Systems Delivery and Project Portfolio Management (SDPPM)

AFIS Renewal

ANNEX C TO APPENDIX A: TRANSCODER DETAILED REQUIREMENTS

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1. INTRODUCTION

1.1 General

1. This Annex C to the Appendix A Statement of Work (SOW) describes the detailed requirements to renew the Transcoders, which are in addition to the high-level requirements stated throughout the SOW and its accompanying documents. (I)

2. This document identifies what the Contractor's Transcoder must provide in order to satisfy the Royal Canadian Mounted Police's (RCMP) requirements that will enable remote Automated Fingerprint Identification System (AFIS) users to search the RCMP national Ten Print File (TPF) and Unsolved Latent File (ULF) directly through National Institute of Standards and Technology (NIST) transactions, verify their search results, add entries to the RCMP ULF, disposition their Latent searches, fetch Ten Prints or Latents, perform ULF to ULF searches; and delete their ULF entries previously added to the RCMP ULF. (M)

3. The primary purpose of the Transcoder is to provide the ability for police agencies across Canada to perform their own fingerprint/palm print crime scene investigation using their own fingerprint technicians. (I)

4. As well, this document describes the functional and technical requirements that must be provided by the Contractor's Transcoder renewal solution to support the business, interfaces, capacity, security and quality requirements of the RCMP. (M)

1.2 Transcoder Renewal Concept

1. From a high-level architecture perspective, the Transcoder is a National Police Service – National Institute of Standards and Technology (NPS-NIST) Interface Control Document (ICD) compliant input device. It is a replaceable input device for Real Time Identification (RTID). The Transcoder interfaces with the NPS-NIST Server (NNS). NNS controls the overall flow and processing of NPS-NIST submissions. The AFIS ICD defines the interface between NNS and AFIS. Any Transcoder that fully supports the NPS-NIST ICDs for the Types Of Transactions (TOT) that are supported by the Transcoder and the Transcoder User Interface (UI) requirements is expected to be able to replace the existing Transcoder. (I)

2. The NNS mostly considers the Transcoder TOTs as pass through to the AFIS, meaning the AFIS renewal solution must know how to interpret the data provided by the Transcoder. (M)

3. The Transcoder renewal solution must support the NPS-NIST ICDs for all communications between the Transcoder and NNS as well as the sequence of activities for Transcoder workflow. The Transcoder renewal solution must also support the UI and all other requirements stated throughout this SOW and its accompanying documents. (M)

1.3   Document Organization

1.   The detailed architecture within which the Transcoder renewal solution operates, is described in Section 2. (I)

2.   The detailed functional requirements that are to be supported by the Transcoder renewal solution are presented under various headings such as General, Ten Print (TP) and Latent. (I)

3.   There are technical requirements included with the functional requirements to ensure clarity concerning the requirements. However, most of the detailed technical and implementation requirements that are to be supported by the Transcoder renewal solution are presented following the functional requirements. (I)

4.   The overall detailed architecture within which the Transcoder renewal solution must operate is explained in Annex A, Current Architecture. (M)

5.   Annex B shows the workflow sequence of Latent Fingerprint Feature Search (LFFS) processing that the AFIS renewal solution must support. This workflow is initiated by the Transcoder; therefore, the Transcoder must support the workflow required for the LFFS related sequence of activities described in the AFIS renewal solution as well as all the activities/transactions necessary to support the Transcoder requirements stated throughout this SOW and its accompanying documents. All other workflow examples are included in Annex G. It is expected that the Contractor can use the examples and the NPS-NIST ICDs, AFIS ICD and the requirements stated throughout this SOW and its accompanying documents to understand all the other workflows applicable to the Transcoder renewal solution. (M)

1.4   Definitions

1.   A "remote operator" is a fingerprint technician located at a remote site who is performing latent and ten print searches against the RCMP TPF and ULF. This operator has been trained on the Transcoder and is regularly monitored by the RCMP. (I)

2.   An "uncertified remote operator" is an individual who is going through the training period allowing the Remote Network Search Coordinator (RNSC) to monitor their work. An uncertified operator shall not be authorized to enrol latents into the ULF. (I)

3.   The RNSC is located at the RCMP and is an office that has senior Latent technicians who are responsible for coaching and monitoring remote operators. (I)

4.   The terms "Operator" and "User" are used interchangeably in these requirements and, within this Annex, refer to Transcoder users, unless otherwise stated. (I)

5.   For the purpose of this Annex, the term "RCMP HQ" shall mean a designated location within RCMP Headquarters where AFIS operations are conducted, currently situated at the Vanier Parkway campus in Ottawa. (I)

2. TRANSCODER RENEWAL ARCHITECTURE

2.1 Transcoder Renewal High-Level Architecture

1. The Transcoder must support operating in several different configurations within RCMP / Shared Services Canada (SSC) and contributing agency architecture. These different configurations within this architecture are described in the following subsections. Figure 2-1: Transcoder Renewal High-Level Architecture depicts the high-level Transcoder architecture that must be supported by the Transcoder renewal solution. The Contractor's Transcoder renewal solution must operate within this architecture and support the various configurations, interfaces, functional and technical requirements that provide a secure, efficient and effective solution. (M)
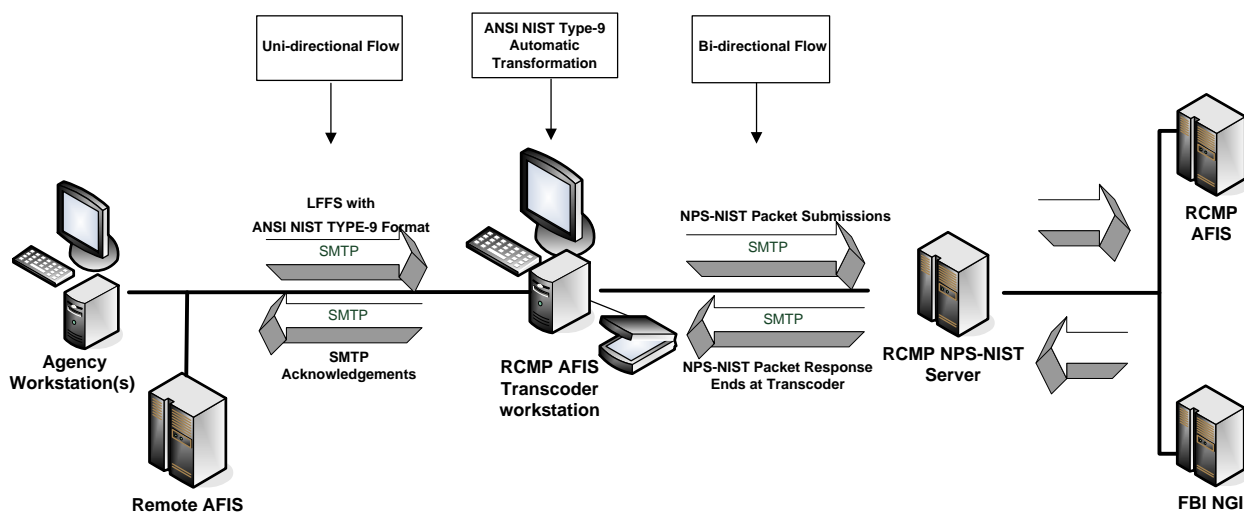
Figure 2-1: Transcoder Renewal High-Level Architecture

2. The most frequently utilized configuration that the Transcoder renewal solution must support is depicted on the middle to right side of the high-level architecture. Most remote Transcoder sites have one (1) Transcoder that uses a bi-directional Simple Mail Transfer Protocol (SMTP) interface to exchange NPS-NIST compliant packets with NNS. All Transcoder renewal solution configurations use the bi-directional SMTP interface. (M)

3. For large remote sites that have their own AFIS, the Transcoder renewal solution must support receiving Integrated Automated Fingerprint Identification System (IAFIS) Type-9 NIST packets from the remote site through a local network connection. This is referred to as receiving Latents through the back-end interface of the Transcoder. These large remote sites perform Latent searches on their own AFIS and then, as required, submit to RTID. The Transcoder renewal solution must automatically receive, process, and transform the LFFS transaction with the IAFIS Type-9 compliant data into an NPS-NIST compliant LFFS transaction with encoding expected by the AFIS renewal solution and send it to the RCMP NNS. This allows different remote site vendor solutions to be able to automatically submit their Latents to RTID using an international standard. (M)

4. The Transcoder renewal solution must validate the remote site LFFS to ensure it has been submitted by the agency for which the Transcoder has been configured. (M)

5. Once the transformed LFFS has been sent to NNS, all remaining communication is between the Transcoder and the NNS. Any subsequent processing of the Latent must allow all Transcoder renewal solution functionality to be used on the Latent to add/remove any encoding or use any other features in the same manner as if the Latent was submitted directly from the Transcoder renewal solution. (M)

6. The only communication that must be provided back to the remote site back-end interface is a SMTP acknowledgement that the email was received or, in case of an email failure, an appropriate error based on the SMTP protocol. (M)

7. Any interaction with the Federal Bureau of Investigation (FBI) Next Generation Identification (NGI) required for Transcoder renewal solution NPS-NIST transactions is supported through the NNS to FBI interface. (I)

8. The Transcoder renewal solution shall also provide functionality to support CAR N, MAP, CAR Y and IRQ ten print transactions using this same Transcoder architecture. Refer to the NPS-NIST ICDs for details concerning these ten print transactions. (M)

9. The Transcoder renewal solution must support all aspects of the interface with the NNS, including receiving FBI search results when FBI searches are requested from the Transcoder. (M)

