Technical requirements for STATE-AFIS solution

Please note that all the requirements mentioned in this section are the minimum and indicative in nature.

1. **Proposed software requirement for STATE-AFIS**

1.1 Compliance with International Standards

The entire system should have compliance with the following International Standards.
The bidder must furnish Authorization Letter along with Certificate of compliance to the above standards from OEM or Algorithm Developer or both.

Any authorization, certification or formation of consortium should be prior to the date of Last date of submission of Bid.

Compliances with International Standards	
i.	NIST Compliance to Data Format for the Interchange of Fingerprint, Facial, Iris & other Biometric Information (ANSI (American National Standards Institute)/NIST-ITL 1-2011).
ii.	JPEG compression for mug-shot images (ANSI/NIST – ITL 1-2011)
iii.	Minutiae and related information encoded from a finger or palm: ANSI/NIST Type-9 (ANSI/NIST–ITL 1-2011)
iv.	Ten-print Processing: 500/1000 ppi ANSI/NIST Type-4 Images (ANSI/NIST–ITL 1-2011)
v.	Palm Print Processing: 500 ppi/1000 ppi ANSI/NIST Type-15 Images (ANSI/NIST– ITL 1-2011, ANSI/NIST–CSL 1-1993
vi.	Electronic Fingerprint Transmission Specification (EFTS)
vii.	A certified version of the Wavelet Scalar Quantization (WSQ) algorithm as specified by ISTATE-AFIS-IC-0110 (V3.1) for lossy compression of fingerprint images scanned and transmitted at 500 ppi
viii.	Finger Image standard as per the ISO/ IEC 19794-4
ix.	Minutiae Image standard as per the ISO/ IEC 19794-2
x.	Benchmarked in Slap Finger print Segmentation Evaluation (SlapSeg04) by NIST.
xi.	Bidder / Any consortium member in case of consortium must have participated in NIST ELFT-EFS evaluation program conducted by NIST in 2010 for chance print encoding and FP Data interoperability.

1.2 Standard Module Requirement of STATE-AFIS

i. The central system should be capable of receiving, storing, matching and retrieving electronically transmitted finger & palm, latent prints from its STATE-AFIS workstations(like Remote Query terminals)and Enrolment Workstations like FED s in Police Stations.
ii. The system should also be capable of receiving, storing and retrieving textual, demographic and photographic details of the criminal.
iii. The system should be capable of receiving and processing inked and inkless rolled, flat and palm print images at a resolution of ≥ 500 ppi and latent prints at a resolution of ≥ 500 ppi or 1000 ppi (pixels per inch).

iv. System should be capable of automated minutiae extraction, pattern recognition– 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.

v. The system should perform image quality check and sequence check automatically and also be able to capture Rolled Print & Plain Print area & sequence validation with interactive dialog for manual assistance, if required.

vi. 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.

vii. If the image is unacceptable, a message should be sent automatically to the exporting remote location/enrolment workstation.

viii. The system should have automated enhancement and encoding module.

ix. The system should provide automatic generation of transaction subject ID.

x. System should provide following

- Binarize/Trace
- Blur
- Difference of Gaussians
- Unsharp Mask
- Local Histogram Equalizations
- Laplacian Sharpen

However the vendor is free to give more tools.

xi. The system must be able to separate fingerprints on multi-coloured surfaces viz. currency notes, Revenue Stamps, Stamp papers, legal documents etc.

xii. System should weed out time barred slips automatically based on age or years. Timeline in years records needs to be preserved needs to form part of the requirement and complete archival policy of data needs to be centrally governed.

xiii. System should be scalable enough to seamlessly integrate with Iris and face Image database in all respects

xiv. Enrolment persons should have role based biometric authentication for enrolling fingerprints in STATE-AFIS.

