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*Technical Report*  
*on*  
***Online\_v2 core software***  
***& Testing done***

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## **Abstract :**

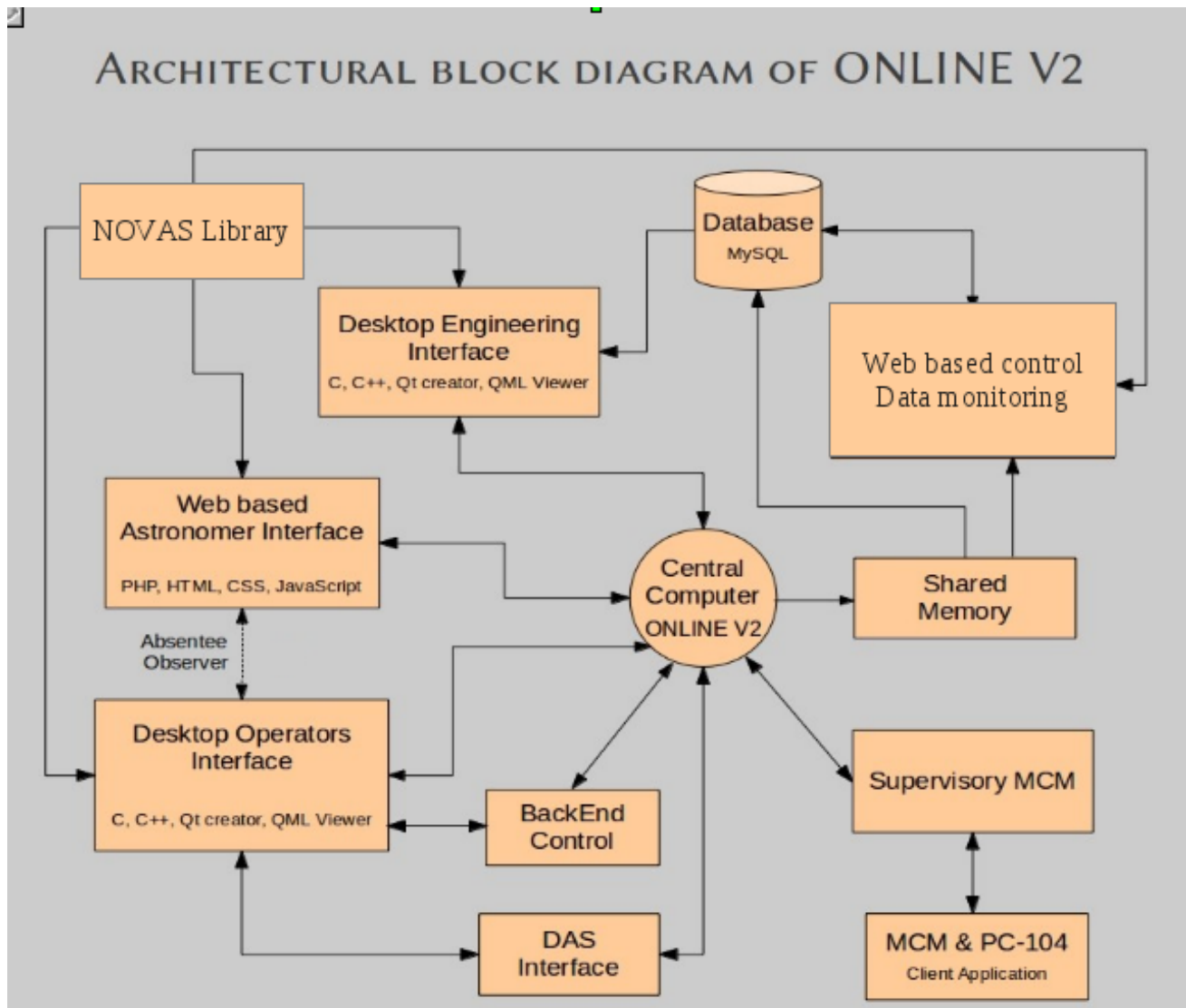
The Giant Meter wave Radio Telescope (GMRT) is being upgraded to allow wide-band frequency observation in a seamless frequency coverage from 150 to 1500 MHz along with the modern servo systems for antennas and feeds. To control and coordinate the newly upgraded GMRT systems for performing astronomical observations, the new GMRT Monitor and Control (M&C) system is being developed. The new M&C system has a modern hardware and software architectural features as compare to the existing GMRT control system. The high end server class machines in the Central Electronics Building (CEB) are used to run the central supervisory M&C system, which communicates to all thirty antennas spread over a radial distance about ~ 15 km using a dedicated Ethernet/Optical-Fiber link at 1 Gbps. The new Monitor and Control Modules (MCM) developed based on Rabbit RCM 4300 micro-controller are used to tune the RF signal receiver chain systems like Front-end, signal conditioning and Analog-backend. Rabbit processor support 1 GB mini SD memory card, 10/100T base Ethernet port for the communication along with a configurable 32 bit TTL control and 64 analog channels inputs to monitor. Dynamic C Integrated development environment support provided on Rabbit processor is used to develop and run the embedded control software. This software handles low level M&C functionalities like implementation of control logic, monitoring interpretation and safety of the instrument. Similarly, servo system of antenna and Feed-Positioning System plan to be controlled by PC104 embedded computer with lightweight Puppy Linux OS. The M&C system will thus coordinate and remotely control all thirty antennas, which includes total 180 sub-systems using the IP based interface.

Online-V2 follow client-server software architecture and design is based on the TCP/IP communication. The multi-threaded M&C Application server program developed in C runs under Linux operating system. The number of clients running on various sub-systems at the antenna base like Front-end, servo and Feed Positioning System connects to the M&C application server via multiple communication channels using the TCP/IP communication. The clients for each sub-system self-discovers the connection automatically and send it's ID to the server. The M&C application server is capable of handling the communication channels for all thirty antennas in real-time at turn-around time of 1 to 3 sec. The M&C application software is integrated with Qt and QML (Qt Meta Language) based Graphical User Interface which provides the user interface to astronomer, telescope-operator and engineers in the CEB. The M&C system provide multiple type of interfaces like command-line for debugging, Qt based client and browser interface to view the data over Internet. M&C system log all event and monitoring data using MySQL database, alert the user on occurrence of alarms.

## Background :

Work related to Online\_V2 started in October 2012. First steps were to study the existing ONLINE software ( Software which is being in GMRT for last 15 years) and the Linux version referred to as TELESET-ABCCOM as well as we had extensive discussions in the team. As the second steps studied various control & monitoring software-tools used in other astronomy institute like SCADA, PVSS, moniCA. For exploring ready made software, Installed PVSS software on Laptop & explored various functionalities of it. After exploring various software, it was agreed that we will develop our own Online\_V2 with open source technologies. Development work for Online\_V2 started from January 2013. Initially we developed a stand alone readline server which can send commands to Rabbit MCM card using our own defined structure protocol. Online\_v2 builds on our experience from TELESET-ABCCOM, C&M 15 M NCRA telescope in Pune & GMRT ONLINE SOFTWARE.

## Architectural block diagram of Online\_v2 Control & Monitoring :



## **Online\_v2 core : Why it is required :**

Online\_v2 core software is the central software which is interfaced with all other antenna sub-system as well as DAS system. Online\_v2 core is the master control program with a command terminal from where user can issues commands to any antenna sub-system & DAS system, write the command & response to shared memory, create user & sub array. It is the nerve center of Online\_v2 control and monitoring system.

## **Online\_v2 core : Interfacing with other system :**

Online\_v2 has been interfaced with antenna sub-system, desktop GUI (QML/QT) and Python Environment using TCP/IP based socket, using message queue to interact with DAS server program and shared memory to write all command-response into the shared memory as well as Online\_v2 core software write XML files which can be read by any web based program to display data.

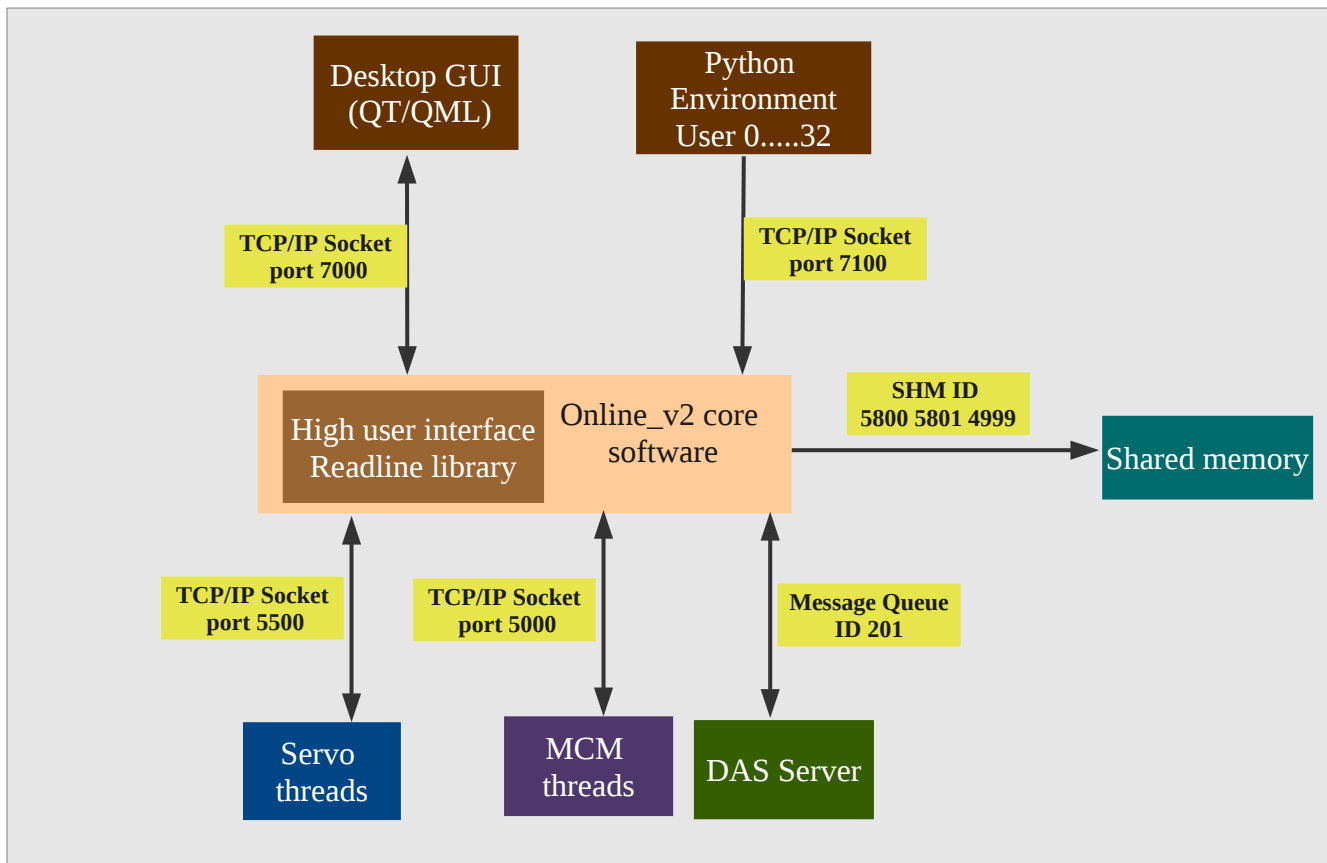
## **Structure : why we followed particular structure :**

Online\_v2 core directly communicates with antenna sub-system without the need of ABCCOM (ANTCOM) because we have shifted most of the intelligence and work in the low level device called as rabbit processor MCM card, which is much more powerful than currently used ANTCOM. During the designing of Online\_v2 control and monitor system we have optimized the work to be done by rabbit processor based MCM card as well as all other component of the whole system.

## **Implementation :**

Online\_v2 core software has been implemented as a multi-threaded work queue based server with each thread assigned specific jobs to perform. Creating a multi-threaded TCP/IP protocol based server requires the capabilities to handle network communication, multi-threading and transferring data between threads.

This server opens multiple thread which runs in parallel to accomplish the task. Out of them, one thread runs Readline library enabled high user interface which accepts commands from user through terminal, one thread to accept command from Python environment and one thread fro accepting commands from desktop GUI (QML/QT) based. All other threads run in background performing 1 seconds background monitoring of every sub-system as well as take command out of the work queue whenever command is there for them to send to particular sub-system.

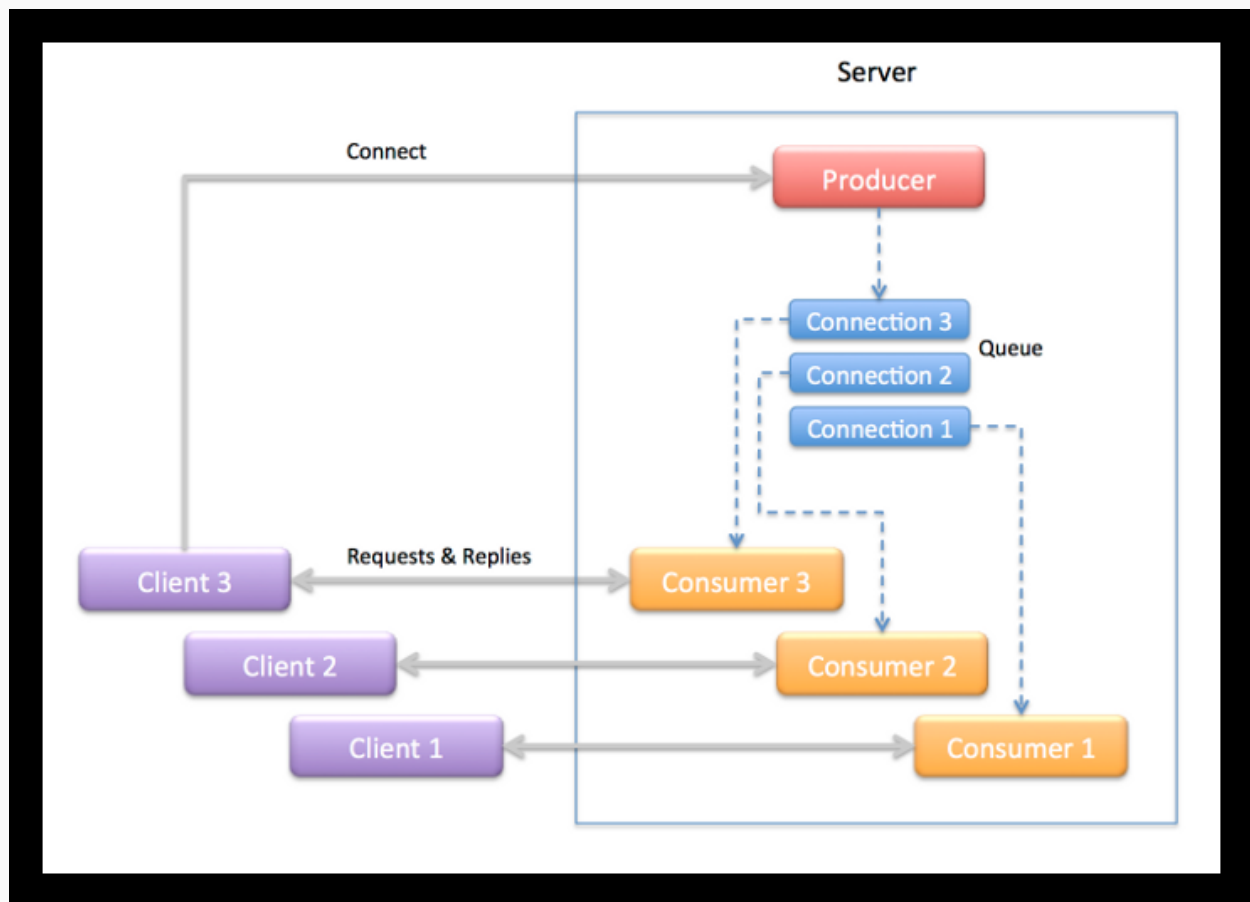


*Fig : Block Diagram of Online\_v2 core Software*

## Server Structure

### Producer-Consumer Model

The server is based on the producer-consumer multi threaded model where a single producer thread passes work items to 1 or more consumer threads via a work queue. In the case of the TCP/IP server, the producer thread accepts connections then queues the connections for the consumer threads which in turn handle the connection processing as shown in this diagram.



## Producer Thread

The producer thread in the server is implemented in the `main()` function. Its job is to create the work queue and consumer threads then accept connections from clients and pass the connections off to the consumer threads to handle. Specifically, the producer thread takes the following actions:

1. Create a work queue object.
2. Create the consumer threads.
3. Start listening for connections from clients.
4. Wait to accept a connections from a client .
5. For each connection create a work item that transfers the connected socket to a consumer thread to handle the connection.
6. Return to step 4.

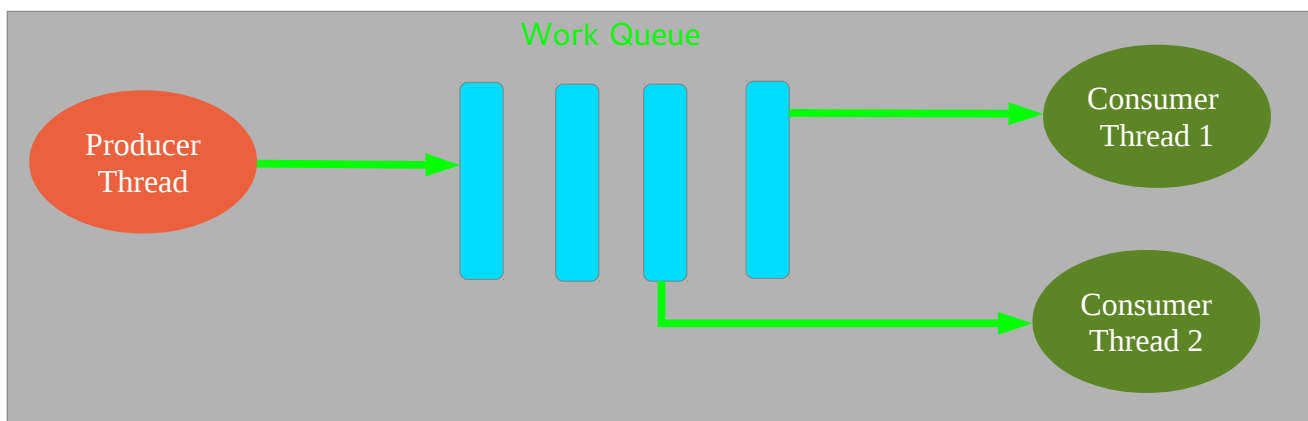
## Consumer Thread

The consumer threads are the workers that do the protocol session handling for the server. Each consumer thread handles a connection in the following manner:

- 1.Wait for a work item to be added to the queue.
- 2.Remove a work item from the queue.
- 3.Extract the object from the work item.
- 4.Wait to receive a request from the client.
- 5.Process the request when it is received.
- 6.Send the reply back to the client.
- 7.Repeat steps 4 – 6 until the client closes the connection.
- 8.Close the server end of the connection when the client closes the connection.
- 9.Delete the work item.
- 10.Return to step 1.

## Multi-threaded Work Queue :

Building a multi-threaded application is to devise a means to distribute tasks between threads so they can be processed concurrently. Queues are good devices for transferring work items from one thread to another. One approach to multi threading is the producer-consumer model where one thread – the producer –places work items in a queue and one or more consumer threads waits for and removes the items to process.



When a consumer thread runs it checks the number of items on the queue. If there are one or more work items on the queue the consumer removes one and processes it. If none are available the consumer waits for the producer to add items to the queue. These steps are repeated continually for the lifetime of the application.



## Online\_v2-MCM-Servo Communication Protocol :

In Online\_v2 development we are using generic structure based communication protocol to communicate command & response between Online\_v2 program and MCM rabbit card. We had developed communication protocol for the 15 Meter NCRA CMS system in the Pune campus. Amongst the important changes were trimming the command structure from 5000 bytes to 1600 bytes and response structure from 17000 to 5000 bytes. We note that communication protocol developed for 15m telescope has been working without any problem for last three year.

Connection is made using TCP/IP networking socket programming between Online\_v2 and MCM program. Connection remains persistent means connections are not broken after exchanging information. Connections are broken only if MCM device is power off.

### Command Structure for Online\_v2-MCM communication :

```
typedef struct
{
    int seq;                // Unique Sequence
    char timestamp[64];      // Timestamp of command
    char system_name[16];    // System Name for which command is
    char op_name[16];        // Operation to perform ( Init/Set/Mon/Reset )
    short int number_param;  // Number of parameter
    char parameter_name[32][16]; // Parameter Name
    char Argument_Ch1[32][16]; // Channel One argument
    char Argument_Ch2[32][16]; // Channel Two argument
} cmd;
```

### Response structure for MCM-Online\_v2 communication :

```
typedef struct
{
    int response_type;      // Response type
    int seq;                // Sequence number
    char timestamp[64];     // Time stamp
    char system_name[16];   // System name
    char Mon_raw[64][8];    // 64 channel raw data
    char Mon_sum[32][64];   // Monitoring summary prepared from 64 channel raw data
    short int num_resp_msg; // Number of Response Message
    char response_message[32][64]; // Response message from MCM
} resp;
```

### Structure used to send command for a particular antenna :

```
typedef struct
{
    char antenna_name[10];
    cmd CMD;           // command structure is embedded in the antenna structure
} ANT_CMD;
```

### Structure used for creating user & sub-array :

```
typedef struct
{
    int sub_num;
    int num_in_sub;
    char ant_name[32][8];
}sub;
```

```
typedef struct
{
    int usernb;
    sub s_a[4];
    char timestamp[26];
} user;
```

```
typedef struct
{
    user Tx[4];
} setdata;
```

### Command structure for Online\_v2-Servo Communication :

```
typedef struct
{
    int seq;
    char timestamp[64];
    char system_name[16];
    char op_name[16];
    short int number_param;
    char para_name[32][16];
    char para_value[32][16];
} servocmd;
```

```
typedef struct
{
    char antenna_name[10];
    servocmd SRVCMD;
} SRVANT_CMD;
```

## Response structure for Servo –Online\_v2 Communication :

```
typedef struct
{
    int seq;
    char timestamp[64];
    char system_name[16];
    int response_code;          // immediate =1 ( ACK or NAK ) event=3 & final =2  data mon = 4
    int response_type;          // success =1 or failure = 2
    char response_msg[50];      // Accepted ,not accepted, syntax error, irrelevant  command,incomplete,unknown + Event
    short int num_resp_msg;
    char para_name[32][32];
    char para_value[32][32];
} servoresp;
```

Size of Online\_V2-MCM command structure is 1638 bytes and MCM-Online\_v2 size of response structure is 4698 bytes.

Size of Online\_V2-Servo command structure is 1132 bytes and Servo-Online\_v2 size of response structure is 2192 bytes.

We have been using this generic communication protocol structure in C03 antenna testing & in two antenna 4 sub-system each Lab test set-up. We have not found any major problem related to communication. This generic structure based communication protocol is working very well for our Online\_v2 need.

In term of reducing time interval, we are continuously working on it. With the help of powerful machines & optimization we will be able to reduce the time interval as well.

## Comparison between Present Online, Teleset–Abccom & Online\_v2 protocol :

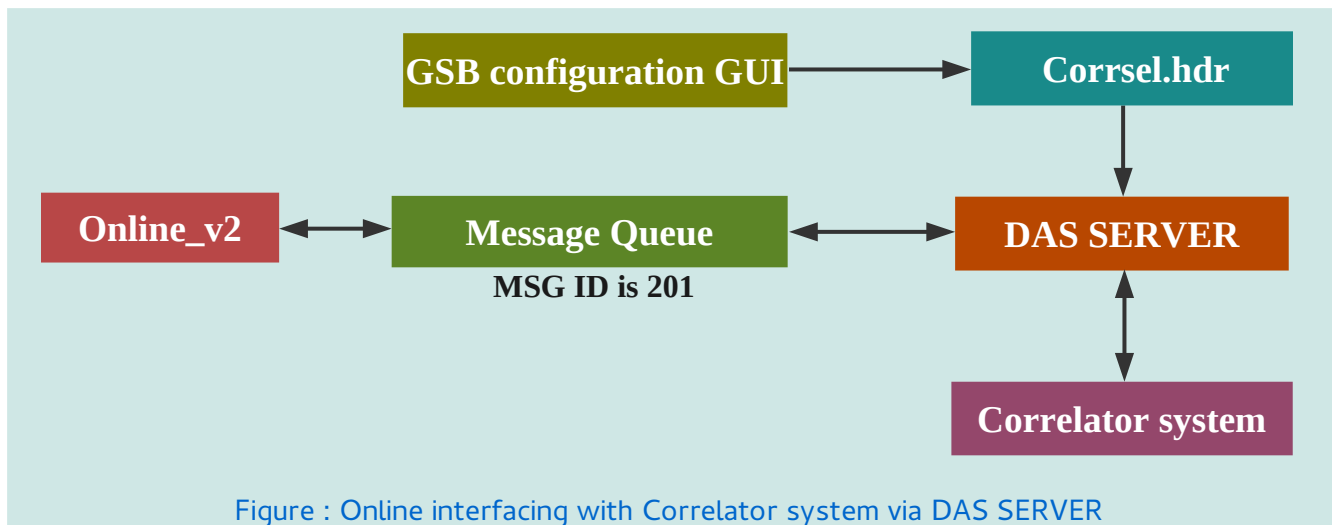
Present Online do all the hex code generation and decoding in Online machine and pass it on to communication handler through PC router on a serial link @9.6 kbps. All the intelligence is in Online code.

Teleset-Abccom protocol differ in a sense that most of the intelligence has been shifted to Abccom software. Teleset only gives higher level ASCII command like English text for ex: if setnew set1.dat . Abccom will decode what it means by if setnew set1.dat, generate the corresponding hex code for that and send that to MCM 10 on serial link & get the response and form the response packet from the raw data sent by MCM 10 which can be sent to Teleset.

In Online\_v2, all the bit pattern generation and decoding of response from raw data is done by MCM card so we just have to send higher level command from Online\_v2 by an agreed upon communication protocol. We are following a structure based communication protocol where we are sending a command structure to a particular MCM card and we are getting a response structure. In Online\_v2 most of the intelligence is shifted in the MCM card itself.

## DAS interfacing with Online\_v2 :

DAS server starts reading corrsel.hdr file generated by GSB configuration GUI. Online\_v2 send commands and read response to & from DAS server via message queue id 201. Command received from Online\_v2 is sent on sockets to the correlator system by DAS server. Response from correlator system is received on socket by DAS server, which is then written to message queue by DAS server to be read by Online\_v2.



There are mainly six commands which are send by Online to the DAS server :

1. initndas => DAS init
2. initproj => Add project
3. strtnDas => Start project
4. stpndas => Stop
5. delproj => Delete Project
6. hltndas => Finish

# initndas : [antmax] [corrsetup] [bandmask] [sub array no ] [.....]

# initprj : [antmax] [sub array] [proj title] [proj object ] [band mask selection] [prjcode]

# strtnDas : [source param] [ freq param] [sub array number ]

# **Antenna name mentioned during initndas & initproj should match.**

## DAS Command structure :

	sub array Num	cmd num	Cmd type	CMD	CMODE	Antenna mask	File location
1.	0	0	das	init	8	7FFFFFFE F	/home/teleset/gsb.hdr // Init Command
2.	0	1	das	addp	8		/home/teleset/proj.hdr.user0 // ADD project command
3.	4	2	das	start			/home/teleset/scan.hdr.user4 // DAS Start command
4.	4	3	das	stop			// DAS Stop command
5.	0	4	das	delp	8		// Delete project command
6.	0	5	das	fini	8		// Finish command

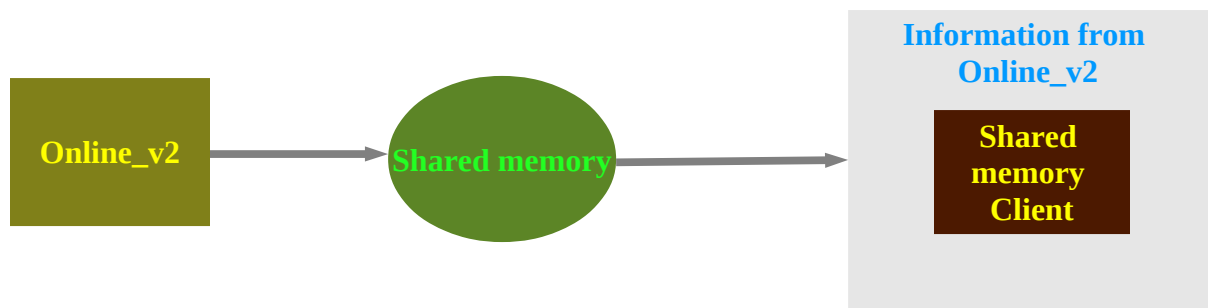
gsb.hdr => GSB config header file.

proj.hdr => generated by Online\_v2

scan.hdr => generated by Online\_v2.

## Shared memory Client Program :

Online\_v2 writes command-response from every thread of every antenna, user & sub-array information and DAS command-response messages from DAS server into the shared memory. Shared memory client program gets attached to the shared memory ID created by Online\_v2 and reads all the information which can be displayed as per user's wish. Any number of clients can get attached to this shared memory segments.



