



Part - C

Minimum Technical Requirement & Scope of Work

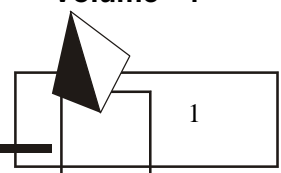
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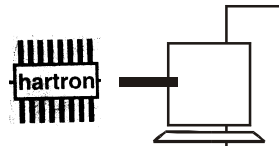
IMPLEMENTATION, DELIVERY AND SUPPORT OF AN
AUTOMATED FINGERPRINT IDENTIFICATION SYSTEM
(AFIS)

FOR

STATE CRIME RECORD BUREAU HARYANA

Scope of work
(Technical & Implementation requirement)
Volume - 1





Brief Details about Haryana Police

The State of Haryana was carved out of Punjab on 1st of November, 1966. At that time it comprised of 1 Police Range and 6 Districts and had strength of 12,165 personnel.

Today, the State is divided into **4 Ranges, 2 Police Commissionerates** - Gurgaon and Faridabad and **19 districts** besides the Railway Police district. **Now, Haryana Police has a total strength of 56605 (324 Gazetted Officers, 757 Inspectors, 1821 Sub-Inspectors, 4573 Assistant Sub- Inspectors, 9036 Head Constables & 40094 Constables).**

Mission

The **Mission of Haryana Police** is to help the common man, to provide him security and to create a peaceful and law abiding community with his cooperation. Haryana Police is committed to uphold the Rule of Law, to prevent crime and to maintain law and order. We are here to protect the weak, the under-privileged and to serve the people. In order to make Haryana Police people-friendly, to enhance the credibility of the police and to check corruption, transparency in the system is emphasized at all levels.

State Crime Record Bureau

In order to render effective, accurate and prompt assistance to the investigating agencies, a dire need was felt to set up an organization and build up a system to keep up-to-date records of crime, criminals and their activities. Towards this aim, the State Crime Record Bureau was carved out of CID in 1986.

The following four wings constitute the **State Crime Record Bureau** in Haryana:

1. Finger Print Bureau

The Finger-print found on an object is an authentic proof that there was contact between a person and the object. There is a stamp of individuality about it. Mother nature has an in exhaustive store of such finger print designs and no two persons on earth can have identical finger prints. The State Finger Print Bureau was founded in Haryana in October, 1972. It started working independently from 1st October 1974 at Rohtak. It was shifted to Madhuban in 1976. Later it was merged with the S.C.R.B. Until 1974, Finger Print records of convicted persons were retained in the Finger Print Bureau, Phillaur (Punjab).

2. Computer Wing

The first computer centre of Haryana Police came into existence in the year 1979. It was located at Chandigarh under the administrative control of CID. At that stage, it was more of a data collection centre. Actual computerisation started in 1988, when 75 PCXT computers were procured under the scheme of modernization, 76 computers were purchased in 1989 and computers reached different units in Haryana Police. In 1994, the Government of India launched the National Crime Criminal Information System (CCIS) which envisages that police stations records should be linked to the district level and state level and later at the national level. The SCRB is also working as a nodal agency for the work of computerisation in Haryana for Police.

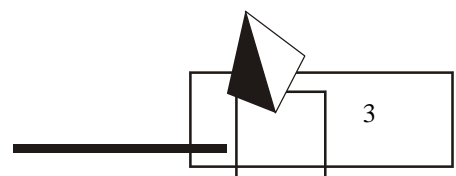


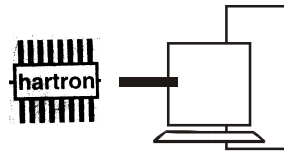
3. M.O.B.

Tracing the criminals by their modus operandi is an aspect of great importance in crime investigation. The Modus Operandi Bureau, which was initially started under the CID, was later merged in the S.C.R.B. on 1.4.1987. It is rendering useful assistance in crime investigation.

4. Statistical Wing

The Statistical Wing of SCRB consolidates records relating to theft/recovery of automobiles, fire-arms, cultural property, passports, counterfeit currency, dacoity / robbery in banks, and kidnapping of children for begging / ransom etc





Introduction

The SCRB Haryana requires the implementation of a complete new Automated Fingerprint Identification System (AFIS) to support the automated criminal and civil identification needs of the Haryana Police Department. The SCRB Haryana anticipates soliciting and awarding one contract under Volume – 1 with Live Scanner & Personnel Digital Assistant for implementation and delivery of a complete turnkey AFIS system along with associated implementation and support services.

This will be a competitively negotiated procurement. Hartron in its own behalf may decide to award a contract without negotiation; therefore, proposers / bidders should submit their best proposal initially. The Haryana Police / Hartron reserves the right to award a contract to the proposer submitting the proposal determined to be most advantageous and in the Haryana Police's best interest, price and other factors considered. **The initial contract period will cover the system design, delivery, implementation & commissioning followed by a 3-year onsite warranty period, followed by an optional annual maintenance period (AMC) or multi-year extended warranty period till next 4 years after warranty.**

This solicitation / RFP include the following:

- AFIS Requirements Specification, which includes:
 - A requirement / specification of technical requirements for the AFIS system, including functional, performance and system administration requirements.
 - A detailed specification of requirements for implementation and support services associated with the implementation of the new AFIS including Delivery / Implementation, Conversion / Loading of Existing Records, Training, and Maintenance and Operations Support services.
 - Detailed specification of hardware / components.

Technical Requirement

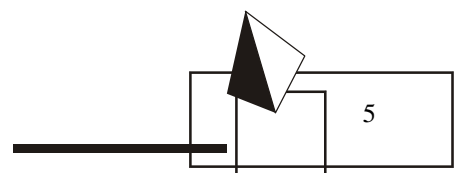
The objective of this RFP is to obtain the systems, technologies and implementation and support services of a qualified bidder to accomplish the design, delivery and implementation of a new and modern Automated Fingerprint Identification System (AFIS) system with Live Scanner & Personnel Digital Assistant that will provide enhanced efficiency and effectiveness of the Haryana Police's identification services.

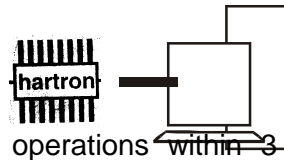
The required technical requirement for the new AFIS system as reference is mentioned in this volume.



