

SCHEDULE S
SOFTWARE, IPR, AND THIRD PARTY CONTRACT

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SCHEDULE S

SOFTWARE, AND IPR, AND THIRD PARTY CONTRACTS

1 AUTHORITY SOFTWARE / AUTHORITY MATERIAL AT THE EFFECTIVE DATE

In accordance with Clause 29.2 of Schedule B (**Conditions of Contract**), Authority Software and Authority Material at the Effective Date is set out below:

Authority Software / Authority Material
<i>None at the Effective Date.</i>

2 AUTHORITY SOFTWARE / AUTHORITY MATERIAL AFTER THE EFFECTIVE DATE

In accordance with Clause 29.2 of Schedule B (**Conditions of Contract**), Authority Software and Authority Material after the Effective Date is set out below:

Name	Description	Third Party Software / Third Party Material (i.e. Third Party product dependencies relating to the Authority Software / Authority Material)
IDENT1 Services for UKvisas	DIS XCBEFF to NIST software and licenses	IPR owned by HMG under terms of contract with software developer, Software AG (UK) Limited

3 CONTRACTOR SOFTWARE AND CONTRACTOR MATERIAL AT THE EFFECTIVE DATE (THIRD PARTY LEGACY SOFTWARE AND MATERIALS)

In accordance with Clauses 22.1.1, 29.3 and 29.9 of Schedule B (**Conditions of Contract**), the Contractor Software and Contractor Material existing at the Effective Date is set out below. For the avoidance of doubt, the obligations of the Contractor in Clause 29.4.2 shall not apply in relation to the Third Party Software and/or Third Party Material that are product dependencies of the Contractor Software and/or Contractor Material existing at the Effective Date.

Name	Description	Third Party Software / Third Party Material (i.e. Third Party product dependencies relating to the Contractor Software / Contractor Material)
Algorithm Integration including fusion	Upgrades to: <ul style="list-style-type: none"> • Database Services CSCI • System Services CSCI • System Administration CSCI • Livescan Interface CSCI • Fingerprint Processing CSCI • Matcher Processing CSCI • Image Storage & Retrieval CSCI • Image Processing CSCI 	<ul style="list-style-type: none"> • Informix DBMS • Informix ESQ/L/C • Plexus FloWare (IFAM) • Remedy ARS • Legato Bus Suite for Informix • Solaris, Linux, RedHat, SuSE, Apache, MS-DOS • Windows, gSoap, Windows NT • XIPC

Name	Description	Third Party Software / Third Party Material (i.e. Third Party product dependencies relating to the Contractor Software / Contractor Material)
		<ul style="list-style-type: none"> • Plexus Status, Mon., • Map Bldr., Admin. • Software AG, • Remedy • Veritas File Sys, Vol. Mgr., Veritas Volume Replicator, • XNTP • SAMFS, • Hyperhelp, • Computer-Based Training • Plexus Client • Btree/ISAM • Solaris for Desktop Media • NIST Pack • Raratan Remote Client. • CMVC • HP OpenView NNM • CiscoWorks • XRT Graph, 3D • E-Health Concord • Business Objects • Solstice AdminSuite • StorEdge RAID Mgr • HPNP JetAdmin • Legato Networker • Ravlalin Node Mgr • BartenderPro • Windows NT • XNTP • SSH • Sun PCI • EMPsysedge • Jenoptik • Smiths Heimann Biometrics • Digital Biometrics, Inc. • Mark Camera Capture • Generic Mark Camera • Mentalix Pixel Engine • TRWeds driver • Cogent AFR Search Software, including any required for FMA operation • Northrop Grumman KBM software, including Ten Print Fuzzy Filter Logic and KBM Management software • VxWorks Operating System • VxMP • Online DSA • DBAccess for Online • Cogent Image processing software • JPEG comp/decomp - lossy, lossless • Xprinter • IJG (JPEG) Lossy, Lossless • SAGEM software • NetSNMP
Back Record Conversion	Contains software that provides	

