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Room No 3, D-II Wing
Sena Bhawan
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TM(MS)/0025/DSMAQ/DSRV SIM

22 Apr 24

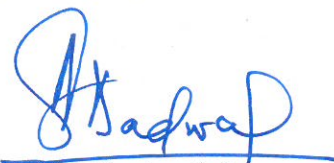
To,

All Concerned

**SUBJECT: FORWARDING OF PRE-BID REPLIES FOR
PROCUREMENT AND SETTING UP OF TWO DSRV SMULATORS**

Sir,

1. Refer to TM(M)/0025/DSMAQ/ DSRV SIM dated 16 Feb 24 regarding issuance of RFP for Procurement and setting up of two DSRV Simulators & discussions during Pre-Bid Meeting held at New Delhi on 01 Apr 24.
2. The consolidated reply to all pre-bid queries raised by participating vendors and discussed during the above mentioned meeting is forwarded herewith.



(AS Dadwal)
Commodore
DDG Acq Tech(Maritime)
MoD Acq Wing

Encl : As above

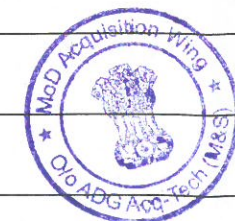
Copy to :

The Commodore (Submarine Acquisition)
Naval Headquarters/DSMAQ
Room No 119, 'C' Wing, I Floor
Sena Bhawan
New Delhi – 110 011

Encl to TM(MS)/00025/DSMAQ/SIM
 Dated 22 Apr 24.

REPLY TO PREBID QUERIES (PREBID MEETING HELD ON 01 APR 2024)

Ser	Page No	RFP Reference/Para/ Page No.	RFP Text/ Context	Query	Draft Reply by DSMAQ
1	20	Para 46/Page No. 20	Technical Evaluation Trials	Please confirm 'trials' is an inadvertent TYPO error and there is no physical trials as such.	Refer to Para 54 of RFP.
2	22	Page No. 22	Appendix A, Para 3 - Type (a) The training simulator should be a fully functional replica of the SRV having motion platform with virtual six Degrees of Freedom (no actual / physical motion control) and a Front Facia replica of the ROV Control Station with no motion requirement. The Training simulators should have the same look, feel, functionalities, man-machine interface and response time of the ROV and SRV. (i) Replica of the SRV with appearance and configuration of equipment similar to those with Indian Navy's DSRV and dynamic characteristics of defined equipment and the platform as per design (the required internal facilities are described subsequently). (ii) Adaptors and connections for Ventilation and Air Conditioning (VAC) of the simulator from an external VAC System.	1. Is there any specific type of DSRV acquired by IN for which the simulator should be designed OR the simulator is to be a generic type? Request to clarify. 2. Do we have to provide a external hull structure With inside view resembling to that of SRV and transfer skirt at the bottom for the SRV or just a compartment replicating the inside view of SRV with transfer hatch would suffice for DSRV simulator? Request to clarify. 3. It is presumed that configuration of the equipment for Indian Navy's DSRV is based on military grade equipments and components but DSRV simulator will be based on COTS industrial grade equipments and components and designed sub systems may have minor variation with actual DSRV possessed by Indian Navy which should be acceptable. Please confirm if minor variation in look and feel will be acceptable?	To be complied as per RFP.
3	22	Appendix A: Page 22 sl.3.(a)	Front Facia replica of the ROV Control Station	Please confirm that it means: (a) Creation of Front facia of similar look, feel, functionalities, man-machine interface, and response'. (b) While meeting (a) above, the material, instrumentation, and technology of implementation can be different.	To be complied as per RFP.
4	22	Appendix A: Page 22; Sl.3.(a)(i)	Replica of the SRV with appearance and configuration of equipment similar to those with Indian Navy's DSRV and dynamic characteristics of defined equipment and the platform as per design (the required internal facilities are described subsequently).	Please confirm that the appearance, configuration; and dynamic characteristics of the defined equipment and the platform [Navy's DSRV, SRV, and ROV] will be provided or, facilitated to capture through site visits and interaction. A pre-bid visit to see and assess the SRV, and ROV is very essential to assess the BOM, Bid scope, and cost. Please facilitate.	To be complied as per RFP.
5	22	Appendix A./Para 3 OPERATIONAL CHARACTERISTICS AND FEATURES, Page No. 22	The Training Simulator should be a fully functional replica of the SRV having a motion platform with Virtual six Degrees of Freedom (no actual /physical motion control) and a Front Facia replica of the ROV Control Station with no motion requirement. The Training simulators should have the same look, feel, functionalities, man-machine interface and response time of the ROV and SRV. The following facilities will be contained within the simulator:- (i) Replica of the SRV with appearance and configuration of equipment similar to those with Indian Navy's DSRV and dynamic characteristics of defined equipment and the platform as per design (the required internal facilities are described subsequently).	1) Kindly provide the dimensions of the DSRV. Also, please confirm the functional replica has to be of an identical size as the actual DSRV. 2) Also, confirm the DSRV replica will be part of the containerised solution. 3) We understand physical actual motion platform is not required. Please confirm. 4) Please confirm necessary visit/information of the Indian Navy SRV and ROV System will be provided.	To be complied as per RFP.
6	22	Appendix A./Para 3 OPERATIONAL CHARACTERISTICS AND FEATURES, Page No. 22	(ii) Adaptors and connections for Ventilation and Air Conditioning (VAC) of the simulator from an external VAC System.	Please confirm Ventilation and Air Conditioning (VAC) main system will be provided by Indian Navy or Bidder.	To be complied as per RFP.
7	22	Appendix A./Para 3 OPERATIONAL CHARACTERISTICS AND FEATURES, Page No. 22	(b) An Instructor Station.	Please confirm that the Trainer Stations will be separate.	To be complied as per RFP.
8	22	APPENDIX A/PARA 3 (A)/ Page No. 22		What do you mean by virtual six degree of freedom for platform, operator and target (submarine to be rescued)	To be complied as per RFP.
9	22	APPENDIX A/ PARA 3 (A) (I)/ PAGE No. 22		What are the sensors available onboard that would be used for docking.	To be complied as per RFP.
10	22	APPENDIX A / PARA 3		Virtual six degrees of freedom and replica of the SRV may be detailed. Further, Navy shall provide study and assimilation of details of the original equipment to make the replica.	To be complied as per RFP.
11	22	Appendix A - 3(a)	The training simulator should be a fully functional replica of the SRV having a motion platform with Virtual 6DOF (no actual /physical motion control)	Virtual 6DOF - Does this mean with no actual or physical motion?	To be complied as per RFP.