2.2 Transcoder Renewal Configurations

1. The following are three (3) example configurations that must be supported by the Transcoder renewal solution. These example configurations depict all possible configurations that have architectural implications. That is, there are several other combinations and permutations of number of Transcoders and their physical location at a remote site; however, they all can be supported in the following architectures. (M)
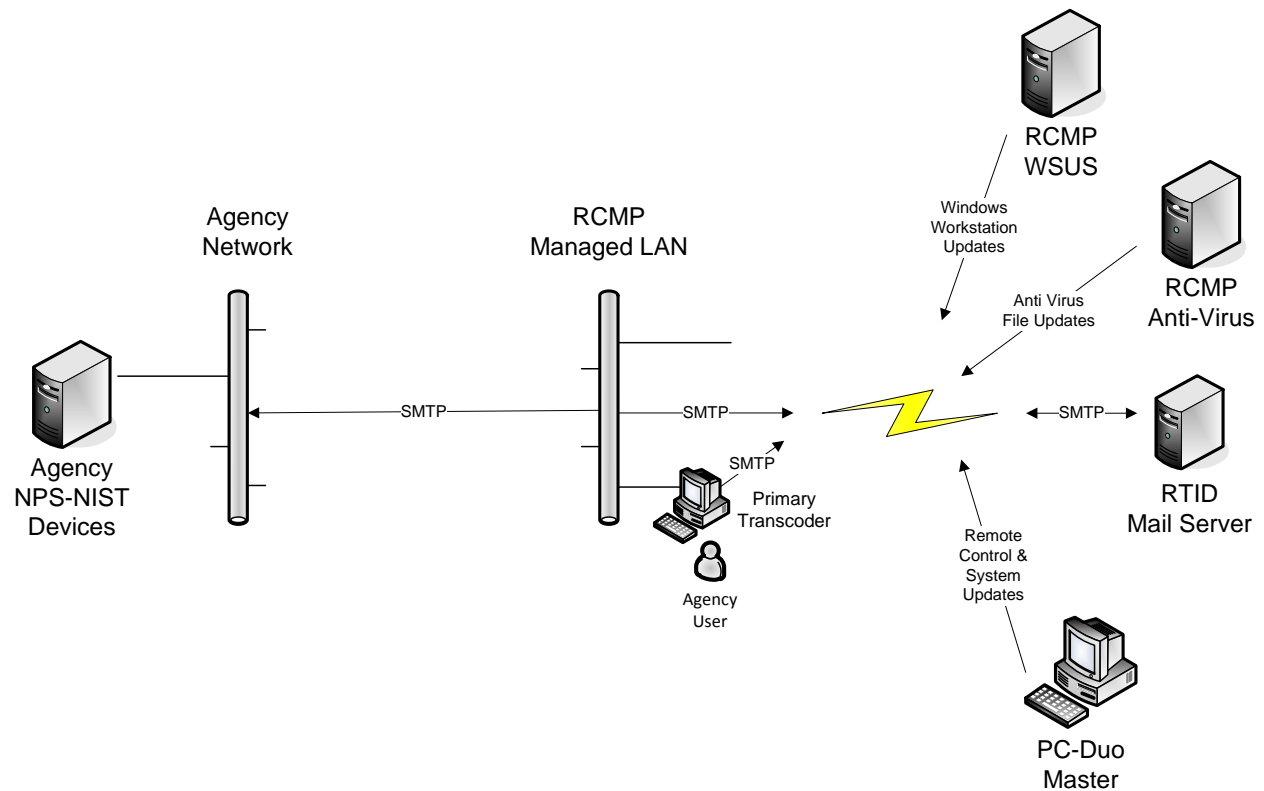
Figure 2-2: Base Transcoder Architecture

2. The base Transcoder renewal solution architecture is a single Transcoder that communicates with the RTID mail server using bi-directional SMTP. The Transcoder is connected to the RCMP-managed Local Area Network (LAN) located at the remote site. The Transcoder in this configuration is controlled and managed by the RCMP. (I)

3. Like other devices on the RCMP-managed LAN, the Transcoder renewal solution must support receiving anti-virus updates from RCMP's McAfee ePolicy Orchestrator (ePo) services and windows workstation updates from RCMP's Windows Server Update Services (WSUS). (M)

4. The Transcoder renewal solution must also support access through PC Duo, which is used by the RNSC to provide support and training for the Transcoder renewal solution users. (M)

5. Note: These remote sites also have other devices, physically located within their own agency network, that also submit to RTID. This SMTP interface is separate from the Transcoder renewal solution; however, all communication from the remote site flows through the same encrypted connection. (I)
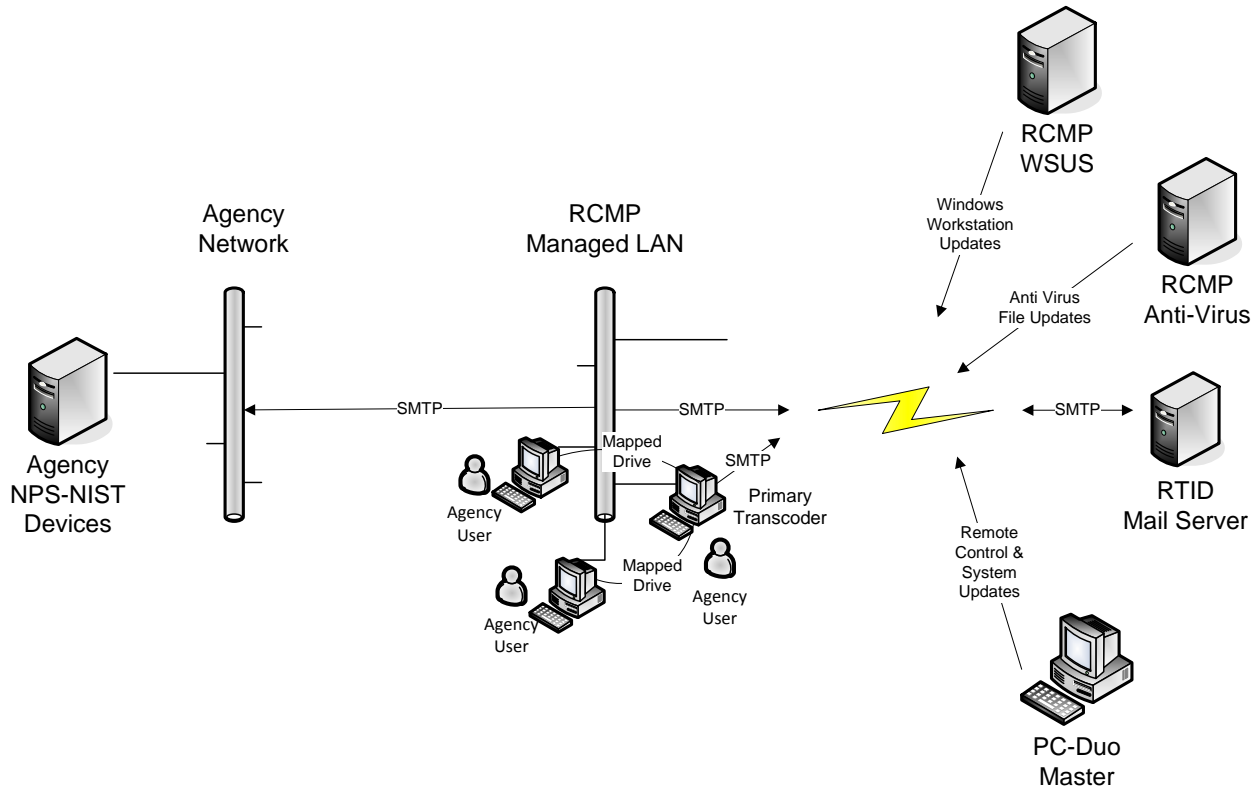
Figure 2-3: RCMP-Managed LAN Multi-Transcoder Architecture

6. The Transcoder renewal solution must support a configuration with multiple Transcoders at a remote site, where all communication with RTID is only through the site's primary Transcoder. (M)

7. The RCMP-managed LAN multi-Transcoder renewal solution configuration must support the concept of mapped drives / shared database that allow all Transcoder users at the remote site to send, receive and process the NPS-NIST transactions supported by the Transcoder. This support must allow each user to work on the transaction they are processing through the series of Transcoder transactions that constitute the complete workflow for the transactions. (M)

8. This multi-Transcoder renewal solution configuration must support all the capabilities identified in the base Transcoder architecture including ePo, WSUS updates and PC Duo access. (M)
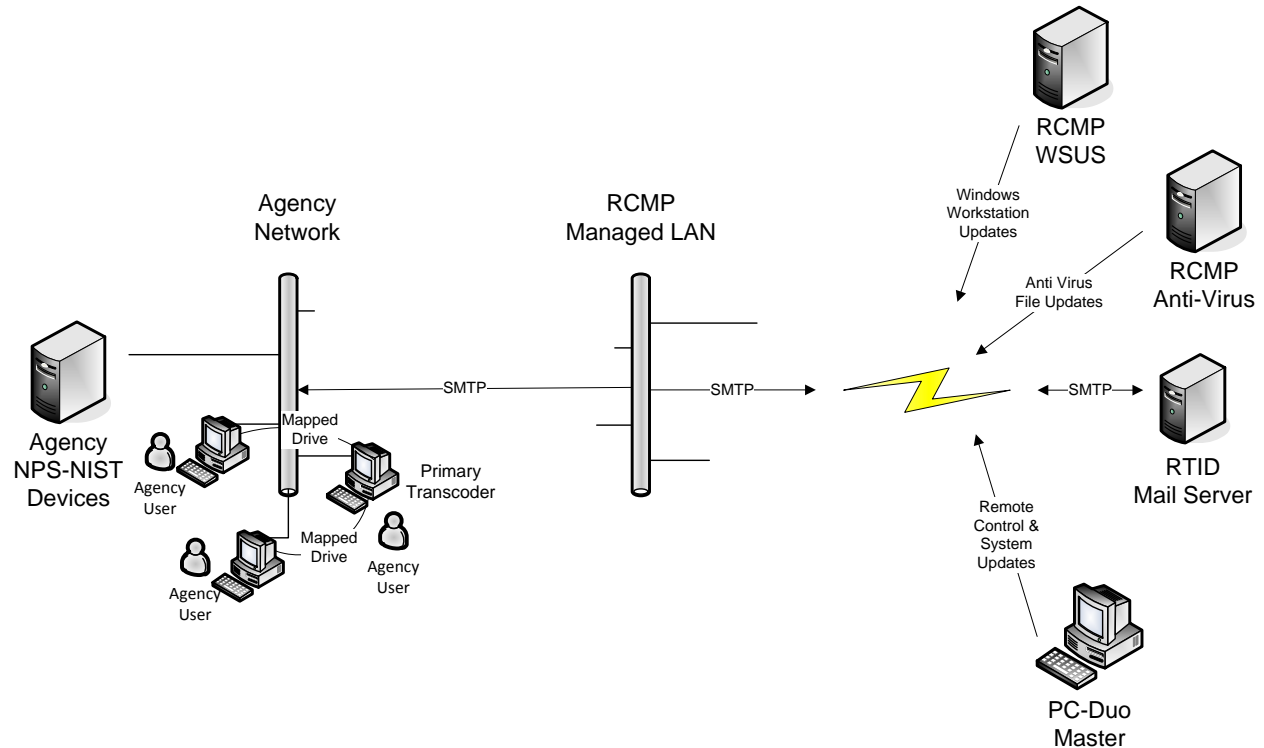
Figure 2-4: Agency Network LAN Multi-Transcoder Architecture

