# REQUEST FOR COMMENTS OF STAKEHOLDERS/OEM/FIRMS ON QRS/TDS FOR X-BIS SIMULATORS SYSTEM.

1.      The proposed QRs/TDs of X-BIS Simulators System are attached as **Appendix 'A & B'**. The OEMs/Vendors are requested to forward information of the product which they can offer and also forward correct specifications of their system against each parameter. Complied or not complied remarks will not be accepted.

2.      The required information/details may please be forwarded at the following addresses by     **29th March 2019**.


        Directorate General CRPF

        East Block-7, Sec-1, R.K. Puram, New Delhi-110066

        Email: comncell@crpf.gov.in

3.      An early response is requested.

## QRs of X-BIS Simulators System

| S.N | Parameter |
|-----|-----------|
| 1. | It should be computer based programme specially designed for the training of civil aviation security personnel. The programme should be focused on making the security personnel efficient to detect and identify the threat objects at the checkpoints. The system should simulate similar environment as if security personnel are checking the baggage with the help of a X-Ray machine. |
| 2. | The system should consist of 2 parts- Theory and simulator. It should have a comprehensive and interactive training package for training, testing and recording the performance of the screeners. It should have provision for Basic Training. Recurrent Training, Certification Test, Performance Test and item library of at least 5000 images of a right mix of threat bags, suspicious bags and clear bags. These images should form a part of the package. |
| 3. | The system should have the capability to be installed on single standalone workstation, a classroom over a dedicated local area network (LAN), over a wide area network (WAN) and at any remote work station through internet. The system should provide all the users (trainee, trainer and administrator) their own unique and secure logons. The system should be able to support a class of minimum 25 screeners and one instructor and should be upgradable for up to 250 screeners in future. The up-gradation of up to 250 workstations can be either in the existing location or at remote locations connected through LAN/WAN/Internet. |

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|-----|-----------|---|
| **4.** | **The system should be provided with the all the hardware components required for the purpose with following broad specifications. Client Node/Workstation:** | |
| a | CPU | Latest generation Intel Core i3 equivalent or higher from same or other Chipmaker/OEM |
| b | Graphics & Chip Set | Integrated/Dedicated Graphics card with at least 2 GB RAM on Compatible OEM Mother board. |
| c | Memory | 4 GB, DDR4, 2400 MHz or higher. Expandable up to 16 GB. |
| d | Hard Disk Drive | Minimum 1 TB 7200 rpm SATA HDD or higher |
| e | Monitor | 21" HFD Antiglare monitor or higher. |
| f | Keyboard | 104 keys |
| g | Mouse | Optical |
| h | Ports | 6 USB Port (With at least 2 in front), 2 ports for microphone and head phone respectively in front. One HDMI port supporting latest version of connectivity. |
| i | Head Phones | Covering the ear but not of ear plug type. |
| j | Cabinet | Mini Tower |
| k | Networking facility | 802.11 a/b/c/n/ac Wireless networking capability alongside 10/100/1000 on board integrated network port with remote booting facility, remote system installation, remote wake up. |
| l | Operating system | Latest iteration of Windows Operating System (OS) or equivalent from other OEMs with all the latest system & security updates. |
| m | Power management | Screen Blanking, Hard Disk and system Idle Mode in Power On, Set up Pass word, power supply SMPS surge protected. |
| n | Preloaded software | Latest iteration of desktop antivirus with 360 deg protection. |
| o | Support | For 5 years for up-gradation of technology |

| S.N | | Parameter |
|---|---|---|
| p | Printer | Laser printer-color, Paper size-A4, DPI- 600x600, speed-20 ppm BW, C-Port, 1 USB Memory 16 MB, Network card 10/100, simplex |
| q | UPS | Online UPS, 3.0 KVA, Single phase AC, Input and single phase AC output with back up time of 120 minutes. |
| **5.** | **Specification of Server :** | |
| i. | Housing types | Rack/Tower |
| ii. | Processor type | Intel® Xeon ® Silver processor base 2.2 GHz (Scalable type) equivalent or higher from other OEM |
| iii. | Chip Set | Intel® C624 equivalent or higher from other OEM |
| iv. | Processor Quantity | 2 Nos |
| v. | Processor core available | 10 or more core per processor |
| vi. | Processor cache | 38.50 MB L3-8.25 MB L3, depending on model SKU |
| vii. | Processor Speed | 3.6 GHz, maximum depending on processor SKU |
| viii. | -- | -- |
| ix. | Slots | 4 PCI/PCI Express |
| x. | Memory | 1.0 TB DDR4 DIMM |
| xi. | Memory Expendable upto | 3.0 TB |
| xii | Memory slot | 24 DIMM slots (12 DIMMs pre CPU) |
| xiii | RAID Controller supported | 0/1/5/10 |
| xiv | SATA Controller | 1Xsata Channel for ODD |
| xv | Monitor | 24" or higher FHD Antiglare monitor. |
| xvi | Drive Bays | 4 Bays (Minimum 2 internal) |

