



Biometric Identity Assurance Services (BIAS) SOAP Profile Version 1.0

Committee Specification 01

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Additional Work Product artifacts:

This prose specification is one component of a Work Product which also includes:

- XML schema: <http://docs.oasis-open.org/bias/soap-profile/v1.0/cs01/cbeff.xsd>
- WSDL: <http://docs.oasis-open.org/bias/soap-profile/v1.0/cs01/BIAS.wsdl>

Related work:

This specification is related to:

- ANSI INCITS 442-2010, Biometric Identity Assurance Services (BIAS)

Declared XML namespaces:

<http://docs.oasis-open.org/bias/ns/bias-1.0/>
<http://docs.oasis-open.org/bias/ns/biaspatronformat-1.0/>

Abstract:

This document specifies a SOAP profile that implements the BIAS abstract operations specified in INCITS 442 as SOAP messages.

Status:

This document was last revised or approved by OASIS Biometric Identity Assurance Services (BIAS) Integration TC on the above date. The level of approval is also listed above. Check the "Latest version" location noted above for possible later revisions of this document.

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1 Introduction

1.1 Purpose/Scope

This Organization for the Advancement of Structured Information Standards (OASIS) Biometric Identity Assurance Services (BIAS) profile specifies how to use the eXtensible Markup Language (XML) [XML10] defined in ANSI INCITS 442-2010 – Biometric Identity Assurance Services [INCITS-BIAS] to invoke Simple Object Access Protocol (SOAP) -based services that implement BIAS operations. These SOAP-based services enable an application to invoke biometric identity assurance operations remotely in a Services Oriented Architecture (SOA) infrastructure.

Not included in the scope of BIAS is the incorporation of biometric authentication as an integral component of an authentication or security protocol. (However, BIAS services may be leveraged to implement biometric authentication in the future.)

1.2 Overview

In addition to this introduction, this standard includes the following:

- Clause 2 presents the design concepts and architecture for invoking SOAP-based services that implement BIAS operations.
- Clause 3 presents the namespaces necessary to implement this profile, INCITS BIAS data elements, and identifies relationships to external data definitions.
- Clause 4 specifies the content of the BIAS messages.
- Clause 5 presents the BIAS message structure, as well as rules and considerations for its application.
- Clause 6 presents information on error handling.
- Clause 7 specifies conformance requirements.
- Annexes include the OASIS BIAS XML schema/sample Web Service Definition Language (WSDL), BIAS CBEFF Patron Format, use cases, sample code, acknowledgements, and the revision history of this profile.

1.3 Background

In late 2005/early 2006, a gap was identified in the existing biometric standards portfolio with respect to biometric services. The Biometric Identity Assurance Services standard proposal was for a collaborative effort between government and private industry to provide a services-based framework for delivering identity assurance capabilities, allowing for platform and application independence. This standard proposal required the attention of two major technical disciplines: biometrics and service architectures. The expertise of both disciplines was required to ensure the standard was technically sound, market relevant, and achieved widespread adoption. The International Committee for Information Technology Standards (INCITS) M1 provided the standards leadership relevant to biometrics, defining the “taxonomy” of biometric operations and data elements. OASIS provided the standards leadership relevant to service architectures with an initial focus on web services, defining the schema and SOAP messaging.

The driving requirements of the BIAS standard proposal were to provide the ability to remotely invoke biometric operations across an SOA infrastructure; to provide business level operations without constraining the application/business logic that implements those operations; to be as generic as possible – technology, framework, & application domain independent; and to provide basic capabilities that can be used to construct higher level, aggregate/composite operations.

1.4 Relationship to Other Standards

This OASIS BIAS profile comprises a companion standard to ANSI INCITS 442-2010 – Biometric Identity Assurance Services, which defines the BIAS requirements and taxonomy, specifying the identity assurance operations and the associated data elements. This OASIS BIAS profile specifies the design concepts and architecture, data model and data dictionary, message structure and rules, and error handling necessary to invoke SOAP-based services that implement BIAS operations.

Together, the BIAS standard and the BIAS profile provide an open framework for deploying and remotely invoking biometric-based identity assurance capabilities that can be readily accessed across an SOA infrastructure.

This relationship allows the leveraging of the biometrics and web services expertise of the two standards development organizations. Existing standards are available in both domains and many of these standards will provide the foundation and underlying capabilities upon which the biometric services depend.

1.5 Terminology

The key words “MUST”, “MUST NOT”, “REQUIRED”, “SHALL”, “SHALL NOT”, “SHOULD”, “SHOULD NOT”, “RECOMMENDED”, “MAY”, and “OPTIONAL” in this document are to be interpreted as described in [RFC2119].

The following additional terms and definitions are used:

Note: The terms and definitions specified in INCITS (InterNational Committee for Information Technology Standards) (Project 1823-D) also apply to this Standard.

BIAS operation and data element names are not defined here, but in their respective sections.

BIAS

Biometric Identity Assurance Services

BIR

Biometric Information Record

ESB

Enterprise Service Bus

HTTP

HyperText Transfer Protocol

HTTPS

HyperText Transfer Protocol over SSL or HTTP Secure

IRI

Internationalized Resource Identifier

SOA

Service-Oriented Architecture

SOAP

Simple Object Access Protocol

SSL

Secure Sockets Layer

TLS

Transport Layer Security

UDDI

Universal Description, Discovery, and Integration

URI

Uniform Resource Identifier

VPN

Virtual Private Network

WSDL

Web Services Description Language

WSS

Web Services Security

XML

eXtensible Markup Language

CBEFF

Common Biometric Exchange Formats Framework - data elements and BIR formats specified in ISO/IEC 19785-1

BIAS implementation

software entity that is capable of creating, processing, sending, and receiving BIAS messages

BIAS endpoint

runtime entity, identified by an endpoint URI/IRI, capable of sending and receiving BIAS messages, and containing a running BIAS implementation

BIAS message

message that can be sent from a BIAS endpoint to another BIAS endpoint through a BIAS link channel

BIAS request message

BIAS message conveying a request for an action to be performed by the receiving BIAS endpoint

BIAS response message

BIAS message conveying a response to a prior BIAS requestmessage

1.6 References

1.6.1 Normative References

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161		Framework – Part 3: Patron format specifications, with Amendment 1:2010
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163	[BIO SEC]	ISO 19092 Financial services -- Biometrics -- Security framework
164		
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2 Design Concepts and Architecture (non-normative)

2.1 Philosophy

Rather than define a totally new and unique messaging protocol for biometric services, this specification instead defines a method for using existing biometric and Web services standards to exchange biometric data and perform biometric operations.

2.2 Context

Today, biometric systems are being developed which collect, process, store and match biometric data for a variety of purposes. In many cases, data and/or capabilities need to be shared between systems or systems serve a number of different client stakeholders. As architectures move towards services-based frameworks, access to these biometric databases and services is via a Web services front-end. However, lack of standardization in this area has led implementers to develop customized services for each system/application.

BIAS is intended to provide a common, yet flexible, Web services interface that can be used within both closed and open SOA systems. Figure 1, below, depicts the context in which the BIAS messages will be implemented.

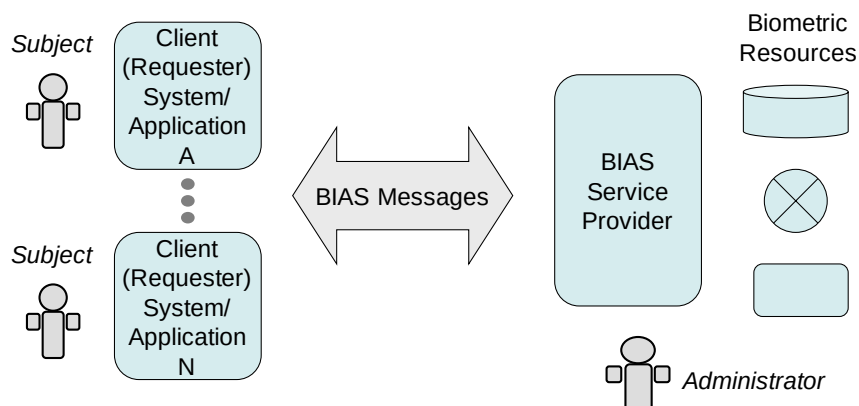


Figure 1. BIAS Context

The clients (requesters) may use standard discovery mechanisms (i.e., UDDI directories) to discover the BIAS service provider (implementation) or, particularly in closed systems, the URI/IRI and WSDL for the service provider may be known *a priori* by the client BIAS application developer.

2.3 Architecture

BIAS Web services are intended to be used within systems employing a services framework, such as a services-oriented architecture (SOA) (although implementations are not limited to this environment). As such, it is recognized that the clients may interact directly with the BIAS service provider or layers may exist between the client and the service provider, for example as an ESB or other application layer.

The BIAS Architecture as shown in Figure 2, in which:

- A Client request to the BIAS Web services may be triggered by a human interaction OR any proxy system such as an ESB.
- Client sends and receives SOAP messages that conform to the BIAS schemas
- Calls to the BIAS Implementation use OASIS Service Interfaces and Bindings (via WSDL)

- The BIAS implementation maps the service call to the appropriate internal API or set of APIs and returns data according to the service interface.
- Note that services are represented as circles.

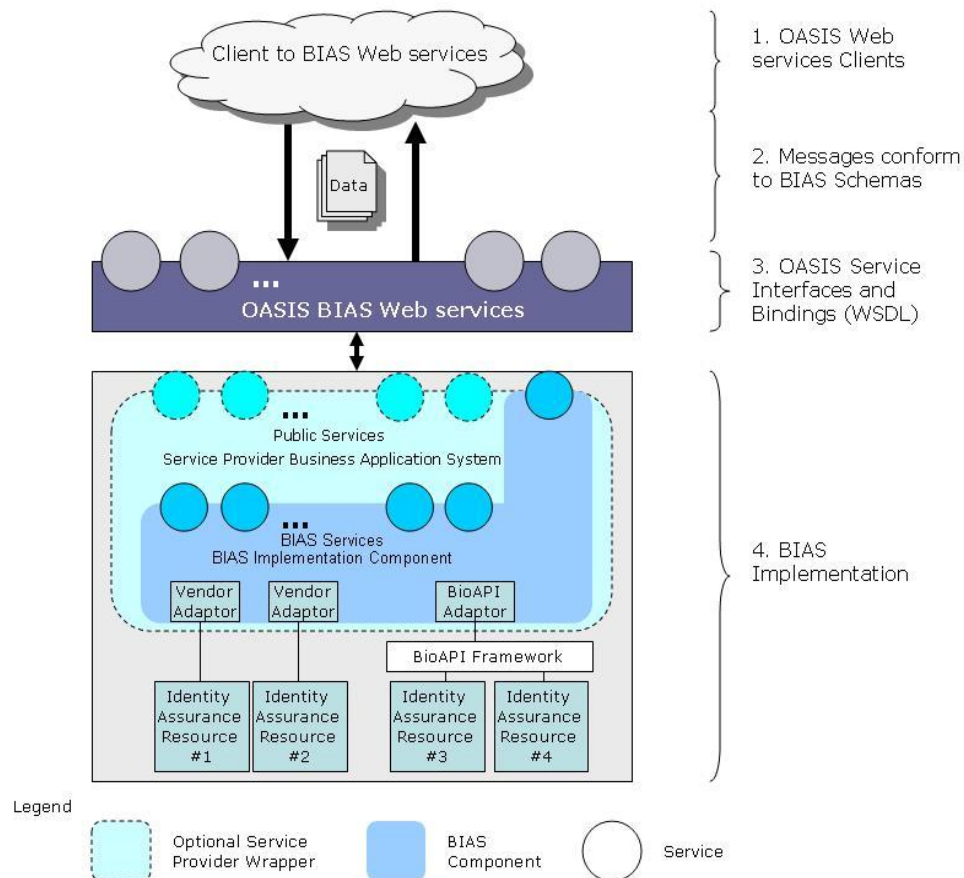


Figure 2. Representative BIAS Architecture

NOTE: It is possible that BIAS may also be used between the service provider and the managed resource (e.g., a biometric matcher).

At the heart of the BIAS SOAP Profile are the concepts of BIAS messages and endpoints.

BIAS implementation

A BIAS implementation is a software entity that is capable of creating, processing, sending, and receiving BIAS messages. This standard does not define requirements for the BIAS implementation other than defining the messages and protocols used by the endpoints.

BIAS messages

A BIAS message is a one that can be sent from a BIAS endpoint to another BIAS endpoint over a TCP/IP link.

BIAS endpoints

A BIAS endpoint is a runtime entity, uniquely identified and accessed by an endpoint URI/IRI [URI] [IRI], capable of sending and receiving BIAS messages.

266 NOTE: When not publicly and directly exposed, the endpoints for purposes of this specification are
267 the BIAS service provider exposing BIAS services and the component that directly interacts with that
268 service provider, e.g., the business application or ESB, rather than the ultimate end client requester.

3 Data dictionary

This section describes the BIAS data elements used within BIAS messages (as defined in Clause 4). Common data elements are defined for use in one or more operations. These include common data types or return codes. BIAS data elements are defined in ANSI INCITS 442-2010. The elements, complex types and simple types described for the BIAS messages belong to the following namespace: <http://docs.oasis-open.org/bias/ns/bias-1.0/>. See AnnexA for the XML schema.

NOTE: Biographic and biometric data included in a native XML format MAY contain elements referencing external namespaces (e.g., ansi-nist).

3.1 Documentation Conventions

Each common element has a section describing its content. Likewise, each operation has a section describing the request and response messages and the associated input and output parameters. The input and output of each message and the comment elements are detailed in a table as described in the figure below. Each field that forms part of the message request/response is detailed in the table.

Header Name	Description	Values	Value Meaning
Field	The name of the field.		
Type	The XML schema type of the field.		
#	The cardinality of the field	1	One occurrence
		0..1	Zero or one occurrence
		0..*	Zero or more occurrences
		1..*	One or more occurrences
?	Defines if the field must be present.	Y	Yes – is always required
		N	No – is not always required, an optional field.
		C	Conditional – requirement is dependent on system or message conditions.
Meaning	Gives a short description of the field's use		

Figure 3. BIAS Message Input/Output Dictionary Table Headings

Fields Hierarchy Explained:

To denote the field hierarchy the symbol $\uparrow$ is used to denote the child-of relationship.

All string types/elements MUST consist of ISO/IEC 10646 (Unicode) characters encoded in UTF-8 [UTF-8] (see ISO/IEC 10646:2003, Annex D).

288 3.2 Common Elements

289 3.2.1 ApplicationIdentifier

Type:	string
Description:	Identifies an application.
Min Length:	1
Max Length:	255

290 3.2.2 ApplicationUserIdentifier

Type:	string
Description:	Identifies an application user or instance.
Min Length:	1
Max Length:	255

291 3.2.3 BaseBIRType

Type:	Schema complexType
Description:	Base type for all BIR subtypes; see BinaryBIR , URI_BIR , and XML_BIR for currently available types.

292

293 3.2.4 BIASBiometricDataType

Field	Type	#	?	Meaning
BIASBiometricDataType			Y	Wraps the various BIAS biometric types. The operations that use this type specify which elements are required.
↑ BIRList	CBEFF_BIR_ListType	0..1	N	A list of CBEFF-BIR elements.
↑ BIR	CBEFF_BIR_Type	0..1	N	Contains biometric information in either a non-XML or an XML representation.
↑ InputBIR	CBEFF_BIR_Type	0..1	N	Maps to specific INCITS BIAS elements as required by that specification.
↑ ReferenceBIR	CBEFF_BIR_Type	0..1	N	Maps to specific INCITS BIAS elements as required by that specification.
↑ BiometricDataList	BiometricDataListType	0..1	N	A list of biometric data elements.

3.2.5 BIASFaultCode

Type:	String
Description:	Error code referenced in a SOAP fault.

BIASFaultCode Enumeration Values

Value	Description
UNKNOWN_ERROR	The service failed for an unknown reason.
UNSUPPORTED_CAPABILITY	A requested capability is not supported by the service implementation.
INVALID_INPUT	The data in a service input parameter is invalid.
BIR_QUALITY_ERROR	Biometric sample quality is too poor for the service to succeed.
INVALID_BIR	The input BIR is empty or in an invalid or unrecognized format.
BIR_SIGNATURE_FAILURE	The service could not validate the signature, if used, on the input BIR.
BIR_DECRYPTION_FAILURE	The service could not decrypt an encrypted input BIR.
INVALID_ENCOUNTER_ID	The input encounter ID is empty or in an invalid format.
INVALID_SUBJECT_ID	The input subject ID is empty or in an invalid format.
UNKNOWN_SUBJECT	The subject referenced by the input subject ID does not exist.
UNKNOWN_GALLERY	The gallery referenced by the input gallery ID does not exist.
UNKNOWN_ENCOUNTER	The encounter referenced by the input encounter ID does not exist.
UNKNOWN_BIOGRAPHIC_FORMAT	The biographic data format is not known or not supported.
UNKNOWN_IDENTITY_CLAIM	The identity referenced by the input identity claim does not exist.
INVALID_IDENTITY_CLAIM	The identity claim requested is already in use.
NONEXISTANT_DATA	The data requested for deletion does not exist.

NOTES:

- (1) See Clause 6 (Error handling) for an explanation of BIAS faults and return codes.
- (2) Service provider MAY define additional values specific to their service implementation.
- (3) See section 5.5 for additional information on BIAS security.

3.2.6 BIASFaultDetail

Field	Type	#	?	Meaning
BIASFaultDetail			Y	Defines the error information associated with a SOAP fault.
↗ BIASFaultType	BIASFaultCode	1	Y	References an error code.
↗ BIASFaultMessage	string	1	Y	Provides a brief explanation of the fault.

Field	Type	#	?	Meaning
BIASFaultDescription	string	0..1	N	Provides detailed information about a BIAS fault, such as trace details.

3.2.7 BIASIdentity

Field	Type	#	?	Meaning
BIASIdentity			Y	Defines a single element for encapsulating the data associated with an Identity. Includes the Identity's reference identifiers, biographic data, and biometric data. The operations that use this type specify which elements are required.
SubjectID	BIASIDType	0..1	C	A system unique identifier for a subject. Required as input to many operations.
IdentityClaim	BIASIDType	0..1	N	An identifier by which a subject is known to a particular gallery or population group.
EncounterID	BIASIDType	0..1	C	The identifier of an encounter associated with the subject. Required for encounter-centric models.
EncounterList	EncounterListType	0..1	N	A list of encounters associated with a subject.
BiographicData	BiographicDataType	0..1	N	An Identity's biographic data.
BiographicDataElements	BiographicDataType	0..1	N	An Identity's biographic data elements that are stored in the implementing system.
BiometricData	BIASBiometricDataType	0..1	N	An Identity's biometric data.

3.2.8 BIASIDType

Type:	string
Description:	A BIAS Identifier.

3.2.9 BinaryBIR

Field	Type	#	?	Meaning
BinaryBIR	BaseBIRType		Y	Defines a BIR type of Binary

Field	Type	#	?	Meaning
↑ Binary	base64Binary	1	Y	BIR information in base64 binary format

3.2.10 BiographicDataItem Type

Field	Type	#	?	Meaning
BiographicDataItem Type			Y	Defines a single biographic data element.
↑ Name	string	1	Y	The name of the biographic data item.
↑ Type	string	1	Y	The data type for the biographic data item.
↑ Value	string	0..1	N	The value assigned to the biographic data item.

NOTE: This element can be used to transmit scanned identity documents or document information (e.g., passports, driver's license, birth certificates, utility bills, etc. required to establish an identity).

3.2.11 BiographicDataSet Type

Field	Type	#	?	Meaning
BiographicDataSet Type			Y	Defines a set of biographic data that is formatted according to the specified format.
↑ name	string	1	Y	The name of the biographic data format. Use these names for common formats: FBI-EFTS [EFTS], FBI-EBTS [EBTS-FBI], DOD-EBTS [EBTS-DOD], INT-I [INT-I], NIEM [NIEM], xNAL [xNAL], HR-XML [HR-XML].
↑ version	string	0..1	N	The version of the biographic data format (e.g., "7.1" for FBI-EFTS or "2.0" for NIEM).
↑ source	string	1	Y	Reference to a URI/IRI describing the biographic data format. For example: (FBI-EFTS and FBI-EBTS) www.fbibiospecs.org, (DOD-EBTS) www.biometrics.dod.mil, (INT-I) www.interpol.int, (NIEM) www.niem.gov, (xNAL) www.oasis-open.org, (HR-XML) www.hr-xml.org.
↑ type	string	1	Y	The biographic data format type. Use these types for common formats: ASCII (e.g., for non-XML versions of FBI-EFTS, FBI-EBTS, DOD-EBTS, or INT-I), XML (e.g., for NIEM, xNAL, and HR-XML or future versions of FBI-EBTS).
↑ unspecified	any	0..*	N	Biographic data formatted according to a specific format.

NOTE: Biographic data formats are not limited to those listed. The string value is not enumerated. If one of the common types are used, it MUST be indicated by the specified name values; however, the service provider MAY offer other formats. See INCITS 442 for further information.

312 3.2.12 BiographicDataType

Field	Type	#	?	Meaning
BiographicDataType			Y	Defines a set of biographic data elements, utilizing either the BiographicDataItem to represent a list of elements or the BiographicDataSet to represent a complete, formatted set of biographic information. One of the following elements must be present.
↑ LastName	string	0..1	N	The last name of a subject.
↑ FirstName	string	0..1	N	The first name of a subject.
↑ BiographicDataItems	BiographicDataItem	0..1	N	A list of biographic data elements.
↑ BiographicDataItems	BiographicDataItem	1..*	N	A single biographic data element.
↑ BiographicDataSet	BiographicDataSet	0..1	N	A set of biographic data information.

NOTE: The implementer is given three choices for encoding biographic data:

- Encode only first and last name using the defined fields within BiographicDataType
- Define a list of biographic data elements using the BiographicDataItem
- Use a pre-defined set of biographic data (e.g., as specified in another standard) using the BiographicDataSet.

See also INCITS 442, section 8.1 for further information.

319 3.2.13 BiometricDataElementType

Field	Type	#	?	Meaning
BiometricDataElementType			Y	Provides descriptive information about biometric data, such as the biometric type, subtype, and format, contained in the BDB of the CBEFF-BIR.
↑ BiometricType	oasis_cbeff:MultipleTypesType	1	Y	The type of biological or behavioral data stored in the biometric record, as defined by CBEFF.
↑ BiometricTypeCount	positiveInteger	0..1	N	The number of biometric records having the biometric type recorded in the biometric type field.

Field	Type	#	?	Meaning
↑ BiometricSubType	oasis_cbeff:SubtypeType	0..1	N	More specifically defines the type of biometric data stored in the biometric record, as defined by CBEFF.
↑ BDBFormatOwner	positiveInteger	1	Y	Identifies the standards body, working group, industry consortium, or other CBEFF biometric organization that has defined the format for the biometric data.
↑ BDBFormatType	positiveInteger	1	Y	Identifies the specific biometric data format specified by the CBEFF biometric organization recorded in the BDB Format Owner field.

320

321 3.2.14 BiometricDataListType

Field	Type	#	?	Meaning
BiometricDataListType			Y	A list of biometric data elements.
↑ BiometricDataElement	3.2.13 BiometricDataElementType	0..*	N	Data structure containing information about a biometric record.

322 3.2.15 CandidateListResultType

Field	Type	#	?	Meaning
CandidateListResultType			Y	Defines a set of candidates, utilizing the CandidateType to represent each element in the set.
↑ CandidateList	3.2.16 CandidateListType	1	Y	The candidate list.

323

324 3.2.16 CandidateListType

Field	Type	#	?	Meaning
CandidateListType			Y	Defines a set of candidates, utilizing the CandidateType to represent each element in the set.
↑ Candidate	CandidateType	0..*	N	A single candidate.

325 3.2.17 CandidateType

Field	Type	#	?	Meaning
CandidateType			Y	Defines a single candidate as a possible match in response to a biometric identification request.
↑ Score	Score	0..1	N	The match score.
↑ Rank	integer	1	Y	The rank of the candidate in relation to other candidates for the same biometric identification operation.
↑ BiographicData	BiographicDataType	0..1	N	Biographic data associated with the candidate match.
↑ BIRList	CBEFF_BIR_ListType	1	Y	Biometric data associated with the candidate match.

326 3.2.18 CapabilityListType

Field	Type	#	?	Meaning
CapabilityListType			Y	Defines a set of capabilities.
↑ Capability	CapabilityType	0..*	N	A single capability.

327 3.2.19 CapabilityName

Type:	string
Description:	A list of capability items.

328 CapabilityName Enumeration Values

Value	Description
AggregateInputDataOptional	A data element accepted as optional input by the implementing system for the aggregate services.
AggregateInputDataRequired	A data element required as input by the implementing system for the aggregate services.
AggregateProcessingOption	A processing option supported by the implementing system for the aggregate services.
AggregateReturnData	A data element returned by the implementing system for the aggregate services.
AggregateServiceDescription	Describes the processing logic of an aggregate service supported by the implementing system.
BiographicDataSet	Identifies a biographic data set supported by the implementing system.
CBEFFPatronFormat	A patron format supported by the implementing system.
ClassificationAlgorithmType	A classification algorithm type supported by the implementing system.
ConformanceClass	Identifies the conformance class of the BIAS implementation.

Value	Description
Gallery	A gallery or population group supported by the implementing system.
IdentityModel	Identifies whether the implementing system is person-centric or encounter-centric based.
MatchScore	Identifies the use of match scores returned by the implementing system.
QualityAlgorithm	A quality algorithm vendor and algorithm vendor product ID supported by the implementing system.
SupportedBiometric	A biometric type supported by the implementing system.
TransformOperation	A transform operation type supported by the implementing system.

329 3.2.20 CapabilityType

Field	Type	#	?	Meaning
CapabilityType			Y	Defines a single capability supported by an implementing system.
↑ CapabilityName	CapabilityName	1	Y	The name of the capability.
↑ CapabilityID	string	0..1	N	An identifier assigned to the capability by the implementing system.
↑ CapabilityDescription	string	0..1	N	A description of the capability.
↑ CapabilityValue	string	0..1	N	A value assigned to the capability.
↑ CapabilitySupportingValue	string	0..1	N	A secondary value supporting the capability.
↑ CapabilityAdditionalInfo	string	0..1	N	Contains additional information for the supported capability.

330 3.2.21 CBEFF_BIR_ListType

Field	Type	#	?	Meaning
CBEFF_BIR_ListType			Y	A list of CBEFF-BIR elements.
↑ BIR	CBEFF_BIR_Type	0..*	N	CBEFF structure containing information about a biometric sample.

331 3.2.22 CBEFF_BIR_Type

Field	Type	#	?	Meaning
CBEFF_BIR_Type			Y	Represents biometric information, with either a non-XML or XML representation.
↑ FormatOwner	positiveInteger	1	Y	Identifies the Patron format owner.
↑ FormatType	positiveInteger	1	Y	Identifies the Patron format type.

Field	Type	#	?	Meaning
↑ BIR_Information		0..1	N	Describes what is contained in a BIR.
↑ BIR_Info	oasis_cbeff:BIRInfoType	0..1	N	Contains information about the CBEFF-BIR.
↑ BDB_Info	oasis_cbeff:BDBInfoType	0..1	N	Contains information about the BDB in a simple CBEFF-BIR.
↑ SB_Info	oasis_cbeff:SBInfoType	0..1	N	Contains information about the security block, if used, in a simple CBEFF-BIR.
↑ BIR	BaseBIRType	1	Y	One of the following sub-elements must be present: BinaryBIR , URI_BIR , or XML_BIR .

NOTE: The implementer is given three choices for encoding a BIR:

- As an XML BIR (following the XML Patron format as specified in Annex B)
- As a reference to a URI (from which the receiver would retrieve the actual BIR)
- As a complete Base64 encoded binary (non-XML) BIR.

The latter two alternatives can use any CBEFF Patron Format. The optional BIR_Information provides a mechanism for exposing metadata associated with a BIR format that is not easily decoded (i.e., a non-XML BIR). See section 5.3 for more information on handling of binary data within BIAS and INCITS 442, Clause 8.2, for more information on representing biometric data.

NOTE:

- XML BIRs MUST conform to the XML patron format in Annex B; however, non-XML (binary) and URI BIRs MAY implement any CBEFF patron format.
- It is RECOMMENDED that only registered CBEFF patron formats be used; however, in closed systems, this may not be required.

3.2.23 Classification

Type:	string
Description:	The result of a classification.

3.2.24 ClassificationAlgorithmType

Type:	string
Description:	Type of classification algorithm that was used to perform the classification.

3.2.25 ClassificationData

Field	Type	#	?	Meaning
ClassificationData			Y	Contains information on classification results and the algorithm used to determine the classification.

Field	Type	#	?	Meaning
↑ Classification	Classification	1	Y	The result of the classification.
e ↑ ClassificationAlgorithmType	ClassificationAlgorithmType	1	Y	Identifies the type of classification algorithm that was used to perform the classification.

348 3.2.26 EncounterListType

Field	Type	#	?	Meaning
EncounterListType			Y	Defines a set of encounters.
↑ EncounterID	BIASIDType	0..*	N	The identifier of an encounter.

349 3.2.27 FusionDecision

Type:	string
Description:	The match decision assigned by the matching algorithm

350

351 3.2.28 FusionInformationListType

Field	Type	#	?	Meaning
FusionInformationListType			Y	Contains at a minimum two sets of fusion input elements, as input to the PerformFusion operation.
↑ FusionElement	FusionInformationType	2..*	Y	A set of fusion information.

352 3.2.29 FusionInformationType

Field	Type	#	?	Meaning
FusionInformationType			Y	Represents the information necessary to perform a fusion operation.
↑ BiometricType	<code>oasis_cbeff:MultipleTypesType</code>	1	Y	The type of biological or behavioral data stored in the biometric record, as defined by CBEFF.
e ↑ BiometricSubType	<code>oasis_cbeff:SubtypeType</code>	0..1	N	More specifically defines the type of biometric data stored in the biometric record.
↑ AlgorithmOwner	string	1	Y	The owner or vendor of the algorithm used to determine the score or decision.
↑ AlgorithmType	string	1	Y	The Algorithm Owner's identifier for the specific algorithm product and version used to determine the score or decision.

Field	Type	#	?	Meaning
↑ FusionResult	FusionResult	0..1	C	Either FusionScore or a FusionDecision element MUST be used.

3.2.30 FusionResult

Type:	complexType
Description:	The base type for any resulting types which indicate the status of a Fusion operation

3.2.31 FusionScore

Type:	Score
Description:	The similarity score assigned by the matching algorithm.

3.2.32 GenericRequestParameters

Field	Type	#	?	Meaning
GenericRequestParameters			Y	Common request parameters that can be used to identify the requester.
↑ Application	ApplicationIdentifier	0..1	N	Identifies the requesting application.
↑ ApplicationUser	ApplicationUserIdentifier	0..1	N	Identifies the user or instance of the requesting application.
↑ BIASOperationName	string	0..1	N	Identifies the BIAS operation that is being requested.

NOTE: See section 5.4 for alternatives for identifying the requested BIAS operation in a BIAS SOAP message.

3.2.33 IdentifySubjectResultType

Description:	A base type for all types that could be returned from the IdentifySubject operation
---------------------	---

3.2.34 InformationType

Field	Type	#	?	Meaning
InformationType			Y	Allows for an unlimited number of data element types, and it does not specify nor require any particular data element.
↑ unspecified	any	0..*	N	

362 **3.2.35 ListFilterType**

Field	Type	#	?	Meaning
ListFilterType			Y	Provides a method to filter the amount of information returned in a search of biometric data.
↑ BiometricTypeFilters		1	Y	
↑ BiometricTypeFilter	oasis_cbeff:MultipleTypesType	1..*	Y	Limits the returned information to a specific type of biometric, as defined by CBEFF.
e ↑ IncludeBiometricSubType	boolean	1	Y	A Boolean flag indicating if biometric subtype information should be returned.

363 **3.2.36 MatchType**

Type:	boolean
Description:	The result of a fusion method.

364 **3.2.37 ProcessingOptionsType**

Field	Type	#	?	Meaning
ProcessingOptionsType			Y	BIAS aggregate operations support the ability to include various processing options which direct and possibly control the business logic for that operation. The ProcessingOptionsType provides a method to represent those options. Processing options SHOULD be defined by the implementing system.
↑ Option	string	0..*	N	An option supported by the implementing system.

365 **3.2.38 ProductID**

Type:	string
Description:	The vendor's ID for a particular product.

366 **3.2.39 QualityData**

Field	Type	#	?	Meaning
QualityData			Y	Contains information about a biometric sample's quality and the algorithm used to compute the quality.
↑ QualityScore	oasis_cbeff:QualityType	0..1	N	The quality of a biometric sample.
↑ AlgorithmVendor	VendorIdentifier	1	Y	The vendor of the quality algorithm used to determine the quality score.

Field	Type	#	?	Meaning
AlgorithmVendorProductID	ProductID	1	Y	The vendor's ID for the algorithm used to determine the quality.
AlgorithmVersion	VersionType	0..1	N	The version of the algorithm used to determine the quality.

3.2.40 ResponseStatus

Field	Type	#	?	Meaning
ResponseStatus			Y	
Return	ReturnCode	1	Y	The return code indicates the return status of the operation.
Message	string	0..1	N	A short message corresponding to the return code.

3.2.41 ReturnCode

Type:	unsignedLong
Description:	Return value specifying success or other condition.

ReturnCode Enumeration Values

Value	Description
0	Success

3.2.42 Score

Type:	float
Description:	Match result or quality score.

NOTE: Matching scores MAY be in a standardized or proprietary form in terms of value range and interpretation. Quality scores, however, follow the definition found in Annex B.

3.2.43 TokenResultType

Field	Type	#	?	Meaning
TokenResultType			Y	Defines a token that is returned for asynchronous processing.
TokenType	TokenType	1	Y	Defines a token that is returned for asynchronous processing.

3.2.44 TokenType

Field	Type	#	?	Meaning
TokenType			Y	Defines a token that is returned for asynchronous processing.
↑ TokenValue	string	1	Y	A value returned by the implementing system that is used to retrieve the results to an operation at a later time.
↑ Expiration	date	1	Y	A date and time at which point the token expires and the operation results are no longer guaranteed to be available.

NOTE: Date/time format is defined in INCITS 442 and is consistent with the date format specified in Annex B and ISO 8601 [DATE-TIME]. See also Annex A for schema definition.

3.2.45 URI_BIR

Field	Type	#	?	Meaning
URI_BIR	BaseBIRType		Y	Defines a BIR type of Binary
↑ URI	anyURI	1	Y	The URI of the BIR

3.2.46 VendorIdentifier

Type:	string
Description:	Identifies a vendor.

NOTE: Vendor identifiers are registered with IBIA as the CBEFF registration authority (see ISO/IEC 19785-2). Registered biometric organizations are listed at: http://www.ibia.org/cbeff/_biometric_org.php.

3.2.47 Version

Field	Type	#	?	Meaning
Version			Y	For a description or definition of each data element, see the referenced CBEFF standards in the 3.2.22 CBEFF_BIR_Typeschema.
↑ major	nonNegativeInteger	1	Y	
↑ minor	nonNegativeInteger	1	Y	

3.2.48 VersionType

Type:	string
Description:	The version of a component.

3.2.49 XML_BIR

Field	Type	#	?	Meaning
XML_BIR	BaseBIRType		Y	Defines a BIR type of Binary

Field	Type	#	?	Meaning
↗ XML	Oasis_cbeff:BIRType	1	Y	BIR information in XML format

388

4 BIAS Messages

This section describes the BIAS messages implementing BIAS operations as defined in ANSI INCITS 442-2010. The operations are listed alphabetically, with each operation containing a request and a response message. The tables follow the conventions described in section 3.1.

Primitive Operations

4.1.1 AddSubjectToGallery

[AddSubjectToGalleryRequest](#)

[AddSubjectToGalleryResponse](#)

The AddSubjectToGallery operation registers a subject to a given gallery or population group. As an OPTIONAL parameter, the value of the claim to identity by which the subject is known to the gallery MAY be specified. This claim to identity MUST be unique across the gallery. If no claim to identity is specified, the subject ID (assigned with the [CreateSubject](#) operation) will be used as the claim to identity. Additionally, in the encounter-centric model, the encounter ID associated with the subject's biometrics that will be added to the gallery MUST be specified.