## Command implementation :

### 1. Command for User & sub-array creation issued from Online\_v2 terminal :

1.	create	This command will create user & subarray with antenna in that particular group user input 0 => user & sub-array will created through file input user input 1 => user & sub-array will created through terminal input
2.	add	This command will add user,sub-array & antenna in the particular group
3.	cmd2sub	This command will send send command to the particular group of antenna
4.	delusr	This command will delete particular group user along with all information
5.	showuser	This command will display information about particular user

### 2. DAS command issued from Online\_v2 terminal :

1.	dasinit	This command will Initialize DAS system
2.	Addp	This command will add project file which will be send to DAS system
3.	delprj	This command will delete the project file
4.	startscan	This command will start scanning
5.	stopscan	This command will stop scanning
6.	finish	This command will halt DAS system

### 3. Antenna command issued from Online\_v2 terminal :

To give command to a particular antenna we have followed a particular format :  
For example :

1.	C00 Sentinel init 1 <sup>st</sup> string will be Antenna name 2 <sup>nd</sup> string will be sub-system name 3 <sup>rd</sup> string will be sub-system command
----	---

### 4. Sub-system commands :

#### 4.1 Sentinel system commands

No.	Command Name	Description	Argument
1.	Init	Initialize the system	-
2.	Mon	Monitor the health of the system	-
3.	set	Set the system as per the Argument	dmask Ch1 Ch2
4.	reset	Reset the system	-

## 4.2 Front End system commands

No.	Command Name	Description	Argument
1.	Init	Initialize the system	-
2.	Mon	Monitor the health of the system	-
3.	set	Set the system as per the Argument	band_sel      Ch1   Ch2 slr_attn       Ch1   Ch2 channel        Ch1   Ch2 sub_band_sel   Ch1   Ch2 rf              Ch1   Ch2 cal_ns         Ch1   Ch2
4.	reset	Reset the system	-

## 4.3 Fiber Optics system commands

No.	Command Name	Description	Argument
1.	Init	Initialize the system	-
2.	Mon	Monitor the health of the system	-
3.	set	Set the system as per the Argument	rf_attn    Ch1 Ch2
4.	reset	Reset the system	-

## 4.4 GMRT Analog Backend system commands

No.	Command Name	Description	Argument
1.	Init	Initialize the system	-
2.	Mon	Monitor the health of the system	-
3.	set	Set the system as per the Argument	reflo        Ch1   Ch2 lo            Ch1   Ch2 attn         Ch1   Ch2 filter       Ch1   Ch2 lpf          Ch1   Ch2 source       Ch1   Ch2 signal       Ch1   Ch2 path         Ch1   Ch2 channel      Ch1   Ch2
4.	reset	Reset the system	-

#### 4.5 Self Test system commands

No.	Command Name	Description	Argument
1.	Init	Initialize the system	-
2.	Mon	Monitor the health of the system	-
3.	set	Set the system as per the Argument	ss Ch1 //set spectrum spreader fdb Ch1 // set frequency doubler fdv Ch1 //set frequency divider
4.	reset	Reset the system	-

#### 4.6 GMRT servo system commands

No.	Command Name	Description	Argument
1.	sendsacsrc	Send source information RA DEC to track routine	Source RA DEC
2.	goin	Inner Track	-
3.	goout	Outer Track	-
4.	trkon	Start Tracking	-
5.	trkoff	Stop Tracking	-
6.	coldstart		-
7.	hold	Hold Axis	Ax
8.	track	Track	Time,Ax,Ang1,Ang2
9.	position	Position Axis	Ax,Ang1,Ang2
10.	stow	Stow the antenna	Ax
11.	stow_release	Stow release	Ax
12.	stop	Stop	Ax
13.	abort	Abort tracking	
14.	close	Close	
15.	resethw	Reset Hardware	
16.	readangles	Read angles	
17.	readanavar	Read analog variables	
18.	readdigvar	Read digital variables	
19.	readantstatus	Read antenna status	
20.	readversion	Read version	
21.	readsetpara	Read set paramameters	



#### 4.7 GMRT servo system commands ( Yet to be Implemented )

No.	Command Name	Description	Argument
1.	TRKELOFF	track elevation offset	New track parameters
2.	TRKAZOFF	track azimuth offset	New track parameters
3.	TRKANTOFF	track azimuth, elevation offset	New track parameters
4.	TRKRAOFF	track right ascension offset	New track parameters
5.	TRKDECOFF	track declination offset	New track parameters
6.	SCANELSRC	scan src in el with derv=ipa,ptime=jpa	New track parameters
7.	SCANAZSRC	scan src in az with derv=ipa,ptime=jpa	New track parameters
8.	SCANRASRC	scan src in ra with derv=ipa,ptime=jpa	New track parameters
9.	SCANDEC	scan src in dec with derv=ipa,ptime=jpa	New track parameters

#### 4.8 GMRT Feed positioning system commands

No.	Command Name	Description	Argument
1.	mvpos	move to the feed position	feed 610/150/1420/325
2.	loadparam	load parameters from fps.dat file	File name
3.	fpsinit	Initialize FPS system	-
4.	fpsnull	FPS NULL command	-
5.	set_tpoint	turning point position	Encoder count
6.	set_rampdcnt	Set ramp down count	Nb timer ticks
7.	set_low_rpm	Set lower RPM limit	Nb timer ticks
8.	set_brake_dd	Set break down diff	Nb enc. pulses
9.	set_rampupcnt	Set ramp up count	Nb timer ticks
10.	set_stoptimecnt	Set stop time count	Nb timer ticks
11.	set_max_pwm_cnt	Set Max PWM count	PWM count
12.	set_max_angle	Set MAX angle	Angle
13.	set_min_angle	Set MIN angle	Angle
14.	read_tpoint	Read turning point	
15.	read_rampdcnt	Read ramp down count	
16.	read_low_rpm	Read lower RPM limit	
17.	read_brake_dd	Read break down diff	
18.	read_rampupcnt	Read ramp up count	

19.	read_stoptimecnt	Read stop time count	
20.	read_max_pwm_cnt	Read stop time count	
21.	read_max_angle	Read MAX angle	
22.	read_min_angle	Read MIN angle	
23.	read_version	Read version	
24.	run_to_cal	Run to calibrate	
25.	free_run_tow	Free run towards	270/-10 deg
26.	run_to_preset	Run to preset	Target pos
27.	run_fine_tune	Run to fine tune	Target pos, PWM count
28.	password_run	Password run	
29.	reboot	reboot	
30.	fpsstop	stop	

## Online\_v2 Source files details :

No.	File Name	Description
1.	main.c	Opens multiple threads for high user,mcm,python env,servo & GUI
2.	highuser.c , highuer.h	High user thread which accept user command through readline
3.	common.c	Common file for mostly used functions like timestamp etc.
4.	das.c , das.h	Source file to read,write to the das server using Message queue
5.	pyenv.c ,pyenv.h	Python environment thread to accept command from Python env
6.	server.h	Header file contain mostly used functions & communication structure.
7.	servo.h	Header file containing servo communication structure & functions declarations.
8.	servo.c	Source file for filling servo command structure
9.	shm.h	Header file for shared memory function declarations.
10.	shmed_mem.c	server which writes command & response to shared memory.
11.	shm_client.c	Client which read command & response from shared memory.
12.	system.c, system.h	Source file for filling MCM command structure (FE,Sentinel,GAB,OF & self test).
13.	fps.h, fps.c	Feed positioning system header & Source file for filling FPS command structure
14.	gui.c , gui.h	GUI thread to accept command from Desktop GUI (QT/QML)
15.	mcm.c , mcm.h	File for accepting client connection from various sub-system
16.	mcm_thread.c, mcm_thread.h	File for various MCM sub-system threads
17.	queue.c, queue.h	File for queue related function declarations & definition. .
18.	servo_queue.h, servo_queue.c	Servo queue related function declarations & definition.
19.	socket.c, socket.h	Socket related function declarations & definition.
20.	ssclink.h, ssclink.c	Servo communication function declarations & definition.
21.	trackservo.c, trackservo.h,	Source file containing algorithm for source tracking ( Taken from ABCCOM servo tracking algorithm )
22.	user1.h	Header file for user input
23.	user_info.c	Source file for taking user input related to user & sub array creation.
24.	xml.c, xml.h	File for writing XML file of command & response.

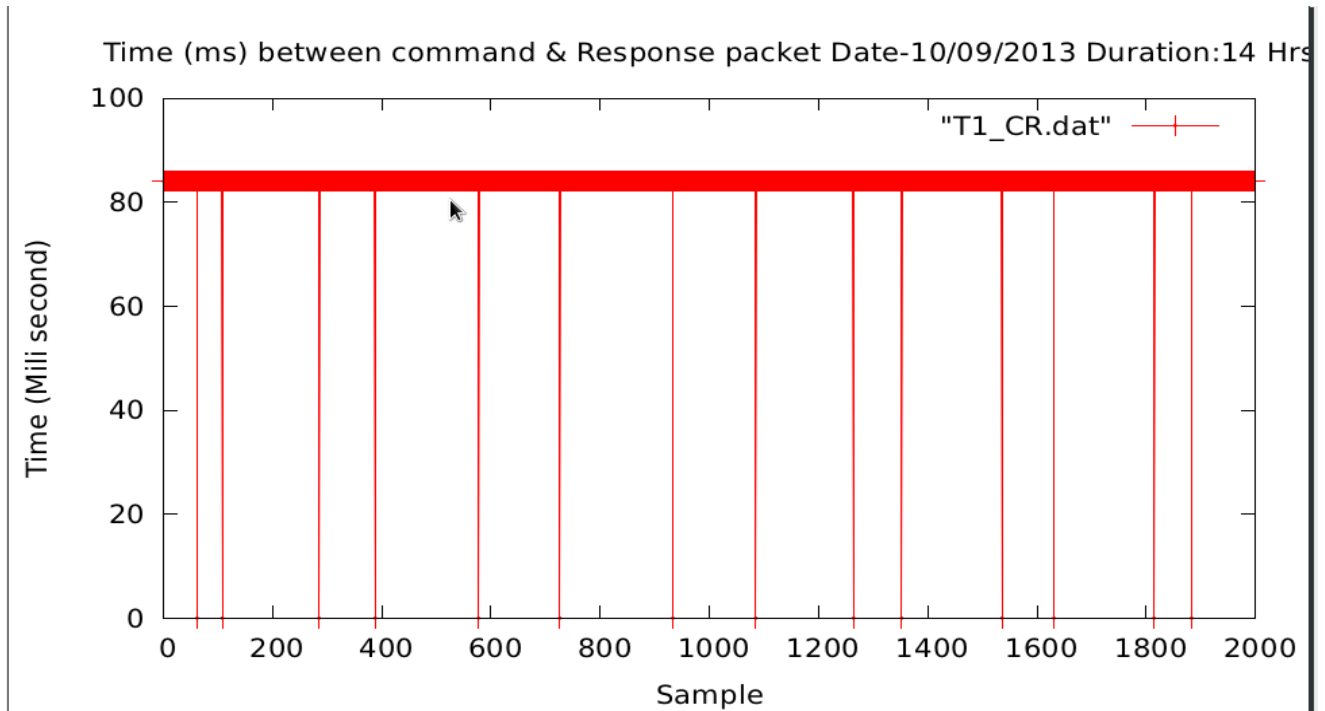
## Testing of Online\_v2 Core software :

### Lab testing :

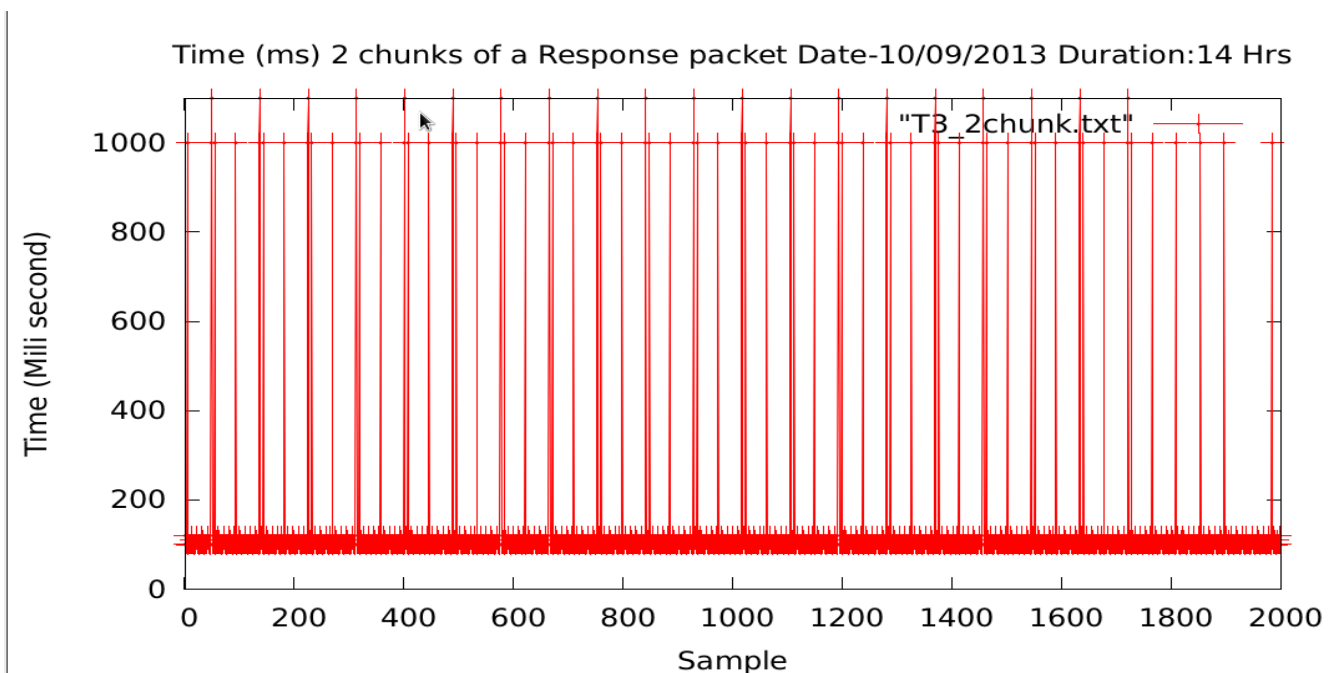
- ✓ Eight MCM cards along with L3 network switch have been put in Lab set up for Online\_V2. Online\_V2 has been tested successfully by configuring eight MCM cards as two antenna four sub-system each & eight antenna one sub-system each. (Front End, Fiber optics, GAB, Sentinel)
- ✓ All basic servo commands have been implemented in Online\_v2 which has been tested with actual hardware set up in servo lab. As well as one antenna tracking routine has been implemented in Online\_V2, which has been tested with a prototype servo client program running on PC104 card.
- ✓ We have done several test to measure the round trip time taken by command & response packet. Initially we get into the problem with two successive monitoring packet response time. It was working properly for 2 seconds and we were trying to achieve 1 second monitoring time. We tried increasing TCP MTU as well as tried various options in socket programming but it didn't solved our problem. After various trail & error we changed the sub-net i.e. we isolated our lab setup by putting a new L3 CISCO switch & IP of server machine from rest of the network. It improved our command-response round trip time significantly and we achieved 1 seconds as well 0.5 second round trip monitoring time.
- ✓ Online\_v2 software has been tested with Feed positioning system MCM card ( NULL command) in telemetry Lab where Rabbit MCM card takes command from Online\_v2 software over Ethernet & send it to the FPS MCM card over serial link and get back the response, compose Ethernet response packet and send it back to online\_v2 software.

## Plots of round trip time:

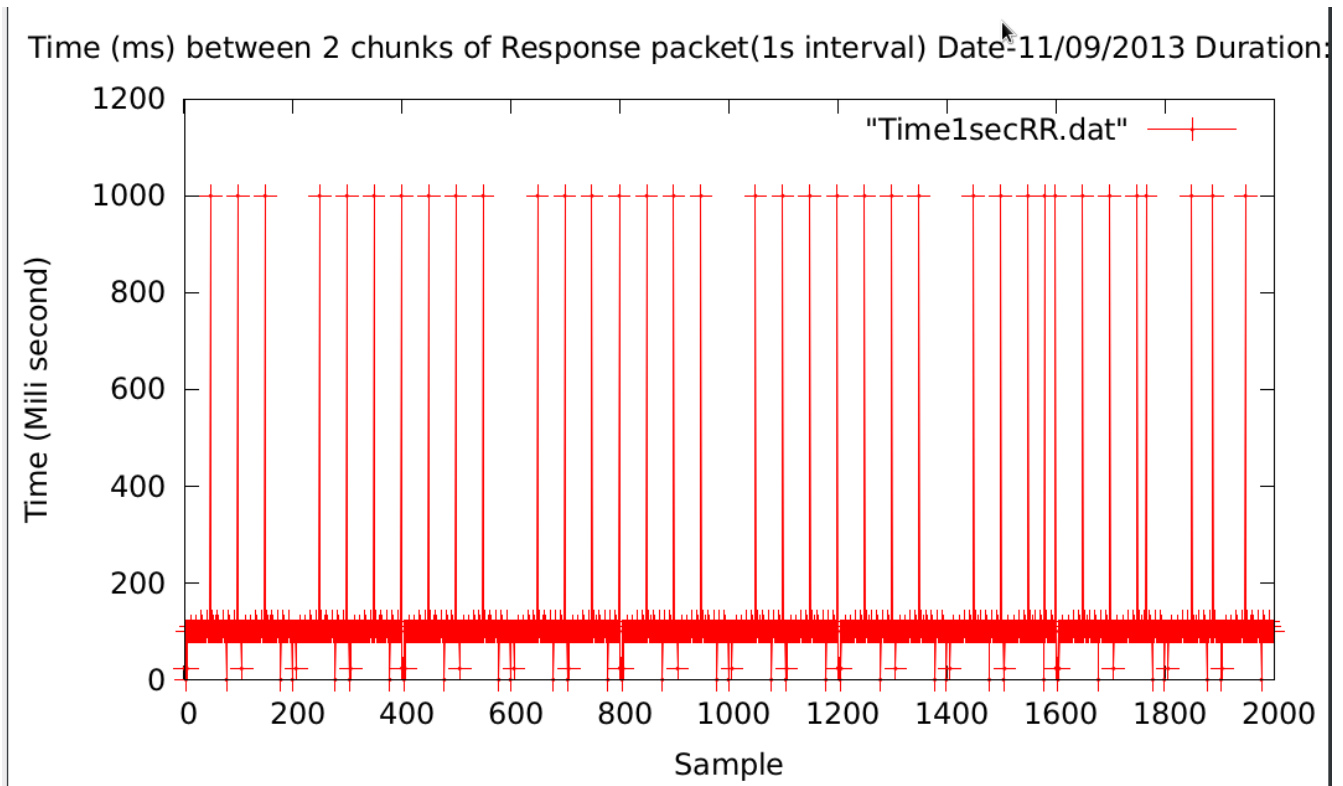
Plots below shows the round trip time when Online\_v2 was connected with eight antenna set up in lab using a small unmanageable switch. Plots shows undesirable high dropout of packets.



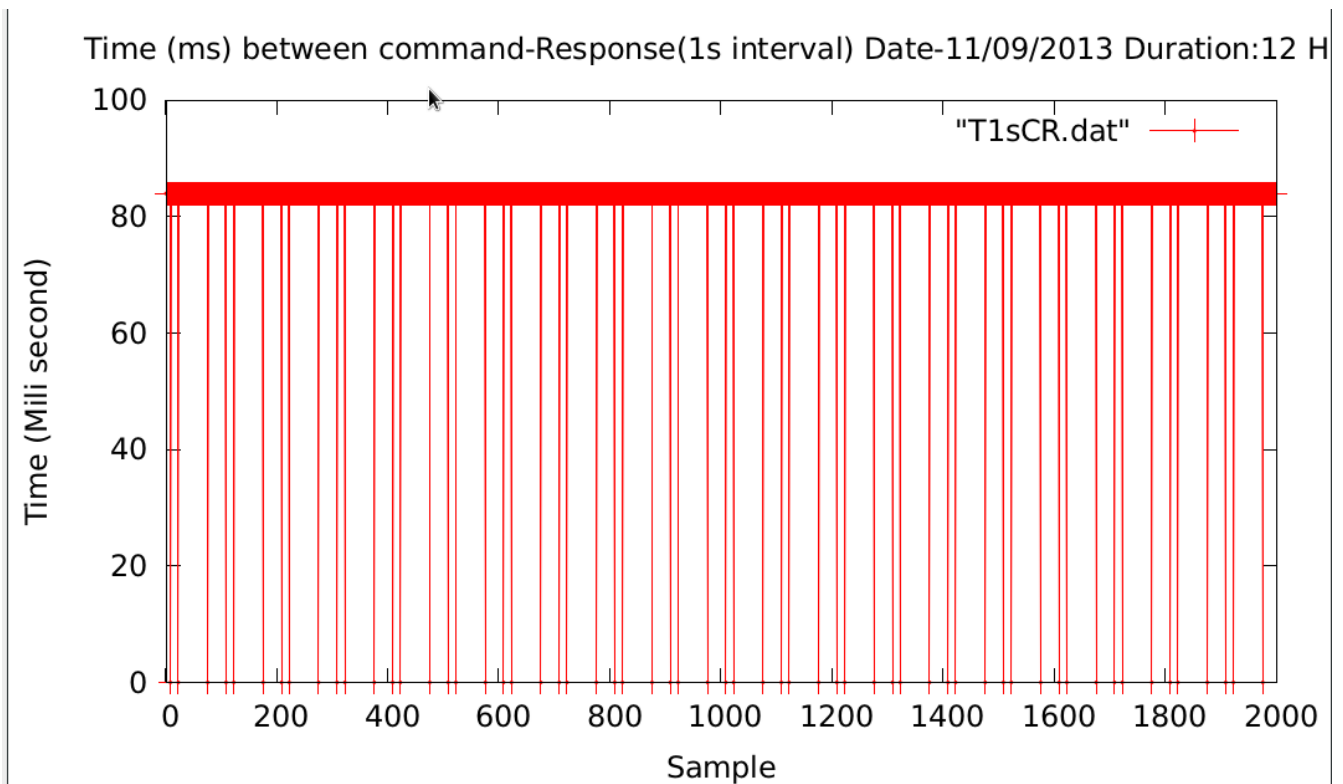
**Fig(1): Time between command & response when interval is 2 seconds**



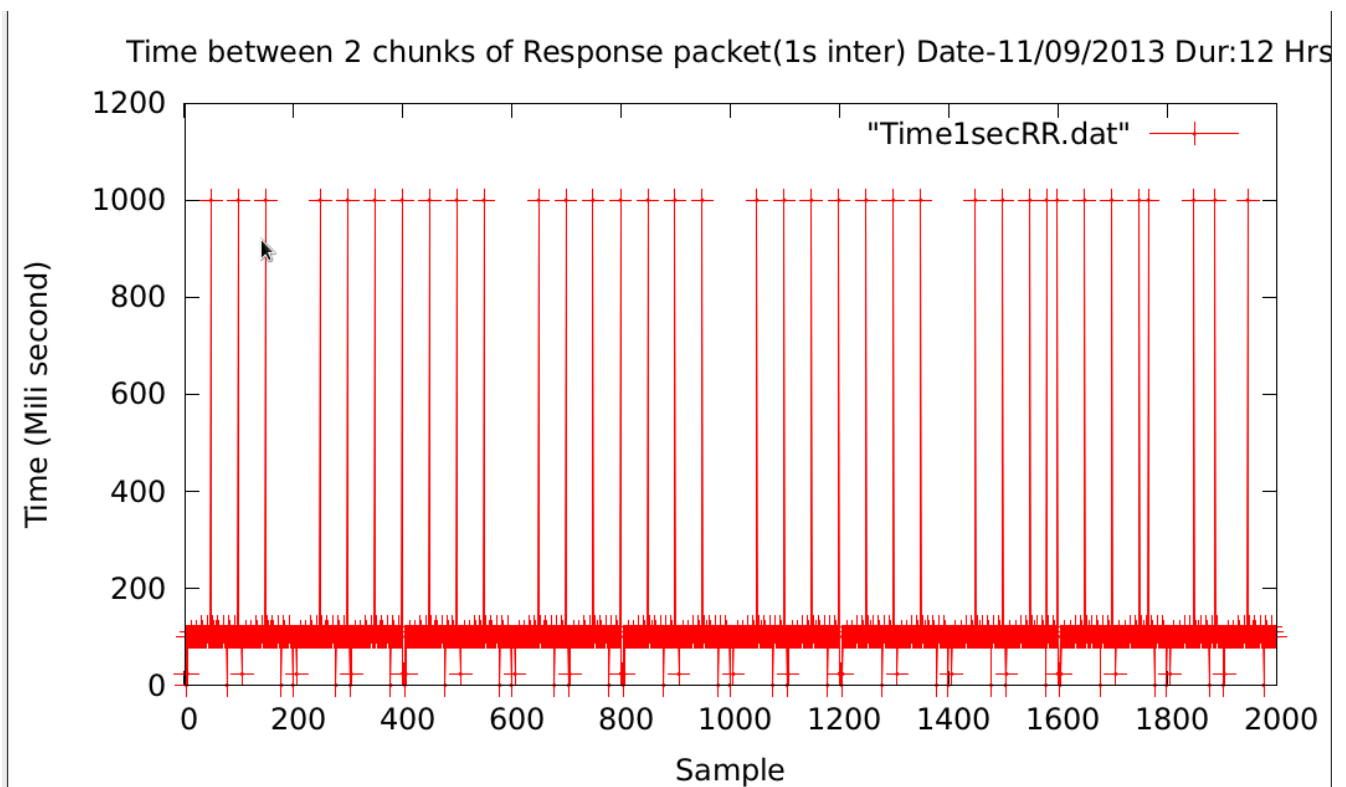
**Fig(2) : Time between two chunks of a response packets in 2 second interval**