9. The Agency Network LAN multi-Transcoder renewal solution configuration must support the concept of mapped drives / shared database that allow all Transcoder users at the site to send, receive and process the NPS-NIST Latent transactions supported by the Transcoder. This support must allow each user to work on the transaction they are processing through the series of Transcoder Latent transactions that constitute the complete workflow for remote Latents. (M)

10. The Agency Network multi-Transcoder renewal solution configuration must support all the capabilities identified in the base Transcoder architecture including PC Duo access. Agencies with Transcoders on their own network accept responsibility to maintain anti-virus and windows workstation updates on the Transcoders. (M)

2.2.1   TRANSCODER/NNS INTERFACE

1. Transcoder sites communicate with RTID through a Network Security Posture (NSP) site Internet Protocol Security (IPSec) connection. Refer to Annex A, current architecture, for additional information concerning secure NSP connections. The Transcoder/NNS interface is an asynchronous bi-directional SMTP interface through the NSP connections. The Contractor's Transcoder renewal solution must support this interface. The following describes the interaction between the Transcoder and NNS that must be supported by the Contractor's Transcoder renewal solution: (M)

    a. NIST packets are sent to the NNS email component by the Transcoder renewal solution;

b. The NNS will validate the NIST packets to ensure compliancy with the NPS-NIST ICDs. Refer to the NPS-NIST ICDs for details regarding error conditions, error responses and other aspects of this interaction;

c. The NNS will transform the NIST packet submitted by the Transcoder into the associated internal NIST packet based on the AFIS ICD and submit the internal packet to AFIS;

d. The AFIS renewal solution must complete the required processing based on the internal NIST packet and respond back to the NNS;

e. The NNS will transform the AFIS renewal solution response NIST into the associated NPS-NIST ICD NIST packet and send an email, with the NIST packet attached, to the address associated with the Transcoder's Originating Agency Identifier (ORI) that submitted the packet;

f. The Transcoder renewal solution must process the response NIST packet and, as required, provide the results to the Transcoder user(s); and

g. The Transcoder renewal solution must include a database that is used to manage transactions submitted by the Transcoder, user access, transaction status and all other information required to enable the Transcoder renewal solution to function in a manner the same as, or similar to, the AFIS renewal solution workstation.

2.2.2   MULTI-TRANSCODER CONFIGURATION

1. Most Transcoder sites only have one (1) Transcoder; however, several sites have multiple Transcoders to support larger requirements for crime scene investigation. The Transcoder renewal solution must support the Departmental Security Branch (DSB) approved multi-Transcoder configuration. (M)

2. The multi-Transcoder configuration includes one (1) primary (i.e., master) Transcoder which is the only Transcoder that communicates with NNS. From an NNS perspective each site only appears as a single Transcoder site. (I)

3. The Transcoder renewal solution must support a mapped drives / shared database capability where the following requirements must be satisfied: (M)

    a. Each Transcoder must be able to view the transactions they are processing which includes:

        i.   Monitoring the transactions they have submitted;

        ii. Receiving the responses from submitted transactions; and

        iii. Taking action on the transaction based on the requirements that must be supported by the Transcoder renewal solution.

    b. Transactions processed on one (1) Transcoder cannot affect a transaction on any other Transcoder;

    c. The same Transcoder is used by multiple users; therefore, the UI must be the same for each Transcoder; that is, the users at a site must not notice any difference between each Transcoder UI; and

    d.   The Transcoder must support local site two-factor authentication for access to the Transcoder using a biometric and password authentication method.

3. GENERAL TRANSCODER REQUIREMENTS

3.1 Transcoder COTS Compliance

1. The Transcoder renewal solution must be a Commercial Off-the-Shelf (COTS) software product and be based on the AFIS renewal workstation UI and functionality. (M)

2. The Transcoder renewal solution, to the greatest extent possible, should satisfy the Transcoder renewal solution requirements through the COTS product. (R)

3. This COTS product must be customizable to modify, extend, expand and/or introduce new functionality to the COTS product to support the Transcoder renewal solution. (M)

4. This COTS product must be configurable to support changes or additions made to the base set of data values of the COTS product to reflect the requirements of the RCMP. (M)

5. These application configuration changes should not include modifying existing or adding new programming code, or changing the application architecture or data structure. (R)

6. The Contractor should describe in detail its strategy for providing the Transcoder specific functionality based on the AFIS workstation UI functionality as the AFIS COTS baseline evolves over the life of the contract, addressing the extent to which it will include custom features into its COTS product; and to what extent that the Contractor's strategy minimizes disruption in terms of availability if RCMP chooses to implement an upgrade. (R)

3.2 Logging of Transaction Activities

1. The Transcoder renewal solution shall, in an automated fashion, log all activity performed as a result of the sending, processing and receiving transactions through the communication with the NNS as well as any activities initiated by the user on the Transcoder. (M)

2. The purpose of this Transcoder log is to retain an administrative record of the complete processing history of a request for service, including each wait state, each activity, who performed the activity, and which actions were taken. This is meant to complement the comprehensive audit log available on NNS and the AFIS renewal solution to ensure an accurate history of events is recorded. (I)

3. For fingerprints/palms that are processed, the Transcoder renewal solution shall retain Transaction Log entries for a period of time, as indicated in a configurable parameter, after the transaction has been serviced (currently indefinitely). (M)

4. The Transcoder renewal solution shall not allow modification of the information recorded in the Transaction Log, as it provides a true representation of activities that occurred at a specific point in time. (M)

5. The Transcoder renewal solution shall make any Transaction Log data viewable as required by RCMP audit resources. (M)

4. TRANSCODER FUNCTIONAL REQUIREMENTS

4.1 General

1. The Transcoder renewal solution must be based on the AFIS renewal solution workstation. The Transcoder renewal solution is essentially a remote AFIS workstation primarily used for Latent processing with limitations because of the connection speed; therefore, it has to be designed according to the NPS-NIST ICD to support the existing connection speed. (M)

2. The Contractor's Transcoder UI and functionality should have almost all AFIS renewal solution workstation capabilities. (R)

3. The most significant difference is that the Contractor's Transcoder does not have direct access to the RTID AFIS database or the Latent Case Management Capability (LCMC). All other functionality required for a remote operator to effectively and efficiently perform their role must be available. (M)

4. Remote sites have their own Transcoder database (refer to requirements earlier herein) and Remote sites manage their own cases; therefore, the LCMC UI capabilities are not expected to be part of the Transcoder renewal solution. However, as described in the AFIS renewal solution requirements and throughout this SOW and its accompanying documents; the remote site processing activities and results on the AFIS renewal solution must be recorded in the LCMC (e.g., An identification by a Transcoder user that was processed on the AFIS renewal solution would be recorded in the AFIS renewal solution log files and database; therefore, available in the AFIS renewal solution reporting capabilities and LCMC in the same manner as any other identification). (M)

5. Since the Contractor's Transcoder must be based on the AFIS renewal solution workstation, there has been no attempt herein to repeat all the AFIS workstation UI and functionality and requirements that must be supported, as these are already identified in Annex B – AFIS Detailed Requirements. It is the Contractor's responsibility to identify what functionality will not be available and justify why it is not available on the Transcoder and ensure all the requirements stated herein as well as throughout this SOW and its accompanying documents are met. The requirements stated herein are meant to identify Transcoder specific requirements; however, some requirements from the AFIS renewal solution workstation have been repeated herein to show how those requirements fit in the flow of Transcoder operations and identify the minimum requirements that must be available on the Contractor's Transcoder. (M)

6. The Transcoder renewal solution shall support the following NPS-NIST ICD transactions as well as all their possible responses: (M)

   a. LFFS;

   b. LFSRD;

   c. ULD;

   d. ULR;

   e. ULE;

    f.   LCLO;

    g.   CAR N;

    h.   CAR Y;

    i.   MAP; and

    j.   IRQ.

Note: Refer to the NPS-NIST ICDs for all the possible responses that can be received for any of the above transactions.

7. The Transcoder renewal solution must support indicating that a Latent search is destined for the FBI (e.g., using a button or right mouse click and select type method). (M)

8. The Transcoder renewal solution must support the use of the GFE scanner and selection of a Latent from a memory card (e.g., USB with Latent images) as part of the processing required for the Transcoder renewal solution capabilities. (M)

9. The Transcoder renewal solution must support all scanner capabilities necessary to support all paper scanning requirements for TP and Latent transactions processed on the Transcoder renewal solution. (M)

10. The Transcoder renewal solution must be able to select images from a DVD/USB for inclusion in a submission. These images may have been captured by the remote site camera or some other method. These images are normally formatted as TIFF images. The Transcoder must support TIFF, JPEG and bitmap images for inclusion in a submission. (M)

11. In an automated fashion, the Transcoder renewal solution shall log all activities performed as a result of the sending, processing and receiving transactions through the communication with the NNS as well as any activities initiated by the user on the Transcoder. (M)

12. The Transcoder renewal solution submissions, except as noted herein (e.g., uncertified remote operator), will be processed by RTID in an automated manner to effectively support the remote agency user. (M)

13. The Transcoder renewal solution shall perform the following functions as a minimum: (M)

    a.   Create an LFFS submission using the Latent image identified by the Transcoder renewal solution user through the methods described herein.

    b.   Receive a request to search a Latent (LFFS) from the remote site local AFIS or local Latent workstation and translate the IAFIS Type-9 record to an NPS-NIST ICD LFFS transaction with the FBI Type-9 record included in the LFFS submission.

    c.   Enable setting of search parameters in the same or similar manner to an RCMP HQ AFIS technician.

d. Enable a remote site technician to augment or alter the remote site minutiae to support a fully encoded Latent image transaction for the AFIS renewal solution after the initial search has been completed automatically.

e. Enable a remote site technician to verify the results of their LFFS transactions in a single verification packet (Search Response Latent (SRL)).