Technical & Implementation Qualifications for AFIS

- a. Proposals / Bids will not be accepted whose systems do not meet the equivalency requirements and productive use requirements mentioned in this RFP / Volume.
- b. The proposed AFIS system technology must be current-generation technology and in current operational use in a Law Enforcement AFIS that has capacity and performance specifications equivalent to or greater than those included in the accompanying AFIS requirements specification.
- c. In proposed new Automated Finger Print Identification System (AFIS) the following points may be considered.
 1. **Accuracy**
 2. **Speed**
 3. **Ease of use**
 4. **Upgrades**
 5. **Inter-connectivity between different system and programs.**
- d. Proposers will be evaluated on their ability to provide minimum **One (1) Law Enforcement AFIS installation & successful commissioning** references that are comparable in size and functionality to the AFIS, with performance that is equal to or greater than the workload capacity, response time, and accuracy requirements specified for the AFIS, and that clearly demonstrate that proposed AFIS technologies and products are non-developmental and in current productive operational use at the referenced location. **References for systems installed in whole India are preferred.** Information that must be supplied for each reference is as follows:
 - Name of Department.
 - Address.
 - State, Country
 - Point of Contact / Indenting Officer / System Officer (Name and Title, Telephone, Email and Fax Numbers).
 - Brief system overview description with current database size.
 - Comparative capabilities:
 - **Database capacity:** tenprints, latents, palm prints, photo images.
 - **Current database size:** tenprints, latents, palm prints, photo images.
 - **Identification accuracy** – tenprint, latent, palm print, facial recognition (indicate where the stated accuracy is supported by benchmark testing).
 - Identification throughput performance (number of transactions per hour) - tenprint, latent, palm print, facial recognition.
 - Identification response time performance - tenprint, latent, palm print, facial recognition.
- e. The technical information provided with the references must **demonstrate** or support the capability of the proposed technology to satisfy the identification functionality and performance requirements of this solicitation / RFP.
- f. Selection preference will be given to proposers that commit to meet or better the Haryana's timeframe for implementing the new AFIS system. The goal of the AFIS Replacement Project is to complete the design, implementation and





installation of the system and achieve full production operations within 3 months after contract award or as soon as technical feasible.

AFIS Requirements

1. Implementation Requirements

The entire system will constitute of following parts having **on-line integration** with the central system: -

1. Centralised Automated Fingerprint Identification System (AFIS) Application for central connectivity, storage, backup for State Crime Record Bureau, Madhuban, Karnal, Haryana. (**Fixed Installation**)

An Automated Fingerprint Identification System meeting International Standards for Storage, Matching and Retrieval of Ten Digit Finger with the facility of Chance / Latent Print search having data storage capacity of at least 5 lakh criminals' data (upgradable upto 10 lakh criminals' data on the same hardware) is to be installed at one central location. i.e. State Crime Record Bureau, Madhuban, Karnal, Haryana, including **existing ten digit fingerprint slip data of approximately 1 lakh criminals is to be transported from the database in FACTS 4.0 of M/s CMC Ltd.**

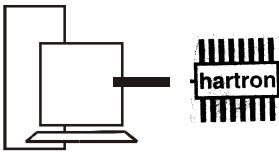
2. 25 Nos. AFIS remote application for remote workstations (Remote Query Workstations) for various districts in Haryana. (**Fixed Installation**)

Paper data capturing, transmission & query of rolled fingerprints and chance print from at least 25 locations in Haryana

Implementation Services

The awarded bidder will deliver comprehensive management and technical services associated with the implementation of the system, including:

- Project Management
- System Design, Implementation, Delivery, Installation, Acceptance Testing and Migration of Operations
- Complete system Integration and installation commitment of Hardware, Application Software, System Software, 3rd Party Software (if any) etc.
- Data Conversion and Loading
- Training
- Operations Support and Maintenance during warranty & AMC period.



Desired Technical Specifications for AFIS System in brief –

(1) System Specifications:

(a) AFIS System Architecture:

A proposed fully functional Automated Fingerprint Identification (AFIS) system consists the following components –

1. AFIS Master Server (1)
2. AFIS Backup Server (1-N)
3. AFIS Communication Server (1)
4. AFIS Matcher Server / Cluster (2-N)
5. AFIS Local Client (1-N (Max. 10 nos.))
6. AFIS Request Query Terminals (RQTs) (1-N (Max. 25 nos.))

(b) AFIS Requirements:

A fully functional Automated Fingerprint Identification (AFIS) system should provide a completely automated

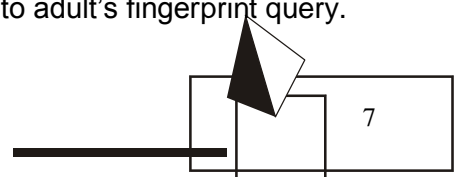
1. Ten print to ten print search
2. Chance/Latent print to Ten print search
3. Ten print to chance/latent print search
4. Chance/latent-to-chance/latent print search

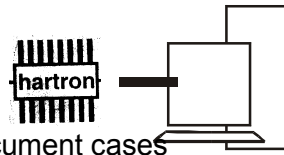
(c) Standard Features:

1. Automated ten print search
2. Automated quality replacement of better prints
3. Automated minutiae, core & delta, detection and extraction
4. Automated pattern recognition
5. Automated capture of logical rolled & plain print area
6. Automated Sequence Check
7. Automated selection of matching digit
8. Full range of integrated chance/latent and ten print image enhancements
9. Manual editing of minutiae and core/delta location(s) and directions(s)
10. Facility to re-edit chance/latent print images without requiring a re-scan
11. Facility to launch secondary searches
12. Rotation of chance/latent images during verification
13. Side- by-side comparison
14. Secondary/temporary database for document case examination
15. User defined search filters & candidate thresholds
16. Integration of AFIS with personal information system.
17. Image capture through Live Scanners & Digital Camera.
18. NIST File output, single and in batches.

(d) Desirable Features:

1. User Friendly with the ability for the Fingerprint Experts to quickly learn the operations of the application software
2. Should be able to run on a standalone desktop/laptop system, all the way up to a nationwide system with multimillion subject databases and hundreds of Remote Query Stations
3. Customization capabilities should include the User Interface, and integration with external application e.g. Digital & Analog photo imaging systems, live-Scan technology and external database applications
4. Backlog conversion facility of finger print and attribute data of existing AFIS
5. Ability to trace the database slip from a Photostat copy input
6. Ability to trace juvenile finger prints from database to adult's fingerprint query.





7. Charting facility for generating 'Grounds of opinion' for document cases

(e) Additional Desirable Features:

1. Disk mirroring to eliminate the possibility of lost data due to media failure
2. Automated database backups to ensure that key data is kept up-to-date.
3. Flexible, modular and scalable solution
4. Integration with other image enhancing systems existing in a bureau.
5. Capture of chance/Latent images from paper/cards or directly from evidence items such as curved surfaces, using a forensic workstation.