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| xvii | Storage Drive Bays | 3.5 inch or 2.5 inch hot-plug SAS/SATA |
| xviii | Accessible drive Bays | 1x5.25/0.4-inch for RW/ DVD |
| xix | | |
| xx | Ports | 6 USB port |
| xxi | LAN Controller | "4x1Gbit/s Ethernet (Rj45) 2 x 10 Gbit/s SFP+" |
| xxii | Operating system | Should support Window 2010/2012/2016 or Linux |
| xxiii | Power | Hot –plug Dual power. |
| xxiv | Anti Virus | Latest iteration of Server antivirus with 360 deg protection. |
| xxv | Virtualization | VM Ware or any other equivalent virtualization system/software/facility on board |
| xxvi | Support | 5 Years for Technical Up-gradation |
| xxvii | The above mentioned configurations of the server & its client nodes/workstations are minimum standards. These are not exhaustively listed and other configuration details of client node and server system will be standard or higher so as to efficiently support each and every individual nod independently with the client module as host and an independent server module with the XBIS Simulator system with concurrent service to sharing of resources with minimum of 25 to maximum of 250 client nodes. | |
| **Training requirement :** | | |
| 6 | The system should be designed to train the security personnel on all such make/model of X-Ray machines in use at Indian airports and at foreign countries as well. It shall be machine independent and support forward and backward compatibility. | |
| 7 | As per BCAS Circular 11/2017 all future procurements of X-BIS machine should have dual view image system. Thus, computer based programme should also have dual view image system as its feature. | |

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| 8 | The software should provide tailored training programme as applied to TIP (Threat Image projection) in the X-BIS. In this, the software automatically detects the week areas (Detection of prohibited items) of a trainee and enhances the number of such threats automatically so that more practice can be given to a trainee in area of weakness. |
| 9 | The system should have the feature of ongoing training i.e. the trainee should be able to resume his class where he was last at. |
| 10 | The system should have the ongoing certification process to check the ability level of the screener to identify threat images. It should have multi-level class structure with gradual increase in difficulty and complexity levels i.e. Beginner, Intermediate, Advanced and Expert kind of tutorials and practicals. |
| 11 | The system should be able to educate the screener from 0 % level to an approved level within 40 teaching hours. It should also have the flexibility for meeting the training requirement of various categories of screeners based on their competence level i.e. from novice to expert. |
| 12 | It should have various tests designed to test the level of trainees at the start and end of the course. It should also have progress charts right from the beginning to the end for evaluation of the expertise achieved by the trainee during the course. |
| 13 | If the trainee fails to identify/ interpret a threat object image in a bag in a particular class level he/she shall not be auto promoted to the next level. He/She shall be subject to interpretation of that type of images multiple times and until and unless he successfully interprets image in his/her all subsequent attempts he/she shall remain in that class or level. |
| 14 | The image appearance in tutorials/ practical s a particular random and not sequential. Images of the defined difficulty shall appear in the random manner for evaluation or interpretation. If a screener fails to indentify or interpret a particular random image of threat object it should reappear for interpretation in the midst of subsequently appearing images. The screener should also not get the same images if he/practices/appears for the tests on the software for certain number of times. |