**Fig(3) : Time between two chunks of a response packets in 1 second interval**

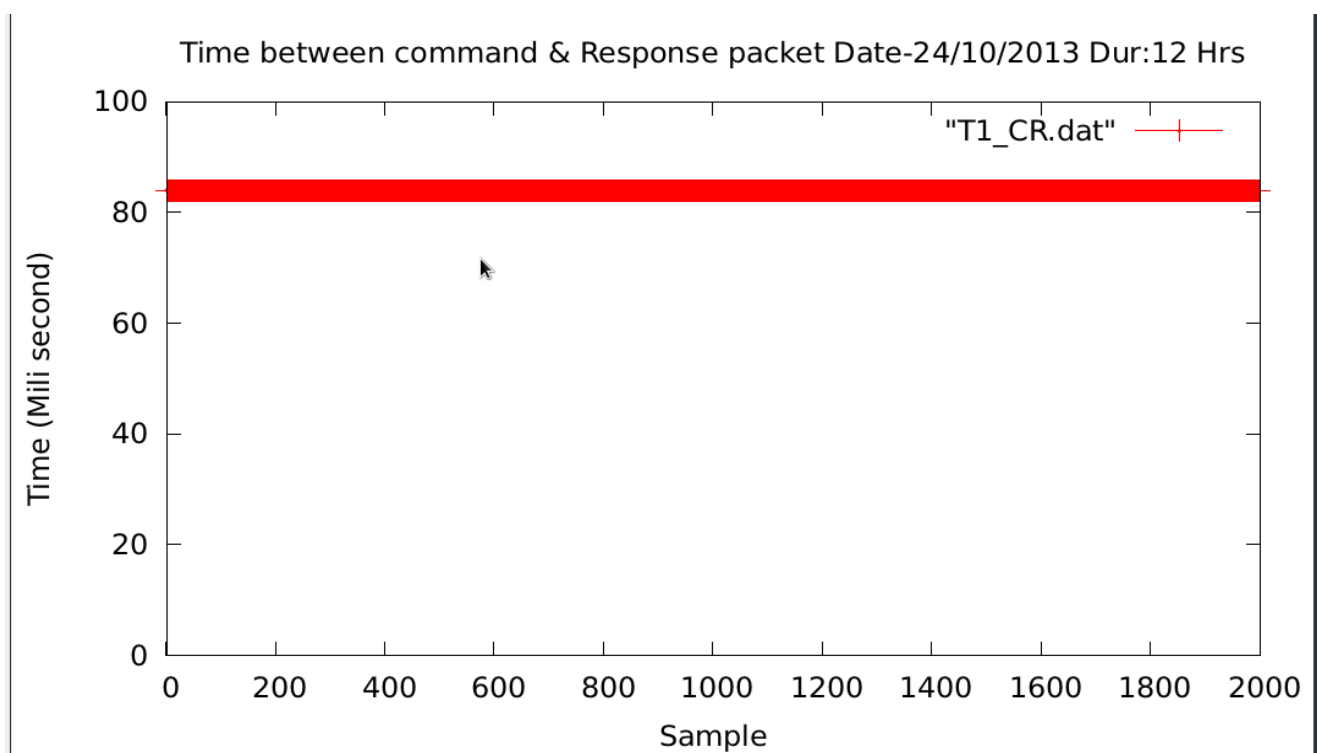


**Fig(4) : Time between command & response in 1 second interval**

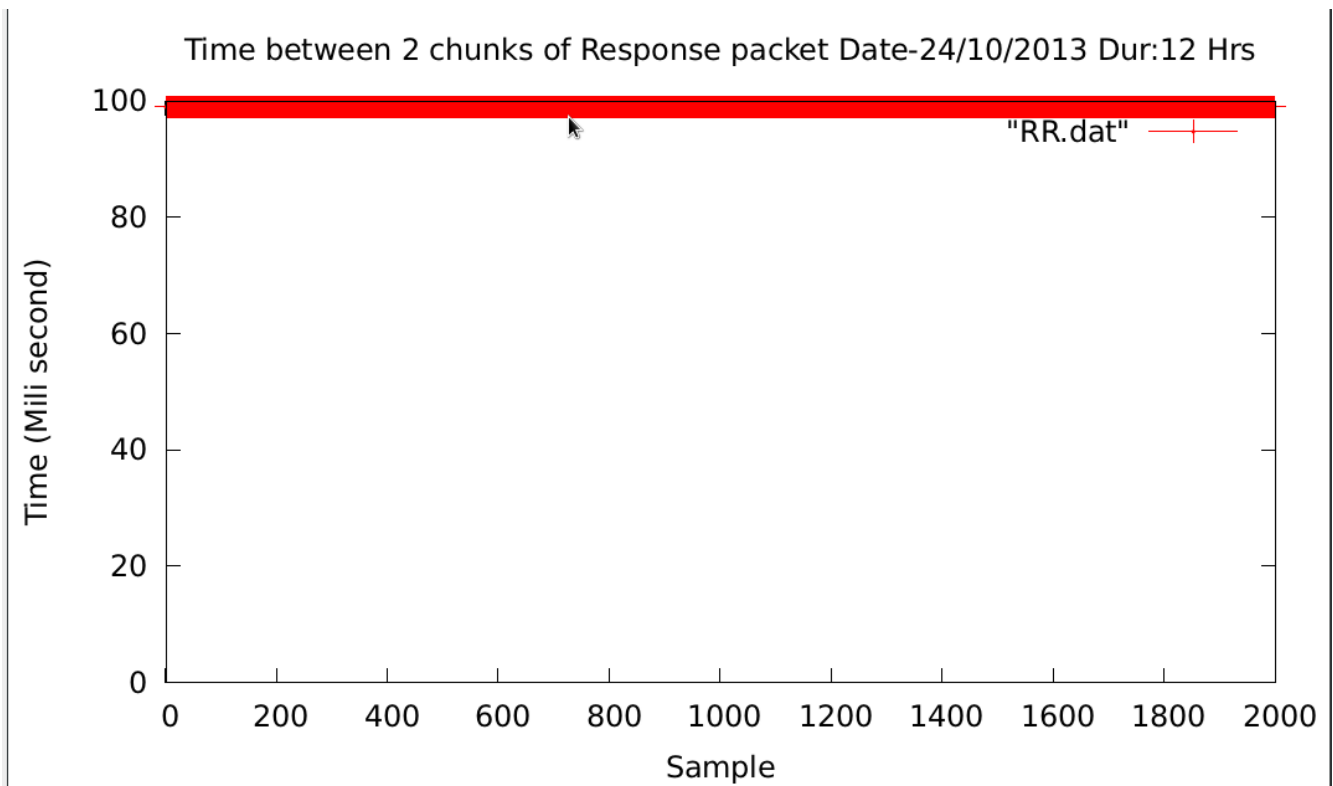


**Fig(5) : Time between command & response in 1 second interval**

**Plots after changing the IP of server machine & sub-net :**

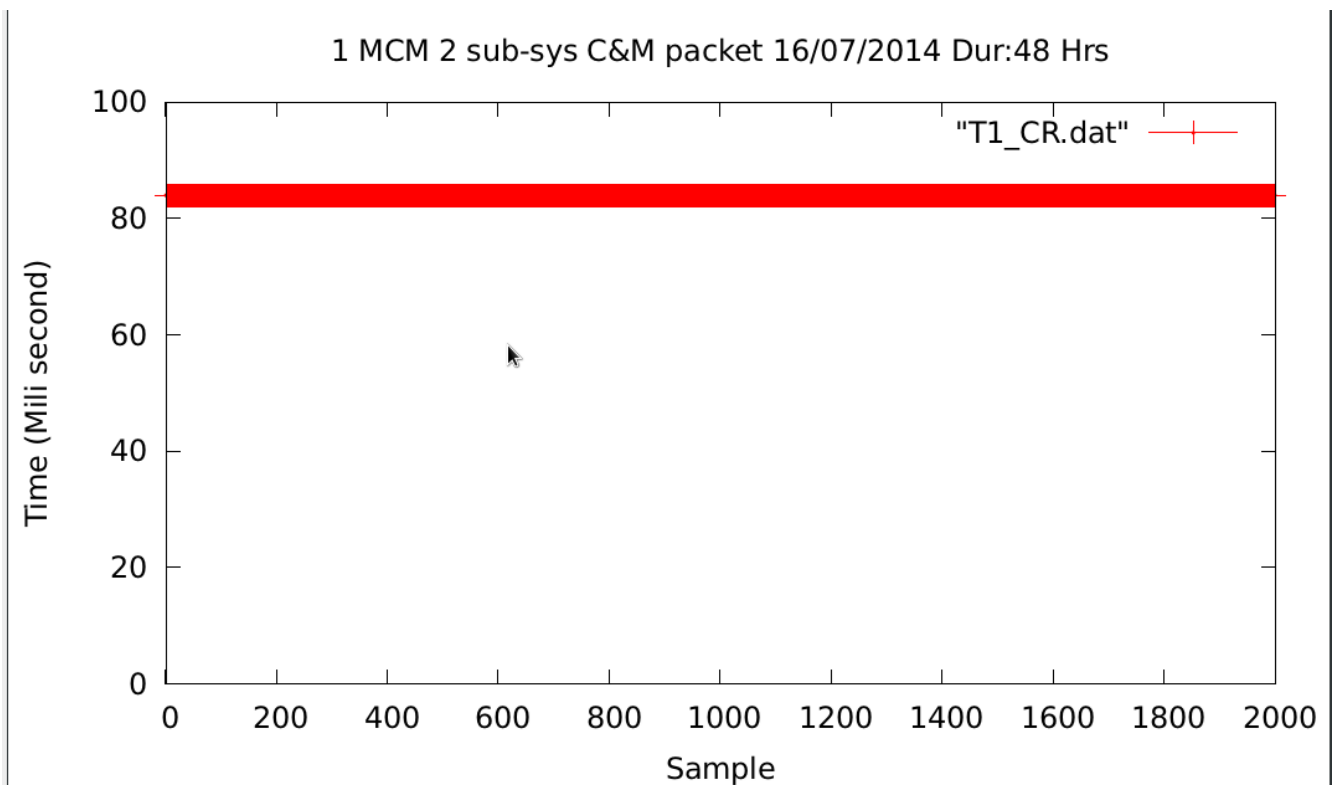


**Fig( 6) : Time between command-Response after changing IP & sub-net.**



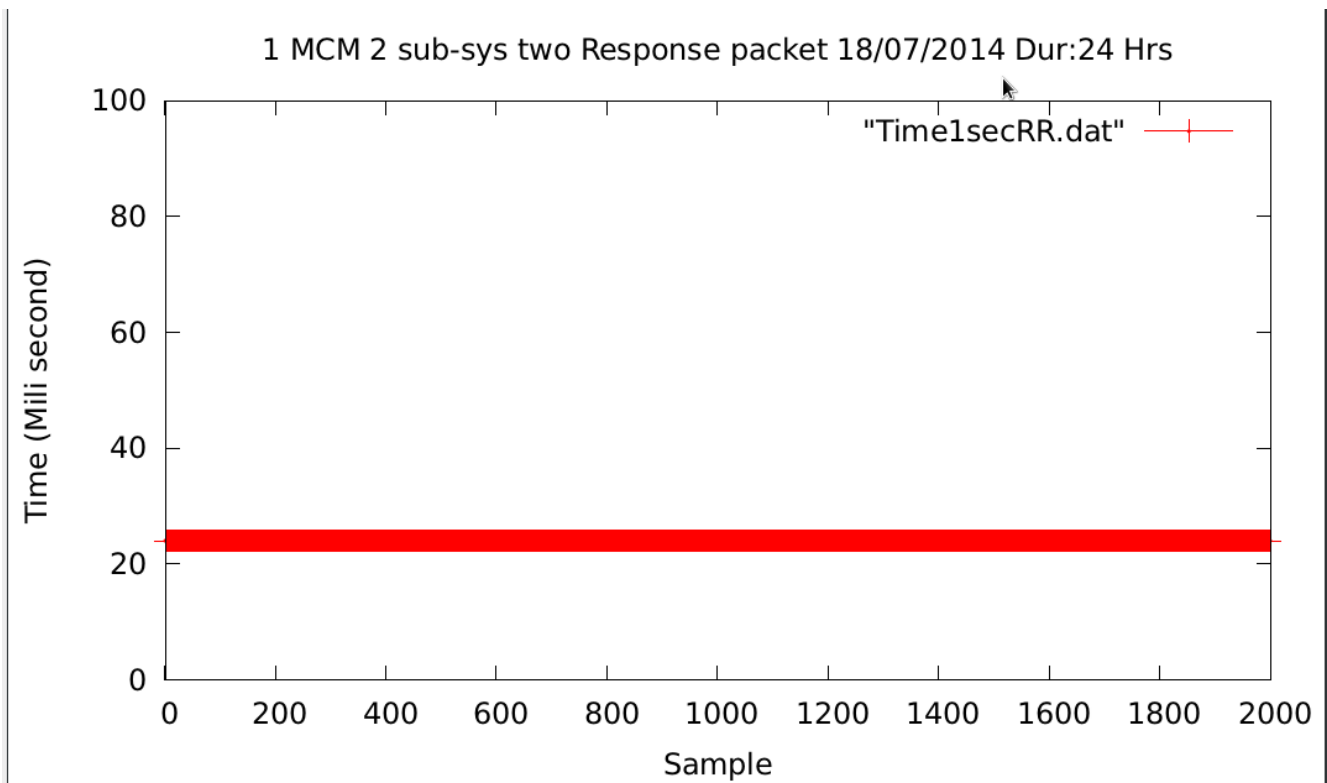
**Fig(7) : Time between Two response packets after changing IP & sub-net.**

**Plots of round trip time when two sub-system configured in one MCM card :**



**Fig(8) : Time between C & R when two sub-system configured in one MCM card**





**Fig(9): Time between 2 Response when two sub-system configured in one MCM card**

Plots above shows that when we were connecting Online\_v2 with 8 antenna Mcm cards using small 8 port unmanageable switch, Online\_v2 had seen major drop out of response packets. Once we shifted our lab set up to a L3 network switch isolating MCM system sub-net with rest of GMRT sub-net, we observed zero drop out of response packets.

## Antenna Testing of Online\_v2 software :

- x Four MCM cards were installed at *C03, C06, S04 & S02*. They were communicating very well with Online\_v2, sending monitoring response every 1 second time interval.
- x C03 rabbit MCM card was connected with a temperature sensor which was sending Antenna shell temperature every 1 second.
- x We then moved all MCM cards to central square antenna for out testing. We installed MCM cards at *C01, C03, C04, C06 and C09*. All MCM were working fine, communicating with Online\_v2 without any problem.
- x After testing Online\_v2 software with individual MCM cards, we tested Online\_v2 core software during April-2014 & October-2014 maintenance period.
- x Successfully tested two antenna sub-system at C06 antenna during April-2014 :

Date of Testing : 4<sup>th</sup> April 2014

Date of closed loop testing : 7<sup>th</sup> April 2014

During April-2014 MTAC period, we have successfully tested two antenna sub-systems at C06 antenna. We have installed HP make L2 Ethernet switch and two Rabbit MCM cards at C06 for control and monitor of Broadband OF system and Sentinel system.

### 1. Broadband OF system testing:

The first level control and monitoring of Broadband OF system has been tested by interfacing Rabbit MCM with OF system hardware. The command for RF attenuation was send from all three paths,

- 1.1. Python environment - ONLINE-V2 - Rabbit MCM - OF hardware.
- 1.2. GUI environment - ONLINE-V2 - Rabbit MCM - OF hardware.
- 1.3. Terminal environment - ONLINE-V2 - Rabbit MCM - OF hardware.

The attenuation value was set by sending command to Rabbit MCM card in range of 0 to 31 dB, in step size of 1 dB. The RF power was going down by 2dB for entire range of attenuation values. This test was done in telemetry lab as well as C06 antenna shell. The changes in attenuation were reflecting in RF power at antenna base (OF Tx output port) and receiver room OF system (OF Rx Mon port) on spectrum analyzer.

### 2. Sentinel System Testing:

The control port of Rabbit MCM for sentinel system was tested by connecting 32 bit LED test jig. The digital mask was send to Rabbit MCM by three paths mentioned above. The shell temperature was monitored by connecting temperature sensor to channel 1 of MCM monitoring port. The temperature reading was displayed on ONLINE-V2 shared memory.

The OF system group was involved in setting up OF system and successful completion of testing.

- x Successfully tested 3 antenna 2 sub-system at C01, C04 & C06 antenna

Date of Testing : 8<sup>th</sup> October 2014 – 11<sup>th</sup> October 2014- **Online\_v2 Team members**

During October-2014 MTAC period, we have successfully tested three antenna two sub-systems at C01, C04 and C06 antenna. We have installed CISCO & HP make L2 Ethernet switch and two Rabbit MCM cards at C01, C04 & C06 for control and monitor of Broadband OF system and Sentinel system.

#### 1. Broadband OF system testing:

The first level control and monitoring of Broadband OF system has been tested by interfacing Rabbit MCM with OF system hardware. The command for RF attenuation was send from all three paths,

- 1.1. Python environment - ONLINE-V2 - Rabbit MCM - OF hardware.
- 1.2. GUI environment - ONLINE-V2 - Rabbit MCM - OF hardware.
- 1.3. Terminal environment - ONLINE-V2 - Rabbit MCM - OF hardware.

The attenuation value was set by sending command to Rabbit MCM card in range of 0 to 31 dB, in step size of 1 dB. The RF power was going down by 2dB for entire range of attenuation values. This test was done in telemetry lab as well as C06 antenna shell. The changes in attenuation were reflecting in RF power at antenna base (OF Tx output port) and receiver room OF system (OF Rx Mon port) on spectrum analyzer.

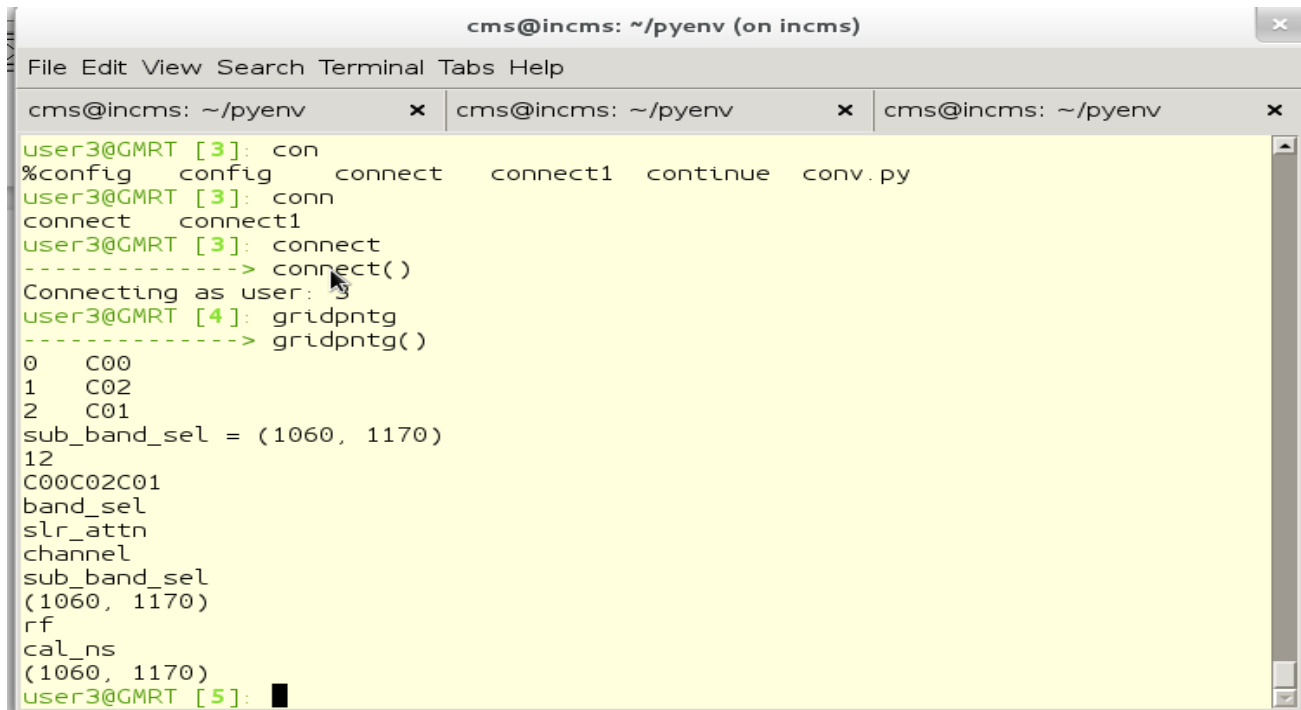
#### 2. Sentinel System Testing:

The control port of Rabbit MCM for sentinel system was tested by connecting 32 bit LED test jig. The digital mask was send to Rabbit MCM by three paths mentioned above. The shell temperature was monitored by connecting temperature sensor to channel 1 of MCM monitoring port. The temperature reading was displayed on ONLINE-V2 shared memory.

The OF system group was involved in setting up OF system and successful completion of testing.

## Snapshot of the Online\_v2-Python\_Environment-MCM testing :

### Python Environment user 2 :

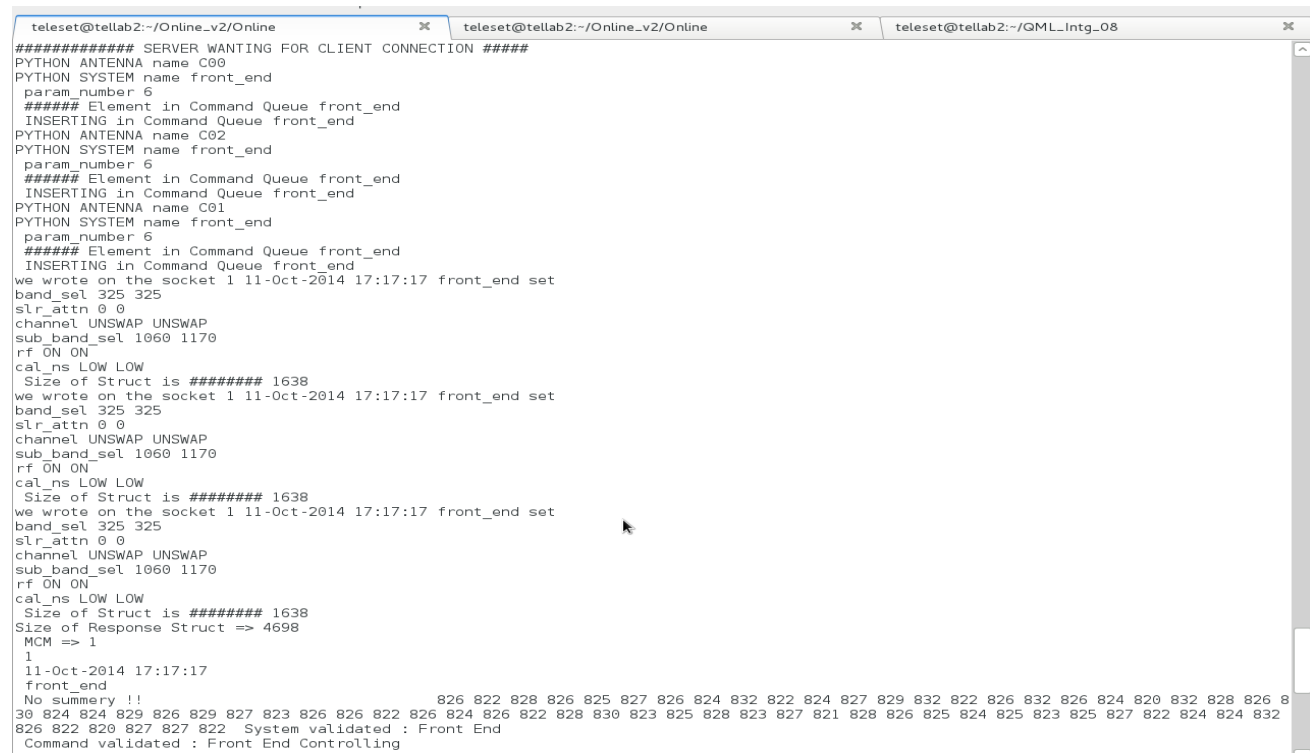


```
cms@incms: ~/pyenv (on incms)
File Edit View Search Terminal Tabs Help

cms@incms: ~/pyenv x cms@incms: ~/pyenv x cms@incms: ~/pyenv x

user3@GMRT [3]: con
%config config connect connect1 continue conv.py
user3@GMRT [3]: conn
connect connect1
user3@GMRT [3]: connect
-----> connect()
Connecting as user: 3
user3@GMRT [4]: gridpntg
-----> gridpntg()
0 C00
1 C02
2 C01
sub_band_sel = (1060, 1170)
12
C00C02C01
band_sel
slr_attn
channel
sub_band_sel
(1060, 1170)
rf
cal_ns
(1060, 1170)
user3@GMRT [5]: █
```

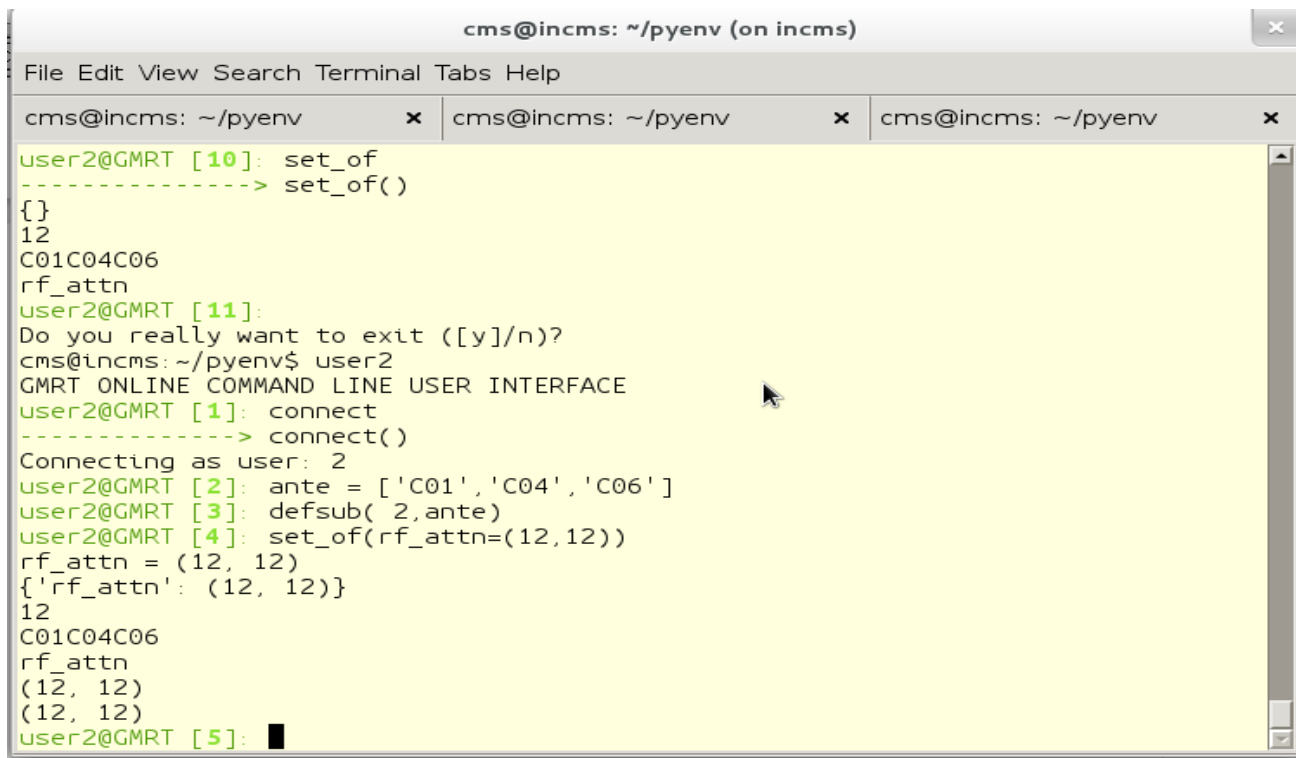
### Output of Online\_V2 screen :



```
teleset@tellab2:~/Online_v2/Online x teleset@tellab2:~/Online_v2/Online x teleset@tellab2:~/GML_Intg_08 x

##### SERVER WANTING FOR CLIENT CONNECTION #####
PYTHON ANTENNA name C00
PYTHON SYSTEM name front_end
param_number 6
##### Element in Command Queue front_end
INSERTING in Command Queue front_end
PYTHON ANTENNA name C02
PYTHON SYSTEM name front_end
param_number 6
##### Element in Command Queue front_end
INSERTING in Command Queue front_end
PYTHON ANTENNA name C01
PYTHON SYSTEM name front_end
param_number 6
##### Element in Command Queue front_end
INSERTING in Command Queue front_end
we wrote on the socket 1 11-Oct-2014 17:17:17 front_end set
band_sel 325 325
slr_attn 0 0
channel UNSWAP UNSWAP
sub_band_sel 1060 1170
rf ON ON
cal_ns LOW LOW
Size of Struct is ##### 1638
we wrote on the socket 1 11-Oct-2014 17:17:17 front_end set
band_sel 325 325
slr_attn 0 0
channel UNSWAP UNSWAP
sub_band_sel 1060 1170
rf ON ON
cal_ns LOW LOW
Size of Struct is ##### 1638
Size of Response Struct => 4698
MCM => 1
1
11-Oct-2014 17:17:17
front_end
No summery !!
826 822 828 826 825 827 826 824 832 822 824 827 829 832 822 826 832 826 824 820 832 828 826 8
30 824 824 829 826 829 827 823 826 826 822 826 824 826 822 828 830 823 825 828 823 827 821 828 826 825 824 825 823 825 827 822 824 824 832
826 822 820 827 827 822 System validated : Front End
Command validated : Front End Controlling
```

## Python Environment user 3 : Procedure from User3

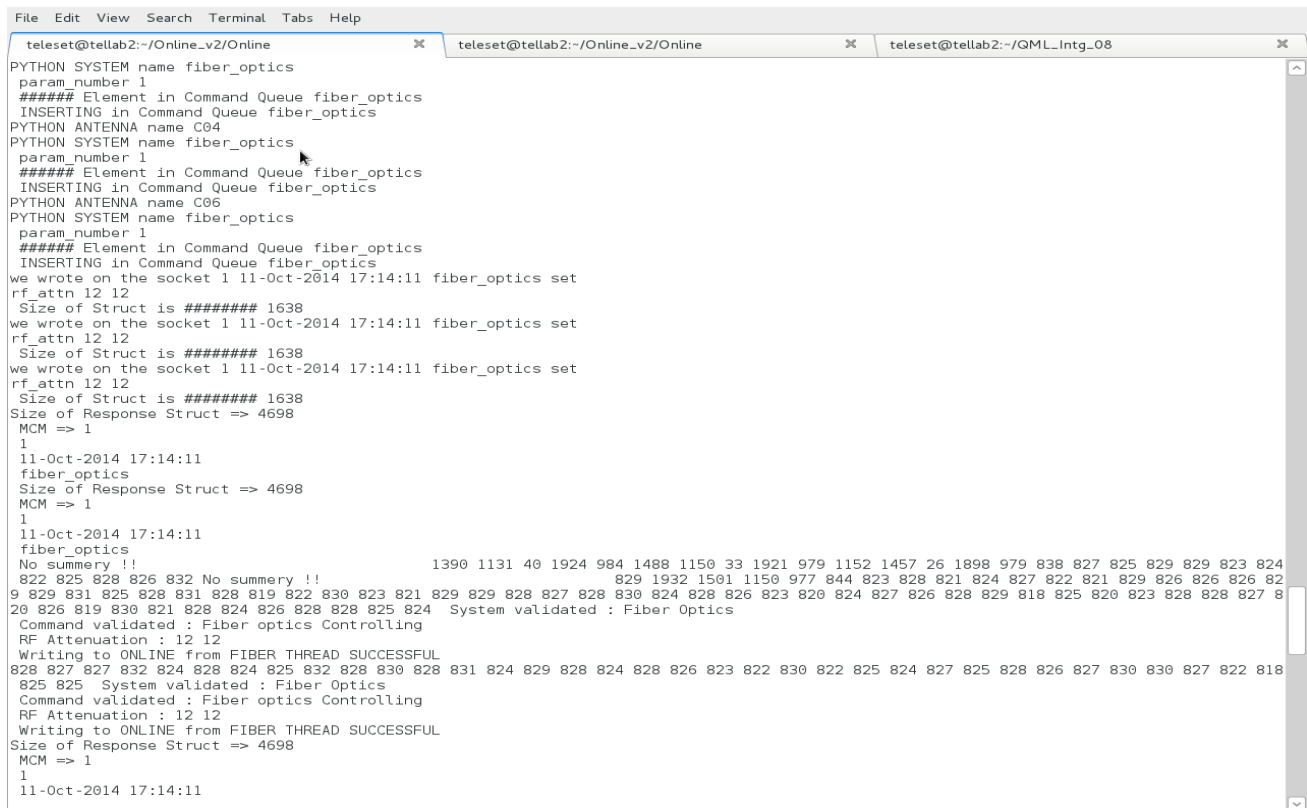


```
cms@incms: ~/pyenv (on incms)
File Edit View Search Terminal Tabs Help

cms@incms: ~/pyenv x cms@incms: ~/pyenv x cms@incms: ~/pyenv x

user2@GMRT [10]: set_of
-----> set_of()
{}
12
C01C04C06
rf_attn
user2@GMRT [11]:
Do you really want to exit ([y]/n)?
cms@incms: ~/pyenv$ user2
GMRT ONLINE COMMAND LINE USER INTERFACE
user2@GMRT [1]: connect
-----> connect()
Connecting as user: 2
user2@GMRT [2]: ante = ['C01', 'C04', 'C06']
user2@GMRT [3]: defsub( 2, ante)
user2@GMRT [4]: set_of(rf_attn=(12,12))
rf_attn = (12, 12)
{'rf_attn': (12, 12)}
12
C01C04C06
rf_attn
(12, 12)
(12, 12)
user2@GMRT [5]:
```