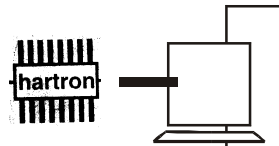
(f) Issues to be taken into account:

1. AFIS System support at least 3 years onsite during warranty & 4 years onsite during AMC by firm or its authorized partner.
2. **Ten digit fingerprint slip data of approximately 1 lakh criminals is to be transported from the database in FACTS 4.0 of M/s CMC Ltd.**
3. Integration commitment of AFIS system & databases.
4. Integration and installation commitment of complete system.
5. Training
6. AMC



2. The entire AFIS system should have compliance with the following International Standards

S#	Description	Compliance (Yes / No)
2.1	The Finger Print data should be captured complying to the International Standard ISO/IEC 19794-4 (Information Technology – Biometric data interchange formats – Part 4 :Finger image data) with Image acquisition settings level=31, and a certified version of the Wavelet Scalar Quantization (WSQ) algorithm as specified by IAFIS-IC-0110 for lossy compression, and shall be limited to a 15:1 compression ratio.	
2.2	NIST Compliance to <u>Data Format for the Interchange of Fingerprint & other Biometric Information (ANSI (American National Standards Institute)/NIST-ITL 1-2007)</u> or latest of NIST Standards.	
2.3	The data structure for storage should be compliant to the international standard ISO/IEC 19785-1 (Information Technology – Common Biometric Exchange Formats Framework – Part 1: Data element specification).	
2.4	Separate Central Application Server(s) should be used for processing the raw Images, taken only from the Central Image Data Server maintained by Haryana Police. Proprietary algorithms may be used for minutiae extraction, identification, matching etc. in order to meet the desired level of performance and accuracy.	
2.5	System should provide flexibility in terms of replacing its minutiae extraction algorithm & template structure with the national e-Governance standards for fingerprint technology, as and when released. The matching algorithm for such standard minutiae template shall be provided by the vendor with desired level of accuracy & performance.	
2.6	Compliance to all current Security Standards (System level, Application level, Database level, Network level).	
2.7	The solution offered should be devised keeping in mind the above factors.	



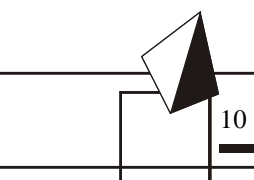
3. AFIS Database Requirement

AFIS product line should feature a flexible, modular and scalable solution with open system architecture. It must be user friendly with the ability for the fingerprint expert to quickly learn the operations of the application software. The AFIS must be scalable and up-gradable according to specific customized needs.

Work Load / Database Requisites Central AFIS System at Finger Print Bureau, Haryana

S#	SPECIFICATION	UNITS
	Database	
3.1	Ten digit slip database	5,00,000*
	Upgradeability	Up to 10 lakh
3.2	Number of prints to be stored/slip (Rolled & Plain/Flat)	10
3.3	Single print latent (chance) database including unsolved scene of crime collection	1,00,000
	Upgradeability	2,00,000
3.4	Textual, demographic and photographic Database	Yes
	Daily record and Searches	
3.5	Number of record slips	100
3.6	Number of search slips	250
3.7	Updating of data (all unsuccessful search results will lead to addition to database)	250
3.8	Number of latent (chance) prints	15
	Working Hours	
3.9	System working hours ((24x7x365 days with 99.99% uptime) and no single point of failure)	Round the clock
3.10	Effective manual hours per day	8-10 hours

* Ten digit fingerprint slip data of approximately 1 lakh criminals is to be transported from the database in FACTS 4.0 of M/s CMC Ltd.





4. General Requirement for AFIS System

S#	Description	Compliance (Yes / No)
4.1	Redundant server architecture that automatically re-configures itself in case of failure.	
4.2	Disk mirroring to eliminate the possibility of lost data due to media failure. A system of automated database backups to ensure that key data is kept up-to-date in the event of a crash.	
4.3	AFIS solution must be user friendly with the ability for the Fingerprint Experts to quickly learn the operations of the application software.	
4.4	Minimum 4 levels of security are required to access various features at Central AFIS. <ul style="list-style-type: none"> - Central AFIS database Level Security - Network Level Security - Application Level Security - System Level Security 	
4.5	The System Software (if any) to be provided should be of latest version. The firm will also give an undertaking in this regard.	
4.6	The Hardware (if any provided by bidder) should be of reputed brands and the Tenderer (s) must attach hardware / software specifications with the tender document.	
4.7	AFIS should support composite records and multiple records of the subject. The system should retain multiple records in archive upto 20 in numbers best in quality and followed by latest reference. There should be Automated Synchronization of records between composite records and multiple records in archive database.	
4.7.1	Archive module should be capable of identify, display and print on demand from archive record on standard format of Finger Print Slip, Latent Print Card and other associated details.	
4.7.2	Shall provide tools for verification/authentication of records between AFIS composite database and the archive database.	
4.8	The system should have Report Module capable of generating periodical statistical reports on various parameters for monitoring performance of system and its utilization by various users to be customized to meet day to day requirement.	
4.9	The system should be capable of providing AFIS Inter Connectivity and able to communicate electronically with other compliant and compatible AFIS system.	
4.10	The system should have ports available to integrate applications e.g. Photo Imaging Systems, Digital Media, Live Scanner, Flatbed Scanner, Digital Camera etc.	
4.11	Should have a user interface with external Data base applications e.g. Common Integrated Police Application (CIPA) and Dossier System with a common unique key. It should also have capability to process & reply figure print based remote query either from web	

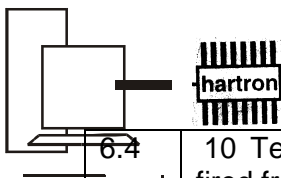
	based with laptop or 3G/2G/GPRS based remote query from hand held device.	
4.12	AFIS System should have automated monitor running processes to provide real-time detection of the occurrence of system problems, including software problems and hardware component failure with descriptions of response requirements.	
4.13	Administrator Module should be provided with varied easy to use tool/utilities to monitor and control the system.	
4.13.1	System should have administration utilities to monitor system performance, manage transaction queues, balance workload workflow control, view and review data base records, update, modification and deletion etc.	
4.13.2	System should have central operation control to monitor process, re-do and re-direct if necessary of remote site work or any work of local workstation under supervision.	
4.13.3	Utility tool should include facility to convert the AFIS data into various standard formats with provision to export on external storage media devices.	
4.14	Backup/Recovery/Disaster Management Module	
4.14.1	AFIS should provide for backup to reclaim the work in process files within 1 or 2 hours of a detected failure and backup capabilities to reconstruct permanent files and operating system software. The system should provide for incremental backup in every 24 hours and full backup of database once in a week.	
4.14.2	In case of natural or induced disaster or any occurrence that may render the AFIS partially or fully non functional. The system should provide for solution for recovery within 6 hours that will ensure continuous and proper performance of the system and sub systems.	
4.15	Initial communication between server, clients and workstations will be on WAN.	