f. Prepare and transmit to the NNS a disposition packet that contains the outcome of the verification for the Latent transactions (LFSRD).

g. Enable a remote site technician to fetch, save in the Transcoder database and view an unsolved Latent or a Ten Print (ULR, IRQ) and then use the Transcoder renewal solution functions to process the images (e.g., perform a side-by-side view of the fetched images, re-edit and search the Latent).

h. Enable a remote site technician to delete (ULD) an entry on the ULF that has been added by his/her own agency.

i. Manage transactions, including requests, acknowledgements, replies, and error transactions.

j. Provide Latent workstation features the same as, or equivalent to, those available on the RCMP HQ AFIS renewal solution.

k. Provide the capability to share and process the transaction processing, in various common logical queues, to accommodate fingerprint/palm print processing where several remote agency technicians are configured in a multi-Transcoder configuration.

l. Create a unique identifier (Latent Image Identifier) for each clip of a Latent image committed for search by concatenating the following attributes in the same order as defined below:

  i. The seven (7) character ORI of the Latent contributor;

  ii. The Ident Section File Number submitted by the remote site local AFIS or entered by the user;

  iii. An identifier of up to three (3) characters that uniquely identifies the original Latent image submitted to RTID for search, which should default to "001" and allow the user to modify after the default has been applied before the image is sent for search; and

  iv. A two (2) digit suffix that is incremented by one every time a clip of the same image is committed, starting at "01" (Example: ON12345-IdentFileNo-202-01).

m. For ease of use, prefill the Latent Image Identifier field with the seven (7) digit ORI on the transcoder user interface when a remote technician is performing a remote Latent fetch or a remote Latent delete. The user shall have the ability to edit the ORI portion of the Latent Image Identifier in case they want to fetch a Latent created by another agency.

n. The Latent Image ID is the unique identifier that will be used in the Unsolved Latent Amend (ULA), ULR and ULD transactions or any other transaction that searches against the ULF.

o.   Enable a remote site technician to prepare and submit a Criminal Non-Retain inquiry (CAR N) or a Criminal Retain enrolment (CAR Y) transaction, including palms when available.

p.   Enable a remote site technician to prepare and submit a MAP transaction.

q.   Receive and enable a remote site technician to view any or all response transactions – Ten Print Acknowledgement (ACKT), Ten Print Search Results (SRE) or Ten Print Error (ERRT) for any submission (CAR N, CAR Y or MAP) sent to RTID.

r.   Enable a remote site technician to submit a LFFS transaction to the FBI (US Electronic Biometric Transmission Specification (EBTS) LFFS).

s.   Enable a remote site technician to augment or alter the Type 9 record to support a fully encoded Latent image transaction to include in the FBI EBTS LFFS.

t.   Receive the results of the FBI search, US EBTS SRL and US EBTS Error Latent (ERRL).

u.   Enable a remote site technician to verify the results of the FBI search, US EBTS SRL and US EBTS ERRL.

v.   Prepare and transmit a US EBTS LFFS transaction to the FBI via the NPS-NIST Server.

w.   Enable a remote site technician to indicate whether a Latent image will be saved to the ULF or not, prior to concluding the remote site Latent workflow of each Latent Image ID (ULE, Unsolved Latent Enrolment Retrieval (ULER)).

x.   Forward a Latent Closure (LCLO) transaction to the NNS when a remote site technician cancels or concludes a Latent search.

14. The Transcoder renewal solution shall meet, at a minimum, Image Quality Specification (IQS) of Appendix F in the *Electronic Biometric Transmission Specification* (EBTS) Version 10 or later, for Ten Print and Latent display stations. (M)

15. At a minimum, the Transcoder renewal solution shall support 1280 x 1024 resolution. (M)

16. The Transcoder renewal solution shall: (M)

a.   Accept requests received from the NNS;

b.   Manage requests through the Transcoder renewal solution;

c.   Process search results received from NNS;

d.   Encode and verify the search requests; and

e.   Enable a technician to certify proposed identifications.

17. The Transcoder renewal solution must provide a user friendly UI to populate all the fields (automatically or manually) required for all TOTs that must be supported by the Transcoder renewal solution as stated herein and throughout this SOW and its accompanying documents. (M)

18. In the case of Latent transactions, the Transcoder renewal solution shall submit and process at 1000 pixels per inch (ppi). (M)

19. In the case of Ten Print transactions, the Transcoder renewal solution shall submit and process at 500 ppi. (M)

20. Each Transcoder renewal solution station shall control the following with configurable parameters: (M)

    a. Time to screen saver initiation; and

    b. Time to automatic log out.

21. The Transcoder renewal solution application shall operate in a multi-tasking environment in such a way that will enable the remote site technician to access other Windows functions within two (2) seconds. (M)

4.2   Transcoder Renewal Solution Site Requirements

1. The Contractor shall supply all software, utilities, any necessary hardware and anything else required to provide fully operational Transcoders on the GFE Transcoder hardware at each site according to the requirements stated in this SOW and its accompanying documents. Table 4-1: AFIS Remote Location Table identifies the sites and number of Transcoders per site that must be configured, made fully operational and supported by the Contractor. (M)

2. Some Agencies may choose to purchase additional Transcoders at their expense to support increased volumes or RCMP may provide sites with additional Transcoders. To accommodate this, the Transcoder renewal solution design must support multiple units at the same site sharing a common database. (M)

Table 4-1: AFIS Remote Location Table	
Location	**Number of RTID Remote Site Client workstations required**
Toronto, ON (AFIS)	4
Montréal (SPVM), QC (AFIS)	1
Montréal (SQ), QC (AFIS)	2
Peel Regional	2
York Regional	1
Ottawa Police Service	1
Hamilton Police Services	1
Halton	1
Niagara Regional	1
Durham Regional	1

Table 4-1: AFIS Remote Location Table	
Location	**Number of RTID Remote Site Client workstations required**
Windsor	1
Orillia (OPP)	4
Peterborough	1
Halifax	1
Calgary	1
Edmonton	2
Saskatoon	1
Regina	1
Winnipeg	1
Lethbridge AB	1
Total Required:	**28**

3. The Transcoder renewal solution must create unique identifiers according to NPS-NIST ICDs (e.g., Document Control Number (DCN)) across all devices at each site using the site ORI as required by the ICD, for each transaction. (M)

4.3 Transcoder Renewal Solution Work Queue

1. The Transcoder renewal solution work queue must be functionally the same as, or similar to the AFIS renewal solution work queue. The Contractor must identify any nuances that are different with the work queue functionality of the Transcoder renewal solution Transcoders compared to the AFIS renewal solution work queue. (M)

2. The Transcoder renewal solution work queue and UI must provide an efficient and effective method for the Transcoder user to work with both the Ten Print (TP) and Latent work queue to allow side-by-side comparisons of TP and Latent images. Comparing a TP and Latent is a common activity by the Transcoder user. For clarification purposes, this is similar to a RCMP HQ AFIS user performing a database search to compare two (2) prints; however, since the Transcoder user does not have direct access to the RCMP HQ AFIS database, the prints have to first be retrieved by the Transcoder before they can be used in a side-by-side comparison. The following are two (2) options that the RCMP will consider acceptable: (M)

   a. Provide both the Ten Print (TP) and Latent work queue at the same time on the UI to allow the user to select a transaction in the queue and then perform a side-by-side view of the print in the selected transaction against another selected print; or

   b. While the user is viewing only one (1) queue (i.e., TP or Latent queue), the user can select a transaction and then be able to select from a list of images/transactions,

through a drop-down list (or equivalent), to identify the other image required in the side-by-side view. Additionally, the user must be able to switch between the TP and Latent queue without needing to login again.

3. If both the TP and Latent queue solution are used, then the Transcoder must support the following: (M)

   a. The Transcoder renewal solution Latent work queue is normally displayed in approximately 50% of the screen display used for the work queue. The UI must allow the user to change the display size of the TP and Latent work queues to satisfy their activities and have the changes retained for the next time the user logs in. The initial default settings for the screen areas used for displaying the work queues shall be allocated as 50% for the Latent queue and 50% for the TP queue.

4. For a multi-Transcoder configuration, the TP and Latent work queues must be presented to all Transcoder users at a specific site. This shared work queue must function in the same or similar manner to the AFIS renewal solution work queue where the normal operation includes multiple users working on the same queue. (M)

4.4   Transcoder Renewal Solution Ten Print Requirements

1. The Transcoder renewal solution shall enable a technician to scan a C216 and capture the data required from the C216 to submit a Criminal Ten Print Submission (CAR N or CAR Y) and process the possible responses. (M)

2. The Transcoder renewal solution shall enable a technician to scan a C216C and capture the data required from the C216C to submit a Miscellaneous Applicant (MAP) Civil and process the possible responses. (M)

3. To further explain the above two (2) requirements, the functionality required is similar to a CardScan device where the fingerprints from the C216 form must be captured; and then the biographical data required for a CAR N, CAR Y or MAP are entered through the UI. Once completely entered, the CAR N, CAR Y or MAP must be submitted through a submit button, or equivalent single mouse click action, and then the results are displayed, after receiving the results from the NNS in a one line summary display. The Transcoder renewal solution UI must allow all the NIST packet details, using the same NIST packet viewer available in the AFIS renewal solution. As well, there must be a one line summary displayed or an easy method to display a one line summary through one (1) or two (2) mouse clicks. (M)

4. The Transcoder renewal solution shall enable a remote user to scan and/or enter all data required to support the submission of TP transactions to the NNS according to the NPS-NIST 1.7.8 ICD. Refer to the NPS-NIST ICD for details concerning the submission of TP transactions. As a minimum, the Transcoder renewal solution must be able to scan rolled, plain and palm images for CAR transactions; or rolled and plains for MAP transactions. (M)

5. The use of a "Biometric Endorsement" in lieu of a signature, for a MAP transaction, will be used as an electronic means of capturing an applicant's approval for such things as releasing criminal record search results to a 3rd party (3rd Party Waiver) and consent to disclose pardoned offences for applicants to positions in the vulnerable sector. In order to provide automatic verification of the consent, the Transcoder renewal solution must

compare the endorsement fingerprint to the fingerprints provided before submitting the MAP transaction. If the endorsement fingerprint does not match, the remote user must be able to cancel the transaction. (M)