Request Message

Field	Type	#	?	Meaning
AddSubjectToGallery			Y	Register a subject to a given gallery or population group.
↑ AddSubjectToGalleryRequest		1	Y	
↑ GenericRequestParameter s	GenericRequestParameters	0..1	N	Common request parameters that can be used to identify the requester.
↑ Application	ApplicationIdentifier	0..1	N	Identifies the requesting application.
↑ ApplicationUser	ApplicationUserIdentifier	0..1	N	Identifies the user or instance of the requesting application.
↑ BIASOperationName	string	0..1	N	Identifies the BIAS operation that is being requested: "AddSubjectToGallery".
↑ GalleryID	BIASIDType	1	Y	The identifier of the gallery or population group to which the subject will be added.
↑ Identity	BIASIdentity	1	Y	The identity to add to the gallery.
↑ SubjectID	BIASIDType	1	Y	A system unique identifier for a subject.

Field	Type	#	?	Meaning
↑ IdentityClaim	BIASIDType	0..1	N	An identifier by which a subject is known to a particular gallery or population group. (This could be a username or account number, for example.)
↑ EncounterID	BIASIDType	0..1	C	The identifier of an encounter associated with the subject. Required for encounter-centric models.

404 Response Message

Field	Type	#	?	Meaning
AddSubjectToGalleryResponse			Y	The response to an AddSubjectToGallery operation.
↑ AddSubjectToGalleryResponsePackage		1	Y	
↑ ResponseStatus	ResponseStatus	1	Y	Returned status for the operation.
↑ Return	ReturnCode	1	Y	The return code indicates the return status of the operation.
↑ Message	string	0..1	N	A short message corresponding to the return code.

405 4.1.2 CheckQuality

406 [CheckQualityRequest](#)

407 [CheckQualityResponse](#)

408 The CheckQuality operation returns a quality score for a given biometric. The biometric input is provided
409 in a CBEFF basic structure or CBEFF record, which in this specification is called a CBEFF-BIR. The
410 algorithm vendor and algorithm vendor product ID MAY be optionally provided in order to request a
411 particular algorithm's use in calculating the biometric quality. If an algorithm vendor is provided then the
412 algorithm vendor product ID is REQUIRED. If no algorithm vendor is provided, the implementing system
413 will provide the algorithm vendor and algorithm vendor product ID that were used to calculate the
414 biometric quality as output parameters.

415 Request Message

Field	Type	#	?	Meaning
CheckQuality			Y	Calculate a quality score for a given biometric.

Field	Type	#	?	Meaning
↑ CheckQualityRequest		1	Y	
↑ GenericRequestParameters	GenericRequestParameters	0..1	N	Common request parameters that can be used to identify the requester.
↑ Application	ApplicationIdentifier	0..1	N	Identifies the requesting application.
↑ ApplicationUser	ApplicationUserIdentifier	0..1	N	Identifies the user or instance of the requesting application.
↑ BIASOperationName	string	0..1	N	Identifies the BIAS operation that is being requested: "CheckQuality".
↑ BiometricData	BIASBiometricDataType	1	Y	Data structure containing a single biometric sample for which a quality score is to be determined.
↑ BIR	CBEFF_BIR_Type	1	Y	The biometric sample.
↑ Quality	QualityData	0..1	N	Specifies a particular algorithm vendor and vender product ID.
↑ AlgorithmVendor	VendorIdentifier	1	Y	The vendor of the quality algorithm used to determine the quality score.
↑ AlgorithmVendorProductID	ProductID	1	Y	The vendor's ID for the algorithm used to determine the quality.

416 Response Message

Field	Type	#	?	Meaning
CheckQualityResponse			Y	The response to a CheckQuality operation.
↑ CheckQualityResponsePackage		1	Y	
↑ ResponseStatus	ResponseStatus	1	Y	Returned status for the operation.
↑ Return	ReturnCode	1	Y	The return code indicates the return status of the operation.
↑ Message	string	0..1	N	A short message corresponding to the return code.
↑ QualityInfo	QualityData	1	Y	Contains the quality information for the submitted biometric sample.
↑ QualityScore	oasis_cbeff:QualityType	0..1	N	The quality of a biometric sample.
↑ AlgorithmVendor	VendorIdentifier	1	Y	The vendor of the quality algorithm used to determine the quality score.
↑ AlgorithmVendorProductID	ProductID	1	Y	The vendor's ID for the algorithm used to determine the quality.
↑ AlgorithmVersion	VersionType	1	Y	The version of the algorithm used to determine the quality.

417 4.1.3 ClassifyBiometricData

418 [ClassifyBiometricDataRequest](#)

419 [ClassifyBiometricDataResponse](#)

420 The ClassifyBiometricData operation attempts to classify a biometric sample. For example, a fingerprint
 421 biometric sample may be classified as a whorl, loop, or arch (or other classification classes and sub-
 422 classes).

423 To obtain the types of classification algorithms and classes, see the [QueryCapabilities](#) operation.

424 Request Message

Field	Type	#	?	Meaning
ClassifyBiometricData			Y	Classifies a biometric sample.
↑ ClassifyBiometricDataRequest		1	Y	

Field	Type	#	?	Meaning
↑ GenericRequestParameter s	GenericRequestParameters	0..1	N	Common request parameters that can be used to identify the requester.
↑ Application	ApplicationIdentifier	0..1	N	Identifies the requesting application.
↑ ApplicationUser	ApplicationUserIdentifier	0..1	N	Identifies the user or instance of the requesting application.
↑ BIASOperationName	string	0..1	N	Identifies the BIAS operation that is being requested: "ClassifyBiometricData".
↑ BiometricData	BIASBiometricDataType	1	Y	Data structure containing a single biometric sample for which the classification is to be determined.
↑ BIR	CBEFF_BIR_Type	1	Y	The biometric sample.

425 Response Message

Field	Type	#	?	Meaning
ClassifyBiometricDataResponse			Y	The response to a ClassifyBiometricData operation, containing the classification of a biometric sample.
↑ ClassifyBiometricDataResponsePackage		1	Y	
↑ ResponseStatus	ResponseStatus	1	Y	Returned status for the operation.
↑ Return	ReturnCode	1	Y	The return code indicates the return status of the operation.
↑ Message	string	0..1	N	A short message corresponding to the return code.
↑ ClassificationData	ClassificationData	1	Y	Information on the results and type of classification performed.
↑ Classification	Classification	1	Y	The result of the classification.

Field	Type	#	?	Meaning
↑ ClassificationAlgorithmType	ClassificationAlgorithmType	1	Y	Identifies the type of classification algorithm that was used to perform the classification.

4.1.4 CreateSubject

[CreateSubjectRequest](#)

[CreateSubjectResponse](#)

The CreateSubject operation creates a new subject record and associates a subject ID to that record. As an optional parameter, the subject ID MAY be specified by the caller. If no subject ID is specified, the CreateSubject operation will generate one.

Request Message

Field	Type	#	?	Meaning
CreateSubject			Y	
↑ CreateSubjectRequest		1	Y	
↑ GenericRequestParameters	GenericRequestParameters	0..1	N	Common request parameters that can be used to identify the requester.
↑ Application	ApplicationIdentifier	0..1	N	Identifies the requesting application.
↑ ApplicationUser	ApplicationUserIdentifier	0..1	N	Identifies the user or instance of the requesting application.
↑ BIASOperationName	string	0..1	N	Identifies the BIAS operation that is being requested: "CreateSubject".

Response Message

Field	Type	#	?	Meaning
CreateSubjectResponse			Y	The response to a CreateSubject operation, containing the subject ID of the new subject record.
↑ CreateSubjectResponsePackage		1	Y	
↑ ResponseStatus	ResponseStatus	1	Y	Returned status for the operation.
↑ Return	ReturnCode	1	Y	The return code indicates the return status of the operation.
↑ Message	string	0..1	N	A short message corresponding to the return code.

Field	Type	#	?	Meaning
↑ Identity	BIASIdentity	1	Y	
↑ SubjectID	BIASIDType	1	Y	A system unique identifier for a subject.

4.1.5 DeleteBiographicData

[DeleteBiographicDataRequest](#)

[DeleteBiographicDataResponse](#)

The DeleteBiographicData operation erases all of the biographic data associated with a given subject record. In the encounter-centric model the operation erases all of the biographic data associated with a given encounter, and therefore the encounter ID MUST be specified.

When deleting data, BIAS implementations MAY completely erase the information in order to prevent the ability to reconstruct a record in whole or in part, or they MAY track and record the deleted information for auditing and/or quality control purposes.

Request Message

Field	Type	#	?	Meaning
DeleteBiographicData			Y	Erase all of the biographic data associated with a given subject record or, in the encounter-centric model, with a given encounter.
↑ DeleteBiographicDataRequest		1	Y	
↑ GenericRequestParameters	GenericRequestParameters	0..1	N	Common request parameters that can be used to identify the requester.
↑ Application	ApplicationIdentifier	0..1	N	Identifies the requesting application.
↑ ApplicationUser	ApplicationUserIdentifier	0..1	N	Identifies the user or instance of the requesting application.
↑ BIASOperationName	string	0..1	N	Identifies the BIAS operation that is being requested: "DeleteBiographicData"
↑ Identity	BIASIdentity	1	Y	
↑ SubjectID	BIASIDType	1	Y	A system unique identifier for a subject.

Field	Type	#	?	Meaning
↑ EncounterID	BIASIDType	0..1	C	The identifier of an encounter associated with the subject. Required for encounter-centric models.

444 Response Message

Field	Type	#	?	Meaning
DeleteBiographicDataResponse			Y	The response to a DeleteBiographicData operation.
↑ DeleteBiographicDataResponsePackage		1	Y	
↑ ResponseStatus	ResponseStatus	1	Y	Returned status for the operation.
↑ Return	ReturnCode	1	Y	The return code indicates the return status of the operation.
↑ Message	string	0..1	N	A short message corresponding to the return code.

445 4.1.6 DeleteBiometricData

446 [DeleteBiometricDataRequest](#)

447 [DeleteBiometricDataResponse](#)

448 The DeleteBiometricData operation erases all of the biometric data associated with a given subject
449 record. In the encounter-centric model the operation erases all of the biometric data associated with a
450 given encounter, and therefore the encounter ID MUST be specified.

451 When deleting data, BIAS implementations MAY completely erase the information in order to prevent the
452 ability to reconstruct a record in whole or in part, or they MAY track and record the deleted information for
453 auditing and/or quality control purposes.

454 Request Message

Field	Type	#	?	Meaning
DeleteBiometricData			Y	Erase all of the biometric data associated with a given subject record or, in the encounter-centric model, with a given encounter.
↑ DeleteBiometricDataRequest		1	Y	

Field	Type	#	?	Meaning
↑ GenericRequestParameter s	GenericRequestParameters	0..1	N	Common request parameters that can be used to identify the requester.
↑ Application	ApplicationIdentifier	0..1	N	Identifies the requesting application.
↑ ApplicationUser	ApplicationUserIdentifier	0..1	N	Identifies the user or instance of the requesting application.
↑ BIASOperationName	string	0..1	N	Identifies the BIAS operation that is being requested: "DeleteBiometricData".
↑ Identity	BIASIdentity	1	Y	
↑ SubjectID	BIASIDType	1	Y	A system unique identifier for a subject.
↑ EncounterID	BIASIDType	0..1	C	The identifier of an encounter associated with the subject. Required for encounter-centric models.

455 Response Message

Field	Type	#	?	Meaning
DeleteBiometricDataResponse			Y	The response to a DeleteBiometricData operation.
↑ DeleteBiometricDataResponsePackage		1	Y	
↑ ResponseStatus	ResponseStatus	1	Y	Returned status for the operation.
↑ Return	ReturnCode	1	Y	The return code indicates the return status of the operation.
↑ Message	string	0..1	N	A short message corresponding to the return code.

456 4.1.7 DeleteSubject

457 [DeleteSubjectRequest](#)

458 [DeleteSubjectResponse](#)

459 The DeleteSubject operation deletes an existing subject record and, in an encounter-centric model, any
460 associated encounter information from the system. This operation also removes the subject from any
461 registered galleries.

462 When deleting a subject, BIAS implementations MAY completely erase the subject information in order to
 463 prevent the ability to reconstruct a record or records in whole or in part, or they MAY track and record the
 464 deleted information for auditing and/or quality control purposes.

465 Request Message

Field	Type	#	?	Meaning
DeleteSubject			Y	Delete an existing subject record and, in an encounter-centric model, any associated encounter information.
⌞ DeleteSubjectRequest		1	Y	
⌞ GenericRequestParameter s	GenericRequestParameters	0..1	N	Common request parameters that can be used to identify the requester.
⌞ Application	ApplicationIdentifier	0..1	N	Identifies the requesting application.
⌞ ApplicationUser	ApplicationUserIdentifier	0..1	N	Identifies the user or instance of the requesting application.
⌞ BIASOperationName	string	0..1	N	Identifies the BIAS operation that is being requested: "DeleteSubject".
⌞ Identity	BIASIdentity	1	Y	The identity of the subject to delete.
⌞ SubjectID	BIASIDType	1	Y	A system unique identifier for a subject.

466 Response Message

Field	Type	#	?	Meaning
DeleteSubjectResponse			Y	The response to a DeleteSubject operation.
⌞ DeleteSubjectResponsePackage		1	Y	
⌞ ResponseStatus s	ResponseStatus	1	Y	Returned status for the operation.
⌞ Return	ReturnCode	1	Y	The return code indicates the return status of the operation.
⌞ Message	string	0..1	N	A short message corresponding to the return code.

467 4.1.8 DeleteSubjectFromGallery

468 [DeleteSubjectFromGalleryRequest](#)

469 [DeleteSubjectFromGalleryResponse](#)

470 The DeleteSubjectFromGallery operation removes the registration of a subject from a gallery or
471 population group. The subject is identified by either the subject ID or the claim to identity that was
472 specified in the [AddSubjectToGallery](#) operation.

473 Request Message

Field	Type	#	?	Meaning
DeleteSubjectFromGallery			Y	Remove the registration of a subject from a gallery or population group.
↳ DeleteSubjectFromGalleryRequest		1	Y	
s ↳ GenericRequestParameter	GenericRequestParameters	0..1	N	Common request parameters that can be used to identify the requester.
↳ Application	ApplicationIdentifier	0..1	N	Identifies the requesting application.
↳ ApplicationUser	ApplicationUserIdentifier	0..1	N	Identifies the user or instance of the requesting application.
↳ BIASOperationName	string	0..1	N	Identifies the BIAS operation that is being requested: "DeleteSubjectFromGallery".
↳ GalleryID	BIASIDType	1	Y	The identifier of the gallery or population group from which the subject will be deleted.
↳ Identity	BIASIdentity	1	Y	The identity to remove from the gallery.
↳ SubjectID	BIASIDType	0..1	C	A system unique identifier for a subject. Required if an Identity Claim is not provided.
↳ IdentityClaim	BIASIDType	0..1	C	An identifier by which a subject is known to a particular gallery or population group. Required if a Subject ID is not provided.

474 Response Message

Field	Type	#	?	Meaning
DeleteSubjectFromGalleryResponse			Y	The response to a DeleteSubjectFromGallery operation.
↳ DeleteSubjectFromGalleryResponsePackage				
↳ ResponseStatus	ResponseStatus	1	Y	Returned status for the operation.
↳ Return	ReturnCode	1	Y	The return code indicates the return status of the operation.
↳ Message	string	0..1	N	A short message corresponding to the return code.

475 4.1.9 GetIdentifySubjectResults

476 [GetIdentifyResultsRequest](#)

477 [GetIdentifySubjectResultsResponse](#)

478 The GetIdentifySubjectResults operation retrieves the identification results for the specified token. This
 479 operation is used in conjunction with the [IdentifySubject](#) operation. If the IdentifySubject operation is
 480 implemented as an asynchronous service, the implementing system returns a token and the
 481 GetIdentifySubjectResults operation is used to poll for the results of the original IdentifySubject request.

482 Request Message

Field	Type	#	?	Meaning
GetIdentifySubjectResults			Y	Retrieve the identification results for a specified token, which was returned by the IdentifySubject operation.
↳ GetIdentifySubjectResultsRequest		1	Y	
↳ GenericRequestParameters	GenericRequestParameters	0..1	N	Common request parameters that can be used to identify the requester.
↳ Application	ApplicationIdentifier	0..1	N	Identifies the requesting application.
↳ ApplicationUser	ApplicationUserIdentifier	0..1	N	Identifies the user or instance of the requesting application.

Field	Type	#	?	Meaning
↑ BIASOperationName	string	0..1	N	Identifies the BIAS operation that is being requested: "GetIdentifySubjectResults".
↑ Token	TokenType	1	Y	A value used to retrieve the results of an IdentifySubject request.
↑ TokenValue	string	1	Y	A value returned by the implementing system that is used to retrieve the results to an operation at a later time.
↑ Expiration	date	1	Y	A date and time at which point the token expires and the operation results are no longer guaranteed to be available.

483 Response Message

Field	Type	#	?	Meaning
GetIdentifySubjectResultsResponse			Y	The response to a GetIdentifySubjectResults operation, which includes a candidate list.
↑ GetIdentifySubjectResultsResponsePackage		1	Y	
↑ ResponseStatus	ResponseStatus	1	Y	Returned status for the operation.
↑ Return	ReturnCode	1	Y	The return code indicates the return status of the operation.
↑ Message	string	0..1	N	A short message corresponding to the return code.
↑ CandidateList	CandidateListType	1	Y	A rank-ordered list of candidates that have a likelihood of matching the input biometric sample.
↑ Candidate	CandidateType	0..*	N	A single candidate.
↑ Score	Score	0..1	N	The match score.
↑ BiographicData	BiographicDataType	0..1	N	Biographic data associated with the candidate match.

Field	Type	#	?	Meaning
↑ BIRList	CBEFF_BIR_ListType	1	Y	Biometric data associated with the candidate match.
↑ BIR	CBEFF_BIR_Type	0..*	N	CBEFF structure containing information about a biometric sample.

4.1.10 IdentifySubject

[IdentifySubjectRequest](#)

[IdentifySubjectResponse](#)

The IdentifySubject operation performs an identification search against a given gallery for a given biometric, returning a rank-ordered candidate list of a given maximum size.

If the IdentifySubject operation is implemented as a synchronous service, the implementing system immediately processes the request and returns the results in the candidate list. If the IdentifySubject operation is implemented as an asynchronous service, the implementing system returns a token, which is an indication that the request is being handled asynchronously. In this case, the [GetIdentifySubjectResults](#) operation is used to poll for the results of the IdentifySubject request.

Request Message

Field	Type	#	?	Meaning
IdentifySubject			Y	Perform an identification search against a given gallery for a given biometric.
↑ IdentifySubjectRequest		1	Y	
↑ GenericRequestParameters	GenericRequestParameters	0..1	N	Common request parameters that can be used to identify the requester.
↑ Application	ApplicationIdentifier	0..1	N	Identifies the requesting application.
↑ ApplicationUser	ApplicationUserIdentifier	0..1	N	Identifies the user or instance of the requesting application.
↑ BIASOperationName	string	0..1	N	Identifies the BIAS operation that is being requested: "IdentifySubject".
↑ GalleryID	BIASIDType	1	Y	The identifier of the gallery or population group which will be searched.

Field	Type	#	?	Meaning
↑ Identity	BIASIdentity	1	Y	Contains the BIR, a data structure containing the biometric sample for the search.
↑ BiometricData	BIASBiometricDataType	1	Y	An Identity's biometric data.
↑ BIR	CBEFF_BIR_Type	1	Y	Contains biometric information in either a non-XML or an XML representation.
↑ MaxListSize	positiveInteger	1	Y	The maximum size of the candidate list that should be returned.

495 Response Message

Field	Type	#	?	Meaning
IdentifySubjectResponse			Y	The response to an IdentifySubject operation, returning a rank-ordered candidate list.
↑ IdentifySubjectResponsePackage		1	Y	
↑ ResponseStatus	ResponseStatus	1	Y	Returned status for the operation.
↑ Return	ReturnCode	1	Y	The return code indicates the return status of the operation.
↑ Message	string	0..1	N	A short message corresponding to the return code.
↑ CandidateList	CandidateListResultType (see IdentifySubjectResultType)	0..1	C	A rank-ordered list of candidates that have a likelihood of matching the input biometric sample (i.e., exceed the system threshold). Rank ordering is from highest to lowest match score. Returned with successful synchronous request processing.
↑ Candidate	CandidateType	0..*	N	A single candidate.
↑ Score	string	0..1	N	The match score.

Field	Type	#	?	Meaning
⌞ BiographicData	BiographicDataType	0..1	N	Biographic data associated with the candidate match.
⌞ BIRList	CBEFF_BIR_ListType	1	Y	Biometric data associated with the candidate match.
⌞ BIR	CBEFF_BIR_Type	0..*	N	CBEFF structure containing information about a biometric sample.
⌞ Token	TokenResultType (see IdentifySubjectResultType)	0..1	C	A token used to retrieve the results of the IdentifySubject operation. Returned with asynchronous request processing.
⌞ TokenValue	string	1	Y	A value returned by the implementing system that is used to retrieve the results to an operation at a later time.
⌞ Expiration	date	1	Y	A date and time at which point the token expires and the operation results are no longer guaranteed to be available.

NOTES:

- (1) In the event that the number of candidates exceeding the threshold exceeds the MaxListSize, the system will determine which candidate is included in the last position of the rank ordered candidate list (i.e., in the event of a tie).
- (2) Requesters MAY NOT change the system thresholds.

4.1.11 ListBiographicData

[ListBiographicDataRequest](#)

[ListBiographicDataResponse](#)

The ListBiographicData operation lists the biographic data elements stored for a subject using the Biographic Data Elements output parameter. Note that no actual biographic data is returned by this operation (see the [RetrieveBiographicInformation](#) operation to obtain the biographic data). In the encounter-centric model, an encounter ID MAY be specified to indicate that only the biographic data elements stored for that encounter should be returned. If an encounter ID is not specified and encounter data exists for the subject, the operation returns the list of encounter IDs which contain biographic data using the Encounter List output parameter, and the Biographic Data Elements output parameter is empty.

Request Message

Field	Type	#	?	Meaning
ListBiographicData			Y	Lists the biographic data elements stored for a subject.

Field	Type	#	?	Meaning
↑ ListBiographicDataRequest		1	Y	
↑ GenericRequestParameters	GenericRequestParameters	0..1	N	Common request parameters that can be used to identify the requester.
↑ Application	ApplicationIdentifier	0..1	N	Identifies the requesting application.
↑ ApplicationUser	ApplicationUserIdentifier	0..1	N	Identifies the user or instance of the requesting application.
↑ BIASOperationName	string	0..1	N	Identifies the BIAS operation that is being requested: "ListBiographicData".
↑ Identity	BIASIdentity	1	Y	Identifies the subject or, in the encounter-centric model, a subject and an encounter.
↑ SubjectID	BIASIDType	1	Y	A system unique identifier for a subject.
↑ EncounterID	BIASIDType	0..1	N	The identifier of an encounter associated with the subject.

512 Response Message

Field	Type	#	?	Meaning
ListBiographicDataResponse			Y	The response to a ListBiographicData request, containing a list of biographic data elements stored for a subject. In the encounter-centric model, the biographic data elements for a specific encounter are returned. If an encounter ID is not specified and encounter data exists for the subject, the list of encounter IDs which contain biographic data is returned.
↑ ListBiographicDataResponsePackage		1	Y	

Field	Type	#	?	Meaning
↳ ResponseStatus	ResponseStatus	1	Y	Returned status for the operation.
↳ Return	ReturnCode	1	Y	The return code indicates the return status of the operation.
↳ Message	string	0..1	N	A short message corresponding to the return code.
↳ Identity	BIASIdentity	1	Y	Contains a list of biographic data elements associated with a subject or encounter; non-empty if the service was successful, biographic data exists, and either (a) the person-centric model is being used or (b) the encounter-centric model is being used and an encounter identifier was specified.
↳ BiographicDataElements	BiographicDataType	0..1	C	An Identity's biographic data elements that are stored in the implementing system.
↳ BiographicDataItem	BiographicDataItemType	0..*	N	A single biographic data element.
↳ Name	string	1	Y	The name of the biographic data item.
↳ Type	string	1	Y	The data type for the biographic data item.
↳ EncounterList	EncounterListType	0..1	C	A list of encounter ID's associated with a subject and which contain biographic data; non-empty if the service was successful, biographic data exists, the encounter-centric model is being used, and an encounter identifier was not specified.

Field	Type	#	?	Meaning
↑ EncounterID	BIASIDType	0..*	N	The identifier of an encounter.

4.1.12 ListBiometricData

[ListBiometricDataRequest](#)

[ListBiometricDataResponse](#)

The ListBiometricData operation lists the biometric data elements stored for a subject using the Biometric Data List output parameter. Note that no actual biometric data is returned by this operation (see the [RetrieveBiometricInformation](#) operation to obtain the biometric data). In the encounter-centric model, an encounter ID MAY be specified to indicate that only the biometric data elements stored for that encounter should be returned. If an encounter ID is not specified and encounter data exists for the subject, the operation returns the list of encounter IDs which contain biometric data using the Encounter List output parameter, and the Biometric Data List output parameter is empty.

An optional parameter MAY be used to indicate a filter on the list of returned data. Such a filter may indicate that only biometric types should be listed (e.g., face, finger, iris, etc.) or that only biometric subtypes for a particular biometric type should be listed (e.g., all fingerprints: left slap, right index, etc.). If a filter is not specified, all biometric type and biometric subtype information are listed (e.g., left index finger, right iris, face frontal, etc.).

Request Message

Field	Type	#	?	Meaning
ListBiometricData			Y	Lists the biometric data elements stored for a subject.
↑ ListBiometricDataRequest		1	Y	
↑ GenericRequestParameters	GenericRequestParameters	0..1	N	Common request parameters that can be used to identify the requester.
↑ Application	ApplicationIdentifier	0..1	N	Identifies the requesting application.
↑ ApplicationUser	ApplicationUserIdentifier	0..1	N	Identifies the user or instance of the requesting application.
↑ BIASOperationName	string	0..1	N	Identifies the BIAS operation that is being requested: "ListBiometricData".

Field	Type	#	?	Meaning
↑ Identity	BIASIdentity	1	Y	Identifies the subject or, in the encounter-centric model, a subject and an encounter.
↑ SubjectID	BIASIDType	1	Y	A system unique identifier for a subject.
↑ EncounterID	BIASIDType	0..1	N	The identifier of an encounter associated with the subject.
↑ ListFilterType	ListFilterType	0..1	N	Indicates what biometric information should be returned.
↑ BiometricTypeFilter	oasis_cbeff:MultipleTypesType	1..*	Y	Limits the returned information to a specific type of biometric, as defined by CBEFF.
↑ IncludeBiometricSubType	boolean	1	Y	A Boolean flag indicating if biometric subtype information should be returned.

Field	Type	#	?	Meaning
ListBiometricDataResponse			Y	The response to a ListBiometricData operation, containing a list of biometric data elements stored for a subject. In the encounter-centric model, the biometric data elements for a specific encounter are returned. If an encounter ID is not specified and encounter data exists for the subject, the list of encounter IDs which contain biometric data is returned.
↳ ListBiometricDataResponsePackage		1	Y	
↳ ResponseStatus	ResponseStatus	1	Y	Returned status for the operation.
↳ Return	ReturnCode	1	Y	The return code indicates the return status of the operation.
↳ Message	string	0..1	N	A short message corresponding to the return code.
↳ Identity	BIASIdentity	0..1	N	Includes a list of biometric data elements associated with a subject or encounter or a list of encounter ID's associated with a subject and which contain biometric data.
↳ BiometricData	BIASBiometricDataType	0..1	C	An Identity's biometric data.

Field	Type	#	?	Meaning
↑ BiometricDataList	BiometricDataListType	0..1	N	A list of biometric data elements.
↑ BiometricDataElement	BiometricDataElementType	1..*	Y	Data structure containing information about a biometric record.
↑ BiometricType	oasis_cbeff:MultipleTypesType	1	Y	The type of biological or behavioral data stored in the biometric record, as defined by CBEFF.
↑ BiometricTypeCount	positiveInteger	0..1	N	The number of biometric records having the biometric type recorded in the biometric type field.
↑ BiometricSubType	oasis_cbeff:SubtypeType	0..1	N	More specifically defines the type of biometric data stored in the biometric record, as defined by CBEFF.
↑ BDBFormatOwner	positiveInteger	1	Y	Identifies the standards body, working group, industry consortium, or other CBEFF biometric organization that has defined the format for the biometric data.
↑ BDBFormatType	positiveInteger	1	Y	Identifies the specific biometric data format specified by the CBEFF biometric organization recorded in the BDB Format Owner field.

Field	Type	#	?	Meaning
↑ EncounterList	EncounterListType	0..1	C	A list of encounter ID's associated with a subject and which contain biometric data; non-empty if the service was successful, biometric data exists, the encounter-centric model is being used, and an encounter identifier was not specified.
↑ EncounterID	BIASIDType	1..*	Y	The identifier of an encounter.

530 4.1.13 PerformFusion

531 [PerformFusionRequest](#)

532 [PerformFusionResponse](#)

533 The PerformFusion operation accepts either match score or match decision information and creates a
534 fused match result. The [FusionInformationListType](#), through the [FusionInformationType](#), provides specific
535 elements for match score input and match decision input. The fusion method and processes are left to the
536 implementing system.

537 Request Message

Field	Type	#	?	Meaning
PerformFusion			Y	Accepts either match score or match decision information and creates a fused match result.
↑ PerformFusionRequest		1	Y	
↑ GenericRequestParameters	GenericRequestParameters	0..1	N	Common request parameters that can be used to identify the requester.
↑ Application	ApplicationIdentifier	0..1	N	Identifies the requesting application.

Field	Type	#	?	Meaning
↑ ApplicationUser	ApplicationUserIdentifier	0..1	N	Identifies the user or instance of the requesting application.
↑ BIASOperationName	string	0..1	N	Identifies the BIAS operation that is being requested: "PerformFusion".
↑ FusionInput	FusionInformationListType	1	Y	Score or decision input information to the fusion method.
↑ FusionElement	FusionInformationType	2..*	Y	A set of fusion information.
↑ BiometricType	oasis_cbeff:MultipleTypesType	1	Y	The type of biological or behavioral data stored in the biometric record, as defined by CBEFF.
↑ BiometricSubType	oasis_cbeff:SubtypeType	0..1	N	More specifically defines the type of biometric data stored in the biometric record.
↑ AlgorithmOwner	string	1	Y	The owner or vendor of the algorithm used to determine the score or decision.
↑ AlgorithmType	string	1	Y	The Algorithm Owner's identifier for the specific algorithm product and version used to determine the score or decision.
↑ FusionResult	FusionResult	0..1	C	Either FusionScore or a FusionDecision element MUST be used.

538 Response Message

Field	Type	#	?	Meaning
PerformFusionResponse			Y	The response to the PerformFusion operation.
↑ PerformFusionResponsePackage		1	Y	

Field	Type	#	?	Meaning
↳ ResponseStatus	ResponseStatus	1	Y	Returned status for the operation.
↳ Return	ReturnCode	1	Y	The return code indicates the return status of the operation.
↳ Message	string	0..1	N	A short message corresponding to the return code.
↳ Match	MatchType	1	1	Indicates the result of the fusion method.

4.1.14 QueryCapabilities

[QueryCapabilitiesRequest](#)

[QueryCapabilitiesResponse](#)

The QueryCapabilities operation returns a list of the capabilities, options, galleries, etc. that are supported by the BIAS implementation. Refer to Annex A in the INCITS BIAS standard [[INCITS-BIAS](#)] for conformance requirements regarding which capability names an implementation must use in the QueryCapabilities operation.

Request Message

Field	Type	#	?	Meaning
QueryCapabilities			Y	Returns a list of the capabilities, options, galleries, etc. that are supported by the BIAS implementation.
↳ QueryCapabilitiesRequest		1	Y	
↳ GenericRequestParameter s	GenericRequestParameters	0..1	N	Common request parameters that can be used to identify the requester.
↳ Application	ApplicationIdentifier	0..1	N	Identifies the requesting application.
↳ ApplicationUser	ApplicationUserIdentifier	0..1	N	Identifies the user or instance of the requesting application.
↳ BIASOperationName	string	0..1	N	Identifies the BIAS operation that is being requested: "QueryCapabilities".

547 **Response Message**

Field	Type	#	?	Meaning
QueryCapabilitiesResponse			Y	The response to a QueryCapabilities operation.
↑ QueryCapabilitiesResponsePackage		1	Y	
↑ ResponseStatus	ResponseStatus	1	Y	Returned status for the operation.
↑ Return	ReturnCode	1	Y	The return code indicates the return status of the operation.
↑ Message	string	0..1	N	A short message corresponding to the return code.
↑ CapabilityList	CapabilityListType	1	Y	A list of capabilities supported by the BIAS implementation.
↑ Capability	CapabilityType	0..*	N	A single capability.
↑ CapabilityName	CapabilityName	1	Y	The name of the capability.
↑ CapabilityID	string	0..1	N	An identifier assigned to the capability by the implementing system.
↑ CapabilityDescription	string	0..1	N	A description of the capability.
↑ CapabilityValue	string	0..1	N	A value assigned to the capability.
↑ CapabilitySupportingValue	string	0..1	N	A secondary value supporting the capability.
↑ CapabilityAdditionalInfo	string	0..1	N	Contains additional information for the supported capability.

548 **4.1.15 RetrieveBiographicInformation**549 [RetrieveBiographicInformationRequest](#)550 [RetrieveBiographicInformationResponse](#)

551 The RetrieveBiographicInformation operation retrieves the biographic data associated with a subject ID.
552 In the encounter-centric model, the encounter ID MAY be specified and the operation will return the
553 biographic data associated with that encounter. If the encounter ID is not specified in the encounter-

554 centric model, the operation returns the biographic information associated with the most recent
 555 encounter.

556 Request Message

Field	Type	#	?	Meaning
RetrieveBiographicInformation			Y	Retrieves the biographic data associated with a subject ID.
⌞ RetrieveBiographicInformationRequest		1	Y	
⌞ GenericRequestParameters	GenericRequestParameters	0..1	N	Common request parameters that can be used to identify the requester.
⌞ Application	ApplicationIdentifier	0..1	N	Identifies the requesting application.
⌞ ApplicationUser	ApplicationUserIdentifier	0..1	N	Identifies the user or instance of the requesting application.
⌞ BIASOperationName	string	0..1	N	Identifies the BIAS operation that is being requested: "RetrieveBiographicInformation".
⌞ Identity	BIASIdentity	1	Y	Identifies the subject or, in the encounter-centric model, a subject and an encounter.
⌞ SubjectID	BIASIDType	1	Y	A system unique identifier for a subject.
⌞ EncounterID	BIASIDType	0..1	N	The identifier of an encounter associated with the subject.

557 Response Message

Field	Type	#	?	Meaning
RetrieveBiographicInformationResponse			Y	The response to a RetrieveBiographicInformation operation.
⌞ RetrieveBiographicInformationResponsePackage		1	Y	

Field	Type	#	?	Meaning
↑ ResponseStatus	ResponseStatus	1	Y	Returned status for the operation.
↑ Return	ReturnCode	1	Y	The return code indicates the return status of the operation.
↑ Message	string	0..1	N	A short message corresponding to the return code.
↑ Identity	BIASIdentity	1	Y	Includes the set of biographic data associated with a subject.
↑ BiographicData	BiographicDataType	1	Y	An Identity's biographic data. One of the following elements MUST be present.
↑ LastName	string	0..1	C	The last name of a subject.
↑ FirstName	string	0..1	C	The first name of a subject.
↑ BiographicDataItem	BiographicDataItemType	0..*	C	A single biographic data element.
↑ BiographicDataSet	BiographicDataItemType	0..1	C	A set of biographic data information.