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Ser	Page No	RFP Reference/Para/ Page No.	RFP Text/ Context	Query	Draft Reply by DSMAQ
12	22	Appendix A. Item 3		<p>(a) The simulator should be a fully functional replica of the SRV having a motion platform with Virtual six Degrees of Freedom (no actual/physical motion control)</p> <p>Does replica here mean full scale physical representation of the SRV including dimensionally correct hull structure with operational hatches? It is assumed here it would be a hull structure for the command module and rescue chamber which is dimensionally accurate internally with hatches between the command module and rescue chamber, mating hatch to the skirt and also the conning tower. This would allow hands on training of the operation of these hatches for the pilots and RCOs.</p> <p>RFP says that the simulator should have a "motion platform" but that 'no actual/physical motion control' is required. In this case what is the function of the motion platform? From a realism perspective the inclusion of a motion platform would provide benefit in terms of being able to simulate SRV motions during simulated dive scenarios including DISSUB/target mating at varying angles.</p> <p>What does 'virtual six degrees of freedom (no actual/physical motion control) mean in this context? Is this in reference to VR visual movement via a monitor or headset?</p>	To be complied as per RFP.
13	22	Appendix A. Item 3		<p>(a)ii. Adapters and connections for Ventilation and Air-conditioning (VAC) of the simulator from an external VAC system.</p> <p>The requirement for being able to connect to a VAC suggests that the simulators are either enclosed or are installed within containers. Can it please be confirmed if this is the intent?</p>	Yes. To be complied as per RFP.
14	22	Appendix A. Item 1		<p>1. Role. The primary role of the DSRV simulator is to impart realistic hands-on training and work-up of individuals and crew for effectively handling the ROV and SRV...</p> <p>This implies that the solution will have replica physical features to the real thing, supporting the statement above that the simulator (for SRV) will be a full-scale mock-up of the craft with accurate recreation of physical interfaces for the crew. This cannot be achieved virtually</p>	To be complied as per RFP.
15	23	Page No. 23	Appendix A, Para 4 - The simulators for ROV and SRV to enable functioning as per desired characteristics and safety operation to include facilities as follows: -	<p>1. Can IN provide us with a conceptual/draft general layout showcasing vertical stacking compartments or sections to be envisaged to get the appreciation of overall layout of simulator complex?</p>	To be complied as per RFP.
16	23	Page No. 23	Appendix A, Para 4 - The simulators for ROV and SRV to enable functioning as per desired characteristics and safety operation to include facilities as follows: -	<p>1. Does an external mock-up structure replicating the appearance of DISSUB envisaged or just a compartment enacting as a DISSUB should be fine? Please confirm. an external mock-up structure replicating the appearance of DISSUB is envisaged then what is the detailing level requirement that needs to be shown?</p> <p>2. Do we have to provide any external mock-up arrangement of the mothership (MOSHIP) for the DSRV simulator? If so then we would require the pictures of the equipments on the actual MOSHIP in order to create the artificial mock-ups? Please confirm.</p> <p>3) Is any Hyperbaric Decompression Pressure Chamber envisaged for the DSRV simulator for the rescue operation after the recovery of the personnel from DISSUB? Please confirm.</p>	To be complied as per RFP.
17	23	Appendix A / Para 4 OPERATIONAL CHARACTERISTICS AND FEATURES, Page - 23	(a)The dimensions of the complete simulator complex will not be more than - 08m X 06m area, with vertical stacking of compartments or 3415m x 8.5m with a single stack or containers. Portable containerized and modular sections may be designed to overcome the limitation of the space constraint.	1) Please elaborate the Compartment and any mobility requirements.	To be complied as per RFP.