1.3 Matching Module Requirements of STATE-AFIS

Matching Module should provide Ten Print, Palm Print, Latent print search on the following pattern

i. Ten Print Matching

- Ten Print to Ten Print Search
- Ten Print (Roll + Slap =20) to Latent Print Search
- Ten Print to Both - Ten Print & Latent Print (Roll + Slap = 20) Database Search

ii. Latent Print & Unsolved Scene of Crime print matching

- Latent Print to Ten Print (Roll + Slap = 20) Search
- Latent Print to Latent print Search
- Latent Print to Both – Ten Print (Roll + Slap = 20) & Latent print Database

iii. Search

- Finger / Palm Latent to All – Ten Print (Roll + Slap = 20), Latent, Palm Print &Latent Palm print Database Search

1.4 Demographic and Textual Data Module Requirements of STATE-AFIS

i. Storage & retrieval module should have facility of Phonetic Name Search & Indexing.
ii. Should be seamlessly integrated with Finger & Palm Print Image database in all respects.
iii. Should be retrievable by clicking on shortlist of probable match results.
iv. 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 (x) MOB etc.
v. Should provide for sub-system for separate categories i.e. Convicted, Arrested, Suspect, Inmate, Unknown Dead Body, B.C., Proclaimed Offender, Absconder etc.
vi. Should have Input, Query and Report Module on the basis of different data fields and categories
vii. System should be compatible with the NCRB codification standard for storage and retrieval of criminal data.
viii. The bidder should provide all sorts of customization (as per STATE-AFIS) required towards the demographic details.

1.5 Remote Query Terminal Module

These terminals /workstations will be connected at Central STATE-AFIS Headquarters. They are the full functioning extended arm of the STATE-AFIS connected by IP protocol. RQT s functions as Fingerprint/ Palm print input terminal and verification terminal integrated into one workstation only.

The FP expert at the remote end will be able to send/store multi fingerprint / palm print and textual data to STATE-AFIS Server. If the search result is negative at SCRB server, SCRB will automatically put the request in queue for submitting query to STATE-AFIS. The system will have capability to set transaction priority to submit search transactions out of turn and retrieve search result for dissemination.

Minimum requirements for the RQT s are as follows:

i. The Input Terminal/ RQT should have all the devices integrated into one application i.e. FED, iris scanner (in Future), camera and flatbed scanner.
ii. The Input Terminal/ RQT should have the capability to submit transaction to the NRCB STATE-AFIS based on priority.
iii. The Input Terminal/ RQT should be able to receive the results from the STATE-AFIS and notifications if any error.
iv. The Input Terminal/ RQT should have the GUI for submitting Demographic forms and taking actions on receipt of search requests to the central STATE-AFIS system.
v. The Input Terminal/ RQT should be able to import transactions from legacy State AFIS
vi. It should be able to capture flat with auto capture. Flats should be capture as 4-4-2. On the spot segmentation should be performed and operator feedback about capture quality should be instantaneously provided. If quality requirements are not met multiple attempts should be allowed. Manual correct of the segmentation boxes should also be allowed to avoid any segmentation errors.
vii. Able to capture rolls. Rolls should be captured in a sequence and multiple attempts should be allowed if the quality requirements are not met. Automatic sequence check should be performed and position should be corrected automatically.
viii. Should have provision to upgrade to capture iris with auto capture. Iris should be captured if scanner is connected. Quality analysis on the spot and operator feedback should be provided. Multiple attempts should be allowed.
ix. Able to input palm using flatbed scanner. The scanned images should be automatically imported into the software. Automatic segmentation if required should be performed along with on the spot quality analysis.
x. Able to input inked slips. The software should be able to take legacy slips with either preformatted specification or on unformatted slip. The system should automatically detect fingers and slaps

and perform segmentation with quality assessment. If the system fails to detect the operator should be given an option to manually mark the fingerprints.

xi. The Input Terminal/ RQT should be able to print hard copies of the slips and demographic data with conviction details with configured formats.

xii. The enrollment application should be capable of performing quality analysis to make sure the input data is of sufficient quality to meet the accuracy of SLA. System can use a combination of standard quality measures plus proprietary quality measurements depending on the biometric modality.

xiii. The system should be able to re-submit ten digit print, iris (in future), and palm print from database to search against database with re-editing facility.

xiv. The System should have a provision for creating secondary/temporary database for document case examination.

xv. The system should allow latent acquisition from files, digital camera and flat bed scanner.

xvi. The system should support multiple latent acquisitions associated with one individual case.