6. The Transcoder renewal solution must support submitting an IRQ and processing the possible responses from an IRQ. (M)

7. If the FPS of the DCN requested does not match the FPS on the RCMP AFIS renewal solution, then an error message will be displayed on the Transcoder UI to alert the Operator the FPS and DCN do not match. Subsequently, the user shall be allowed to re-enter the request. (M)

8. The Transcoder renewal solution shall support sending, and storing locally the TP transactions with an image resolution of 500 ppi. The original transactions and the received transaction shall be retained and made available for viewing. (M)

9. The Transcoder renewal solution UI should allow personalized settings to be configured by each user and have those personalized settings saved and used every time the user logs in to use the Contractor's Transcoder. These personalized settings should include as many UI features as possible from AFIS renewal solution workstation UI. (R)

10. Additionally, the remote operator should be able to temporarily toggle between these personal setting and the default setting through a single mouse click method (e.g., button). (R)

4.4.1   FINGERPRINT IMAGE REQUEST (IRQ)

1. The Transcoder renewal solution must support the input of the data required to submit an IRQ. (M)

2. The Transcoder renewal solution must support submitting an IRQ and processing the response Image Retrieval Response (IRR) allowing the user to view the rolled and plain fingers, Identification Flats (ID Flats) and palm images. The Transcoder user must also be able to display all minutiae returned in IRR for fingers and palms without limitation. (M)

3. The Transcoder renewal solution must be designed to work in the same manner as the AFIS renewal solution workstation allowing the Transcoder renewal solution user to view minutiae in the same manner and position as the AFIS renewal solution user. (M)

4. The images requested might include rolled, plain, palm or ID Flat images. As well, the minutiae shall be returned for all finger, palm and ID Flat images included in the IRR response. The Transcoder renewal solution must support the processing and display of the data received in the IRR response to the IRQ request. (M)

5. In the case of an image fetch, if only a File Number is specified, then the composite set of requested images corresponding to that File Number shall be fetched and returned along with the file descriptors if the Contractor's solution includes composites. (M)

6. In the case of an image fetch, if a DCN is specified, then the Fingerprint Image Request shall return the specific set of images requested along with the file descriptors associated with that DCN. (M)

7. The Transcoder renewal solution must allow the user to print the images received in the IRR to an FBI certified printer, through the NIST Viewer. Figure 4-1, Figure 4-2, Figure 4-3 and Figure 4-4 depict examples of the forms that must be printed. (M)

8. Refer to the NPS-NIST ICD 1.7.8 for details concerning the IRQ and the possible responses that must be processed by the Transcoder renewal solution. (M)

4.4.2 CAR Y CHARGE TABLE

1. The Transcoder renewal solution must support the CAR Y charge table managed and distributed by the RCMP. (M)

2. It is expected that the Contractor's on-site support staff will copy the updated charge table to the Transcoders as required or use an automated method, developed by the Contractor, to ensure the most up-to-date charge table is being used by each Transcoder. (M)

3. Typically, the CAR Y charge table changes 2 or 3 times per year; however, not all changes require the charge table to be re-distributed. This frequency is to be determined by the RCMP. (I)

Transcoder Generated Ten Print Card
Fiche decadactylaire generee par transcodeur

Transaction Control Reference Number / Numero de renvoi de controle de la transaction:	Date of Transaction (CCYYMMDD) / Date de transaction (SSAAMMJJ)
DCN Reference Number / Numero de reference DCN:	File Number / Numero de dossier:

Name (Surname, Given Names) / Norn (Norn de famille, Prenoms):

Sex / Sexe:	Date of Birth / Date de naissance:	Operator Identifier / Identifiant d'operateur:

1 R Thum:i / Po.Jee d	2. R. Index / Inde)(d	3 R Middle / Mejeu• d	4. R. Ring / An'1ula1te d	5_ R L!tt!e / A.mculaire d
L humb J Pouce g	7 L Index / Index g.	8_ L Middle / Mejeur g	9. L R:nq / Annulaire g	10. L little / Auncula1re g

14. Plain Ie'.t Four Fmgers Taken Togett'er r l['T'pression s1rrultanee oes quatre doigts gauche	12 L Thumb / Po<.ice a	11 R Thu111b / Pouce d.	?3 Pl;::;.n R1gh! Fo1..r Fmgers Tai<.en Together 11rnpress1on s,multanee des q:.Jatre do1gts droi:

Figure 4-1: Transcoder Generated Ten Print Card

Transcoder Generated Palm Card
Fiche palmaires generee par transcodeur

DCN Reference No. Numero de reference OCN:	Transaction Control Reference No. Numero de renvoi de controle de la transaction:	File Number / Numero de dossier:
Operator ID / Id d'operateur:	Name / Norn:	
Date of Transaction IDate de transaction: CCYYMMOD / SSMMMJJ	Sex / Sexe:	DOB / DON:

LEFT PALM IMPRESSIONS - EMPREINTES DE LA PAUME GAUCHE

Left Writer's Palm /
Hypothénar gauche

Left Thumb / Pouce Gauche

Figure 4-2: Transcoder Generated Ten Print Left Palm Card

Transcoder Generated Palm Card
Fiche palmaires generee par transcodeur

DCN Reference No, Numero de reference DCN:	Transaction Control Reference No. Numero de renvoi de contrOle de la transaction:	File Number INumero de dossier:
Operator ID / \d d'operateur:	Name / Nam:	

Date of Transaction / Date de transaction: CCYYMMDD ISSAAMMJJ	Sex ISexe:	DOB / DON:

RIGHT PALM IMPRESSIONS - EMPREINTES DE LA PAUME DROITE

Right Thumb / Pouce Droit

Right Writer's Palm
Hypothénar droite

Figure 4-3: Transcoder Generated Ten Print Right Palm Card

Transcoder Generated Ten Print Card
Fiche decadactylaire generee par transcodeur

Transaction Control Reference Number / Numero de renvoi de controle de la transaction:	Date of Transaction (CCYYMMDD) / Date de transaction (SSAAMMJJ):

DCN Reference Number / Numero de reference DCN:	File Number / Numero de dossier:

Name (Surname, Given Names) / Norn (Norn de famille, Prenoms):

Sex / Sexe:	Date of Birth / Date de naissance:	Operator Identifier / Identifiant d'operateur:

14 Plain. Left Four Fingers Taken Together / Impression simulianee des qualre doigts gauche

13. P!am Right Four Fingers Taken TogetMr / Impression sim..iltanee des quatre doigs droit

15. Left and R1ght Thumbs / Pouces gauche et drolt non roules

Figure 4-4: Transcoder Generated Ten Print ID Flat Card

4.5   Transcoder Renewal Solution Scanning Requirements

1. The Transcoder renewal solution shall enable a remote user to scan from the Transcoder scanner and/or import Latent images from the local Transcoder hard drive or removable USB memory card and enter all data required to submit valid Latent transactions to the NNS according to the NPS-NIST ICDs. Refer to the NPS-NIST ICD 1.7.7 for Latent TOTs and 1.7.8 for TP TOTs for details concerning the remote Transcoder transactions. (M)

2. The Transcoder renewal solution shall enable the remote user to scan a Latent image at 1000 ppi or import 1000 ppi images for Latent processing. (M)

3. The Transcoder renewal solution must allow the remote user to resize the box, or equivalent, to indicate what portion of the Latent the remote user wants to scan. (M)

4. The Transcoder renewal solution shall enable the remote user to process Latent images received at 1000 ppi from the NNS for Latent processing. (M)

5. The Transcoder renewal solution must provide software for the Transcoder to support the scanning requirements of the Contractor's Transcoder for scanning C216s for CAR N, CAR Y and MAP transactions as well as scanning Latents. For CAR Y and MAP transactions this includes a photo. (M)

6. These scanning services must be an integrated solution with the Contractor's Transcoder as part of processing various transactions that must be supported by the Transcoder renewal solution. (M)

7. One (1) GFE flatbed image scanner per site is available for use with the Transcoder renewal solution. If the Contractor chooses to provide a separate scanning solution, at the Contractor's expense, then the scanner must be FBI certified and support the scanning requirements identified herein. (M)

4.5.1   FORMATS AND SCANNING

1. The scanning services shall be capable of converting the C216 or C216C fingerprint form images into an electronic NIST packet. (M)

2. The scanning equipment shall be designed and configured in such a way that documents are protected from damage, loss or marking. (M)

3. The scanning services shall capture the fingerprint images and, if available, palm images. (M)

4. The fingerprint areas of fingerprint forms are particularly sensitive to damage or unnecessary marking. The Contractor's solution must ensure there is no damage to the forms. (M)

5. The scanning process and equipment shall be designed such that there is no loss of document integrity (e.g., scanning part of one document to another). (M)

6. The scanning equipment shall not alter the information provided on the original submission. (M)

7. The scanning services and its processes shall not damage or obscure information on the fingerprint form, in particular fingerprint impressions, with any marking/label affixed or printed on the fingerprint forms. (M)

8. The scanning services shall provide whatever features are provided to adjust images on the front side of the document for the back side of the document as well. (M)

9. The scanned fingerprint images and palm images shall conform to the scanned fingerprint form and not exceed the ANSI NIST-ITL-1-2011 maximum size dimensions. (M)

10. The scanners should support operator adjustment of brightness and contrast and be able to display the scanner settings. (R)

4.5.2   RESOLUTION

1. The scanning services shall apply the standard compression for fingerprint images Wavelets Scalar Quantization (WSQ) nominal 15:1 for Ten Print images. (M)

2. The Ten Print scanning services shall capture (i.e., scan) rolled and plain fingerprint impressions as well as palm impressions at 256 levels of greyscale (eight (8) bits/pixel) and at a minimum of 500 +/- five pixels/inch, and record the resultant images at 500 +/- five pixels/inch as defined for Type-4 or Type-14 records in the NPS-NIST External ICD and ANSI/NIST standard ANSI/NIST-ITL-1-2011, Data Format for the Interchange of Fingerprint Information. If a scanning resolution greater than 500 pixels/inch is used, it shall have a tolerance of +/- one (1) percent of the scanning resolution. (M)

3. The Transcoder renewal solution must support capturing (i.e., scan) Ten Print rolled and plain fingerprint impressions as well as palm impressions at 1000 ppi; however, for the initial implementation only 500 ppi will be supported by NNS and the AFIS renewal solution. (M)