4.1.16 RetrieveBiometricInformation

[RetrieveBiometricInformationRequest](#)

[RetrieveBiometricInformationResponse](#)

The RetrieveBiometricInformation operation retrieves the biometric data associated with a subject ID. In the encounter-centric model, the encounter ID MAY be specified and the operation will return the biometric data associated with that encounter. If the encounter ID is not specified in the encounter-centric model, the operation returns the biometric information associated with the most recent encounter. The operation provides an OPTIONAL input parameter to specify that only biometric data of a certain type should be retrieved.

Request Message

Field	Type	#	?	Meaning
RetrieveBiometricInformation			Y	Retrieves the biometric data associated with a subject ID.

Field	Type	#	?	Meaning
↑ RetrieveBiometricInformationRequest		1	Y	
↑ GenericRequestParameters	GenericRequestParameters	0..1	N	Common request parameters that can be used to identify the requester.
↑ Application	ApplicationIdentifier	0..1	N	Identifies the requesting application.
↑ ApplicationUser	ApplicationUserIdentifier	0..1	N	Identifies the user or instance of the requesting application.
↑ BIASOperationName	string	0..1	N	Identifies the BIAS operation that is being requested: "RetrieveBiometricInformation".
↑ Identity	BIASIdentity	1	Y	Identifies the subject or, in the encounter-centric model, a subject and an encounter.
↑ SubjectID	BIASIDType	1	Y	A system unique identifier for a subject.
↑ EncounterID	BIASIDType	0..1	N	The identifier of an encounter associated with the subject.
↑ BiometricType	oasis_cbeff:MultipleTypesType	0..1	N	The type of biological or behavioral data to retrieve.

568 Response Message

Field	Type	#	?	Meaning
RetrieveBiometricInformationResponse			Y	The response to a RetrieveBiometricInformation operation.
↑ RetrieveBiometricInformationResponsePackage		1	Y	
↑ ResponseStatus	ResponseStatus	1	Y	Returned status for the operation.
↑ Return	ReturnCode	1	Y	The return code indicates the return status of the operation.
↑ Message	string	0..1	N	A short message corresponding to the return code.

Field	Type	#	?	Meaning
↑ Identity	BIASIdentity	1	Y	Includes the biometric data associated with a subject.
↑ BiometricData	BIASBiometricDataType	1	Y	An Identity's biometric data.
↑ BIRList	CBEFF_BIR_ListType	1	Y	A list of CBEFF-BIR elements.
↑ BIR	CBEFF_BIR_Type	0..*	N	CBEFF structure containing information about a biometric sample.

4.1.17 SetBiographicData

[SetBiographicDataRequest](#)

[SetBiometricDataResponse](#)

The SetBiographicData operation associates biographic data to a given subject record. The identity model of the system determines whether the biographic information should replace any existing biographic information (person-centric model) or if a new encounter should be created and associated with the subject (encounter-centric model). For encounter-centric models, the encounter ID MAY be specified by the caller in order to link biographic and biometric information (assuming biometric information was previously associated using the [SetBiometricData](#) operation). If the encounter ID is omitted for the encounter-centric model, the operation returns a system-assigned encounter ID.

Request Message

Field	Type	#	?	Meaning
SetBiographicData			Y	Associates biographic data to a given subject record.
↑ SetBiographicDataRequest		1	Y	
↑ GenericRequestParameters	GenericRequestParameters	0..1	N	Common request parameters that can be used to identify the requester.
↑ Application	ApplicationIdentifier	0..1	N	Identifies the requesting application.
↑ ApplicationUser	ApplicationUserIdentifier	0..1	N	Identifies the user or instance of the requesting application.
↑ BIASOperationName	string	0..1	N	Identifies the BIAS operation that is being requested: "SetBiographicData".

Field	Type	#	?	Meaning
↑ Identity	BIASIdentity	1	Y	Identifies the subject or, in the encounter-centric model, a subject and an encounter, and includes the biographic data to store.
↑ SubjectID	BIASIDType	1	Y	A system unique identifier for a subject.
↑ EncounterID	BIASIDType	0..1	N	The identifier of an encounter associated with the subject.
↑ BiographicData	BiographicDataType	1	Y	An Identity's biographic data. One of the following elements MUST be present.
↑ LastName	string	0..1	C	The last name of a subject.
↑ FirstName	string	0..1	C	The first name of a subject.
↑ BiographicDataItem	BiographicDataItem	0..*	C	A single biographic data element.
↑ BiographicDataSet	BiographicDataSetType	0..1	C	A set of biographic data information.

580 Response Message

Field	Type	#	?	Meaning
SetBiographicDataResponse			Y	The response to a SetBiographicData operation.
↑ SetBiographicDataResponsePackage		1	Y	
↑ ResponseStatus	ResponseStatus	1	Y	Returned status for the operation.
↑ Return	ReturnCode	1	Y	The return code indicates the return status of the operation.
↑ Message	string	0..1	N	A short message corresponding to the return code.

Field	Type	#	?	Meaning
↑ Identity	BIASIdentity	0..1	C	In an encounter-centric model, identifies the encounter ID assigned to a new encounter.
↑ EncounterID	BIASIDType	1	Y	The identifier of an encounter associated with the subject.

4.1.18 SetBiometricData

[SetBiometricDataRequest](#)

[SetBiometricDataResponse](#)

The SetBiometricData operation associates biometric data to a given subject record. The identity model of the system determines whether the biometric information should replace any existing biometric information (person-centric model) or if a new encounter should be created and associated with the subject (encounter-centric model). For encounter-centric models, the encounter ID MAY be specified by the caller in order to link biographic and biometric information (assuming biographic information was previously associated using the [SetBiographicData](#) operation). If the encounter ID is omitted for the encounter-centric model, the operation returns a system-assigned encounter ID.

Request Message

Field	Type	#	?	Meaning
SetBiometricData			Y	Associates biometric data to a given subject record.
↑ SetBiometricDataRequest		1	Y	
↑ GenericRequestParameter s	GenericRequestParameters	0..1	N	Common request parameters that can be used to identify the requester.
↑ Application	ApplicationIdentifier	0..1	N	Identifies the requesting application.
↑ ApplicationUser	ApplicationUserIdentifier	0..1	N	Identifies the user or instance of the requesting application.
↑ BIASOperationName	string	0..1	N	Identifies the BIAS operation that is being requested: "SetBiometricData".
↑ Identity	BIASIdentity	1	Y	Identifies the subject or, in the encounter-centric model, a subject and an encounter, and includes the biometric data to store.
↑ SubjectID	BIASIDType	1	Y	A system unique identifier for a subject.

Field	Type	#	?	Meaning
↱ EncounterID	BIASIDType	0..1	N	The identifier of an encounter associated with the subject.
↱ BiometricData	BIASBiometricDataType	1	Y	An Identity's biometric data.
↱ BIRList	CBEFF_BIR_ListType	1	Y	A list of CBEFF-BIR elements.
↱ BIR	CBEFF_BIR_Type	1..*	Y	CBEFF structure containing information about a biometric sample.

592 Response Message

Field	Type	#	?	Meaning
SetBiometricDataResponse			Y	The response to a SetBiometricData operation.
↱ SetBiometricDataResponsePackage		1	Y	
↱ ResponseStatus	ResponseStatus	1	Y	Returned status for the operation.
↱ Return	ReturnCode	1	Y	The return code indicates the return status of the operation.
↱ Message	string	0..1	N	A short message corresponding to the return code.
↱ Identity	BIASIdentity	0..1	C	In an encounter-centric model, identifies the encounter ID assigned to a new encounter.
↱ EncounterID	BIASIDType	1	Y	The identifier of an encounter associated with the subject.

593 4.1.19 TransformBiometricData

594 [TransformBiometricDataRequest](#)

595 [TransformBiometricDataResponse](#)

596 The TransformBiometricData operation transforms or processes a given biometric in one format into a
597 new target format.

598 Request Message

Field	Type	#	?	Meaning
TransformBiometricData			Y	Transforms or processes a given biometric in one format into a new target format.
↑ TransformBiometricDataRequest		1	Y	
↑ GenericRequestParameters	GenericRequestParameters	0..1	N	Common request parameters that can be used to identify the requester.
↑ Application	ApplicationIdentifier	0..1	N	Identifies the requesting application.
↑ ApplicationUser	ApplicationUserIdentifier	0..1	N	Identifies the user or instance of the requesting application.
↑ BIASOperationName	string	0..1	N	Identifies the BIAS operation that is being requested: "TransformBiometricData".
↑ InputBIR	CBEFF BIR Type	1	Y	Data structure containing the biometric information to be transformed.
↑ TransformOperation	unsignedLong	1	Y	Value indicating the type of transformation to perform.
↑ TransformControl	string	0..1	N	Specifies controls for the requested transform operation. Note: This could be a compression ratio, target data format, etc.

599 NOTE: The values for TransformOperation and TransformControl are implementation specific.

600 Response Message

Field	Type	#	?	Meaning
TransformBiometricDataResponse			Y	The response to a TransformBiometricData operation.
↑ TransformBiometricDataResponsePackage		1	Y	
↑ ResponseStatus	ResponseStatus	1	Y	Returned status for the operation.

Field	Type	#	?	Meaning
↑ Return	ReturnCode	1	Y	The return code indicates the return status of the operation.
↑ Message	string	0..1	N	A short message corresponding to the return code.
↑ OutputBIR	CBEFF_BIR_Type	0..1	N	Data structure containing the new, transformed biometric information.

4.1.20 UpdateBiographicData

[UpdateBiographicDataRequest](#)

[UpdateBiographicDataResponse](#)

The UpdateBiographicData operation updates the biographic data for an existing subject record. The operation replaces any existing biographic data with the new biographic data. In the encounter-centric model, the encounter ID MUST be specified.

Request Message

Field	Type	#	?	Meaning
UpdateBiographicData			Y	Updates the biographic data for a given subject record.
↑ UpdateBiographicDataRequest		1	Y	
↑ GenericRequestParameters	GenericRequestParameters	0..1	N	Common request parameters that can be used to identify the requester.
↑ Application	ApplicationIdentifier	0..1	N	Identifies the requesting application.
↑ ApplicationUser	ApplicationUserIdentifier	0..1	N	Identifies the user or instance of the requesting application.
↑ BIASOperationName	string	0..1	N	Identifies the BIAS operation that is being requested: "UpdateBiographic Data".

Field	Type	#	?	Meaning
↑ Identity	BIASIdentity	1	Y	Identifies the subject or, in the encounter-centric model, a subject and an encounter, and includes the biographic data to update.
↑ SubjectID	BIASIDType	1	Y	A system unique identifier for a subject.
↑ EncounterID	BIASIDType	0..1	C	The identifier of an encounter associated with the subject. Required for encounter-centric models.
↑ BiographicData	BiographicDataType	1	Y	An Identity's biographic data. One of the following elements MUST be present.
↑ LastName	string	0..1	C	The last name of a subject.
↑ FirstName	string	0..1	C	The first name of a subject.
↑ BiographicDataItem	BiographicDataItemType	0..*	C	A single biographic data element.
↑ BiographicDataSet	BiographicDataSetType	0..1	C	A set of biographic data information.

608 Response Message

Field	Type	#	?	Meaning
UpdateBiographicDataResponse			Y	The response to an UpdateBiographicData operation.
↑ UpdateBiographicDataResponsePackage		1	Y	
↑ ResponseStatus	ResponseStatus	1	Y	Returned status for the operation.
↑ Return	ReturnCode	1	Y	The return code indicates the return status of the operation.

Field	Type	#	?	Meaning
↑ Message	string	0..1	N	A short message corresponding to the return code.

4.1.21 UpdateBiometricData

[UpdateBiometricDataRequest](#)

[UpdateBiometricDataResponse](#)

The UpdateBiometricData operation updates the biometric data for an existing subject record. The operation includes an OPTIONAL parameter indicating if the new biometric sample should be merged with the existing biometric sample. If this parameter is set to “False” or is not used in the request, the operation replaces the existing biometric sample with the new biometric sample. In the encounter-centric model, the encounter ID MUST be specified.

Request Message

Field	Type	#	?	Meaning
UpdateBiometricData			Y	Updates a single biometric sample for a given subject record.
↑ UpdateBiometricDataRequest		1	Y	
↑ GenericRequestParameters	GenericRequestParameters	0..1	N	Common request parameters that can be used to identify the requester.
↑ Application	ApplicationIdentifier	0..1	N	Identifies the requesting application.
↑ ApplicationUser	ApplicationUserIdentifier	0..1	N	Identifies the user or instance of the requesting application.
↑ BIASOperationName	string	0..1	N	Identifies the BIAS operation that is being requested: “UpdateBiometricData”.
↑ Identity	BIASIdentity	1	Y	Identifies the subject or, in the encounter-centric model, a subject and an encounter, and includes the biometric data to update.
↑ SubjectID	BIASIDType	1	Y	A system unique identifier for a subject.
↑ EncounterID	BIASIDType	0..1	C	The identifier of an encounter associated with the subject. Required for encounter-centric models.

Field	Type	#	?	Meaning
↑ BiometricData	BIASBiometricDataType	1	Y	An Identity's biometric data.
↑ BIR	CBEFF_BIR_Type	1	Y	Contains biometric information in either a non-XML or an XML representation.
↑ Merge	boolean	0..1	N	Value indicating if the input biometric sample should be merged with any existing biometric information.

618 Response Message

Field	Type	#	?	Meaning
UpdateBiometricDataResponse			Y	The response to an UpdateBiometricData operation.
↑ UpdateBiometricDataResponsePackage		1	Y	
↑ ResponseStatus	ResponseStatus	1	Y	Returned status for the operation.
↑ Return	ReturnCode	1	Y	The return code indicates the return status of the operation.
↑ Message	string	0..1	N	A short message corresponding to the return code.

619 4.1.22 VerifySubject

620 [VerifySubjectRequest](#)

621 [VerifySubjectResponse](#)

622 The VerifySubject operation performs a 1:1 verification match between a given biometric and either a
623 claim to identity in a given gallery or another given biometric. As such either the Identity Claim or
624 Reference BIR input parameters are REQUIRED.

625 Request Message

Field	Type	#	?	Meaning
VerifySubject			Y	Performs a 1:1 verification match between a given biometric and either a claim to identity in a given gallery or another given biometric.
↑ VerifySubjectRequest		1	Y	

Field	Type	#	?	Meaning
s $\uparrow$ GenericRequestParameter	GenericRequestParameters	0..1	N	Common request parameters that can be used to identify the requester.
$\uparrow$ Application	ApplicationIdentifier	0..1	N	Identifies the requesting application.
$\uparrow$ ApplicationUser	ApplicationUserIdentifier	0..1	N	Identifies the user or instance of the requesting application.
$\uparrow$ BIASOperationName	string	0..1	N	Identifies the BIAS operation that is being requested: "VerifySubject".
$\uparrow$ GalleryID	BIASIDType	0..1	C	The identifier of the gallery or population group of which the subject must be a member. Required if an Identity Claim is provided.
$\uparrow$ Identity	BIASIdentity	1	Y	Includes the identifying information and/or input and reference biometric samples.
$\uparrow$ IdentityClaim	BIASIDType	0..1	C	An identifier by which a subject is known to a particular gallery or population group. Required if a Reference BIR is not provided.
$\uparrow$ BiometricData	BIASBiometricDataType	1	Y	An Identity's biometric data.
$\uparrow$ InputBIR	CBEFF_BIR_Type	1	Y	Maps to specific INCITS BIAS elements as required by that specification.
$\uparrow$ ReferenceBIR	CBEFF_BIR_Type	0..1	C	Maps to specific INCITS BIAS elements as required by that specification. Required if an Identity Claim is not provided.

626 **Response Message**

Field	Type	#	?	Meaning
VerifySubjectResponse			Y	The response to a VerifySubject operation.
↳ VerifySubjectResponsePackage		1	Y	
↳ ↳ ResponseStatus	ResponseStatus	1	Y	Returned status for the operation.
↳ ↳ Return	ReturnCode	1	Y	The return code indicates the return status of the operation.
↳ ↳ Message	string	0..1	N	A short message corresponding to the return code.
↳ ↳ Match	boolean	0..1	N	Indicates if the Input BIR matched either the biometric information associated with the Identity Claim or the Reference BIR.
↳ ↳ Score	Score	0..1	N	The score if the biometric information matched.

627 **Aggregate Operations**628 **4.2.1 Enroll**629 [EnrollRequest](#)630 [EnrollResponse](#)

631 The Enroll operation adds a new subject or, in an encounter-centric model, a new encounter to the
632 system. This may be accomplished in a number of different ways according to system requirements
633 and/or resources. If the Enroll operation is implemented as a synchronous service, the implementing
634 system immediately processes the request and returns the results in the Return Data parameter. If the
635 Enroll operation is implemented as an asynchronous service, the implementing system returns a token in
636 the Return Data parameter, which is an indication that the request is being handled asynchronously. In
637 this case, the [GetEnrollResults](#) operation is used to poll for the results of the Enroll request.

638 **Request Message**

Field	Type	#	?	Meaning
Enroll			Y	Adds a new subject or, in an encounter-centric model, a new encounter to the system.
↳ EnrollRequest		1	Y	

Field	Type	#	?	Meaning
s ↑ GenericRequestParameter	GenericRequestParameters	0..1	N	Common request parameters that can be used to identify the requester.
↑ Application	ApplicationIdentifier	0..1	N	Identifies the requesting application.
↑ ApplicationUser	ApplicationUserIdentifier	0..1	N	Identifies the user or instance of the requesting application.
↑ BIASOperationName	string	0..1	N	Identifies the BIAS operation that is being requested: "Enroll".
↑ ProcessingOptions	ProcessingOptionsType	1	Y	Options that guide how the aggregate service request is processed.
↑ Option	string	0..*	N	An option supported by the implementing system.
↑ InputData	InformationType	1	Y	Contains the input data for the operation, as required by the implementing system.

639 Response Message

Field	Type	#	?	Meaning
EnrollResponse			Y	The response to an Enroll operation.
↑ EnrollResponsePackage		1	Y	
↑ ResponseStatus	ResponseStatus	1	Y	Returned status for the operation.
↑ Return	ReturnCode	1	Y	The return code indicates the return status of the operation.
↑ Message	string	0..1	N	A short message corresponding to the return code.
↑ ReturnData	InformationType	0..1	N	Contains the output data for the response.

640 4.2.2 GetEnrollResults

641 [GetEnrollResultsRequest](#)

642 [GetEnrollResultsResponse](#)

643 The GetEnrollResults operation retrieves the enrollment results for the specified token. This operation is
644 used in conjunction with the [Enroll](#) operation. If the Enroll operation is implemented as an asynchronous
645 service, the implementing system returns a token and the GetEnrollResults operation is used to poll for
646 the results of the original Enroll request.

647 If the service provider implements an asynchronous Enroll operation, then it MUST also implement the
 648 GetEnrollResults operation.

649 Request Message

Field	Type	#	?	Meaning
GetEnrollResults			Y	Retrieves the enrollment results for the specified token.
↑ GetEnrollResultsRequest		1	Y	
↑ GenericRequestParameter s	GenericRequestParameters	0..1	N	Common request parameters that can be used to identify the requester.
↑ Application	ApplicationIdentifier	0..1	N	Identifies the requesting application.
↑ ApplicationUser	ApplicationUserIdentifier	0..1	N	Identifies the user or instance of the requesting application.
↑ BIASOperationName	string	0..1	N	Identifies the BIAS operation that is being requested: "GetEnrollResults".
↑ Token	TokenType	1	Y	A value used to retrieve the results of the Enroll request.
↑ TokenValue	string	1	Y	A value returned by the implementing system that is used to retrieve the results to an operation at a later time.
↑ Expiration	date	1	Y	A date and time at which point the token expires and the operation results are no longer guaranteed to be available.

650 Response Message

Field	Type	#	?	Meaning
GetEnrollResultsResponse			Y	The response to a GetEnrollResults operation.
↑ GetEnrollResultsResponsePackage		1	Y	
↑ ResponseStatus	ResponseStatus	1	Y	Returned status for the operation.

Field	Type	#	?	Meaning
↑ Return	ReturnCode	1	Y	The return code indicates the return status of the operation.
↑ Message	string	0..1	N	A short message corresponding to the return code.
↑ ReturnData	InformationType	0..1	N	Contains the output data for the response.

4.2.3 GetIdentifyResults

[GetIdentifyResultsRequest](#)

[GetIdentifyResultsResponse](#)

The GetIdentifyResults operation retrieves the identification results for the specified token. This operation is used in conjunction with the [Identify](#) operation. If the Identify operation is implemented as an asynchronous service, the implementing system returns a token and the GetIdentifyResults operation is used to poll for the results of the original Identify request.

If the service provider implements an asynchronous Identify operation, then it MUST also implement the GetIdentifyResults operation.

Request Message

Field	Type	#	?	Meaning
GetIdentifyResults			Y	Retrieves the identification results for the specified token
↑ GetIdentifyResultsRequest		1	Y	
↑ GenericRequestParameters	GenericRequestParameters	0..1	N	Common request parameters that can be used to identify the requester.
↑ Application	ApplicationIdentifier	0..1	N	Identifies the requesting application.
↑ ApplicationUser	ApplicationUserIdentifier	0..1	N	Identifies the user or instance of the requesting application.
↑ BIASOperationName	string	0..1	N	Identifies the BIAS operation that is being requested: "GetIdentifyResults".
↑ Token	TokenType	1	Y	A value used to retrieve the results of the Identify request.
↑ TokenValue	string	1	Y	A value returned by the implementing system that is used to

Field	Type	#	?	Meaning
				retrieve the results to an operation at a later time.
↑ Expiration	date	1	Y	A date and time at which point the token expires and the operation results are no longer guaranteed to be available.

662 Response Message

Field	Type	#	?	Meaning
GetIdentifyResultsResponse			Y	The response to a GetIdentifyResults operation.
↑ GetIdentifyResultsResponsePackage		1	Y	
↑ ResponseStatus	ResponseStatus	1	Y	Returned status for the operation.
↑ Return	ReturnCode	1	Y	The return code indicates the return status of the operation.
↑ Message	string	0..1	N	A short message corresponding to the return code.
↑ ReturnData	InformationType	0..1	N	Contains the output data for the response.

663 4.2.4 GetVerifyResults

664 [GetVerifyResultsRequest](#)

665 [GetVerifyResultsResponse](#)

666 The GetVerifyResults operation retrieves the verification results for the specified token. This operation is
667 used in conjunction with the [Verify](#) operation. If the Verify operation is implemented as an asynchronous
668 service, the implementing system returns a token and the GetVerifyResults operation is used to poll for
669 the results of the original Verify request.

670 If the service provider implements an asynchronous Verifyoperation, then it MUST also implement the
671 GetVerifyResults operation.

672 Request Message

Field	Type	#	?	Meaning
GetVerifyResults			Y	Retrieves the verification results for the specified token
↑ GetVerifyResultsRequest		1	Y	

Field	Type	#	?	Meaning
s ↗ GenericRequestParameter	GenericRequestParameters	0..1	N	Common request parameters that can be used to identify the requester.
↗ Application	ApplicationIdentifier	0..1	N	Identifies the requesting application.
↗ ApplicationUser	ApplicationUserIdentifier	0..1	N	Identifies the user or instance of the requesting application.
↗ BIASOperationName	string	0..1	N	Identifies the BIAS operation that is being requested: "GetVerifyResults".
↗ Token	TokenType	1	Y	A value used to retrieve the results of the Verify request.
↗ TokenValue	string	1	Y	A value returned by the implementing system that is used to retrieve the results to an operation at a later time.
↗ Expiration	date	1	Y	A date and time at which point the token expires and the operation results are no longer guaranteed to be available.

673 Response Message

Field	Type	#	?	Meaning
GetVerifyResultsResponse			Y	The response to a GetVerifyResults operation.
↗ GetVerifyResultsResponsePackage		1	Y	
↗ ResponseStatus	ResponseStatus	1	Y	Returned status for the operation.
↗ Return	ReturnCode	1	Y	The return code indicates the return status of the operation.
↗ Message	string	0..1	N	A short message corresponding to the return code.
↗ ReturnData	InformationType	0..1	N	Contains the output data for the response.

Field	Type	#	?	Meaning
↑ Match	boolean	0..1	N	Indicates if the Input BIR matched either the biometric information associated with the Identity Claim or the Reference BIR.
↑ Score	Score	0..1	N	The score if the biometric information matched.

4.2.5 Identify

[IdentifyRequest](#)

[IdentifyResponse](#)

The Identify operation performs an identification function according to system requirements and/or resources. If the Identify operation is implemented as a synchronous service, the implementing system immediately processes the request and returns the results in the Return Data parameter. If the Identify operation is implemented as an asynchronous service, the implementing system returns a token in the Return Data parameter, which is an indication that the request is being handled asynchronously. In this case, the [GetIdentifyResults](#) operation is used to poll for the results of the Identify request.

Request Message

Field	Type	#	?	Meaning
Identify			Y	Performs an identification function.
IdentifyRequest		1	Y	
↑ GenericRequestParameters	GenericRequestParameters	0..1	N	Common request parameters that can be used to identify the requester.
↑ Application	ApplicationIdentifier	0..1	N	Identifies the requesting application.
↑ ApplicationUser	ApplicationUserIdentifier	0..1	N	Identifies the user or instance of the requesting application.
↑ BIASOperationName	string	0..1	N	Identifies the BIAS operation that is being requested: "Identify".
↑ ProcessingOptions	ProcessingOptionsType	1	Y	Options that guide how the aggregate service request is processed.
↑ Option	string	0..*	N	An option supported by the implementing system.
↑ InputData	InformationType	1	Y	Contains the input data for the aggregate services.

684 Response Message

Field	Type	#	?	Meaning
IdentifyResponse			Y	The response to an Identify operation.
↑ IdentifyResponsePackage		1	Y	
↑ ResponseStatus	ResponseStatus	1	Y	Returned status for the operation.
↑ Return	ReturnCode	1	Y	The return code indicates the return status of the operation.
↑ Message	string	0..1	N	A short message corresponding to the return code.
↑ ReturnData	InformationType	0..1	N	Contains the output data for the response.

685 4.2.6 RetrieveInformation

686 [RetrieveInformationRequest](#)

687 [RetrieveInformationResponse](#)

688 The RetrieveInformation operation retrieves requested information about a subject, or in an encounter-
689 centric model about an encounter. In a person-centric model, this operation can be used to retrieve both
690 biographic and biometric information for a subject record. In an encounter-centric model, this operation
691 can be used to retrieve biographic and/or biometric information for either a single encounter or all
692 encounters. Either a subject ID or encounter ID MUST be specified.

693 Request Message

Field	Type	#	?	Meaning
RetrieveInformation			Y	Retrieves requested information about a subject or encounter.
↑ RetrieveInformationRequest		1	Y	
↑ GenericRequestParameters	GenericRequestParameters	0..1	N	Common request parameters that can be used to identify the requester.
↑ Application	ApplicationIdentifier	0..1	N	Identifies the requesting application.
↑ ApplicationUser	ApplicationUserIdentifier	0..1	N	Identifies the user or instance of the requesting application.
↑ BIASOperationName	string	0..1	N	Identifies the BIAS operation that is being requested: "RetrieveInformation".

Field	Type	#	?	Meaning
↑ ProcessingOptions	ProcessingOptionsType	1	Y	Options that guide how the aggregate service request is processed, and MAY identify what type(s) of information should be returned.
↑ Option	string	0..*	N	An option supported by the implementing system.
↑ Identity	BIASIdentity	1	Y	Includes the identifier of the subject or encounter.
↑ SubjectID	BIASIDType	0..1	C	A system unique identifier for a subject. Required if an Encounter ID is not provided.
↑ EncounterID	BIASIDType	0..1	C	The identifier of an encounter associated with the subject. Required if a Subject ID is not provided.

694 Response Message

Field	Type	#	?	Meaning
RetrieveInformationResponse			Y	Response to a RetrieveInformation operation.
↑ RetrieveInformationResponsePackage		1	Y	
↑ ResponseStatus	ResponseStatus	1	Y	Returned status for the operation.
↑ Return	ReturnCode	1	Y	The return code indicates the return status of the operation.
↑ Message	string	0..1	N	A short message corresponding to the return code.
↑ ReturnData	InformationType	0..1	N	Contains the output data for the response.

695 4.2.7 Verify

696 [VerifyRequest](#)

697 [VerifyResponse](#)

698 The Verify operation performs a 1:1 verification function according to system requirements and/or
699 resources. Either the Identity Claim or Reference BIR input parameters are REQUIRED. If the Verify
700 operation is implemented as a synchronous service, the implementing system immediately processes the
701 request and returns the results in the Return Data parameter. If the Verify operation is implemented as an
702 asynchronous service, the implementing system returns a token in the Return Data parameter, which is
703 an indication that the request is being handled asynchronously. In this case, the [GetVerifyResults](#)
704 operation is used to poll for the results of the Verify request.

705 **Request Message**

Field	Type	#	?	Meaning
Verify			Y	Performs a 1:1 verification function.
↑ VerifyRequest		1	Y	
↑ GenericRequestParameter s	GenericRequestParameters	0..1	N	Common request parameters that can be used to identify the requester.
↑ Application	ApplicationIdentifier	0..1	N	Identifies the requesting application.
↑ ApplicationUser	ApplicationUserIdentifier	0..1	N	Identifies the user or instance of the requesting application.
↑ BIASOperationName	string	0..1	N	Identifies the BIAS operation that is being requested: "Verify".
↑ ProcessingOptions	ProcessingOptionsType	1	Y	Options that guide how the aggregate service request is processed.
↑ Option	string	0..*	N	An option supported by the implementing system.
↑ InputData	InformationType	1	Y	Contains the input data for the aggregate services.
↑ Identity	BIASIdentity	1	Y	Includes either the Identity Claim or Reference BIR.
↑ IdentityClaim	BIASIDType	0..1	C	An identifier by which a subject is known to a particular gallery or population group. Required if a Reference BIR is not provided.
↑ BiometricData	BIASBiometricDataType	0..1	N	An Identity's biometric data.

Field	Type	#	?	Meaning
↑ ReferenceBIR	CBEFF_BIR_Type	0..1	C	Maps to specific INCITS BIAS elements as required by that specification. Required if an Identity Claim is not provided.
↑ GalleryID	BIASIDType	0..1	C	The identifier of the gallery or population group of which the subject must be a member. Required if an Identity Claim is provided.

706 Response Message

Field	Type	#	?	Meaning
VerifyResponse			Y	The response to a Verify operation.
↑ VerifyResponsePackage		1	Y	
↑ ResponseStatus	ResponseStatus	1	Y	Returned status for the operation.
↑ Return	ReturnCode	1	Y	The return code indicates the return status of the operation.
↑ Message	string	0..1	N	A short message corresponding to the return code.
↑ ReturnData	InformationType	0..1	N	Contains the output data for the response.
↑ Match	boolean	0..1	N	Indicates if the Input BIR matched either the biometric information associated with the Identity Claim or the Reference BIR.
↑ Score	Score	0..1	N	The score if the biometric information matched.

707

5 Message structure and rules

BIAS operations and data elements are defined in XML in the INCITS 422 BIAS standard. This OASIS standard further specifies the full XML schema (see AnnexA) and specifies how this XML is packaged and exchanged as SOAP messages.

Annex A provides a WSDL of operations and structures aggregated from all the conformance classes, both synchronous and asynchronous. A specific implementation's WSDL must only expose its respective operations and structures. For example, for a Class 5-only conformant implementation, all of the primitive operations must not be exposed as operations (with the exception of QueryCapabilities) unless that functionality is supported. Additionally, the WSDL exposed by an implementation shall not contain instances of `xsd:any`, `xsd:anyType`, or `xsd:anyAttribute`; these instances must be replaced with explicit schema contents. An example is the XML complex type, `InformationType`, which has `xsd:any` as its only child. This type is used to represent implementation-specific input data and return data. The children of `InformationType` must be replaced with explicit content. Doing so removes the ability to transmit unexpected or arbitrary data. Also, it provides a clear definition of information that a client needs to provide to the server, or expect to receive, to optimally perform an operation.

SOAP 1.1 messages consist of three elements: an envelope, header data, and a message body. BIAS request-response elements MUST be enclosed within the SOAP message body. The general structure of the BIAS SOAP message is shown in Figure 4, below. The data model for BIAS is addressed in Section 3 and BIAS messages in Section 4.

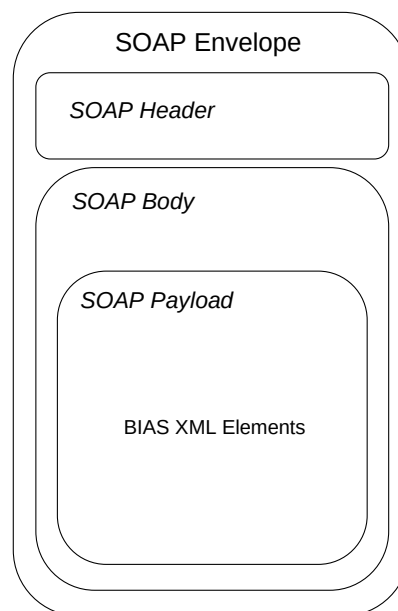


Figure 4. BIAS SOAP Structure

Biometric data, regardless of native format, is carried as a binary structure. As such, options exist on how this data is carried within the SOAP structure. It can be carried as embedded Base-64 objects or [XOP] can be used – this standard allows for either method (See section 5.3).

5.1 Purpose and constraints

This document defines a SOAP profile describing how the XML elements defined in INCITS 442 are to be used as the payload of a SOAP message and the rules for structuring and exchanging such messages. Philosophical tenets include:

- SOAP messages will carry BIAS XML [XML 10] payloads.
- SOAP messages will follow WS-I and will deviate only when absolutely necessary.
- Message structures and interchanges will be kept as simple as possible – “nice to have” features will be addressed in future revisions.
- XML schemas will be produced based on INCITS 442.
- BIAS will support a broad range of application domains.
- BIAS will allow for a variety of biometric and biographic data formats to be used
- Only the SOAP messaging will be defined – no message protocols or client/server agents will be defined.
- Basic usage/formatting rules (beyond WS-I) will be defined.
- Existing biometric and Web services standards will be leveraged wherever possible.
- Sample WSDL and use cases will be provided as an aid in implementation.
- Use of basic SOAP will allow all other compatible WS* standards (and discovery mechanisms) to be used in conjunction with BIAS messaging.
- BIAS will support both secure (i.e., using existing security mechanisms such as WS-Security, SAML, etc.) and non-secure implementations.
- Generic biometric operations will be defined – use of biometrics within a Web services authentication protocol is not addressed.
- OASIS namespace rules will be followed, though some external schemas MAY also be referenced.

5.2 Message requirements

BIAS SOAP messages MUST conform to [WS-I-Basic] and [WS-I-Bind]. A single BIAS SOAP message MUST contain only one BIAS service request (or single BIAS service response). Binary components of BIAS messages are already Base-64 encoded and therefore do not need to be conveyed as SOAP attachments (though XOP MAY be utilized).