5. System Accuracy

5.1	The system should be capable of achieving accuracy not less than 99% for ten print search.	
5.2	The system should be capable of achieving accuracy not less than 90% in case of latent print search.	

6. System Response Time

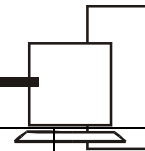
6.1	Response time will be measured from the time; the search is submitted until images are available at workstation for verification.	
6.2	The time from submission of a tenprint search should not exceed more than 5 minutes at Central AFIS and 10 minutes from Remote Workstation to the Central AFIS until the identification message is returned, inclusive of simultaneous unsolved latent database search.	
6.3	The time from submission of latent finger search at central AFIS should not exceed more than 15 minutes inclusive of simultaneous unsolved latent database search.	



6.4	10 Ten digit print process and 2 latent print concurrent processing fired from the multiple locations.	
6.5	AFIS should support image resolution of ≥ 500 ppi and 1000 ppi (pixels per inch) in all aspects of capture, processing and archiving. The image resolution of existing FACT System is minimum 512 ppi. There should be no quality loss in transporting the data to the new system.	
6.6	Should have the capability to reproduce one to one hard copy of ten print with flat print records from electronic files submitted to AFIS.	
6.7	The system should provide for separate temporary database for document case, inmate/suspect examination.	

7. Standard Requirement for Central AFIS System

7.1	The system should be capable of receiving, storing, matching and retrieving electronically transmitted finger & latent prints from its workstations and remote workstations.	
7.2	The system should also be capable of receiving, storing and retrieving textual, demographic and photographic details of the criminal.	
7.3	The system should be capable of receiving and processing inked and inkless rolled, flat print images at a resolution of ≥ 500 ppi and latent prints at a resolution of 1000 ppi (pixels per inch).	
7.4	There should be facility of automated minutiae extraction, pattern recognition/Henry classification – at least primary & secondary code. The vendor shall use maximum classifications of different attributes/features as per the system being provided by the vendor i.e. core & delta detection, ridge orientation/direction, ridge counting, skeleton, neighboring minutiae architecture etc.	
7.5	The system should perform image quality check and sequence check automatically and also able to capture Rolled Print & Plain Print area & sequence validation with interactive dialog for manual assistance, if required.	
7.6	In case of unacceptable, poor quality or out of order prints, the system should give alert for manual quality check with option for accepting or rejecting poor quality prints or swapping out of sequence prints.	
7.7	If the image is unacceptable, a message should be sent automatically to the exporting remote location/workstation.	
7.8	The system should have automated enhancement and encoding module.	
7.9	The system should provide automatic generation of transaction subject ID and also bar code recognition option.	
7.9.1	The system should automatically update subject ID for identification on multiple subject IDs.	
7.9.2	The system should automatically generate composite records by using best fingerprints.	
7.10	System should provide following image pre-processing capability automatic and manual by the operator in cases of poor quality print:-	



	Smoothen, Sharpen, Equalize, Invert, Rotate-360°, Improve Bright Picture, Improve Dark Picture, Improve Contrast, Increase White area, Decrease White Area, Filters to improve the image, Density handling, Noise deduction, Background subtraction/removal, Flattening/Thickening, Thinning of Ridges, Reduction to single pixel level, Edge Detection, Distortion correction, selection of area of interest, FFT and able to separate overlaid chance prints.	
7.11	The system should be able to separate fingerprints on multi-coloured surfaces viz. currency notes, Revenue Stamps, Stamp papers, legal documents etc.	
7.12	The system should be capable of enrolling rolled fingerprints with automated features extraction like finger prints Viz. minutiae and ridge flow, skeleton etc.	
7.13	If segmentation of slaps is required by the system, it should be done automatically by the system internally.	
7.14	Matching Module should provide Ten Print, Latent print search on the following pattern :-	
7.14.1	Tenprint Matching	
	a) Tenprint to Ten Print Search	
	b) Tenprint to Latent Print Search	
7.14.2	Latent Print & Unsolved Scene of Crime print matching	
	a) Latent Print to Tenprint Search	
	b) Latent Print to Latent print Search	

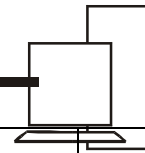
8. Demographic and textual data requirement for Central AFIS System

8.1	Storage & retrieval module should have facility of Phonetic Name Search & Indexing.	
8.2	Should be seamlessly integrated with Fingerprint Image Database in all respects.	
8.3	Should be retrievable by clicking on shortlist of probable match results.	
8.4	Should maintain profile/dossier of a criminal viz. (i) Name (ii) Sex (iii) Parentage (iv) Addresses (v) Date of Birth (vi) Category (vii) FIR details viz. FIR No., Date, Year, U/S, P.S. & District (viii) Conviction details viz. Name of the Court, Date of conviction, U/S, Punishment awarded (ix) Photograph etc.	
8.5	Should provide for sub-system for separate categories i.e. Convicted, Arrested, Suspect, Inmate, Wanted, B.C., Proclaimed Offender, Absconder etc.	
8.6	Should have Input, Query and Report Module on the basis of different data fields and categories.	