## Online\_V2 output Screen :



```
File Edit View Search Terminal Tabs Help

teleset@telab2:~/Online_v2/Online x teleset@telab2:~/Online_v2/Online x teleset@telab2:~/GML_Intg_08 x

PYTHON SYSTEM name fiber_optics
param_number 1
##### Element in Command Queue fiber_optics
INSERTING in Command Queue fiber_optics
PYTHON ANTENNA name C04
PYTHON SYSTEM name fiber_optics
param_number 1
##### Element in Command Queue fiber_optics
INSERTING in Command Queue fiber_optics
PYTHON ANTENNA name C06
PYTHON SYSTEM name fiber_optics
param_number 1
##### Element in Command Queue fiber_optics
INSERTING in Command Queue fiber_optics
we wrote on the socket 1 11-Oct-2014 17:14:11 fiber_optics set
rf_attn 12 12
Size of Struct is ##### 1638
we wrote on the socket 1 11-Oct-2014 17:14:11 fiber_optics set
rf_attn 12 12
Size of Struct is ##### 1638
we wrote on the socket 1 11-Oct-2014 17:14:11 fiber_optics set
rf_attn 12 12
Size of Struct is ##### 1638
Size of Response Struct => 4698
MCM => 1
1
11-Oct-2014 17:14:11
fiber_optics
Size of Response Struct => 4698
MCM => 1
1
11-Oct-2014 17:14:11
fiber_optics
No summary !!
1390 1131 40 1924 984 1488 1150 33 1921 979 1152 1457 26 1898 979 838 827 825 829 829 823 824
822 825 828 826 832 No summary !!
829 1932 1501 1150 977 844 823 828 821 824 827 822 821 829 826 826 826 82
9 829 831 825 828 831 828 819 822 830 823 821 829 829 828 827 828 830 824 828 826 823 820 824 827 826 828 829 818 825 820 823 828 828 827 8
20 826 819 830 821 828 824 826 828 828 825 824 System validated : Fiber Optics
Command validated : Fiber optics Controlling
RF Attenuation : 12 12
Writing to ONLINE from FIBER THREAD SUCCESSFUL
828 827 827 832 824 828 824 825 832 828 830 828 831 824 829 828 824 828 826 823 822 830 822 825 824 827 825 828 826 827 830 830 827 822 818
825 825 System validated : Fiber Optics
Command validated : Fiber optics Controlling
RF Attenuation : 12 12
Writing to ONLINE from FIBER THREAD SUCCESSFUL
Size of Response Struct => 4698
MCM => 1
1
11-Oct-2014 17:14:11
```

## TOP Output :

With around 15 antenna sub-system connected to Online\_v2, TOP output shows that Online\_V2 program uses only 0.3% of CPU and 0.9% of Memory.

```
teleset@tellab2:~/Online_v2/Online
File Edit View Search Terminal Help
[teleset@tellab2 Online]$ top

top - 17:29:25 up 6 days, 23:58, 7 users, load average: 0.54, 0.41, 0.41
Tasks: 162 total, 3 running, 159 sleeping, 0 stopped, 0 zombie
Cpu(s): 17.5%us, 1.5%sy, 0.0%ni, 79.6%id, 0.3%wa, 0.7%hi, 0.3%si, 0.0%st
Mem: 2055344k total, 1716420k used, 338924k free, 255580k buffers
Swap: 4128764k total, 59016k used, 4069748k free, 814952k cached
```

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
19775	teleset	20	0	323m	196m	21m	R	33.9	9.8	445:40.32	chrome
930	root	20	0	3216	812	760	R	2.0	0.0	205:57.53	lldpad
1504	teleset	20	0	492m	59m	20m	S	0.3	3.0	47:25.63	gnome-shell
1662	teleset	20	0	142m	18m	9.9m	S	0.3	0.9	47:46.99	gnome-terminal
15557	teleset	20	0	99.7m	32m	23m	S	0.3	1.6	17:00.11	client
16991	teleset	20	0	197m	52m	20m	S	0.3	2.6	23:01.94	chrome
21507	teleset	20	0	31956	17m	1284	S	0.3	0.9	0:01.88	online_v2
21594	teleset	20	0	2908	1096	836	R	0.3	0.1	0:00.42	top
1	root	20	0	5480	2368	1748	S	0.0	0.1	0:01.53	systemd
2	root	20	0	0	0	0	S	0.0	0.0	0:00.00	kthreadd
3	root	20	0	0	0	0	S	0.0	0.0	0:01.22	ksoftirqd/0
5	root	0	-20	0	0	0	S	0.0	0.0	0:00.00	kworker/0:0H
7	root	0	-20	0	0	0	S	0.0	0.0	0:00.00	kworker/u:0H
8	root	RT	0	0	0	0	S	0.0	0.0	0:01.17	migration/0
9	root	RT	0	0	0	0	S	0.0	0.0	0:00.64	watchdog/0

=> We also tested the stability and robustness of Online\_v2 and Python environment by giving commands from user2 and user3 at a interval of 0.1 and 0.5 seconds. Both programs were able to executed commands without any problem.

## Successfully tested GAB and Front end system in Lab :

Date of Testing : 5<sup>th</sup> September 2014 to 23<sup>rd</sup> September 2014

During September month, we have successfully tested GAB & FE sub-systems in respective Labs. The command for FE & GAB setting was sent from :

1. GUI environment – ONLINE\_V2 – Rabbit MCM – FE / GAB hardware.
2. Terminal environment – ONLINE\_V2 – Rabbit MCM – FE / GAB hardware.
- Front End system testing : The first level control of Front end system has been tested by interfacing Rabbit MCM with front end system hardware in FE lab. The control setting values were set by sending command to Rabbit MCM card. All changes were reflected on spectrum analyzer.

### Commands tested for Front end system :

1. Frequency band	50-1420 MHZ	50-1420 MHZ
2. Solar attenuation	0 db- terminate	0 db-terminate
3. Channel	swap/unswap	swap/unswap
4. Sub band selection	subband1-subband4	subband1-subband4
5. RF	On/Off	On/Off
6. calibrator noise	Low/High/Med/ExHigh	Low/High/Med/ExHigh

- GAB System Testing : The first level control GAB system has been tested by interfacing Rabbit MCM with GAB system hardware in ABR lab. The control setting values were set by sending command to Rabbit MCM card. All changes were reflected on spectrum analyzer. The FE and GAB system group was involved in setting up GAB & FE system and successful completion of testing.

### Commands tested for GAB system :

1. Reference LO	10-105 MHZ	10-105 MHZ
2. LO	600-17000 KHZ	600-17000 KHZ
3. Attenuation	10 db	10 db
4. Filter	8	8
5. LPF	0	0
6. Source	Siggen	Synthesizer
7. Signal	Antenna	Noise
8. Path	Direct	Mixer
9. Channel	1	2

## Online\_V2 interfacing with GWB correlator via GPU DAS server :

Test done on 23/04/2014 Time : 10 AM to 11 AM

Online\_V2 & GPU Dasserver executed on oper2 (IP 192.168.1.14 machine ).

\*\*\*\*\* Online\_V2 Terminal display \*\*\*\*\*

```
[observer@oper2 Online]$ ./online_v2
```

```
msgget: Calling msgget(0xc9,01600)
```

```
msgget: msgget succeeded: msqid = 0
```

```
Successfully Created MESSAGE QUEUE ID=0
```

```
##### SERVER WANTING FOR CLIENT CONNECTION #####
```

```
==> SERVO SERVER WANTING FOR CLIENT CONNECTION ==>### SERVER WANTING  
FOR GUI CLIENT TO CONNECT #####
```

```
$$$ SERVER WANTING FOR PYTHON ENVIRONMENT CLIENT TO CONNECT $$$
```

```
>> dasinit
```

```
CMD[0] => dasinit
```

```
DAS INIT
```

```
Message Sent=>0 0 das init 1 7FFFFFFE F /home/observer/Online_v2/gpu.hdr
```

```
waiting for ack id 2
```

```
ACK Got from DASSERVER : ack
```

```
SUCCEEDED
```

## Online\_v2–Servo test with actual hardware in SSL lab :

Date : 22/12/2014 Time : 11.40 AM to 12.30 PM

Test done by : Mr. Thiyagu & Mr. Raju

PC104 Card with servo program kept in SSL lab with actual hardware connected.

PC104 card IP : 192.168.8.42

Online\_v2 server IP : 192.168.8.45

```
##### SERVER WANTING FOR CLIENT CONNECTION #####
```

```
ACCEPTED CONNECTION COO Servo System 192.168.8.42
```



SERVO thread opened succesfully=> 0

**C00 servo hold    // commands issued from Online\_v2 terminal**

CMD[0] => C00

CMD[1] => servo

CMD[2] => hold

Command for C00 ANTENNA

ANTENNA C00 C00

System servo

OP NAME hold

\*\*\*\*\* hold

##### Element in Command Queue servo

we wrote on the socket 12 servo hold

ax B

Size of Struct is ##### 1126

INSERTING in Command Queue servo

>> we wrote on the socket 12 22-Dec-2014 12:03:03 servo hold

ax B

Size of Struct is ##### 1126

Size of Response Struct is ##### 2192

SEQ number is 12

Timestamp is 22-Dec-2014 12:03:03

System name is servo

Response code is 1

Response type is 1

Command Received

Command Received

Writing IMMEDIATE to ONLINE from SERVO THREAD SUCCESSFUL

Size of Response Struct is ##### 2192

SEQ number is 12

Timestamp is 22-Dec-2014 12:03:03

System name is servo

Response code is 2

Response type is 1

Servo Final Resp: Command SUCCESS

Servo Final Resp: Command SUCCESS

Writing FINAL RESPONSE to ONLINE from SERVO THREAD SUCCESSFUL

## Servo-Online\_V2 successful interface testing at C01 antenna

Date : 29/12/2014

Time : 14.00 PM to 15.00 PM

Persons : Mr. Thiyagu & Mr.Raju

```
[raju@localhost Online]$ ./online_v2
```

```
HIGHUSER thread CREATED=> 0
```

```
SERVO thread CREATED=> 0
```

```
GUI INTERFACE thread CREATED=> 0
```

```
PYTHON INTERFACE thread CREATED=> 0
```

```
#### SERVER WANTING FOR GUI CLIENT TO CONNECT ####
```

```
==> SERVO SERVER WANTING FOR CLIENT CONNECTION ==>$$$ SERVER WANTING  
FOR PYTHON ENVIRONMENT CLIENT TO CONNECT $$$$
```

```
MCM SYSTEM thread CREATED=> 0
```

```
msgget: Calling msgget(0xc9,01600)
```

```
msgget: msgget succeeded: msqid = 0
```

```
Successfully Created MESSAGE QUEUE ID=0
```

```
##### SERVER WANTING FOR CLIENT CONNECTION #####
```

```
>> ACCEPTED CONNECTION C01 Servo System 192.168.4.3
```

```
SERVO thread opened succesfully=>
```

```
C01 servo track // commands issued from Online_v2 terminal
```

```
CMD[0] => C01
```

```
CMD[1] => servo
```

```
CMD[2] => track
```

```
Command for C01 ANTENNA
```

```
ANTENNA C01 C01
```

```
System servo
```

```
OP NAME track
```

```
***** track
```

```
##### Element in Command Queue servo
```

```
>> we wrote on the socket 11 29-Dec-2014 14:35:20 servo track
```

```
ax B
```

```
time 16:00:00
```

```
ang1 115:00:00
```

```
ang2 90:00:00
```

```
Size of Struct is ##### 1126
```

```
Size of Response Struct is ##### 2192
```

```
SEQ number is 11
```

Timestamp is 29-Dec-2014 14:35:20

System name is servo

Response code is 1

Response type is 1

Command Received

Command Received

Writing IMMEDIATE to ONLINE from SERVO THREAD SUCCESSFUL

Size of Response Struct is ##### 2192

SEQ number is 11

Timestamp is 29-Dec-2014 14:35:20

System name is servo

Response code is 2

Response type is 1

Servo Final Resp: Command SUCCESS

Servo Final Resp: Command SUCCESS

Writing FINAL RESPONSE to ONLINE from SERVO THREAD SUCCESSFUL

## Online\_v2- FPS system testing over rabbit serial link in C06 antenna

Date : 20/03/2015 Time : 11.45 Am to 13.10 PM

Test Done by: Charu Kanade, Abhay Bhumkar, Mahadev Misal & Raju Upgrade

Rabbit card with Device IP 192.168.21.107 connected to FPS system over serial link

Online\_v2 machine IP : 192.168.8.45

```
[teleset@tellab2 Online]$ ./online_v2
```

```
HIGHUSER thread CREATED=> 0
```

```
SERVO thread CREATED=> 0
```

```
GUI INTERFACE thread CREATED=> 0
```

```
PYTHON INTERFACE thread CREATED=> 0
```

```
MCM SYSTEM thread CREATED=> 0
```

```
msgget: Calling msgget(0xc9,01600)
```

```
msgget: msgget succeeded: msqid = 0
```

```
Successfully Created MESSAGE QUEUE ID=0
```

```
$$$ SERVER WANTING FOR PYTHON ENVIRONMENT CLIENT TO CONNECT $$$
```

**>> ACCEPTED CONNECTION FROM FPS MCM DEVICE 192.168.21.107**

```
FPS thread opened succesfully=> 0
```

```
##### SERVER WANTING FOR CLIENT CONNECTION #####
```

**C06 fps reboot**

**// Command from Online\_V2 terminal**

```
CMD[0] => C06
```

```
CMD[1] => fps
```

```
CMD[2] => reboot
```

```
Command for C06 ANTENNA
```

```
ANTENNA C06 C06
```

```
System fps
```

```
OP NAME reboot
```

```
we wrote on the socket 35 fps reboot
```

```
Size of Struct is ##### 1638
```

```
##### Element in Command Queue fps
```

```
INSERTING in Command Queue fps
```

>> we wrote on the socket 35 20-Mar-2015 12:16:35 fps reboot

```
Size of Struct is ##### 1638
```

[illegible]

## Online\_v2- 16 antennae (OF+Sentinel system) testing during April 2015 MTAC

Description : Two sub-system ( OF + Sentinel were configured in one MCM card)

Date : Full MTAC ( 2/4/2015 to 22/4/2015)

Test Done by: Online\_v2 team + OF team.

##### ANTENNA DEVICE COMMUNICATION is BROKEN

ACCEPTED CONNECTION FROM MCM DEVICE 192.168.21.115

E02 thread opened succesfully=> 0

##### SERVER WANTING FOR CLIENT CONNECTION #####

E02 sentinel set

CMD[0] => E02

CMD[1] => sentinel

CMD[2] => set

E02 Antenna

##### Element in Command Queue sentinel

INSERTING in Command Queue sentinel

>> we wrote on the socket 11 3-Apr-2015 11:17:46 sentinel set

dmask ffff 5555

Size of Struct is ##### 1638

Size of Response Struct => 4698

MCM => 1

11

3-Apr-2015 11:17:46

sentinel

##### Number of RESPONSE MSG is 3

No summery !! 810 864 856 854 794 812 843 842 832 841 837 829 852 832 840

836 842 832 829 820 819 832 813 835 816 820 818 831 834 836 830 837 844 836 839 832 838 832

829 819 820 818 805 823 823 830 822 832 274 387 381 257 428 769 804 609 289 382 609 675 498

336 781 998 System validated : Sentinel

Command validated : Sentinal Controlling

Digital Mask : ffff 5555

Writing to ONLINE from SENTINEL THREAD SUCCESSFUL

E02 fiber\_optics mon

CMD[0] => E02

CMD[1] => fiber\_optics

CMD[2] => mon

E02 Antenna

##### Element in Command Queue fiber\_optics

INSERTING in Command Queue fiber\_optics

>> we wrote on the socket 10 3-Apr-2015 11:18:00 fiber\_optics mon

Size of Struct is ##### 1638

Size of Response Struct => 4698

MCM => 1

10

3-Apr-2015 11:18:00

fiber\_optics

##### Number of RESPONSE MSG is 8

No summery !! 823 862 829 839 827 810 833 807 818 807 808 838 811 819 828

828 816 821 830 829 830 820 841 835 835 831 824 830 820 823 829 820 825 837 822 816 823 844

828 837 833 832 834 834 839 820 816 818 322 300 425 595 857 841 358 459 538 352 448 821 518

821 728 864 System validated : Fiber Optics

Command validated : Fiber optics Monitoring

Fiber Optics Monitoring Done

Voltage(+12V) : 0.55

Voltage(-5.0V) : 1.00

Voltage(-3.1V) : 0.73

Voltage(-1.1V) : 0.77

Voltage(GND) : 0.61

Writing to ONLINE from SENTINEL THREAD SUCCESSFUL

The screenshot shows a terminal window with the following content:

```
Activities | Terminal | Mon 14:35 | teleaset
teleaset@tellab2:~/Online_v2/Online
File Edit View Search Terminal Tabs Help
teleaset@tellab2:~/Online_v2/Online
Writing to ONLINE from SENTINEL THREAD SUCCESSFUL
Size of Response Struct => 4698
MCM => 1
2
6-Apr-2015 14:31:49
fiber_optics
##### Number of RESPONSE MSG is 3
No summery !! 980 1925 2
827 831 832 825 828 825 829 828 829 828 831 827 823 828
824 982 842 827 828 229 System validated : Fiber Optics
Command validated : Fiber optics Controlling
RF Attenuation : 25 25
Writing to ONLINE from SENTINEL THREAD SUCCESSFUL
Size of Response Struct => 4698
MCM => 1
2
6-Apr-2015 14:31:49
fiber_optics
##### Number of RESPONSE MSG is 3
No summery !! 972 1918 1
825 823 822 824 824 823 820 824 822 825 827 824 825 826
821 974 838 821 826 163 System validated : Fiber Optics
Command validated : Fiber optics Controlling
RF Attenuation : 25 25
Writing to ONLINE from SENTINEL THREAD SUCCESSFUL
Size of Response Struct => 4698
MCM => 1
2
6-Apr-2015 14:31:49
fiber_optics
##### Number of RESPONSE MSG is 3
No summery !! 971 1916 22 1511 1164 864 828 825 826 827 829 831 830 824 828 828 828 825 829 830 826 824 825
826 828 828 830 823 826 828 825 822 826 828 828 832 826 826 826 829 826 825 828 828 825 831 827 829 821 760 828 830 830 829 822 829 831 832 829
825 986 844 828 827 130 System validated : Fiber Optics
Command validated : Fiber optics Controlling
RF Attenuation : 25 25
Writing to ONLINE from SENTINEL THREAD SUCCESSFUL
Size of Response Struct => 4698
MCM => 1
2
6-Apr-2015 14:31:49
fiber_optics
##### Number of RESPONSE MSG is 3
No summery !! 978 1909 18 1153 1492 896 826 824 830 822 826 826 827 828 828 824 823 819 821 825 828 830 829
824 832 825 829 829 824 823 824 830 823 828 825 831 830 824 828 823 828 828 822 825 829 823 825 824 757 828 825 826 823 829 824 825 830 829
828 977 840 829 825 182 System validated : Fiber Optics
Command validated : Fiber optics Controlling
RF Attenuation : 25 25
Writing to ONLINE from SENTINEL THREAD SUCCESSFUL
```

## Summary :

1. Online\_v2 core software has been successfully tested with multiple sub-system, it has the potential to grow as a replacement for current online system.
2. Online\_v2 has been interfaced with Python environment, QML/QT GUI and readline based terminal, which makes Online\_v2 suitable for automated operation of GMRT telescope.
3. Online\_v2 has been thoroughly tested in Telemetry Lab for past two years and it runs without any problem.
4. Online\_v2 has been installed in GMRT correlator Lab where *Mr. Harshwardhan Reddy* is using it for his GWB correlator Lab testing.
5. Online\_v2 has been successfully tested with Servo system PC104 over Ethernet communication at Servo Lab as well as C01 antenna.
6. Online\_v2 has been successfully tested with FPS system over Rabbit MCM card serial link in FPS lab as well as in C06 antenna.
7. Online\_v2 has been successfully tested with 16 antennae ( OF + Sentinel system) during April 2015 MTAC.
8. Online\_v2 has been developed In house, so it will be very easy to change, maintain & upgrade the Online\_v2 software.
9. During April MTAC 2015, MCM monitoring data from all 16 MCM/antennas were logged in the database from shared memory.



## References :

1. <http://vichargrave.com>
2. Online\_V2 - An Upgraded Control-Monitor Software for GMRT MwSky Poster.
3. TELESET-ABCCOM software Technical report by Laurent Pommier .

## Appendix :

### Structure used for Online\_v2 –DAS server interfacing :

Msgtag structure is declared in display.h in present Online code which is used by Online to pass DAS command DAS server :

# display.h

```
typedef struct
{
    long type;
    char buff[256];
} msgtag;
```

#### DAS Server side :

Message queue structure

```
typedef struct
{
    long msglevel;
    protocolType prot;
    char buf[MsgSz];
} MsgBufType;
typedef unsigned char UNC;
typedef unsigned short UNS;
typedef short SHRT;
typedef unsigned long UNL;
typedef unsigned int UNL;
```

```
typedef struct ProtTag
{
    UNC origin;          /* MSG Originating station */
    UNC dest;            /* Destination station */
    UNC type;            /* The type of req, eg. Sh_com,RPC,FileIO,DAS,etc.*/
    UNC cmd;             /* Actual service name or shell command. */
    UNC arg[4];          /*Used as a parameter of any type that can be coded in 4 bytes. */
    UNC id;              /* Request no, from the origin, wraps at 2^8 */
    UNC flag;            /* Flags of queries or replies */
    UNS usrflag;         /* Any short val or set of flags for user */
}
```

```

    UNL len;    /* Length of the packet that follows */
} ProtocolType;

```

**online.h structure used in writing DAS project file & scan file :**

```

typedef struct {
    float i;
    float q;
    float u;
    float v;
} POL_FLUX;

```

```

typedef struct {
    char object[32];
    POL_FLUX flux;
    double mjd0;
    double ra_app, dec_app, ra_date, dec_date, dra, ddec; /* rad, rad/s */
    double freq[2];
    double first_lo[2];
    double bb_lo[2];
    double rest_freq[2];
    double lsrvel[2]; /* Hz, km/s */
    double ch_width; /* Hz */
    int id;
    int net_sign[4];
    int mode;
    int dum1;
    unsigned int antmask;
    unsigned short bandmask, dum2;
    short calcode, qual;
} SourceParType;           // sizeof(SourceParType) to be written in scan.hdr.

```

```

typedef struct {
    char code[8];
    char observer[32];
    char title[32];
    unsigned int antmask;
    unsigned short bandmask, seq;
} ProjectType;           // sizeof(ProjectType) to be written in Proj.hdr.

```

```
typedef struct {
    int status;
    float t; /* program dependent meaning ! */
    ProjectType proj;
    SourceParType source;
} ScanInfoType;
```

```
typedef struct {
    char datafile[80];
    int das_sub_state;
    int cmd_no;
    ScanInfoType cntl;
} DAS_SUB_CNTL;
```

```
typedef struct {
    char config_file[80];
    int msg_id;
    int das_state;
    int das_sub_state[MAX_DAS_SUB];
    DAS_SUB_CNTL sub_cntl[MAX_DAS_SUB];
} DAS_CNTL;
```

### Command – Response between Online\_v2 & DAS server :

```
>> dasinit
```

```
CMD[0] => dasinit
```

```
DAS INIT
```

```
Message Sent=>0 0 das init 1 7FFFFFFE F /home/observer/Online_v2/gpu.hdr
```

```
waiting for ack id 2
```

```
ACK Got from DASSERVER : ack
```

```
SUCCEEDED
```

```
>> addp
```

```
CMD[0] => addp
```

```
ADD Project
```

```
Message Sent=>4 1 das addp 1 /home/observer/Online_v2/proj.hdr
```

waiting for ack id 2  
ACK Got from DASSERVER : ack  
waiting for success is 2  
waiting for success is 2  
waiting for success is 2  
SUCCEDED

>> startscan

CMD[0] => startscan  
DAS START SCAN  
Message Sent=>4 2 das start /home/observer/Online\_v2/scan.hdr  
waiting for ack id 2  
ACK Got from DASSERVER : ack  
waiting for success is 2  
waiting for success is 2  
waiting for success is 2  
waiting for success is 2  
waiting for success is 2  
waiting for success is 2  
SUCCEDED

>> stopscan

CMD[0] => stopscan  
DAS STOP SCAN  
Message Sent=>4 3 das stop  
waiting for ack id 2  
ACK Got from DASSERVER : ack  
waiting for success is 2  
waiting for success is 2  
waiting for success is 2  
waiting for success is 2  
waiting for success is 2  
SUCCEDED

>> startscan

CMD[0] => startscan  
DAS START SCAN  
Message Sent=>4 2 das start /home/observer/Online\_v2/scan.hdr  
waiting for ack id 2  
ACK Got from DASSERVER : ack  
waiting for success is 2  
waiting for success is 2

waiting for success is 2  
waiting for success is 2  
waiting for success is 2  
waiting for success is 2  
waiting for success is 2  
SUCCEDED  
>> stopscan

CMD[0] => stopscan  
DAS STOP SCAN  
Message Sent=>4 3 das stop  
waiting for ack id 2  
ACK Got from DASSERVER : ack  
waiting for success is 2  
waiting for success is 2  
waiting for success is 2  
waiting for success is 2  
SUCCEDED

>> startscan

CMD[0] => startscan  
DAS START SCAN  
Message Sent=>4 2 das start /home/observer/Online\_v2/scan.hdr  
waiting for ack id 2  
ACK Got from DASSERVER : ack  
waiting for success is 2  
waiting for success is 2  
waiting for success is 2  
waiting for success is 2  
waiting for success is 2  
SUCCEDED

>> stopscan

CMD[0] => stopscan  
DAS STOP SCAN  
Message Sent=>4 3 das stop  
waiting for ack id 2  
ACK Got from DASSERVER : ack  
waiting for success is 2  
waiting for success is 2  
waiting for success is 2  
waiting for success is 2  
waiting for success is 2

waiting for success is 2  
waiting for success is 2  
SUCCEEDED

>> startscan  
CMD[0] => startscan  
DAS START SCAN  
Message Sent=>4 2 das start /home/observer/Online\_v2/scan.hdr  
waiting for ack id 2  
ACK Got from DASSERVER : ack  
waiting for success is 2  
waiting for success is 2  
waiting for success is 2  
waiting for success is 2  
waiting for success is 2  
SUCCEEDED

\*\*\*\*\*GPU DASSERVER TERMINAL DISPLAY\*\*\*\*\*

[observer@oper2 dassrv-gpu]\$ ./dassrv  
>> Reading configuration from /home/observer/corrsl.hdr  
##### INFO CorrBandMask 0[3] 1[3] 2[3] 3[3]  
DPCMODE=UsbPolar Corr0Mask=3 Corr1Mask=3 Corr2Mask=3  
All the stale messages cleared  
Cmd Recvd: 0 0 das init 1 7FFFFFFE F /home/observer/Online\_v2/gpu.hdr  
During Assignment PTAB->Corr\_id is 0  
##### 1 7ffffffe f /home/observer/Online\_v2/gpu.hdr  
MAP MASK O\_ANTMASK =>7ffffffe  
MAP MASK D\_ANTMASK =>3ffffff  
got 1328 bytes from /home/observer/Online\_v2/gpu.hdr  
got 1328 bytes from /home/observer/Online\_v2/gpu.hdr  
got 1328 bytes from /home/observer/Online\_v2/gpu.hdr  
got 1328 bytes from /home/observer/Online\_v2/gpu.hdr  
To CorrA: AcqNode, CmdDest=0, CmdId=0, CmdType=DAS, Cmd=init, param=1 7FFFFFFE  
F /home/observer/Online\_v2/gpu.hdr  
CorrId=1  
CorrId=1  
open 1 Corr CorrA Port 6001  
Waiting for CorrA to acknowledge..... OK! Got 16  
13 F=16 S=8  
'SUCCEEDED' sent to ONLINE  
Cmd Recvd: 4 1 das addp 1 /home/observer/Online\_v2/proj.hdr  
During Assignment PTAB->Corr\_id is 0

got 80 bytes from /home/observer/Online\_v2/proj.hdr  
MAP MASK O\_ANTMASK =>7ffffffe  
MAP MASK D\_ANTMASK =>3fffffff  
CorrA :AddProjReq for TEST 3fffffff 3 3  
IN ADDPROJECT PTAB->Corr\_id is 0  
To CorrA: AcqNode, CmdDest=1, CmdId=0, CmdType=DAS, Cmd=addp, param=1  
/home/observer/Online\_v2/proj.hdr  
CorrId=1  
13 F=16 S=8  
'SUCCEEDED' sent to ONLINE  
IN Main ADDPROJECT PTAB->Corr\_id is 1  
Cmd Recvd: 4 2 das start /home/observer/Online\_v2/scan.hdr  
During Assignment PTAB->Corr\_id is 1  
got 232 bytes from /home/observer/Online\_v2/scan.hdr  
MAP MASK O\_ANTMASK =>7ffffffe  
MAP MASK D\_ANTMASK =>3fffffff  
====> Source Antmask is 7ffffffe ====>d\_antmask is 3fffffff  
====> Source Antmask is 3fffffff ====>d\_antmask is 3fffffff  
CorrA : StartReq for Code TEST AntMask 3fffffff BandMask 3  
To CorrA: AcqNode, CmdDest=2, CmdId=0, CmdType=DAS, Cmd=start,  
param=/home/observer/Online\_v2/scan.hdr  
CorrId=1  
13 F=16 S=8  
'SUCCEEDED' sent to ONLINE  
Cmd Recvd: 4 3 das stop  
During Assignment PTAB->Corr\_id is 1  
CorrA : StopReq for Project TEST  
To CorrA: AcqNode, CmdDest=3, CmdId=0, CmdType=DAS, Cmd=stop, param=  
CorrId=1  
13 F=16 S=8  
'SUCCEEDED' sent to ONLINE