The system model used for BIAS conversations over SOAP is a simple request-response model. BIAS comprises both synchronous and asynchronous operations, with the majority being of the former type. Asynchronous operations are implemented through message pairs. That is, there are separate messages to request the operation and to request the results of the operation. These have been defined for those operations that are likely to take significant time to complete. For example, an identify operation can be implemented as either a synchronous or asynchronous service as follows:

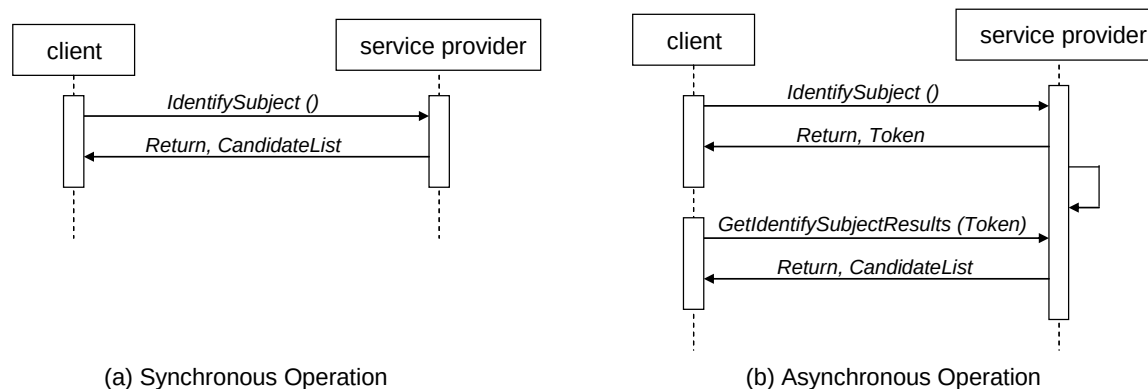


Figure 5. Example of Synchronous and Asynchronous BIAS Operations

The basic process for using SOAP for BIAS operations is:

1. A system entity acting as a BIAS requester transmits a BIAS request element within the body of a SOAP message to a system entity acting as a BIAS responder. The BIAS requester MUST NOT include more than one BIAS request per SOAP message or include any additional XML elements in the SOAP body.
2. The BIAS responder MUST return either a BIAS response element within the body of another SOAP message or generate a SOAP fault. The BIAS responder MUST NOT include more than one BIAS response per SOAP message or include any additional XML elements in the SOAP body. If a BIAS responder cannot, for some reason, process a BIAS request, it MUST generate a SOAP fault. (SOAP 1.1 faults and fault codes are discussed in [SOAP11] section 5.1.)
3. On receiving a BIAS response in a SOAP message, the BIAS requester MUST NOT send a fault code or other error messages to the BIAS responder. Since the format for the message interchange is a simple request-response pattern, adding additional items such as error conditions would needlessly complicate the protocol.

SOAP 1.1 also defines an optional data encoding system. This system is not used within the BIAS SOAP binding. This means that BIAS messages can be transported using SOAP without re-encoding from the “standard” BIAS schema to one based on the SOAP encoding.

NOTE: [SOAP11] references an early draft of the XML Schema specification including an obsolete namespace. BIAS requesters SHOULD generate SOAP documents referencing only the final XML schema namespace. BIAS responders MUST be able to process both the XML schema namespace used in [SOAP11] as well as the final XML schema namespace.

5.3 Handling binary data

BIAS messages frequently contain binary data (e.g., biometric data, scanned identity documents, etc.). Two methods are provided for dealing with this:

- Embedded Base64 encoding
- XOP [XOP]

Use of SOAP with Attachments (SWA) is deprecated.

5.3.1 Base64 encoding

This method is the default method for including binary data. Binary data is Base64 encoded and included between the tags in the XML SOAP body for the appropriate data elements. Data elements using this method are indicated as such in the schema.

As an example, the CBEFF_BIR_Type includes, as one of the BIR types, BinaryBIR of type base64binary.

```
<xsd:element name="BinaryBIR" type="xs:base64Binary" />
```

However, even an XML_BIR as defined within [CBEFF3], contains a biometric data block (BDB) which may be entirely binary (most common),

```
<xs:element name="bdb" type="xs:base64Binary" minOccurs="0"/>
```

or contain an element which is binary (e.g., an image within an XML BDB).

5.3.2 Use of XOP

When XOP is used, the binary content is replaced with a reference (URI) to an attachment (i.e., MIME) which contains that “stripped” content via an xop:include. The advantage of this method is overall

819 message size during transmission since the overhead of the embedded Base64 is not present (since the
820 MIME attachment contains the native binary format).

821 Use of XOP is generally transparent to the developer, other than in how they configure their toolset. Most
822 frameworks support this; however, there is a possibility of mismatch if the transmitter supports and uses
823 XOP but the receiver does not.

824 5.4 Discovery

825 BIAS implementers (service providers) MUST provide WSDL [[WSDL11](#)] to describe their
826 implementations. This WSDL MAY or may not be made public via a standard discovery mechanism
827 (such as UDDI) or other method.

828 In addition, it is REQUIRED that the BIAS implementation include the [QueryCapabilities](#) operation to
829 provide dynamic information regarding BIAS capabilities, options, galleries, etc. that are supported.

830 5.5 Identifying operations

831 Receivers of BIAS SOAP messages require a method of easily identifying the operation being requested
832 (or response being provided). This SHOULD be possible without the receiver needing to infer it from the
833 sum of the elements provided within the body of the SOAP message. The BIAS SOAP profile allows for
834 two methods of identifying BIAS operations:

- 835 • Explicit named element in body of the SOAP message
- 836 • Use of WS-Addressing Action element

837 5.5.1 Operation name element

838 The BIAS message sender (requester) will include within the body of the BIAS SOAP message an XML
839 element <BIASOperationName>. The receiver (service provider) can search for this tag within a received
840 BIAS SOAP message to determine what operation is being requested. There is no requirement related to
841 the ordering of this element within the message, though it is RECOMMENDED that it be included early in
842 the message to aid in human readability.

843 An example of this method for the CreateSubject operation is shown below:

```
844
845 POST /bias HTTP/1.1
846 Host: www.acme.com
847 Content-Type: application/soap+xml; charset="utf-8"
848 Content-Length: nnnn
849 SOAPAction: ""
850 <?xml version="1.0"?>
851 <soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope">
852   <soap:Body>
853     <tns:CreateSubjectRequest
854       xmlns:tns="http://docs.oasis-open.org/bias/bias-1.0/">
855       <tns:GenericRequestParameters>
856         <tns:Application>BIAS Application</tns:Application>
857         <tns:ApplicationUser>BIAS User</tns:ApplicationUser>
858         <tns:BIASOperationName>CreateSubject</tns:BIASOperationName>
859       >
860       </tns:GenericRequestParameters>
861       <tns:Identity>
```

```

862         <tns:SubjectID>123456789</tns:SubjectID>
863     </tns:Identity>
864 </tns:CreateSubjectRequest>
865 </soap:Body>
866 </soap:Envelope>

```

867 5.5.2 WS-Addressing Action

868 WS-Addressing [WS-Addr] provides a mechanism for including action information inside any SOAP
869 message. The information is in the SOAP Header. The WS-Addressing 'Action' element is used to
870 indicate the intent of the message. The value is a URI/IRI identifying that intent; however, there are no
871 restrictions on the format or specificity of the URI/IRI nor a requirement that it can be resolved. Adoption
872 of this option also requires that the WS-Addressing 'To', 'ReplyTo', and 'MessageID' elements are
873 supplied, as they are mandatory elements in a request-reply message pattern as used within BIAS.
874 Response messages would also need to use WS-Addressing, requiring the 'To' (matching the 'ReplyTo'
875 element in the request), 'RelatesTo' (matching the 'MessageID' element in the request), and
876 'RelationshipType' (default value to "wsa:Reply") elements.

877 Use of WS-Addressing is OPTIONAL in this profile as is this method of using the 'Action' field for this
878 purpose. However, when BIAS is used within an environment using WS-Addressing, it is
879 RECOMMENDED that this approach for use of the 'Action' field to carry the BIAS operation name is
880 employed, either alone or in combination with the BIASOperationName approach described in section
881 5.5.1.

882 An example for a message request for the CreateSubject operation would look like the following:

```

883
884     POST /bias HTTP/1.1
885     Host: www.acme.com
886     Content-Type: application/soap+xml; charset="utf-8"
887     Content-Length: nnnn
888     SOAPAction: ""
889
890     <?xml version="1.0"?>
891     <soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
892         xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addr
893         essing">
894         <soap:Header>
895             <wsa:MessageID>some-ID</wsa:MessageID>
896             <wsa:ReplyTo>
897                 <wsa:Address>response-URI</wsa:Address>
898             </wsa:ReplyTo>
899             <wsa:To>destination-URI</wsa:To>
900             <wsa:Action>CreateSubject</wsa:Action>
901         </soap:Header>
902         <soap:Body>
903             <tns:CreateSubjectRequest
904
905             xmlns:tns="http://docs.oasis-open.org/bias/bias-1.0/" />
906         </soap:Body>
907     </soap:Envelope>

```

907

908 **5.6 Security**

909 The end-points that exchange SOAP messages (or handle the contents of the BIAS operations) are
910 expected to be protected and trusted such that message-level security mechanisms may not be required.
911 The use of SSL (HTTPS) or VPN technology that provides end-point to end-point security is
912 RECOMMENDED and MAY be sufficient in some cases. Other mechanisms such as Signed XML or
913 WSS [WSS] could also be implemented.
914 Unless stated otherwise, the following security statements apply to all BIAS bindings.

915 **5.6.1 Use of SSL 3.0 or TLS 1.0**

916 Unless otherwise specified, in any BIAS binding's use of SSL 3.0 [SSL3] or TLS1.0 [RFC2246], servers
917 MUST authenticate clients using a X.509 v3 certificate [X509]. The client MUST establish server identity
918 based on contents of the certificate (typically through examination of the certificate's subject DN field,
919 subjectAltName attribute, etc.).
920 Use of transport level security in the form of SSL or TLS is OPTIONAL but highly RECOMMENDED. Use
921 of these mechanisms alone may not be sufficient for end-to-end integrity and confidentiality, however
922 (see 5.6.3 and 5.6.4 below).

923 **5.6.2 Data Origin Authentication**

924 Authentication of both the BIAS requester and the BIAS responder associated with a message is
925 OPTIONAL and depends on the environment of use: Authentication mechanisms available at the SOAP
926 message exchange layer or from the underlying substrate protocol (for example, in many bindings the
927 SSL/TLS or HTTP protocol) MAY be utilized to provide data origin authentication.
928 Transport authentication will not meet end-to-end origin authentication requirements in bindings where
929 the BIAS SOAP message passes through an intermediary – in this case, message authentication is
930 RECOMMENDED.
931 Note that SAML [SAML] MAY be used as the mechanism for parties to authenticate to one another.

932 **5.6.3 Message Integrity**

933 Message integrity of both BIAS requests and BIAS responses is OPTIONAL and depends on the
934 environment of use. The security layer in the underlying substrate protocol or a mechanism at the SOAP
935 message exchange layer MAY be used to ensure message integrity.
936 Transport integrity will not meet end-to-end integrity requirements in bindings where the BIAS SOAP
937 message passes through an intermediary – in this case, message integrity is RECOMMENDED.

938 **5.6.4 Message Confidentiality**

939 Message confidentiality of both BIAS requests and BIAS responses is OPTIONAL and depends on the
940 environment of use. The security layer in the underlying substrate protocol or a mechanism at the SOAP
941 message exchange layer MAY be used to ensure message confidentiality.

942 Transport confidentiality will not meet end-to-end confidentiality requirements in bindings where the BIAS
943 SOAP message passes through an intermediary.

944 NOTE: Biometric and biographic data is likely to contain personal information the confidentiality of
945 which SHOULD be protected accordingly. See INCITS 442, section 6.3 for further discussion.

946 **5.6.5 CBEFF BIR security features**

947 Within BIAS, biometric data is transferred within a CBEFF BIR (as defined in ISO/IEC 19785-1). CBEFF
948 provides for the optional encryption of the Biometric Data Block (BDB) of the BIR and for the integrity of
949 the entire BIR. If implemented, this is indicated in the BIR header. The BIR structure defines an optional

Security Block which MAY contain a digital signature (or message authentication code), encryption parameters (e.g., key name, algorithm, etc.), and/or other security related data. Such protections are associated with an individual BIR and are separate from any other protections provided at the message level.

5.6.6 Security Considerations

Before deployment, each combination of authentication, message integrity, and confidentiality mechanisms SHOULD be analyzed for vulnerability in the context of the specific protocol exchange and the deployment environment.

Special care should be given to the impact of possible caching on security.

IETF RFC 2617 [RFC2617] describes possible attacks in the HTTP environment when basic or message digest authentication schemes are used.

Many of the security considerations identified in [SAML SEC] MAY also apply.

ISO/IEC 19092 [BIO SEC] describes a security framework for biometric systems including a minimum set of security requirements addressing integrity, authenticity, and confidentiality of biometric information during transmission and storage. These SHOULD be considered as part of an overall risk management approach.

NOTE: The requirements of ISO/IEC 19092, though useful across many application domains, are required for most biometric system implementations in the financial services environment. Application of this standard would make the requirements of sections 5.5.3 through 5.5.5 mandatory rather than optional. This is highly RECOMMENDED for any high security environment or where privacy concerns exist.

5.6.7 Security of Stored Data

This specification does not address security considerations for stored data. It is the purview of the BIAS service provider to implement security mechanisms and protect data at rest as per their own security policies.

5.6.8 Key Management

This specification does not address key management considerations with respect to implementation of cryptographic security mechanisms (e.g., for authenticity, integrity, or confidentiality).

5.7 Use with other WS* standards

The intent of specifying SOAP bindings for BIAS messages is to enable the full range of existing Web services standards to be able to be applied. Some may be normative while others can be optionally applied (i.e., WS-Security, WS-Addressing). Still others may require additional profiling to be used in an interoperable manner (e.g., WS-Notification); this is left to a future revision. However, the intent is to avoid specifying anything in the first, base version that would preclude the use of such standards in the future.

5.8 Tailoring

This standard provides for a common method of implementing biometric Web services; however, it does not guarantee interoperability in a specific application. In some cases further tailoring or profiling of this standard may be required in order to further constrain the implementation options available.

NOTE: As an example, BIAS allows for a number of different biographic and biometric data formats to be used, whereas a given application/domain MAY wish to limit this to a small set or just one of each type. Other examples (not comprehensive) include:

- Identification of a subset of BIAS operations to be used
- Specification of security features to be implemented (e.g., SSL, CBEFF BIR encryption, etc.)
- Choice of operation name identification method

- 994 • Choice of BIR type to be used (XML, non-XML, or URI)
- 995 • Further definition of aggregate operations
- 996 • Use (or not) of the encounter model
- 997 • Use (or not) of asynchronous operations
- 998 • Process sequences
- 999 • Implementation specific values (e.g., Transform operations/controls)

6. Error handling

There are two levels of errors that can be returned in an error response: system and service errors.

- System-level errors occur when the implementing system cannot service a request. They could result due to an internal logic error or because the implementing system does not support a particular request.
- Service-level errors occur when there is a problem transmitting or representing the service request. They could result due to an invalid service request or because of a communications error.

The INCITS BIAS standard defines the error condition codes for system-level errors.

- If successful, a response message (containing a return code) will be generated.
- If unsuccessful, a SOAP fault message (containing a fault code) will be generated.

6.1 BIAS operation return codes

If a BIAS operation is successful, a response (service output) will be sent to the requester by the service provider. Each response message contains a response status (see section 3.2.37) and return code (see section 3.2.38) along with any response data as defined for that operation, if any. A response code of '0' indicates success.

6.2 SOAP fault codes

If a BIAS operation is unsuccessful, no BIAS response message is sent. Instead a SOAP fault message is returned.

Every Web service (operation) described in the BIAS WSDL may result in a fault message that will be returned in the response by the service provider in the event of an error. The fault message contains a FaultCode element as defined by the SOAP 1.1 specification (see section 3.2.5). The fault message MUST contain a Detail element in a common format, as described by the BIASFault element (see section 3.2.6).

The schema provided in Annex A defines "BIASFaultCode" and "BIASFaultDetail" types as well as "BIASFault", "BIASFaultType", "BIASFaultMessage" and "BIASFaultDescription" elements.

The list of defined BIAS fault codes is provided in section 3.2.5. Note that BIAS service providers MAY define additional fault codes unique to their service.

NOTE: See also section 5.2 for additional information on message returns and faults.

7. Conformance

Implementations claiming conformance to this standard, MUST implement, at a minimum, all mandatory requirements and provisions set forth in Clauses 3, 4, 5 and 6. If such implementations claim conformance to any OPTIONAL requirements and provisions stated in Clauses 3, 4, 5 and 6, these requirements and provisions MUST be implemented as set forth in these Clauses.

INCITS 442 [INCITS-BIAS] (Annex A) specifies five BIAS conformance classes. For each class, a set of mandatory BIAS operations is identified in order for implementations (BIAS service providers) to claim conformance. These categories are:

- Class 1: Full Primitive Services Implementation
- Class 2: Full Aggregate Services Implementation
- Class 3: Limited Primitive Services Implementation
- Class 4: Minimum Primitive Services Implementation
- Class 5: Minimum Aggregate Services Implementation

In addition, the minimum capability information to be returned in response to a Query Capabilities request (the only mandatory BIAS operation across all 5 classes) is specified for each class.

These conformance classes and their associated requirements apply to this BIAS SOAP Profile.

There are no minimum set of operations required to be implemented by BIAS requesters; however, any operations implemented must conform to the requirements of Clauses 3 and 4 and those requirements within Clause 5 that are mandatory and are not specific to BIAS responders.

Annex A. XML Schema

```
<?xml version="1.0" encoding="UTF-8"?>
<!--
Document : BIAS.xml
Created on : December 17, 2009, 9:31 AM
Last Edit : December 6, 2010 by Kevin Mangold, National Institute of Standards and Technology
Description:
This document represents the WSDL definitions of BIAS Profile.
-->
<wsdl:definitions
  xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/"
  xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
  xmlns:http="http://schemas.xmlsoap.org/wsdl/http/"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
  xmlns:mime="http://schemas.xmlsoap.org/wsdl/mime/"
  xmlns:oasis_cbeff="http://docs.oasis-open.org/bias/ns/biaspatronformat-1.0/"
  xmlns:tns="http://docs.oasis-open.org/bias/ns/bias-1.0/"
  targetNamespace="http://docs.oasis-open.org/bias/ns/bias-1.0/">
  <wsdl:types>
    <xsd:schema elementFormDefault="qualified" targetNamespace="http://docs.oasis-open.org/bias/ns/bias-1.0/">
      <xsd:import namespace="http://docs.oasis-open.org/bias/ns/biaspatronformat-1.0/" schemaLocation="cbeff.xsd" />
      <xsd:complexType name="AggregateRequestTemplate">
        <xsd:annotation>
          <xsd:documentation>Base template for BIAS aggregate service requests.</xsd:documentation>
        </xsd:annotation>
        <xsd:complexContent>
          <xsd:extension base="tns:RequestTemplate">
            <xsd:sequence>
              <xsd:element name="ProcessingOptions" type="tns:ProcessingOptionsType" minOccurs="1" maxOccurs="1">
                <xsd:annotation>
                  <xsd:documentation>Options that guide how the aggregate service request is processed.</xsd:documentation>
                </xsd:annotation>
              </xsd:element>
              <xsd:element name="InputData" type="tns:InformationType" minOccurs="1" maxOccurs="1">
                <xsd:annotation>
                  <xsd:documentation>Contains the input data for the aggregate service request.</xsd:documentation>
                </xsd:annotation>
              </xsd:element>
            </xsd:sequence>
          </xsd:extension>
        </xsd:complexContent>
      </xsd:complexType>
    </xsd:schema>
  </wsdl:types>
</wsdl:definitions>
```

```

1087 </xsd:annotation>
1088 </xsd:element>
1089 </xsd:sequence>
1090 </xsd:extension>
1091 </xsd:complexContent>
1092 </xsd:complexType>
1093 <xsd:complexType name="AggregateResponseTemplate">
1094 <xsd:annotation>
1095 <xsd:documentation>Base template for BIAS aggregate service responses.</xsd:documentation>
1096 </xsd:annotation>
1097 <xsd:complexContent>
1098 <xsd:extension base="tns:ResponseTemplate">
1099 <xsd:sequence>
1100 <xsd:element name="ReturnData" type="tns:InformationType" minOccurs="0" maxOccurs="1">
1101 <xsd:annotation>
1102 <xsd:documentation>Contains the output data for the aggregate service response.</xsd:documentation>
1103 </xsd:annotation>
1104 </xsd:element>
1105 </xsd:sequence>
1106 </xsd:extension>
1107 </xsd:complexContent>
1108 </xsd:complexType>
1109 <xsd:simpleType name="ApplicationIdentifier">
1110 <xsd:annotation>
1111 <xsd:documentation>Identifies an application.</xsd:documentation>
1112 </xsd:annotation>
1113 <xsd:restriction base="xsd:string">
1114 <xsd:minLength value="1"/>
1115 <xsd:maxLength value="255"/>
1116 </xsd:restriction>
1117 </xsd:simpleType>
1118 <xsd:simpleType name="ApplicationUserIdentifier">
1119 <xsd:annotation>
1120 <xsd:documentation>Identifies an application user or instance.</xsd:documentation>
1121 </xsd:annotation>
1122 <xsd:restriction base="xsd:string">
1123 <xsd:minLength value="1"/>
1124 <xsd:maxLength value="255"/>
1125 </xsd:restriction>
1126 </xsd:simpleType>
1127 <xsd:complexType name="BIASBiometricDataType">

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1128 <xsd:annotation>
1129 <xsd:documentation>Wraps the various BIAS biometric types.</xsd:documentation>
1130 </xsd:annotation>
1131 <xsd:sequence>
1132 <xsd:element name="BIRList" type="tns:CBEFF_BIR_ListType" minOccurs="0" maxOccurs="1">
1133 <xsd:annotation>
1134 <xsd:documentation>A list of CBEFF-BIR elements.</xsd:documentation>
1135 </xsd:annotation>
1136 </xsd:element>
1137 <xsd:element name="BIR" type="tns:CBEFF_BIR_Type" minOccurs="0" maxOccurs="1">
1138 <xsd:annotation>
1139 <xsd:documentation>Contains biometric information in either a non-XML and an XML
1140 representation.</xsd:documentation>
1141 </xsd:annotation>
1142 </xsd:element>
1143 <xsd:element name="InputBIR" type="tns:CBEFF_BIR_Type" minOccurs="0" maxOccurs="1">
1144 <xsd:annotation>
1145 <xsd:documentation>Maps to specific INCITS BIAS elements as required by that
1146 specification.</xsd:documentation>
1147 </xsd:annotation>
1148 </xsd:element>
1149 <xsd:element name="ReferenceBIR" type="tns:CBEFF_BIR_Type" minOccurs="0" maxOccurs="1">
1150 <xsd:annotation>
1151 <xsd:documentation>Maps to specific INCITS BIAS elements as required by that
1152 specification.</xsd:documentation>
1153 </xsd:annotation>
1154 </xsd:element>
1155 <xsd:element name="BiometricDataList" type="tns:BiometricDataListType" minOccurs="0" maxOccurs="1">
1156 <xsd:annotation>
1157 <xsd:documentation>A list of biometric data elements.</xsd:documentation>
1158 </xsd:annotation>
1159 </xsd:element>
1160 </xsd:sequence>
1161 </xsd:complexType>
1162 <xsd:simpleType name="BIASFaultCode">
1163 <xsd:annotation>
1164 <xsd:documentation></xsd:documentation>
1165 </xsd:annotation>
1166 <xsd:restriction base="xsd:string">
1167 <xsd:enumeration value="UNKNOWN_ERROR">
1168 <xsd:annotation>

```

1169 <xsd:documentation>The service failed for an unknown reason.</xsd:documentation>
 1170 </xsd:annotation>
 1171 </xsd:enumeration>
 1172 <xsd:enumeration value="UNSUPPORTED_CAPABILITY">
 1173 <xsd:annotation>
 1174 <xsd:documentation>A requested capability is not supported by the service
 1175 implementation.</xsd:documentation>
 1176 </xsd:annotation>
 1177 </xsd:enumeration>
 1178 <xsd:enumeration value="INVALID_INPUT">
 1179 <xsd:annotation>
 1180 <xsd:documentation>The data in a service input parameter is invalid.</xsd:documentation>
 1181 </xsd:annotation>
 1182 </xsd:enumeration>
 1183 <xsd:enumeration value="BIR_QUALITY_ERROR">
 1184 <xsd:annotation>
 1185 <xsd:documentation>Biometric sample quality is too poor for the service to succeed.</xsd:documentation>
 1186 </xsd:annotation>
 1187 </xsd:enumeration>
 1188 <xsd:enumeration value="INVALID_BIR">
 1189 <xsd:annotation>
 1190 <xsd:documentation>The input BIR is empty or in an invalid or unrecognized format.</xsd:documentation>
 1191 </xsd:annotation>
 1192 </xsd:enumeration>
 1193 <xsd:enumeration value="BIR_SIGNATURE_FAILURE">
 1194 <xsd:annotation>
 1195 <xsd:documentation>The service could not validate the signature, if used, on the input BIR.</xsd:documentation>
 1196 </xsd:annotation>
 1197 </xsd:enumeration>
 1198 <xsd:enumeration value="BIR_DECRYPTION_FAILURE">
 1199 <xsd:annotation>
 1200 <xsd:documentation>The service could not decrypt an encrypted input BIR.</xsd:documentation>
 1201 </xsd:annotation>
 1202 </xsd:enumeration>
 1203 <xsd:enumeration value="INVALID_ENCOUNTER_ID">
 1204 <xsd:annotation>
 1205 <xsd:documentation>The input encounter ID is empty or in an invalid format.</xsd:documentation>
 1206 </xsd:annotation>
 1207 </xsd:enumeration>
 1208 <xsd:enumeration value="INVALID_SUBJECT_ID">
 1209 <xsd:annotation>

1210 <xsd:documentation>The input subject ID is empty or in an invalid format.</xsd:documentation>
 1211 </xsd:annotation>
 1212 </xsd:enumeration>
 1213 <xsd:enumeration value="UNKNOWN_SUBJECT">
 1214 <xsd:annotation>
 1215 <xsd:documentation>The subject referenced by the input subject ID does not exist.</xsd:documentation>
 1216 </xsd:annotation>
 1217 </xsd:enumeration>
 1218 <xsd:enumeration value="UNKNOWN_GALLERY">
 1219 <xsd:annotation>
 1220 <xsd:documentation>The gallery referenced by the input gallery ID does not exist.</xsd:documentation>
 1221 </xsd:annotation>
 1222 </xsd:enumeration>
 1223 <xsd:enumeration value="UNKNOWN_ENCOUNTER">
 1224 <xsd:annotation>
 1225 <xsd:documentation>The encounter referenced by the input encounter ID does not exist.</xsd:documentation>
 1226 </xsd:annotation>
 1227 </xsd:enumeration>
 1228 <xsd:enumeration value="UNKNOWN_BIOGRAPHIC_FORMAT">
 1229 <xsd:annotation>
 1230 <xsd:documentation>The biographic data format is not known or not supported.</xsd:documentation>
 1231 </xsd:annotation>
 1232 </xsd:enumeration>
 1233 <xsd:enumeration value="UNKNOWN_IDENTITY_CLAIM">
 1234 <xsd:annotation>
 1235 <xsd:documentation>The identity referenced by the input identity claim does not exist.</xsd:documentation>
 1236 </xsd:annotation>
 1237 </xsd:enumeration>
 1238 <xsd:enumeration value="INVALID_IDENTITY_CLAIM">
 1239 <xsd:annotation>
 1240 <xsd:documentation>The identity claim requested is already in use.</xsd:documentation>
 1241 </xsd:annotation>
 1242 </xsd:enumeration>
 1243 <xsd:enumeration value="NONEXISTANT_DATA">
 1244 <xsd:annotation>
 1245 <xsd:documentation>The data requested for deletion does not exist.</xsd:documentation>
 1246 </xsd:annotation>
 1247 </xsd:enumeration>
 1248 </xsd:restriction>
 1249 </xsd:simpleType>
 1250 <xsd:complexType name="BIASFaultDetail">


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1251 <xsd:annotation>
1252 <xsd:documentation>Defines the error information associated with a SOAP fault.</xsd:documentation>
1253 </xsd:annotation>
1254 <xsd:sequence>
1255 <xsd:element minOccurs="1" maxOccurs="1" name="BIASFaultType" type="tns:BIASFaultCode">
1256 <xsd:annotation>
1257 <xsd:documentation>References an error code.</xsd:documentation>
1258 </xsd:annotation>
1259 </xsd:element>
1260 <xsd:element minOccurs="1" maxOccurs="1" name="BIASFaultMessage" type="xsd:string">
1261 <xsd:annotation>
1262 <xsd:documentation>Provides an explanation of the fault.</xsd:documentation>
1263 </xsd:annotation>
1264 </xsd:element>
1265 <xsd:element minOccurs="0" maxOccurs="1" name="BIASFaultDescription" type="xsd:string">
1266 <xsd:annotation>
1267 <xsd:documentation>Provides detailed information about a BIAS fault, such as trace details.</xsd:documentation>
1268 </xsd:annotation>
1269 </xsd:element>
1270 </xsd:sequence>
1271 </xsd:complexType>
1272 <xsd:complexType name="BIASIdentity">
1273 <xsd:annotation>
1274 <xsd:documentation>
1275 Defines a single element for encapsulating the data associated
1276 with an Identity. Includes the Identity's reference identifiers,
1277 biographic data, and biometric data.
1278 </xsd:documentation>
1279 </xsd:annotation>
1280 <xsd:sequence>
1281 <xsd:element name="SubjectID" type="tns:BIASIDType" minOccurs="0" maxOccurs="1">
1282 <xsd:annotation>
1283 <xsd:documentation>A system unique identifier for a subject.</xsd:documentation>
1284 </xsd:annotation>
1285 </xsd:element>
1286 <xsd:element name="IdentityClaim" type="tns:BIASIDType" minOccurs="0" maxOccurs="1">
1287 <xsd:annotation>
1288 <xsd:documentation>An identifier by which a subject is known to a particular gallery or population
1289 group.</xsd:documentation>
1290 </xsd:annotation>
1291 </xsd:element>

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1292 <xsd:element name="EncounterID" type="tns:BIASIDType" minOccurs="0" maxOccurs="1">
1293 <xsd:annotation>
1294 <xsd:documentation>The identifier of an encounter associated with the subject, required for encounter-centric
1295 models.</xsd:documentation>
1296 </xsd:annotation>
1297 </xsd:element>
1298 <xsd:element name="EncounterList" type="tns:EncounterListType" minOccurs="0" maxOccurs="1">
1299 <xsd:annotation>
1300 <xsd:documentation>A list of encounters associated with a subject.</xsd:documentation>
1301 </xsd:annotation>
1302 </xsd:element>
1303 <xsd:element name="BiographicData" type="tns:BiographicDataType" minOccurs="0" maxOccurs="1">
1304 <xsd:annotation>
1305 <xsd:documentation>An Identity's biographic data.</xsd:documentation>
1306 </xsd:annotation>
1307 </xsd:element>
1308 <xsd:element name="BiographicDataElements" type="tns:BiographicDataType" minOccurs="0" maxOccurs="1">
1309 <xsd:annotation>
1310 <xsd:documentation>An Identity's biographic data elements that are stored in the implementing
1311 system.</xsd:documentation>
1312 </xsd:annotation>
1313 </xsd:element>
1314 <xsd:element name="BiometricData" type="tns:BIASBiometricDataType" minOccurs="0" maxOccurs="1">
1315 <xsd:annotation>
1316 <xsd:documentation>An Identity's biometric data.</xsd:documentation>
1317 </xsd:annotation>
1318 </xsd:element>
1319 </xsd:sequence>
1320 </xsd:complexType>
1321 <xsd:simpleType name="BIASIDType">
1322 <xsd:annotation>
1323 <xsd:documentation>A BIAS identifier</xsd:documentation>
1324 </xsd:annotation>
1325 <xsd:restriction base="xsd:string"/>
1326 </xsd:simpleType>
1327 <xsd:complexType name="BiographicDataItemType">
1328 <xsd:annotation>
1329 <xsd:documentation>Defines a single biographic data element.</xsd:documentation>
1330 </xsd:annotation>
1331 <xsd:sequence>
1332 <xsd:element name="Name" type="xsd:string" minOccurs="1" maxOccurs="1">

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1333 <xsd:annotation>
1334 <xsd:documentation>The name of the biographic data item.</xsd:documentation>
1335 </xsd:annotation>
1336 </xsd:element>
1337 <xsd:element name="Type" type="xsd:string" minOccurs="1" maxOccurs="1">
1338 <xsd:annotation>
1339 <xsd:documentation>The data type for the biographic data item.</xsd:documentation>
1340 </xsd:annotation>
1341 </xsd:element>
1342 <xsd:element name="Value" type="xsd:string" minOccurs="0" maxOccurs="1">
1343 <xsd:annotation>
1344 <xsd:documentation>The value assigned to the biographic data item.</xsd:documentation>
1345 </xsd:annotation>
1346 </xsd:element>
1347 </xsd:sequence>
1348 </xsd:complexType>
1349 <xsd:complexType name="BiographicDataSetType">
1350 <xsd:annotation>
1351 <xsd:documentation>Defines a set of biographic data that is formatted according to the specified
1352 format.</xsd:documentation>
1353 </xsd:annotation>
1354 <xsd:sequence>
1355 <xsd:element name="name" type="xsd:string" minOccurs="1" maxOccurs="1">
1356 <xsd:annotation>
1357 <xsd:documentation>The name of the biographic data format. Use these names for common formats: FBI-EFTS,
1358 FBI-EBTS, DOD-EBTS, INT-I, NIEM, xNAL, HR-XML.</xsd:documentation>
1359 </xsd:annotation>
1360 </xsd:element>
1361 <xsd:element name="version" type="xsd:string" minOccurs="0" maxOccurs="1">
1362 <xsd:annotation>
1363 <xsd:documentation>The version of the biographic data format (e.g., "7.1" for FBI-EFTS or "2.0" for
1364 NIEM).</xsd:documentation>
1365 </xsd:annotation>
1366 </xsd:element>
1367 <xsd:element name="source" type="xsd:string" minOccurs="1" maxOccurs="1">
1368 <xsd:annotation>
1369 <xsd:documentation>Reference to a URI/IRI describing the biographic data format. For example: (FBI-EFTS)
1370 www.fbibiospecs.org, (DOD-EBTS) www.biometrics.dod.mil, (INT-I) www.interpol.int, (NIEM) www.niem.gov,
1371 (xNAL) www.oasis-open.org, (HR-XML) www.hr-xml.org.</xsd:documentation>
1372 </xsd:annotation>
1373 </xsd:element>
1374 <xsd:element name="type" type="xsd:string" minOccurs="1" maxOccurs="1">

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1375 <xsd:annotation>
1376 <xsd:documentation>The biographic data format type. Use these types for common formats: ASCII (e.g., for non-
1377 XML versions of FBI-EFTS, FBI-EBTS, DOD-EFTS, or INT-I), XML (e.g., for NIEM, xNAL, and HR-XML or future version
1378 of FBI-EBTS).</xsd:documentation>
1379
1380 </xsd:annotation>
1381 </xsd:element>
1382 <xsd:any namespace="##any">
1383 <xsd:annotation>
1384 <xsd:documentation>Biographic data formatted according to a specific format.</xsd:documentation>
1385 </xsd:annotation>
1386 </xsd:any>
1387 </xsd:sequence>
1388 </xsd:complexType>
1389 <xsd:complexType name="BiographicDataType">
1390 <xsd:annotation>
1391 <xsd:documentation>
1392 Defines a set of biographic data elements, utilizing either the
1393 BiographicDataItem type to represent a list of elements or the
1394 BiographicDataSet type to represent a complete, formatted set of
1395 biographic information.
1396 </xsd:documentation>
1397 </xsd:annotation>
1398 <xsd:sequence>
1399 <xsd:element name="LastName" type="xsd:string" minOccurs="0" maxOccurs="1">
1400 <xsd:annotation>
1401 <xsd:documentation>The last name of a subject.</xsd:documentation>
1402 </xsd:annotation>
1403 </xsd:element>
1404 <xsd:element name="FirstName" type="xsd:string" minOccurs="0" maxOccurs="1">
1405 <xsd:annotation>
1406 <xsd:documentation>The first name of a subject.</xsd:documentation>
1407 </xsd:annotation>
1408 </xsd:element>
1409 <xsd:element name="BiographicDataItems" minOccurs="0">
1410 <xsd:complexType>
1411 <xsd:sequence>
1412 <xsd:element name="BiographicDataItem" type="tns:BiographicDataItemType" maxOccurs="unbounded">
1413 <xsd:annotation>
1414 <xsd:documentation>A single biographic data element.</xsd:documentation>
1415 </xsd:annotation>