9. Search & verification requirement for Central & District AFIS System

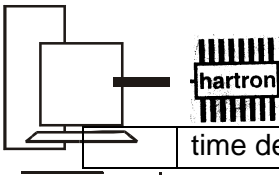
Search Module		
9.1	Search / Comparison of tenprints, single digit finger prints and latent prints to the AFIS database shall have the following functions:-	
9.2.1	Ability to have priority based processing of matching requests received from workstations. The system should be capable of indicating Query No./ Datewise / Timewise to the transaction in need of priority and provide tools to initiate the priority processing.	
9.2.2	The system should generate flash to be displayed at concerned workstation (i) Sl. No. in Que (ii) Searching (iii) Total No. of Records to be searched (iv) No. of Records searched counter (v) Approximate time to be taken to complete the processing. Total time taken shall be flashed after the completion of search.	
9.3	Automated comparison of each rolled or flat ten print image against the corresponding "flat" image, to ensure proper finger identification.	
9.4	Automated image quality rating to each ten prints, flat print & latent print.	
9.5	Multi-finger matching/searching of latent prints against all 20 finger prints (both rolled and flat) in Ten digit Print record.	
9.6	The latent search algorithms should also support search with no filtering and 100 % data penetration to eliminate the need to perform multiple searches of the same latent print.	
9.7	Ten print & single digit should be searched against the ten finger print database and simultaneously unsolved latent database.	
9.8	The system should be capable to enroll and search/match a slip having less than ten print in case of amputated / bandaged / missing fingers.	
9.9	Fingerprint should be searched against the Fingerprint database and simultaneously unsolved latent database.	
9.10	Latent fingerprints should be searched against the ten print finger database and simultaneously unsolved latent fingerprint data base.	
9.11	The system should be capable of matching of latent prints of unknown scale with given accuracy standards.	
9.12	The system should be able to re-submit ten digit print and latent print from database to search against database.	
9.13	Option for Ten print, single print and latent print search for identity verification without entering the record into AFIS.	
9.14	AFIS should support the ranking of candidate matches for a selected print or set of prints with the highest potential of a likely match appearing in first position.	
9.15	Option for operator to use data field as filter for search.	
9.16	Support for retrieving and comparing of the existing ten digit print record with the finger prints of subject short listed from the demographic data.	



Verification Module		
9.17	Verification module should be available on both at Central AFIS and at Remote Workstation.	
9.17.1	Ten digit search should be based upon at-least four best finger print before the respondents are returned for manual verification and the system should perform ten finger matches automatically against each respondent to ensure accuracy.	
9.17.2	The four highest quality finger print images available in the Ten digit search print should be selected automatically by the system through automated image quality assessment.	
9.18	On-screen side by side display presentation of the search print and potential matching prints from the AFIS database. The ranking of candidate matches from potential matching print(s) with highest potential should appear on the top in descending order.	
9.19	Should be able to selectively display or hide an overlay of extracted minutiae points in the on-screen image comparison and binary image display.	
9.20	The system should provide a convenient method to examine side-by-side same-size images of the search prints compared with the candidate list prints and the ability to proceed forward and backward through the candidate list.	
9.20	The system should provide for user defined threshold candidate list.	
9.21	The system should provide automatic charting of matching points on both the matching prints with examiner defined charting option for Court Opinion.	

10. Standard Requirement for 25 nos. District AFIS System

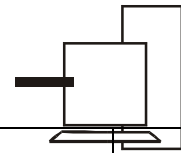
10.1	The Remote Workstations should be capable of capturing, processing, transmitting, updation of finger, latent prints and demographic/textual details electronically to the Central AFIS.	
10.2	The automatic input quality check and encoding for Ten Print and Latent Print should be as per given standards and features of Central AFIS.	
10.3	The Remote Terminal should be able to conduct Ten Print and Latent/chance print search from central AFIS.	
10.4	Should be able to retrieve the shortlist for verification from Central AFIS and also retrieve the results along with demographic/textual details.	
10.5	Should have an user interface and must be capable of integration with external application e.g. Photo Imaging Systems, Digital Media, Live Scanner, Flatbed Scanner etc.	
10.6	Should have an user interface with external Data base applications e.g. Dossier System with a common unique key.	
10.7	The Remote Workstations shall support simultaneous input, enhancement, search, reverse search, verification, retrieving of demographic / textual details and printing functions without response	



time degradation.

11. Technical Terms & Conditions for Central & District AFIS System.

11.1	The quantity of central AFIS Workstations and or any other item can be increased or decreased at any stage till the delivery of consignment is complete.	
11.2	Sole proprietary and ownership / License rights of all the hardware and software including data will be with the SCRB, Haryana.	
11.3	It is mandatory that all the desired features should be demonstrated at the time of technical evaluation of the system. No second chance shall be provided for demonstration. Technical offers which shall be found half/partial complied shall be treated as cancelled.	
11.4	Existing ten digit fingerprint slip data of approximately 1 lakh criminals along with textual demographic data and appx. 800 latent prints have to be transported from the database in FACTS 4.0 of M/S CMC Ltd. by the successful bidder at its own cost and efforts.	
11.5	The successful firm shall provide comprehensive on-site warranty for all items/equipment (Hardware & Software) at least for a period of 36 months (3 years) from the date of installation of the System.	
11.6	The bidder should offer for comprehensive AMC rates separately valid for next 4 years after warranty period.	
11.7	The successful bidder will organize a training program for two month or more time to train the Haryana Police Personnel for proper handling of the equipment / system.	
11.8	All desired customization shall be provided free of cost. One full time well qualified & experienced computer programmer is to be provided for one year at no cost to Haryana Police for customization from the date of installation.	
11.9	Technical support of all types should be available within 4 hours of lodging any complaint in case of major problem, solution is to be provided within 24 hours of lodging of complaint.	
11.10	The firm providing the AFIS software should have successful working experience with other State Police in India.	
11.11	All applications / applicable hardware must be Certified from FBI IQS or any other certified agency.	
11.12	All systems must utilize a Windows 64-bit operating system	
11.13	Vendor must have at least one successful operational install in India with current updates (till Tender Date).	
11.14	Service / Helpdesk Information Cards with details (Address of Center with nearest place to installation, phone no., engineer name etc.) be provided along with equipments to all locations.	
11.15	Charges for annual maintenance charges of the net hardware would become applicable after expiry of warranty period and would remain unchanged for the next 4 years after the warranty period expires	
11.16	Price must be quoted for 3 years warranties & Services	
11.17	The rates finalized will be valid for 90 days.	
11.18	The supplier shall furnish complete, well-fabricated and reliably operating and 5 level secure centralized systems as described in this document. Design and selection of equipment and software shall be consistent with the requirements of long-term trouble free operation with highest degree of reliability and maintainability. All equipment shall be constructed to operate safely without undue heating, vibration, wear, corrosion, electromagnetic interference or similar problems and all	