Cmd Recvd: 0 4 das delp 1  
During Assignment PTAB->Corr\_id is 0  
SubArray 0: No Project or Bad CorrId  
Error Number -1  
'FAILED' sent to ONLINE  
Cmd Recvd: 0 5 das fini 1  
During Assignment PTAB->Corr\_id is 0  
To CorrA: AcqNode, CmdDest=5, CmdId=0, CmdType=DAS, Cmd=fini, param=1  
CorrId=1  
13 F=16 S=8



'SUCCEEDED' sent to ONLINE

**Command – Response between Online\_v2 & PC04 servo system at Jogshed Lab :**

**COO servo track // commands issued from Online\_v2 terminal**

```
CMD[0] => C00
CMD[1] => servo
CMD[2] => track
Command for C00 ANTENNA
ANTENNA C00 C00
System servo
OP NAME track
***** track
##### Element in Command Queue servo
we wrote on the socket 11 servo track
ax B
time 15:30:00
ang1 180:00:00
ang2 19:00:00
Size of Struct is ##### 1126
INSERTING in Command Queue servo

>> we wrote on the socket 11 22-Dec-2014 12:03:12 servo track
ax B
time 15:30:00
ang1 180:00:00
ang2 19:00:00
Size of Struct is ##### 1126
Size of Response Struct is ##### 2192
SEQ number is 11
Timestamp is 22-Dec-2014 12:03:12
System name is servo
Response code is 1
Response type is 1
Command Received
Command Received
Writing IMMEDIATE to ONLINE from SERVO THREAD SUCCESSFUL
Size of Response Struct is ##### 2192
SEQ number is 11
Timestamp is 22-Dec-2014 12:03:12
System name is servo
```

Response code is 2  
Response type is 2  
Servo Final Resp: Command IRREVELENT *// As elevation axis was not there*  
Servo Final Resp: Command IRREVELENT  
Writing FINAL RESPONSE to ONLINE from SERVO THREAD SUCCESSFUL

### **COO servo readanavar // commands issued from Online\_v2 terminal**

CMD[0] => C00  
CMD[1] => servo  
CMD[2] => readanavar  
Command for C00 ANTENNA  
ANTENNA C00 C00  
System servo  
OP NAME readanavar  
readanavar  
##### Element in Command Queue servo  
we wrote on the socket 21 servo readanavar  
Size of Struct is ##### 1126  
INSERTING in Command Queue servo  
  
>> we wrote on the socket 21 22-Dec-2014 12:03:41 servo readanavar  
Size of Struct is ##### 1126  
Size of Response Struct is ##### 2192  
SEQ number is 21  
Timestamp is 22-Dec-2014 12:03:41  
System name is servo  
Response code is 1  
Response type is 1  
Command Received  
Command Received  
Writing IMMEDIATE to ONLINE from SERVO THREAD SUCCESSFUL  
Size of Response Struct is ##### 2192  
SEQ number is 21  
Timestamp is 22-Dec-2014 12:03:41  
System name is servo  
Response code is 4  
Response type is 1  
Servo Analog Data  
time  
14:59:00  
az\_motor1\_current

+0001.2695  
az\_motor2\_current  
+0001.2695  
az\_tacho1  
+0001.1484  
az\_tacho2  
+0001.1484  
el\_motor1\_current  
+0001.2695  
el\_motor2\_current  
+0001.2695  
el\_tacho1  
+0001.1484  
el\_tacho2  
+0001.1484  
Writing FINAL RESPONSE to ONLINE from SERVO THREAD SUCCESSFUL

**C00 servo readdigvar    // commands issued from Online\_v2 terminal**

CMD[0] => C00  
CMD[1] => servo  
CMD[2] => readdigvar  
Command for C00 ANTENNA  
ANTENNA C00 C00  
System servo  
OP NAME readdigvar  
readdigvar  
##### Element in Command Queue servo  
we wrote on the socket 22 servo readdigvar  
Size of Struct is ##### 1126  
INSERTING in Command Queue servo

>> we wrote on the socket 22 22-Dec-2014 12:04:46 servo readdigvar  
Size of Struct is ##### 1126  
Size of Response Struct is ##### 2192  
SEQ number is 22  
Timestamp is 22-Dec-2014 12:04:46  
System name is servo  
Response code is 1  
Response type is 1  
Command Received  
Command Received

Writing IMMEDIATE to ONLINE from SERVO THREAD SUCCESSFUL

Size of Response Struct is ##### 2192

SEQ number is 22

Timestamp is 22-Dec-2014 12:04:46

System name is servo

Response code is 4

Response type is 1

Servo Digital Status

time

15:00:05

az\_run

1

az\_aol

0

az\_brk

0

az\_ccp

0

az\_ccf

0

az\_cpl

0

az\_cfl

0

az\_cwr

1

az\_enc

0

az\_ac

1

el\_run

1

el\_aol

0

el\_brk

0

el\_dnp

1

el\_dnf

1

el\_upp

0

el\_upf

0

el\_std

0

el\_str

1

el\_stp

0

el\_enc

0

el\_ac

1

mode

REMOTE

w50

0

w80

0

pos

trk

TRACKING

slw

ssc

1

dc

0

Writing FINAL RESPONSE to ONLINE from SERVO THREAD SUCCESSFUL

**C00 servo abort // commands issued from Online\_v2 terminal**

CMD[0] => C00

CMD[1] => servo

CMD[2] => abort

Command for C00 ANTENNA

ANTENNA C00 C00

System servo

OP NAME abort

abort

##### Element in Command Queue servo

we wrote on the socket 18 servo abort

Size of Struct is ##### 1126

INSERTING in Command Queue servo

>> we wrote on the socket 18 22-Dec-2014 12:05:40 servo abort

Size of Struct is ##### 1126

Size of Response Struct is ##### 2192

SEQ number is 18

Timestamp is 22-Dec-2014 12:05:40

System name is servo

Response code is 1

Response type is 1

Command Received

Command Received

Writing IMMEDIATE to ONLINE from SERVO THREAD SUCCESSFUL

Size of Response Struct is ##### 2192

SEQ number is 18

Timestamp is 22-Dec-2014 12:05:40

System name is servo

Response code is 2

Response type is 2

Servo Final Resp: Command IRREVELENT

Servo Final Resp: Command IRREVELENT

Writing FINAL RESPONSE to ONLINE from SERVO THREAD SUCCESSFUL

**C00 servo position // commands issued from Online\_v2 terminal**

CMD[0] => C00

CMD[1] => servo

CMD[2] => position

Command for C00 ANTENNA

ANTENNA C00 C00

System servo

OP NAME position

\*\*\*\*\* position

##### Element in Command Queue servo

we wrote on the socket 13 servo position

ax B

ang1 90:00:00

ang2 45:00:00  
Size of Struct is ##### 1126  
INSERTING in Command Queue servo

>> we wrote on the socket 13 22-Dec-2014 12:06:06 servo position

ax B

ang1 90:00:00

ang2 45:00:00

Size of Struct is ##### 1126

Size of Response Struct is ##### 2192

SEQ number is 13

Timestamp is 22-Dec-2014 12:06:06

System name is servo

Response code is 1

Response type is 1

Command Received

Command Received

Writing IMMEDIATE to ONLINE from SERVO THREAD SUCCESSFUL

Size of Response Struct is ##### 2192

SEQ number is 13

Timestamp is 22-Dec-2014 12:06:06

System name is servo

Response code is 2

Response type is 2

Servo Final Resp: Command IRREVELENT

Servo Final Resp: Command IRREVELENT

Writing FINAL RESPONSE to ONLINE from SERVO THREAD SUCCESSFUL

**C00 servo readangles // commands issued from Online\_v2 terminal**

CMD[0] => C00

CMD[1] => servo

CMD[2] => readangles

Command for C00 ANTENNA

ANTENNA C00 C00

System servo

OP NAME readangles

readangles

##### Element in Command Queue servo

we wrote on the socket 20 servo readangles

Size of Struct is ##### 1126

INSERTING in Command Queue servo

>> we wrote on the socket 20 22-Dec-2014 12:07:11 servo readangles  
Size of Struct is ##### 1126  
Size of Response Struct is ##### 2192  
SEQ number is 20  
Timestamp is 22-Dec-2014 12:07:11  
System name is servo  
Response code is 1  
Response type is 1  
Command Received  
Command Received  
Writing IMMEDIATE to ONLINE from SERVO THREAD SUCCESSFUL  
Size of Response Struct is ##### 2192  
SEQ number is 20  
Timestamp is 22-Dec-2014 12:07:11  
System name is servo  
Response code is 4  
Response type is 1  
Servo Angles Data  
time  
15:02:30  
az\_cp  
+001:58:40  
az\_tp  
+090:00:00  
el\_cp  
-001:58:40  
el\_tp  
-001:58:40  
Writing FINAL RESPONSE to ONLINE from SERVO THREAD SUCCESSFUL

**C00 servo stop // commands issued from Online\_v2 terminal**

CMD[0] => C00  
CMD[1] => servo  
CMD[2] => stop  
Command for C00 ANTENNA  
ANTENNA C00 C00  
System servo



```
OP NAME stop
***** stop
##### Element in Command Queue servo
we wrote on the socket 14 servo stop
ax B
Size of Struct is ##### 1126
INSERTING in Command Queue servo

>> we wrote on the socket 14 22-Dec-2014 12:08:00 servo stop
ax B
Size of Struct is ##### 1126
Size of Response Struct is ##### 2192
SEQ number is 14
Timestamp is 22-Dec-2014 12:08:00
System name is servo
Response code is 1
Response type is 1
Command Received
Command Received
Writing IMMEDIATE to ONLINE from SERVO THREAD SUCCESSFUL
Size of Response Struct is ##### 2192
SEQ number is 14
Timestamp is 22-Dec-2014 12:08:00
System name is servo
Response code is 2
Response type is 2
Servo Final Resp: Command IRREVELENT
Servo Final Resp: Command IRREVELENT
Writing FINAL RESPONSE to ONLINE from SERVO THREAD SUCCESSFUL
```

**C00 servo readantstatus // commands issued from Online\_v2 terminal**

```
CMD[0] => C00
CMD[1] => servo
CMD[2] => readantstatus
Command for C00 ANTENNA
ANTENNA C00 C00
System servo
```

OP NAME readantstatus

readantstatus

##### Element in Command Queue servo

we wrote on the socket 24 servo readantstatus

Size of Struct is ##### 1126

INSERTING in Command Queue servo

>> we wrote on the socket 24 22-Dec-2014 12:08:29 servo readantstatus

Size of Struct is ##### 1126

Size of Response Struct is ##### 2192

SEQ number is 24

Timestamp is 22-Dec-2014 12:08:29

System name is servo

Response code is 1

Response type is 1

Command Received

Command Received

Writing IMMEDIATE to ONLINE from SERVO THREAD SUCCESSFUL

Size of Response Struct is ##### 2192

SEQ number is 24

Timestamp is 22-Dec-2014 12:08:29

System name is servo

Response code is 4

Response type is 1

Servo Antenna State

time

15:03:48

az\_state

StwRlsBkd

el\_state

StwRlsBkd

Writing FINAL RESPONSE to ONLINE from SERVO THREAD SUCCESSFUL

**C00 servo readversion // commands issued from Online\_v2 terminal**

CMD[0] => C00

CMD[1] => servo

CMD[2] => readversion

Command for C00 ANTENNA

ANTENNA C00 C00

System servo

OP NAME readversion

readversion

##### Element in Command Queue servo

we wrote on the socket 25 servo readversion

Size of Struct is ##### 1126

INSERTING in Command Queue servo

>> we wrote on the socket 25 22-Dec-2014 12:09:54 servo readversion

Size of Struct is ##### 1126

Size of Response Struct is ##### 2192

SEQ number is 25

Timestamp is 22-Dec-2014 12:09:54

System name is servo

Response code is 1

Response type is 1

Command Received

Command Received

Writing IMMEDIATE to ONLINE from SERVO THREAD SUCCESSFUL

Size of Response Struct is ##### 2192

SEQ number is 25

Timestamp is 22-Dec-2014 12:09:54

System name is servo

Response code is 4

Response type is 1

Servo Software Version

time

15:05:13

Version

2.6

Station Number

C10

Writing FINAL RESPONSE to ONLINE from SERVO THREAD SUCCESSFUL

**Command – Response between Online\_v2 & PC04 servo system at C01 :**

**C01 servo hold // commands issued from Online\_v2 terminal**

CMD[0] => C01

CMD[1] => servo

CMD[2] => hold

Command for C01 ANTENNA

ANTENNA C01 C01

System servo  
OP NAME hold  
\*\*\*\*\* hold  
##### Element in Command Queue servo  
we wrote on the socket 12 servo hold  
ax B  
Size of Struct is ##### 1126  
INSERTING in Command Queue servo  
  
>> we wrote on the socket 12 29-Dec-2014 14:31:26 servo hold  
ax B  
Size of Struct is ##### 1126  
Size of Response Struct is ##### 2192  
SEQ number is 12  
Timestamp is 29-Dec-2014 14:31:26  
System name is servo  
Response code is 1  
Response type is 1  
Command Received  
Command Received  
Writing IMMEDIATE to ONLINE from SERVO THREAD SUCCESSFUL  
Size of Response Struct is ##### 2192  
SEQ number is 12  
Timestamp is 29-Dec-2014 14:31:26  
System name is servo  
Response code is 2  
Response type is 1  
Servo Final Resp: Command SUCCESS  
Servo Final Resp: Command SUCCESS  
Writing FINAL RESPONSE to ONLINE from SERVO THREAD SUCCESSFUL

**C01 servo position // commands issued from Online\_v2 terminal**

CMD[0] => C01  
CMD[1] => servo  
CMD[2] => position  
Command for C01 ANTENNA  
ANTENNA C01 C01  
System servo  
OP NAME position  
##### Element in Command Queue servo  
we wrote on the socket 13 servo position  
ax B

ang1 100:00:00  
ang2 45:00:00  
Size of Struct is ##### 1126  
INSERTING in Command Queue servo

>> we wrote on the socket 13 29-Dec-2014 14:32:04 servo position  
ax B  
ang1 100:00:00  
ang2 45:00:00  
Size of Struct is ##### 1126  
Size of Response Struct is ##### 2192  
SEQ number is 13  
Timestamp is 29-Dec-2014 14:32:04  
System name is servo  
Response code is 1  
Response type is 1  
Command Received  
Command Received  
Writing IMMEDIATE to ONLINE from SERVO THREAD SUCCESSFUL  
Size of Response Struct is ##### 2192  
SEQ number is 13  
Timestamp is 29-Dec-2014 14:32:04  
System name is servo  
Response code is 2  
Response type is 1  
Servo Final Resp: Command SUCCESS  
Servo Final Resp: Command SUCCESS  
Writing FINAL RESPONSE to ONLINE from SERVO THREAD SUCCESSFUL

**>> C01 servo readangles // commands issued from Online\_v2 terminal**

CMD[0] => C01  
CMD[1] => servo  
CMD[2] => readangles  
Command for C01 ANTENNA  
ANTENNA C01 C01  
System servo  
OP NAME readangles  
readangles  
##### Element in Command Queue servo  
we wrote on the socket 20 servo readangles  
Size of Struct is ##### 1126  
INSERTING in Command Queue servo

>> we wrote on the socket 20 29-Dec-2014 14:33:58 servo readangles  
Size of Struct is ##### 1126  
Size of Response Struct is ##### 2192  
SEQ number is 20  
Timestamp is 29-Dec-2014 14:33:58  
System name is servo  
Response code is 1  
Response type is 1  
Command Received  
Command Received  
Writing IMMEDIATE to ONLINE from SERVO THREAD SUCCESSFUL  
Size of Response Struct is ##### 2192  
SEQ number is 20  
Timestamp is 29-Dec-2014 14:33:58  
System name is servo  
Response code is 4  
Response type is 1  
Servo Angles Data  
time  
14:40:45  
az\_cp  
+114:26:20  
az\_tp  
+100:00:00  
el\_cp  
+044:59:50  
el\_tp  
+045:00:00  
Writing FINAL RESPONSE to ONLINE from SERVO THREAD SUCCESSFUL

### **C01 servo readangles // commands issued from Online\_v2 terminal**

CMD[0] => C01  
CMD[1] => servo  
CMD[2] => readangles  
Command for C01 ANTENNA  
ANTENNA C01 C01  
System servo  
OP NAME readangles  
readangles  
##### Element in Command Queue servo  
we wrote on the socket 20 servo readangles  
Size of Struct is ##### 1126

INSERTING in Command Queue servo

>> we wrote on the socket 20 29-Dec-2014 14:34:41 servo readangles

Size of Struct is ##### 1126

Size of Response Struct is ##### 2192

SEQ number is 20

Timestamp is 29-Dec-2014 14:34:41

System name is servo

Response code is 1

Response type is 1

Command Received

Command Received

Writing IMMEDIATE to ONLINE from SERVO THREAD SUCCESSFUL

Size of Response Struct is ##### 2192

SEQ number is 20

Timestamp is 29-Dec-2014 14:34:41

System name is servo

Response code is 4

Response type is 1

Servo Angles Data

time

14:41:29

az\_cp

+100:08:10

az\_tp

+100:00:00

el\_cp

+045:00:00

el\_tp

+045:00:00

Writing FINAL RESPONSE to ONLINE from SERVO THREAD SUCCESSFUL

**C01 servo track // commands issued from Online\_v2 terminal**

CMD[0] => C01

CMD[1] => servo

CMD[2] => track

Command for C01 ANTENNA

ANTENNA C01 C01

System servo

OP NAME track

\*\*\*\*\* track

##### Element in Command Queue servo

we wrote on the socket 11 servo track  
ax B  
time 16:00:00  
ang1 115:00:00  
ang2 90:00:00  
Size of Struct is ##### 1126  
INSERTING in Command Queue servo

>> we wrote on the socket 11 29-Dec-2014 14:35:20 servo track  
ax B  
time 16:00:00  
ang1 115:00:00  
ang2 90:00:00  
Size of Struct is ##### 1126  
Size of Response Struct is ##### 2192  
SEQ number is 11  
Timestamp is 29-Dec-2014 14:35:20  
System name is servo  
Response code is 1  
Response type is 1  
Command Received  
Command Received  
Writing IMMEDIATE to ONLINE from SERVO THREAD SUCCESSFUL  
Size of Response Struct is ##### 2192  
SEQ number is 11  
Timestamp is 29-Dec-2014 14:35:20  
System name is servo  
Response code is 2  
Response type is 1  
Servo Final Resp: Command SUCCESS  
Servo Final Resp: Command SUCCESS  
Writing FINAL RESPONSE to ONLINE from SERVO THREAD SUCCESSFUL

**C01 servo readanavar // commands issued from Online\_v2 terminal**

CMD[0] => C01  
CMD[1] => servo  
CMD[2] => readanavar  
Command for C01 ANTENNA  
ANTENNA C01 C01  
System servo  
OP NAME readanavar  
readanavar



##### Element in Command Queue servo  
we wrote on the socket 21 servo readanavar  
Size of Struct is ##### 1126  
INSERTING in Command Queue servo

>> we wrote on the socket 21 29-Dec-2014 14:35:41 servo readanavar  
Size of Struct is ##### 1126  
Size of Response Struct is ##### 2192  
SEQ number is 21  
Timestamp is 29-Dec-2014 14:35:41  
System name is servo  
Response code is 1  
Response type is 1  
Command Received  
Command Received  
Writing IMMEDIATE to ONLINE from SERVO THREAD SUCCESSFUL  
Size of Response Struct is ##### 2192  
SEQ number is 21  
Timestamp is 29-Dec-2014 14:35:41  
System name is servo  
Response code is 4  
Response type is 1  
Servo Analog Data  
time  
14:42:29  
az\_motor1\_current  
+0001.2695  
az\_motor2\_current  
+0002.2460  
az\_tacho1  
+0004.8808  
az\_tacho2  
+0002.5839  
el\_motor1\_current  
+0000.2929  
el\_motor2\_current  
-0002.9296  
el\_tacho1  
+0012.6328  
el\_tacho2  
-0007.1777  
Writing FINAL RESPONSE to ONLINE from SERVO THREAD SUCCESSFUL

## C01 servo readdigvar // commands issued from Online\_v2 terminal

```
CMD[0] => C01
CMD[1] => servo
CMD[2] => readdigvar
Command for C01 ANTENNA
ANTENNA C01 C01
System servo
OP NAME readdigvar
readdigvar
##### Element in Command Queue servo
we wrote on the socket 22 servo readdigvar
Size of Struct is ##### 1126
INSERTING in Command Queue servo

>> we wrote on the socket 22 29-Dec-2014 14:36:42 servo readdigvar
Size of Struct is ##### 1126
Size of Response Struct is ##### 2192
SEQ number is 22
Timestamp is 29-Dec-2014 14:36:42
System name is servo
Response code is 1
Response type is 1
Command Received
Command Received
Writing IMMEDIATE to ONLINE from SERVO THREAD SUCCESSFUL
Size of Response Struct is ##### 2192
SEQ number is 22
Timestamp is 29-Dec-2014 14:36:42
System name is servo
Response code is 4
Response type is 1
Servo Digital Status
time
14:43:29
az_run
1
az_aol
0
az_brk
0
az_ccp
0
```

az\_ccf  
0  
az\_cpl  
0  
az\_cfl  
0  
az\_cwr  
1  
az\_enc  
0  
az\_ac  
1  
el\_run  
1  
el\_aol  
0  
el\_brk  
0  
el\_dnp  
0  
el\_dnf  
0  
el\_upp  
0  
el\_upf  
0  
el\_std  
0  
el\_str  
1  
el\_stp  
0  
el\_enc  
0  
el\_ac  
1  
mode  
REMOTE  
w50  
0  
w80  
0

pos

trk

TRACKING

slw

ssc

1

dc

0

Writing FINAL RESPONSE to ONLINE from SERVO THREAD SUCCESSFUL

**>> C01 servo readantstatus // commands issued from Online\_v2 terminal**

CMD[0] => C01

CMD[1] => servo

CMD[2] => readantstatus

Command for C01 ANTENNA

ANTENNA C01 C01

System servo

OP NAME readantstatus

readantstatus

##### Element in Command Queue servo

we wrote on the socket 24 servo readantstatus

Size of Struct is ##### 1126

INSERTING in Command Queue servo

>> we wrote on the socket 24 29-Dec-2014 14:39:21 servo readantstatus

Size of Struct is ##### 1126

Size of Response Struct is ##### 2192

SEQ number is 24

Timestamp is 29-Dec-2014 14:39:21

System name is servo

Response code is 1

Response type is 1

Command Received

Command Received

Writing IMMEDIATE to ONLINE from SERVO THREAD SUCCESSFUL

Size of Response Struct is ##### 2192

SEQ number is 24

Timestamp is 29-Dec-2014 14:39:21

System name is servo

Response code is 4

Response type is 1  
Servo Antenna State  
time  
14:46:08  
az\_state  
Tracking  
el\_state  
Tracking  
Writing FINAL RESPONSE to ONLINE from SERVO THREAD SUCCESSFUL

### **C01 servo abort    // commands issued from Online\_v2 terminal**

CMD[0] => C01  
CMD[1] => servo  
CMD[2] => abort  
Command for C01 ANTENNA  
ANTENNA C01 C01  
System servo  
OP NAME abort  
abort  
##### Element in Command Queue servo  
we wrote on the socket 18 servo abort  
Size of Struct is ##### 1126  
INSERTING in Command Queue servo  
  
>> we wrote on the socket 18 29-Dec-2014 14:40:17 servo abort  
Size of Struct is ##### 1126  
Size of Response Struct is ##### 2192  
SEQ number is 18  
Timestamp is 29-Dec-2014 14:40:17  
System name is servo  
Response code is 1  
Response type is 1  
Command Received  
Command Received  
Writing IMMEDIATE to ONLINE from SERVO THREAD SUCCESSFUL  
Size of Response Struct is ##### 2192  
SEQ number is 18  
Timestamp is 29-Dec-2014 14:40:17  
System name is servo  
Response code is 2  
Response type is 1

Servo Final Resp: Command SUCCESS

Servo Final Resp: Command SUCCESS

Writing FINAL RESPONSE to ONLINE from SERVO THREAD SUCCESSFUL

**C01 servo readantstatus // commands issued from Online\_v2 terminal**

CMD[0] => C01

CMD[1] => servo

CMD[2] => readantstatus

Command for C01 ANTENNA

ANTENNA C01 C01

System servo

OP NAME readantstatus

readantstatus

##### Element in Command Queue servo

we wrote on the socket 24 servo readantstatus

Size of Struct is ##### 1126

INSERTING in Command Queue servo

>> we wrote on the socket 24 29-Dec-2014 14:40:35 servo readantstatus

Size of Struct is ##### 1126

Size of Response Struct is ##### 2192

SEQ number is 24

Timestamp is 29-Dec-2014 14:40:35

System name is servo

Response code is 1

Response type is 1

Command Received

Command Received

Writing IMMEDIATE to ONLINE from SERVO THREAD SUCCESSFUL

Size of Response Struct is ##### 2192

SEQ number is 24

Timestamp is 29-Dec-2014 14:40:35

System name is servo

Response code is 4

Response type is 1

Servo Antenna State

time

14:47:23

az\_state

Positiong

el\_state

Positiong

Writing FINAL RESPONSE to ONLINE from SERVO THREAD SUCCESSFUL

**C01 servo stop // commands issued from Online\_v2 terminal**

```
CMD[0] => C01
CMD[1] => servo
CMD[2] => stop
Command for C01 ANTENNA
ANTENNA C01 C01
System servo
OP NAME stop
***** stop
##### Element in Command Queue servo
we wrote on the socket 14 servo stop
ax B
Size of Struct is ##### 1126
INSERTING in Command Queue servo

>> we wrote on the socket 14 29-Dec-2014 14:40:58 servo stop
ax B
Size of Struct is ##### 1126
Size of Response Struct is ##### 2192
SEQ number is 14
Timestamp is 29-Dec-2014 14:40:58
System name is servo
Response code is 1
Response type is 1
Command Received
Command Received
Writing IMMEDIATE to ONLINE from SERVO THREAD SUCCESSFUL
Size of Response Struct is ##### 2192
SEQ number is 14
Timestamp is 29-Dec-2014 14:40:58
System name is servo
Response code is 2
Response type is 1
Servo Final Resp: Command SUCCESS
Servo Final Resp: Command SUCCESS
Writing FINAL RESPONSE to ONLINE from SERVO THREAD SUCCESSFUL
```

**C01 servo readdigvar // commands issued from Online\_v2 terminal**

CMD[0] => C01  
CMD[1] => servo  
CMD[2] => readdigvar  
Command for C01 ANTENNA  
ANTENNA C01 C01  
System servo  
OP NAME readdigvar  
readdigvar  
##### Element in Command Queue servo  
we wrote on the socket 22 servo readdigvar  
Size of Struct is ##### 1126  
INSERTING in Command Queue servo  
  
>> we wrote on the socket 22 29-Dec-2014 14:41:16 servo readdigvar  
Size of Struct is ##### 1126  
Size of Response Struct is ##### 2192  
SEQ number is 22  
Timestamp is 29-Dec-2014 14:41:16  
System name is servo  
Response code is 1  
Response type is 1  
Command Received  
Command Received  
Writing IMMEDIATE to ONLINE from SERVO THREAD SUCCESSFUL  
Size of Response Struct is ##### 2192  
SEQ number is 22  
Timestamp is 29-Dec-2014 14:41:16  
System name is servo  
Response code is 4  
Response type is 1  
Servo Digital Status  
time  
14:48:04  
az\_run  
0  
az\_aol  
0  
az\_brk  
1  
az\_ccp  
0  
az\_ccf