4. The Transcoder renewal solution must support capturing (i.e., scan) Latent images at 1000 ppi. (M)

4.5.3   SEGMENTATION

1. For rolled/plain impressions, the scanning services shall capture and segment up to 14 fingerprint impressions from each fingerprint Submission, including, as a minimum, all ten (10) rolled impressions, both thumbs from the plain impressions and the two (2) four-finger plain impressions. (M)

2. When a fingerprint form is prepared in the field, the correct fingerprint will be inked in each of 14 designated fingerprint blocks. Alternatively the Transcoder may be used to process a set of images printed from a Livescan due to technical issues with the Livescan processing. The primary exception to this rule is a subject who is missing one or more fingers, or is unable to support the fingerprinting of one or more fingers for another appropriate reason (e.g., bandaged). In this case, the fingerprint form blocks corresponding to the missing finger(s) are marked ("Amp" for amputation, or other reason) by the preparer. In the rare event that a subject has more than 10 fingers, then the technician will select 10 fingers to be used in the NIST blocks and the entire form will be scanned at 500 ppi for preservation of the complete set. (I)

3. The scanning services shall capture images of all the fingerprint blocks present on the fingerprint form. This includes those that contain an impression, those that do not but are marked by the preparer accordingly as missing, with an appropriate reason (e.g., as "Amp" or "Bandaged"). The Transcoder renewal solution shall report the missing digit(s), (amputated, bandaged or otherwise missing impressions) appropriately in the corresponding electronic Type-2 record, in accordance with the NPS-NIST External ICD. (M)

4. The scanning services shall provide for the capture of fingerprint blocks on the front of the form as well as the back. (M)

5. Based on the Ten Print fingerprint form dimensions from the C216 and C216C sample fingerprint forms, the scanning services shall provide default positions for each of the fingerprint segmentation blocks as follows: (M)

   a. Rolled blocks shall coincide with the pre-printed fingerprint form blocks;

   b. The left and lower margins of the left plain four-finger block shall coincide with the left and lower margins of the pre-printed block;

   c. The right and lower margins of the right plain four-finger block shall coincide with the right and lower margins of the pre-printed block;

   d. The lower margin of each plain thumb impression block shall coincide with the lower margin of each pre-printed block;

   e. Each block shall be centred horizontally over its corresponding pre-printed block;

   f. The same default block positioning approach shall apply to fingerprint form types that are not covered by the referenced specification;

   g. File number barcode; and

   h. DCN / Doc ID.

6. The scanning services shall provide a means of shifting images that are partially out of the pre-printed block to place the segments within the image of the fingerprint area of the fingerprint form to capture as much fingerprint data as possible, even if some overlap with other blocks occurs. (M)

5. LATENT FINGERPRINT PROCESSING

5.1 General

1. The Transcoder renewal solution shall: (M)

    a. Manage all processing through the work queue and any other functionality required to fully support effective and efficient Latent processing capabilities for the remote user;

    b. Enable a remote user to certify or deny proposed identifications through a single user action (e.g., mouse click on certify button);

    c. Enable the RNSC to review a remote user's submission (e.g., provide assistance through PC Duo);

    d. Receive search results from the NNS and log activity included in the processing;

    e. Enable a user to edit the encoding of a Latent after the initial search;

    f. Create another LFFS transaction when the remote user modifies the original image. A Latent image may be duplicated on Transcoder so that the rotation, lasso or size can be adjusted OR so that a new minutiae set can be searched (i.e., This is typically referred to as creating another child Latent to submit based on the original Latent); and

    g. Notify the NNS when a Latent image has been cancelled (TOT Remote Latent Closure (LCLO)).

5.2 Encoding and Latent Searching

1. The Transcoder renewal solution shall allow for automatic and manual extraction of fingerprint features (minutiae). (M)

2. The Transcoder renewal solution shall enable a user to filter the work queue by Latent File Number, by Latent Identifier, by Latent Image ID, user and operator number. The AFIS renewal solution shall enable the user to perform the encoding and certification of the same image on the Transcoder. (M)

3. The Transcoder renewal solution shall enable a technician to change the encoding of an image, the search criteria for an image (i.e., set-up of a search), add a new Search for a specific image, cancel a specific Search and delete a specific image. (M)

4. The Transcoder renewal solution shall provide a single entry screen to support modification of descriptors, data fields from set-up and parameters for search. (M)

5. The Transcoder renewal solution shall enable a user to edit and delete automatically extracted features from Latent images. (M)

6. The Transcoder renewal solution shall enable a technician to delete all minutiae inside or outside a selected area, after identifying the area with a lasso like action. (M)

7. The Transcoder renewal solution must support a maximum size for a Latent image of at least 5.5" (inches) x 5.5" (inches) and this size must be configurable. This size of 5.5" (inches) x 5.5" (inches) is configured to support a current email size limit of 35 MB. (M)

5.3 General Latent User Interface Features

1. The Transcoder must support a Latent Search List with the following features: (M)

    a. The Transcoder Work Queue is a list of work that must be performed by a remote user. The remote user shall be able to filter the contents of the work queue so that it includes only outstanding searches and completed searches do not appear on the list.

    b. Complete transactions must be removed from the queue after a configurable period of time to ensure the queue is not filled with old transactions.

    c. The Transcoder renewal solution UI shall provide a work queue that can be sorted ascending/descending.

    d. By default, the Transcoder renewal solution UI shall list the searches for certification in the order specified by the sequential search numbering, such that all searches pertaining to the same image are grouped together on the work queue.

    e. The UI shall enable a technician to loop forward and backward through the list of outstanding searches.

    f. The Transcoder renewal solution UI shall automatically refresh the search list at timed intervals.

2. The AFIS renewal solution shall display at least the following data during the certification process: (M)

    a. The Transcoder renewal solution UI shall at all times display the Latent Image Identifier (unique identifier associated to an image instance) of the clip currently being worked on.

    b. The Transcoder renewal solution UI shall, as a minimum, display the following fields in addition to the Latent and fingerprint images while certifying the results of a Latent search:

        i. Transaction number of both prints being viewed;

        ii. Latent Image Identifier;

        iii. Candidate File Number;

        iv. Candidate DCN;

        v. Candidate agency ORI;

        vi. External Transaction Control Number (TCN);

        vii. Offence Date;

        viii. Finger number of candidate (including an indication of rolled versus plain);

     ix. Fingerprint quality of both prints being viewed; and

     x. Number of minutiae of both prints being viewed.

3. The Transcoder renewal solution shall enable a technician to adjust the images during the certification process with at least the following capabilities using a variable sizing capability with a mouse controlled method such as slider to finely tune the adjustments: (M)

    a. Zoom in / zoom out an image;

    b. Adjust brightness;

    c. Adjust background brightness;

    d. Rotate; and

    e. Histogram equalization to adjust image intensities to enhance contrast.

4. The Transcoder renewal solution shall enable a technician to adjust the images during the certification process with at least the following capabilities using a single click mouse method (e.g., button): (M)

    a. Select "best fit" so the AFIS renewal solution determines how to display the prints;

    b. Select "actual size" to display the prints in their actual size;

    c. Size to 50% through a single mouse click;

    d. Size to 200% through a single mouse click;

    e. Full list (controlled by a configurable parameter is mandatory);

    f. Minutiae with tail;

    g. Minutiae without tail;

    h. Hide minutiae / show matching minutiae;

    i. Ridge count off/on;

    j. Match orientation off/on;

    k. While in side-by-side view have the ability to move an individual image freely in any direction within its window and beyond the border of the window. This is to allow the technician to move either or both images to have the portion of the print under analysis to be as close as possible to each other to reduce the distance the fingerprint technician's eyes need to move to compare the prints (e.g., move each image so the core of each image is displayed as close as possible).;

    l. White background;

    m. Black background;

    n. Colour background;

    o. Change to Black and white reversal view. This view shows white pixels as black and black as white; and

    p. Highlight a portion of the print to analyze more closely through actions the same or similar to the following:

        i. Isolate (e.g., box, lasso) a portion of a fingerprint on the search print and the candidate print; where lasso means allowing a user to select a region of interest (i.e., a circle or line to select an area inside or outside the area selected)

        ii. Change the portion of the print isolated (e.g., move around a box);

        iii. Have the isolated portion of each print magnified (Controlled by a configurable parameter is rated) for more detailed analysis;

        iv. Be able to identify specific points in one (1) print and move the focal point of the magnified portion of the print (i.e., move around in the magnified portion to better analyze whether the print is a match).

5. The Transcoder renewal solution UI should allow personalized settings to be configured by each user and have those personalized settings saved and used every time the user logs in to use the Latent UI. These personalized settings should include as many UI features as possible from the above two (2) requirements (3, 4). (R)

6. Additionally, the Latent technician should be able to temporarily toggle between these personal setting and the default setting through a single click mouse method (e.g., button). (R)

7. The AFIS renewal solution shall provide a means for the technician to indicate "certify" or "fail to certify" / "decline" by an explicit single user interface action (e.g., Certify button, Decline button) with confirmation (e.g., Are you sure?). The Certify button must be highlighted in green and the Decline button must be highlighted in red using Alpha Blending or Alpha Compositing method. (M)

5.4 Latent Certification

1. The Transcoder renewal solution shall rank the candidates list in the order of most likely to least likely match and enable a remote user to view the candidate list. (M)

2. For finger/palm Latent, the Transcoder renewal solution shall include on the candidate list, as a minimum: (M)

    a. All File Numbers pertaining to the subject or Latent (e.g., Fingerprint Section (FPS) Number, Refugee File Number, Immigration Number, Latent Image ID); and

    b. Matching Finger Number and/or Palm description/code.