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Ser	Page No	RFP Reference/Para/ Page No.	RFP Text/ Context	Query	Draft Reply by DSMAQ
18	23	APPENDIX A / PARA 4 (E) / PAGE No. 23		Need access to the reading of data on ground of submarine real time scenario on target & SRVS/ROVS. This will be needed to prepare for all unrelated mockups required to replicate the near real environment	Issue related to Post contract management. To be complied as per RFP.
19	23	Appendix A - 4(c)	The training simulator should include all unrealated mock-ups required to replicate the near real environment in motion platform.	All unrelated mock-ups need to be included? Need a list of all unrelated mockups	To be complied as per RFP.
20	23	Appendix A. Item 4		<p>(a) The dimensions of the complete simulator complex will not be more than 08m x 06m area, with vertical stacking of compartments or 34.5m x 8.5m with a single stack or containers...</p> <p>Dimensions of stacked versus single layer gives a very different unit volume. Assume 2.5m unit height, the stacked configuration would need to be six units tall to occupy the same volume as the single layer configuration.</p> <p>Are the simulators to be fully integrated into containers for outdoor use or have the facility to be removed and placed indoor classroom environment?</p> <p>The space envelope information above suggests that both the SRV and ROV simulators are to be located within containers that may be installed outside. Can it be confirmed that the provision of containers would be required?</p>	To be complied as per RFP.
21	23		(e)The Simulators for ROV and SRV Should include but not be limited to all furniture, lighting, broadcast, and communication means for all the stations and facilities. The Training Simulator should also include all unrelated mock-ups required to replicate the near real environment in the motion platform as existing in the DSRV's ROV and SRV.	Please list all unrelated mock-ups and scantling/Pipes etc. required to replicate the near real environment.	To be complied as per RFP.
22	24	Page No. 24	Appendix A, Para 6, Operational Parameters - Part (a) Training Stations/Consoles (SRV Simulator)	Will IN provide all necessary design inputs along with pictures of console, control switches, HMI/GUI for replicating the operator consoles of SRV, LARS, Command Module and Rescue Chamber for simulator to match the actual consoles of Indian Navy's DSRV? Please confirm.	Issue related to Post contract management. To be complied as per RFP.
23	24	Page No. 24	Appendix A, Para 6, Operational Parameters Part (b) Trainer's Consoles (SRV Simulator)	Will IN provide all necessary design inputs for environment and target parameters along with different classes of submarine simulated as targets and other factors to prepare software to run realistic rescue and recovery situation for SRV that includes launch, deployment, mating and recovery for Trainees Console? Please confirm.	To be complied as per RFP.
24	24	PARA 6 (A) / PAGE 24		Please differentiate SRV, DSRV, ROV and mother ship. When we talk of simulator are we supposed to operate sitting inside SRV or outside.	To be complied as per RFP.
25	24	Appendix A. Item 6	(d) The SRV Simulator should be able to perform the following...	Most of these requirements rely on a physical mock-up of the SRV and its operator interfaces to provide any training realism. How is this envisaged with console screen only?	To be complied as per RFP.
26	24	Appendix A Item 6	(a) Training stations/consoles...	<p>Related to previous clarifications with respect to Replica SRV requirement are the three interlinked consoles incorporated within a replica SRV noting the space constraints?</p> <p>The SRV crew comprises Pilot 1, Pilot 2 and RCO. Is the intent of the simulator to allow trainees om these positions to carry out their respective responsibilities simultaneously?</p>	To be complied as per RFP.
27	25	Page No. 25, Appendix A, Para 6	Operational Parameters - Part (a) Training Stations/consoles (SRV Simulator)	Simulation of COO/LARS Console of DSRV: Will IN provide the details to prepare MMI for LARS operation? Additionally, the tracking system console MM! design inputs to be provided post diving of SRV. Please confirm.	Issue related to Post contract management. To be complied as per RFP.
28	25	Page No. 25, Appendix A, Para 6	Operational Parameters - Part (c) SRV Command Module Display Console (SRV Simulator)	Simulation of SRV Command Module of DSRV: Will IN provide the details to prepare MMI for simulation of manoeuvring, Sensors, controls and communications similar to that in an actual SRV? Please confirm.	Issue related to Post contract management. To be complied as per RFP.
29	25	Page No. 25, Appendix A, Para 6	Operational Parameters - Part (a) Training Stations/Consoles (SRV Simulator)	Simulation of SRV Rescue Chamber of DSRV: Will IN provide the details to prepare MMI for Rescue Chamber Operation for trimming and opening of rescue hatch and other desired operations which are carried out in? Please confirm.	To be complied as per RFP.
30	25	PARA 6 (D) /PAGE 25/26		Sensors - what all sensors being used by the DSRV to simulate various conditions?	To be complied as per RFP.