Name	Description	Third Party Software / Third Party Material (i.e. Third Party product dependencies relating to the Contractor Software / Contractor Material)
CSCI	functionality for the conversion of fingerprint images from physical forms and electronic media. Because most of the BRC functionality is accounted for by other CSCI's, the Back Record Conversion CSCI only includes unique CSC's that are not used in the Operational System.	
Database Services CSCI	Contains executables and utilities which process database or indexed flat file requests to store new data, retrieve data, and maintain the integrity of the Bureau and Central data. In addition, this CSCI contains COTS product software, which provides the functionality to create and manage index data files; and for the RDBMS, which provides data maintenance and integrity of Bureau and Central relational databases.	<ul style="list-style-type: none"> • Informix DBMS • Informix ESQ/C • Plexus FloWare • Remedy ARS • Legato Bus Suite for Informix • NetSNMP
External Interfaces CSCI	Contains software that provides interfaces to external systems. The first interface provides processing of NIST formatted message files. This allows the exchange of data with external systems utilising the UK implementation of the ANSI/NIST fingerprint data format. The second interface provides automated data transfer and user terminal access with the Phoenix Criminal History System. This interface is used to pass arrest information between IDENT1 and Phoenix and to provide users with interactive access to Phoenix data from a IDENT1 workstation.	<ul style="list-style-type: none"> • ENTIRE Broker Stub, • Brixton • 3270 Emulation • Postfix Mail • Consolidata PNC Connect • Windows 2003 Server • NetSNMP • Netscape
Fingerprint Processing CSCI	Contains software that is used to capture and manipulate fingerprint images. It provides functionality such as image capture and cropping, image compression and decompression, minutiae editing, image manipulation, and verification of possible Idents.	<ul style="list-style-type: none"> • Mark Camera Capture • Generic Mark Camera • Mentalix Pixel Engine • TRWeds driver
Image Processing CSCI	Provides functionality for the manipulation and filtering of fingerprint images, the capture of images, compression and decompression of both fingerprint and binary images, and the extraction of data from fingerprint images.	<ul style="list-style-type: none"> • Cogent Image processing software • JPEG comp/decomp - lossy, lossless • Xprinter • WSQ Compress/Decompress software • IJG (JPEG) Lossy, Lossless
Image Storage & Retrieval CSCI	Handles the maintenance of the fingerprint image repository. The images in this repository are logically grouped into the following collections: marks, working ten prints, reference ten prints, QA marks, and QA ten prints. The Image Storage and Retrieval CSCs handle requests to store new images, retrieve existing images, and replace or	<ul style="list-style-type: none"> • Informix DBMS • Veritas • Legato • Plexus Floware Activity Mgr • Online DSA • DBAccess for Online

Name	Description	Third Party Software / Third Party Material (i.e. Third Party product dependencies relating to the Contractor Software / Contractor Material)
	delete images in these collections. The lossless compressed marks and the working (lossy) ten print images are maintained on RAID storage devices for ease of retrieval, and are backed up on a periodic schedule via the Backup and Recovery Services (SES) CSC. The lossless ten print reference images are maintained off-line in a tape library by SES.	
Lightweight Directory Access Protocol capability	Upgrades to: <ul style="list-style-type: none"> System Services CSCI 	<ul style="list-style-type: none"> Solaris, Linux, RedHat, SuSE, Apache, MS-DOS Windows, gSoap, Windows NT XIPC, Plexus FloWare Plexus Status, Mon., Map Bldr., Admin. Software AG, Remedy Veritas File Sys, Vol. Mgr., Veritas Volume Replicator, Legato Networker XNTP SAMFS, Hyperhelp, Computer-Based Training Plexus Client Btree/ISAM Solaris for Desktop Media NIST Pack Ravlatin Node Mgr Raratan Remote Client LDAP Server Kerberos Solstice Admin Suite NetSNMP
Livescan	Contains Software for Livescan Processing, including Capture Center (Software package for the Livescan unit), Card Print (software package to print tenprint forms), SnF_NG (store and forward software package)	<ul style="list-style-type: none"> Jenoptik Smiths Heimann Biometrics Windows NT Windows XP Timbuktu
Livescan	Software module to receive and decode Livescan messages (LNR) and software model to encode and send Livescan message (LNS)	
Livescan	Contains Software for Livescan Processing	<ul style="list-style-type: none"> Digital Biometrics, Inc.
Matcher Processing CSCI	Contains software and firmware that provides high-performance AFR search and retrieval, including software to control the search engines. It provides functionality to process AFR search, database maintenance and retrieval requests. It also includes FMA Algorithm (Minutiae Filter) Firmware. In addition, it maintains the Ten Print and Mark AFR databases.	<ul style="list-style-type: none"> Cogent AFR Search Software, including any required for FMA operation Northrop Grumman KBM software, including Ten Print Fuzzy Filter Logic and KBM Management software VxWorks Operating System VxMP
Office Automation CSCI	Contains the COTS software applications that provide end-users with	<ul style="list-style-type: none"> Synchronize Applixware Data, Graphics, Mail,