0  
az\_cpl  
0  
az\_cfl  
0  
az\_cwr  
1  
az\_enc  
0  
az\_ac  
1  
el\_run  
0  
el\_aol  
0  
el\_brk  
1  
el\_dnp  
0  
el\_dnf  
0  
el\_upp  
0  
el\_upf  
0  
el\_std  
0  
el\_str  
1  
el\_stp  
0  
el\_enc  
0  
el\_ac  
1  
mode  
REMOTE  
w50  
0  
w80  
0  
pos

trk

slw

ssc

1

dc

0

Writing FINAL RESPONSE to ONLINE from SERVO THREAD SUCCESSFUL

Online\_v2- FPS system Command- Response of C06 antenna testing

C06 fps reboot

// Command from Online\_V2 terminal

CMD[0] => C06

CMD[1] => fps

CMD[2] => reboot

Command for C06 ANTENNA

ANTENNA C06 C06

System fps

OP NAME reboot

we wrote on the socket 35 fps reboot

Size of Struct is ##### 1638

##### Element in Command Queue fps

INSERTING in Command Queue fps

>> we wrote on the socket 35 20-Mar-2015 12:16:35 fps reboot

Size of Struct is ##### 1638

Size of Response Struct => 4698

MCM => 1

35

20-Mar-2015 12:16:35

fps

##### NUmber of RESPONSE MSG is 1

888 888 888 888 888 888 888 888 888 888 888 888 888 888 888 888 888 888 888 888

888 888 888 888 888 888 888 888 888 888 888 888 888 888 999 999 999 999 999 999

999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999

999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999

999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999

999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999

999 Reboot

Writing to ONLINE from FPS THREAD SUCCESSFUL

C06 fps run\_to\_cal

// Command from Online\_V2 terminal

```
CMD[0] => C06
CMD[1] => fps
CMD[2] => run_to_cal
Command for C06 ANTENNA
ANTENNA C06 C06
System fps
OP NAME run_to_cal
we wrote on the socket 30 fps run_to_cal
Size of Struct is ##### 1638
##### Element in Command Queue fps
INSERTING in Command Queue fps
```

>> we wrote on the socket 30 20-Mar-2015 12:16:51 fps run\_to\_cal

Size of Struct is ##### 1638

Size of Response Struct => 4698

MCM => 1

30

20-Mar-2015 12:16:51

fps

##### NUmber of RESPONSE MSG is 1

```
888 888 888 888 888 888 888 888 888 888 888 888 888 888 888 888 888 888 888 888
888 888 888 888 888 888 888 888 888 888 888 888 888 888 999 999 999 999 999 999
999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999
999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999
999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999
999 Run to calibrate
```

Writing to ONLINE from FPS THREAD SUCCESSFUL

C06 fps run\_to\_preset

// Command from Online\_V2 terminal

```
CMD[0] => C06
CMD[1] => fps
CMD[2] => run_to_preset
Command for C06 ANTENNA
ANTENNA C06 C06
System fps
OP NAME run_to_preset
```

Enter target encoder value:

15000

we wrote on the socket 32 fps run\_to\_preset

tar\_encr\_v 76 29

Size of Struct is ##### 1638

##### Element in Command Queue fps

INSERTING in Command Queue fps

>> we wrote on the socket 32 20-Mar-2015 12:19:07 fps run\_to\_preset

tar\_encr\_v 76 29

Size of Struct is ##### 1638

Size of Response Struct => 4698

MCM => 1

32

20-Mar-2015 12:19:07

fps

##### NUmber of RESPONSE MSG is 1

888 888 888 888 888 888 888 888 888 888 888 888 888 888 888 888 888 888 888 888

888 888 888 888 888 888 888 888 888 888 888 888 888 999 999 999 999 999 999 999

999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999

999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999

999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999

999 Run to Reset

Writing to ONLINE from FPS THREAD SUCCESSFUL

**C06 fps free\_run\_tow // Command from Online\_V2 terminal**

CMD[0] => C06

CMD[1] => fps

CMD[2] => free\_run\_tow

Command for C06 ANTENNA

ANTENNA C06 C06

System fps

OP NAME free\_run\_tow

Enter 0-towards 270deg / 1-towards -10deg::

1

we wrote on the socket 31 fps free\_run\_tow

1 0

Size of Struct is ##### 1638

##### Element in Command Queue fps

INSERTING in Command Queue fps

>> we wrote on the socket 31 20-Mar-2015 12:21:40 fps free\_run\_tow





```
CMD[1] => fps
CMD[2] => read_Max_angle
Command for C06 ANTENNA
ANTENNA C06 C06
System fps
OP NAME read_Max_angle
we wrote on the socket 28 fps read_Max_angle
Size of Struct is ##### 1638
##### Element in Command Queue fps
INSERTING in Command Queue fps
```

```
>> we wrote on the socket 28 20-Mar-2015 12:26:22 fps read_Max_angle
```

```
Size of Struct is ##### 1638
```

```
Size of Response Struct => 4698
```

```
MCM => 1
```

```
28
```

```
20-Mar-2015 12:26:22
```

```
fps
```

```
##### NUmber of RESPONSE MSG is 2
```

```
888 888 888 888 888 888 888 888 888 888 888 888 888 888 888 888 888 888 888 888
888 888 888 888 888 888 888 888 888 888 888 888 888 888 999 999 999 999 999 999
999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999
999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999
999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999
999 Exec. OK
```

```
Read Max Angle, 17284
```

```
Writing to ONLINE from FPS THREAD SUCCESSFUL
```

**C06 fps read\_Min\_angle      // Command from Online\_V2 terminal**

```
CMD[0] => C06
CMD[1] => fps
CMD[2] => read_Min_angle
Command for C06 ANTENNA
ANTENNA C06 C06
System fps
OP NAME read_Min_angle
##### Element in Command Queue fps
INSERTING in Command Queue fps
```

```
>> we wrote on the socket 29 20-Mar-2015 12:27:05 fps read_Min_angle
```







ANTENNA C06 C06

System fps

OP NAME read\_low\_rpm

we wrote on the socket 22 fps read\_low\_rpm

Size of Struct is ##### 1638

##### Element in Command Queue fps

INSERTING in Command Queue fps

>> we wrote on the socket 22 20-Mar-2015 12:28:45 fps read\_low\_rpm

Size of Struct is ##### 1638

Size of Response Struct => 4698

MCM => 1

22

20-Mar-2015 12:28:45

fps

##### NUmber of RESPONSE MSG is 2

888 888 888 888 888 888 888 888 888 888 888 888 888 888 888 888 888 888 888 888

888 888 888 888 888 888 888 888 888 888 888 888 888 999 999 999 999 999 999 999

999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999

999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999

999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999

999 Exec. OK

Read Lower Ramp Limit, 649 int 325

Writing to ONLINE from FPS THREAD SUCCESSFUL

**C06 fps read\_rampupcnt // Command from Online\_V2 terminal**

CMD[0] => C06

CMD[1] => fps

CMD[2] => read\_rampupcnt

Command for C06 ANTENNA

ANTENNA C06 C06

System fps

OP NAME read\_rampupcnt

we wrote on the socket 24 fps read\_rampupcnt

Size of Struct is ##### 1638

##### Element in Command Queue fps

INSERTING in Command Queue fps

>> we wrote on the socket 24 20-Mar-2015 12:29:14 fps read\_rampupcnt

Size of Struct is ##### 1638

Size of Response Struct => 4698

MCM => 1

24

20-Mar-2015 12:29:14

fps

##### NUmber of RESPONSE MSG is 2

888  
888 888 888 888 888 888 888 888 888 888 888 888 888 888 999 999 999 999 999 999 999  
999  
999  
999  
999 Exec. OK

Read Ramp up Count, 20

Writing to ONLINE from FPS THREAD SUCCESSFUL

**C06 fps read\_rampdcnt      // Command from Online\_V2 terminal**

CMD[0] => C06

CMD[1] => fps

CMD[2] => read\_rampdcnt

Command for C06 ANTENNA

ANTENNA C06 C06

System fps

OP NAME read\_rampdcnt

##### Element in Command Queue fps

INSERTING in Command Queue fps

>> we wrote on the socket 21 20-Mar-2015 12:29:47 fps read\_rampdcnt

Size of Struct is ##### 1638

Size of Response Struct => 4698

MCM => 1

21

20-Mar-2015 12:29:47

fps

##### NUmber of RESPONSE MSG is 2

888  
888 888 888 888 888 888 888 888 888 888 888 888 888 888 888 999 999 999 999 999 999  
999  
999  
999  
999 Exec. OK

Read Ramp Down Count, Slope: 80

Writing to ONLINE from FPS THREAD SUCCESSFUL

**C06 fps read\_Max\_pwm\_cnt      // Command from Online\_V2 terminal**

```
CMD[0] => C06
CMD[1] => fps
CMD[2] => read_Max_pwm_cnt
Command for C06 ANTENNA
ANTENNA C06 C06
System fps
OP NAME read_Max_pwm_cnt
##### Element in Command Queue fps
INSERTING in Command Queue fps
```

>> we wrote on the socket 27 20-Mar-2015 12:30:21 fps read\_Max\_pwm\_cnt

Size of Struct is ##### 1638

Size of Response Struct => 4698

MCM => 1

27

20-Mar-2015 12:30:21

fps

##### NUmber of RESPONSE MSG is 2

```
888 888 888 888 888 888 888 888 888 888 888 888 888 888 888 888 888 888 888 888
888 888 888 888 888 888 888 888 888 888 888 888 888 888 888 888 888 888 888 888
999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999
999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999
999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999
999 Exec. OK
```

Read Max PWM Count, 80

Writing to ONLINE from FPS THREAD SUCCESSFUL

**C06 fps read\_stoptimecnt      // Command from Online\_V2 terminal**

```
CMD[0] => C06
CMD[1] => fps
CMD[2] => read_stoptimecnt
Command for C06 ANTENNA
ANTENNA C06 C06
System fps
OP NAME read_stoptimecnt
we wrote on the socket 26 fps read_stoptimecnt
Size of Struct is ##### 1638
##### Element in Command Queue fps
INSERTING in Command Queue fps
```

```
>> we wrote on the socket 26 20-Mar-2015 12:30:44 fps read_stoptimecnt
Size of Struct is ##### 1638
Size of Response Struct => 4698
MCM => 1
26
20-Mar-2015 12:30:44
fps
##### NUmber of RESPONSE MSG is 2
888 888 888 888 888 888 888 888 888 888 888 888 888 888 888 888 888 888 888 888 888
888 888 888 888 888 888 888 888 888 888 888 888 888 999 999 999 999 999 999 999 999
999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999
999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999
999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999
999 Exec. OK
Read Stop Count, 20
Writing to ONLINE from FPS THREAD SUCCESSFUL
```

**C06 fps set\_tpoint      // Command from Online\_V2 terminal**

```
CMD[0] => C06
CMD[1] => fps
CMD[2] => set_tpoint
Command for C06 ANTENNA
ANTENNA C06 C06
System fps
OP NAME set_tpoint
```

Enter turning point position difference:

200

we wrote on the socket 11 fps set\_tpoint

set\_tpoint 100 0

Size of Struct is ##### 1638

##### Element in Command Queue fps

INSERTING in Command Queue fps

>> we wrote on the socket 11 20-Mar-2015 12:31:58 fps set\_tpoint

set\_tpoint 100 0

Size of Struct is ##### 1638

Size of Response Struct => 4698

MCM => 1

11

fps

##### NUmber of RESPONSE MSG is 2

[illegible]

Set Turning Point, target: 200

Writing to ONLINE from FPS THREAD SUCCESSFUL

## C06 fps set\_Max\_pwm\_cnt

**// Command from Online\_V2 terminal**

CMD[0] => C06

CMD[1] => fps

CMD[2] => set\_Max\_pwm\_cnt

## Command for C06 ANTENNA

ANTENNA C06 C06

System fps

OP NAME set\_Max\_pwm\_cnt

Enter max PWM cnt:

50

we wrote on the socket 17 fps set\_Max\_pwm\_cnt

```
set_Max_pwm_cnt 50 0
```

Size of Struct is ##### 1638

### ##### Element in Command Queue fps

## INSERTING in Command Queue fps

```
>> we wrote on the socket 17 20-Mar-2015 12:32:46 fps set_Max_pwm_cnt
```

```
set_Max_pwm_cnt 50 0
```

Size of Struct is ##### 1638

Size of Response Struct => 4698

MCM => 1

17

20-Mar-2015 12:32:46

fps

##### NUMber of RESPONSE MSG is 2

[illegible]



```
CMD[0] => C06
CMD[1] => fps
CMD[2] => set_Max_pwm_cnt
Command for C06 ANTENNA
ANTENNA C06 C06
System fps
OP NAME set_Max_pwm_cnt
Enter max PWM cnt:
80
we wrote on the socket 17 fps set_Max_pwm_cnt
set_Max_pwm_cnt 80 0
Size of Struct is ##### 1638
##### Element in Command Queue fps
INSERTING in Command Queue fps
```

```
>> we wrote on the socket 17 20-Mar-2015 12:35:14 fps set_Max_pwm_cnt
set_Max_pwm_cnt 80 0
Size of Struct is ##### 1638
Size of Response Struct => 4698
MCM => 1
17
20-Mar-2015 12:35:14
fps
##### NUmber of RESPONSE MSG is 2
```

```
888 888 888 888 888 888 888 888 888 888 888 888 888 888 888 888 888 888 888 888
888 888 888 888 888 888 888 888 888 888 888 888 888 888 999 999 999 999 999 999
999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999
999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999
999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999
999 Exec. OK
Set Max PWM Count, 50
Writing to ONLINE from FPS THREAD SUCCESSFUL
```

**C06 fps set\_Max\_angle     // Command from Online\_V2 terminal**

```
CMD[0] => C06
CMD[1] => fps
CMD[2] => set_Max_angle
Command for C06 ANTENNA
ANTENNA C06 C06
System fps
OP NAME set_Max_angle
```



Enter angle count:

17300

we wrote on the socket 18 fps set\_Max\_angle

set\_Max\_angle 202 33

Size of Struct is ##### 1638

##### Element in Command Queue fps

INSERTING in Command Queue fps

>> we wrote on the socket 18 20-Mar-2015 12:37:28 fps set\_Max\_angle

set\_Max\_angle 202 33

Size of Struct is ##### 1638

Size of Response Struct => 4698

MCM => 1

18

20-Mar-2015 12:37:28

fps

##### NUmber of RESPONSE MSG is 2

888 888

888 888 888 888 888 888 888 888 888 888 888 888 888 888 999 999 999 999 999 999 999

999 999

999 999

999 999

999 Exec. OK

Set Max Angle, 17300

Writing to ONLINE from FPS THREAD SUCCESSFUL

**C06 fps set\_min\_angle // Command from Online\_V2 terminal**

CMD[0] => C06

CMD[1] => fps

CMD[2] => set\_min\_angle

Command for C06 ANTENNA

ANTENNA C06 C06

System fps

OP NAME set\_min\_angle

Enter angle count:

1450

we wrote on the socket 19 fps set\_min\_angle

set\_min\_angle 213 2

Size of Struct is ##### 1638

##### Element in Command Queue fps  
INSERTING in Command Queue fps

>> we wrote on the socket 19 20-Mar-2015 12:38:07 fps set\_min\_angle  
set\_min\_angle 213 2

Size of Struct is ##### 1638

Size of Response Struct => 4698

MCM => 1

19

20-Mar-2015 12:38:07

fps

##### NUmber of RESPONSE MSG is 2

888  
888 888 888 888 888 888 888 888 888 888 888 888 888 888 999 999 999 999 999 999 999 999  
999  
999  
999  
999 Exec. OK

Set Min Angle, 1450

Writing to ONLINE from FPS THREAD SUCCESSFUL

**C06 fps set\_Brake\_dd        // Command from Online\_V2 terminal**

CMD[0] => C06

CMD[1] => fps

CMD[2] => set\_Brake\_dd

Command for C06 ANTENNA

ANTENNA C06 C06

System fps

OP NAME set\_Brake\_dd

Enter Break Cnt difference::

6

we wrote on the socket 14 fps set\_Brake\_dd

set\_Brake\_dd 3 0

Size of Struct is ##### 1638

##### Element in Command Queue fps

INSERTING in Command Queue fps

>> we wrote on the socket 14 20-Mar-2015 12:38:45 fps set\_Brake\_dd  
set\_Brake\_dd 3 0

Size of Struct is ##### 1638

Size of Response Struct => 4698



888 888 888 888 888 888 888 888 888 888 888 888 888 888 888 999 999 999 999 999 999  
999  
999  
999  
999 Exec. OK

Set Lower Ramp Limit, 0 int 20

Writing to ONLINE from FPS THREAD SUCCESSFUL

**C06 fps set\_low\_rpm**

CMD[0] => C06

CMD[1] => fps

CMD[2] => set\_low\_rpm

Command for C06 ANTENNA

ANTENNA C06 C06

System fps

OP NAME set\_low\_rpm

Enter Lower RPM limit:

300

Enter Check-Interval(ms)::

20

we wrote on the socket 13 fps set\_low\_rpm

set\_low\_rpm 4 0

Size of Struct is ##### 1638

##### Element in Command Queue fps

INSERTING in Command Queue fps

>> we wrote on the socket 13 20-Mar-2015 12:40:22 fps set\_low\_rpm

set\_low\_rpm 4 0

Size of Struct is ##### 1638

Size of Response Struct => 4698

MCM => 1

13

20-Mar-2015 12:40:22

fps

##### NUmber of RESPONSE MSG is 2

888  
888 888 888 888 888 888 888 888 888 888 888 888 888 888 888 999 999 999 999 999 999  
999  
999  
999  
999 Exec. OK

Set Lower Ramp Limit, 0 int 20

Writing to ONLINE from FPS THREAD SUCCESSFUL

### C06 fps read\_low\_rpm

CMD[0] => C06

CMD[1] => fps

CMD[2] => read\_low\_rpm

Command for C06 ANTENNA

ANTENNA C06 C06

System fps

OP NAME read\_low\_rpm

we wrote on the socket 22 fps read\_low\_rpm

Size of Struct is ##### 1638

##### Element in Command Queue fps

INSERTING in Command Queue fps

>> we wrote on the socket 22 20-Mar-2015 12:40:41 fps read\_low\_rpm

Size of Struct is ##### 1638

Size of Response Struct => 4698

MCM => 1

22

20-Mar-2015 12:40:41

fps

##### NUmber of RESPONSE MSG is 2

888  
888 888 888 888 888 888 888 888 888 888 888 888 888 888 999 999 999 999 999 999  
999  
999  
999  
999 Exec. OK

Read Lower Ramp Limit, 0 int 20

Writing to ONLINE from FPS THREAD SUCCESSFUL

### >> C06 fps reboot

CMD[0] => C06

CMD[1] => fps

CMD[2] => reboot

Command for C06 ANTENNA

ANTENNA C06 C06

System fps

OP NAME reboot

we wrote on the socket 35 fps reboot

Size of Struct is ##### 1638





999  
999  
999 FPS rejected command  
Read Max Angle, 17284  
Writing to ONLINE from FPS THREAD SUCCESSFUL

**C06 fps run\_to\_cal**

**// Command from Online\_V2 terminal**

CMD[0] => C06  
CMD[1] => fps  
CMD[2] => run\_to\_cal  
Command for C06 ANTENNA  
ANTENNA C06 C06  
System fps  
OP NAME run\_to\_cal  
we wrote on the socket 30 fps run\_to\_cal  
Size of Struct is ##### 1638  
##### Element in Command Queue fps  
INSERTING in Command Queue fps

>> we wrote on the socket 30 20-Mar-2015 12:46:22 fps run\_to\_cal  
Size of Struct is ##### 1638  
Size of Response Struct => 4698  
MCM => 1  
30  
20-Mar-2015 12:46:22  
fps  
##### NUmber of RESPONSE MSG is 1

888  
888 888 888 888 888 888 888 888 888 888 888 888 888 888 999 999 999 999 999 999 999  
999  
999  
999  
999 Exec. OK  
Writing to ONLINE from FPS THREAD SUCCESSFUL

**C06 fps run\_to\_preset**

**// Command from Online\_V2 terminal**

CMD[0] => C06  
CMD[1] => fps  
CMD[2] => run\_fine\_tuneC06  
CMD[3] => fps



CMD[4] => run\_to\_preset  
Command for C06 ANTENNA  
ANTENNA C06 C06  
System fps  
OP NAME run\_fine\_tuneC06

>> C06 fps run\_to\_preset

CMD[0] => C06  
CMD[1] => fps  
CMD[2] => run\_to\_preset  
Command for C06 ANTENNA  
ANTENNA C06 C06  
System fps  
OP NAME run\_to\_preset

Enter target encoder value:  
15000  
we wrote on the socket 32 fps run\_to\_preset  
tar\_encr\_v 76 29  
Size of Struct is ##### 1638  
##### Element in Command Queue fps  
INSERTING in Command Queue fps

>> we wrote on the socket 32 20-Mar-2015 12:48:30 fps run\_to\_preset  
tar\_encr\_v 76 29  
Size of Struct is ##### 1638  
Size of Response Struct => 4698  
MCM => 1  
32  
20-Mar-2015 12:48:30  
fps  
##### NUmber of RESPONSE MSG is 2

888  
888 888 888 888 888 888 888 888 888 888 888 888 888 888 999 999 999 999 999 999  
999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999  
999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999  
999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999  
999 Exec. OK  
Run to Reset  
Writing to ONLINE from FPS THREAD SUCCESSFUL

C06 fps run\_fine\_tune

// Command from Online\_V2 terminal

CMD[0] => C06

CMD[1] => fps

CMD[2] => run\_fine\_tune

Command for C06 ANTENNA

ANTENNA C06 C06

System fps

OP NAME run\_fine\_tune

Enter target encoder value:

15050

Enter PWM cnt:

70

we wrote on the socket 33 fps run\_fine\_tune

tar\_encr\_v 101 29

pwm\_cnt 70 112

Size of Struct is ##### 1638

##### Element in Command Queue fps

INSERTING in Command Queue fps

>> we wrote on the socket 33 20-Mar-2015 12:49:54 fps run\_fine\_tune

tar\_encr\_v 101 29

pwm\_cnt 70 112

Size of Struct is ##### 1638

Size of Response Struct => 4698

MCM => 1

33

20-Mar-2015 12:49:54

fps

##### NUmber of RESPONSE MSG is 2

888 888 888 888 888 888 888 888 888 888 888 888 888 888 888 888 888 888 888 888

888 888 888 888 888 888 888 888 888 888 888 888 888 888 999 999 999 999 999 999

999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999

999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999

999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999 999

999 Exec. OK

Run to Fine Tune

Writing to ONLINE from FPS THREAD SUCCESSFUL

## E02 Testing

```
##### ANTENNA DEVICE COMMUNICATION is BROKEN
ACCEPTED CONNECTION FROM MCM DEVICE 192.168.21.115
E02 thread opened succesfully=> 0
##### SERVER WANTING FOR CLIENT CONNECTION #####
E02 sentinel set
```

```
CMD[0] => E02
CMD[1] => sentinel
CMD[2] => set
E02 Antenna
##### Element in Command Queue sentinel
INSERTING in Command Queue sentinel
```

```
>> we wrote on the socket 11 3-Apr-2015 11:17:46 sentinel set
dmask ffff 5555
Size of Struct is ##### 1638
Size of Response Struct => 4698
MCM => 1
11
3-Apr-2015 11:17:46
sentinel
##### NUMber of RESPONSE MSG is 3
No summery !!      810 864 856 854 794 812 843 842 832 841 837 829 852 832 840
836 842 832 829 820 819 832 813 835 816 820 818 831 834 836 830 837 844 836 839 832 838 832
829 819 820 818 805 823 823 830 822 832 274 387 381 257 428 769 804 609 289 382 609 675 498
336 781 998 System validated : Sentinel
Command validated : Sentinal Controlling
Digital Mask : ffff 5555
Writing to ONLINE from SENTINEL THREAD SUCCESSFUL
E02 fiber_optics mon
```

```
CMD[0] => E02
CMD[1] => fiber_optics
CMD[2] => mon
E02 Antenna
##### Element in Command Queue fiber_optics
INSERTING in Command Queue fiber_optics
```

```
>> we wrote on the socket 10 3-Apr-2015 11:18:00 fiber_optics mon
Size of Struct is ##### 1638
Size of Response Struct => 4698
MCM => 1
10
3-Apr-2015 11:18:00
```

fiber\_optics

##### NUMber of RESPONSE MSG is 8

No summery !! 823 862 829 839 827 810 833 807 818 807 808 838 811 819 828

828 816 821 830 829 830 820 841 835 835 831 824 830 820 823 829 820 825 837 822 816 823 844

828 837 833 832 834 834 839 820 816 818 322 300 425 595 857 841 358 459 538 352 448 821 518

821 728 864 System validated : Fiber Optics

Command validated : Fiber optics Monitoring

Fiber Optics Monitoring Done

Voltage(+12V) : 0.55

Voltage(-5.0V) : 1.00

Voltage(-3.1V) : 0.73

Voltage(-1.1V) : 0.77

Voltage(GND) : 0.61

Writing to ONLINE from SENTINEL THREAD SUCCESSFUL

W01 testing

##### SERVER WANTING FOR CLIENT CONNECTION #####

ACCEPTED CONNECTION FROM MCM DEVICE 192.168.21.121

W01 Sentinel thread opened succesfully=> 0

##### SERVER WANTING FOR CLIENT CONNECTION #####

W01 sentinel mon

CMD[0] => W01

CMD[1] => sentinel

CMD[2] => mon

W01 Antenna

##### Element in Command Queue sentinel

INSERTING in Command Queue sentinel

>> we wrote on the socket 10 3-Apr-2015 11:46:57 sentinel mon

Size of Struct is ##### 1638

Size of Response Struct => 4698

MCM => 1

10

3-Apr-2015 11:46:57

sentinel

##### NUMber of RESPONSE MSG is 3

No summery !! 830 835 835 824 844 807 812 805 802 805 816 827 825 828 840

844 845 837 852 836 839 828 828 816 813 825 813 820 802 810 833 828 840 828 829 825 836 836

840 840 825 823 840 820 808 814 816 816 720 636 638 670 820 828 818 819 811 773 709 692 633

789 841 732 System validated : Sentinel

Command validated : Sentinal Monitoring

Sentinel Monitoring Done

Writing to ONLINE from SENTINEL THREAD SUCCESSFUL

W01 fiber\_optics mon

CMD[0] => W01

CMD[1] => fiber\_optics  
CMD[2] => mon  
W01 Antenna  
##### Element in Command Queue fiber\_optics  
INSERTING in Command Queue fiber\_optics  
  
>> we wrote on the socket 10 3-Apr-2015 11:47:07 fiber\_optics mon  
Size of Struct is ##### 1638  
Size of Response Struct => 4698  
MCM => 1  
10  
3-Apr-2015 11:47:07  
fiber\_optics  
##### Number of RESPONSE MSG is 8  
No summery !! 882 834 849 832 822 838 812 808 828 839 819 813 820 815 806  
806 834 827 827 854 833 828 835 824 848 836 817 808 840 815 822 812 794 818 805 811 811 816  
830 832 827 827 837 822 847 832 838 832 790 802 806 811 817 824 700 624 558 684 871 780 846  
817 826 735 System validated : Fiber Optics  
Command validated : Fiber optics Monitoring  
Fiber Optics Monitoring Done  
Voltage(+12V) : 0.77  
Voltage(-5.0V) : 0.77  
Voltage(-3.1V) : 0.82  
Voltage(-1.1V) : 0.82  
Voltage(GND) : 0.86  
Writing to ONLINE from SENTINEL THREAD SUCCESSFUL

W01 fiber\_optics set

CMD[0] => W01  
CMD[1] => fiber\_optics  
CMD[2] => set  
W01 Antenna  
##### Element in Command Queue fiber\_optics  
INSERTING in Command Queue fiber\_optics  
  
>> we wrote on the socket 11 3-Apr-2015 11:49:04 fiber\_optics set  
rf\_attn 25 35  
Size of Struct is ##### 1638  
Size of Response Struct => 4698  
MCM => 1  
11  
3-Apr-2015 11:49:04  
fiber\_optics  
##### Number of RESPONSE MSG is 3  
No summery !! 849 822 824 838 836 823 830 827 816 834 832 829 821 822 816  
801 804 825 814 816 841 825 830 828 824 820 834 836 844 827 825 814 809 817 812 824 829 819  
818 820 831 825 836 832 835 823 848 828 598 800 807 795 818 829 648 476 400 599 804 824 809  
814 848 921 System validated : Fiber Optics

Command validated : Fiber optics Controlling  
RF Attenuation : 25 35  
Writing to ONLINE from SENTINEL THREAD SUCCESSFUL

W01 sentinel mon

CMD[0] => W01  
CMD[1] => sentinel  
CMD[2] => mon

W01 Antenna

##### Element in Command Queue sentinel  
INSERTING in Command Queue sentinel

>> we wrote on the socket 10 3-Apr-2015 11:49:43 sentinel mon

Size of Struct is ##### 1638

Size of Response Struct => 4698

MCM => 1

10

3-Apr-2015 11:49:43

sentinel

##### Number of RESPONSE MSG is 3

No summery !! 811 815 806 800 808 857 839 840 843 826 844 832 832 815 827

820 839 834 813 817 801 816 810 827 822 836 828 840 833 833 825 840 838 840 834 832 840 814

816 807 816 815 816 810 833 844 825 830 815 817 816 716 500 536 490 680 822 808 824 813 786

720 695 670 System validated : Sentinel

Command validated : Sentinel Monitoring

Sentinel Monitoring Done

Writing to ONLINE from SENTINEL THREAD SUCCESSFUL

W01 sentinel mon

CMD[0] => W01  
CMD[1] => sentinel  
CMD[2] => mon

W01 Antenna

##### Element in Command Queue sentinel  
INSERTING in Command Queue sentinel

>> we wrote on the socket 10 3-Apr-2015 11:53:18 sentinel mon

Size of Struct is ##### 1638

Size of Response Struct => 4698

MCM => 1

10

3-Apr-2015 11:53:18

sentinel

##### Number of RESPONSE MSG is 3

No summery !! 826 823 825 845 840 825 824 823 824 820 820 814 835 840 818

826 820 820 832 824 813 826 820 824 817 822 824 828 829 821 822 832 830 832 828 817 825 832