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1416 </xsd:element>
1417 </xsd:sequence>
1418 </xsd:complexType>
1419 </xsd:element>
1420 <xsd:element name="BiographicDataSet" type="tns:BiographicDataSetType" minOccurs="0" maxOccurs="1">
1421 <xsd:annotation>
1422 <xsd:documentation>A set of biographic data information.</xsd:documentation>
1423 </xsd:annotation>
1424 </xsd:element>
1425 </xsd:sequence>
1426 </xsd:complexType>
1427 <xsd:complexType name="BiometricDataElementType">
1428 <xsd:annotation>
1429 <xsd:documentation>
1430 Provides descriptive information about biometric data, such as
1431 the biometric type, subtype, and format, contained in the BDB of
1432 the CBEFF-BIR.
1433 </xsd:documentation>
1434 </xsd:annotation>
1435 <xsd:sequence>
1436 <xsd:element name="BiometricType" type="oasis_cbeff:MultipleTypesType" minOccurs="1" maxOccurs="1">
1437 <xsd:annotation>
1438 <xsd:documentation>The type of biological or behavioral data stored in the biometric record, as defined by
1439 CBEFF.</xsd:documentation>
1440 </xsd:annotation>
1441 </xsd:element>
1442 <xsd:element name="BiometricTypeCount" type="xsd:positiveInteger" minOccurs="0" maxOccurs="1">
1443 <xsd:annotation>
1444 <xsd:documentation>The number of biometric records having the biometric type recorded in the biometric type
1445 field.</xsd:documentation>
1446 </xsd:annotation>
1447 </xsd:element>
1448 <xsd:element name="BiometricSubType" type="oasis_cbeff:SubtypeType" minOccurs="0" maxOccurs="1">
1449 <xsd:annotation>
1450 <xsd:documentation>More specifically defines the type of biometric data stored in the biometric record, as
1451 defined by CBEFF.</xsd:documentation>
1452 </xsd:annotation>
1453 </xsd:element>
1454 <xsd:element name="BDBFormatOwner" type="xsd:positiveInteger" minOccurs="1" maxOccurs="1">
1455 <xsd:annotation>
1456 <xsd:documentation>Identifies the standards body, working group, industry consortium, or other CBEFF biometric
1457 organization that has defined the format for the biometric data.</xsd:documentation>

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1458 </xsd:annotation>
1459 </xsd:element>
1460 <xsd:element name="BDBFormatType" type="xsd:positiveInteger" minOccurs="1" maxOccurs="1">
1461 <xsd:annotation>
1462 <xsd:documentation>Identifies the specific biometric data format specified by the CBEFF biometric organization
1463 recorded in the BDB Format Owner field.</xsd:documentation>
1464 </xsd:annotation>
1465 </xsd:element>
1466 </xsd:sequence>
1467 </xsd:complexType>
1468 <xsd:complexType name="BiometricDataListType">
1469 <xsd:annotation>
1470 <xsd:documentation>A list of biometric data elements.</xsd:documentation>
1471 </xsd:annotation>
1472 <xsd:sequence>
1473 <xsd:element name="BiometricDataElement" type="tns:BiometricDataElementType" minOccurs="0"
1474 maxOccurs="unbounded">
1475 <xsd:annotation>
1476 <xsd:documentation>Data structure containing information about a biometric record.</xsd:documentation>
1477 </xsd:annotation>
1478 </xsd:element>
1479 </xsd:sequence>
1480 </xsd:complexType>
1481 <xsd:complexType name="CandidateListType">
1482 <xsd:annotation>
1483 <xsd:documentation>
1484 Defines a set of candidates, utilizing the Candidate Type to
1485 represent each element in the set.
1486 </xsd:documentation>
1487 </xsd:annotation>
1488 <xsd:sequence>
1489 <xsd:element name="Candidate" type="tns:CandidateType" minOccurs="0" maxOccurs="unbounded">
1490 <xsd:annotation>
1491 <xsd:documentation>A single candidate.</xsd:documentation>
1492 </xsd:annotation>
1493 </xsd:element>
1494 </xsd:sequence>
1495 </xsd:complexType>
1496 <xsd:complexType name="CandidateType">
1497 <xsd:annotation>
1498 <xsd:documentation>

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1499 Defines a single candidate as a possible match in response to a
1500 biometric identification request.
1501 </xsd:documentation>
1502 </xsd:annotation>
1503 <xsd:sequence>
1504 <xsd:element name="Score" type="tns:Score" minOccurs="0" maxOccurs="1">
1505 <xsd:annotation>
1506 <xsd:documentation>The match score.</xsd:documentation>
1507 </xsd:annotation>
1508 </xsd:element>
1509 <xsd:element name="Rank" type="xsd:integer" minOccurs="1" maxOccurs="1">
1510 <xsd:annotation>
1511 <xsd:documentation>The rank of the candidate in relation to other candidates for the same biometric
1512 identification operation.</xsd:documentation>
1513 </xsd:annotation>
1514 </xsd:element>
1515 <xsd:element name="BiographicData" type="tns:BiographicDataType" minOccurs="0" maxOccurs="1">
1516 <xsd:annotation>
1517 <xsd:documentation>Biographic data associated with the candidate match.</xsd:documentation>
1518 </xsd:annotation>
1519 </xsd:element>
1520 <xsd:element name="BIRList" type="tns:CBEFF_BIR_ListType" minOccurs="1" maxOccurs="1">
1521 <xsd:annotation>
1522 <xsd:documentation>Biometric data associated with the candidate match.</xsd:documentation>
1523 </xsd:annotation>
1524 </xsd:element>
1525 </xsd:sequence>
1526 </xsd:complexType>
1527 <xsd:complexType name="CapabilityListType">
1528 <xsd:annotation>
1529 <xsd:documentation>Defines a set of capabilities.</xsd:documentation>
1530 </xsd:annotation>
1531 <xsd:sequence>
1532 <xsd:element name="Capability" type="tns:CapabilityType" minOccurs="0" maxOccurs="unbounded">
1533 <xsd:annotation>
1534 <xsd:documentation>A single capability.</xsd:documentation>
1535 </xsd:annotation>
1536 </xsd:element>
1537 </xsd:sequence>
1538 </xsd:complexType>
1539 <xsd:simpleType name="CapabilityName">

1540 <xsd:annotation>
 1541 <xsd:documentation>A list of capability items.</xsd:documentation>
 1542 </xsd:annotation>
 1543 <xsd:restriction base="xsd:string">
 1544 <xsd:enumeration value="AggregateInputDataOptional">
 1545 <xsd:annotation>
 1546 <xsd:documentation>A data element accepted as optional input by the implementing system for the aggregate
 1547 services.</xsd:documentation>
 1548 </xsd:annotation>
 1549 </xsd:enumeration>
 1550 <xsd:enumeration value="AggregateInputDataRequired">
 1551 <xsd:annotation>
 1552 <xsd:documentation>A data element required as input by the implementing system for the aggregate
 1553 services.</xsd:documentation>
 1554 </xsd:annotation>
 1555 </xsd:enumeration>
 1556 <xsd:enumeration value="AggregateProcessingOption">
 1557 <xsd:annotation>
 1558 <xsd:documentation>A processing option supported by the implementing system for the aggregate
 1559 services.</xsd:documentation>
 1560 </xsd:annotation>
 1561 </xsd:enumeration>
 1562 <xsd:enumeration value="AggregateReturnData">
 1563 <xsd:annotation>
 1564 <xsd:documentation>A data element returned by the implementing system for the aggregate
 1565 services.</xsd:documentation>
 1566 </xsd:annotation>
 1567 </xsd:enumeration>
 1568 <xsd:enumeration value="AggregateServiceDescription">
 1569 <xsd:annotation>
 1570 <xsd:documentation>Describes the processing logic of an aggregate service supported by the implementing
 1571 system.</xsd:documentation>
 1572 </xsd:annotation>
 1573 </xsd:enumeration>
 1574 <xsd:enumeration value="BiographicDataSet">
 1575 <xsd:annotation>
 1576 <xsd:documentation>Identifies a biographic data set supported by the implementing
 1577 system.</xsd:documentation>
 1578 </xsd:annotation>
 1579 </xsd:enumeration>
 1580 <xsd:enumeration value="CBEFFPatronFormat">
 1581 <xsd:annotation>


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1582 <xsd:documentation>A patron format supported by the implementing system.</xsd:documentation>
1583 </xsd:annotation>
1584 </xsd:enumeration>
1585 <xsd:enumeration value="ClassificationAlgorithmType">
1586 <xsd:annotation>
1587 <xsd:documentation>A classification algorithm type supported by the implementing system.</xsd:documentation>
1588 </xsd:annotation>
1589 </xsd:enumeration>
1590 <xsd:enumeration value="ConformanceClass">
1591 <xsd:annotation>
1592 <xsd:documentation>Identifies the conformance class of the BIAS implementation.</xsd:documentation>
1593 </xsd:annotation>
1594 </xsd:enumeration>
1595 <xsd:enumeration value="Gallery">
1596 <xsd:annotation>
1597 <xsd:documentation>A gallery or population group supported by the implementing system.</xsd:documentation>
1598 </xsd:annotation>
1599 </xsd:enumeration>
1600 <xsd:enumeration value="IdentityModel">
1601 <xsd:annotation>
1602 <xsd:documentation>Identifies whether the implementing system is person-centric or encounter-centric
1603 based.</xsd:documentation>
1604 </xsd:annotation>
1605 </xsd:enumeration>
1606 <xsd:enumeration value="MatchScore">
1607 <xsd:annotation>
1608 <xsd:documentation> Identifies the use of match scores returned by the implementing
1609 system.</xsd:documentation>
1610 </xsd:annotation>
1611 </xsd:enumeration>
1612 <xsd:enumeration value="QualityAlgorithm">
1613 <xsd:annotation>
1614 <xsd:documentation>A quality algorithm vendor and algorithm vendor product ID supported by the implementing
1615 system.</xsd:documentation>
1616 </xsd:annotation>
1617 </xsd:enumeration>
1618 <xsd:enumeration value="SupportedBiometric">
1619 <xsd:annotation>
1620 <xsd:documentation>A biometric type supported by the implementing system.</xsd:documentation>
1621 </xsd:annotation>
1622 </xsd:enumeration>

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1623 <xsd:enumeration value="TransformOperation">
1624 <xsd:annotation>
1625 <xsd:documentation>A transform operation type supported by the implementing system.</xsd:documentation>
1626 </xsd:annotation>
1627 </xsd:enumeration>
1628 </xsd:restriction>
1629 </xsd:simpleType>
1630 <xsd:complexType name="CapabilityType">
1631 <xsd:annotation>
1632 <xsd:documentation>Defines a single capability supported by an implementing system.</xsd:documentation>
1633 </xsd:annotation>
1634 <xsd:sequence>
1635 <xsd:element name="CapabilityName" type="tns:CapabilityName" minOccurs="1" maxOccurs="1">
1636 <xsd:annotation>
1637 <xsd:documentation>The name of the capability.</xsd:documentation>
1638 </xsd:annotation>
1639 </xsd:element>
1640 <xsd:element name="CapabilityID" type="xsd:string" minOccurs="0" maxOccurs="1">
1641 <xsd:annotation>
1642 <xsd:documentation>An identifier assigned to the capability by the implementing system.</xsd:documentation>
1643 </xsd:annotation>
1644 </xsd:element>
1645 <xsd:element name="CapabilityDescription" type="xsd:string" minOccurs="0" maxOccurs="1">
1646 <xsd:annotation>
1647 <xsd:documentation>A description of the capability.</xsd:documentation>
1648 </xsd:annotation>
1649 </xsd:element>
1650 <xsd:element name="CapabilityValue" type="xsd:string" minOccurs="0" maxOccurs="1">
1651 <xsd:annotation>
1652 <xsd:documentation>A value assigned to the capability.</xsd:documentation>
1653 </xsd:annotation>
1654 </xsd:element>
1655 <xsd:element name="CapabilitySupportingValue" type="xsd:string" minOccurs="0" maxOccurs="1">
1656 <xsd:annotation>
1657 <xsd:documentation>A secondary value supporting the capability.</xsd:documentation>
1658 </xsd:annotation>
1659 </xsd:element>
1660 <xsd:element name="CapabilityAdditionalInfo" type="xsd:string" minOccurs="0" maxOccurs="1">
1661 <xsd:annotation>
1662 <xsd:documentation> Contains additional information for the supported capability.</xsd:documentation>
1663 </xsd:annotation>

```

```

1664 </xsd:element>
1665 </xsd:sequence>
1666 </xsd:complexType>
1667 <xsd:complexType name="CBEFF_BIR_ListType">
1668 <xsd:annotation>
1669 <xsd:documentation>A list of CBEFF-BIR elements.</xsd:documentation>
1670 </xsd:annotation>
1671 <xsd:sequence>
1672 <xsd:element name="BIR" type="tns:CBEFF_BIR_Type" minOccurs="0" maxOccurs="unbounded">
1673 <xsd:annotation>
1674 <xsd:documentation>CBEFF structure containing information about a biometric sample.</xsd:documentation>
1675 </xsd:annotation>
1676 </xsd:element>
1677 </xsd:sequence>
1678 </xsd:complexType>
1679 <xsd:complexType name="CBEFF_BIR_Type">
1680 <xsd:annotation>
1681 <xsd:documentation>Represents biometric information, with either a non-XML or XML
1682 representation.</xsd:documentation>
1683 </xsd:annotation>
1684 <xsd:sequence>
1685 <xsd:element name="FormatOwner" type="xsd:positiveInteger" minOccurs="1" maxOccurs="1" />
1686 <xsd:element name="FormatType" type="xsd:positiveInteger" minOccurs="1" maxOccurs="1" />
1687 <xsd:element name="BIR_Information" minOccurs="0" maxOccurs="1">
1688 <xsd:complexType>
1689 <xsd:sequence>
1690 <xsd:element name="BIR_Info" type="oasis_cbeff:BIRInfoType" minOccurs="0" maxOccurs="1"/>
1691 <xsd:element name="BDB_Info" type="oasis_cbeff:BDBInfoType" minOccurs="0" maxOccurs="1"/>
1692 <xsd:element name="SB_Info" type="oasis_cbeff:SBInfoType" minOccurs="0" maxOccurs="1"/>
1693 </xsd:sequence>
1694 </xsd:complexType>
1695 </xsd:element>
1696 <xsd:element name="BIR" type="tns:BaseBIRType" />
1697 </xsd:sequence>
1698 </xsd:complexType>
1699 <xsd:complexType name="BaseBIRType">
1700 </xsd:complexType>
1701 <xsd:complexType name="BinaryBIR">
1702 <xsd:complexContent>
1703 <xsd:extension base="tns:BaseBIRType">
1704 <xsd:sequence>

```

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1705 <xsd:element name="Binary" type="xsd:base64Binary" />
1706 </xsd:sequence>
1707 </xsd:extension>
1708 </xsd:complexContent>
1709 </xsd:complexType>
1710 <xsd:complexType name="URI_BIR">
1711 <xsd:complexContent>
1712 <xsd:extension base="tns:BaseBIRType">
1713 <xsd:sequence>
1714 <xsd:element name="URI" type="xsd:anyURI" />
1715 </xsd:sequence>
1716 </xsd:extension>
1717 </xsd:complexContent>
1718 </xsd:complexType>
1719 <xsd:complexType name="XML_BIR">
1720 <xsd:complexContent>
1721 <xsd:extension base="tns:BaseBIRType">
1722 <xsd:sequence>
1723 <xsd:element name="XML" type="oasis_cbeff:BIRType" />
1724 </xsd:sequence>
1725 </xsd:extension>
1726 </xsd:complexContent>
1727 </xsd:complexType>
1728 <xsd:simpleType name="Classification">
1729 <xsd:annotation>
1730 <xsd:documentation>The result of a classification.</xsd:documentation>
1731 </xsd:annotation>
1732 <xsd:restriction base="xsd:string"/>
1733 </xsd:simpleType>
1734 <xsd:simpleType name="ClassificationAlgorithmType">
1735 <xsd:annotation>
1736 <xsd:documentation>Type of classification algorithm that was used to perform the
1737 classification.</xsd:documentation>
1738 </xsd:annotation>
1739 <xsd:restriction base="xsd:string"/>
1740 </xsd:simpleType>
1741 <xsd:complexType name="ClassificationData">
1742 <xsd:annotation>
1743 <xsd:documentation>Contains information on classification results and the algorithm used to determine the
1744 classification.</xsd:documentation>
1745 </xsd:annotation>

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1746 <xsd:sequence>
1747 <xsd:element name="Classification" type="tns:Classification" minOccurs="1" maxOccurs="1">
1748 <xsd:annotation>
1749 <xsd:documentation>The result of the classification.</xsd:documentation>
1750 </xsd:annotation>
1751 </xsd:element>
1752 <xsd:element name="ClassificationAlgorithmType" type="tns:ClassificationAlgorithmType" minOccurs="1"
1753 maxOccurs="1">
1754 <xsd:annotation>
1755 <xsd:documentation>Identifies the type of classification algorithm that was used to perform the
1756 classification.</xsd:documentation>
1757 </xsd:annotation>
1758 </xsd:element>
1759 </xsd:sequence>
1760 </xsd:complexType>
1761 <xsd:complexType name="EncounterListType">
1762 <xsd:annotation>
1763 <xsd:documentation>Defines a set of encounters.</xsd:documentation>
1764 </xsd:annotation>
1765 <xsd:sequence>
1766 <xsd:element name="EncounterID" type="tns:BIASIDType" minOccurs="0" maxOccurs="unbounded">
1767 <xsd:annotation>
1768 <xsd:documentation>The identifier of an encounter.</xsd:documentation>
1769 </xsd:annotation>
1770 </xsd:element>
1771 </xsd:sequence>
1772 </xsd:complexType>
1773 <xsd:complexType name="FusionInformationListType">
1774 <xsd:annotation>
1775 <xsd:documentation>
1776 Contains at a minimum two sets of fusion input
1777 elements, as input to the PerformFusion request.
1778 </xsd:documentation>
1779 </xsd:annotation>
1780 <xsd:sequence>
1781 <xsd:element name="FusionElement" type="tns:FusionInformationType" minOccurs="2"
1782 maxOccurs="unbounded">
1783 <xsd:annotation>
1784 <xsd:documentation>A set of fusion information.</xsd:documentation>
1785 </xsd:annotation>
1786 </xsd:element>

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1787 </xsd:sequence>
1788 </xsd:complexType>
1789 <xsd:complexType name="FusionInformationType">
1790 <xsd:annotation>
1791 <xsd:documentation>Represents the information necessary to perform a fusion operation.</xsd:documentation>
1792 </xsd:annotation>
1793 <xsd:sequence>
1794 <xsd:element name="BiometricType" type="oasis_cbeff:MultipleTypesType" minOccurs="1" maxOccurs="1">
1795 <xsd:annotation>
1796 <xsd:documentation>The type of biological or behavioral data stored in the biometric record, as defined by
1797 CBEFF.</xsd:documentation>
1798 </xsd:annotation>
1799 </xsd:element>
1800 <xsd:element name="BiometricSubType" type="oasis_cbeff:SubtypeType" minOccurs="0" maxOccurs="1">
1801 <xsd:annotation>
1802 <xsd:documentation>More specifically defines the type of biometric data stored in the biometric
1803 record.</xsd:documentation>
1804 </xsd:annotation>
1805 </xsd:element>
1806 <xsd:element name="AlgorithmOwner" type="xsd:string" minOccurs="1" maxOccurs="1">
1807 <xsd:annotation>
1808 <xsd:documentation>The owner or vendor of the algorithm used to determine the score or
1809 decision.</xsd:documentation>
1810 </xsd:annotation>
1811 </xsd:element>
1812 <xsd:element name="AlgorithmType" type="xsd:string" minOccurs="1" maxOccurs="1">
1813 <xsd:annotation>
1814 <xsd:documentation>The Algorithm Owner's identifier for the specific algorithm product and version used to
1815 determine the score or decision.</xsd:documentation>
1816 </xsd:annotation>
1817 </xsd:element>
1818 <xsd:element name="FusionResult" type="tns:FusionResult" />
1819 </xsd:sequence>
1820 </xsd:complexType>
1821 <xsd:complexType name="FusionResult">
1822 <xsd:sequence />
1823 </xsd:complexType>
1824 <xsd:complexType name="FusionScore">
1825 <xsd:complexContent>
1826 <xsd:extension base="tns:FusionResult">
1827 <xsd:sequence>
1828 <xsd:element name="Score" type="tns:Score">

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1829 <xsd:annotation>
1830 <xsd:documentation>The similarity score assigned by the matching algorithm.</xsd:documentation>
1831 </xsd:annotation>
1832 </xsd:element>
1833 </xsd:sequence>
1834 </xsd:extension>
1835 </xsd:complexContent>
1836 </xsd:complexType>
1837 <xsd:complexType name="FusionDecision">
1838 <xsd:complexContent>
1839 <xsd:extension base="tns:FusionResult">
1840 <xsd:sequence>
1841 <xsd:element name="Decision" type="xsd:string">
1842 <xsd:annotation>
1843 <xsd:documentation>The match decision assigned by the matching algorithm.</xsd:documentation>
1844 </xsd:annotation>
1845 </xsd:element>
1846 </xsd:sequence>
1847 </xsd:extension>
1848 </xsd:complexContent>
1849 </xsd:complexType>
1850 <xsd:complexType name="GenericRequestParameters">
1851 <xsd:annotation>
1852 <xsd:documentation>Common request paramters that can be used to identify the
1853 requester.</xsd:documentation>
1854 </xsd:annotation>
1855 <xsd:sequence>
1856 <xsd:element name="Application" type="tns:ApplicationIdentifier" minOccurs="0" maxOccurs="1">
1857 <xsd:annotation>
1858 <xsd:documentation>Identifies the requesting application.</xsd:documentation>
1859 </xsd:annotation>
1860 </xsd:element>
1861 <xsd:element name="ApplicationUser" type="tns:ApplicationUserIdentifier" minOccurs="0" maxOccurs="1">
1862 <xsd:annotation>
1863 <xsd:documentation>Identifers the user or instance of the requesting application.</xsd:documentation>
1864 </xsd:annotation>
1865 </xsd:element>
1866 <xsd:element name="BIASOperationName" type="xsd:string" minOccurs="0" maxOccurs="1">
1867 <xsd:annotation>
1868 <xsd:documentation>Identifers the BIAS operation name that is being requested.</xsd:documentation>
1869 </xsd:annotation>

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1870 </xsd:element>
1871 </xsd:sequence>
1872 </xsd:complexType>
1873 <xsd:complexType name="InformationType">
1874 <xsd:annotation>
1875 <xsd:documentation>
1876 Allows for an unlimited number of data element types, and it does
1877 not specify nor require any particular data element.
1878 </xsd:documentation>
1879 </xsd:annotation>
1880 <xsd:sequence>
1881 <xsd:any namespace="##any" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>
1882 </xsd:sequence>
1883 </xsd:complexType>
1884 <xsd:complexType name="ListFilterType">
1885 <xsd:annotation>
1886 <xsd:documentation>
1887 Provides a method to filter the amount of information returned in
1888 a search of biometric data.
1889 </xsd:documentation>
1890 </xsd:annotation>
1891 <xsd:sequence>
1892 <xsd:element name="BiometricTypeFilters">
1893 <xsd:complexType>
1894 <xsd:sequence>
1895 <xsd:element name="BiometricTypeFilter" type="oasis_cbeff:MultipleTypesType" minOccurs="1"
1896 maxOccurs="unbounded">
1897 <xsd:annotation>
1898 <xsd:documentation>Limits the returned information to a specific type of biometric, as defined by
1899 CBEFF.</xsd:documentation>
1900 </xsd:annotation>
1901 </xsd:element>
1902 </xsd:sequence>
1903 </xsd:complexType>
1904 </xsd:element>
1905 <xsd:element name="IncludeBiometricSubtype" type="xsd:boolean" minOccurs="1" maxOccurs="1">
1906 <xsd:annotation>
1907 <xsd:documentation>A Boolean flag indicating if biometric subtype information should be
1908 returned.</xsd:documentation>
1909 </xsd:annotation>
1910 </xsd:element>

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1911 </xsd:sequence>
1912 </xsd:complexType>
1913 <xsd:simpleType name="MatchType">
1914 <xsd:annotation>
1915 <xsd:documentation>The result of a fusion method.</xsd:documentation>
1916 </xsd:annotation>
1917 <xsd:restriction base="xsd:boolean"/>
1918 </xsd:simpleType>
1919 <xsd:complexType name="ProcessingOptionsType">
1920 <xsd:annotation>
1921 <xsd:documentation>
1922 BIAS aggregate services support the ability to include various
1923 processing options which direct and possibly control the business
1924 logic for that service. The ProcessingOptionsType provides a
1925 method to represent those options. Processing options should be
1926 defined by the implementing system.
1927 </xsd:documentation>
1928 </xsd:annotation>
1929 <xsd:sequence>
1930 <xsd:element name="Option" type="xsd:string" minOccurs="0" maxOccurs="unbounded">
1931 <xsd:annotation>
1932 <xsd:documentation>An option supported by the implementing system.</xsd:documentation>
1933 </xsd:annotation>
1934 </xsd:element>
1935 </xsd:sequence>
1936 </xsd:complexType>
1937 <xsd:simpleType name="ProductID">
1938 <xsd:annotation>
1939 <xsd:documentation>The vendor's ID for a particular product.</xsd:documentation>
1940 </xsd:annotation>
1941 <xsd:restriction base="xsd:string"/>
1942 </xsd:simpleType>
1943 <xsd:complexType name="QualityData">
1944 <xsd:annotation>
1945 <xsd:documentation>Contains information about a biometric sample's quality and the algorithm used to compute
1946 the quality.</xsd:documentation>
1947 </xsd:annotation>
1948 <xsd:sequence>
1949 <xsd:element name="QualityScore" type="oasis_cbeff:QualityType" minOccurs="0" maxOccurs="1">
1950 <xsd:annotation>
1951 <xsd:documentation>The quality of a biometric sample.</xsd:documentation>

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1952 </xsd:annotation>
1953 </xsd:element>
1954 <xsd:element name="AlgorithmVendor" type="tns:VendorIdentifier" minOccurs="1" maxOccurs="1">
1955 <xsd:annotation>
1956 <xsd:documentation>The vendor of the quality algorithm used to determine the quality
1957 score.</xsd:documentation>
1958 </xsd:annotation>
1959 </xsd:element>
1960 <xsd:element name="AlgorithmVendorProductID" type="tns:ProductID" minOccurs="1" maxOccurs="1">
1961 <xsd:annotation>
1962 <xsd:documentation>The vendor's ID for the algorithm used to determine the quality.</xsd:documentation>
1963 </xsd:annotation>
1964 </xsd:element>
1965 <xsd:element name="AlgorithmVersion" type="tns:VersionType" minOccurs="0" maxOccurs="1">
1966 <xsd:annotation>
1967 <xsd:documentation>The version of the algorithm used to determine the quality.</xsd:documentation>
1968 </xsd:annotation>
1969 </xsd:element>
1970 </xsd:sequence>
1971 </xsd:complexType>
1972 <xsd:complexType name="RequestTemplate">
1973 <xsd:annotation>
1974 <xsd:documentation>Base template for BIAS primitive service requests.</xsd:documentation>
1975 </xsd:annotation>
1976 <xsd:sequence>
1977 <xsd:element name="GenericRequestParameters" type="tns:GenericRequestParameters" minOccurs="0"
1978 maxOccurs="1"/>
1979 </xsd:sequence>
1980 </xsd:complexType>
1981 <xsd:complexType name="ResponseStatus">
1982 <xsd:sequence>
1983 <xsd:element name="Return" type="tns:ReturnCode" minOccurs="1" maxOccurs="1">
1984 <xsd:annotation>
1985 <xsd:documentation>The return code indicates the return status of the operation.</xsd:documentation>
1986 </xsd:annotation>
1987 </xsd:element>
1988 <xsd:element name="Message" type="xsd:string" minOccurs="0" maxOccurs="1">
1989 <xsd:annotation>
1990 <xsd:documentation>A short message corresponding to the return code.</xsd:documentation>
1991 </xsd:annotation>
1992 </xsd:element>

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1993 </xsd:sequence>

1994 </xsd:complexType>

1995 <xsd:complexType name="ResponseTemplate">

1996 <xsd:annotation>

1997 <xsd:documentation>Base template for BIAS responses.</xsd:documentation>

1998 </xsd:annotation>

1999 <xsd:sequence>

2000 <xsd:element name="ResponseStatus" type="tns:ResponseStatus" minOccurs="1" maxOccurs="1">

2001 <xsd:annotation>

2002 <xsd:documentation>Returned status for the operation.</xsd:documentation>

2003 </xsd:annotation>

2004 </xsd:element>

2005 </xsd:sequence>

2006 </xsd:complexType>

2007 <xsd:simpleType name="ReturnCode">

2008 <xsd:annotation>

2009 <xsd:documentation>BIAS Operation Return Codes</xsd:documentation>

2010 </xsd:annotation>

2011 <xsd:restriction base="xsd:unsignedLong">

2012 <xsd:enumeration value="0">

2013 <xsd:annotation>

2014 <xsd:documentation>Success</xsd:documentation>

2015 </xsd:annotation>

2016 </xsd:enumeration>

2017 </xsd:restriction>

2018 </xsd:simpleType>

2019 <xsd:simpleType name="Score">

2020 <xsd:annotation>

2021 <xsd:documentation>Match result or quality score.</xsd:documentation>

2022 </xsd:annotation>

2023 <xsd:restriction base="xsd:float"/>

2024 </xsd:simpleType>

2025 <xsd:complexType name="TokenType">

2026 <xsd:annotation>

2027 <xsd:documentation>Defines a token that is returned for asynchronous processing.</xsd:documentation>

2028 </xsd:annotation>

2029 <xsd:sequence>

2030 <xsd:element name="TokenValue" type="xsd:string" minOccurs="1" maxOccurs="1">

2031 <xsd:annotation>

2032 <xsd:documentation>A value returned by the implementing system that is used to retrieve the results to a service

2033 at a later time.</xsd:documentation>

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2034 </xsd:annotation>
2035 </xsd:element>
2036 <xsd:element name="Expiration" type="xsd:date" minOccurs="1" maxOccurs="1">
2037 <xsd:annotation>
2038 <xsd:documentation>A date and time at which point the token expires and the service results are no longer
2039 guaranteed to be available.</xsd:documentation>
2040 </xsd:annotation>
2041 </xsd:element>
2042 </xsd:sequence>
2043 </xsd:complexType>
2044 <xsd:simpleType name="VendorIdentifier">
2045 <xsd:annotation>
2046 <xsd:documentation>Identifies a vendor.</xsd:documentation>
2047 </xsd:annotation>
2048 <xsd:restriction base="xsd:string"/>
2049 </xsd:simpleType>
2050 <xsd:complexType name="Version">
2051 <xsd:annotation>
2052 <xsd:documentation>
2053 For a description or definition of each data element, see the
2054 referenced CBEFF standards in the CBEFF_XML_BIR_Type schema.
2055 </xsd:documentation>
2056 </xsd:annotation>
2057 <xsd:sequence>
2058 <xsd:element name="major" type="xsd:nonNegativeInteger" minOccurs="1" maxOccurs="1"/>
2059 <xsd:element name="minor" type="xsd:nonNegativeInteger" minOccurs="1" maxOccurs="1"/>
2060 </xsd:sequence>
2061 </xsd:complexType>
2062 <xsd:simpleType name="VersionType">
2063 <xsd:annotation>
2064 <xsd:documentation>The version of a component.</xsd:documentation>
2065 </xsd:annotation>
2066 <xsd:restriction base="xsd:string"/>
2067 </xsd:simpleType>
2068 <xsd:element name="AddSubjectToGallery">
2069 <xsd:complexType>
2070 <xsd:annotation>
2071 <xsd:documentation>
2072 Register a subject to a given gallery or population group.
2073 </xsd:documentation>
2074 </xsd:annotation>

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2075 <xsd:sequence>
2076 <xsd:element name="AddSubjectToGalleryRequest" nillable="true">
2077 <xsd:complexType>
2078 <xsd:complexContent>
2079 <xsd:extension base="tns:RequestTemplate">
2080 <xsd:sequence>
2081 <xsd:element name="GalleryID" type="tns:BIASIDType" minOccurs="1" maxOccurs="1">
2082 <xsd:annotation>
2083 <xsd:documentation>The identifier of the gallery or population group to which the subject will be
2084 added.</xsd:documentation>
2085 </xsd:annotation>
2086 </xsd:element>
2087 <xsd:element name="Identity" type="tns:BIASIdentity" minOccurs="1" maxOccurs="1">
2088 <xsd:annotation>
2089 <xsd:documentation>The identity to add to the gallery.</xsd:documentation>
2090 </xsd:annotation>
2091 </xsd:element>
2092 </xsd:sequence>
2093 </xsd:extension>
2094 </xsd:complexContent>
2095 </xsd:complexType>
2096 </xsd:element>
2097 </xsd:sequence>
2098 </xsd:complexType>
2099 </xsd:element>
2100 <xsd:element name="AddSubjectToGalleryResponse">
2101 <xsd:complexType>
2102 <xsd:annotation>
2103 <xsd:documentation>
2104 The response to an AddSubjectToGallery request.
2105 </xsd:documentation>
2106 </xsd:annotation>
2107 <xsd:sequence>
2108 <xsd:element name="AddSubjectToGalleryResponsePackage" nillable="true">
2109 <xsd:complexType>
2110 <xsd:complexContent>
2111 <xsd:extension base="tns:ResponseTemplate"/>
2112 </xsd:complexContent>
2113 </xsd:complexType>
2114 </xsd:element>
2115 </xsd:sequence>

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2116 </xsd:complexType>
2117 </xsd:element>
2118 <xsd:element name="CheckQuality">
2119 <xsd:complexType>
2120 <xsd:annotation>
2121 <xsd:documentation>
2122 Calculate a quality score for a given biometric.
2123 </xsd:documentation>
2124 </xsd:annotation>
2125 <xsd:sequence>
2126 <xsd:element name="CheckQualityRequest" nillable="true">
2127 <xsd:complexType>
2128 <xsd:complexContent>
2129 <xsd:extension base="tns:RequestTemplate">
2130 <xsd:sequence>
2131 <xsd:element name="BiometricData" type="tns:BIASBiometricDataType" minOccurs="1" maxOccurs="1">
2132 <xsd:annotation>
2133 <xsd:documentation>Data structure containing a single biometric sample for which a quality score is to be
2134 determined.</xsd:documentation>
2135 </xsd:annotation>
2136 </xsd:element>
2137 <xsd:element name="Quality" type="tns:QualityData" minOccurs="0" maxOccurs="1">
2138 <xsd:annotation>
2139 <xsd:documentation>Specifies a particular algorithm vendor and vender product ID.</xsd:documentation>
2140 </xsd:annotation>
2141 </xsd:element>
2142 </xsd:sequence>
2143 </xsd:extension>
2144 </xsd:complexContent>
2145 </xsd:complexType>
2146 </xsd:element>
2147 </xsd:sequence>
2148 </xsd:complexType>
2149 </xsd:element>
2150 <xsd:element name="CheckQualityResponse">
2151 <xsd:complexType>
2152 <xsd:annotation>
2153 <xsd:documentation>
2154 The response to a CheckQuality request.
2155 </xsd:documentation>
2156 </xsd:annotation>

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2157 <xsd:sequence>
2158 <xsd:element name="CheckQualityResponsePackage" nillable="true">
2159 <xsd:complexType>
2160 <xsd:complexContent>
2161 <xsd:extension base="tns:ResponseTemplate">
2162 <xsd:sequence>
2163 <xsd:element name="QualityInfo" type="tns:QualityData" minOccurs="1" maxOccurs="1">
2164 <xsd:annotation>
2165 <xsd:documentation>Contains the quality information for the submitted biometric sample.</xsd:documentation>
2166 </xsd:annotation>
2167 </xsd:element>
2168 </xsd:sequence>
2169 </xsd:extension>
2170 </xsd:complexContent>
2171 </xsd:complexType>
2172 </xsd:element>
2173 </xsd:sequence>
2174 </xsd:complexType>
2175 </xsd:element>
2176 <xsd:element name="ClassifyBiometricData">
2177 <xsd:complexType>
2178 <xsd:annotation>
2179 <xsd:documentation>
2180 Classifies a biometric sample.
2181 </xsd:documentation>
2182 </xsd:annotation>
2183 <xsd:sequence>
2184 <xsd:element name="ClassifyBiometricDataRequest" nillable="true">
2185 <xsd:complexType>
2186 <xsd:complexContent>
2187 <xsd:extension base="tns:RequestTemplate">
2188 <xsd:sequence>
2189 <xsd:element name="BiometricData" type="tns:BIASBiometricDataType" minOccurs="1" maxOccurs="1">
2190 <xsd:annotation>
2191 <xsd:documentation>Data structure containing a single biometric sample for which the classification is to be
2192 determined.</xsd:documentation>
2193 </xsd:annotation>
2194 </xsd:element>
2195 </xsd:sequence>
2196 </xsd:extension>
2197 </xsd:complexContent>

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2198 </xsd:complexType>
2199 </xsd:element>
2200 </xsd:sequence>
2201 </xsd:complexType>
2202 </xsd:element>
2203 <xsd:element name="ClassifyBiometricDataResponse">
2204 <xsd:complexType>
2205 <xsd:annotation>
2206 <xsd:documentation>
2207 The response to a ClassifyBiometricData request, containing
2208 the classification of a biometric sample.
2209 </xsd:documentation>
2210 </xsd:annotation>
2211 <xsd:sequence>
2212 <xsd:element name="ClassifyBiometricDataResponsePackage" nillable="true">
2213 <xsd:complexType>
2214 <xsd:complexContent>
2215 <xsd:extension base="tns:ResponseTemplate">
2216 <xsd:sequence>
2217 <xsd:element name="ClassificationData" type="tns:ClassificationData" minOccurs="1" maxOccurs="1">
2218 <xsd:annotation>
2219 <xsd:documentation>Information on the results and type of classification performed.</xsd:documentation>
2220 </xsd:annotation>
2221 </xsd:element>
2222 </xsd:sequence>
2223 </xsd:extension>
2224 </xsd:complexContent>
2225 </xsd:complexType>
2226 </xsd:element>
2227 </xsd:sequence>
2228 </xsd:complexType>
2229 </xsd:element>
2230 <xsd:element name="CreateSubject">
2231 <xsd:complexType>
2232 <xsd:annotation>
2233 <xsd:documentation>
2234 Create a new subject record.
2235 </xsd:documentation>
2236 </xsd:annotation>
2237 <xsd:sequence>
2238 <xsd:element name="CreateSubjectRequest" nillable="true">

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2239 <xsd:complexType>
2240 <xsd:complexContent>
2241 <xsd:extension base="tns:RequestTemplate"/>
2242 </xsd:complexContent>
2243 </xsd:complexType>
2244 </xsd:element>
2245 </xsd:sequence>
2246 </xsd:complexType>
2247 </xsd:element>
2248 <xsd:element name="CreateSubjectResponse">
2249 <xsd:complexType>
2250 <xsd:annotation>
2251 <xsd:documentation>
2252 The response to a CreateSubject request, containing the subject
2253 ID of the new subject record.
2254 </xsd:documentation>
2255 </xsd:annotation>
2256 <xsd:sequence>
2257 <xsd:element name="CreateSubjectResponsePackage" nillable="true">
2258 <xsd:complexType>
2259 <xsd:complexContent>
2260 <xsd:extension base="tns:ResponseTemplate">
2261 <xsd:sequence>
2262 <xsd:element name="Identity" type="tns:BIASIdentity" minOccurs="1" maxOccurs="1">
2263 <xsd:annotation>
2264 <xsd:documentation>Contains the subject ID of the new subject record.</xsd:documentation>
2265 </xsd:annotation>
2266 </xsd:element>
2267 </xsd:sequence>
2268 </xsd:extension>
2269 </xsd:complexContent>
2270 </xsd:complexType>
2271 </xsd:element>
2272 </xsd:sequence>
2273 </xsd:complexType>
2274 </xsd:element>
2275 <xsd:element name="DeleteBiographicData">
2276 <xsd:complexType>
2277 <xsd:annotation>
2278 <xsd:documentation>
2279 Erase all of the biographic data associated with a given