3. The Transcoder renewal solution shall not display the AFIS score on the Certification UI, unless the user is configured to view the score. (M)

4. The Transcoder renewal solution shall enable a remote user to loop forward and backward through the list of candidates and to select a specific candidate for display from the candidate list. (M)

5. The Transcoder renewal solution shall provide a side-by-side view of the Latent fingerprint or palm image along with the corresponding single finger or palm in the matching Ten Print or Latent print to support certification. (M)

6. The Transcoder renewal solution shall display the unsolved Latent beside the candidate Ten Print / Latent print at the same size and scale, even if the resolutions differ. (M)

7. The Transcoder renewal solution shall enable a remote user to view complete images of any of the fingers, plain impressions, ID Flat impressions or palm impressions of the candidate (including images from any sets on file for the candidate) sized and rotated accordingly beside the Latent image. (M)

8. Remote users generally move through the candidate list from top to bottom. The Transcoder renewal solution shall provide a visual indication in the Candidate List of which candidates have already been dispositioned. (M)

9. The Transcoder renewal solution shall enable a technician to disposition with confirmation each Latent Search as either ident to a candidate or non-ident for each candidate in the list. (M)

6. TRANSCODER RENEWAL SOLUTION TECHNICAL REQUIREMENTS

6.1 Transcoder Virtual Local Area Network (VLAN)

1. The production Transcoders located at RCMP HQ and on the RCMP/SSC managed LAN are all in the same VLAN. This limits access to/from these devices to only what is required for the remote agency users. Communication into and out of this VLAN is limited to the minimum required for Transcoder interaction. The Transcoder renewal solution must satisfy all requirements in the SOW and its accompanying documents while operating in this environment. This minimum communication includes: (M)

   a. From the Transcoder to NNS through the RTID email service;

   b. From the NNS to the Transcoder email service;

   c. From WSUS updates;

   d. From ePo updates; and

   e. From PC Duo master workstations at RCMP HQ to remote Transcoders.

2. The Transcoder renewal solution must be designed with an emphasis on configurable parameters to maximize the flexibility to change the solution without requiring a code change. (M)

3. The configurable parameters should provide flexibility for the Transcoder in support of satisfying the Transcoder requirements. (R)

4. The Transcoder renewal solution must effectively support all the functionality associated with the configurable parameters. For example, the time for UI inactivity before screen is locked configurable parameter requires the Transcoder renewal solution to be monitoring the user activity and when the time threshold has been met, the Transcoder renewal solution must lock the user's Transcoder. Once locked, the user must login again to access the Transcoder. (M)

6.2 User Management Access Controls

1. The Transcoder renewal solution must support local user management using the same user management software as the AFIS renewal solution. Each Transcoder site shall have its own separate user management installation and users shall be managed separately at each remote site on a Transcoder device at that remote site. That is, there is no connection between the AFIS renewal solution user management database and no connection with any other Transcoder site database. Each remote site has at least one (1) user management administrator with privileges to add/change/delete Transcoder renewal solution users. (M)

2. The Contractor will be responsible for complete setup of the Transcoder including conversion of each local Transcoder user management database to the Contractor's Transcoder renewal solution local user management database. (M)

3. The Transcoder renewal solution shall include two-factor authentication with a biometric and user ID/password. (M)

4. The passwords shall not be hard-coded and must be stored in an encrypted form that satisfies Government of Canada requirements (i.e., Communications Security Establishment (CSE) standards ISA-11(b) or later). (M)

5. The Transcoder renewal solution shall not store or cache Identification and Authentication (I&A) information on platforms other than those explicitly sanctioned by RCMP Security Infrastructure Services. (M)

6. The Transcoder renewal solution shall not cache sensitive information after use. (M)

7. The Transcoder renewal solution must allow a trainee (i.e., uncertified remote user) to be identified. (M)

8. The Contractor shall use the existing remote agency users defined on each Transcoder to determine which user profile items are configurable at the user level or at the group level in collaboration with RCMP and each site. (M)

6.2.1   ROLE-BASED ACCESS CONTROLS

1. For the purpose of explaining the access control requirements stated herein and throughout the Transcoder renewal SOW and its accompanying documents, the following definition for access control is used: Access Control is any mechanism by which a system grants or revokes the right to access some data or perform some action. (I)

2. The approach to providing Transcoder renewal solution access control requirements that the Transcoder renewal solution must provide are in accordance with the NIST Role-Based Access Control (RBAC) Standard. Central to this standard is the concept of assigning a role to a user. This is a fundamental mechanism that must be employed by the Transcoder renewal solution to ensure that the relevant policies, operating procedures and overall transaction security are enforced. (M)

3. These requirements that must be satisfied by the Transcoder renewal solution have been developed with reference to the NIST Core RBAC Model as shown in Figure 6-1. This model provides the key semantic concepts on the subject of access control, is the conceptual basis for the NIST standard, and has been largely adopted and implemented by many different vendor communities. These reasons illustrate why the Core RBAC model is considered to be an excellent starting point for developing a concise set of access control requirements to serve the present business requirements. (M)
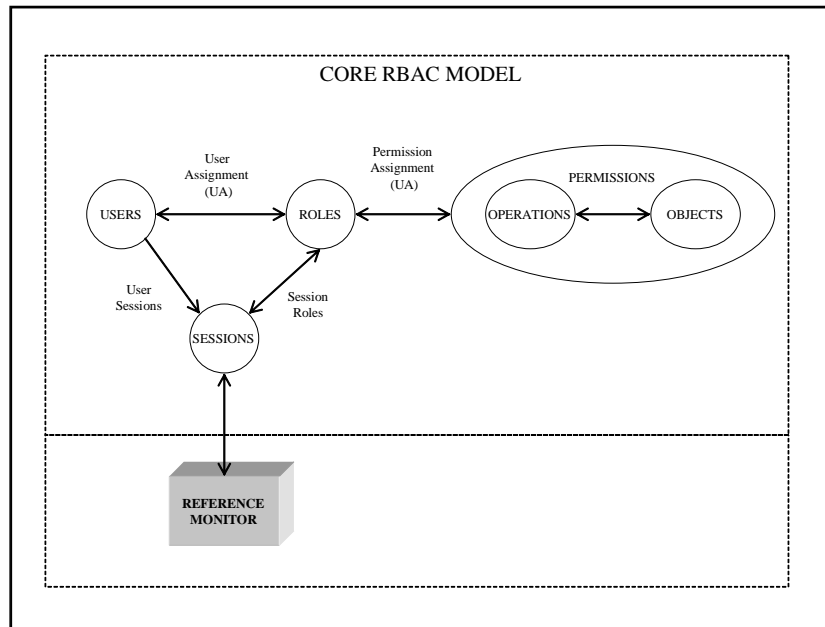
Figure 6-1: Core RBAC Model Concepts

4. The following is a description of the key elements and relationships within the model: (I)

   a. USER – a user (in the majority of cases) is an individual who is an employee of the remote site. However, in certain cases, where automated processes transact across several systems, a user may also be an automated system agent that has been granted a user account.

   b. ROLE – a role is a job function within the context of an organization where authorities and responsibilities have been conferred to the user assigned to the role. Groups are expected to exist for larger systems where multiple roles will be

contained within a group. This concept of a group is simply a mechanism to organize multiple roles to ease the overall user management.

c. SESSION – the active system context in which the user is requesting and executing transactions.

d. OBJECT – an object is anything that must be protected by the system. A protected object may be any system resource, personal and sensitive information (e.g., file, attribute, image) or parts thereof. Objects may vary in granularity; an object may range from being considered as an entire system component, an entire record, or a specific attribute or flag within a record.

e. OPERATION – an operation is any function that may be performed upon an object (e.g., read, write, delete, append).

f. PERMISSION – can be viewed as a composite of operation and object. An assignment of permissions to a role implies the approval of this role to perform this operation on an object.

6.2.2   ROLES, GROUPS AND OBJECTS

1. The following identifies the roles, groups and objects that must be supported by the Transcoder renewal solution within the RBAC model. Most of the objects are identified within the context of a role function whereby the function is controlling access to the object. (M)

2. The user ID must be definable by the User Management user. Typically this will be a remote site assigned alphanumeric for the user. (M)

3. The following are the minimum role functions (privileges) that must be available in the Transcoder renewal solution. This list implicitly identifies the objects and the level of granularity that must be managed/controlled by the AFIS renewal solution: (M)

    a. Transcoder Related:

        i.   Work queue access (queue view only);

        ii.   Work queue management (transaction processing);

        iii. Queue transaction reset;

        iv.   Latent certification;

        v.   Latent data entry;

        vi.   Latent edit;

        vii. Latent insert;

        viii. Latent delete;

        ix.   Latent retrieval;

        x.   Database access/view;

        xi.   Latent database update;

    xii. Trainee;

    xiii. Work queue delete; and

    xiv. Work In Progress certification.

  b. TP Transaction Processing:

    i. Maintain queue;

    ii. Maintaining printing queue;

    iii. Process a CAR Y TP transaction;

    iv. Process a CAR N TP transaction;

    v. Process a MAP TP transaction;

    vi. View TP transaction results;

    vii. Delete Transactions;

    viii. Process transactions;

    ix. Transaction reset; and

    x. Query transactions.

  c. User Management Related:

    i. User management view;

    ii. User management access (add, change, delete, enable, disable); and

    iii. Group management access (add, change, delete).

4. The above role functions must be used to create specific roles. The following are examples of existing roles that must continue to be available in the Transcoder renewal solution that have one or more role functions (privileges) assigned to them. It is understood and expected that some vendors may represent these functions in a more granular manner. It would still satisfy the requirements if multiple role functions had to be selected to achieve the higher level granularity identified herein. The Contractor must explain how the AFIS renewal solution supports these requirements. (M)

  a. System administrator;

  b. Certified Latent Operator;

  c. Uncertified Latent operator (trainee);

  d. TP Operator;

  e. CAR operator;

  f. MAP operator;

  g. User Manager; and

     h.   IRQ user.