xvii. The system should provide following image pre-processing capability for assisting the examiner automatically and manually in cases of poor quality image:

- Filters for Flattening/Thickening, Thinning of Ridges, Reduction to single pixel level, Edge Detection, Emboss, Distortion correction, selection of area of interest, histogram and able to separate overlaid chance prints.
- The system should be able to separate fingerprints on multi-coloured surfaces viz. currency notes, Revenue Stamps, Stamp papers, legal documents etc.

xviii. The system should automatically detect minutiae or allow the examiner to add or delete minutiae of determining the dpi scale if the scale is not know and submit such latent for matching with given accuracy standards.

xix. Verification Results to be shown as film strip or list with highest scoring matches at top position or first position.

xx. The system should allow the examiner to submit one more transaction in parallel.

xxi. The results should come back to the examiner who had submitted the search request.

xxii. The system should allow the examiner to choose various combination of filters to search in and allow either performing a lights out search or providing more selective information such as latent type (finger or palm), position, orientation and search angle tolerance. In case, however, if Lightsout search fails for a dead body, expert intervention can be sought for.

xxiii. The system should use hardware or software acceleration to facilitate smother image processing operations.

xxiv. The system should allow printing of court exhibits whenever required.

xxv. The system should provide automatic / manual charting of matching points on both the matching prints with examiner defined charting option for Court Opinion.

xxvi. The number of results retrieved per search transaction should be configurable.

xxvii. Examiner should be able to input latent prints from files, digital camera or flat bed scanner

xxviii. The system should be able to re-submit latent print from database to search against database with re-editing facility.

xxix. Should be able to selectively display or hide an overlay of extracted minutiae points in the on-screen image comparison

xxx. The system should have role based access.

xxxi. There will be one Remote query terminal set-up at each of the States

1.6 Search module requirements of STATE-AFIS

Search Module: Search/comparison of ten prints, palm prints and latent prints to the STATE-AFIS database shall have the following functions

i. Remote Query can be fired from multiple locations at the same time. The results will be sent to the respective terminals.
ii. System's ability to have priority based processing of matching requests received from workstations. The system should be capable of indicating Query No. /Date wise/ Time-wise to the transaction in need of priority and provide tools to initiate the priority processing.
iii. The system should generate flash to be displayed at concerned workstation (i) Sl. No. in Queue (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.
iv. Automated comparison of each rolled and flat ten print image to ensure proper sequence validation of fingers.
v. Automated image quality check of each ten prints, flat print, palm print & latent print during enrolment.
vi. Multi-finger matching/searching of latent prints against all 20 finger prints (both rolled and flat) in Ten digits Print record.
vii. 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.
viii. Ten prints & Latent print should be searched automatically against the ten finger print database and simultaneously unsolved latent database.
ix. The system should be capable to enroll and search/match a slip having less than ten prints in case of amputee/bandaged/missing fingers.
x. Palm print should be searched against unsolved palm latent database.
xi. Latent fingerprints should be searched against the ten print finger database and simultaneously unsolved latent fingerprint data base.
xii. Latent palm prints should be searched against the palm print database and simultaneously unsolved latent palm print data base.
xiii. The system should be capable of matching of latent prints of unknown scale with given accuracy standards.
xiv. The system should be able to re-submit ten digit print, palm print and latent print from database to search against database with re-editing facility.
xv. Option for Ten print, palm print and latent print search for identity verification without entering the record into STATE-AFIS.
xvi. STATE-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.
xvii. Option for operator to use date field as filter for search.
xviii. Support for retrieving and comparing of the existing ten digit print record with the finger prints of subject short listed from the demographic data.