```

2280 subject record or, in the encounter-centric model, with a
 2281 given encounter.
 2282 </xsd:documentation>
 2283 </xsd:annotation>
 2284 <xsd:sequence>
 2285 <xsd:element name="DeleteBiographicDataRequest" nillable="true">
 2286 <xsd:complexType>
 2287 <xsd:complexContent>
 2288 <xsd:extension base="tns:RequestTemplate">
 2289 <xsd:sequence>
 2290 <xsd:element name="Identity" type="tns:BIASIdentity" minOccurs="1" maxOccurs="1">
 2291 <xsd:annotation>
 2292 <xsd:documentation>Contains either the subject ID or encounter ID reference.</xsd:documentation>
 2293 </xsd:annotation>
 2294 </xsd:element>
 2295 </xsd:sequence>
 2296 </xsd:extension>
 2297 </xsd:complexContent>
 2298 </xsd:complexType>
 2299 </xsd:element>
 2300 </xsd:sequence>
 2301 </xsd:complexType>
 2302 </xsd:element>
 2303 <xsd:element name="DeleteBiographicDataResponse">
 2304 <xsd:complexType>
 2305 <xsd:annotation>
 2306 <xsd:documentation>
 2307 The response to a DeleteBiographicData request.
 2308 </xsd:documentation>
 2309 </xsd:annotation>
 2310 <xsd:sequence>
 2311 <xsd:element name="DeleteBiographicDataResponsePackage" nillable="true">
 2312 <xsd:complexType>
 2313 <xsd:complexContent>
 2314 <xsd:extension base="tns:ResponseTemplate"/>
 2315 </xsd:complexContent>
 2316 </xsd:complexType>
 2317 </xsd:element>
 2318 </xsd:sequence>
 2319 </xsd:complexType>
 2320 </xsd:element>

2321 <xsd:element name="DeleteBiometricData">
 2322 <xsd:complexType>
 2323 <xsd:annotation>
 2324 <xsd:documentation>
 2325 Erase all of the biometric data associated with a given
 2326 subject record or, in the encounter-centric model, with a
 2327 given encounter.
 2328 </xsd:documentation>
 2329 </xsd:annotation>
 2330 <xsd:sequence>
 2331 <xsd:element name="DeleteBiometricDataRequest" nillable="true">
 2332 <xsd:complexType>
 2333 <xsd:complexContent>
 2334 <xsd:extension base="tns:RequestTemplate">
 2335 <xsd:sequence>
 2336 <xsd:element name="Identity" type="tns:BIASIdentity" minOccurs="1" maxOccurs="1">
 2337 <xsd:annotation>
 2338 <xsd:documentation>Contains either the subject ID or encounter ID reference.</xsd:documentation>
 2339 </xsd:annotation>
 2340 </xsd:element>
 2341 </xsd:sequence>
 2342 </xsd:extension>
 2343 </xsd:complexContent>
 2344 </xsd:complexType>
 2345 </xsd:element>
 2346 </xsd:sequence>
 2347 </xsd:complexType>
 2348 </xsd:element>
 2349 <xsd:element name="DeleteBiometricDataResponse">
 2350 <xsd:complexType>
 2351 <xsd:annotation>
 2352 <xsd:documentation>
 2353 The response to a DeleteBiometricData request.
 2354 </xsd:documentation>
 2355 </xsd:annotation>
 2356 <xsd:sequence>
 2357 <xsd:element name="DeleteBiometricDataResponsePackage" nillable="true">
 2358 <xsd:complexType>
 2359 <xsd:complexContent>
 2360 <xsd:extension base="tns:ResponseTemplate"/>
 2361 </xsd:complexContent>

```

2362 </xsd:complexType>
2363 </xsd:element>
2364 </xsd:sequence>
2365 </xsd:complexType>
2366 </xsd:element>
2367 <xsd:element name="DeleteSubject">
2368 <xsd:complexType>
2369 <xsd:annotation>
2370 <xsd:documentation>
2371 Delete an existing subject record and, in an encounter-centric
2372 model, any associated encounter information.
2373 </xsd:documentation>
2374 </xsd:annotation>
2375 <xsd:sequence>
2376 <xsd:element name="DeleteSubjectRequest" nillable="true">
2377 <xsd:complexType>
2378 <xsd:complexContent>
2379 <xsd:extension base="tns:RequestTemplate">
2380 <xsd:sequence>
2381 <xsd:element name="Identity" type="tns:BIASIdentity" minOccurs="1" maxOccurs="1">
2382 <xsd:annotation>
2383 <xsd:documentation>Subject ID of the identity to delete.</xsd:documentation>
2384 </xsd:annotation>
2385 </xsd:element>
2386 </xsd:sequence>
2387 </xsd:extension>
2388 </xsd:complexContent>
2389 </xsd:complexType>
2390 </xsd:element>
2391 </xsd:sequence>
2392 </xsd:complexType>
2393 </xsd:element>
2394 <xsd:element name="DeleteSubjectResponse">
2395 <xsd:complexType>
2396 <xsd:annotation>
2397 <xsd:documentation>
2398 The response to a DeleteSubject request.
2399 </xsd:documentation>
2400 </xsd:annotation>
2401 <xsd:sequence>
2402 <xsd:element name="DeleteSubjectResponsePackage" nillable="true">

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2403 <xsd:complexType>
2404 <xsd:complexContent>
2405 <xsd:extension base="tns:ResponseTemplate"/>
2406 </xsd:complexContent>
2407 </xsd:complexType>
2408 </xsd:element>
2409 </xsd:sequence>
2410 </xsd:complexType>
2411 </xsd:element>
2412 <xsd:element name="DeleteSubjectFromGallery">
2413 <xsd:complexType>
2414 <xsd:annotation>
2415 <xsd:documentation>
2416 Remove the registration of a subject from a gallery or
2417 population group.
2418 </xsd:documentation>
2419 </xsd:annotation>
2420 <xsd:sequence>
2421 <xsd:element name="DeleteSubjectFromGalleryRequest" nillable="true">
2422 <xsd:complexType>
2423 <xsd:complexContent>
2424 <xsd:extension base="tns:RequestTemplate">
2425 <xsd:sequence>
2426 <xsd:element name="GalleryID" type="tns:BIASIDType" minOccurs="1" maxOccurs="1">
2427 <xsd:annotation>
2428 <xsd:documentation>The identifier of the gallery or population group from which the subject will be
2429 deleted.</xsd:documentation>
2430 </xsd:annotation>
2431 </xsd:element>
2432 <xsd:element name="Identity" type="tns:BIASIdentity" minOccurs="1" maxOccurs="1">
2433 <xsd:annotation>
2434 <xsd:documentation>The identity to remove from the gallery.</xsd:documentation>
2435 </xsd:annotation>
2436 </xsd:element>
2437 </xsd:sequence>
2438 </xsd:extension>
2439 </xsd:complexContent>
2440 </xsd:complexType>
2441 </xsd:element>
2442 </xsd:sequence>
2443 </xsd:complexType>

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2444 </xsd:element>
2445 <xsd:element name="DeleteSubjectFromGalleryResponse">
2446 <xsd:complexType>
2447 <xsd:annotation>
2448 <xsd:documentation>
2449 The response to a DeleteSubjectFromGallery request.
2450 </xsd:documentation>
2451 </xsd:annotation>
2452 <xsd:sequence>
2453 <xsd:element name="DeleteSubjectFromGalleryResponsePackage" nillable="true">
2454 <xsd:complexType>
2455 <xsd:complexContent>
2456 <xsd:extension base="tns:ResponseTemplate"/>
2457 </xsd:complexContent>
2458 </xsd:complexType>
2459 </xsd:element>
2460 </xsd:sequence>
2461 </xsd:complexType>
2462 </xsd:element>
2463 <xsd:element name="GetIdentifySubjectResults">
2464 <xsd:complexType>
2465 <xsd:annotation>
2466 <xsd:documentation>
2467 Retrieve the identification results for a specified token,
2468 which was returned by the Identify Subject service.
2469 </xsd:documentation>
2470 </xsd:annotation>
2471 <xsd:sequence>
2472 <xsd:element name="GetIdentifySubjectResultsRequest" nillable="true">
2473 <xsd:complexType>
2474 <xsd:complexContent>
2475 <xsd:extension base="tns:RequestTemplate">
2476 <xsd:sequence>
2477 <xsd:element name="Token" type="tns:TokenType" minOccurs="1" maxOccurs="1">
2478 <xsd:annotation>
2479 <xsd:documentation>A value used to retrieve the results of an IdentifySubject request.</xsd:documentation>
2480 </xsd:annotation>
2481 </xsd:element>
2482 </xsd:sequence>
2483 </xsd:extension>
2484 </xsd:complexContent>

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2485 </xsd:complexType>
2486 </xsd:element>
2487 </xsd:sequence>
2488 </xsd:complexType>
2489 </xsd:element>
2490 <xsd:element name="GetIdentifySubjectResultsResponse">
2491 <xsd:complexType>
2492 <xsd:annotation>
2493 <xsd:documentation>
2494 The response to a GetIdentifySubjectResults request, which includes a candidate list.
2495 </xsd:documentation>
2496 </xsd:annotation>
2497 <xsd:sequence>
2498 <xsd:element name="GetIdentifySubjectResultsResponsePackage" nillable="true">
2499 <xsd:complexType>
2500 <xsd:complexContent>
2501 <xsd:extension base="tns:ResponseTemplate">
2502 <xsd:sequence>
2503 <xsd:element name="CandidateList" type="tns:CandidateListType" minOccurs="1" maxOccurs="1">
2504 <xsd:annotation>
2505 <xsd:documentation>A rank-ordered list of candidates that have a likelihood of matching the input biometric
2506 sample.</xsd:documentation>
2507 </xsd:annotation>
2508 </xsd:element>
2509 </xsd:sequence>
2510 </xsd:extension>
2511 </xsd:complexContent>
2512 </xsd:complexType>
2513 </xsd:element>
2514 </xsd:sequence>
2515 </xsd:complexType>
2516 </xsd:element>
2517 <xsd:element name="IdentifySubject">
2518 <xsd:complexType>
2519 <xsd:annotation>
2520 <xsd:documentation>
2521 Perform an identification search against a given gallery for
2522 a given biometric.
2523 </xsd:documentation>
2524 </xsd:annotation>
2525 <xsd:sequence>

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2526 <xsd:element name="IdentifySubjectRequest" nillable="true">
2527 <xsd:complexType>
2528 <xsd:complexContent>
2529 <xsd:extension base="tns:RequestTemplate">
2530 <xsd:sequence>
2531 <xsd:element name="GalleryID" type="tns:BIASIDType" minOccurs="1" maxOccurs="1">
2532 <xsd:annotation>
2533 <xsd:documentation>The identifier of the gallery or population group which will be
2534 searched.</xsd:documentation>
2535 </xsd:annotation>
2536 </xsd:element>
2537 <xsd:element name="Identity" type="tns:BIASIdentity" minOccurs="1" maxOccurs="1">
2538 <xsd:annotation>
2539 <xsd:documentation>Contains the BIR, a data structure containing the biometric sample for the
2540 search.</xsd:documentation>
2541 </xsd:annotation>
2542 </xsd:element>
2543 <xsd:element name="MaxListSize" type="xsd:positiveInteger" minOccurs="1" maxOccurs="1">
2544 <xsd:annotation>
2545 <xsd:documentation>The maximum size of the candidate list that should be returned.</xsd:documentation>
2546 </xsd:annotation>
2547 </xsd:element>
2548 </xsd:sequence>
2549 </xsd:extension>
2550 </xsd:complexContent>
2551 </xsd:complexType>
2552 </xsd:element>
2553 </xsd:sequence>
2554 </xsd:complexType>
2555 </xsd:element>
2556 <xsd:element name="IdentifySubjectResponse">
2557 <xsd:complexType>
2558 <xsd:annotation>
2559 <xsd:documentation>
2560 The response to an IdentifySubject request, returning a
2561 rank-ordered candidate list.
2562 </xsd:documentation>
2563 </xsd:annotation>
2564 <xsd:sequence>
2565 <xsd:element name="IdentifySubjectResponsePackage" nillable="true">
2566 <xsd:complexType>

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2567 <xsd:complexContent>
2568 <xsd:extension base="tns:ResponseTemplate">
2569 <xsd:sequence>
2570 <xsd:element name="IdentifySubjectResult" type="tns:IdentifySubjectResultType" />
2571 </xsd:sequence>
2572 </xsd:extension>
2573 </xsd:complexContent>
2574 </xsd:complexType>
2575 </xsd:element>
2576 </xsd:sequence>
2577 </xsd:complexType>
2578 </xsd:element>
2579 <xsd:complexType name="IdentifySubjectResultType">
2580 <xsd:sequence />
2581 </xsd:complexType>
2582 <xsd:complexType name="CandidateListResultType">
2583 <xsd:complexContent>
2584 <xsd:extension base="tns:IdentifySubjectResultType">
2585 <xsd:sequence>
2586 <xsd:element name="CandidateList" type="tns:CandidateListType">
2587 <xsd:annotation>
2588 <xsd:documentation>A rank-ordered list of candidates that have a likelihood of matching the input biometric
2589 sample; returned with successful synchronous request processing.</xsd:documentation>
2590 </xsd:annotation>
2591 </xsd:element>
2592 </xsd:sequence>
2593 </xsd:extension>
2594 </xsd:complexContent>
2595 </xsd:complexType>
2596 <xsd:complexType name="TokenResultType">
2597 <xsd:complexContent>
2598 <xsd:extension base="tns:IdentifySubjectResultType">
2599 <xsd:sequence>
2600 <xsd:element name="Token" type="tns:TokenType">
2601 <xsd:annotation>
2602 <xsd:documentation>A token used to retrieve the results of the IdentifySubject request; returned with
2603 asynchronous request processing.</xsd:documentation>
2604 </xsd:annotation>
2605 </xsd:element>
2606 </xsd:sequence>
2607 </xsd:extension>

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2608 </xsd:complexContent>
2609 </xsd:complexType>
2610 <xsd:element name="ListBiographicData">
2611 <xsd:complexType>
2612 <xsd:annotation>
2613 <xsd:documentation>
2614 Lists the biographic data elements stored for a subject.
2615 </xsd:documentation>
2616 </xsd:annotation>
2617 <xsd:sequence>
2618 <xsd:element name="ListBiographicDataRequest" nillable="true">
2619 <xsd:complexType>
2620 <xsd:complexContent>
2621 <xsd:extension base="tns:RequestTemplate">
2622 <xsd:sequence>
2623 <xsd:element name="Identity" type="tns:BIASIdentity" minOccurs="1" maxOccurs="1">
2624 <xsd:annotation>
2625 <xsd:documentation>Identifies the subject or, in the encounter-centric model, a subject and an
2626 encounter.</xsd:documentation>
2627 </xsd:annotation>
2628 </xsd:element>
2629 </xsd:sequence>
2630 </xsd:extension>
2631 </xsd:complexContent>
2632 </xsd:complexType>
2633 </xsd:element>
2634 </xsd:sequence>
2635 </xsd:complexType>
2636 </xsd:element>
2637 <xsd:element name="ListBiographicDataResponse">
2638 <xsd:complexType>
2639 <xsd:annotation>
2640 <xsd:documentation>
2641 The response to a ListBiographicData request, containing a list
2642 of biographic data elements stored for a subject. In the
2643 encounter-centric model, the biographic data elements for a
2644 specific encounter are returned. If an encounter ID is not
2645 specified and encounter data exists for the subject, the list
2646 of encounter IDs which contain biographic data is returned.
2647 </xsd:documentation>
2648 </xsd:annotation>

```

```

2649 <xsd:sequence>
2650 <xsd:element name="ListBiographicDataResponsePackage" nillable="true">
2651 <xsd:complexType>
2652 <xsd:complexContent>
2653 <xsd:extension base="tns:ResponseTemplate">
2654 <xsd:sequence>
2655 <xsd:element name="Identity" type="tns:BIASIdentity" minOccurs="0" maxOccurs="1">
2656 <xsd:annotation>
2657 <xsd:documentation>
2658 Contains a list of biographic data elements associated with a
2659 subject or encounter; non-empty if the service was
2660 successful, biographic data exists, and either (a) the
2661 person-centric model is being used or (b) the
2662 encounter-centric model is being used and an encounter
2663 identifier was specified.
2664 </xsd:documentation>
2665 </xsd:annotation>
2666 </xsd:element>
2667 <xsd:element name="EncounterList" type="tns:EncounterListType" minOccurs="0" maxOccurs="1">
2668 <xsd:annotation>
2669 <xsd:documentation>
2670 A list of encounter ID's associated with a subject and
2671 which contain biographic data; non-empty if the service
2672 was successful, biographic data exists, the
2673 encounter-centric model is being used, and an encounter
2674 identifier was not specified.
2675 </xsd:documentation>
2676 </xsd:annotation>
2677 </xsd:element>
2678 </xsd:sequence>
2679 </xsd:extension>
2680 </xsd:complexContent>
2681 </xsd:complexType>
2682 </xsd:element>
2683 </xsd:sequence>
2684 </xsd:complexType>
2685 </xsd:element>
2686 <xsd:element name="ListBiometricData">
2687 <xsd:complexType>
2688 <xsd:annotation>
2689 <xsd:documentation>

```

2690 Lists the biometric data elements stored for a subject. Note
 2691 that no actual biometric data is returned by this service (see
 2692 the RetrieveBiometricInformation service to obtain the biometric
 2693 data).

```

2694 </xsd:documentation>
2695 </xsd:annotation>
2696 <xsd:sequence>
2697   <xsd:element name="ListBiometricDataRequest" nillable="true">
2698     <xsd:complexType>
2699       <xsd:complexContent>
2700         <xsd:extension base="tns:RequestTemplate">
2701           <xsd:sequence>
2702             <xsd:element name="Identity" type="tns:BIASIdentity" minOccurs="1" maxOccurs="1">
2703               <xsd:annotation>
2704                 <xsd:documentation>Identifies the subject or, in the encounter-centric model, a subject and an
2705                 encounter.</xsd:documentation>
2706               </xsd:annotation>
2707             </xsd:element>
2708             <xsd:element name="ListFilter" type="tns:ListFilterType" minOccurs="0" maxOccurs="1">
2709               <xsd:annotation>
2710                 <xsd:documentation>Indicates what biometric information should be returned.</xsd:documentation>
2711               </xsd:annotation>
2712             </xsd:element>
2713           </xsd:sequence>
2714         </xsd:extension>
2715       </xsd:complexContent>
2716     </xsd:complexType>
2717   </xsd:element>
2718 </xsd:sequence>
2719 </xsd:complexType>
2720 </xsd:element>
2721 <xsd:element name="ListBiometricDataResponse">
2722   <xsd:complexType>
2723     <xsd:annotation>
2724       <xsd:documentation>
2725         The response to a ListBiometricData request, containing a list
2726         of biometric data elements stored for a subject. In the
2727         encounter-centric model, the biometric data elements for a
2728         specific encounter are returned. If an encounter ID is not
2729         specified and encounter data exists for the subject, the list
2730         of encounter IDs which contain biometric data is returned.

```

2731 </xsd:documentation>
 2732 </xsd:annotation>
 2733 <xsd:sequence>
 2734 <xsd:element name="ListBiometricDataResponsePackage" nillable="true">
 2735 <xsd:complexType>
 2736 <xsd:complexContent>
 2737 <xsd:extension base="tns:ResponseTemplate">
 2738 <xsd:sequence>
 2739 <xsd:element name="Identity" type="tns:BIASIdentity">
 2740 <xsd:annotation>
 2741 <xsd:documentation>
 2742 Includes a list of biometric data elements associated
 2743 with a subject or encounter or a list of encounter ID's
 2744 associated with a subject and which contain biometric
 2745 data.
 2746 </xsd:documentation>
 2747 </xsd:annotation>
 2748 </xsd:element>
 2749 </xsd:sequence>
 2750 </xsd:extension>
 2751 </xsd:complexContent>
 2752 </xsd:complexType>
 2753 </xsd:element>
 2754 </xsd:sequence>
 2755 </xsd:complexType>
 2756 </xsd:element>
 2757 <xsd:element name="PerformFusion">
 2758 <xsd:complexType>
 2759 <xsd:annotation>
 2760 <xsd:documentation>
 2761 Accepts either match score or match decision information and creates a fused match result.
 2762 </xsd:documentation>
 2763 </xsd:annotation>
 2764 <xsd:sequence>
 2765 <xsd:element name="PerformFusionRequest" nillable="true">
 2766 <xsd:complexType>
 2767 <xsd:complexContent>
 2768 <xsd:extension base="tns:RequestTemplate">
 2769 <xsd:sequence>
 2770 <xsd:element name="FusionInput" type="tns:FusionInformationListType" minOccurs="1" maxOccurs="1">
 2771 <xsd:annotation>

```

2772 <xsd:documentation>Score or decision input information to the fusion method.</xsd:documentation>
2773 </xsd:annotation>
2774 </xsd:element>
2775 </xsd:sequence>
2776 </xsd:extension>
2777 </xsd:complexContent>
2778 </xsd:complexType>
2779 </xsd:element>
2780 </xsd:sequence>
2781 </xsd:complexType>
2782 </xsd:element>
2783 <xsd:element name="PerformFusionResponse">
2784 <xsd:complexType>
2785 <xsd:annotation>
2786 <xsd:documentation>
2787 The response to the PerformFusion request.
2788 </xsd:documentation>
2789 </xsd:annotation>
2790 <xsd:sequence>
2791 <xsd:element name="PerformFusionResponsePackage" nillable="true">
2792 <xsd:complexType>
2793 <xsd:complexContent>
2794 <xsd:extension base="tns:ResponseTemplate">
2795 <xsd:sequence>
2796 <xsd:element name="Match" type="tns:MatchType" minOccurs="1" maxOccurs="1">
2797 <xsd:annotation>
2798 <xsd:documentation>Indicates the result of the fusion method</xsd:documentation>
2799 </xsd:annotation>
2800 </xsd:element>
2801 </xsd:sequence>
2802 </xsd:extension>
2803 </xsd:complexContent>
2804 </xsd:complexType>
2805 </xsd:element>
2806 </xsd:sequence>
2807 </xsd:complexType>
2808 </xsd:element>
2809 <xsd:element name="QueryCapabilities">
2810 <xsd:complexType>
2811 <xsd:annotation>
2812 <xsd:documentation>

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2813 Returns a list of the capabilities, options, galleries, etc.
 2814 that are supported by the BIAS implementation.
 2815 </xsd:documentation>
 2816 </xsd:annotation>
 2817 <xsd:sequence>
 2818 <xsd:element name="QueryCapabilitiesRequest" nillable="true">
 2819 <xsd:complexType>
 2820 <xsd:complexContent>
 2821 <xsd:extension base="tns:RequestTemplate"/>
 2822 </xsd:complexContent>
 2823 </xsd:complexType>
 2824 </xsd:element>
 2825 </xsd:sequence>
 2826 </xsd:complexType>
 2827 </xsd:element>
 2828 <xsd:element name="QueryCapabilitiesResponse">
 2829 <xsd:complexType>
 2830 <xsd:annotation>
 2831 <xsd:documentation>
 2832 The response to a QueryCapabilities request.
 2833 </xsd:documentation>
 2834 </xsd:annotation>
 2835 <xsd:sequence>
 2836 <xsd:element name="QueryCapabilitiesResponsePackage" nillable="true">
 2837 <xsd:complexType>
 2838 <xsd:complexContent>
 2839 <xsd:extension base="tns:ResponseTemplate">
 2840 <xsd:sequence>
 2841 <xsd:element name="CapabilityList" type="tns:CapabilityListType" minOccurs="1" maxOccurs="1">
 2842 <xsd:annotation>
 2843 <xsd:documentation>A list of capabilities supported by the BIAS implementation.</xsd:documentation>
 2844 </xsd:annotation>
 2845 </xsd:element>
 2846 </xsd:sequence>
 2847 </xsd:extension>
 2848 </xsd:complexContent>
 2849 </xsd:complexType>
 2850 </xsd:element>
 2851 </xsd:sequence>
 2852 </xsd:complexType>
 2853 </xsd:element>

```

2854 <xsd:element name="RetrieveBiographicInformation">
2855 <xsd:complexType>
2856 <xsd:annotation>
2857 <xsd:documentation>
2858 Retrieves the biographic data associated with a subject ID.
2859 </xsd:documentation>
2860 </xsd:annotation>
2861 <xsd:sequence>
2862 <xsd:element name="RetrieveBiographicInformationRequest" nillable="true">
2863 <xsd:complexType>
2864 <xsd:complexContent>
2865 <xsd:extension base="tns:RequestTemplate">
2866 <xsd:sequence>
2867 <xsd:element name="Identity" type="tns:BIASIdentity" minOccurs="1" maxOccurs="1">
2868 <xsd:annotation>
2869 <xsd:documentation>Identifies the subject or, in the encounter-centric model, a subject and an
2870 encounter.</xsd:documentation>
2871 </xsd:annotation>
2872 </xsd:element>
2873 </xsd:sequence>
2874 </xsd:extension>
2875 </xsd:complexContent>
2876 </xsd:complexType>
2877 </xsd:element>
2878 </xsd:sequence>
2879 </xsd:complexType>
2880 </xsd:element>
2881 <xsd:element name="RetrieveBiographicInformationResponse">
2882 <xsd:complexType>
2883 <xsd:annotation>
2884 <xsd:documentation>
2885 The response to a RetrieveBiographicInformation request,
2886 containing the biographic data associated with a subject ID. In
2887 the encounter-centric model, the biographic data associated with
2888 a specified encounter is returned. If the encounter ID is not
2889 specified in the encounter-centric model, the biographic
2890 information associated with the most recent encounter is returned.
2891 </xsd:documentation>
2892 </xsd:annotation>
2893 <xsd:sequence>
2894 <xsd:element name="RetrieveBiographicInformationResponsePackage" nillable="true">

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2895 <xsd:complexType>
2896 <xsd:complexContent>
2897 <xsd:extension base="tns:ResponseTemplate">
2898 <xsd:sequence>
2899 <xsd:element name="Identity" type="tns:BIASIdentity" minOccurs="1" maxOccurs="1">
2900 <xsd:annotation>
2901 <xsd:documentation>Includes the set of biographic data associated with a subject.</xsd:documentation>
2902 </xsd:annotation>
2903 </xsd:element>
2904 </xsd:sequence>
2905 </xsd:extension>
2906 </xsd:complexContent>
2907 </xsd:complexType>
2908 </xsd:element>
2909 </xsd:sequence>
2910 </xsd:complexType>
2911 </xsd:element>
2912 <xsd:element name="RetrieveBiometricInformation">
2913 <xsd:complexType>
2914 <xsd:annotation>
2915 <xsd:documentation>
2916 Retrieves the biometric data associated with a subject ID.
2917 </xsd:documentation>
2918 </xsd:annotation>
2919 <xsd:sequence>
2920 <xsd:element name="RetrieveBiometricInformationRequest" nillable="true">
2921 <xsd:complexType>
2922 <xsd:complexContent>
2923 <xsd:extension base="tns:RequestTemplate">
2924 <xsd:sequence>
2925 <xsd:element name="Identity" type="tns:BIASIdentity" minOccurs="1" maxOccurs="1">
2926 <xsd:annotation>
2927 <xsd:documentation>Identifies the subject or, in the encounter-centric model, a subject and an
2928 encounter.</xsd:documentation>
2929 </xsd:annotation>
2930 </xsd:element>
2931 <xsd:element name="BiometricType" type="oasis_cbeff:MultipleTypesType" minOccurs="0" maxOccurs="1">
2932 <xsd:annotation>
2933 <xsd:documentation>The type of biological or behavioral data to retrieve.</xsd:documentation>
2934 </xsd:annotation>
2935 </xsd:element>

```

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2936 </xsd:sequence>
2937 </xsd:extension>
2938 </xsd:complexContent>
2939 </xsd:complexType>
2940 </xsd:element>
2941 </xsd:sequence>
2942 </xsd:complexType>
2943 </xsd:element>
2944 <xsd:element name="RetrieveBiometricInformationResponse">
2945 <xsd:complexType>
2946 <xsd:annotation>
2947 <xsd:documentation>
2948 The response to a RetrieveBiometricInformation request,
2949 containing the biometric data associated with a subject ID. In
2950 the encounter-centric model, the biometric data associated with
2951 a specified encounter is returned. If the encounter ID is not
2952 specified in the encounter-centric model, the biometric
2953 information associated with the most recent encounter is returned.
2954 </xsd:documentation>
2955 </xsd:annotation>
2956 <xsd:sequence>
2957 <xsd:element name="RetrieveBiometricInformationResponsePackage" nillable="true">
2958 <xsd:complexType>
2959 <xsd:complexContent>
2960 <xsd:extension base="tns:ResponseTemplate">
2961 <xsd:sequence>
2962 <xsd:element name="Identity" type="tns:BIASIdentity" minOccurs="1" maxOccurs="1">
2963 <xsd:annotation>
2964 <xsd:documentation>Includes the biometric data associated with a subject.</xsd:documentation>
2965 </xsd:annotation>
2966 </xsd:element>
2967 </xsd:sequence>
2968 </xsd:extension>
2969 </xsd:complexContent>
2970 </xsd:complexType>
2971 </xsd:element>
2972 </xsd:sequence>
2973 </xsd:complexType>
2974 </xsd:element>
2975 <xsd:element name="SetBiographicData">
2976 <xsd:complexType>

```

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2977 <xsd:annotation>
2978 <xsd:documentation>
2979 Associates biographic data to a given subject record.
2980 </xsd:documentation>
2981 </xsd:annotation>
2982 <xsd:sequence>
2983 <xsd:element name="SetBiographicDataRequest" nillable="true">
2984 <xsd:complexType>
2985 <xsd:complexContent>
2986 <xsd:extension base="tns:RequestTemplate">
2987 <xsd:sequence>
2988 <xsd:element name="Identity" type="tns:BIASIdentity" minOccurs="1" maxOccurs="1">
2989 <xsd:annotation>
2990 <xsd:documentation>Identifies the subject or, in the encounter-centric model, a subject and an encounter, and
2991 includes the biographic data to store.</xsd:documentation>
2992 </xsd:annotation>
2993 </xsd:element>
2994 </xsd:sequence>
2995 </xsd:extension>
2996 </xsd:complexContent>
2997 </xsd:complexType>
2998 </xsd:element>
2999 </xsd:sequence>
3000 </xsd:complexType>
3001 </xsd:element>
3002 <xsd:element name="SetBiographicDataResponse">
3003 <xsd:complexType>
3004 <xsd:annotation>
3005 <xsd:documentation>
3006 The response to a SetBiographicData request.
3007 </xsd:documentation>
3008 </xsd:annotation>
3009 <xsd:sequence>
3010 <xsd:element name="SetBiographicDataResponsePackage" nillable="true">
3011 <xsd:complexType>
3012 <xsd:complexContent>
3013 <xsd:extension base="tns:ResponseTemplate">
3014 <xsd:sequence>
3015 <xsd:element name="Identity" type="tns:BIASIdentity" minOccurs="0" maxOccurs="1">
3016 <xsd:annotation>

