path of the property, refer to table below and concatenate with '/' between directories under "Property Path"					
Data	String representation of data, refer to table below under "Function"					
Status	0 is no error, 1 is error					

TX	RF _	PWR DAC FREQ GAIN BOARD	NCO TEMP VAL BAND I BIAS Q_BIAS VAL STATUS DUMP TEST TEMP	RW RW RO RW RW RW RW RW RW WO	Y	Power of DSP and RF chain (1) on, (0) off, Power On resets all settings** DAC clock frequency (Mhz) Temperature of the DAC IC (Celcius) Tune the RF chain to desired frequency (Hz) RF band that was chosen after tuning (1) High, (0) Low Adjust I-bias (in 100mV's) Adjust O-bias (in 100mV's)
TX		FREQ GAIN BOARD	TEMP VAL BAND I_BIAS Q_BIAS VAL STATUS DUMP TEST	RO RW RW RW RW RW		Temperature of the DAC IC (Celcius) Tune the RF chain to desired frequency (Hz) RF band that was chosen after tuning (1) High, (0) Low Adjust I-bias (in 100mV's)
TX _		GAIN BOARD	VAL BAND L BIAS Q BIAS VAL STATUS DUMP TEST	RW RW RW RW RW		Tune the RF chain to desired frequency (Hz) RF band that was chosen after tuning (1) High, (0) Low Adjust I-bias (in 100mV's)
TX		GAIN BOARD	BAND I_BIAS Q_BIAS VAL STATUS DUMP TEST	RW RW RW RW	V	RF band that was chosen after tuning (1) High, (0) Low Adjust I-bias (in 100mV's)
TX		GAIN BOARD	I_BIAS Q_BIAS VAL STATUS DUMP TEST	RW RW RW	V	Adjust I-bias (in 100mV's)
TX		BOARD	Q_BIAS VAL STATUS DUMP TEST	RW RW RW	V	
TX _		BOARD	VAL STATUS DUMP TEST	RW RW	V	
TX _	DSP -	BOARD	STATUS DUMP TEST	RW	V	Set RF chain gain (dB)
TX _	DSP -		DUMP TEST			Not implemented Yet
тх	DSP -		TEST		· '	Dump all of the registers of the device into /tmp/dump.txt
TX	DSP -			WO		Not implemented Yet
TX	DSP -		I IEMP	RW	Y	Temperature of the RF board (Celcius)
	DSP		LED	WO		Number of times to toggle the LED
	DSP		GAIN	RW		Not implemented Yet
	DSP	RATE		RW		Sample Rate (SPS)
-			CO_ADJ	RW		Frequency Mixing (Hz)
		R	STREQ	WO		Request a reset to the DSP chain
		ID		RW		ID of the TX board
		SERIAL		RO		Serial Number of the TX Board
	ABOUT		W_VER	RO		Compilation Date of UHD Server
			W_VER	RO		Compilation Date of UHD Server
L			W_VER	RO		Compilation Date of UHD Server
1	LINK	VITA_EN		RW		Enable VITA headers (1) or disable (0)
		IFACE PORT		RW		Not implemented Yet (Refer to user manual for defaults) UDP port to receive from (port for host to send output packets to)
			ruki	RW RW		Power of the DSP and RF chain (1) on, (0) off, Power On resets all settings
\vdash		PWR VAL		RW	-	Tune the RF chain to desired frequency (Hz)
		FREO	BAND	RW		RF band that was chosen after tuning (1) High, (0) Low
		TILLY	LNA	RW		Bypass the LNA (1) Bypass, (0) LNA
	-	GAIN	VAL	RW		Set RF chain gain (dB)
	RF	O/AII*	STATUS	RW	Y	Not implemented Yet
	KI	BOARD	DUMP	WO		Dump all of the registers of the device into /tmp/dump.txt
			TEST	WO		Not implemented Yet
			TEMP	RW	Y	Temperature of the RF board (Celcius)
			LED	WO		Number of times to toggle the LED
		SIGNED		RW		DSP output to be signed (1) or unsigned (0)
		GAIN		RW		Not implemented Yet
RX	DSP		RATE	RW		Sample Rate (SPS)
			CO_ADJ	RW		Frequency Mixing (Hz)
L		R	STREQ	WO		Request a reset to the DSP chain
			ID	RW		ID of the TX board
	ABOUT	SERIAL		RO		Serial Number of the TX Board
		FW_VER HW_VER		RO		Compilation Date of UHD Server
				RO		Compilation Date of UHD Server
⊢		SW_VER		RO		Compilation Date of UHD Server
	-		ITA_EN	RW RW		Enable VITA headers (1) or disable (0) Not implemented Yet (Refer to user manual for defaults)
1	LINK	IFACE PORT		RW		UDP port to transmit to (port for host to listen to)
1				RW		IP address to transmit to (address of host)
		IP_DEST MAC DEST		RW		MAC address to transmit to (address of host)
		1*17	PPS PPS	RW		Not implemented Yet
С	CLK -	CI	JR TIME	RW	Y	Current time of Crimson
			VCO	RW	' ' 	VCO clock source (internal/external)
1	SOURCE		SYNC	RW		Sync clock source (internal/external)
			REF	RW		Ref clock source (internal/external)
			TATUS	RW	Y	Not implemented Yet
		DUMP		WO		Dump all of the registers of the device into /tmp/dump.txt
TIME	BOARD	TEST		WO		Not implemented Yet
		TEMP		RW	Y	Temperature of the RF board (Celcius)
L		LED		WO		Number of times to toggle the LED
		ID		RW RO		ID of the TX board
1			SERIAL			Serial Number of the TX Board
	ABOUT		FW_VER			Compilation Date of UHD Server
			W_VER	RO		Compilation Date of UHD Server
			W_VER	RO	.	Compilation Date of UHD Server
1			TATUS	RW	Y	Not implemented Yet
	-		DUMP	WO WO		Dump all of the registers of the device into /tmp/dump.txt
	POARD		TEST TEMP	RW	Y	Not implemented Yet Temperature of the RF board (Celcius)

Sheet1

1	DOWLD		LED	WO	Number of times to toggle the LED
		RSTREQ		WO	Request a reset to the FPGA
		JESD RSTREQ		WO	Request a reset to the JESD link
		SYS	SYS RSTREQ		Request a reset to entire Crimson
			ID	RW	ID of the FPGA board
		9	SERIAL		Serial Number of the FPGA Board
	ABOUT	F	W_VER	RO	FW Version on the FPGA DSP chain
		Н	HW_VER		HW version of the FPGA Board
FPGA		SW_VER		RO RW	SW version of the FPGA Board
			RATE		Not implemented Yet
			IP_ADDR	RW	IP Address of SFPA port (address for host to send output packets to)
		SFPA	MAC_ADDR	RW	MAC Address of SFPA port (address for host to send output packets to)
			VER	RW	IP protocol version (1) IPV6 (0) IPV4
			PAY_LEN	RW	Payload Len (bytes)
	LINK	SFPB	IP_ADDR	RW	IP Address of SFPA port (address for host to send output packets to)
	LINK		MAC_ADDR	RW	MAC Address of SFPB port (address for host to send output packets to)
			VER	RW	IP protocol version (1) IPV6 (0) IPV4
			PAY_LEN	RW	Payload Len (bytes)
		NET	DHCP_EN	RW	Not implemented Yet
			HOSTNAME	RW	Name of Crimson
			IP_ADDR	RW	IP Address of Management Port