1.7 Verification Module Requirements of STATE-AFIS

i. Verification module should be available on both at Central STATE-AFIS and at District- AFIS/Portable Workstation as per recommendation of NCRB/State AFIS.
ii. 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.
iii. 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.
iv. On-screen side by side display presentation of the search print and potential matching prints from
v. the STATE-AFIS database. The ranking of candidate matches from potential matching print(s) with highest potential should appear on the top in descending order. Their corresponding demographic details should also be simultaneously displayed.
vi. Should be able to selectively display or hide an overlay of extracted minutiae points in the on- screen image comparison and binary image display.
vii. 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.
viii. The system should provide for user defined threshold candidate list.
ix. The system should give alert if verification of 10 print & latent print is not attended within 24 hours
x. The system should have dedicated GUI(s) for court chart preparation. Charting functions should have feature
    - Restricted access by an authorized user(s) only.
    - Ability to support manual marking of selected minutiae points
    - Side-by-Side display (Disputed and Admitted/Specimen Prints)
    - Ability to edit complete expert report
    - Ability to print expert report.
xi. The system should have dedicated GUI(s) for circulation of latent print cases. Circulation program should have feature
    - Restricted access by an authorized user(s) only.
    - Store, search and verify finger / palm prints on case database or on central database.
    - Ability to circulate among group of users.
    - Ability to support manual marking of selected minutiae points
xii. Side-by-Side display (Known and Unknown Prints)
xiii. Ability to edit complete expert report
    - Ability to print expert report, chance print photo.
    - Ability to send expert report to concern Police Station & F.P. Expert.

1.8 Fingerprint /Palm print Database /Storage Subsystem

i. Should function as Warehouse for processed Fingerprint/Palm print / Criminal Attribute database.
ii. Storage & retrieval module should have facility of Phonetic Name Search & Indexing.
iii. Should be seamlessly integrated with Finger & Palm Print, Iris (in future) database in all respects.
iv. Should be retrievable by clicking on shortlist of probable match results.
v. 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 (x) MOB etc

vi. Should provide for sub-system for separate categories i.e. Convicted, Arrested, Suspect, Wanted, Unknown Dead Body, D.C., Proclaimed Offender, Absconder etc.
vii. Should have Input, Query and Report Module on the basis of different data fields and categories.
viii. The tendered should provide all sorts of customization (as per STATE-AFIS/NCRB) required towards the demographic details.

1.9 Asset Management / Reporting Subsystem/SLA Management/Incident management

i. Management / Health of RQT, Data enter & DR.
ii. Various type of Report generation regarding various type of activities happening through STATE-AFIS
iii. The Successful Bidder will require to deploy suitable open source SLA management/Incident management tools for proper monitoring during the post implementation phase.

1.10 Fingerprint /Palm print Transaction / Communication Subsystem

i. Should take care with log report , all the incoming and outgoing Fingerprints / Palmprint data & Reports
ii. Should act as priority / Queue management system. The Remote Query Queue Management server (RQ2M) is responsible for the queue management infrastructure. All NCRB NAFIS systems will interface with the SCRB AFIS using the queues designated for them on the Remote Query Queue Management (RQ2M) server. The transactions will be processed based on priority assigned to each transaction. External authorized agencies can also submit searches and records via the queuing interface.
iii. Transaction Subsystem will be responsible for executing the workflows on the incoming data and transaction type. Fingerprint /Palm print Transaction Subsystem drives the search engine using the data provided and information available in the Identity Management System.
iv. The tenderer should provide the Fingerprint /Palm print Transaction Subsystem that integrates the proposed search engine and should also have flexibility to integrate other search engines in futures. The proposed Fingerprint /Palm print Transaction Subsystem at minimum should meet the following requirements.
v. The Transaction Subsystem should run on COTS hardware and should be platform independent.
vi. The proposed Transaction Manager should run on 64 bit operating systems either Linux or Windows.
vii. Redundant server architecture that automatically re-configures itself in case of failure.
viii. The proposed system should be of enterprise class and highly scalable both vertically and horizontally.
ix. All transaction inside the Transaction Manager should be NIST EBTS based.
x. The Transaction Subsystem should implement workflows as per Indian Law enforcement requirements
xi. Integrate with Criminal attribute database for encounter update and conviction information update.
xii. Suspect search using Fingerprint / Palm Print . Unsolved latent database should be searched along with 20 prints databases.
xiii. Latent search against respective modalities and galleries i.e. 20 print, palm and unsolved databases.
xiv. Enrolment and update based on recent encounter or best quality biometrics (form composite records).
xv. The workflow in the Transaction Subsystem as integrated with biometric search engine in general should facilitate automated minutiae extraction, quality assessment and insertion in appropriate galleries.
xvi. If the image is unacceptable, a message should be sent automatically to the workstation which submitted the transaction in case if the operator had overridden the systems alerts.
xvii. Send results to requesting State/UT RQT of respective SCRB that are interested in that record.
xviii. Should facilitate subscribing for a record of interest to receive notification for any kind of activity on that record.
xix. Easily customizable and pluggable workflows.
xx. The system should have automated enhancement and encoding module as part of the search engine which should not require any manual intervention. A separate examiner workstation should be provided for manual quality assessment and markup.