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3017 <xsd:documentation>In an encounter-centric model, identifies the encounter ID assigned to a new
 3018 encounter.</xsd:documentation>
 3019 </xsd:annotation>
 3020 </xsd:element>
 3021 </xsd:sequence>
 3022 </xsd:extension>
 3023 </xsd:complexContent>
 3024 </xsd:complexType>
 3025 </xsd:element>
 3026 </xsd:sequence>
 3027 </xsd:complexType>
 3028 </xsd:element>
 3029 <xsd:element name="SetBiometricData">
 3030 <xsd:complexType>
 3031 <xsd:annotation>
 3032 <xsd:documentation>
 3033 Associates biometric data to a given subject record.
 3034 </xsd:documentation>
 3035 </xsd:annotation>
 3036 <xsd:sequence>
 3037 <xsd:element name="SetBiometricDataRequest" nillable="true">
 3038 <xsd:complexType>
 3039 <xsd:complexContent>
 3040 <xsd:extension base="tns:RequestTemplate">
 3041 <xsd:sequence>
 3042 <xsd:element name="Identity" type="tns:BIASIdentity" minOccurs="1" maxOccurs="1">
 3043 <xsd:annotation>
 3044 <xsd:documentation>Identifies the subject or, in the encounter-centric model, a subject and an encounter, and
 3045 includes the biometric data to store.</xsd:documentation>
 3046 </xsd:annotation>
 3047 </xsd:element>
 3048 </xsd:sequence>
 3049 </xsd:extension>
 3050 </xsd:complexContent>
 3051 </xsd:complexType>
 3052 </xsd:element>
 3053 </xsd:sequence>
 3054 </xsd:complexType>
 3055 </xsd:element>
 3056 <xsd:element name="SetBiometricDataResponse">
 3057 <xsd:complexType>

```

3058 <xsd:annotation>
3059 <xsd:documentation>
3060 The response to a SetBiometricData request.
3061 </xsd:documentation>
3062 </xsd:annotation>
3063 <xsd:sequence>
3064 <xsd:element name="SetBiometricDataResponsePackage" nillable="true">
3065 <xsd:complexType>
3066 <xsd:complexContent>
3067 <xsd:extension base="tns:ResponseTemplate">
3068 <xsd:sequence>
3069 <xsd:element name="Identity" type="tns:BIASIdentity" minOccurs="0" maxOccurs="1">
3070 <xsd:annotation>
3071 <xsd:documentation>In an encounter-centric model, identifies the encounter ID assigned to a new
3072 encounter.</xsd:documentation>
3073 </xsd:annotation>
3074 </xsd:element>
3075 </xsd:sequence>
3076 </xsd:extension>
3077 </xsd:complexContent>
3078 </xsd:complexType>
3079 </xsd:element>
3080 </xsd:sequence>
3081 </xsd:complexType>
3082 </xsd:element>
3083 <xsd:element name="TransformBiometricData">
3084 <xsd:complexType>
3085 <xsd:annotation>
3086 <xsd:documentation>
3087 Transforms or processes a given biometric in one format into a new target format.
3088 </xsd:documentation>
3089 </xsd:annotation>
3090 <xsd:sequence>
3091 <xsd:element name="TransformBiometricDataRequest" nillable="true">
3092 <xsd:complexType>
3093 <xsd:complexContent>
3094 <xsd:extension base="tns:RequestTemplate">
3095 <xsd:sequence>
3096 <xsd:element name="InputBIR" type="tns:CBEFF_BIR_Type" minOccurs="1" maxOccurs="1">
3097 <xsd:annotation>

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3098 <xsd:documentation>Data structure containing the biometric information to be
3099 transformed.</xsd:documentation>
3100 </xsd:annotation>
3101 </xsd:element>
3102 <xsd:element name="TransformOperation" type="xsd:unsignedLong" minOccurs="1" maxOccurs="1">
3103 <xsd:annotation>
3104 <xsd:documentation>Value indicating the type of transformation to perform.</xsd:documentation>
3105 </xsd:annotation>
3106 </xsd:element>
3107 <xsd:element name="TransformControl" type="xsd:string" minOccurs="0" maxOccurs="1">
3108 <xsd:annotation>
3109 <xsd:documentation> Specifies controls for the requested transform operation.</xsd:documentation>
3110 </xsd:annotation>
3111 </xsd:element>
3112 </xsd:sequence>
3113 </xsd:extension>
3114 </xsd:complexContent>
3115 </xsd:complexType>
3116 </xsd:element>
3117 </xsd:sequence>
3118 </xsd:complexType>
3119 </xsd:element>
3120 <xsd:element name="TransformBiometricDataResponse">
3121 <xsd:complexType>
3122 <xsd:annotation>
3123 <xsd:documentation>
3124 The response to a TransformBiometricData request.
3125 </xsd:documentation>
3126 </xsd:annotation>
3127 <xsd:sequence>
3128 <xsd:element name="TransformBiometricDataResponsePackage" nillable="true">
3129 <xsd:complexType>
3130 <xsd:complexContent>
3131 <xsd:extension base="tns:ResponseTemplate">
3132 <xsd:sequence>
3133 <xsd:element name="OutputBIR" type="tns:CBEFF_BIR_Type" minOccurs="0" maxOccurs="1">
3134 <xsd:annotation>
3135 <xsd:documentation>Data structure containing the new, transformed biometric
3136 information.</xsd:documentation>
3137 </xsd:annotation>
3138 </xsd:element>

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```

3139 </xsd:sequence>
3140 </xsd:extension>
3141 </xsd:complexContent>
3142 </xsd:complexType>
3143 </xsd:element>
3144 </xsd:sequence>
3145 </xsd:complexType>
3146 </xsd:element>
3147 <xsd:element name="UpdateBiographicData">
3148 <xsd:complexType>
3149 <xsd:annotation>
3150 <xsd:documentation>
3151 Updates the biographic data for a given subject record.
3152 </xsd:documentation>
3153 </xsd:annotation>
3154 <xsd:sequence>
3155 <xsd:element name="UpdateBiographicDataRequest" nillable="true">
3156 <xsd:complexType>
3157 <xsd:complexContent>
3158 <xsd:extension base="tns:RequestTemplate">
3159 <xsd:sequence>
3160 <xsd:element name="Identity" type="tns:BIASIdentity" minOccurs="1" maxOccurs="1">
3161 <xsd:annotation>
3162 <xsd:documentation>Identifies the subject or, in the encounter-centric model, a subject and an encounter, and
3163 includes the biographic data to update.</xsd:documentation>
3164 </xsd:annotation>
3165 </xsd:element>
3166 </xsd:sequence>
3167 </xsd:extension>
3168 </xsd:complexContent>
3169 </xsd:complexType>
3170 </xsd:element>
3171 </xsd:sequence>
3172 </xsd:complexType>
3173 </xsd:element>
3174 <xsd:element name="UpdateBiographicDataResponse">
3175 <xsd:complexType>
3176 <xsd:annotation>
3177 <xsd:documentation>
3178 The response to an UpdateBiographicData request.
3179 </xsd:documentation>

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3180 </xsd:annotation>
3181 <xsd:sequence>
3182 <xsd:element name="UpdateBiographicDataResponsePackage" nillable="true">
3183 <xsd:complexType>
3184 <xsd:complexContent>
3185 <xsd:extension base="tns:ResponseTemplate"/>
3186 </xsd:complexContent>
3187 </xsd:complexType>
3188 </xsd:element>
3189 </xsd:sequence>
3190 </xsd:complexType>
3191 </xsd:element>
3192 <xsd:element name="UpdateBiometricData">
3193 <xsd:complexType>
3194 <xsd:annotation>
3195 <xsd:documentation>
3196 Updates a single biometric sample for a given subject record.
3197 </xsd:documentation>
3198 </xsd:annotation>
3199 <xsd:sequence>
3200 <xsd:element name="UpdateBiometricDataRequest" nillable="true">
3201 <xsd:complexType>
3202 <xsd:complexContent>
3203 <xsd:extension base="tns:RequestTemplate">
3204 <xsd:sequence>
3205 <xsd:element name="Identity" type="tns:BIASIdentity" minOccurs="1" maxOccurs="1">
3206 <xsd:annotation>
3207 <xsd:documentation>Identifies the subject or, in the encounter-centric model, a subject and an encounter, and
3208 includes the biometric data to update.</xsd:documentation>
3209 </xsd:annotation>
3210 </xsd:element>
3211 <xsd:element name="Merge" type="xsd:boolean" minOccurs="0" maxOccurs="1">
3212 <xsd:annotation>
3213 <xsd:documentation>Value indicating if the input biometric sample should be merged with any existing biometric
3214 information.</xsd:documentation>
3215 </xsd:annotation>
3216 </xsd:element>
3217 </xsd:sequence>
3218 </xsd:extension>
3219 </xsd:complexContent>
3220 </xsd:complexType>

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3221 </xsd:element>
3222 </xsd:sequence>
3223 </xsd:complexType>
3224 </xsd:element>
3225 <xsd:element name="UpdateBiometricDataResponse">
3226 <xsd:complexType>
3227 <xsd:annotation>
3228 <xsd:documentation>
3229 The response to an UpdateBiometricData request.
3230 </xsd:documentation>
3231 </xsd:annotation>
3232 <xsd:sequence>
3233 <xsd:element name="UpdateBiometricDataResponsePackage" nillable="true">
3234 <xsd:complexType>
3235 <xsd:complexContent>
3236 <xsd:extension base="tns:ResponseTemplate"/>
3237 </xsd:complexContent>
3238 </xsd:complexType>
3239 </xsd:element>
3240 </xsd:sequence>
3241 </xsd:complexType>
3242 </xsd:element>
3243 <xsd:element name="VerifySubject">
3244 <xsd:complexType>
3245 <xsd:annotation>
3246 <xsd:documentation>
3247 Performs a 1:1 verification match between a given biometric and
3248 either a claim to identity in a given gallery or another given
3249 biometric.
3250 </xsd:documentation>
3251 </xsd:annotation>
3252 <xsd:sequence>
3253 <xsd:element name="VerifySubjectRequest" nillable="true">
3254 <xsd:complexType>
3255 <xsd:complexContent>
3256 <xsd:extension base="tns:RequestTemplate">
3257 <xsd:sequence>
3258 <xsd:element name="GalleryID" type="tns:BIASIDType" minOccurs="0" maxOccurs="1">
3259 <xsd:annotation>
3260 <xsd:documentation>The identifier of the gallery or population group of which the subject must be a
3261 member.</xsd:documentation>

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3262 </xsd:annotation>
3263 </xsd:element>
3264 <xsd:element name="Identity" type="tns:BIASIdentity" minOccurs="1" maxOccurs="1">
3265 <xsd:annotation>
3266 <xsd:documentation>Includes the identifying information and/or input and reference biometric
3267 samples.</xsd:documentation>
3268 </xsd:annotation>
3269 </xsd:element>
3270 </xsd:sequence>
3271 </xsd:extension>
3272 </xsd:complexContent>
3273 </xsd:complexType>
3274 </xsd:element>
3275 </xsd:sequence>
3276 </xsd:complexType>
3277 </xsd:element>
3278 <xsd:element name="VerifySubjectResponse">
3279 <xsd:complexType>
3280 <xsd:annotation>
3281 <xsd:documentation>
3282 The response to a VerifySubject request.
3283 </xsd:documentation>
3284 </xsd:annotation>
3285 <xsd:sequence>
3286 <xsd:element name="VerifySubjectResponsePackage" nillable="true">
3287 <xsd:complexType>
3288 <xsd:complexContent>
3289 <xsd:extension base="tns:ResponseTemplate">
3290 <xsd:sequence>
3291 <xsd:element name="Match" type="xsd:boolean" minOccurs="0" maxOccurs="1">
3292 <xsd:annotation>
3293 <xsd:documentation>Indicates if the Input BIR matched either the biometric information associated with the
3294 Identity Claim or the Reference BIR.</xsd:documentation>
3295 </xsd:annotation>
3296 </xsd:element>
3297 <xsd:element name="Score" type="tns:Score" minOccurs="0" maxOccurs="1">
3298 <xsd:annotation>
3299 <xsd:documentation>The score if the biometric information matched.</xsd:documentation>
3300 </xsd:annotation>
3301 </xsd:element>
3302 </xsd:sequence>

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3303 </xsd:extension>
3304 </xsd:complexContent>
3305 </xsd:complexType>
3306 </xsd:element>
3307 </xsd:sequence>
3308 </xsd:complexType>
3309 </xsd:element>
3310 <xsd:element name="Enroll">
3311 <xsd:complexType>
3312 <xsd:annotation>
3313 <xsd:documentation>
3314 The Enroll aggregate service adds a new subject or, in an
3315 encounter-centric model, a new encounter to the system. This may
3316 be accomplished in a number of different ways according to
3317 system requirements and/or resources. If the Enroll aggregate
3318 service is implemented as a synchronous service, the
3319 implementing system immediately processes the request and
3320 returns the results in the ReturnData parameter. If the Enroll
3321 aggregate service is implemented as an asynchronous service, the
3322 implementing system returns a token in the ReturnData
3323 parameter, which is an indication that the request is being
3324 handled asynchronously. In this case, the GetEnrollResults
3325 service is used to poll for the results of the Enroll request.
3326 </xsd:documentation>
3327 </xsd:annotation>
3328 <xsd:sequence>
3329 <xsd:element name="EnrollRequest" nillable="true">
3330 <xsd:complexType>
3331 <xsd:complexContent>
3332 <xsd:extension base="tns:AggregateRequestTemplate"/>
3333 </xsd:complexContent>
3334 </xsd:complexType>
3335 </xsd:element>
3336 </xsd:sequence>
3337 </xsd:complexType>
3338 </xsd:element>
3339 <xsd:element name="EnrollResponse">
3340 <xsd:complexType>
3341 <xsd:annotation>
3342 <xsd:documentation>The response to an Enroll request.</xsd:documentation>
3343 </xsd:annotation>

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3344 <xsd:sequence>
3345 <xsd:element name="EnrollResponsePackage" nillable="true">
3346 <xsd:complexType>
3347 <xsd:complexContent>
3348 <xsd:extension base="tns:AggregateResponseTemplate"/>
3349 </xsd:complexContent>
3350 </xsd:complexType>
3351 </xsd:element>
3352 </xsd:sequence>
3353 </xsd:complexType>
3354 </xsd:element>
3355 <xsd:element name="GetEnrollResults">
3356 <xsd:complexType>
3357 <xsd:annotation>
3358 <xsd:documentation>
3359 The GetEnrollResults aggregate service retrieves the enrollment
3360 results for the specified token. This service is used in
3361 conjunction with the Enroll aggregate service. If the Enroll
3362 aggregate service is implemented as an asynchronous service, the
3363 implementing system returns a token, and the GetEnrollResults
3364 service is used to poll for the results of the original Enroll
3365 request.
3366 </xsd:documentation>
3367 </xsd:annotation>
3368 <xsd:sequence>
3369 <xsd:element name="GetEnrollResultsRequest" nillable="true">
3370 <xsd:complexType>
3371 <xsd:complexContent>
3372 <xsd:extension base="tns:RequestTemplate">
3373 <xsd:sequence>
3374 <xsd:element name="Token" type="tns:TokenType" minOccurs="1" maxOccurs="1">
3375 <xsd:annotation>
3376 <xsd:documentation>A value used to retrieve the results of the Enroll request.</xsd:documentation>
3377 </xsd:annotation>
3378 </xsd:element>
3379 </xsd:sequence>
3380 </xsd:extension>
3381 </xsd:complexContent>
3382 </xsd:complexType>
3383 </xsd:element>
3384 </xsd:sequence>

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3385 </xsd:complexType>
3386 </xsd:element>
3387 <xsd:element name="GetEnrollResultsResponse">
3388 <xsd:complexType>
3389 <xsd:annotation>
3390 <xsd:documentation>The response to a GetEnrollResults request.</xsd:documentation>
3391 </xsd:annotation>
3392 <xsd:sequence>
3393 <xsd:element name="GetEnrollResultsResponsePackage" nillable="true">
3394 <xsd:complexType>
3395 <xsd:complexContent>
3396 <xsd:extension base="tns:AggregateResponseTemplate"/>
3397 </xsd:complexContent>
3398 </xsd:complexType>
3399 </xsd:element>
3400 </xsd:sequence>
3401 </xsd:complexType>
3402 </xsd:element>
3403 <xsd:element name="GetIdentifyResults">
3404 <xsd:complexType>
3405 <xsd:annotation>
3406 <xsd:documentation>
3407 The GetIdentifyResults aggregate service retrieves the
3408 identification results for the specified token. This service is
3409 used in conjunction with the Identify aggregate service. If the
3410 Identify aggregate service is implemented as an asynchronous
3411 service, the implementing system returns a token, and the
3412 GetIdentifyResults service is used to poll for the results of
3413 the original Identify request.
3414 </xsd:documentation>
3415 </xsd:annotation>
3416 <xsd:sequence>
3417 <xsd:element name="GetIdentifyResultsRequest" nillable="true">
3418 <xsd:complexType>
3419 <xsd:complexContent>
3420 <xsd:extension base="tns:RequestTemplate">
3421 <xsd:sequence>
3422 <xsd:element name="Token" type="tns:TokenType" minOccurs="1" maxOccurs="1">
3423 <xsd:annotation>
3424 <xsd:documentation>A value used to retrieve the results of the Identify request.</xsd:documentation>
3425 </xsd:annotation>

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3426 </xsd:element>
3427 </xsd:sequence>
3428 </xsd:extension>
3429 </xsd:complexContent>
3430 </xsd:complexType>
3431 </xsd:element>
3432 </xsd:sequence>
3433 </xsd:complexType>
3434 </xsd:element>
3435 <xsd:element name="GetIdentifyResultsResponse">
3436 <xsd:complexType>
3437 <xsd:annotation>
3438 <xsd:documentation>The response to a GetIdentifyResults request.</xsd:documentation>
3439 </xsd:annotation>
3440 <xsd:sequence>
3441 <xsd:element name="GetIdentifyResultsResponsePackage" nillable="true">
3442 <xsd:complexType>
3443 <xsd:complexContent>
3444 <xsd:extension base="tns:AggregateResponseTemplate"/>
3445 </xsd:complexContent>
3446 </xsd:complexType>
3447 </xsd:element>
3448 </xsd:sequence>
3449 </xsd:complexType>
3450 </xsd:element>
3451 <xsd:element name="GetVerifyResults">
3452 <xsd:complexType>
3453 <xsd:annotation>
3454 <xsd:documentation>
3455 The GetVerifyResults aggregate service retrieves the verification
3456 results for the specified token. This service is used in
3457 conjunction with the Verify aggregate service. If the Verify
3458 aggregate service is implemented as an asynchronous service, the
3459 implementing system returns a token, and the GetVerifyResults
3460 service is used to poll for the results of the original Verify
3461 request.
3462 </xsd:documentation>
3463 </xsd:annotation>
3464 <xsd:sequence>
3465 <xsd:element name="GetVerifyResultsRequest" nillable="true">
3466 <xsd:complexType>

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```

3467 <xsd:complexContent>
3468 <xsd:extension base="tns:RequestTemplate">
3469 <xsd:sequence>
3470 <xsd:element name="Token" type="tns:TokenType" minOccurs="1" maxOccurs="1">
3471 <xsd:annotation>
3472 <xsd:documentation>A value used to retrieve the results of the Verify request.</xsd:documentation>
3473 </xsd:annotation>
3474 </xsd:element>
3475 </xsd:sequence>
3476 </xsd:extension>
3477 </xsd:complexContent>
3478 </xsd:complexType>
3479 </xsd:element>
3480 </xsd:sequence>
3481 </xsd:complexType>
3482 </xsd:element>
3483 <xsd:element name="GetVerifyResultsResponse">
3484 <xsd:complexType>
3485 <xsd:annotation>
3486 <xsd:documentation>The response to a GetVerifyResults request.</xsd:documentation>
3487 </xsd:annotation>
3488 <xsd:sequence>
3489 <xsd:element name="GetVerifyResultsResponsePackage" nillable="true">
3490 <xsd:complexType>
3491 <xsd:complexContent>
3492 <xsd:extension base="tns:AggregateResponseTemplate">
3493 <xsd:sequence>
3494 <xsd:element name="Match" type="xsd:boolean" minOccurs="0" maxOccurs="1">
3495 <xsd:annotation>
3496 <xsd:documentation>Indicates if the Input BIR matched either the biometric information associated with the
3497 Identity Claim or the Reference BIR.</xsd:documentation>
3498 </xsd:annotation>
3499 </xsd:element>
3500 <xsd:element name="Score" type="tns:Score" minOccurs="0" maxOccurs="1">
3501 <xsd:annotation>
3502 <xsd:documentation>The score if the biometric information matched.</xsd:documentation>
3503 </xsd:annotation>
3504 </xsd:element>
3505 </xsd:sequence>
3506 </xsd:extension>
3507 </xsd:complexContent>

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3508 </xsd:complexType>
3509 </xsd:element>
3510 </xsd:sequence>
3511 </xsd:complexType>
3512 </xsd:element>
3513 <xsd:element name="Identify">
3514 <xsd:complexType>
3515 <xsd:annotation>
3516 <xsd:documentation>
3517 The Identify aggregate service performs an identification
3518 function according to system requirements and/or resources. If
3519 the Identify aggregate service is implemented as a synchronous
3520 service, the implementing system immediately processes the
3521 request and returns the results in the ReturnData parameter. If
3522 the Identify aggregate service is implemented as an asynchronous
3523 service, the implementing system returns a token in the
3524 ReturnData parameter, which is an indication that the request is
3525 being handled asynchronously. In this case, the
3526 GetIdentifyResults service is used to poll for the results of
3527 the Identify request.
3528 </xsd:documentation>
3529 </xsd:annotation>
3530 <xsd:sequence>
3531 <xsd:element name="IdentifyRequest" nillable="true">
3532 <xsd:complexType>
3533 <xsd:complexContent>
3534 <xsd:extension base="tns:AggregateRequestTemplate"/>
3535 </xsd:complexContent>
3536 </xsd:complexType>
3537 </xsd:element>
3538 </xsd:sequence>
3539 </xsd:complexType>
3540 </xsd:element>
3541 <xsd:element name="IdentifyResponse">
3542 <xsd:complexType>
3543 <xsd:annotation>
3544 <xsd:documentation>The response to an Identify request.</xsd:documentation>
3545 </xsd:annotation>
3546 <xsd:sequence>
3547 <xsd:element name="IdentifyResponsePackage" nillable="true">
3548 <xsd:complexType>

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3549 <xsd:complexContent>
3550 <xsd:extension base="tns:AggregateResponseTemplate"/>
3551 </xsd:complexContent>
3552 </xsd:complexType>
3553 </xsd:element>
3554 </xsd:sequence>
3555 </xsd:complexType>
3556 </xsd:element>
3557 <xsd:element name="RetrieveInformation">
3558 <xsd:complexType>
3559 <xsd:annotation>
3560 <xsd:documentation>
3561 The RetrieveInformation aggregate service retrieves requested
3562 information about a subject, or in an encounter-centric model
3563 about an encounter. In a person-centric model, this aggregate
3564 service may be used to retrieve both biographic and biometric
3565 information for a subject record. In an encounter-centric model,
3566 this aggregate service may be used to retrieve biographic and/or
3567 biometric information for either a single encounter or all
3568 encounters. Either a SubjectID or EncounterID must be specified
3569 in the Identify parameter.
3570 </xsd:documentation>
3571 </xsd:annotation>
3572 <xsd:sequence>
3573 <xsd:element name="RetrieveInformationRequest" nillable="true">
3574 <xsd:complexType>
3575 <xsd:complexContent>
3576 <xsd:extension base="tns:RequestTemplate">
3577 <xsd:sequence>
3578 <xsd:element name="ProcessingOptions" type="tns:ProcessingOptionsType" minOccurs="1" maxOccurs="1">
3579 <xsd:annotation>
3580 <xsd:documentation>Options that guide how the service request is processed, and may identify what type(s) of
3581 information should be returned.</xsd:documentation>
3582 </xsd:annotation>
3583 </xsd:element>
3584 <xsd:element name="Identity" type="tns:BIASIdentity" minOccurs="1" maxOccurs="1">
3585 <xsd:annotation>
3586 <xsd:documentation>Includes the identifier of the subject or encounter.</xsd:documentation>
3587 </xsd:annotation>
3588 </xsd:element>
3589 </xsd:sequence>

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3590 </xsd:extension>
3591 </xsd:complexContent>
3592 </xsd:complexType>
3593 </xsd:element>
3594 </xsd:sequence>
3595 </xsd:complexType>
3596 </xsd:element>
3597 <xsd:element name="RetrieveInformationResponse">
3598 <xsd:complexType>
3599 <xsd:annotation>
3600 <xsd:documentation>The response to a RetrieveInformation request.</xsd:documentation>
3601 </xsd:annotation>
3602 <xsd:sequence>
3603 <xsd:element name="RetrieveInformationResponsePackage" nillable="true">
3604 <xsd:complexType>
3605 <xsd:complexContent>
3606 <xsd:extension base="tns:AggregateResponseTemplate"/>
3607 </xsd:complexContent>
3608 </xsd:complexType>
3609 </xsd:element>
3610 </xsd:sequence>
3611 </xsd:complexType>
3612 </xsd:element>
3613 <xsd:element name="Verify">
3614 <xsd:complexType>
3615 <xsd:annotation>
3616 <xsd:documentation>
3617 The Verify aggregate service performs a 1:1 verification
3618 function according to system requirements and/or resources.
3619 Either the IdentityClaim or ReferenceBIR input data elements in
3620 the Identity parameter are required. If the Verify aggregate
3621 service is implemented as a synchronous service, the
3622 implementing system immediately processes the request and returns
3623 the results in the ReturnData parameter. If the Verify aggregate
3624 service is implemented as an asynchronous service, the
3625 implementing system returns a token in the ReturnData parameter,
3626 which is an indication that the request is being handled
3627 asynchronously. In this case, the GetVerifyResults service is
3628 used to poll for the results of the Verify request.
3629 </xsd:documentation>
3630 </xsd:annotation>

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3631 <xsd:sequence>
3632 <xsd:element name="VerifyRequest" nillable="true">
3633 <xsd:complexType>
3634 <xsd:complexContent>
3635 <xsd:extension base="tns:AggregateRequestTemplate">
3636 <xsd:sequence>
3637 <xsd:element name="Identity" type="tns:BIASIdentity" minOccurs="1" maxOccurs="1">
3638 <xsd:annotation>
3639 <xsd:documentation>Includes either the IdentityClaim or ReferenceBIR.</xsd:documentation>
3640 </xsd:annotation>
3641 </xsd:element>
3642 <xsd:element name="GalleryID" type="tns:BIASIDType" minOccurs="0" maxOccurs="1">
3643 <xsd:annotation>
3644 <xsd:documentation>The identifier of the gallery or population group of which the subject must be a
3645 member.</xsd:documentation>
3646 </xsd:annotation>
3647 </xsd:element>
3648 </xsd:sequence>
3649 </xsd:extension>
3650 </xsd:complexContent>
3651 </xsd:complexType>
3652 </xsd:element>
3653 </xsd:sequence>
3654 </xsd:complexType>
3655 </xsd:element>
3656 <xsd:element name="VerifyResponse">
3657 <xsd:complexType>
3658 <xsd:annotation>
3659 <xsd:documentation>The response to a Verify request.</xsd:documentation>
3660 </xsd:annotation>
3661 <xsd:sequence>
3662 <xsd:element name="VerifyResponsePackage" nillable="true">
3663 <xsd:complexType>
3664 <xsd:complexContent>
3665 <xsd:extension base="tns:AggregateResponseTemplate">
3666 <xsd:sequence>
3667 <xsd:element name="Match" type="xsd:boolean" minOccurs="0" maxOccurs="1">
3668 <xsd:annotation>
3669 <xsd:documentation>Indicates if the Input BIR matched either the biometric information associated with the
3670 Identity Claim or the Reference BIR.</xsd:documentation>
3671 </xsd:annotation>

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```
3672 </xsd:element>
3673 <xsd:element name="Score" type="tns:Score" minOccurs="0" maxOccurs="1">
3674 <xsd:annotation>
3675 <xsd:documentation>The score if the biometric information matched.</xsd:documentation>
3676 </xsd:annotation>
3677 </xsd:element>
3678 </xsd:sequence>
3679 </xsd:extension>
3680 </xsd:complexContent>
3681 </xsd:complexType>
3682 </xsd:element>
3683 </xsd:sequence>
3684 </xsd:complexType>
3685 </xsd:element>
3686 <xsd:element name="BIASFault" type="tns:BIASFaultDetail"/>
3687 </xsd:schema>
3688 </wsdl:types>
3689 <wsdl:message name="BIASFaultMessage">
3690 <wsdl:part name="parameters" element="tns:BIASFault"/>
3691 </wsdl:message>
3692 <wsdl:message name="AddSubjectToGalleryRequestMessage">
3693 <wsdl:part name="parameters" element="tns:AddSubjectToGallery"/>
3694 </wsdl:message>
3695 <wsdl:message name="AddSubjectToGalleryResponseMessage">
3696 <wsdl:part name="parameters" element="tns:AddSubjectToGalleryResponse"/>
3697 </wsdl:message>
3698 <wsdl:message name="CheckQualityRequestMessage">
3699 <wsdl:part name="parameters" element="tns:CheckQuality"/>
3700 </wsdl:message>
3701 <wsdl:message name="CheckQualityResponseMessage">
3702 <wsdl:part name="parameters" element="tns:CheckQualityResponse"/>
3703 </wsdl:message>
3704 <wsdl:message name="ClassifyBiometricDataRequestMessage">
3705 <wsdl:part name="parameters" element="tns:ClassifyBiometricData"/>
3706 </wsdl:message>
3707 <wsdl:message name="ClassifyBiometricDataResponseMessage">
3708 <wsdl:part name="parameters" element="tns:ClassifyBiometricDataResponse"/>
3709 </wsdl:message>
3710 <wsdl:message name="CreateSubjectRequestMessage">
3711 <wsdl:part name="parameters" element="tns:CreateSubject"/>
3712 </wsdl:message>
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3713 <wsdl:message name="CreateSubjectResponseMessage">
3714 <wsdl:part name="parameters" element="tns:CreateSubjectResponse"/>
3715 </wsdl:message>
3716 <wsdl:message name="DeleteBiographicDataRequestMessage">
3717 <wsdl:part name="parameters" element="tns:DeleteBiographicData"/>
3718 </wsdl:message>
3719 <wsdl:message name="DeleteBiographicDataResponseMessage">
3720 <wsdl:part name="parameters" element="tns:DeleteBiographicDataResponse"/>
3721 </wsdl:message>
3722 <wsdl:message name="DeleteBiometricDataRequestMessage">
3723 <wsdl:part name="parameters" element="tns:DeleteBiometricData"/>
3724 </wsdl:message>
3725 <wsdl:message name="DeleteBiometricDataResponseMessage">
3726 <wsdl:part name="parameters" element="tns:DeleteBiometricDataResponse"/>
3727 </wsdl:message>
3728 <wsdl:message name="DeleteSubjectRequestMessage">
3729 <wsdl:part name="parameters" element="tns:DeleteSubject"/>
3730 </wsdl:message>
3731 <wsdl:message name="DeleteSubjectResponseMessage">
3732 <wsdl:part name="parameters" element="tns:DeleteSubjectResponse"/>
3733 </wsdl:message>
3734 <wsdl:message name="DeleteSubjectFromGalleryRequestMessage">
3735 <wsdl:part name="parameters" element="tns:DeleteSubjectFromGallery"/>
3736 </wsdl:message>
3737 <wsdl:message name="DeleteSubjectFromGalleryResponseMessage">
3738 <wsdl:part name="parameters" element="tns:DeleteSubjectFromGalleryResponse"/>
3739 </wsdl:message>
3740 <wsdl:message name="GetIdentifySubjectResultsRequestMessage">
3741 <wsdl:part name="parameters" element="tns:GetIdentifySubjectResults"/>
3742 </wsdl:message>
3743 <wsdl:message name="GetIdentifySubjectResultsResponseMessage">
3744 <wsdl:part name="parameters" element="tns:GetIdentifySubjectResultsResponse"/>
3745 </wsdl:message>
3746 <wsdl:message name="IdentifySubjectRequestMessage">
3747 <wsdl:part name="parameters" element="tns:IdentifySubject"/>
3748 </wsdl:message>
3749 <wsdl:message name="IdentifySubjectResponseMessage">
3750 <wsdl:part name="parameters" element="tns:IdentifySubjectResponse"/>
3751 </wsdl:message>
3752 <wsdl:message name="ListBiographicDataRequestMessage">
3753 <wsdl:part name="parameters" element="tns:ListBiographicData"/>

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3754 </wsdl:message>
3755 <wsdl:message name="ListBiographicDataResponseMessage">
3756 <wsdl:part name="parameters" element="tns:ListBiographicDataResponse"/>
3757 </wsdl:message>
3758 <wsdl:message name="ListBiometricDataRequestMessage">
3759 <wsdl:part name="parameters" element="tns:ListBiometricData"/>
3760 </wsdl:message>
3761 <wsdl:message name="ListBiometricDataResponseMessage">
3762 <wsdl:part name="parameters" element="tns:ListBiometricDataResponse"/>
3763 </wsdl:message>
3764 <wsdl:message name="PerformFusionRequestMessage">
3765 <wsdl:part name="parameters" element="tns:PerformFusion"/>
3766 </wsdl:message>
3767 <wsdl:message name="PerformFusionResponseMessage">
3768 <wsdl:part name="parameters" element="tns:PerformFusionResponse"/>
3769 </wsdl:message>
3770 <wsdl:message name="QueryCapabilitiesRequestMessage">
3771 <wsdl:part name="parameters" element="tns:QueryCapabilities"/>
3772 </wsdl:message>
3773 <wsdl:message name="QueryCapabilitiesResponseMessage">
3774 <wsdl:part name="parameters" element="tns:QueryCapabilitiesResponse"/>
3775 </wsdl:message>
3776 <wsdl:message name="RetrieveBiographicInformationRequestMessage">
3777 <wsdl:part name="parameters" element="tns:RetrieveBiographicInformation"/>
3778 </wsdl:message>
3779 <wsdl:message name="RetrieveBiographicInformationResponseMessage">
3780 <wsdl:part name="parameters" element="tns:RetrieveBiographicInformationResponse"/>
3781 </wsdl:message>
3782 <wsdl:message name="RetrieveBiometricInformationRequestMessage">
3783 <wsdl:part name="parameters" element="tns:RetrieveBiometricInformation"/>
3784 </wsdl:message>
3785 <wsdl:message name="RetrieveBiometricInformationResponseMessage">
3786 <wsdl:part name="parameters" element="tns:RetrieveBiometricInformationResponse"/>
3787 </wsdl:message>
3788 <wsdl:message name="SetBiographicDataRequestMessage">
3789 <wsdl:part name="parameters" element="tns:SetBiographicData"/>
3790 </wsdl:message>
3791 <wsdl:message name="SetBiographicDataResponseMessage">
3792 <wsdl:part name="parameters" element="tns:SetBiographicDataResponse"/>
3793 </wsdl:message>
3794 <wsdl:message name="SetBiometricDataRequestMessage">

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3795 <wsdl:part name="parameters" element="tns:SetBiometricData"/>
3796 </wsdl:message>
3797 <wsdl:message name="SetBiometricDataResponseMessage">
3798 <wsdl:part name="parameters" element="tns:SetBiometricDataResponse"/>
3799 </wsdl:message>
3800 <wsdl:message name="TransformBiometricDataRequestMessage">
3801 <wsdl:part name="parameters" element="tns:TransformBiometricData"/>
3802 </wsdl:message>
3803 <wsdl:message name="TransformBiometricDataResponseMessage">
3804 <wsdl:part name="parameters" element="tns:TransformBiometricDataResponse"/>
3805 </wsdl:message>
3806 <wsdl:message name="UpdateBiographicDataRequestMessage">
3807 <wsdl:part name="parameters" element="tns:UpdateBiographicData"/>
3808 </wsdl:message>
3809 <wsdl:message name="UpdateBiographicDataResponseMessage">
3810 <wsdl:part name="parameters" element="tns:UpdateBiographicDataResponse"/>
3811 </wsdl:message>
3812 <wsdl:message name="UpdateBiometricDataRequestMessage">
3813 <wsdl:part name="parameters" element="tns:UpdateBiometricData"/>
3814 </wsdl:message>
3815 <wsdl:message name="UpdateBiometricDataResponseMessage">
3816 <wsdl:part name="parameters" element="tns:UpdateBiometricDataResponse"/>
3817 </wsdl:message>
3818 <wsdl:message name="VerifySubjectRequestMessage">
3819 <wsdl:part name="parameters" element="tns:VerifySubject"/>
3820 </wsdl:message>
3821 <wsdl:message name="VerifySubjectResponseMessage">
3822 <wsdl:part name="parameters" element="tns:VerifySubjectResponse"/>
3823 </wsdl:message>
3824 <wsdl:message name="EnrollRequestMessage">
3825 <wsdl:part name="parameters" element="tns:Enroll"/>
3826 </wsdl:message>
3827 <wsdl:message name="EnrollResponseMessage">
3828 <wsdl:part name="parameters" element="tns:EnrollResponse"/>
3829 </wsdl:message>
3830 <wsdl:message name="GetEnrollResultsRequestMessage">
3831 <wsdl:part name="parameters" element="tns:GetEnrollResults"/>
3832 </wsdl:message>
3833 <wsdl:message name="GetEnrollResultsResponseMessage">
3834 <wsdl:part name="parameters" element="tns:GetEnrollResultsResponse"/>
3835 </wsdl:message>

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3836 <wsdl:message name="GetIdentifyResultsRequestMessage">
3837 <wsdl:part name="parameters" element="tns:GetIdentifyResults"/>
3838 </wsdl:message>
3839 <wsdl:message name="GetIdentifyResultsResponseMessage">
3840 <wsdl:part name="parameters" element="tns:GetIdentifyResultsResponse"/>
3841 </wsdl:message>
3842 <wsdl:message name="GetVerifyResultsRequestMessage">
3843 <wsdl:part name="parameters" element="tns:GetVerifyResults"/>
3844 </wsdl:message>
3845 <wsdl:message name="GetVerifyResultsResponseMessage">
3846 <wsdl:part name="parameters" element="tns:GetVerifyResultsResponse"/>
3847 </wsdl:message>
3848 <wsdl:message name="IdentifyRequestMessage">
3849 <wsdl:part name="parameters" element="tns:Identify"/>
3850 </wsdl:message>
3851 <wsdl:message name="IdentifyResponseMessage">
3852 <wsdl:part name="parameters" element="tns:IdentifyResponse"/>
3853 </wsdl:message>
3854 <wsdl:message name="RetrieveInformationRequestMessage">
3855 <wsdl:part name="parameters" element="tns:RetrieveInformation"/>
3856 </wsdl:message>
3857 <wsdl:message name="RetrieveInformationResponseMessage">
3858 <wsdl:part name="parameters" element="tns:RetrieveInformationResponse"/>
3859 </wsdl:message>
3860 <wsdl:message name="VerifyRequestMessage">
3861 <wsdl:part name="parameters" element="tns:Verify"/>
3862 </wsdl:message>
3863 <wsdl:message name="VerifyResponseMessage">
3864 <wsdl:part name="parameters" element="tns:VerifyResponse"/>
3865 </wsdl:message>
3866 <wsdl:portType name="BIAS_v1">
3867 <wsdl:operation name="AddSubjectToGallery">
3868 <wsdl:input name="AddSubjectToGallery" message="tns:AddSubjectToGalleryRequestMessage"/>
3869 <wsdl:output name="AddSubjectToGalleryResponse" message="tns:AddSubjectToGalleryResponseMessage"/>
3870 <wsdl:fault name="BIASFault" message="tns:BIASFaultMessage"/>
3871 </wsdl:operation>
3872 <wsdl:operation name="CheckQuality">
3873 <wsdl:input name="CheckQuality" message="tns:CheckQualityRequestMessage"/>
3874 <wsdl:output name="CheckQualityResponse" message="tns:CheckQualityResponseMessage"/>
3875 <wsdl:fault name="BIASFault" message="tns:BIASFaultMessage"/>
3876 </wsdl:operation>

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3877 <wsdl:operation name="ClassifyBiometricData">
3878 <wsdl:input name="ClassifyBiometricData" message="tns:ClassifyBiometricDataRequestMessage"/>
3879 <wsdl:output name="ClassifyBiometricDataResponse" message="tns:ClassifyBiometricDataResponseMessage"/>
3880 <wsdl:fault name="BIASFault" message="tns:BIASFaultMessage"/>
3881 </wsdl:operation>
3882 <wsdl:operation name="CreateSubject">
3883 <wsdl:input name="CreateSubject" message="tns:CreateSubjectRequestMessage"/>
3884 <wsdl:output name="CreateSubjectResponse" message="tns:CreateSubjectResponseMessage"/>
3885 <wsdl:fault name="BIASFault" message="tns:BIASFaultMessage"/>
3886 </wsdl:operation>
3887 <wsdl:operation name="DeleteBiographicData">
3888 <wsdl:input name="DeleteBiographicData" message="tns:DeleteBiographicDataRequestMessage"/>
3889 <wsdl:output name="DeleteBiographicDataResponse" message="tns:DeleteBiographicDataResponseMessage"/>
3890 <wsdl:fault name="BIASFault" message="tns:BIASFaultMessage"/>
3891 </wsdl:operation>
3892 <wsdl:operation name="DeleteBiometricData">
3893 <wsdl:input name="DeleteBiometricData" message="tns:DeleteBiometricDataRequestMessage"/>
3894 <wsdl:output name="DeleteBiometricDataResponse" message="tns:DeleteBiometricDataResponseMessage"/>
3895 <wsdl:fault name="BIASFault" message="tns:BIASFaultMessage"/>
3896 </wsdl:operation>
3897 <wsdl:operation name="DeleteSubject">
3898 <wsdl:input name="DeleteSubject" message="tns:DeleteSubjectRequestMessage"/>
3899 <wsdl:output name="DeleteSubjectResponse" message="tns:DeleteSubjectResponseMessage"/>
3900 <wsdl:fault name="BIASFault" message="tns:BIASFaultMessage"/>
3901 </wsdl:operation>
3902 <wsdl:operation name="DeleteSubjectFromGallery">
3903 <wsdl:input name="DeleteSubjectFromGallery" message="tns:DeleteSubjectFromGalleryRequestMessage"/>
3904 <wsdl:output name="DeleteSubjectFromGalleryResponse"
3905 message="tns:DeleteSubjectFromGalleryResponseMessage"/>
3906 <wsdl:fault name="BIASFault" message="tns:BIASFaultMessage"/>
3907 </wsdl:operation>
3908 <wsdl:operation name="GetIdentifySubjectResults">
3909 <wsdl:input name="GetIdentifySubjectResults" message="tns:GetIdentifySubjectResultsRequestMessage"/>
3910 <wsdl:output name="GetIdentifySubjectResultsResponse"
3911 message="tns:GetIdentifySubjectResultsResponseMessage"/>
3912 <wsdl:fault name="BIASFault" message="tns:BIASFaultMessage"/>
3913 </wsdl:operation>
3914 <wsdl:operation name="IdentifySubject">
3915 <wsdl:input name="IdentifySubject" message="tns:IdentifySubjectRequestMessage"/>
3916 <wsdl:output name="IdentifySubjectResponse" message="tns:IdentifySubjectResponseMessage"/>
3917 <wsdl:fault name="BIASFault" message="tns:BIASFaultMessage"/>

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3918 </wsdl:operation>
3919 <wsdl:operation name="ListBiographicData">
3920 <wsdl:input name="ListBiographicData" message="tns:ListBiographicDataRequestMessage"/>
3921 <wsdl:output name="ListBiographicDataResponse" message="tns:ListBiographicDataResponseMessage"/>
3922 <wsdl:fault name="BIASFault" message="tns:BIASFaultMessage"/>
3923 </wsdl:operation>
3924 <wsdl:operation name="ListBiometricData">
3925 <wsdl:input name="ListBiometricData" message="tns:ListBiometricDataRequestMessage"/>
3926 <wsdl:output name="ListBiometricDataResponse" message="tns:ListBiometricDataResponseMessage"/>
3927 <wsdl:fault name="BIASFault" message="tns:BIASFaultMessage"/>
3928 </wsdl:operation>
3929 <wsdl:operation name="PerformFusion">
3930 <wsdl:input name="PerformFusion" message="tns:PerformFusionRequestMessage"/>
3931 <wsdl:output name="PerformFusionResponse" message="tns:PerformFusionResponseMessage"/>
3932 <wsdl:fault name="BIASFault" message="tns:BIASFaultMessage"/>
3933 </wsdl:operation>
3934 <wsdl:operation name="QueryCapabilities">
3935 <wsdl:input name="QueryCapabilities" message="tns:QueryCapabilitiesRequestMessage"/>
3936 <wsdl:output name="QueryCapabilitiesResponse" message="tns:QueryCapabilitiesResponseMessage"/>
3937 <wsdl:fault name="BIASFault" message="tns:BIASFaultMessage"/>
3938 </wsdl:operation>
3939 <wsdl:operation name="RetrieveBiographicInformation">
3940 <wsdl:input name="RetrieveBiographicInformation"
3941 message="tns:RetrieveBiographicInformationRequestMessage"/>
3942 <wsdl:output name="RetrieveBiographicInformationResponse"
3943 message="tns:RetrieveBiographicInformationResponseMessage"/>
3944 <wsdl:fault name="BIASFault" message="tns:BIASFaultMessage"/>
3945 </wsdl:operation>
3946 <wsdl:operation name="RetrieveBiometricInformation">
3947 <wsdl:input name="RetrieveBiometricInformation"
3948 message="tns:RetrieveBiometricInformationRequestMessage"/>
3949 <wsdl:output name="RetrieveBiometricInformationResponse"
3950 message="tns:RetrieveBiometricInformationResponseMessage"/>
3951 <wsdl:fault name="BIASFault" message="tns:BIASFaultMessage"/>
3952 </wsdl:operation>
3953 <wsdl:operation name="SetBiographicData">
3954 <wsdl:input name="SetBiographicData" message="tns:SetBiographicDataRequestMessage"/>
3955 <wsdl:output name="SetBiographicDataResponse" message="tns:SetBiographicDataResponseMessage"/>
3956 <wsdl:fault name="BIASFault" message="tns:BIASFaultMessage"/>
3957 </wsdl:operation>
3958 <wsdl:operation name="SetBiometricData">
3959 <wsdl:input name="SetBiometricData" message="tns:SetBiometricDataRequestMessage"/>

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3960 <wsdl:output name="SetBiometricDataResponse" message="tns:SetBiometricDataResponseMessage"/>
3961 <wsdl:fault name="BIASFault" message="tns:BIASFaultMessage"/>
3962 </wsdl:operation>
3963 <wsdl:operation name="TransformBiometricData">
3964 <wsdl:input name="TransformBiometricData" message="tns:TransformBiometricDataRequestMessage"/>
3965 <wsdl:output name="TransformBiometricDataResponse"
3966 message="tns:TransformBiometricDataResponseMessage"/>
3967 <wsdl:fault name="BIASFault" message="tns:BIASFaultMessage"/>
3968 </wsdl:operation>
3969 <wsdl:operation name="UpdateBiographicData">
3970 <wsdl:input name="UpdateBiographicData" message="tns:UpdateBiographicDataRequestMessage"/>
3971 <wsdl:output name="UpdateBiographicDataResponse" message="tns:UpdateBiographicDataResponseMessage"/>
3972 <wsdl:fault name="BIASFault" message="tns:BIASFaultMessage"/>
3973 </wsdl:operation>
3974 <wsdl:operation name="UpdateBiometricData">
3975 <wsdl:input name="UpdateBiometricData" message="tns:UpdateBiometricDataRequestMessage"/>
3976 <wsdl:output name="UpdateBiometricDataResponse" message="tns:UpdateBiometricDataResponseMessage"/>
3977 <wsdl:fault name="BIASFault" message="tns:BIASFaultMessage"/>
3978 </wsdl:operation>
3979 <wsdl:operation name="VerifySubject">
3980 <wsdl:input name="VerifySubject" message="tns:VerifySubjectRequestMessage"/>
3981 <wsdl:output name="VerifySubjectResponse" message="tns:VerifySubjectResponseMessage"/>
3982 <wsdl:fault name="BIASFault" message="tns:BIASFaultMessage"/>
3983 </wsdl:operation>
3984 <wsdl:operation name="Enroll">
3985 <wsdl:input name="Enroll" message="tns:EnrollRequestMessage"/>
3986 <wsdl:output name="EnrollResponse" message="tns:EnrollResponseMessage"/>
3987 <wsdl:fault name="BIASFault" message="tns:BIASFaultMessage"/>
3988 </wsdl:operation>
3989 <wsdl:operation name="GetEnrollResults">
3990 <wsdl:input name="GetEnrollResults" message="tns:GetEnrollResultsRequestMessage"/>
3991 <wsdl:output name="GetEnrollResultsResponse" message="tns:GetEnrollResultsResponseMessage"/>
3992 <wsdl:fault name="BIASFault" message="tns:BIASFaultMessage"/>
3993 </wsdl:operation>
3994 <wsdl:operation name="GetIdentifyResults">
3995 <wsdl:input name="GetIdentifyResults" message="tns:GetIdentifyResultsRequestMessage"/>
3996 <wsdl:output name="GetIdentifyResultsResponse" message="tns:GetIdentifyResultsResponseMessage"/>
3997 <wsdl:fault name="BIASFault" message="tns:BIASFaultMessage"/>
3998 </wsdl:operation>
3999 <wsdl:operation name="GetVerifyResults">
4000 <wsdl:input name="GetVerifyResults" message="tns:GetVerifyResultsRequestMessage"/>

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4001 <wsdl:output name="GetVerifyResultsResponse" message="tns:GetVerifyResultsResponseMessage"/>
4002 <wsdl:fault name="BIASFault" message="tns:BIASFaultMessage"/>
4003 </wsdl:operation>
4004 <wsdl:operation name="Identify">
4005 <wsdl:input name="Identify" message="tns:IdentifyRequestMessage"/>
4006 <wsdl:output name="IdentifyResponse" message="tns:IdentifyResponseMessage"/>
4007 <wsdl:fault name="BIASFault" message="tns:BIASFaultMessage"/>
4008 </wsdl:operation>
4009 <wsdl:operation name="RetrieveInformation">
4010 <wsdl:input name="RetrieveInformation" message="tns:RetrieveInformationRequestMessage"/>
4011 <wsdl:output name="RetrieveInformationResponse" message="tns:RetrieveInformationResponseMessage"/>
4012 <wsdl:fault name="BIASFault" message="tns:BIASFaultMessage"/>
4013 </wsdl:operation>
4014 <wsdl:operation name="Verify">
4015 <wsdl:input name="Verify" message="tns:VerifyRequestMessage"/>
4016 <wsdl:output name="VerifyResponse" message="tns:VerifyResponseMessage"/>
4017 <wsdl:fault name="BIASFault" message="tns:BIASFaultMessage"/>
4018 </wsdl:operation>
4019 </wsdl:portType>
4020 <wsdl:binding name="BIAS_v1HttpBinding" type="tns:BIAS_v1">
4021 <soap:binding style="document" transport="http://schemas.xmlsoap.org/soap/http"/>
4022 <wsdl:operation name="AddSubjectToGallery">
4023 <soap:operation soapAction="AddSubjectToGallery"/>
4024 <wsdl:input name="AddSubjectToGallery">
4025 <soap:body use="literal"/>
4026 </wsdl:input>
4027 <wsdl:output name="AddSubjectToGalleryResponse">
4028 <soap:body use="literal"/>
4029 </wsdl:output>
4030 <wsdl:fault name="BIASFault">
4031 <soap:fault name="BIASFault" use="literal"/>
4032 </wsdl:fault>
4033 </wsdl:operation>
4034 <wsdl:operation name="CheckQuality">
4035 <soap:operation soapAction="CheckQuality"/>
4036 <wsdl:input name="CheckQuality">
4037 <soap:body use="literal"/>
4038 </wsdl:input>
4039 <wsdl:output name="CheckQualityResponse">
4040 <soap:body use="literal"/>
4041 </wsdl:output>