Name	Description	Third Party Software / Third Party Material (i.e. Third Party product dependencies relating to the Contractor Software / Contractor Material)
	<p>general office productivity tools, and additionally support specific IDENT1 functionality required for the preparation of evidence. These include word processor and desktop publishing, graphics editor, spreadsheet, Ad-hoc database query and report generation, E-mail, and group calendar. All applications conform to X/Open and OSF/Motif standards. They support a wide range of data types, and document interchangeability. All provide extensive help facilities.</p>	<p>Spreadsheet, Words, Base</p>
<p>Oracle migration capability</p>	<p>Upgrades to:</p> <ul style="list-style-type: none"> • External Interfaces CSCI Database Services CSCI • System Services CSCI • Text Entry and Edit CSCI • System Administration CSCI • Livescan Interface CSCI • Fingerprint Processing CSCI • Matcher Processing CSCI • Image Storage & • Retrieval CSCI • Image Processing CSCI • Office Automation CSCI • Back Record Conversion CSCI 	<ul style="list-style-type: none"> • ENTIRE Broker Stub, • Brixton • 3270 Emulation • Postfix Mail • Consolidata PNC Connect • Windows 2003 Server • Halafax • SMCapache • Solaris, Linux, RedHat, SuSE, Apache, MS-DOS • Windows, gSoap, Windows NT • XIPC, Plexus FloWare • Plexus Status, Mon., • Map Bldr., Admin. • Remedy • Veritas File Sys, Vol. Mgr., Veritas Volume Replicator, • XNTP, • Hyperhelp, • Computer-Based Training • Plexus Client • Btree/ISAM • Solaris for Desktop Media • NIST Pack • Raratan Remote Client. • XRT/Graph +XRT/3D • Hyperhelp • UIMX • Synergy • HP OpenView NNM • CiscoWorks • E-Health Concord • Business Objects • Solstice AdminSuite • StorEdge RAID Mgr • HPNP JetAdmin • Legato Networker • SAMfs • Ravlalin Node Mgr • BartenderPro • Windows NT • XNTP • SSH • Sun PCI • EMPsysedge • Jenoptik