xxi. The Transaction Subsystem should support verification or authentication transaction.

xxii. The Transaction Subsystem should provide automatic generation of transaction subject ID/ transaction control number and this transaction control number (TCN) should be traceable in the entire system through the entire life cycle of the transaction.

xxiii. Remote Query can be fired from multiple locations at the same time with same or different priority.

xxiv. System's ability to have priority based processing of matching requests received from workstations. The system should be capable of indicating Query No./Date-wise/ Time-wise to the transaction in need of priority and provide tools to initiate the priority processing.

xxv. The Remote Query Workstation (NAFIS) of State /UT SCRB Should integrate with all the existing legacy state AFIS over Remote Query Queue/Priority Management System.

xxvi. The system should generate flash to be displayed at concerned workstation (i) SL. No. in Queue (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.

xxvii. Vendor has to provide a Standard API /Middleware/ bridge software so that State Legacy AFIS can be upgraded /integrated with State RQT NAFIS.

xxviii. Zero transaction loss and thus transaction persistence should be supported.

xxix. The Transaction Subsystem should weed out time barred slips automatically based on age or years

1.11 System Security

System Security: The data of STATE-AFIS is a valuable resource and key component of Technical Architecture. Information security is very important to maintain Integrity, Confidentiality & Availability of data.

i. Data needs to be protected against following threats.
   - Unauthorized access to database or application
   - Accidental modifications or deletions
   - Confidentiality, Integrity & Availability breeches of data during data transport & physical storage.

ii. Front end application should include features of MD 5/SHA encryption layer, SSL based (for web-enabled), Prevention from BRUTE Force Attack, SQL Injection, other vulnerability patches etc.

iii. Multilayered security should be in place in order to access various features at Central Server, which must be exhibited by the vendor at the time of evaluation etc.

1.12 Accuracy

i. The system should be capable of achieving accuracy not less than 99% for ten print and palm print, i.e. if the search is true match then it should be in the first position 99% of the time

ii. The system should be capable of achieving accuracy for latent print search as; if the search is true match then it should be in the first position 90% of the time, in first three positions 95% of the time and in top ten positions 99% of the time.

1.13 Response Time

i. Response time will be the time required for the server to search the finger print against the complete database and giving out the traced /untraced result. . The benchmark response time is around 10 seconds for Ten Digit Print and 90 Second for Latent Prints search in 1 Lac fingerprint database.

ii. The application should be capable to accommodate 50 Ten digit print process, 10 latent print concurrent processing and 5 Palm print process fired from the multiple locations.

iii. STATE-AFIS should support image resolution of ≥500 ppi (or 1000 ppi (pixels per inch)) in all aspects of capture, processing and archiving. There should be no quality loss in transporting the data to the new system.
iv. Should have the capability to reproduce one to one hard copy of ten prints with flat/rolled print and Palm print (full hand) records from electronic files submitted to STATE-AFIS.
v. The system should provide for separate temporary database for document case, inmate/suspect examination.