5.   The roles created from the above function must be able to be organized into groups that allow a specific user to be in a group where access to multiple roles is granted through that group. For example, a User can be assigned to the Certified Latent Operator and TP operator. (M)

6.   Note: There are over 20 Transcoder sites. There has been no attempt to identify every role at every site. Each site is independent; however, all sites use the same user management software. (I)

6.2.3   TRANSCODER USER MANAGEMENT DATA CONVERSION

1.   The existing user management data must be converted to the Transcoder renewal solution in a form usable by the Transcoder renewal solution. The existing Transcoder supports the RBAC model identified herein. Since it is a requirement to support this model, it is expected that this required conversion would be able to use virtually all of the data from the existing Transcoder. Any data that cannot be converted automatically must be converted by the Contractor manually in a manner that ensures all the access controls required throughout this SOW and its accompanying documents are satisfied. The Contractor's proposal must explain how the RBAC data will be converted to the proposed Transcoder renewal solution and satisfy the requirements stated in this SOW and its accompanying documents. Refer to the AFIS Renewal SOW for more detailed database conversion requirements. (M)

6.2.4   TRANSCODER DATA CONVERSION

1.   The existing Transcoder data, for every site, must be converted to the Transcoder renewal solution in a form usable by the Transcoder renewal solution. The existing Transcoders use an Oracle DB as well as NIST packets and log files to operate. All of this data must be converted to a form usable by the Transcoder renewal solution. Refer to the AFIS Renewal SOW for more detailed database conversion requirements. (M)

6.3   NIST Packet Viewer

1.   The Transcoder renewal solution must provide the same NIST packet viewer, used in the AFIS renewal solution, which can be used at any time during the processing of TP or Latent transactions. This NIST viewer must allow all NIST packet data to be viewed, printed (refer to form in Figure 4-1) and downloaded. (M)

6.4   Availability/Reliability

1.   The Transcoder renewal solution must continuously operate as is expected from any other application on a workstation. That is, except for rare occurrences where a workstation restart is required, the Transcoder must operate with the performance and functionality as stated herein and as stated throughout this SOW and its accompanying documents. (M)

2.   Availability, in the context of the Transcoder, is defined as both user and system-driven functions (versus user-initiated) having the ability to perform add, change, delete and

enquire functions on Transcoder data. If any of the, database software, COTS software or application software necessary for the user to perform these functions fails, then the Transcoder is deemed to be unavailable until such time as these functions are fully restored. (I)

3. Planned service outages agreed upon between the Contractor and RCMP do not constitute unavailability of the system. (I)

4. Network security and data communications services will be furnished by RCMP, and any failure in these security and/or communications components directly causing the Transcoder to be "Unavailable" or "Operate in Reduced Capacity" will not be the responsibility of the Contractor. (I)

5. Failure of individual GFE Transcoders and scanners will not be considered an outage. (I)

6. Failure of any non-GFE device provided by the Contractor will be considered an outage and the device must be replaced within 48 hours. (I)

7. The Contractor's on-call support resource must be able to arrive at RCMP HQ within two (2) hours after being notified of a requirement for Transcoders support, within the defined support hours. Refer to the main SOW for specific details concerning on-call support requirements. (M)

6.5   System Response Times for Local Transcoder Activity

1. This section deals with response time specifications for Transcoders operating at remote sites and at RCMP HQ. Refer to Annex A for a description of the existing environment within which the Transcoder renewal solution operates. (I)

2. Response times will be measured from the instant of the request to the moment the data is displayed, or the instant the cursor moves to the next field, whichever is applicable. (I)

3. All Graphical User Interface (GUI) fingerprint and palm related functions must be, at a minimum, as fast in the AFIS Solution. These apply to both Ten Print and Latent functions. (M)

4. Refer to the AFIS renewal solution, Annex B, for additional details concerning Transcoder renewal solution performance requirements. (I)

5. The response times in this section are response times that include the LAN response time. In case of dispute, the Contractor shall be required to demonstrate user response times matching the requirements, less 0.1 seconds (100 milliseconds) exclusive of the LAN response time. For example, the Contractor would demonstrate 2.9 seconds (2900 milliseconds) response time or less instead of 3.0 seconds. (M)

6.6   Network Security Posture Architectural Constraints

1. All remote Transcoder sites have at least T1 links (1.5Mbps). (I)

2. Refer to the current architecture, Annex A, for details concerning the RCMP/SSC Network Security Posture (NSP). (I)

3.   The Transcoder renewal solution must continue to operate with the existing domain names already established for each remote site Transcoder. That is, each existing Transcoder site already has a Domain Name Service (DNS) entry for the domain name used for the email domain of each specific Transcoder that must continue to be used by the Transcoder renewal solution. (M)

4.   The Transcoder renewal solution must use DNS to identify system components on the network infrastructure. If the Internet Protocol (IP) address of any system component needs to be changed; only the RCMP's corporate DNS should require updating. The existing Transcoders are defined with a domain name addressable as SMTP servers on RCMP's DNS. The Contractor is responsible for satisfying all the requirements in this SOW and its accompanying documents within the RCMP infrastructure. (M)

5.   The NPSNet/NSP Technical Authority maintains a list of port numbers in use and assigns new ports as required. (I)

6.   The assignment of IP addresses for all network elements connected to the National Police Services Network (NPSNet) / NSP is controlled by the NPSNet/NSP Technical Authority within the RCMP. (I)

7.   All data communications destined to traverse the NPSNet/NSP shall function seamlessly within secure Multiprotocol Label Switching (MPLS) or an IPSec tunnel. (M)

8.   The Transcoder renewal solution cannot rely on an Internet Control Message Protocol (ICMP) message, because of the possibility of a firewall or other security device blocking the ICMP message. (I)

9.   Current RCMP security policy does not allow for connection(s) between the Contractor's data network and any network either owned or managed by the RCMP, including, but not limited to the NPSNet, NSP, RCMP Campus or in-building networks to support the Transcoders. Transcoders must be supported by the Contractor's onsite staff. (M)

10. The Contractor's Transcoder renewal solution shall not employ any wireless communications devices for workstation-to-server, server-to-server, or any other communication between devices. (M)

6.6.1   LOCAL AREA NETWORK CONNECTIVITY

1.   The Transcoder renewal solution Transcoders will be implemented in all sites identified herein. (M)

2.   The Transcoder LAN connections are industry standard 10/100/1000 Mbps, capable of Full Duplex and Half Duplex Ethernet, and compatible with the IEEE 802.3 Ethernet standard. (I)

    a.   10/100/1000 Mbps LAN connections provided by the RCMP utilize Unshielded Twisted Pair (UTP) Category 5e cabling as physical media.

    b.   Transcoder connectivity to the LAN is via an RJ45 outlet at the workspace with 100 Mbps Ethernet connections.

3.   The physical media for connections are UTP Category 5e cabling or patch cables for workstations closely located to the RCMP router at the remote Transcoder site. (I)

6.7   Confidentiality and Integrity

1. The Transcoder renewal solution must ensure the confidentiality and integrity of the RCMP fingerprint and fingerprint related data. Confidentiality and integrity are key elements of RCMP operations. (M)

2. Through a combination of RCMP provided security architecture and security processes combined with authorization and authentication requirements that must be provided by the Transcoder renewal solution, the confidentiality is expected to be effective. The Contractor is encouraged to identify any aspects of their solution which could improve the confidentiality of the solution. (M)

3. The Contractor must explain all aspects of their Transcoder renewal solution that ensures the integrity of the RCMP fingerprint and fingerprint related data to justify that the integrity of the data will be maintained. This must include at least the following: (M)

    a. Transaction processing with units of work and phased commits;

    b. Managing concurrent processing;

    c. Error recovery;

    d. Any aspects of the database design that ensures data integrity;

    e. Any aspects of the design that ensure referential integrity;

    f. Discrepancy reporting frequency and use; and

    g. Tools, utilities and/or monitoring used to ensure any data integrity issues are identified and resolved as soon as possible.

6.8   Auditing

1. The Transcoder renewal solution shall record when, where and why, whatever happened and by whom, related to any request processed on the Transcoder renewal solution and retain this audit log indefinitely. (M)

    Note: This Transcoder renewal solution audit log is meant to compliment the comprehensive audit log available on NNS and the AFIS renewal solution to ensure an accurate history of events is recorded. (I)

2. The Transcoder renewal solution shall implement audit log for all successful and unsuccessful access logins. (M)

3. The Transcoder renewal solution audit logs must be available to a system administrator to allow all the events/activities to be reviewed as required. (M)

4. The Contractor shall describe how it plans to implement security measures on all audit trails generated by the Transcoder renewal solution. (M)

5. The Transcoder renewal solution shall ensure the audit logs are tamperproof. (M)

6. The Transcoder audit log is considered tamperproof if the System includes the following three (3) key elements: (I)

a. The System has the application writing to the audit log(s) in a verifiable manner; and

b. The System has access to the audit log(s) restricted to an authorized trusted person (i.e., Administrator or Security Officer).

c. Access to audit logs will be configured at the operating system level for the following policy: Access by an Administrator operating under super user rights, is limited to read only for the audit.

6.9   Hardware and Software

1. All non-GFE hardware (workstations and scanners) proposed by the Contractor must satisfy the requirements stated in this subsection, its subsections and all the other requirements stated throughout this SOW and its accompanying documents. (M)

2. To substantiate the hardware and software requirements below, the Contractor shall provide in its solution a description of the hardware and software and their interrelationship within each environment (production and test environments) including, as a minimum, for each COTS hardware and software component included as part of the technical design: (M)

    a. Item make, model and version number;

    b. The ANSI/NIST compliance and other standards met;

    c. Certifications and ratings achieved;

    d. Number of each required;

    e. Customization required;

    f. Recommended and minimum performance criteria and capacities;

    g. The internal/external electronic interfaces; and

    h. The security services implemented.

3. All Contractor proposed hardware must satisfy RCMP electrical specifications, including the voltage, amperage, electrical receptacle, and Underwriters' Laboratories (UL) or Canadian Standards Association (CSA) certification. (M)

4. Scanners provided with the Transcoder renewal solution shall meet, at a minimum, the Image Quality Specification (IQS) of Appendix F in the *Electronic Biometric Transmission Specification* (EBTS) Version 10 or later (for Latent / Ten Print printers, Latent / Ten Print display stations and Latent and Ten Print scanners). (M)

5. The Transcoder renewal solution scanners must support all the scanning related requirements stated throughout this SOW and its accompanying documents. (M)

6. Remote Transcoder sites provide their own FBI certified printers. The Transcoder must be able to print to an FBI certified printer. (M)

6.10 Software

1. The RCMP has a comprehensive suite of software products for which it has negotiated licences and support agreements which have been identified as GFE. However, RCMP understands that the Transcoder renewal solution may include additional software products for which licences and support agreements will be required. The Contractor is responsible for providing licenses and support for all non-GFE software products. The Contractor's proposal must explain how each software product is used by the Transcoder renewal solution to satisfy the requirements stated throughout this SOW and its accompanying documents. (M)

2. COTS software provided as part of the Transcoder renewal solution is expected to be specific to the solution. In other words, the Contractor is not expected to provide any standard Office Automation (OA) products (e.g., e-mail, word processing, and spreadsheet) as the RCMP currently have negotiated licences for its standard suite of OA products. (I)

3. Additionally, the RCMP has license to other software used as part of the current solution which has been identified throughout this SOW and its accompanying documents. (I)