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Ser	Page No	RFP Reference/Para/ Page No.	RFP Text/ Context	Query	Draft Reply by DSMAQ
31	25	Appendix A - 6(a) (iii)	SRV rescue chamber where operations like trimming and opening of rescue hatch are carried out	SRV Rescue Chamber simulation required?	To be complied as per RFP.
32	25	Appendix A - 6(a) (iv)	Three interlinked consoles be provisioned for SRV training	3 interlinked screen are required? Are those for the front view for the pilot of SRV?	To be complied as per RFP.
33	25	Appendix A - 6(a) (v)	The COO/LARS operator console can additionally operate as tracking system control post diving of SRV	Is LARS the physical replica of the Panel/Console?	To be complied as per RFP.
34	25	Appendix A - 6(b)	The environment and target parameters should be set from the Trainers console. This should also have the control for deck Manager / Chief Operations Officer and the LARS operator to undertake their specific actions on the LARS deck to enable the launch of SRV in varying sea conditions	What will be the Deck Manager/ Chief Operations Officers actions?	To be complied as per RFP.
35	25	Appendix A. Item 6	(b) LARS Operator....	Is it intended that the simulator has functionality that replicates the LARS remote control box to allow training of LARS operator. The assumption here is that the LARS remote control would be a separate item that requires to interface the SRV replica/simulator.	Yes. To be complied as per RFP.
36	26	Page No. 26, Appendix A, Para G	Operational Parameters - Part (d) Functions/Capabilities (SRV Simulator) (ii) Simulate Voice Communication between CM and RC compartment. Also, simulate Voice communication between the Mother Ship (MOSHIP) {Bridge, Deck, Gemini/surface craft etc.} and SRV using the Under Water Telephone (UWT).	Can, IN provide the details such as make, model number, specifications, functions of Under Water Telephone (UWT) and other communication equipments which is currently installed in DSRV system?	To be complied as per RFP.
37	26	Page No. 26, Appendix A, Para 6	Operational Parameters - Part (d) Functions/Capabilities (SRV Simulator) (vi) Simulation of Operation of Soft Seal System:	1)What is a Soft Seal System? 2)Is this used for the transfer skirt hatch of DSRV ? 3)Do we have to provide any kind of sealing and locking mechanism or assembly for the transfer skirt hatch while mating with DISSUB? Please provide clarifications.	To be complied as per RFP.
38	26	Page No. 26, Appendix A, Para 6	Operational Parameters - Part (d) Functions/Capabilities (SRV Simulator) (vii) Simulation of Life Support Monitoring (Oxygen System):	Does vendor have to provide any medical and safety equipment or any hardware for this Life Support Monitoring for Oxygen System? If so then please provide details of the equipment or hardware. If it does not include any equipment or hardware then will it completely software based simulation? Please confirm?	To be complied as per RFP.
39	26	Appendix A. Item 6	(d)(iv). Simulate surface control on a console...	Surface control is typically done using a remote console whilst viewing through both the conning tower viewports and the forward main viewport. Is it intended that there would be a physical replica of the remote control and the respective viewports have screens that fully replicate the outside environment?	To be complied as per RFP.
40	27	Page No. 27, Appendix A, Para 6	Operational Parameters - Part (e) Training Stations/consoles (ROV Simulator)	Will IN provide the all necessary design inputs for replicating the front facia Of ROV Control Cabin Station, all control buttons, displays if any Of DSRV system to match the actual console for simulator? Please confirm.	Issue related to Post contract management. To be complied as per RFP.
41	27	Page No. 27, Appendix A, Para 6	Operational Parameters - Part (e) Training Stations/Consoles (ROV Simulator)	Simulation of ROV Control of DSRV: Will IN provide the details to prepare MMI and operator console for ROV Control. Please confirm?	Issue related to Post contract management. To be complied as per RFP.
42	27	Page No. 27, Appendix A, Para 6	Operational Parameters Part (f) Trainer's Console (ROV Simulator)	Will IN provide all necessary design inputs for desired underwater conditions, selectable simulated targets and different classes of simulated submarines as targets to prepare software to run realistic rescue and recovery situation for ROV? Please confirm.	Issue related to Post contract management. To be complied as per RFP.
43	27	Page No. 27, Appendix A, Para 6	Operational Parameters Part (h) Functions/Capabilities (ROV Simulator)	What is ancillary and tooling equipment control panel in ROV Control Station? Request to IN to clarify and provide necessary design inputs.	Issue related to Post contract management. To be complied as per RFP.



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44	27	Appendix A Essential Parameters , Page No. 25 - 27	<p>Functions/Capabilities</p> <p>The SRV Simulator should be able to perform the following functions: -</p> <p>(i) Allow Pilots and Rescue Chamber Operator (RCO) to become familiar with the vehicle's systems and their operation. These include: (aa) Pre and post dive procedures.</p> <p>(ab) Launch and Recovery of SRV.</p> <p>(ac) Home onto the DISSUB location with the help of its integral Sonar as well as its 'Pinger Locator'.</p> <p>(ad) Execution of Standard Operating Procedures iaw user provided documentation.</p> <p>(ae) Dry transfer operating procedures.</p> <p>(af) Life support management emergency procedures.</p> <p>(ii) Simulate Voice Communication between CM and RC compartment. Also simulate Voice communication between the Mother Ship (MOSHIP) {Bridge, Deck, Gemini/surface craft etc} and SRV using the Under Water Telephone (UWT).</p> <p>(iii) Simulate Launch procedure of DSRV from Launch and Recovery System (LARS), Main lift point disengaging mechanism, Aft tow point disengaging mechanism. This will provide training value to the LARS operators.</p> <p>(iv) Simulate surface control on a console for surface run for DSRV till it reaches Diving position {Thrusters control, Operation of Vents, Blowing of tanks and inflation of Inflatable Freeboard Extender (IFE)}.</p> <p>Simulate controls for dived manoeuvring (Thrusters control, Operation of Vents, Blowing of tanks).</p> <p>(vi) Simulate Operation of soft seal system.</p> <p>(vii) Simulate Life Support Monitoring (Oxygen system).</p> <p>(viii) High Fidelity Simulation of Sonar, Camera display, Navigation Display (comprising of Gyro, Doppler Velocity Log, Sonar display, Depth Gauge), Emergency buoy, Xenon flasher.</p> <p>(ix) Simulate mating of the SRV on a target and Simulated DISSUB.</p> <p>(x) Simulate surface/ dived emergencies on systems/sub-systems.</p>	Please confirm required data to create simulation of functions will be provided by Indian Navy	Issue related to Post contract management. To be complied as per RFP.
45	27	PARA 6 (G) /PAGE 27		Explain in detail what is expected in ROV control cabin display station.	To be complied as per RFP.
46	27	Appendix A. Item 6	(g) ROV Control Cabin Display....	Is the intent here for the simulator to interface directly with the actual ROV control cabin or does interface mean replicate in this context?	Actual ROV Control cabin will not be used.
47	28	Appendix A: Page 28; sl.7.(e) Main Propulsion	<p>(i) The thruster (joystick) with centralized control in the control panel of SRV simulator is to be designed in such a way that it simulates the actual movement of the SRV.</p> <p>(ii) Provision for Secondary Control.</p> <p>(iii) Thrusters should facilitate DSRV operations under specified operating conditions including mating with DISSUB.</p>	A pre-bid visit to see and assess the thruster (Joystick) integration; secondary controls, and understand requirements for mating with DISSUB is essential. Kindly facilitate a visit to see the SRV, ROV to assess simulator design and integration arrangements.	To be complied as per RFP.