	software shall be proven, tested and reliable.	
11.19	The successful bidder is required to supply the latest updates, patches and upgrades of Software free of cost during the warranty period	
11.20	The successful bidder shall be responsible for connecting 25 district headquarter to central AFIS as per the proposed above & the application should be secured on a end-to-end basis.	
11.21	The system should give high accuracy rate in matching the partial and latent prints as well	
11.22	The system should have provision for accepting fingerprints through live scanners, digital cameras scanning the latent print or the live mug shot. It should also accept signatures and demographic data (Criminal Attribute Data Base). While printing the reports it should be able to fetch these records and prepare a combined report containing expert opinion, grounds for opinion, the questioned print, the matched print, the demographic details and the mug shot of the individual.	
11.23	The AFIS system should be able to prepare and print quality and quantity reports. It should be able to print individual workstation performance and the time taken in processing different queries. It should keep a log of all users of the AFIS so as to permit carrying of the audit trails. It should be able to provide the list of Records that are fit for weeding out. AFIS should provide fingerprint matching in the following ways – <ul style="list-style-type: none"> a. Ten print to ten print match, b. Single digit print to ten print match, c. Partial print to ten print match, d. Partial print to partial print. 	
11.24	In AFIS systems facility is required to work out Serial Crimes that thought unsolved need to be looked into, from the angle if the identical criminal was involved in all of the crimes	
11.26	The system should be capable in handling the increased workload without needing an up gradation within the warranty period & AMC Period.	
11.27	Matching Accuracy: The new AFIS system should have zero false acceptance rate and true rejection rate. The system should give high accuracy rate in matching the partial and latent prints as well.	
11.29	The system should permit search with or without information about Core and Delta or about a particular digit. we require to store all the ten print.	
11.30	The system should have provision for accepting fingerprints through live scanners, digital cameras scanning the latent print or the live mug shot. It should also accept signatures and demographic data (Criminal Attribute Data Base). While printing the reports it should be able to fetch these records and prepare a combined report containing expert opinion, grounds for opinion, the questioned print, the matched print, the demographic details and the mug shot of the individual.	

Note – Bidders must provide compliance details along with technical bid for Serial no. – 2 to 11. If there is any deviation specify the same with serial no. & page no.



Hardware Specification & System Software Requirement:

(Specifications of Server for Center AFIS)

Specifications for Master Database Server / Backup Database Server / Communication Server		
Item	Description	Qty.
Processor	2* Intel Xeon Quad Core E5640 or higher	3 nos.
Speed	2.66 GHz XEON Quad Core or Higher	
Cache	12 MB L3 Cache	
QPI	5.86 GT/s	
Chipset	Intel 5500 or better on Intel or Equivalent OEM	
Mother Board	Original Intel or OEM manufactured	
Memory	32 GB ECC DDR-III @1066/1333 MHz or higher RAM expandable upto 128 GB	
Hard disk drive	4 x146 GB 10K Hot Swap 2.5" HDD SAS, Minimum 8 HDD Bays	
RAID	8 port SAS RAID Controller with 256 MB Cache (RAID 0,1,5 Support)	
Keyboard	USB 104 keys Standard Keyboard	
Expansion Slots	4 PCI/PCI Express	
Cabinet	Rack 2U	
Video Graphics	Integrated Graphics to support VGA and above resolution	
Ports	4 USB & 1 Serial port	
Power Supply	Redundant power supply (Hot Swap) with Cooling option to meet the requirement of additional devices	
OS Supported	Window Server 2008 / Linux	
Mouse	Optical mouse with Pad	
Optical Drive	16X Internal DVD Writer	
Ethernet Card	Dual LAN (10/100/1000) Network Card with asset feature tracking and security management, remote wake up	
Preloaded Software	Server Management Software	
Certification	ISO 9001/9002 , FCC, UL, Windows, Red Hat	
Warranty	3 Years Comprehensive on-site	

**Note – The Dual FC HBA for SAN Connectivity required only in two servers
One server without Dual FC HBA**



(Specifications of Server for Center AFIS)

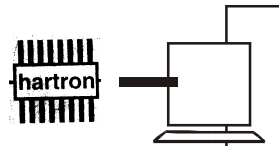
Specifications for Matcher Server		
Item	Description	Qty.
Processor	2* Intel Xeon Quad Core E5640 or higher	2 nos.
Speed	2.66 GHz XEON Quad Core or Higher	
Cache	12 MB L3 Cache	
QPI	5.86 GT/s	
Chipset	Intel 5500 or better on Intel or Equivalent OEM	
Mother Board	Original Intel or OEM manufactured	
Memory	64 GB ECC DDR-III @1066/1333 MHz or higher RAM expandable upto 128 GB	
Hard disk drive	4 x146 GB 10K Hot Swap 2.5" HDD SAS, Minimum 8 HDD Bays	
RAID	8 port SAS RAID Controller with 256 MB Cache (RAID 0,1,5 Support)	
Keyboard	USB 104 keys Standard Keyboard	
Expansion Slots	4 PCI/PCI Express	
Cabinet	Rack 2U	
Video Graphics	Integrated Graphics to support VGA and above resolution	
Ports	4 USB & 1 Serial port	
Power Supply	Redundant power supply (Hot Swap) with Cooling option to meet the requirement of additional devices	
OS Supported	Window Server 2008/ Linux	
Mouse	Optical mouse with Pad	
Optical Drive	16X Internal DVD Writer	
Ethernet Card	Dual LAN (10/100/1000) Network Card with asset feature tracking and security management, remote wake up	
Preloaded Software	Server Management Software	
Certification	ISO 9001/9002 , FCC, UL, Windows, Red Hat	
Warranty	3 Years Comprehensive on-site	



(Specifications of Server for Center AFIS)

Specifications for Backup Server & Antivirus Server		
Item	Description	Qty.
Processor	Intel Xeon Quad Core X3430 or higher	2 nos.
Speed	2 GHz or Higher	
Cache	4 MB Cache or higher	
Chipset	Intel or Equivalent OEM	
Mother Board	Original Intel or OEM manufactured	
Memory	8 GB ECC DDR-III @1066/1333 MHz or higher RAM expandable upto 32	
Hard disk drive	2x500 GB Enterprise SATA HDD, Minimum 4 HDD Bays	
RAID	RAID 0,1 Implementation	
Keyboard	USB 104 keys Standard Keyboard	
Expansion Slots	2 PCI/PCI Express	
Cabinet	Rack 1U	
Video Graphics	Integrated Graphics to support VGA and above resolution	
Ports	4 USB & 1 Serial port	
Power Supply	Power supply with Cooling option to meet the requirement of additional devices	
OS Supported	Window Server 2008 / Linux	
Mouse	Optical mouse with Pad	
Optical Drive	16X Internal DVD Writer	
Ethernet Card	Dual LAN (10/100/1000) Network Card with asset feature tracking and security management, remote wake up	
Preloaded Software	Server Management Software	
Certification	ISO 9001/9002 , FCC, UL, Windows, Red Hat	
Warranty	3 Years Comprehensive on-site	

Screen, Keyboard & Mouse	Rack mount Keyboard, 17" WXGA TFT LCD Monitor 1U & optical mouse with pad
Server Rack	42 U Floor Standing Server Rack (800x1000 mm) with accessories like cable tray, Fans, power strip etc. and Minimum 04 nos. power distribution unit.
Tape Drive	LTO (Linear Tape Drive) Generation 5 Tape Drive with 10 Media Tapes & Backup Software with SQL agent,
KVM	8 port KVM switch with cables supporting USB
Server based Antivirus	Suitable Antivirus for all Servers & Desktop workstation with 3 years subscription services.