Name	Description	Third Party Software / Third Party Material (i.e. Third Party product dependencies relating to the Contractor Software / Contractor Material)
		<ul style="list-style-type: none"> • Smiths Heimann Biometrics • Digital Biometrics, Inc. • Mark Camera Capture • Generic Mark Camera • Mentalix Pixel Engine • TRWeds driver • Cogent AFR Search Software, including any required for FMA operation • Northrop Grumman KBM software, including Ten Print Fuzzy Filter Logic and KBM Management software • VxWorks Operating System • VxMP • Informix DBMS • Plexus Floware Activity Mgr • Online DSA • DBAccess for Online • Cogent Image processing software • JPEG comp/decomp - lossy, lossless • Xprinter • IJG (JPEG) Lossy, Lossless • Synchronize • Applixware Data, Graphics, Mail, Spreadsheet, Words, Base • Oracle Application Server • Oracle DBMS • NetSNMP
Palm search and compare capability	Upgrades to: <ul style="list-style-type: none"> • Database Services CSCI • System Services CSCI • Text Entry and Edit CSCI • System Administration CSCI • Livescan Interface CSCI • Fingerprint Processing CSCI • Matcher Processing CSCI • Image Storage & Retrieval CSCI • Image Processing CSCI 	<ul style="list-style-type: none"> • Informix DBMS • Informix ESQ/C • BTree/ • Plexus FloWare (IFAM) • Remedy ARS • Legato Bus Suite for Informix • Solaris, Linux, RedHat, SuSE, Apache, MS-DOS • Windows, gSoap, Windows NT • XIPC, • Plexus Status, Mon., • Map Bldr., Admin. • Software AG, • Remedy • Veritas File Sys, Vol. Mgr., Veritas Volume Replicator, • XNTP • SAMFS, • Hyperhelp, • Computer-Based Training • Plexus Client • Btree/ISAM • Solaris for Desktop Media • NIST Pack • Raratan Remote Client • XRT/Graph +XRT/3D • Hyperhelp

Name	Description	Third Party Software / Third Party Material (i.e. Third Party product dependencies relating to the Contractor Software / Contractor Material)
		<ul style="list-style-type: none"> • UIMX • CMVC • HP OpenView NNM • CiscoWorks • • E-Health Concord • Business Objects • Solstice AdminSuite • StorEdge RAID Mgr • HPNP JetAdmin • Legato Networker • Ravlalin Node Mgr • BartenderPro • SSH • Sun PCI • EMPsysedge • Jenoptik • Smiths Heimann Biometrics • Digital Biometrics, Inc. • Mark Camera Capture • Generic Mark Camera • Mentalix Pixel Engine • TRWeds driver • Cogent AFR Search Software, including any required for FMA operation • Northrop Grumman KBM software, including Ten Print Fuzzy Filter Logic and KBM Management software • VxWorks Operating System • VxMP • Online DSA • DBAccess for Online • Cogent Image processing software • JPEG comp/decomp - lossy, lossless • Xprinter • IJG (JPEG) Lossy, Lossless • GSDAP • SAGEM software
PC Linux capability	Upgrades to: <ul style="list-style-type: none"> • External Interfaces CSCI Database Services CSCI • System Services CSCI • Text Entry and Edit CSCI • System Administration CSCI • Livescan Interface CSCI • Fingerprint Processing CSCI • Matcher Processing CSCI • Image Processing CSCI • Office Automation CSCI • Back Record Conversion CSCI 	<ul style="list-style-type: none"> • ENTIRE Broker Stub, • Brixton • 3270 Emulation • Postfix Mail • Consolidata PNC Connect • Windows 2003 Server • Halifax • SMCapache • Solaris, Linux, RedHat, SuSE, Apache, MS-DOS • Windows, gSoap, Windows NT • XIPC, Plexus FloWare • Plexus Status, Mon., • Map Bldr., Admin. • Linux, Software AG, • Remedy • Veritas File Sys, Vol. Mgr.,