832 822 828 828 829 829 832 824 820 820 329 617 576 556 432 179 773 704 357 337 436 1285 595

372 360 588 System validated : Sentinel  
Command validated : Sentinal Monitoring  
Sentinel Monitoring Done  
Writing to ONLINE from SENTINEL THREAD SUCCESSFUL

C13

C13 fiber\_optics mon

CMD[0] => C13  
CMD[1] => fiber\_optics  
CMD[2] => mon

C13 Antenna

##### Element in Command Queue fiber\_optics  
INSERTING in Command Queue fiber\_optics

>> we wrote on the socket 10 3-Apr-2015 12:24:57 fiber\_optics mon  
Size of Struct is ##### 1638  
Size of Response Struct => 4698  
MCM => 1

10

3-Apr-2015 12:24:57

fiber\_optics

##### NUMber of RESPONSE MSG is 8

No summary !! 797 807 803 822 810 836 838 836 837 830 848 834 851 832 842

833 849 832 831 823 806 814 803 817 818 831 832 828 829 830 836 828 837 842 847 832 838 828

814 816 804 818 818 825 832 834 832 828 848 837 805 839 841 832 846 782 803 798 776 736 785

823 884 1017 System validated : Fiber Optics

Command validated : Fiber optics Monitoring

Fiber Optics Monitoring Done

Voltage(+12V) : 0.74

Voltage(-5.0V) : 0.74

Voltage(-3.1V) : 0.83

Voltage(-1.1V) : 0.83

Voltage(GND) : 0.90

Writing to ONLINE from SENTINEL THREAD SUCCESSFUL

C13 fiber\_optics set

CMD[0] => C13  
CMD[1] => fiber\_optics  
CMD[2] => set

C13 Antenna

##### Element in Command Queue fiber\_optics  
INSERTING in Command Queue fiber\_optics

>> we wrote on the socket 11 3-Apr-2015 12:25:46 fiber\_optics set  
rf\_attn 25 35  
Size of Struct is ##### 1638

Size of Response Struct => 4698

MCM => 1

11

3-Apr-2015 12:25:46

fiber\_optics

##### NUmber of RESPONSE MSG is 3

No summery !! 856 848 852 828 828 847 844 826 825 814 810 819 812 827 817  
826 827 827 833 829 833 833 846 839 846 833 831 821 821 817 806 819 811 828 825 827 836 828  
831 832 839 841 859 830 839 826 823 812 792 728 665 400 199 202 386 693 760 833 849 1160 443  
318 265 599 System validated : Fiber Optics

Command validated : Fiber optics Controlling

RF Attenuation : 25 35

Writing to ONLINE from SENTINEL THREAD SUCCESSFUL

C13 sentinel mon

CMD[0] => C13

CMD[1] => sentinel

CMD[2] => mon

C13 Antenna

##### Element in Command Queue sentinel

INSERTING in Command Queue sentinel

>> we wrote on the socket 10 3-Apr-2015 12:26:21 sentinel mon

Size of Struct is ##### 1638

Size of Response Struct => 4698

MCM => 1

10

3-Apr-2015 12:26:21

sentinel

##### NUmber of RESPONSE MSG is 3

No summery !! 803 827 815 842 854 824 838 833 840 832 836 822 834 834 842  
840 829 820 811 819 804 817 807 828 825 832 835 829 837 823 833 832 845 832 837 831 822 817  
806 812 811 816 825 824 834 827 832 835 781 701 387 157 166 266 590 782 791 805 702 1092 274  
210 348 718 System validated : Sentinel

Command validated : Sentinal Monitoring

Sentinel Monitoring Done

Writing to ONLINE from SENTINEL THREAD SUCCESSFUL

C13 sentinel set

CMD[0] => C13

CMD[1] => sentinel

CMD[2] => set

C13 Antenna

##### Element in Command Queue sentinel

INSERTING in Command Queue sentinel

>> we wrote on the socket 11 3-Apr-2015 12:27:34 sentinel set



dmask ffff 5555  
Size of Struct is ##### 1638  
Size of Response Struct => 4698  
MCM => 1  
11  
3-Apr-2015 12:27:34  
sentinel  
##### Number of RESPONSE MSG is 3  
No summery !! 859 835 848 825 824 821 805 819 812 819 809 812 812 819 822  
820 833 832 830 825 838 828 843 836 850 834 834 818 807 813 806 819 812 822 830 811 821 828  
828 823 842 833 846 839 841 827 814 813 894 846 862 759 494 237 179 212 585 804 840 1155 666  
616 410 572 System validated : Sentinel  
Command validated : Sentinal Controlling  
Digital Mask : ffff 5555  
Writing to ONLINE from SENTINEL THREAD SUCCESSFUL

S03

S03 fiber\_optics mon

CMD[0] => S03  
CMD[1] => fiber\_optics  
CMD[2] => mon  
S03 Antenna  
##### Element in Command Queue fiber\_optics  
INSERTING in Command Queue fiber\_optics

>> we wrote on the socket 10 3-Apr-2015 12:58:52 fiber\_optics mon  
Size of Struct is ##### 1638  
Size of Response Struct => 4698  
MCM => 1  
10  
3-Apr-2015 12:58:52  
fiber\_optics  
##### Number of RESPONSE MSG is 8  
No summery !! 682 1238 408 934 941 862 942 774 548 156 108 359 540 963 1156  
917 824 832 807 836 832 830 825 829 843 824 832 831 828 824 833 838 836 832 815 816 832 827  
824 831 824 818 838 816 826 832 819 820 833 746 781 373 438 654 804 788 836 836 764 941 512  
500 736 992 System validated : Fiber Optics  
Command validated : Fiber optics Monitoring  
Fiber Optics Monitoring Done  
Voltage(+12V) : 0.94  
Voltage(-5.0V) : 0.91  
Voltage(-3.1V) : 1.61  
Voltage(-1.1V) : 0.38  
Voltage(GND) : 1.86  
Writing to ONLINE from SENTINEL THREAD SUCCESSFUL

S03 sentinel mon

CMD[0] => S03  
CMD[1] => sentinel  
CMD[2] => mon  
S03 Antenna  
##### Element in Command Queue sentinel  
INSERTING in Command Queue sentinel  
  
>> we wrote on the socket 10 3-Apr-2015 13:00:52 sentinel mon  
Size of Struct is ##### 1638  
Size of Response Struct => 4698  
MCM => 1  
10  
3-Apr-2015 13:00:52  
sentinel  
##### NUMber of RESPONSE MSG is 3  
No summery !! 1228 934 790 654 641 252 664 608 815 1184 668 690 218 162 128  
399 836 834 820 835 838 828 832 824 824 820 834 816 846 819 827 833 819 818 832 824 835 842  
840 822 835 826 830 819 832 821 814 836 440 237 682 902 690 458 452 352 374 422 526 1142 88  
345 266 533 System validated : Sentinel  
Command validated : Sentinal Monitoring  
Sentinel Monitoring Done  
Writing to ONLINE from SENTINEL THREAD SUCCESSFUL

S03 fiber\_optics mon

CMD[0] => S03  
CMD[1] => fiber\_optics  
CMD[2] => mon  
S03 Antenna  
##### Element in Command Queue fiber\_optics  
INSERTING in Command Queue fiber\_optics  
  
>> we wrote on the socket 10 3-Apr-2015 13:02:39 fiber\_optics mon  
Size of Struct is ##### 1638  
Size of Response Struct => 4698  
MCM => 1  
10  
3-Apr-2015 13:02:39  
fiber\_optics  
##### NUMber of RESPONSE MSG is 8  
No summery !! 1188 713 365 904 574 456 1025 1086 660 665 603 364 123 140  
499 492 837 816 823 840 828 828 824 821 818 824 834 812 839 840 824 827 830 824 836 838 839  
822 824 825 825 825 832 828 820 843 830 835 733 834 826 820 781 690 407 581 544 804 796 811  
832 798 666 772 System validated : Fiber Optics  
Command validated : Fiber optics Monitoring  
Fiber Optics Monitoring Done  
Voltage(+12V) : 2.34  
Voltage(-5.0V) : -0.07

Voltage(-3.1V) : -0.35  
Voltage(-1.1V) : -0.58  
Voltage(GND) : 0.35  
Writing to ONLINE from SENTINEL THREAD SUCCESSFUL

S03 fiber\_optics mon

CMD[0] => S03  
CMD[1] => fiber\_optics  
CMD[2] => mon

S03 Antenna

##### Element in Command Queue fiber\_optics  
INSERTING in Command Queue fiber\_optics

>> we wrote on the socket 10 3-Apr-2015 13:03:30 fiber\_optics mon

Size of Struct is ##### 1638

Size of Response Struct => 4698

MCM => 1

10

3-Apr-2015 13:03:30

fiber\_optics

##### NUmber of RESPONSE MSG is 8

No summery !! 1040 940 273 595 578 1025 788 1013 664 744 352 240 232 589

934 701 838 820 827 834 828 834 823 832 840 819 835 824 836 829 828 834 818 840 833 824 819

824 838 830 828 827 824 832 835 839 840 836 784 827 819 739 638 424 443 422 800 801 867 901

794 672 571 803 System validated : Fiber Optics

Command validated : Fiber optics Monitoring

Fiber Optics Monitoring Done

Voltage(+12V) : 0.49

Voltage(-5.0V) : 1.40

Voltage(-3.1V) : 0.98

Voltage(-1.1V) : 0.35

Voltage(GND) : -1.04

Writing to ONLINE from SENTINEL THREAD SUCCESSFUL

S01

##### SERVER WANTING FOR CLIENT CONNECTION #####

ACCEPTED CONNECTION FROM MCM DEVICE 192.168.21.120

S01 sentinel thread opened succesfully=> 0

##### SERVER WANTING FOR CLIENT CONNECTION #####

S01 fiber\_optics mon

CMD[0] => S01  
CMD[1] => fiber\_optics  
CMD[2] => mon

S01 Antenna

##### Element in Command Queue fiber\_optics  
INSERTING in Command Queue fiber\_optics

>> we wrote on the socket 10 3-Apr-2015 13:30:58 fiber\_optics mon  
Size of Struct is ##### 1638  
Size of Response Struct => 4698  
MCM => 1  
10  
3-Apr-2015 13:30:58  
fiber\_optics  
##### NUmber of RESPONSE MSG is 8  
No summery !! 715 1034 1099 1270 742 606 576 146 200 113 552 716 1090 844  
1079 446 822 817 833 832 837 834 828 826 834 828 827 830 827 820 841 825 823 819 830 834 830  
828 825 823 826 815 821 833 833 833 826 832 748 739 576 588 641 811 822 826 822 787 799 741  
492 716 751 792 System validated : Fiber Optics  
Command validated : Fiber optics Monitoring  
Fiber Optics Monitoring Done  
Voltage(+12V) : -0.35  
Voltage(-5.0V) : -0.47  
Voltage(-3.1V) : 0.57  
Voltage(-1.1V) : 1.40  
Voltage(GND) : 1.60  
Writing to ONLINE from SENTINEL THREAD SUCCESSFUL

S01 sentinel mon

CMD[0] => S01  
CMD[1] => sentinel  
CMD[2] => mon  
S01 Antenna  
##### Element in Command Queue sentinel  
INSERTING in Command Queue sentinel

>> we wrote on the socket 10 3-Apr-2015 13:31:56 sentinel mon  
Size of Struct is ##### 1638  
Size of Response Struct => 4698  
MCM => 1  
10  
3-Apr-2015 13:31:56  
sentinel  
##### NUmber of RESPONSE MSG is 3  
No summery !! 634 1241 192 827 412 707 592 775 1081 566 446 268 795 250 512  
530 840 841 840 820 828 823 834 828 840 842 838 822 829 833 828 825 822 820 832 844 822 827  
828 829 824 832 822 829 842 820 836 824 227 661 873 336 391 241 344 342 236 412 880 1219 521  
456 398 777 System validated : Sentinel  
Command validated : Sentinal Monitoring  
Sentinel Monitoring Done  
Writing to ONLINE from SENTINEL THREAD SUCCESSFUL

S01 fiber\_optics mon

CMD[0] => S01  
CMD[1] => fiber\_optics  
CMD[2] => mon  
S01 Antenna  
##### Element in Command Queue fiber\_optics  
INSERTING in Command Queue fiber\_optics  
  
>> we wrote on the socket 10 3-Apr-2015 13:32:37 fiber\_optics mon  
Size of Struct is ##### 1638  
Size of Response Struct => 4698  
MCM => 1  
10  
3-Apr-2015 13:32:37  
fiber\_optics  
##### Number of RESPONSE MSG is 8  
No summery !! 960 1212 1132 718 946 311 539 393 509 790 860 594 608 557 234  
342 830 820 820 835 832 835 840 824 831 829 838 832 825 840 822 834 834 830 827 827 827 828  
822 818 817 823 823 830 827 832 828 840 420 283 332 261 747 1003 896 272 364 261 377 1291 323  
250 804 520 System validated : Fiber Optics  
Command validated : Fiber optics Monitoring  
Fiber Optics Monitoring Done  
Voltage(+12V) : 2.46  
Voltage(-5.0V) : 0.48  
Voltage(-3.1V) : 0.37  
Voltage(-1.1V) : 0.09  
Voltage(GND) : 0.91  
Writing to ONLINE from SENTINEL THREAD SUCCESSFUL

S01 fiber\_optics mon

CMD[0] => S01  
CMD[1] => fiber\_optics  
CMD[2] => mon  
S01 Antenna  
##### Element in Command Queue fiber\_optics  
INSERTING in Command Queue fiber\_optics  
  
>> we wrote on the socket 10 3-Apr-2015 13:33:24 fiber\_optics mon  
Size of Struct is ##### 1638  
Size of Response Struct => 4698  
MCM => 1  
10  
3-Apr-2015 13:33:24  
fiber\_optics  
##### Number of RESPONSE MSG is 8  
No summery !! 592 1392 206 720 838 832 696 846 880 486 390 268 745 338 560  
824 832 826 817 824 830 832 832 824 840 832 832 837 835 832 826 834 824 826 839 834 835 823  
831 823 828 830 820 819 818 824 807 832 418 637 850 181 342 422 373 480 249 777 904 1143 535  
265 344 894 System validated : Fiber Optics

Command validated : Fiber optics Monitoring  
Fiber Optics Monitoring Done  
Voltage(+12V) : 1.28  
Voltage(-5.0V) : -1.72  
Voltage(-3.1V) : 2.97  
Voltage(-1.1V) : 0.56  
Voltage(GND) : 1.95  
Writing to ONLINE from SENTINEL THREAD SUCCESSFUL

Central Square Antennae ( except C02,C04 & C11)

```
[teleset@tellab2 Online]$ ./online_v2  
HIGHUSER thread CREATED=> 0  
SERVO thread CREATED=> 0  
GUI INTERFACE thread CREATED=> 0  
PYTHON INTERFACE thread CREATED=> 0  
==> SERVO SERVER WANTING FOR CLIENT CONNECTION ==>MCM SYSTEM thread  
CREATED=> 0
```

```
>>  
msgget: Calling msgget(0xc9,01600)  
msgget: msgget succeeded: msqid = 0  
Sucessfully Created MESSAGE QUEUE ID=0  
### SERVER WANTING FOR GUI CLIENT TO CONNECT #####  
$$$ SERVER WANTING FOR PYTHON ENVIRONMENT CLIENT TO CONNECT $$$  
##### SERVER WANTING FOR CLIENT CONNECTION #####  
ACCEPTED CONNECTION FROM MCM DEVICE 192.168.21.105  
C05 SEN thread opened succesfully=> 0  
##### SERVER WANTING FOR CLIENT CONNECTION #####  
ACCEPTED CONNECTION FROM MCM DEVICE 192.168.21.108  
C08 SEN thread opened succesfully=> 0  
##### SERVER WANTING FOR CLIENT CONNECTION #####  
ACCEPTED CONNECTION FROM MCM DEVICE 192.168.21.110  
C10 Sentinel thread opened succesfully=> 0  
##### SERVER WANTING FOR CLIENT CONNECTION #####  
ACCEPTED CONNECTION FROM MCM DEVICE 192.168.21.100  
SENTINEL thread opened succesfully=> 0  
##### SERVER WANTING FOR CLIENT CONNECTION #####  
ACCEPTED CONNECTION FROM MCM DEVICE 192.168.33.2  
W06 Sentinel thread opened succesfully=> 0  
##### SERVER WANTING FOR CLIENT CONNECTION #####  
ACCEPTED CONNECTION FROM MCM DEVICE 192.168.32.5  
W05 Sen/OF thread opened succesfully=> 0  
##### SERVER WANTING FOR CLIENT CONNECTION #####  
ACCEPTED CONNECTION FROM MCM DEVICE 192.168.31.2  
BACKEND thread opened succesfully=> 0  
##### SERVER WANTING FOR CLIENT CONNECTION #####  
ACCEPTED CONNECTION FROM MCM DEVICE 192.168.31.3  
S06 sentinel thread opened succesfully=> 0
```

```
##### SERVER WANTING FOR CLIENT CONNECTION #####
ACCEPTED CONNECTION FROM MCM DEVICE 192.168.32.2
W02 sentinel thread opened succesfully=> 0
##### SERVER WANTING FOR CLIENT CONNECTION #####
ACCEPTED CONNECTION FROM MCM DEVICE 192.168.21.109
C09 Sentinel thread opened succesfully=> 0
##### SERVER WANTING FOR CLIENT CONNECTION #####
ACCEPTED CONNECTION FROM MCM DEVICE 192.168.32.3
W03 Sentinel thread opened succesfully=> 0
##### SERVER WANTING FOR CLIENT CONNECTION #####
ACCEPTED CONNECTION FROM MCM DEVICE 192.168.21.103
C03 SEN thread opened succesfully=> 0
##### SERVER WANTING FOR CLIENT CONNECTION #####
ACCEPTED CONNECTION FROM MCM DEVICE 192.168.21.106
C06 SEN thread opened succesfully=> 0
##### SERVER WANTING FOR CLIENT CONNECTION #####
ACCEPTED CONNECTION FROM MCM DEVICE 192.168.32.4
W04 Sentinel thread opened succesfully=> 0
##### SERVER WANTING FOR CLIENT CONNECTION #####
ACCEPTED CONNECTION FROM MCM DEVICE 192.168.21.114
C14 Sentinel thread opened succesfully=> 0
##### SERVER WANTING FOR CLIENT CONNECTION #####
ACCEPTED CONNECTION FROM MCM DEVICE 192.168.31.4
FRONT thread opened succesfully=> 0
##### SERVER WANTING FOR CLIENT CONNECTION #####
ACCEPTED CONNECTION FROM MCM DEVICE 192.168.21.112
C12 Sentinel thread opened succesfully=> 0
##### SERVER WANTING FOR CLIENT CONNECTION #####
ACCEPTED CONNECTION FROM MCM DEVICE 192.168.21.101
C01 SENTINEL thread opened succesfully=> 0
##### SERVER WANTING FOR CLIENT CONNECTION #####
#### Client=> 192.168.8.87 Port 51451
=====>Size of read is 1448
PYTHON ANTENNA name C00
PYTHON SYSTEM name fiber_optics
param_number 0
##### Element in Command Queue fiber_optics
INSERTING in Command Queue fiber_optics
=====>Size of read is 350
we wrote on the socket 1 3-Apr-2015 14:33:34 fiber_optics mon
Size of Struct is ##### 1638
Size of Response Struct => 4698
MCM => 1
1
3-Apr-2015 14:33:34
fiber_optics
##### Number of RESPONSE MSG is 8
No summery !!          838 1352 680 903 790 1220 1399 1355 1330 1317 806 704 1144
1276 1341 905 818 835 816 824 827 828 819 832 831 824 827 819 832 832 828 832 836 819 828 828
```

821 828 821 834 821 819 826 821 828 830 825 825 122 240 251 150 126 35 0 0 0 86 289 576 252 224  
232 332 System validated : Fiber Optics  
Command validated : Fiber optics Monitoring  
Fiber Optics Monitoring Done  
Voltage(+12V) : -0.13  
Voltage(-5.0V) : 0.78  
Voltage(-3.1V) : 1.09  
Voltage(-1.1V) : -0.99  
Voltage(GND) : -3.55  
Writing to ONLINE from SENTINEL THREAD SUCCESSFUL  
====>Size of read is 1448  
PYTHON ANTENNA name C00  
PYTHON SYSTEM name fps  
param\_number 0  
##### Element in Command Queue fps  
INSERTING in Command Queue fps  
====>Size of read is 350  
====>Size of read is 1798  
PYTHON ANTENNA name C00  
PYTHON SYSTEM name sentinel  
param\_number 0  
##### Element in Command Queue sentinel  
INSERTING in Command Queue sentinel  
PYTHON ANTENNA name C01  
PYTHON SYSTEM name sentinel  
param\_number 0  
##### Element in Command Queue sentinel  
INSERTING in Command Queue sentinel  
PYTHON ANTENNA name C03  
PYTHON SYSTEM name sentinel  
param\_number 0  
##### Element in Command Queue sentinel  
INSERTING in Command Queue sentinel  
PYTHON ANTENNA name C05  
PYTHON SYSTEM name sentinel  
param\_number 0  
##### Element in Command Queue sentinel  
INSERTING in Command Queue sentinel  
PYTHON ANTENNA name C06  
PYTHON SYSTEM name sentinel  
param\_number 0  
##### Element in Command Queue sentinel  
INSERTING in Command Queue sentinel  
PYTHON ANTENNA name C08  
PYTHON SYSTEM name sentinel  
param\_number 0  
##### Element in Command Queue sentinel  
INSERTING in Command Queue sentinel  
PYTHON ANTENNA name C09



```
PYTHON SYSTEM name sentinel
param_number 0
##### Element in Command Queue sentinel
INSERTING in Command Queue sentinel
PYTHON ANTENNA name C10
PYTHON SYSTEM name sentinel
param_number 0
##### Element in Command Queue sentinel
INSERTING in Command Queue sentinel
PYTHON ANTENNA name C12
PYTHON SYSTEM name sentinel
param_number 0
##### Element in Command Queue sentinel
INSERTING in Command Queue sentinel
PYTHON ANTENNA name C14
PYTHON SYSTEM name sentinel
param_number 0
##### Element in Command Queue sentinel
INSERTING in Command Queue sentinel
we wrote on the socket 1 3-Apr-2015 14:40:39 sentinel mon
Size of Struct is ##### 1638
we wrote on the socket 1 3-Apr-2015 14:40:39 sentinel mon
Size of Struct is ##### 1638
we wrote on the socket 1 3-Apr-2015 14:40:39 sentinel mon
Size of Struct is ##### 1638
we wrote on the socket 1 3-Apr-2015 14:40:39 sentinel mon
Size of Struct is ##### 1638
we wrote on the socket 1 3-Apr-2015 14:40:39 sentinel mon
Size of Struct is ##### 1638
we wrote on the socket 1 3-Apr-2015 14:40:39 sentinel mon
Size of Struct is ##### 1638
we wrote on the socket 1 3-Apr-2015 14:40:39 sentinel mon
Size of Struct is ##### 1638
we wrote on the socket 1 3-Apr-2015 14:40:39 sentinel mon
Size of Struct is ##### 1638
Size of Response Struct => 4698
MCM => 1
1
3-Apr-2015 14:40:39
sentinel
##### Number of RESPONSE MSG is 3
No summery !!          982 1933 41 1494 1155 858 832 826 820 822 822 826 825 828 824
829 828 823 828 828 819 827 827 826 829 829 829 822 825 821 827 828 821 827 826 823 828 820
822 828 824 829 828 830 826 824 828 825 826 824 829 827 822 825 829 828 825 824 826 988 844
825 227 765 System validated : Sentinel
```

Size of Response Struct => 4698

Command validated : Sentinal Monitoring

MCM => 1

1

3-Apr-2015 14:40:39

sentinel

Sentinel Monitoring Done

##### Number of RESPONSE MSG is 3

No summery !! 976 1913 24 1153 1496 894 829 824 827 824 818 828 829 825 822

827 824 827 827 824 824 829 826 822 828 830 823 825 825 825 828 827 828 825 824 823 822 825

826 831 828 817 826 821 824 828 821 827 771 828 829 830 822 828 826 829 827 823 829 978 839

829 828 210 System validated : Sentinel

Command validated : Sentinal Monitoring

Sentinel Monitoring Done

Writing to ONLINE from SENTINEL THREAD SUCCESSFUL

Writing to ONLINE from SENTINEL THREAD SUCCESSFUL

Size of Response Struct => 4698

MCM => 1

1

3-Apr-2015 14:40:39

sentinel

##### Number of RESPONSE MSG is 3

No summery !! 808 808 801 838 843 821 828 823 824 821 826 831 820 832 824

830 823 824 822 817 829 832 821 818 831 826 832 828 828 820 816 819 827 819 824 825 824 828

828 832 832 815 819 834 816 823 826 819 851 1156 1056 563 725 389 156 205 269 539 723 910 987

686 531 281 System validated : Sentinel

Command validated : Sentinal Monitoring

Sentinel Monitoring Done

Writing to ONLINE from SENTINEL THREAD SUCCESSFUL

Size of Response Struct => 4698

MCM => 1

1

3-Apr-2015 14:40:39

sentinel

##### Number of RESPONSE MSG is 3

No summery !! 836 825 822 827 826 820 825 825 829 827 820 826 832 822 826

826 830 828 817 824 832 826 826 820 827 825 822 818 822 830 824 832 823 829 829 827 824 832

827 828 829 825 827 824 822 829 829 824 182 204 334 582 645 815 819 772 649 142 431 1236 316

586 365 376 System validated : Sentinel

Command validated : Sentinal Monitoring

Sentinel Monitoring Done

Writing to ONLINE from SENTINEL THREAD SUCCESSFUL

Size of Response Struct => 4698

MCM => 1

1

3-Apr-2015 14:40:39

sentinel

##### Number of RESPONSE MSG is 3

No summery !! 981 1932 27 1154 1497 894 829 826 828 828 828 830 828 828 827

827 826 823 828 824 820 827 828 827 827 826 826 828 830 828 826 822 821 830 830 828 826 832  
824 823 830 822 826 828 826 828 830 828 829 828 827 828 830 826 822 828 826 825 824 1009 847

827 208 769 System validated : Sentinel

Command validated : Sentinal Monitoring

Sentinel Monitoring Done

Writing to ONLINE from SENTINEL THREAD SUCCESSFUL

Size of Response Struct => 4698

MCM => 1

1

3-Apr-2015 14:40:39

sentinel

##### Number of RESPONSE MSG is 3

No summery !! 980 1924 25 1504 1172 864 824 825 825 828 828 821 828 820 825

825 831 825 824 827 828 828 824 826 828 825 826 826 830 823 827 821 828 827 830 826 824 826

825 825 828 824 824 828 827 826 827 825 771 826 825 828 822 826 826 821 824 825 824 825 824

826 827 222 System validated : Sentinel

Command validated : Sentinal Monitoring

Sentinel Monitoring Done

Writing to ONLINE from SENTINEL THREAD SUCCESSFUL

Size of Response Struct => 4698

MCM => 1

1

3-Apr-2015 14:40:39

sentinel

##### Number of RESPONSE MSG is 3

No summery !! 980 1928 30 1466 1154 859 829 828 827 827 831 828 828 829 829

826 828 826 828 825 829 823 825 828 828 830 829 827 825 824 831 828 832 832 829 829 829 829

828 829 830 826 828 829 826 828 828 822 775 826 829 827 824 832 827 832 829 826 828 982 844

826 829 237 System validated : Sentinel

Command validated : Sentinal Monitoring

Sentinel Monitoring Done

Writing to ONLINE from SENTINEL THREAD SUCCESSFUL

Size of Response Struct => 4698

MCM => 1

1

3-Apr-2015 14:40:39

sentinel

##### Number of RESPONSE MSG is 3

No summery !! 981 1914 25 1500 1147 859 825 827 826 825 828 821 823 821 828

828 830 821 830 830 828 826 828 826 829 828 822 829 824 829 826 829 827 827 829 826 829 825

825 826 828 826 830 825 829 823 825 830 824 832 832 824 828 824 831 826 830 828 823 983 844

828 285 774 System validated : Sentinel

Command validated : Sentinal Monitoring

Sentinel Monitoring Done

Writing to ONLINE from SENTINEL THREAD SUCCESSFUL

Size of Response Struct => 4698

MCM => 1

1

3-Apr-2015 14:40:39

sentinel

##### Number of RESPONSE MSG is 3

No summery !! 978 1930 24 1511 1173 864 826 829 827 829 828 827 827 821 832

829 829 829 829 826 829 832 835 827 827 826 828 827 826 826 822 829 824 832 828 832 826 829

831 830 829 824 827 824 825 823 829 825 766 832 828 828 829 830 825 826 828 828 828 984 842

830 830 192 System validated : Sentinel

Command validated : Sentinal Monitoring

Sentinel Monitoring Done

Writing to ONLINE from SENTINEL THREAD SUCCESSFUL

Size of Response Struct => 4698

MCM => 1

1

3-Apr-2015 14:40:39

sentinel

##### Number of RESPONSE MSG is 3

No summery !! 1012 777 592 1053 1258 1423 1596 1405 1311 1115 861 989 1196

890 1250 1116 819 836 816 833 841 824 819 830 823 826 821 825 826 837 827 823 824 832 830 824

823 827 827 836 820 820 820 836 828 829 826 830 139 147 192 64 34 0 0 0 103 107 239 948 221 200