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Ser	Page No	RFP Reference/Para/ Page No.	RFP Text/ Context	Query	Draft Reply by DSMAQ
48	28-29	Appendix A Technical Parameters Page no. 28 & 29	Navigation and Control Equipment The SRV Simulator is to be equipped with simulations of the following navigation aids of specifications suitable for. Undertaking SRV Simulator operations safely under specified operating condition):- (i)Auto Pilot System (ii)Inclinometers. (iii)Echo Sounder. (iv)Doppler log. (v)Gyro compass. (vi)Depth gauges (Mechanical and Electronic). (vii)Navigation Sonar. (viii)Pinger homing/location system (intended to home on to location of acoustic pinger dropped at DISSUB location by ROV or other means and distress pinger of IN submarines). Details (Latitude and Longitude) of the Areas of Operation of DSRV(at least four different areas will be provided to the firms to incorporate the topographic details in the simulator from the commercially available Electronic charts	Please confirm required data to create Simulated Navigation & control System of SRV will be provided by Indian Navy	To be complied as per RFP.
49	28	PARA 6 (H) (VI) / PAGE 28		Which all equipment failure is to be simulated may kindly be indicated.	To be complied as per RFP.
50	29	Page No. 29, Appendix A, Para 7	Technical Parameters: SRV Simulator Part (g) Integral DSRV Tools (i) The SRV Simulator should be provided with two manipulator arms.	1) AS per our understanding, the two manipulator arms will be shown with a graphical representation through software simulation on the SRV Display Console performing the operation of various submarine rescue related tasks such as Clearing of cables from the vicinity of escape hatch etc. Please confirm. 2) Is there any actual manipulator assembly envisaged for the simulator? If yes, what will be the function of manipulator for simulation environment, Details, photographs, drawing of manipulator shall be provided by IN to make replica of manipulators.	To be complied as per RFP.
51	29	Page No. 29, Appendix A, Para 7	Technical Parameters: SRV Simulator Part (h) Navigation and Control Equipment The SRV Simulator is to be equipped with simulations of the following navigation aids of specifications suitable for undertaking SRV Simulator operations safety under specified operating conditions: - 1) Auto Pilot System, 2) Inclinometers, 3) Echo Sounder, 4) Doppler Log, 5) Gyro Compass, 6) Depth Gauges (Mechanical and Electronic), 7) Navigation Sonar, 8) Pinger homing/location system (intended to home on to location of acoustic Pinger dropped at DISSUB location by ROV or other means and distress Pinger of IN submarines).	1) We understand that only software based simulation is to be shown for the mentioned sensors and gauges on the display screens of the SRV Command Module Display. The MMI pages will be developed accordingly for the sensors and gauges with design inputs from IN based on actual DSRV possessed by Indian Navy. No physical sensors are required. Please confirm? 2) Is there any hardware associated for these sensors that we need to supply? 3) Depth gauges mention Mechanical and Electronic. a)Are replica of actual mechanical gauges required to be provided OR just a mock-ups? Please confirm. b)If mechanical/electronics functional gauges are to be provided then IN shall provide the necessary details and design inputs like photographs, datasheets etc. of these gauges so as to design the replica of these gauges? Request to confirm	To be complied as per RFP. However for Para 3(b) Issue related to Post contract management. To be complied as per RFP.
52	29	Page No. 29, 30, Appendix A, Para 8	Technical Parameters: ROV Simulator - Part (a) to Part (m)	1) We understand that scope is limited to consider functional ROV Control Station Console as that Of Indian Navy's DSRV. ROV Control station will be functional replica of as actual. Please confirm? 2) ROV will not be part of Simulator. Only the Graphical representation on ROV Control station screen based on software simulation of ROV performing operations such as deployment and recovery of ROV in different sea conditions with different speeds at different operating depths and manoeuvring of ROV in all planes (forward, reverse, sideways, up & down) etc. Please confirm? 3) For simulator functionality, actual sensors/payloads will not be interfaced but only simulated inputs will be provided to the ROV Control Station and their operation will be showcased on the display screens via MM. Please confirm?	To be complied as per RFP.
53	29	Appendix A Technical Parameters Page No. 29 to 31	The technical specifications for ROV Simulators are to be in line with the ROV of the DSRV System and the same.	Please confirm required data to create Simulated ROV Controls will be provided by Indian Navy	Issue related to Post contract management. To be complied as per RFP.
54	29	PARA 7 (F) / PAGE 29		Does navy need actual dual redundant control system board simulator or just a simulating condition for redundancy onboard the simulator	To be complied as per RFP.
55	29	PARA 7 (G) / PAGE 29		Does manipulator arms to be simulated or a physical arm is to be created.	To be complied as per RFP.
56	29	PARA 7 (H) (II) / PAGE 29		Do we really need to have physical inclinometer installed / positioned?	To be complied as per RFP.
57	29	PARA 7 (H) / PAGE 29		3D mapped areas related to 4 different area of operation	To be complied as per RFP.