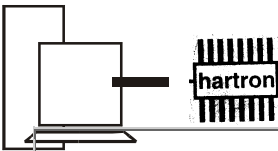


SAN for Center AFIS

Specifications of SAN	Qty
Item Description – <ul style="list-style-type: none"> • SAN System 6 TB useable capacity on 4 Gbps dual ported 15K RPM FC (Fiber Channel) Disk Array • Having Dual Controller with 8 Front End Ports, Minimum 2 Back End Ports. • Storage should be supplied with 1 Gbps iSCSI ports • Total Cache Minimum – 6GB • Scalable to Minimum 96 Drive Slots • Dual (Two) redundant Hot Swappable active- active raid controllers configured for RAID 0, 1+0, 1, 5 and 6 • Storage Management Software for Configuration & Multi Pathing • No single point of failure for controllers, disk drives, power supplies etc. • Array should support 8 Gbps FC Ports in future without any controller swap. • Support for Windows, SUN, HP-UX, IBM AIX & Enterprise LINUX. • Warranty – 3 Years onsite 	1 no.

Desktop Computer for Center & District AFIS

Specifications of Desktop Computer	
Quantity – 35 Nos. (10 nos. for Center Control Room & 25 nos. for District Police Headquarter)	
Item	Description
Processor	Intel Core i5-650 or higher
Speed	3.20 GHz or Higher
Cache	4 MB L3 Cache
System Bus/QPI	2.5 GT/sec
Chipset	Intel Q 57 series Chipset or better (Intel only)
Mother Board	Original Intel or OEM manufactured
Memory	4 GB DDR-III RAM (1066 MHz) or higher RAM
Hard disk Drive	500 GB SATA 3.0 Gb/s (7200 RPM)
Keyboard	107 keys Standard keyboard
Expansion Slots	Minimum 1 PCI & 1 PCI Express x16 (Total 3 slots either of the combination).
Housing	Small Form Factor (SFF) Cabinet with Volume <= 16 Liters
Video Graphics	Integrated Graphics with Free slot for additional Graphics card
I/O Interface	Dual Channel serial ATA-150 controller
Ports	Minimum 6 USB Ports at least 2 USB Ports at front side.

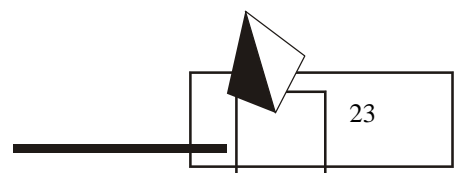


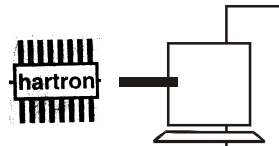
Power Supply	Suitable power supply to meet the requirement of additional devices (Power efficiency >=85%) with Active Power Factor Correction
Sound Card	Integrated Internal Speaker on Mother Board/TFT/Head Phone (Creative/Logitech)
OS Supported	Window XP/ MS Vista/Windows 7 / Linux
Storage Bays	Minimum one External 13.35cm (5.25") and one Internal 8.90 cm (3.5")
Mouse	Optical mouse with Pad
Monitor	Minimum 21" Wide Screen LCD Monitor or higher TCO 03/05 Certification
Optical Drive	16X Internal DVD Writer
Ethernet Card	10/100/1000 MBPS
Preloaded Software	Windows 7 Professional 64 bit with media, Microsoft Security Essential Antivirus software preloaded
Certification	ISO 9001/9002, Energy star 5.0 Compliant, FCC, UL,CE
Other items	Set of Dust Covers of good quality for the complete system
Warranty	3 Years onsite

Networking Items for Center AFIS

S#	Item Description	Appr. Qty.
1	24 Port 10/100/1000 Mbps Full L2 Managed Switch with 4 nos inbuilt Combo Ports	01
2	24 Port Patch Panel with Cable Manager (Cat-6)	01
3	9 U wall mount rack unit with accessories (Power Supply with 4 Socket & One Switch, Fans, Cable Trays, Mounting Hardware etc.)	01
4	Single Port Information Outlets with Surface Mountable Box. (Cat-6)	20
5	Patch Cord – 1 Meter (3 feet) (Cat-6)	20
6	Patch Cord – 2 Meter (7 feet) (Cat-6)	20
7	UTP Cable (Cat-6) (Per Meters)	610
8	PVC MK Channel 100:50 (Per Meter)	50
9	5 & 15 amp 2 nos socket & 1 no switch with board with wiring from electrical duct to UPS & UPS to Switch (As Per Requirement)	1

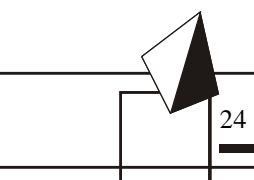
Note – Passive Components of networking items from Serial no. 4 to 8 are as per actual site requirement.





UPS Systems for Center & District

S#	Item Description	Approximate Qty.
1	<p>10 KVA Online UPS System with 2 hour backup (for center Server)</p> <p>Specifications – 10KVA True ON-LINE UPS System with management software with Minimum 2 hour battery backup with (40X12VX42AH) SMF batteries with suitable rack for housing of SMF batteries with Three phase in and Single phase out</p>	02
2	<p>1 KVA Line Interactive UPS System with SMF Batteries (2x12Vx26AH) (for Police District Headquarter)</p> <p>Specifications – 1KVA Offline UPS System , Type: Line Interactive at least with voltage, Technology: PWM Mosfet Based Technology Input Volt: 160-270V, Output Volt: i) 200-240V Mains Mode ii) 220 + - 8% on Battery Mode Output Freq.: 50 Hz +- 0.5Hz on battery mode Transfer Time: <8 milli Second Battery Backup Time: Should not be less then 624VAH (2X12VX26AH) UPS should come-on without Battery or even in case of deep Discharge of Batteries</p>	25





Printers for Center AFIS & District AFIS

Mono Laser Printer – Approximate Quantity 27 (2 nos. for Center & 25 nos. for District)

For Center Control Room, Qty – 2 nos.