131 165 System validated : Sentinel

Command validated : Sentinal Monitoring

Sentinel Monitoring Done

Writing to ONLINE from SENTINEL THREAD SUCCESSFUL

=====>Size of read is 1448

PYTHON ANTENNA name C00

PYTHON SYSTEM name fiber\_optics

param\_number 0

##### Element in Command Queue fiber\_optics

INSERTING in Command Queue fiber\_optics

PYTHON ANTENNA name C01

PYTHON SYSTEM name fiber\_optics

param\_number 0

##### Element in Command Queue fiber\_optics

INSERTING in Command Queue fiber\_optics

PYTHON ANTENNA name C03

PYTHON SYSTEM name fiber\_optics

param\_number 0

##### Element in Command Queue fiber\_optics

INSERTING in Command Queue fiber\_optics

PYTHON ANTENNA name C05

PYTHON SYSTEM name fiber\_optics

param\_number 0

##### Element in Command Queue fiber\_optics

INSERTING in Command Queue fiber\_optics

PYTHON ANTENNA name C06

PYTHON SYSTEM name fiber\_optics

param\_number 0

##### Element in Command Queue fiber\_optics

INSERTING in Command Queue fiber\_optics

```
PYTHON ANTENNA name C08
PYTHON SYSTEM name fiber_optics
param_number 0
##### Element in Command Queue fiber_optics
INSERTING in Command Queue fiber_optics
PYTHON ANTENNA name C09
PYTHON SYSTEM name fiber_optics
param_number 0
##### Element in Command Queue fiber_optics
INSERTING in Command Queue fiber_optics
PYTHON ANTENNA name C10
PYTHON SYSTEM name fiber_optics
param_number 0
##### Element in Command Queue fiber_optics
INSERTING in Command Queue fiber_optics
PYTHON ANTENNA name C12
PYTHON SYSTEM name fiber_optics
param_number 0
##### Element in Command Queue fiber_optics
INSERTING in Command Queue fiber_optics
PYTHON ANTENNA name C14
PYTHON SYSTEM name fiber_optics
param_number 0
##### Element in Command Queue fiber_optics
INSERTING in Command Queue fiber_optics
====>Size of read is 350
we wrote on the socket 2 3-Apr-2015 14:43:11 fiber_optics mon
Size of Struct is ##### 1638
we wrote on the socket 2 3-Apr-2015 14:43:11 fiber_optics mon
Size of Struct is ##### 1638
we wrote on the socket 2 3-Apr-2015 14:43:11 fiber_optics mon
Size of Struct is ##### 1638
we wrote on the socket 2 3-Apr-2015 14:43:11 fiber_optics mon
Size of Struct is ##### 1638
we wrote on the socket 2 3-Apr-2015 14:43:11 fiber_optics mon
Size of Struct is ##### 1638
we wrote on the socket 2 3-Apr-2015 14:43:11 fiber_optics mon
Size of Struct is ##### 1638
we wrote on the socket 2 3-Apr-2015 14:43:11 fiber_optics mon
Size of Struct is ##### 1638
we wrote on the socket 2 3-Apr-2015 14:43:11 fiber_optics mon
Size of Struct is ##### 1638
Size of Response Struct => 4698
MCM => 1
2
```

3-Apr-2015 14:43:11

fiber\_optics

##### NUMber of RESPONSE MSG is 8

No summery !! 980 1930 36 1492 1152 861 821 825 827 829 823 822 823 831 825

824 823 824 832 829 822 823 828 825 823 828 824 821 826 828 821 828 823 832 824 826 830 830

823 828 827 821 830 829 832 822 826 827 829 828 823 829 828 830 828 830 824 831 827 990 845

825 237 768 System validated : Fiber Optics

Command validated : Fiber optics Monitoring

Fiber Optics Monitoring Done

Voltage(+12V) : 0.03

Voltage(-5.0V) : -4.84

Voltage(-3.1V) : 4.81

Voltage(-1.1V) : -2.62

Voltage(GND) : -0.84

Writing to ONLINE from SENTINEL THREAD SUCCESSFUL

Size of Response Struct => 4698

MCM => 1

2

3-Apr-2015 14:43:11

fiber\_optics

##### NUMber of RESPONSE MSG is 8

No summery !! 979 1923 24 1503 1175 859 825 820 826 825 828 826 829 828 828

824 828 822 828 825 826 825 823 827 820 828 825 827 825 820 829 826 825 826 827 827 825 827

822 830 826 828 825 828 827 826 827 824 764 828 826 828 828 826 828 827 824 825 827 825 826

830 827 200 System validated : Fiber Optics

Command validated : Fiber optics Monitoring

Fiber Optics Monitoring Done

Voltage(+12V) : 0.00

Voltage(-5.0V) : -4.81

Voltage(-3.1V) : 4.88

Voltage(-1.1V) : -2.65

Voltage(GND) : -0.98

Writing to ONLINE from SENTINEL THREAD SUCCESSFUL

Size of Response Struct => 4698

MCM => 1

2

3-Apr-2015 14:43:11

fiber\_optics

##### NUMber of RESPONSE MSG is 8

No summery !! 984 1923 29 1464 1152 862 828 832 827 832 829 829 826 824 831

827 831 827 827 830 832 822 826 830 828 829 828 830 830 827 832 824 830 830 832 829 829 827

829 829 827 828 832 829 831 829 828 831 772 833 828 829 825 829 828 828 822 825 828 983 839

826 830 248 System validated : Fiber Optics

Command validated : Fiber optics Monitoring

Fiber Optics Monitoring Done

Voltage(+12V) : -0.02

Voltage(-5.0V) : -4.84

Voltage(-3.1V) : 4.84

Voltage(-1.1V) : -2.49

Voltage(GND) : -0.89  
Writing to ONLINE from SENTINEL THREAD SUCCESSFUL  
Size of Response Struct => 4698  
MCM => 1  
2  
3-Apr-2015 14:43:11  
fiber\_optics  
##### NUmber of RESPONSE MSG is 8  
No summery !! 981 1925 28 1153 1502 890 828 829 827 828 824 824 830 824 828  
825 831 824 826 830 829 829 827 827 829 828 829 822 825 824 827 828 827 821 826 825 824 828  
830 829 824 827 830 825 827 827 829 824 826 827 826 827 826 824 822 827 826 830 827 1016 843  
831 350 782 System validated : Fiber Optics  
Command validated : Fiber optics Monitoring  
Fiber Optics Monitoring Done  
Voltage(+12V) : -0.00  
Voltage(-5.0V) : -4.85  
Voltage(-3.1V) : 4.87  
Voltage(-1.1V) : -0.87  
Voltage(GND) : -2.64  
Writing to ONLINE from SENTINEL THREAD SUCCESSFUL  
Size of Response Struct => 4698  
MCM => 1  
2  
3-Apr-2015 14:43:11  
fiber\_optics  
##### NUmber of RESPONSE MSG is 8  
No summery !! 981 1910 29 1160 1499 896 824 823 825 822 827 828 826 828 825  
826 828 830 824 822 828 827 830 824 826 828 829 830 830 820 826 823 829 828 827 827 825 823  
828 826 827 826 827 828 826 824 821 829 766 830 828 819 827 828 826 828 828 825 826 976 836  
832 827 183 System validated : Fiber Optics  
Command validated : Fiber optics Monitoring  
Fiber Optics Monitoring Done  
Voltage(+12V) : 0.01  
Voltage(-5.0V) : -4.76  
Voltage(-3.1V) : 4.85  
Voltage(-1.1V) : -0.89  
Voltage(GND) : -2.65  
Writing to ONLINE from SENTINEL THREAD SUCCESSFUL  
Size of Response Struct => 4698  
MCM => 1  
2  
3-Apr-2015 14:43:11  
fiber\_optics  
##### NUmber of RESPONSE MSG is 8  
No summery !! 806 814 849 826 836 814 819 828 822 821 826 824 824 823 820  
824 826 827 822 828 819 823 820 826 830 818 822 825 823 823 820 817 836 826 827 828 819 822  
816 828 824 835 824 825 818 822 821 824 460 645 775 940 625 383 173 159 464 554 847 1332 1086  
497 393 388 System validated : Fiber Optics  
Command validated : Fiber optics Monitoring

Fiber Optics Monitoring Done

Voltage(+12V) : 0.80

Voltage(-5.0V) : 0.75

Voltage(-3.1V) : 0.69

Voltage(-1.1V) : 0.73

Voltage(GND) : 0.83

Writing to ONLINE from SENTINEL THREAD SUCCESSFUL

Size of Response Struct => 4698

MCM => 1

2

3-Apr-2015 14:43:11

fiber\_optics

##### Number of RESPONSE MSG is 8

No summery !! 833 836 826 816 832 820 828 824 838 836 826 825 827 824 827

830 825 826 821 832 830 828 837 830 830 823 825 822 822 833 825 822 824 824 832 827 824 824

826 825 819 824 825 822 825 826 827 829 208 169 307 259 604 665 784 726 594 350 237 1267 199

424 641 1052 System validated : Fiber Optics

Command validated : Fiber optics Monitoring

Fiber Optics Monitoring Done

Voltage(+12V) : 0.82

Voltage(-5.0V) : 0.77

Voltage(-3.1V) : 0.81

Voltage(-1.1V) : 0.78

Voltage(GND) : 0.80

Writing to ONLINE from SENTINEL THREAD SUCCESSFUL

Size of Response Struct => 4698

MCM => 1

2

3-Apr-2015 14:43:11

fiber\_optics

##### Number of RESPONSE MSG is 8

No summery !! 980 1926 26 1509 1170 862 830 828 824 830 828 827 829 830 822

831 828 830 827 832 821 826 823 828 831 824 829 828 830 825 824 829 829 826 828 826 824 828

830 826 828 832 829 832 824 824 830 822 772 825 829 828 832 829 828 824 832 830 825 984 842

825 825 240 System validated : Fiber Optics

Command validated : Fiber optics Monitoring

Fiber Optics Monitoring Done

Voltage(+12V) : 0.00

Voltage(-5.0V) : -4.83

Voltage(-3.1V) : 4.84

Voltage(-1.1V) : -2.68

Voltage(GND) : -0.95

Writing to ONLINE from SENTINEL THREAD SUCCESSFUL

Size of Response Struct => 4698

MCM => 1

2

3-Apr-2015 14:43:11

fiber\_optics

##### Number of RESPONSE MSG is 8



No summery !! 980 1920 26 1497 1158 860 827 828 824 824 826 826 824 830 829  
826 830 822 825 827 827 830 825 826 829 828 828 825 827 821 828 830 822 827 829 831 828 820  
824 827 825 826 829 824 828 822 826 824 820 822 825 825 828 827 827 824 828 825 824 977 843  
824 269 772 System validated : Fiber Optics  
Command validated : Fiber optics Monitoring  
Fiber Optics Monitoring Done  
Voltage(+12V) : 0.01  
Voltage(-5.0V) : -4.76  
Voltage(-3.1V) : 4.89  
Voltage(-1.1V) : -2.64  
Voltage(GND) : -0.89  
Writing to ONLINE from SENTINEL THREAD SUCCESSFUL  
Size of Response Struct => 4698  
MCM => 1  
2  
3-Apr-2015 14:43:11  
fiber\_optics  
##### Number of RESPONSE MSG is 8  
No summery !! 1241 1655 585 656 900 740 1204 1418 1348 1342 1176 896 1252  
1280 1184 1154 820 842 835 824 830 828 824 832 822 824 827 830 831 817 816 827 830 820 815 824  
825 827 832 832 835 828 826 827 819 826 820 832 78 134 193 188 117 56 48 0 0 6 126 478 238 281  
219 198 System validated : Fiber Optics  
Command validated : Fiber optics Monitoring  
Fiber Optics Monitoring Done  
Voltage(+12V) : 0.57  
Voltage(-5.0V) : -3.31  
Voltage(-3.1V) : 1.78  
Voltage(-1.1V) : -2.89  
Voltage(GND) : -3.02  
Writing to ONLINE from SENTINEL THREAD SUCCESSFUL  
  
PYTHON ANTENNA name C00  
PYTHON SYSTEM name sentinel  
param\_number 1  
##### Element in Command Queue sentinel  
INSERTING in Command Queue sentinel  
PYTHON ANTENNA name C01  
PYTHON SYSTEM name sentinel  
param\_number 1  
##### Element in Command Queue sentinel  
INSERTING in Command Queue sentinel  
PYTHON ANTENNA name C03  
PYTHON SYSTEM name sentinel  
param\_number 1  
##### Element in Command Queue sentinel  
INSERTING in Command Queue sentinel  
PYTHON ANTENNA name C05  
PYTHON SYSTEM name sentinel  
param\_number 1

[illegible]

dmask ffff 5555  
Size of Struct is ##### 1638  
we wrote on the socket 3 3-Apr-2015 14:45:24 sentinel set  
dmask ffff 5555  
Size of Struct is ##### 1638  
we wrote on the socket 3 3-Apr-2015 14:45:24 sentinel set  
dmask ffff 5555  
Size of Struct is ##### 1638  
we wrote on the socket 3 3-Apr-2015 14:45:24 sentinel set  
dmask ffff 5555  
Size of Struct is ##### 1638  
Size of Response Struct => 4698  
MCM => 1  
3  
3-Apr-2015 14:45:24  
sentinel  
##### Number of RESPONSE MSG is 3  
No summery !! 814 824 825 830 827 832 825 820 817 824 826 821 829 824 824  
832 823 825 816 831 823 830 831 821 825 831 822 821 827 831 824 829 821 825 827 824 824 817  
824 819 824 826 827 820 821 824 808 828 429 664 812 816 710 449 185 248 261 267 241 745 210  
674 572 392 System validated : Sentinel  
Command validated : Sentinal Controlling  
Digital Mask : ffff 5555  
Size of Response Struct => 4698  
Writing to ONLINE from SENTINEL THREAD SUCCESSFUL  
MCM => 1  
3  
3-Apr-2015 14:45:24  
sentinel  
##### Number of RESPONSE MSG is 3  
No summery !! 966 1916 14 1449 1141 857 825 827 826 827 820 821 829 828 830  
823 829 822 820 827 824 828 826 822 825 832 826 825 826 830 826 827 823 825 820 823 830 830  
828 826 823 822 823 825 824 824 827 828 786 827 823 828 828 825 825 822 826 822 826 973 841  
824 832 251 System validated : Sentinel  
Command validated : Sentinal Controlling  
Digital Mask : ffff 5555  
Writing to ONLINE from SENTINEL THREAD SUCCESSFUL  
Size of Response Struct => 4698  
MCM => 1  
3  
3-Apr-2015 14:45:24  
sentinel  
##### Number of RESPONSE MSG is 3  
No summery !! 843 818 825 820 818 814 813 835 812 830 824 825 816 826 820  
824 832 812 817 813 818 825 814 826 827 820 813 822 822 811 825 818 827 828 822 825 826 825  
811 829 823 824 819 826 815 827 833 810 832 510 220 109 330 755 536 737 1292 928 764 941 630

448 466 740 System validated : Sentinel  
Command validated : Sentinal Controlling  
Digital Mask : ffff 5555  
Size of Response Struct => 4698  
MCM => 1

3

3-Apr-2015 14:45:24

sentinel

##### Number of RESPONSE MSG is 3

No summery !! 967 1914 8 1139 1486 891 823 821 826 820 820 827 824 824 826

824 828 827 828 828 824 823 825 824 821 826 822 826 821 824 826 823 821 828 816 828 821 830

822 826 826 827 822 826 824 822 824 826 824 824 825 826 829 825 824 822 823 815 828 996 840

827 230 766 System validated : Sentinel

Command validated : Sentinal Controlling

Digital Mask : ffff 5555

Writing to ONLINE from SENTINEL THREAD SUCCESSFUL

Writing to ONLINE from SENTINEL THREAD SUCCESSFUL

Size of Response Struct => 4698

MCM => 1

3

3-Apr-2015 14:45:24

sentinel

##### Number of RESPONSE MSG is 3

No summery !! 970 1917 20 1502 1160 859 827 825 829 826 827 825 826 825 826

824 827 821 817 823 821 820 825 825 828 831 832 827 822 826 820 829 823 827 829 831 830 828

826 827 829 832 822 824 832 821 831 825 770 830 828 829 832 828 826 822 825 826 824 979 840

827 829 242 System validated : Sentinel

Command validated : Sentinal Controlling

Digital Mask : ffff 5555

Size of Response Struct => 4698

MCM => 1

3

3-Apr-2015 14:45:24

sentinel

Writing to ONLINE from SENTINEL THREAD SUCCESSFUL

##### Number of RESPONSE MSG is 3

No summery !! 963 1922 26 1479 1141 859 823 820 825 830 816 822 828 818 824

829 827 824 824 830 817 826 823 824 822 825 822 824 823 822 817 825 824 824 828 823 821 825

826 826 823 822 825 824 822 820 821 824 824 824 825 828 826 823 820 819 824 823 825 974 844

824 210 762 System validated : Sentinel

Command validated : Sentinal Controlling

Digital Mask : ffff 5555

Writing to ONLINE from SENTINEL THREAD SUCCESSFUL

Size of Response Struct => 4698

MCM => 1

3

3-Apr-2015 14:45:24

sentinel

##### Number of RESPONSE MSG is 3

No summery !! 972 1911 12 1486 1162 854 824 827 820 826 824 819 822 821 823  
825 825 826 820 823 819 823 821 817 822 824 819 820 825 827 818 829 818 825 824 818 823 824  
826 826 827 824 827 825 820 822 821 824 764 822 815 818 824 821 827 822 824 822 820 814 828

822 821 188 System validated : Sentinel

Command validated : Sentinal Controlling

Digital Mask : ffff 5555

Size of Response Struct => 4698

MCM => 1

3

3-Apr-2015 14:45:24

sentinel

Writing to ONLINE from SENTINEL THREAD SUCCESSFUL

##### Number of RESPONSE MSG is 3

No summery !! 960 1898 8 1144 1489 892 828 830 824 824 823 822 826 822 831

825 827 824 826 825 823 818 828 832 823 830 824 816 825 829 817 824 826 819 823 823 827 827

819 823 825 826 820 824 826 826 824 826 768 824 819 823 828 824 817 823 827 826 827 967 839

822 828 210 System validated : Sentinel

Command validated : Sentinal Controlling

Digital Mask : ffff 5555

Writing to ONLINE from SENTINEL THREAD SUCCESSFUL

Size of Response Struct => 4698

MCM => 1

3

3-Apr-2015 14:45:24

sentinel

##### Number of RESPONSE MSG is 3

No summery !! 965 1912 12 1487 1145 860 820 822 820 824 824 828 821 827 827

820 825 828 821 828 823 828 826 830 816 823 830 825 829 825 822 828 819 822 826 828 822 817

819 819 825 823 827 829 826 820 820 823 825 820 825 823 828 829 828 830 821 815 826 963 835

812 209 768 System validated : Sentinel

Command validated : Sentinal Controlling

Digital Mask : ffff 5555

Writing to ONLINE from SENTINEL THREAD SUCCESSFUL

Size of Response Struct => 4698

MCM => 1

3

3-Apr-2015 14:45:24

sentinel

##### Number of RESPONSE MSG is 3

No summery !! 1238 1356 942 1114 1740 1392 1301 1270 1140 1149 1008 787

1368 1417 1304 926 835 833 819 833 828 832 828 835 818 828 832 828 822 831 827 820 823 826 832

829 825 824 822 832 817 826 819 823 827 828 828 832 138 62 38 0 0 0 66 68 156 194 368 878 91 0

17 185 System validated : Sentinel

Command validated : Sentinal Controlling

Digital Mask : ffff 5555

Writing to ONLINE from SENTINEL THREAD SUCCESSFUL

=====>Size of read is 1448

PYTHON ANTENNA name C00

PYTHON SYSTEM name fiber\_optics

```
param_number 1
##### Element in Command Queue fiber_optics
INSERTING in Command Queue fiber_optics
PYTHON ANTENNA name C01
PYTHON SYSTEM name fiber_optics
param_number 1
##### Element in Command Queue fiber_optics
INSERTING in Command Queue fiber_optics
PYTHON ANTENNA name C03
PYTHON SYSTEM name fiber_optics
param_number 1
##### Element in Command Queue fiber_optics
INSERTING in Command Queue fiber_optics
PYTHON ANTENNA name C05
PYTHON SYSTEM name fiber_optics
param_number 1
##### Element in Command Queue fiber_optics
INSERTING in Command Queue fiber_optics
PYTHON ANTENNA name C06
PYTHON SYSTEM name fiber_optics
param_number 1
##### Element in Command Queue fiber_optics
INSERTING in Command Queue fiber_optics
PYTHON ANTENNA name C08
PYTHON SYSTEM name fiber_optics
param_number 1
##### Element in Command Queue fiber_optics
INSERTING in Command Queue fiber_optics
PYTHON ANTENNA name C09
PYTHON SYSTEM name fiber_optics
param_number 1
##### Element in Command Queue fiber_optics
INSERTING in Command Queue fiber_optics
PYTHON ANTENNA name C10
PYTHON SYSTEM name fiber_optics
param_number 1
##### Element in Command Queue fiber_optics
INSERTING in Command Queue fiber_optics
PYTHON ANTENNA name C12
PYTHON SYSTEM name fiber_optics
param_number 1
##### Element in Command Queue fiber_optics
INSERTING in Command Queue fiber_optics
PYTHON ANTENNA name C14
PYTHON SYSTEM name fiber_optics
param_number 1
##### Element in Command Queue fiber_optics
INSERTING in Command Queue fiber_optics
====>Size of read is 350
```

we wrote on the socket 4 3-Apr-2015 14:46:33 fiber\_optics set  
rf\_attn 10 10

Size of Struct is ##### 1638

we wrote on the socket 4 3-Apr-2015 14:46:33 fiber\_optics set  
rf\_attn 10 10

Size of Struct is ##### 1638

we wrote on the socket 4 3-Apr-2015 14:46:33 fiber\_optics set  
rf\_attn 10 10

Size of Struct is ##### 1638

we wrote on the socket 4 3-Apr-2015 14:46:33 fiber\_optics set  
rf\_attn 10 10

Size of Struct is ##### 1638

we wrote on the socket 4 3-Apr-2015 14:46:33 fiber\_optics set  
rf\_attn 10 10

Size of Struct is ##### 1638

we wrote on the socket 4 3-Apr-2015 14:46:33 fiber\_optics set  
rf\_attn 10 10

Size of Struct is ##### 1638

we wrote on the socket 4 3-Apr-2015 14:46:33 fiber\_optics set  
rf\_attn 10 10

Size of Struct is ##### 1638

we wrote on the socket 4 3-Apr-2015 14:46:33 fiber\_optics set  
rf\_attn 10 10

Size of Struct is ##### 1638

we wrote on the socket 4 3-Apr-2015 14:46:33 fiber\_optics set  
rf\_attn 10 10

Size of Struct is ##### 1638

we wrote on the socket 4 3-Apr-2015 14:46:33 fiber\_optics set  
rf\_attn 10 10

Size of Struct is ##### 1638

Size of Response Struct => 4698

MCM => 1

4

3-Apr-2015 14:46:33

fiber\_optics

##### NUmber of RESPONSE MSG is 3

No summery !! 982 1928 32 1465 1152 863 828 828 826 830 828 832 825 830 828

825 830 830 828 824 830 824 828 828 828 832 825 829 830 826 830 832 826 826 830 833 825 828

824 830 827 830 825 831 830 829 830 828 770 830 830 821 828 824 830 827 832 825 828 985 844

830 829 267 System validated : Fiber Optics

Command validated : Fiber optics Controlling

RF Attenuation : 10 10

Writing to ONLINE from SENTINEL THREAD SUCCESSFUL

Size of Response Struct => 4698

MCM => 1

4

3-Apr-2015 14:46:33

fiber\_optics

##### NUmber of RESPONSE MSG is 3

No summery !! 979 1928 24 1501 1172 857 827 824 824 825 823 822 828 824 824  
821 828 828 825 822 822 824 824 826 829 825 828 823 821 827 829 828 828 828 825 823 825 824  
828 828 824 826 825 828 830 828 828 824 764 823 824 826 824 826 828 827 823 821 827 822 826  
828 829 204 System validated : Fiber Optics  
Command validated : Fiber optics Controlling  
RF Attenuation : 10 10  
Writing to ONLINE from SENTINEL THREAD SUCCESSFUL  
Size of Response Struct => 4698  
MCM => 1  
4  
3-Apr-2015 14:46:33  
fiber\_optics  
##### Number of RESPONSE MSG is 3  
No summery !! 978 1909 27 1157 1494 896 824 824 825 821 830 824 824 827 825  
827 828 824 825 824 823 826 821 828 819 828 829 827 825 825 828 828 824 826 827 825 825 822  
824 821 828 821 828 825 832 828 826 825 770 826 829 830 828 829 827 827 828 824 824 980 845  
823 827 221 System validated : Fiber Optics  
Command validated : Fiber optics Controlling  
RF Attenuation : 10 10  
Writing to ONLINE from SENTINEL THREAD SUCCESSFUL  
Size of Response Struct => 4698  
MCM => 1  
4  
3-Apr-2015 14:46:33  
fiber\_optics  
##### Number of RESPONSE MSG is 3  
No summery !! 823 821 812 811 826 810 830 822 825 824 830 828 820 829 822  
835 824 823 827 824 827 825 823 832 820 832 826 832 822 825 827 832 829 834 834 812 832 820  
830 824 825 832 820 832 834 826 819 824 196 279 555 556 801 1145 479 458 317 424 320 899 708  
623 672 1225 System validated : Fiber Optics  
Command validated : Fiber optics Controlling  
RF Attenuation : 10 10  
Writing to ONLINE from SENTINEL THREAD SUCCESSFUL  
Size of Response Struct => 4698  
MCM => 1  
4  
3-Apr-2015 14:46:33  
fiber\_optics  
##### Number of RESPONSE MSG is 3  
No summery !! 984 1929 37 1492 1152 864 830 828 828 825 828 828 827 823 819  
824 827 828 827 830 828 828 825 821 826 824 832 828 825 821 823 826 829 821 828 824 822 825  
820 822 822 832 830 827 825 829 828 828 829 828 824 828 824 828 827 826 826 827 821 989 840  
823 211 761 System validated : Fiber Optics  
Command validated : Fiber optics Controlling  
Size of Response Struct => 4698  
RF Attenuation : 10 10  
MCM => 1  
4  
3-Apr-2015 14:46:33



fiber\_optics

Writing to ONLINE from SENTINEL THREAD SUCCESSFUL

##### Number of RESPONSE MSG is 3

No summery !! 976 1915 19 1492 1154 860 829 824 824 830 827 826 830 830 828

828 828 825 829 834 824 825 829 826 828 825 828 823 827 822 825 825 827 829 822 828 824 828

823 826 825 824 828 825 829 824 822 828 829 828 823 827 822 827 827 830 826 828 828 976 844

828 259 770 System validated : Fiber Optics

Command validated : Fiber optics Controlling

RF Attenuation : 10 10

Size of Response Struct => 4698

MCM => 1

4

3-Apr-2015 14:46:33

fiber\_optics

Writing to ONLINE from SENTINEL THREAD SUCCESSFUL

##### Number of RESPONSE MSG is 3

No summery !! 985 1927 28 1509 1171 865 830 829 826 831 829 830 832 828 824

823 823 830 828 830 826 827 828 827 824 832 830 828 829 827 832 825 829 832 827 829 827 830

823 828 828 826 828 827 825 828 826 831 769 828 827 828 827 829 829 830 832 829 830 989 844

822 828 211 System validated : Fiber Optics

Command validated : Fiber optics Controlling

RF Attenuation : 10 10

Size of Response Struct => 4698

MCM => 1

4

3-Apr-2015 14:46:33

fiber\_optics

Writing to ONLINE from SENTINEL THREAD SUCCESSFUL

##### Number of RESPONSE MSG is 3

No summery !! 978 1925 27 1154 1502 894 822 820 825 825 830 828 824 828 828

825 828 829 829 832 829 827 829 829 830 826 828 826 827 827 830 827 829 832 830 823 829 828

827 826 826 824 825 823 827 829 828 826 826 829 826 828 829 830 826 822 829 830 825 964 840

827 270 772 System validated : Fiber Optics

Command validated : Fiber optics Controlling

RF Attenuation : 10 10

Size of Response Struct => 4698

MCM => 1

4

3-Apr-2015 14:46:33

fiber\_optics

Writing to ONLINE from SENTINEL THREAD SUCCESSFUL

##### Number of RESPONSE MSG is 3

No summery !! 830 820 827 837 827 835 824 818 830 833 829 827 832 832 832

827 828 825 829 825 821 822 828 827 823 827 832 830 827 828 825 825 830 826 829 823 828 827

828 829 830 828 827 835 836 828 839 836 808 520 252 175 174 135 239 412 441 704 691 1198 370

316 766 413 System validated : Fiber Optics

Command validated : Fiber optics Controlling

RF Attenuation : 10 10

Writing to ONLINE from SENTINEL THREAD SUCCESSFUL

Size of Response Struct => 4698

MCM => 1

4

3-Apr-2015 14:46:33

fiber\_optics

##### NUmber of RESPONSE MSG is 3

No summery !! 1433 1645 722 1002 712 1137 955 1404 1459 1510 1260 592 1165

779 1252 940 840 832 836 826 829 828 835 824 821 822 832 829 828 828 822 836 820 820 828 827

828 834 830 831 825 831 824 833 837 828 829 823 0 30 101 230 274 224 95 26 0 0 44 470 194 302

463 408 System validated : Fiber Optics

Command validated : Fiber optics Controlling

RF Attenuation : 10 10

Writing to ONLINE from SENTINEL THREAD SUCCESSFUL