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Ser	Page No	RFP Reference/Para/ Page No.	RFP Text/ Context	Query	Draft Reply by DSMAQ
58	29	Appendix A - 7(g)	Technical Parameter - Integral DSRV Tools : SRV Simulator should be provided with two manipulator arms	Assuming Manipulator arms for SRV and ROV shall be virtual	To be complied as per RFP.
59	29	Appendix A - 7(h)	Details of longitude and latitude of areas of operation of DSRV will be provided to the firms to incorporate the topographical details in the simulator from the commercially available electronic charts	How are electronic charts used in SRV Will IN provide technical specifications and details of all controls (count and type) of DSRV and ROV?	To be complied as per RFP.
60	30	Page No. 30	Appendix A, Para 8. Technical Parameters: ROV Simulator Part (g) Video Camera Colour video camera capable of full tilt/pan as appropriate to the design and for identification of contacts.	AS per our understanding, actual ROV has colour camera with full tilt/pan capability. As ROV is not part of scope and only software simulation for ROV and its all functions will be shown on ROV Control station then camera functionality can also be simulated without actual hardware. Please confirm if this ok?	To be complied as per RFP.
61	30	Page No. 30, Appendix A, Para 8	Technical Parameters: ROV Simulator Part (h) Identification Sonar Sonar should be capable of target recognition in zero visibility. Details of the Sonar will be provided to the firms.	We understand that only simulated sonar function on ROV Control Station and no actual hardware is envisaged for the DSRV Simulator. Please confirm?	To be complied as per RFP.
62	30	Page No. 30, Appendix A, Para 8	Technical Parameters: ROV Simulator- Part (k) Sensors/payload	1) Compass Depth Meter Deployed Cable Meter:- As per our understanding, this will be a software simulation displaying the compass, depth meter and deployed cable meter on display screens of the ROV Control Station. Will IN provide the necessary design inputs for developing the display page of these equipments. Is there any hardware equipment associated with these? Request to clarify. 2) Acoustic Camera:- As per our understanding, this will be also software simulated camera view with graphical simulation of target or escape hatch mating with DISSUB on display screen of the ROV Control Station for investigation of contact in poor/nil conditions. Request to clarify if there is any hardware associated with this? 3) Provision of Two Manipulator Arms:- As per our understanding, this will be a software based graphic simulation of two manipulator arms with associated tooling displayed on the screen of ROV Control Station for undertaking the underwater operations in support of DISSUB rescue operations. Request to clarify if there are any actual manipulator arms that need to be provided for emulating the behaviour? 4) Water Jetting and Intensification of Hydraulics:- As per our understanding, this will also be a software based simulation displayed on screen of the ROV Control Station with graphical representation and parameters for facilitating the water jetting and intensification of hydraulics for tooling operation. Request to clarify if there is any hardware assembly associated with this?	Issue related to Post contract management. To be complied as per RFP.
63	31	Appendix A. Item 9	(b) Safety arrangements....	If there is no motion control requirement why is there a requirement for emergency stops buttons, motion warning lights etc?	To be complied as per RFP.
64	32	Page No. 32, 33, Appendix A, Para 9	Technical Parameters: Common for both Simulators Part (c) Application Software and Part (e) Software Requirements	To prepare software screens, a complete list of parameters, alerts, warnings etc. and its behaviour based on external inputs and outputs will be required. Will IN provide all the necessary details?	Issue related to Post contract management. To be complied as per RFP.
65	33	Page No. 33, Appendix A, Para 9	Technical Parameters: Common for both Simulators Part (e) Software Requirements (ii) The latest version of software installed similar to Indian Navy's DSRV is to be loaded and used on the simulators to replicate the DSRV. The software of the DSRV system is a propriety item the details of which are not available with the Indian Navy. Hence, the firm should be able to develop a software which will replicate the functionality of the DSRV system.	1) Will IN provide the technical manual of the software on Indian Navy's DSRV to understand the functionality along with pictures of the HMI/GUI? Please confirm. 2) Our technical team will require a visit to DSRV station to understand and gather all information related to software functioning of DSRV operations. Please confirm.	Issue related to Post contract management. To be complied as per RFP.
66	33	Appendix A: Page 33, sl.9.(e).(ii)	(ii) The latest version of software installed similar to Indian Navy's DSRV is to be loaded and used on the simulators to replicate the DSRV. The software of the DSRV system is a propriety item the details of which are not available with the Indian Navy. Hence the firm should be able to develop a software which will replicate the functionality of the DSRV system.	A pre-bid visit to see and assess the DSRV functionality is essential to work out development system requirements and its cost. Kindly facilitate a pre-bid visit to see and understand the DSRV functionality to assess the simulator design; its scope of work and cost.	To be complied as per RFP.
67	33	PARA (E) / PAGE 33	SOFTWARE REQUIREMENTS	The software of the DSRV system do not available with the navy please clarify that the functionality of DSRV system and all associated pages, displays and, screen shall be made available to us for recreating the simulation model.	Issue related to Post contract management. To be complied as per RFP.