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| 15 | The tutorial and test design in the system should also contain a module on work related questionnaire. The test system should have an option of objective type of question-answer pattern and should be fully on online/computer based. It should also contain test module on the theoretical knowledge part of the training. |
| 16 | The system should support image analysis on dual view basis i.e. image gallery must have images captured in at least two view points from the screener point of view. |
| 17 | The system should evaluate the student according to the correct location of the position of threat objects, correct naming and total time taken for identification. |
| 18 | The system should have provision to programme the time limit by the administrator for detection of threat objects. |
| 19 | The system (both theory and simulator) should have multilingual contents i.e. in Hindi & English. |
| 20 | The system should have the training module enabling data collection and analysis of student results to make decision on the following points:- <br> a) Requirement of further training in various categories of threat objects, establishing norms, per bag. <br> b) X-Ray BIS image interpretation skills. <br> c) Processing time and operational speed. <br> d) Establishing performance standards. |
| 21 | The system should have the feature of projection of theory and simulator sessions through a LCD/Multimedia projector in a class room. |
| 22 | Instructor should be able to insert and withdraw images from the image library as and when desired (including during conducting test). |
| 23 | Instructor should be able to alter the classification of any item in the database and to choose the expected action required by the student. |
| 24 | The system should allow the trainer to build the lessons in a progressively difficult manner. |
| 25 | System should not allow any unauthorized tampering by incorporating access level restrictions. |

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| 26 | The system should automatically conduct the training and assessment and keen a separate record of each student. These records should be retrievable. |
| 27 | The system should be able to generate reports in various analytical forms, course wise, session wise, bag wise, group wise, and threat recognition wise etc. |
| **IMAGE GALLERY :** | |
| 28 | The system should provide images of threat and non-threat objects. The image gallery shall have threat images of all possible dimension of cabin baggage. |
| 29 | Images of Guns/Fire Arms made of organic materials and IEDs of various types and shapes should be available in various shapes, sizes and orientation. |
| 30 | The image should be in very high resolution. The image produced by the software should be as real as it is produced on monitor of real X-BIS during operations at security Hold Area (SHA). High resolution images shall not have the effects of pixel stress i.e. image gets blurry, grainy or pixilated when zoomed etc. The image gallery shall contain real X-rayed images of baggages. Their reproduction on the monitor should be as natural as that are in real situations. |
| 31 | The image gallery shall support storage and call back facility of images up to 03 year old. It shall also have a facility by which some classic/exemplary images can be booked marked and retrieved hassle free subsequently. The System should have the facility of uploading the images by the instructors. |
| 32 | The system should be able to simulate all the features like zoom, magnification, image enhancement features, black & white view, pseudo colour, organic & inorganic material discrimination and all other aspects of X-Ray screening procedure. |
| 33 | The system should allow viewing of images from different angles. |
| 34 | The images should be both colored and black & white. |

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| 35 | The images should include items like bombs, I.E.Ds ,knives, blades, scissors, explosives (organic, inorganic), ammunitions, detonators, torch lighters, and image of all restricted items enumerated in BCAS AvSec order 05/2005 and such other items prescribed as prohibited for carry on (cabin) baggage under Indian regulations time to time. |
| 36 | The images should those actually scanned bags. There should also be provision for reassembling of images which the instructor can reassemble for different categories of images and not from images of individually scanned items assembled to merely re-assemble a real bag. |
| 37 | The system should separately incorporate the feature of Threat Image Projection (TIP) for training of students on his aspect also. |
| 38 | The system should display X-Ray images at the same resolution as that of an X-Ray machine used in India or at airports in other countries. |
| **OTHER FEATURES :** | |
| 39 | The system should have been certified by accredited aviation Security agency of the country of origin of the equipment. |
| 40 | The firm should give the evidence of executing similar projects with International Aviation Security clients of high repute. |
| 41 | Installation & 5 year maintenance of the entire system should be provide free of cost. |
| 42 | No license fee for the software should be required to be paid by the purchaser for the entire warranty period of five years. |
| 43 | On installation, free of cost training should be provided by the supplier to 10 Instructors per location for a period of 5 working days of 8 hours duration each. |
| 44 | The system and software updates and upgrades should be provided free of cost as and when they are available either with supplier or Original Equipment Manufacturer (OEM). |
| 45 | Training on XBIS Simulator operations, maintenance, node/client service/equipment management & maintenance, Server Operating System (OS) management & maintenance in respect of management & running of XBIS Simulator Client-server configuration and finally system resources management. |