Printer Specifications

- Speed : 40 PPM or higher,
- RAM: 128 MB or higher
- Resolution: 1200x600 DPI or higher
- Tray Capacity: Minimum 350 sheets
- Operating System: Windows
- Paper Size: A4 & Legal
- Duty Cycle: Minimum 100000 page per month
- Interface: High Speed USB 2.0
- Duplexor & Network: Standard
- Composite Toner Cartridge
- Warranty – 3 years onsite

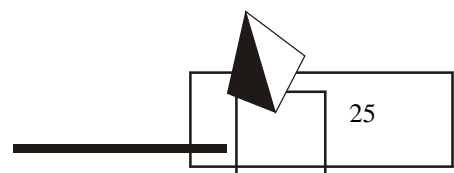
For District Police Headquarter, Qty – 25 nos.

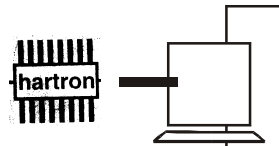
- Speed : 20 PPM or higher,
- RAM: 2 MB or higher
- Resolution: 600x600 DPI or higher
- Tray Capacity: Minimum 150 sheets
- Operating System: Windows
- Paper Size: A4 & Legal
- Duty Cycle: Minimum 5000 page per month
- Interface: High Speed USB 2.0
- Composite Toner Cartridge
- Warranty – 3 years onsite

Software for Center & District AFIS

S#	Item Description	Approximate Qty.
1	Windows Server 2008 R2 Enterprise Edition (64 bit)	03
2	Windows Server 2008 R2 Standard Edition (64 bit)	04
3	Microsoft SQL Server 2008 R2 Enterprise Edition Proc based	02*
4	Windows Server 2008 R2 External Connector (EC)	01
5	Windows Server CAL	35

*** Equal to the number of physical processors.**



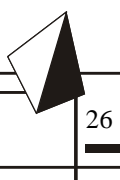


Flatbed Scanner for Center AFIS & District AFIS

Photo / Image Scanner (Flatbed)	
Approximate Quantity 35 (10 nos. for Center Control Room & 25 nos. for District Police Headquarter)	
Scanner type	Flatbed
TMA Adaptor	Minimum 16 slides
Scan resolution, optical	Minimum 4800 * 9600 dpi
Bit depth	Minimum 48 bit CCD Scanner or higher
Levels of grayscale	Minimum 256 or higher
Automatic document feeder capacity	None
Scan size, maximum (flatbed)	8.5 x 12.3 in (216 x 311 mm)
Media types	Paper (banner, inkjet, photo, plain), envelopes, labels, cards (greeting, index), 3-D objects, 35 mm slides and negatives (using transparent materials adapter), iron-on transfers
Scan file format	Windows: BMP, JPEG, GIF, TIFF, TIFF compressed, PNG, PCX, Flashpix (FPX), PDF, PDF searchable, RTF, HTM, TXT; Macintosh: TIFF, PICT, JPEG, GIF, Flashpix, Plain Text, PDF, HTML, Rich Text
Preview scan speed	< 8.5 sec
Button functions	Minimum 4 front-panel buttons (Copy, Scan, Scan film, Scan to PDF)
Warranty	3 years onsite
Connectivity	1 Hi-Speed USB 2.0
OS Support	Windows XP / Vista / Win7 (both 32 & 64 Bit)

Firewall / UTM / Security Appliances

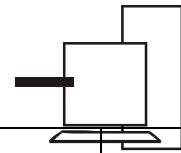
S#	Item Description	Approximate Qty.
1	Unified Security Gateway 300 Standard with following subscriptions – E-1 Card Content Filter for 3 years E-1 Card Anti-Virus, Anti-Spam for 3 years E-Card Intrusion Detection & Prevention (IDP) for 3 years	01





Format for Price Bid (Inclusive of all taxes & duties, FOR destination & 3 years onsite support) –

S#	Item	Qty	Make & Model	(Rs.) Unit Price	(Rs.) Amount	Total AMC Amount (Per year)
1	Master and Backup Server for Database with 32GB RAM and Dual FC HBA for SAN Connectivity	2				
2	Communication Server with 32 GB RAM without Dual FC HBA	1				
3	Matcher Server with 64GB RAM	2				
4	Backup & Antivirus Server with 8GB RAM	2				
5	SAN (FC based with 6TB Storage)	1				
6	42U Floor Standing Server Rack with accessories	1				
7	Linear Tape Drive (LTO - 5 Tape Drives with 10 Media Tapes & Backup Software with SQL agent)	1				
8	8 Port KVM switch with cables supporting USB	1				
9	Rack mount Keyboard, 17" WXGA TFT LCD Monitor 1U & optical mouse with pad	1				
10	i5-650 Processor based Desktop Computer	35				
11	Networking of Server Room	1				
12	10KVA Online UPS System with 2 hours batteries backup for Center AFIS	2				
13	1 KVA Line Interactive UPS System with SMF Batteries for district Police Headquarter	25				
14	Photo / Image Scanner (Flatbed)	35				
15	Laser Printer with network & duplex facility with 40 PPM Speed, 128 MB RAM	2				
16	Laser Printer with 2 MB RAM & 20 PPM Speed	25				
17	Windows Server 2008 R2 Enterprise Edition (64 Bit)	3				
18	Windows Server 2008 R2 Standard Edition (64 Bit)	4				
19	Microsoft SQL Server 2008 R2 Enterprise Edition Proc based	2				
20	Windows Server 2008 R2 External Connector	1				
21	Windows Server CAL	35				
22	Antivirus for all servers & desktop computers with 3 years Subscription Services	42				
23	Firewall / UTM / Security Appliances					



24	AFIS (Automated Figure print Identification System) System / Software meeting the existing requirement of 7 servers, 35 computers with following services : <ul style="list-style-type: none">- System Management,- System Design & Implementation- Installation,- Migration of Operations,- Data Conversion,- Training,- Operations support and maintenance during warranty period of 3 years. (Rest details as mentioned in the RFP)						
25	Cost of adding additional clients / computers in AFIS in future						

Note - In case any bidder wishes to propose higher specifications of Hardware / System software, additional price along with details may be mentioned separately in Technical as well as commercial Bids with proper justifications. However, final decision will be taken by Technical Committee for the additional higher specifications beyond the scope of this RFP.