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Ser	Page No	RFP Reference/Para/ Page No.	RFP Text/ Context	Query	Draft Reply by DSMAQ
68	34	Page No. 34, Appendix A, Para 9	Technical Parameters: Common for both Simulators Part (g) Design Data The vendor is to provide design data viz. cycle fatigue, material composition. MTBF and MTTR for critical components of the motion platform viz. (but not limited to) motors, hydraulic system, simulator consoles, control consoles, PLC cabinets, training aids, ventilation and air conditioning.	As per our understanding from Appendix A, Para 3 Type, it is mentioned that training simulator should be a fully functional replica of the SRV having motion platform with Virtual six Degrees of Freedom without any actual or physical motion. Please confirm that there are no motors or any hydraulic systems associated with the simulator.	To be complied as per RFP.
69	35	Appendix A: Page 35, sl.10.(a).(i) and sl.14.(c)	(i) Operator Consoles. These shall be replica consoles (ROV and SRV consoles) with the same design, look and feel as the onboard consoles realised with ruggedized commercial off-the-shelf (COTS) components. The consoles should be packaged with necessary simulator electronics so that cable lengths are reduced to the maximum extent practicable. Soft panels shall not be used in lieu of control elements as these do not provide the maximum realism required for operator training.	A pre-bid visit to see and assess the existing consoles is essential to work out similar design, and development of consoles and its cost. Kindly facilitate a pre-bid visit to see and estimate the console hardware and complexity; its scope and cost.	To be complied as per RFP.
70	36	Page No. 36, Appendix A, Para 11	Maintainability and Ergonomics Parameters Operating Conditions (a) Environmental Specifications The simulators for ROV and SRV should comply with following standards and specifications or equivalent standards:- (i) Shock and Vibration specifications in accordance with European Standard 2006/42/CE or nearest equivalent standard as per industrial norms in country of OEM and/or designer. (ii) Only the components mounted on dynamic motion platform should be capable of withstanding vibration and shock standards as specified above.	As per our understanding from Appendix A, Para 3 Type, it is mentioned that training simulator should be a fully functional replica of the SRV having motion platform with Virtual six Degrees of Freedom without any actual or physical motion. Shock and vibration specifications as mentioned are for dynamic motion platform. As the simulator will not have any physical motion, there is hardly any possibility of shock or vibrations. Please confirm that there is no dynamic motion platform and any such components mounted on it?	To be complied as per RFP.
71	42	Page No. 42, Appendix A, Para 13	Maintainability and Ergonomics Parameters - Maintainability and Reliability - Part (e) System Architecture (iii) The System is to be designed with dual redundancy for main processors and other important functions. Further, the system shall be designed such that the features viz. fault tolerance, graceful degradation, interchangeability, commonality, standardisation etc are given due importance.	1) Is there a requirement of single PC with two processors installed for dual redundancy? OR 2) Can we provide two separate PCs with processors for dual redundancy? Please confirm?	To be complied as per RFP.
72	43	Page No. 43, Appendix A, Para 14	Maintainability and Ergonomics Parameters Man Machine Interface (MMI) The MMI of Training Consoles should be identical to the MMI of ROV and SRV of DSRV system with Indian Navy. The MMI of Instructor Consoles and Briefing and Debriefing facility should be user friendly identical to the MMI of ROV and SRV of DSRV system with Indian Navy.	1) Will IN provide all necessary design inputs as pictures, list of functions to replicate the MMIs of simulator based on actual MMIs of the ROV and SRV of DSRV system with Indian Navy? Please confirm.	Issue related to Post contract management. To be complied as per RFP.
73	44	Annexure 1 to Appendix A: Page 44; sl.(1).(b).(v)	(v) The type of submarine placed as DISSUB.	What types of submarines are to be considered? To model these submarines in 3D virtual environment, CAD data is required. Will it be available? or, alternately how the Customer can facilitate a 3D development of the DISSUBs.	To be complied as per RFP.
74	44	Annexure 1 to Appendix A: Page 44, sl.(1).(d).	Depth gradient of at least 100m every 0.5 Cable	Does it mean approximately 45 degrees gradient? Assuming one cable is about 200m. Half Cable will be about 100m. Depth gradient of 100m (vertical) in 100m (horizontal) is about forty five degrees. Is our understanding correct?	To be complied as per RFP.
75	46	Annexure 1 to Appendix A: Page 46; sl.2.Note.(b)	Type of debris and the method of its removal by the SRV/ ROV	More details on the type of debris and the method of removal are requested for assessing simulation effort and its implication on cost.	To be complied as per RFP.
76	46	PAGE 46 (B)		Tracking system inputs and introduction of emergencies may be detailed.	To be complied as per RFP.
77	55	PARA 19 / PAGE 55		Please confirm the training package will be in IETM level IV.	To be complied as per RFP.
78	71	APPENDIX F / PARA 1.4.3 (B)	COMMERCIAL CLAUSES	Provision for the infrastructure may be detailed.	To be complied as per RFP.
79	-	Appendix A	SRV / ROV	GA Drawing needed with mass, dimension, CG, and contour data	To be complied as per RFP.
80	-	Appendix A	Simulation Process Scope	As a part of the simulation process, where does it end? Does it end after the mating of the SRV to the DISSUB or does anything else proceed subsequently?	To be complied as per RFP.
81	-	Appendix A	mating of the SRV with the DISSUB	How does the mating of the SRV with the DISSUB happen — the mechanism, and to what extent are we required to simulate?	To be complied as per RFP.