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| 46 | The software should be able to upload real images from the X-BIS operational in the secure hash algorithm (SHA) and can superimpose the threat images on them for training. So that, the screener can be trained on images of bags being carried out by passengers and may not rely solely on images available in the software.<br><br>The supplier will update the image library on quarterly basis for a period of 5 (five) years. The images shall be arranged by the supplier from Indian and Foreign airport facilities with X-BIS operation. Minimum 500 images of different threat objects and shall be updated once in every 6 (six) months every year.<br><br>If possible, an additional library of images may be arranged by the supplier for provision of keeping extra images of different threat baggage. |
| 47 | The system &/or its individual components and/or features shall be scalable, machine independent and should come with forward or backward seamless integration facility. |
| 48 | The software should not be programmed to shutdown automatically if the purchaser desired not to renew the license of the software or AMC for the hardware with the suppliers. |

## Trial Directive of X-BIS Simulators System.

| S.N | Parameter | Trial Directives |
|---|---|---|
| 1 | It should be computer based programme specially designed for the training of civil aviation security personnel. The programme should be focused on making the security personnel efficient to detect and identify the threat objects at the checkpoints. The system should simulate similar environment as if security personnel are checking the baggage with the help of a X-Ray machine. | Board will check practically. |
| 2 | The system should consist of 2 parts- Theory and simulator. It should have a comprehensive and interactive training package for training, testing and recording the performance of the screeners. It should have provision for Basic Training. Recurrent Training, Certification Test, Performance Test and item library of at least 5000 images of a right mix of threat bags, suspicious bags and clear bags. These images should form a part of the package. | Board will check practically. |
| 3 | The system should have the capability to be installed on single standalone workstation, a classroom over a dedicated local area network (LAN), over a wide area network (WAN) and at any remote work station through internet. The system should provide all the users (trainee, trainer and administrator) their own unique and secure logons. The system should be able to support a class of minimum 25 screeners and one instructor and should be upgradable for up to 250 screeners in future. The up-gradation of up to 250 workstations can be either in the existing location or at remote locations connected through LAN/WAN/Internet. | Board will check practically. |

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| 4 | | **The system should be provided with the all the hardware components required for the purpose with following broad specifications. Client Node/Workstation:** | |
| a | CPU | Latest generation Intel Core i3 equivalent or higher from same or other Chipmaker/OEM | Board will check practically & also firm will submit OEM certificate. |
| b | Graphics & Chip Set | Integrated/Dedicated Graphics card with at least 2 GB RAM on Compatible OEM Mother board. | |
| c | Memory | 4 GB, DDR4, 2400 MHz or higher. Expandable up to 16 GB. | |
| d | Hard Disk Drive | Minimum 1 TB 7200 rpm SATA HDD or higher | |
| e | Monitor | 21" HFD Antiglare monitor or higher. | |
| f | Keyboard | 104 keys | |
| g | Mouse | Optical | |
| h | Ports | 6 USB Port (With at least 2 in front), 2 ports for microphone and head phone respectively in front. One HDMI port supporting latest version of connectivity. | |
| i | Head Phones | Covering the ear but not of ear plug type. | |
| j | Cabinet | Mini Tower | |
| k | Networking facility | 802.11 a/b/c/n/ac Wireless networking capability alongside 10/100/1000 on board integrated network port with remote booting facility, remote system installation, remote wake up. | |
| l | Operating system | Latest iteration of Windows Operating System (OS) or equivalent from other OEMs with all the latest system & security updates. | |
| m | Power management | Screen Blanking, Hard Disk and system Idle Mode in Power On, Set up Pass word, power supply SMPS surge protected. | |
| n | Preloaded software | Latest iteration of desktop antivirus with 360 deg protection. | |
| o | Support | For 5 years for up-gradation of technology | |

| S.N | Parameter | | Trial Directives |
|---|---|---|---|
| p | Printer | Laser printer-color, Paper size-A4, DPI- 600x600, speed-20 ppm BW, C-Port, 1 USB Memory 16 MB, Network card 10/100, simplex | |
| q | UPS | Online UPS, 3.0 KVA, Single phase AC, Input and single phase AC output with back up time of 120 minutes. | |
| 5 | **Specification of Server :** | | Board will check practically & also firm will submit OEM certificate. |
| i. | Housing types | Rack/Tower | |
| ii. | Processor type | Intel® Xeon ® Silver processor base 2.2 GHz (Scalable type) equivalent or higher from other OEM | |
| iii. | Chip Set | Intel® C624 equivalent or higher from other OEM | |
| iv. | Processor Quantity | 2 Nos | |
| v. | Processor core available | 10 or more core per processor | |
| vi. | Processor cache | 38.50 MB L3-8.25 MB L3, depending on model SKU | |
| vii. | Processor Speed | 3.6 GHz, maximum depending on processor SKU | |
| viii. | -- | -- | |
| ix. | Slots | 4 PCI/PCI Express | |
| x. | Memory | 1.0 TB DDR4 DIMM | |
| xi. | Memory Expendable upto | 3.0 TB | |
| xii | Memory slot | 24 DIMM slots (12 DIMMs pre CPU) | |
| xiii | RAID Controller supported | 0/1/5/10 | |
| xiv | SATA Controller | 1Xsata Channel for ODD | |
| xv | Monitor | 24" or higher FHD Antiglare monitor. | |
| xvi | Drive Bays | 4 Bays (Minimum 2 internal) | |