Name	Description	Third Party Software / Third Party Material (i.e. Third Party product dependencies relating to the Contractor Software / Contractor Material)
		Veritas Volume Replicator, <ul style="list-style-type: none"> • XNTP • SAMFS, • Hyperhelp, • Computer-Based Training • Plexus Client • Btree/ISAM • Solaris for Desktop Media • NIST Pack • Raratan Remote Client. • XRT/Graph +XRT/3D • Hyperhelp • UIMX • Synergy • HP OpenView NNM • CiscoWorks • E-Health Concord • Business Objects • Solstice AdminSuite • StorEdge RAID Mgr • HPNP JetAdmin • Legato Networker • Ravlalin Node Mgr • BartenderPro • SSH • Sun PCI • EMPsysedge • Jenoptik • Smiths Heimann Biometrics • Digital Biometrics, Inc. • Mark Camera Capture • Generic Mark Camera • Mentalix Pixel Engine • TRWeds driver • Cogent AFR Search Software, including any required for FMA operation • Northrop Grumman KBM software, including Ten Print Fuzzy Filter Logic and KBM Management software • VxWorks Operating System • VxMP • Cogent Image processing software • JPEG comp/decomp - lossy, lossless • Xprinter • IJG (JPEG) Lossy, Lossless • Synchronize • Applixware Data, Graphics, Mail, Spreadsheet, Words, Base • NetSNMP
SAGEM software	SAGEM Feature Extraction Package Current Version SAGEM MicroMatcher Package SAGEM Human Computer Interface (HCI) Package SAGEM MetaMorpho SAGEM MorphoTouch SAGEM MorphoSmart Optical Finger	The Feature Extraction Package includes the algorithms for the following functions (the list not being extensive): <ul style="list-style-type: none"> • Automatic print segmentation (finger, slaps, palms)

Name	Description	Third Party Software / Third Party Material (i.e. Third Party product dependencies relating to the Contractor Software / Contractor Material)
	Print Reader	<ul style="list-style-type: none"> • Binarisation • Skeleton extraction • Ridge flow matrix computation • Classification (Automatic pattern classification, Topological classification) • Minutiae extraction • Core and Delta detection <p>The MicroMatcher Package includes the algorithms for the following functions (valid for all types of searches):</p> <ul style="list-style-type: none"> • Filtering using various criteria (provided by the external system, the experts or using internal criteria like the pattern or topological classification) • Prescreening using print features (also known as CAXI™) • First matching stage, also known as SUPERMATCH • Second matching stage, also known as HYPERMATCH • Third stage dedicated to false candidate elimination (used for tenprint identification only) • Threshold computation (for all types of matching) • Merge process using multiple target prints from the same origin (rolled + flat from the same finger, multiple rolls of the same finger, etc.) • Juvenile processing <p>The HCI includes the algorithms for the following functions (the list not being extensive):</p> <ul style="list-style-type: none"> • Scanning and lift scan adjustments using all level of grays provided by the scanner • Automatic Sequence Check • The IGLOO (display of both hands to provide visual means of interaction with the user) • The Roadmap (reduced image of the full print to help the operator navigating within a large print) <p>Automated tools for image manipulation, feature editing, image enhancement, image comparison including:</p> <ul style="list-style-type: none"> • Zooming (various scales) • Brightness & Contrast adjustment • Connector (to provide hints to the experts on how to connect

Name	Description	Third Party Software / Third Party Material (i.e. Third Party product dependencies relating to the Contractor Software / Contractor Material)
		<p>disconnected ridges)</p> <ul style="list-style-type: none"> • Ridge flow matrix synthesis • Periodic artifact filter • Morphological transformation • Sober filters • Histogram modification • Sharpening • Binarisation • Reverse video • Fast Fourier transformation • Gabor filters • Image enhancement history <p>Specific tools used with the verification process:</p> <ul style="list-style-type: none"> • Translation – rotation of the target print in order to turn it exactly as for the search print • Help to the user in order to perform the minutiae association • Marking related minutiae
Scotland Livescan Bridge capability	<p>Upgrades to:</p> <ul style="list-style-type: none"> • External Interfaces CSCI 	<ul style="list-style-type: none"> • Halafax • SMCapache • NIST Pack • NetSNMP • Veritas • Jboss Application Server • J2SDK • Xerlin • Acroread • Apache-ant • VIM
Smiths Heimann Biometrics	<ul style="list-style-type: none"> • Livescan Unit • Print Cluster • Store and Forward 	
System Administration CSCI	<p>Contains software that performs system management and system configuration tasks for IDENT1. The majority of the CSCs are executable processes that are accessible from the Central Segment Admin workstation. The COTS products CSCs provide significant administrative functionality.</p>	<ul style="list-style-type: none"> • CMVC • Synergy • HP OpenView NNM • CiscoWorks • XRT Graph, 3D • Veritas • E-Health Concord • Business Objects • Solstice AdminSuite • StorEdge RAID Mgr • HPNP JetAdmin • Legato Networker • SAMfs • Ravlalin Node Mgr • BartenderPro • Windows NT • XNTP • SSH • Sun PCI • EMPsysedge • NetSNMP