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82	-	Appendix A Technical Parameters	Software Requirement	Kindly confirm the modelling of the ROV and the manipulators and the DSRV will take into consideration real time hydrodynamic calculations for the behavioural model, tether, wires with physics and collisions etc. Kindly, confirm the real time visual views of the cameras and also cockpit view of the DSRV are required. Also confirm the process real time model of the Main and Auxiliary equipment for the DSRV are required.	To be complied as per RFP.
83	12, 16, 51	APPENDIX F		Repair and maintenance philosophy would be determined based on the equipment and hardware sourced after the contract has been finalised. For the purpose of RFP, the repair and maintenance philosophy provided would be based on similar systems available. The final repair and maintenance philosophy provided may differ from the one given in RFP, would IN be acceptable to this methodology.	To be complied as per RFP.
GENERIC QUERIES WITHOUT RFP REFERENCE					
84				For preparing the pre-bid techno-commercial proposal, we request IN to provide a visit to DSRV station to understand the functionality and physical components for SRV, ROV and LARS systems of the DSRV. please confirm.	To be complied as per RFP.
85				1. Can IN provide us with documents such as operations manual, technical manual, datasheets, technical drawings and photographs of the DSRV system post award of contract? 2. If these above-mentioned documents cannot be provided then our technical team will require physical access to the DSRV station for gathering all the required information for the hardware and software such as photographs of the physical components and assemblies, MMIs of all DSRV consoles, photographs of the all operator consoles, photographs of inside view of a SRV to build the replica of the DSRV?	Issue related to Post contract management. To be complied as per RFP.
86				Will IN allow our technical team to conduct surveys on the operational system for logics and behaviour for correct emulation of the DSRV system post award of contract?	Issue related to Post contract management. To be complied as per RFP.
87				Will IN provide Operator's Manual or any document for reference of sequence of operations carried out in rescue and recovery scenarios? Please confirm.	Issue related to Post contract management. To be complied as per RFP.
88				Is there any civil works requirement which needs to be part of bidder's scope?	To be complied as per RFP.
89				Software license - what are the license software of DSRV being used.	Software licence of DSRV is not relevant for bidding. To be complied as per RFP.
90				Does navy want emulators or an operational entity which is a replica of DSRV system?	To be complied as per RFP.
91				We need dimensions, layout & details of equipment fit along with sensors, interfaces etc. To design the simulator.	To be complied as per RFP.
92				What are the different types systems (hydraulic/air) used onboard DSRV for diving purpose? Additionally, what power network / source of supply is being used may also be commented upon with detailed specifications.	To be complied as per RFP.
93				Navy is requested to kindly share the sops (scenario based) onboard DSRV in order to design the configuration of the simulator.	To be complied as per RFP.
94				Kindly list out appendages required on ROV and SRV with specifications.	To be complied as per RFP.
95				Sensory data sharing - will navy be providing the actual sensory data to design the efficiency of sonar, quality of camera to be interfaced, configure other relevant sensors etc?	Issue related to Post contract management. To be complied as per RFP.
96				Why there is a need of motion warning light when no physical movement of DSRV is envisaged as per the RFP?	To be complied as per RFP.
97				Will IN provide system documents like TD/OI/MMI documents of the systems for the development of the simulator?	Issue related to Post contract management. To be complied as per RFP.
98				Will in facilitate visits to DSRV for understanding the systems, further will the vendor be provided with various photographs/ screenshots and videos of the systems for development?	To be complied as per RFP.
99				Is the vendor required to provide the following? (a) Ventilation and Airconditioning System. (b) Furniture for the Trainees/ Instructors/ De-briefing room. (c) Provide UPS/ Generator for stable Electrical Supply.	To be complied as per RFP.
100				Will IN provide list of all the pages of DSRV to be developed?	To be complied as per RFP.
101				Can the vendor use commercially available software for providing certain features of the simulator?	To be complied as per RFP.
102				Furniture, Broadcast and communication means for all the stations may be detailed.	To be complied as per RFP.
103				Features of the courseware and trainee evaluation package may be detailed.	To be complied as per RFP.
104				Will there be a possibility to visit an existing operational DSRV for collecting required information for the proposal to be submitted.	To be complied as per RFP.
105				Platform Having virtual 6 degrees of freedom (No Physical movement) please explain will it be fixed base simulator?	To be complied as per RFP.
106				Look, Feel Functionalities, MMI, response time of ROV and SRV should be same as actual system.	To be complied as per RFP.
107				External VAC System (Ventilation and Airconditioning - Scope?)	To be complied as per RFP.



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108				Adapters and connectors provision for VAC in simulator	To be complied as per RFP
109				Clarification on Simulator complex layout. Height details required.	To be complied as per RFP.
110				Standards and specification regarding Harnessing and electrical safety	Harnessing not relevant to the RFP. To be complied as per RFP for Electrical Safety.
111				Completer functional specification of ROV and SRV and SOP of actual deployable unit.	To be complied as per RFP
112				SOP of actual system engaging with Submarine rescue hatch.	To be complied as per RFP
113				SOP related to men and material handling during rescue operation of existing system.	To be complied as per RFP
114				ATP of the ROV and SRV. Stages involved and sequencing.	To be complied as per RFP
115				Structural material and weight restrictions	To be complied as per RFP
116				Any 3D model or ready drawings available to produce replica of front console?	To be complied as per RFP
117				All internal displays and I/O panel technical specification?	To be complied as per RFP
118				Computing hardware specification	To be complied as per RFP
119				Software platform	To be complied as per RFP
120				More clarity on Redundant control system	To be complied as per RFP
121				Video recorder - Is it loop recording, specify recording length in Hrs and data backup plan.	To be complied as per RFP
122				Training activity checklist -	To be complied as per RFP