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| xvii | Storage Drive Bays | 3.5 inch or 2.5 inch hot-plug SAS/SATA | Board will check practically & also firm will submit OEM certificate. |
| xviii | Accessible drive Bays | 1x5.25/0.4-inch for RW/ DVD | |
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| xx | Ports | 6 USB port | |
| xxi | LAN Controller | "4x1Gbit/s Ethernet (Rj45) 2 x 10 Gbit/s SFP+" | |
| xxii | Operating system | Should support Window 2010/2012/2016 or Linux | |
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| xxvi | Support | 5 Years for Technical Up-gradation | |
| xxvii | The above mentioned configurations of the server & its client nodes/workstations are minimum standards. These are not exhaustively listed and other configuration details of client node and server system will be standard or higher so as to efficiently support each and every individual nod independently with the client module as host and an independent server module with the XBIS Simulator system with concurrent service to sharing of resources with minimum of 25 to maximum of 250 client nodes. | | |
| **Training requirement :** | | | |
| 6 | The system should be designed to train the security personnel on all such make/model of X-Ray machines in use at Indian airports and at foreign countries as well. It shall be machine independent and support forward and backward compatibility. | | Firm will submit OEM certificate. |
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| 8 | The software should provide tailored training programme as applied to TIP (Threat Image projection) in the X-BIS. In this, the software automatically detects the week areas (Detection of prohibited items) of a trainee and enhances the number of such threats automatically so that more practice can be given to a trainee in area of weakness. | Board will check practically. |
| 9 | The system should have the feature of ongoing training i.e. the trainee should be able to resume his class where he was last at. | Board will check practically. |
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| 11 | The system should be able to educate the screener from 0 % level to an approved level within 40 teaching hours. It should also have the flexibility for meeting the training requirement of various categories of screeners based on their competence level i.e. from novice to expert. | Board will check practically. |
| 12 | It should have various tests designed to test the level of trainees at the start and end of the course. It should also have progress charts right from the beginning to the end for evaluation of the expertise achieved by the trainee during the course. | Board will check practically. |
| 13 | If the trainee fails to identify/ interpret a threat object image in a bag in a particular class level he/she shall not be auto promoted to the next level. He/She shall be subject to interpretation of that type of images multiple times and until and unless he successfully interprets image in his/her all subsequent attempts he/she shall remain in that class or level. | Board will check practically. |
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| 43 | On installation, free of cost training should be provided by the supplier to 10 Instructors per location for a period of 5 working days of 8 hours duration each. | Firm will submit OEM Certificate. |
| 44 | The system and software updates and upgrades should be provided free of cost as and when they are available either with supplier or Original Equipment Manufacturer (OEM). | Firm will submit OEM Certificate. |
| 45 | Training on XBIS Simulator operations, maintenance, node/client service/equipment management & maintenance, Server Operating System (OS) management & maintenance in respect of management & running of XBIS Simulator Client-server configuration and finally system resources management. | Firm will submit OEM Certificate. |

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| 46 | The software should be able to upload real images from the X-BIS operational in the secure hash algorithm (SHA) and can superimpose the threat images on them for training. So that, the screener can be trained on images of bags being carried out by passengers and may not rely solely on images available in the software.<br><br>    The supplier will update the image library on quarterly basis for a period of 5 (five) years. The images shall be arranged by the supplier from Indian and Foreign airport facilities with X-BIS operation. Minimum 500 images of different threat objects and shall be updated once in every 6 (six) months every year.<br><br>    If possible, an additional library of images may be arranged by the supplier for provision of keeping extra images of different threat baggage. | Board will check practically. |
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