Name	Description	Third Party Software / Third Party Material (i.e. Third Party product dependencies relating to the Contractor Software / Contractor Material)
System Services CSCI	Contains the software components that provide services to subsystems and the CSCs that comprise those subsystems. This includes the Computer-Based Training software (CSC SCT).	<ul style="list-style-type: none"> • Solaris, Linux, RedHat, SuSE, Apache, MS-DOS • Windows, gSoap, Windows NT • XIPC • Plexus FloWare • Plexus Status, Mon., • Map Bldr., Admin. • Linux, Software AG, • Remedy • Veritas File Sys, Vol. Mgr., Veritas Volume Replicator, • Legato Networker • XNTP • SAMFS, • Hyperhelp, • Computer-Based Training • Plexus Client • Btree/ISAM • Solaris for Desktop Media • NIST Pack • Ravalin Node Manager • Raratan Remote Client.
Text Entry and Edit CSCI	Contains the software that generates unique CRO numbers, allows operators to enter and modify subject data, and validates all data that can be manually entered by the operator.	<ul style="list-style-type: none"> • XRT/Graph +XRT/3D • Hyperhelp • UIMX

4 CONTRACTOR SOFTWARE AND CONTRACTOR MATERIAL AFTER THE EFFECTIVE DATE

In accordance with Clauses 22.1.1 and 29.3 of Schedule B (**Conditions of Contract**), the Contractor Software and Contractor Material after the Effective Date is set out below. For the avoidance of doubt, any Material Subcontractor's Software or Material used to provide the Services after the Effective Date shall be added to the table in this Clause 4 below. Modifications after the Effective Date to the Contractor Software and/or Contractor Material deemed to be Contractor Software or Contractor Material per Clause 29.5.6 of Schedule B (**Conditions of Contract**) shall be added and set out below:

Name	Description	Third Party Software / Third Party Material (i.e. Third Party product dependencies relating to the Authority Software / Authority Material)
LANTERN	TBC	TBC
LANTERN	TBC	TBC
IDENT1 Services for UKvisas	DIS servers and software licenses	Software AG
IDENT1 Services for UKvisas	Feature Extraction and Matcher software and licenses	SAGEM
LANTERN Service Expansion	MFRs, Matcher software and licenses	SAGEM
LANTERN Service Expansion	Software	Timesync 2.0
LANTERN Service Expansion	Software	Concord System Agents

5 AUTHORITY WORK PRODUCT

Work Product created under the IDENT1 contract owned by the Authority as per Clause 29.5.1 of Schedule B (Conditions of Contract) is set out below:

Name	Description	Third Party Software / Third Party Material (i.e. Third Party product dependencies relating to the Work Product)

6 CONTRACTOR WORK PRODUCT

Work Product created under the IDENT1 contract owned by the Contractor as per Clauses 29.5.3 and 29.5.6 Schedule B (Conditions of Contract) is set out below:

Name	Description	Third Party Software / Third Party Material (i.e. Third Party product dependencies relating to the Work Product)
LANTERN	TBD	TBD
LANTERN	TBD	SAGEM
IDENT1 Services for UKvisas	DIS servers and software licensed	Software AG
IDENT1 Services for UKvisas	Feature Extraction and Matcher software and licenses	SAGEM

7 THIRD PARTY CONTRACTS

In accordance with Clause 22 of Schedule B (**Conditions of Contract**), Third Party Contracts (*e.g.*, maintenance agreements, support agreements, generic licenses) used to provide the Services that are not identified as product dependencies in Clauses 2, 3, and 4 above are set out below:

Name	Description
Energis Communications, Ltd. (Energis)	WAN Communications Provider
Phoenix IT Services, Ltd. (Phoenix)	Hardware Maintenance, Installation, and Deployment Planning