1.14 General Requirements

i. The proposed system's server applications should be platform independent and should run on Linux
ii. 64 bit or Windows 64bit operating systems.
iii. The bidder should provide patches and upgrades (new versions) of STATE-AFIS system during the Warranty and ATS periods without any cost.
iv. Redundant server architecture that automatically re-configures itself in case of failure.
v. 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.
vi. The new system/solution must be user friendly with the ability for the Fingerprint Experts to quickly learn the operations of the application software.
vii. The System Software to be provided should be of latest version.
viii. The Hardware should be of known reputed brands.
ix. System should be capable of the following services: identify/verify, display and print on demand from archive record on standard format of Finger Print Slip, Latent Print Card, Palm images and other associated details. (Complete Printing Report- Image + Demographic Info.)
x. The system should have a Report Module capable of generating statistical reports periodically on various parameters for monitoring performance of system and its utilization by various users to be customized to meet day to day requirement.
xi. The system should be capable of providing STATE-AFIS (including Palm Print) Inter Connectivity and able to communicate electronically with other compliant and compatible STATE-AFIS systems.
xii. The system should have ports available to integrate applications e.g. Photo Imaging Systems, Digital Media, Live Scanner, Flatbed Scanner etc.
xiii. The 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.
xiv. Administrator Module should be provided with various easy to use tool/utilities to monitor and control the system.
xv. The system should have administration utilities to monitor system performance, manage transaction queues, balance workload, workflow control, view and review database records, update, modification and deletion etc.
xvi. The system should have central operation control to monitor process, re-do and redirect if necessary of remote site work or any work of local workstation under supervision.
xvii. Utility tool should include facility to convert the STATE-AFIS data (including Palm Prints) into various NIST standard formats with provision to export on external storage media devices.
xviii. Backup/Recovery/Disaster Management Module
xix. The system should provide for backup to reclaim the work in process files within 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.

xx. In case of natural or induced disaster or any occurrence that may render the STATE-AFIS partially or fully non functional, the system should provide for solution for recovery within 6 hours (or stipulated time) that will ensure continuous and proper performance of the system and sub systems.

xxi. Network connectivity between SDC, District offices, bureaus & Police stations will be using CCTNS network connectivity.

xxii. The system should have provision for submission of Single Digit search from Web (browser) based Remote query to the Central STATE-AFIS.

1.15 Miscellaneous Requirements

i. The system should feature dynamic quality upgrade of stored fingerprints and palm prints at the time of each trace, by maintaining a virtual set of best quality prints from the entire set of available prints for a given person. It should be possible for an expert to manually set a quality for a given print.

ii. Automatic Henry Classification of 10 digit F.P Record/Search Slip

iii. Automated ridge direction determination

iv. Automated core and delta detection and extraction

v. Automated minutiae quality assignment

vi. Automated search chance print upto 360 degree Orientation.

vii. Capability to take chance print negative image directly & match it. viii. Automated capture of logical rolled print area

viii. Automated capture of logical plain print area and comparison of plain prints with rolled prints.

ix. Automated integration of STATE-AFIS with personal information system (Criminal Attribute) for storage and retrieval.

x. Automated selection of matching digit, which is best in quality in search slip and database for verification.

xi. The system should fully support the capability to capture multiple chance/latent prints associated with a particular case.

xii. The system should provide the ability to capture the associated case data and link this data to each chance/latent in the case.

xiii. The system should facilitate Chance/latent print images to be re-edited and launched for secondary searches without requiring a re-scan of the chance/latent.

xiv. The system should also have a full range of integrated chance/latent and ten print image-enhancing capabilities.

xv. Data conversion tools to convert the data of existing STATE-AFIS.

xvi. Automated Ten Digit Update

xvii. Automated Latent Print Update

xviii. Finger Print and Demographic Data acquisition: It should have the capacity to record and maintain interactive Finger Print and demographic data acquisition.

xix. Efficient case processing and linking with the captured latent/palm print.

xx. Automated search against unresolved latent records during new Ten Digit Slip registration/replace.

xxi. Networking and Data Updating Capabilities

xxii. Inter STATE-AFIS Data Portability and Query Processing.

xxiii. Secure and Stable Database with Licensing

xxiv. Architecture should be scalable.

xxv. System Administration

xxvi. Antivirus support with patches and upgrades (during Warranty and ATS periods)
xxvii. Demographic Details Information Management.
xxviii. Availability of Interfaces for Integration with other Indian police Software
xxix. Finger Print and Demographic Data Report Generation.
xxx. Maintenance and Support. It should have a capability of creating local removable data base for temporary comparison work.
xxxi. Facility for high availability disaster recovery (HADR)