```

```

4042 <wsdl:fault name="BIASFault">
4043 <soap:fault name="BIASFault" use="literal"/>
4044 </wsdl:fault>
4045 </wsdl:operation>
4046 <wsdl:operation name="ClassifyBiometricData">
4047 <soap:operation soapAction="ClassifyBiometricData"/>
4048 <wsdl:input name="ClassifyBiometricData">
4049 <soap:body use="literal"/>
4050 </wsdl:input>
4051 <wsdl:output name="ClassifyBiometricDataResponse">
4052 <soap:body use="literal"/>
4053 </wsdl:output>
4054 <wsdl:fault name="BIASFault">
4055 <soap:fault name="BIASFault" use="literal"/>
4056 </wsdl:fault>
4057 </wsdl:operation>
4058 <wsdl:operation name="CreateSubject">
4059 <soap:operation soapAction="CreateSubject"/>
4060 <wsdl:input name="CreateSubject">
4061 <soap:body use="literal"/>
4062 </wsdl:input>
4063 <wsdl:output name="CreateSubjectResponse">
4064 <soap:body use="literal"/>
4065 </wsdl:output>
4066 <wsdl:fault name="BIASFault">
4067 <soap:fault name="BIASFault" use="literal"/>
4068 </wsdl:fault>
4069 </wsdl:operation>
4070 <wsdl:operation name="DeleteBiographicData">
4071 <soap:operation soapAction="DeleteBiographicData"/>
4072 <wsdl:input name="DeleteBiographicData">
4073 <soap:body use="literal"/>
4074 </wsdl:input>
4075 <wsdl:output name="DeleteBiographicDataResponse">
4076 <soap:body use="literal"/>
4077 </wsdl:output>
4078 <wsdl:fault name="BIASFault">
4079 <soap:fault name="BIASFault" use="literal"/>
4080 </wsdl:fault>
4081 </wsdl:operation>
4082 <wsdl:operation name="DeleteBiometricData">

```

```

4083 <soap:operation soapAction="DeleteBiometricData"/>
4084 <wsdl:input name="DeleteBiometricData">
4085 <soap:body use="literal"/>
4086 </wsdl:input>
4087 <wsdl:output name="DeleteBiometricDataResponse">
4088 <soap:body use="literal"/>
4089 </wsdl:output>
4090 <wsdl:fault name="BIASFault">
4091 <soap:fault name="BIASFault" use="literal"/>
4092 </wsdl:fault>
4093 </wsdl:operation>
4094 <wsdl:operation name="DeleteSubject">
4095 <soap:operation soapAction="DeleteSubject"/>
4096 <wsdl:input name="DeleteSubject">
4097 <soap:body use="literal"/>
4098 </wsdl:input>
4099 <wsdl:output name="DeleteSubjectResponse">
4100 <soap:body use="literal"/>
4101 </wsdl:output>
4102 <wsdl:fault name="BIASFault">
4103 <soap:fault name="BIASFault" use="literal"/>
4104 </wsdl:fault>
4105 </wsdl:operation>
4106 <wsdl:operation name="DeleteSubjectFromGallery">
4107 <soap:operation soapAction="DeleteSubjectFromGallery"/>
4108 <wsdl:input name="DeleteSubjectFromGallery">
4109 <soap:body use="literal"/>
4110 </wsdl:input>
4111 <wsdl:output name="DeleteSubjectFromGalleryResponse">
4112 <soap:body use="literal"/>
4113 </wsdl:output>
4114 <wsdl:fault name="BIASFault">
4115 <soap:fault name="BIASFault" use="literal"/>
4116 </wsdl:fault>
4117 </wsdl:operation>
4118 <wsdl:operation name="GetIdentifySubjectResults">
4119 <soap:operation soapAction="GetIdentifySubjectResults"/>
4120 <wsdl:input name="GetIdentifySubjectResults">
4121 <soap:body use="literal"/>
4122 </wsdl:input>
4123 <wsdl:output name="GetIdentifySubjectResultsResponse">

```

```

4124 <soap:body use="literal"/>
4125 </wsdl:output>
4126 <wsdl:fault name="BIASFault">
4127 <soap:fault name="BIASFault" use="literal"/>
4128 </wsdl:fault>
4129 </wsdl:operation>
4130 <wsdl:operation name="IdentifySubject">
4131 <soap:operation soapAction="IdentifySubject"/>
4132 <wsdl:input name="IdentifySubject">
4133 <soap:body use="literal"/>
4134 </wsdl:input>
4135 <wsdl:output name="IdentifySubjectResponse">
4136 <soap:body use="literal"/>
4137 </wsdl:output>
4138 <wsdl:fault name="BIASFault">
4139 <soap:fault name="BIASFault" use="literal"/>
4140 </wsdl:fault>
4141 </wsdl:operation>
4142 <wsdl:operation name="ListBiographicData">
4143 <soap:operation soapAction="ListBiographicData"/>
4144 <wsdl:input name="ListBiographicData">
4145 <soap:body use="literal"/>
4146 </wsdl:input>
4147 <wsdl:output name="ListBiographicDataResponse">
4148 <soap:body use="literal"/>
4149 </wsdl:output>
4150 <wsdl:fault name="BIASFault">
4151 <soap:fault name="BIASFault" use="literal"/>
4152 </wsdl:fault>
4153 </wsdl:operation>
4154 <wsdl:operation name="ListBiometricData">
4155 <soap:operation soapAction="ListBiometricData"/>
4156 <wsdl:input name="ListBiometricData">
4157 <soap:body use="literal"/>
4158 </wsdl:input>
4159 <wsdl:output name="ListBiometricDataResponse">
4160 <soap:body use="literal"/>
4161 </wsdl:output>
4162 <wsdl:fault name="BIASFault">
4163 <soap:fault name="BIASFault" use="literal"/>
4164 </wsdl:fault>

```

```

4165 </wsdl:operation>
4166 <wsdl:operation name="PerformFusion">
4167 <soap:operation soapAction="PerformFusion"/>
4168 <wsdl:input name="PerformFusion">
4169 <soap:body use="literal"/>
4170 </wsdl:input>
4171 <wsdl:output name="PerformFusionResponse">
4172 <soap:body use="literal"/>
4173 </wsdl:output>
4174 <wsdl:fault name="BIASFault">
4175 <soap:fault name="BIASFault" use="literal"/>
4176 </wsdl:fault>
4177 </wsdl:operation>
4178 <wsdl:operation name="QueryCapabilities">
4179 <soap:operation soapAction="QueryCapabilities"/>
4180 <wsdl:input name="QueryCapabilities">
4181 <soap:body use="literal"/>
4182 </wsdl:input>
4183 <wsdl:output name="QueryCapabilitiesResponse">
4184 <soap:body use="literal"/>
4185 </wsdl:output>
4186 <wsdl:fault name="BIASFault">
4187 <soap:fault name="BIASFault" use="literal"/>
4188 </wsdl:fault>
4189 </wsdl:operation>
4190 <wsdl:operation name="RetrieveBiographicInformation">
4191 <soap:operation soapAction="RetrieveBiographicInformation"/>
4192 <wsdl:input name="RetrieveBiographicInformation">
4193 <soap:body use="literal"/>
4194 </wsdl:input>
4195 <wsdl:output name="RetrieveBiographicInformationResponse">
4196 <soap:body use="literal"/>
4197 </wsdl:output>
4198 <wsdl:fault name="BIASFault">
4199 <soap:fault name="BIASFault" use="literal"/>
4200 </wsdl:fault>
4201 </wsdl:operation>
4202 <wsdl:operation name="RetrieveBiometricInformation">
4203 <soap:operation soapAction="RetrieveBiometricInformation"/>
4204 <wsdl:input name="RetrieveBiometricInformation">
4205 <soap:body use="literal"/>

```



```

4206 </wsdl:input>
4207 <wsdl:output name="RetrieveBiometricInformationResponse">
4208 <soap:body use="literal"/>
4209 </wsdl:output>
4210 <wsdl:fault name="BIASFault">
4211 <soap:fault name="BIASFault" use="literal"/>
4212 </wsdl:fault>
4213 </wsdl:operation>
4214 <wsdl:operation name="SetBiographicData">
4215 <soap:operation soapAction="SetBiographicData"/>
4216 <wsdl:input name="SetBiographicData">
4217 <soap:body use="literal"/>
4218 </wsdl:input>
4219 <wsdl:output name="SetBiographicDataResponse">
4220 <soap:body use="literal"/>
4221 </wsdl:output>
4222 <wsdl:fault name="BIASFault">
4223 <soap:fault name="BIASFault" use="literal"/>
4224 </wsdl:fault>
4225 </wsdl:operation>
4226 <wsdl:operation name="SetBiometricData">
4227 <soap:operation soapAction="SetBiometricData"/>
4228 <wsdl:input name="SetBiometricData">
4229 <soap:body use="literal"/>
4230 </wsdl:input>
4231 <wsdl:output name="SetBiometricDataResponse">
4232 <soap:body use="literal"/>
4233 </wsdl:output>
4234 <wsdl:fault name="BIASFault">
4235 <soap:fault name="BIASFault" use="literal"/>
4236 </wsdl:fault>
4237 </wsdl:operation>
4238 <wsdl:operation name="TransformBiometricData">
4239 <soap:operation soapAction="TransformBiometricData"/>
4240 <wsdl:input name="TransformBiometricData">
4241 <soap:body use="literal"/>
4242 </wsdl:input>
4243 <wsdl:output name="TransformBiometricDataResponse">
4244 <soap:body use="literal"/>
4245 </wsdl:output>
4246 <wsdl:fault name="BIASFault">

```

```

4247 <soap:fault name="BIASFault" use="literal"/>
4248 </wsdl:fault>
4249 </wsdl:operation>
4250 <wsdl:operation name="UpdateBiographicData">
4251 <soap:operation soapAction="UpdateBiographicData"/>
4252 <wsdl:input name="UpdateBiographicData">
4253 <soap:body use="literal"/>
4254 </wsdl:input>
4255 <wsdl:output name="UpdateBiographicDataResponse">
4256 <soap:body use="literal"/>
4257 </wsdl:output>
4258 <wsdl:fault name="BIASFault">
4259 <soap:fault name="BIASFault" use="literal"/>
4260 </wsdl:fault>
4261 </wsdl:operation>
4262 <wsdl:operation name="UpdateBiometricData">
4263 <soap:operation soapAction="UpdateBiometricData"/>
4264 <wsdl:input name="UpdateBiometricData">
4265 <soap:body use="literal"/>
4266 </wsdl:input>
4267 <wsdl:output name="UpdateBiometricDataResponse">
4268 <soap:body use="literal"/>
4269 </wsdl:output>
4270 <wsdl:fault name="BIASFault">
4271 <soap:fault name="BIASFault" use="literal"/>
4272 </wsdl:fault>
4273 </wsdl:operation>
4274 <wsdl:operation name="VerifySubject">
4275 <soap:operation soapAction="VerifySubject"/>
4276 <wsdl:input name="VerifySubject">
4277 <soap:body use="literal"/>
4278 </wsdl:input>
4279 <wsdl:output name="VerifySubjectResponse">
4280 <soap:body use="literal"/>
4281 </wsdl:output>
4282 <wsdl:fault name="BIASFault">
4283 <soap:fault name="BIASFault" use="literal"/>
4284 </wsdl:fault>
4285 </wsdl:operation>
4286 <wsdl:operation name="Enroll">
4287 <soap:operation soapAction="Enroll"/>

```

```

4288 <wsdl:input name="Enroll">
4289 <soap:body use="literal"/>
4290 </wsdl:input>
4291 <wsdl:output name="EnrollResponse">
4292 <soap:body use="literal"/>
4293 </wsdl:output>
4294 <wsdl:fault name="BIASFault">
4295 <soap:fault name="BIASFault" use="literal"/>
4296 </wsdl:fault>
4297 </wsdl:operation>
4298 <wsdl:operation name="GetEnrollResults">
4299 <soap:operation soapAction="GetEnrollResults"/>
4300 <wsdl:input name="GetEnrollResults">
4301 <soap:body use="literal"/>
4302 </wsdl:input>
4303 <wsdl:output name="GetEnrollResultsResponse">
4304 <soap:body use="literal"/>
4305 </wsdl:output>
4306 <wsdl:fault name="BIASFault">
4307 <soap:fault name="BIASFault" use="literal"/>
4308 </wsdl:fault>
4309 </wsdl:operation>
4310 <wsdl:operation name="GetIdentifyResults">
4311 <soap:operation soapAction="GetIdentifyResults"/>
4312 <wsdl:input name="GetIdentifyResults">
4313 <soap:body use="literal"/>
4314 </wsdl:input>
4315 <wsdl:output name="GetIdentifyResultsResponse">
4316 <soap:body use="literal"/>
4317 </wsdl:output>
4318 <wsdl:fault name="BIASFault">
4319 <soap:fault name="BIASFault" use="literal"/>
4320 </wsdl:fault>
4321 </wsdl:operation>
4322 <wsdl:operation name="GetVerifyResults">
4323 <soap:operation soapAction="GetVerifyResults"/>
4324 <wsdl:input name="GetVerifyResults">
4325 <soap:body use="literal"/>
4326 </wsdl:input>
4327 <wsdl:output name="GetVerifyResultsResponse">
4328 <soap:body use="literal"/>

```

4329 </wsdl:output>
4330 <wsdl:fault name="BIASFault">
4331 <soap:fault name="BIASFault" use="literal"/>
4332 </wsdl:fault>
4333 </wsdl:operation>
4334 <wsdl:operation name="Identify">
4335 <soap:operation soapAction="Identify"/>
4336 <wsdl:input name="Identify">
4337 <soap:body use="literal"/>
4338 </wsdl:input>
4339 <wsdl:output name="IdentifyResponse">
4340 <soap:body use="literal"/>
4341 </wsdl:output>
4342 <wsdl:fault name="BIASFault">
4343 <soap:fault name="BIASFault" use="literal"/>
4344 </wsdl:fault>
4345 </wsdl:operation>
4346 <wsdl:operation name="RetrieveInformation">
4347 <soap:operation soapAction="RetrieveInformation"/>
4348 <wsdl:input name="RetrieveInformation">
4349 <soap:body use="literal"/>
4350 </wsdl:input>
4351 <wsdl:output name="RetrieveInformationResponse">
4352 <soap:body use="literal"/>
4353 </wsdl:output>
4354 <wsdl:fault name="BIASFault">
4355 <soap:fault name="BIASFault" use="literal"/>
4356 </wsdl:fault>
4357 </wsdl:operation>
4358 <wsdl:operation name="Verify">
4359 <soap:operation soapAction="Verify"/>
4360 <wsdl:input name="Verify">
4361 <soap:body use="literal"/>
4362 </wsdl:input>
4363 <wsdl:output name="VerifyResponse">
4364 <soap:body use="literal"/>
4365 </wsdl:output>
4366 <wsdl:fault name="BIASFault">
4367 <soap:fault name="BIASFault" use="literal"/>
4368 </wsdl:fault>
4369 </wsdl:operation>

```
4370 </wsdl:binding>
4371 <wsdl:service name="BIAS_v1">
4372 <wsdl:port name="BIAS_v1HttpBindingPort" binding="tns:BIAS_v1HttpBinding">
4373 <soap:address location="http://your_URI/IRI_to_your_BIAS_implementation"/>
4374 </wsdl:port>
4375 </wsdl:service>
4376 </wsdl:definitions>
```

Annex B: BIAS Patron format specification

The BIAS SOAP Profile defines an XML CBEFF Patron Format based on, but tailored from, Clause 13/15 of ISO/IEC 19785-3 [CBEFF3] as specified below.

B.1 Patron

Organization for the Advancement of Structured Information Standards (OASIS)

B.2 Patron identifier

82 (0052 Hex).

This has been allocated by the Registration Authority for ISO/IEC 19785-2.

B.3 Patron format name

OASIS BIAS CBEFF XML Patron Format

B.4 Patron format identifier

01 (0001 Hex).

This has been registered in accordance with ISO/IEC 19785-2.

B.5 ASN.1 object identifier for this patron format

No ASN.1 object identifiers are assigned to this patron format

B.6 Domain of use

This clause specifies a patron format based on XML that is designed to be friendly with code generation tools. It defines a CBEFF structure that allows for the creation of simple, complex, and multi-modal BIRs for use within BIAS transactions.

B.7 Version identifier

This patron format specification has a version identifier of (major 1, minor 0).

B.8 CBEFF version

This specification conforms to CBEFF version (major 2, minor 0).

B.9 General

B.9.1 This patron format is based on W3C XML 1.0. It supports all the mandatory and optional data elements specified in ISO/IEC 19785-1. It can support either a simple BIR or a complex BIR structure where each intermediate node or leaf of the structure is itself a BIR (called a "child BIR").

B.9.2 Most fields in this patron format are optional. Some mandatory and optional fields are represented by XML elements, others are represented by attributes of XML elements. The presence of an optional field in a BIR is signaled by simply including the corresponding element or attribute, and its absence is signaled by simply omitting the corresponding element or attribute.

B.9.3 Special encodings are specified for integers (see B.17), octet strings (see B.18), and date and time-of-the-day abstract values (see B.19).

B.9.4 An instance of a BIR or child BIR contains either a BDB or one or more BIR children, but never contains both.

B.9.5 An extension mechanism is specified, which enables the inclusion of application-specific data (not standardized) within a BIR or child BIR (see B.11.1.6).

B.10 Specification

B.10.1 In the rest of this clause, the terms "element" and "attribute" are used with the meaning of "XML element" and "XML attribute", respectively.

B.10.2 The namespace with the name "<http://docs.oasis-open.org/bias/ns/biaspatronformat-1.0/>" is called the patron format namespace of this patron format.

B.10.3 All elements defined in this patron format have the patron format namespace name. All attribute names are unqualified.

B.10.4 An instance of a BIR shall be represented as a **<BIR>** element (see B.11).

B.10.5 The **<BIR>** element may be the root of an XML document, but this is not required.

B.10.6 The portion of the XML document consisting of the **<BIR>** element and its whole content shall be valid according to the XML schema provided in B.22.

NOTE 1 – Validity according to that XML schema does not imply that the **<BIR>** element satisfies all the requirements in the normative text of this specification, as there are some requirements that cannot be (or are not) formally expressed in the XML schema.

NOTE 2 – When the **<BIR>** element is the root of an XML document, the UTF-8 character encoding is recommended for the XML document, because it will usually produce a smaller encoding.

B.10.7 The abstract value NO VALUE AVAILABLE, for any CBEFF data element that supports this abstract value, shall be encoded as the omission of the corresponding element or attribute both in the **<BIR>** element and in all of its ancestor **<BIR>** elements.

NOTE – The inheritance mechanism specified in B.14.2.1, B.15.2.1 and B.16.2.1 causes a data element of a BIR to inherit an abstract value (different from NO VALUE AVAILABLE) from its closest ancestor **<BIR>** element that contains that element or attribute when the **<BIR>** element in question does not contain it. If any **<BIR>** element in a hierarchy of **<BIR>** elements specifies an abstract value for a given data element, that abstract value can be overridden by a different abstract value in any of its descendant **<BIR>** elements, but the overriding abstract value can never be NO VALUE AVAILABLE.

B.11 Element <BIR>

B.11.1 Syntax

B.11.1.1 This element shall have no attributes, and shall have a content consisting of the following (in order):

- a) an optional <Version> element (see B.12);
- b) an optional <CBEFFVersion> element (see B.13);
- c) zero or more application-specific elements;
- d) a mandatory <BIRInfo> element (see B.14);
- e) an optional <BDBInfo> element (see B.15);
- f) an optional <SBInfo> element (see B.16);
- g) zero or more <BIR> elements (see B.11);
- h) either an optional <BDB> element that shall contain a valid representation of an octet string (see B.18), or an optional <bdbx> element that shall contain a valid XML string;
- i) an optional <SB> element – the content of this element shall be a valid representation of an octet string.

B.11.1.2 The <BDB> or <bdbx> element shall not be present if one or more child <BIR> elements are present, and shall be present if no child <BIR> elements are present.

B.11.1.3 The <SB> element shall be absent unless its presence is required by F.14.2.2 or permitted by F.15.2.3.

B.11.1.4 If the <BDB> or <bdbx> element is present, then the <BDBInfo> element shall also be present.

B.11.1.5 If the <SB> element is present, then the <SBInfo> element shall also be present.

B.11.1.6 The number of application-specific elements and their name, namespace name, attributes, and content are not defined in this patron format specification. However, the namespace name of those elements shall be different from the patron format namespace name (see B.10.2).

B.11.2 Semantics

B.11.2.1 This element is either a complex or a simple BIR, depending on which child elements are present. If a child <BDB> or <bdbx> element is present, this element is a simple BIR. If one or more child <BIR> elements are present, this element is a complex BIR.

B.11.2.2 The elements <Version>, <CBEFFVersion>, <BIRInfo>, <BDBInfo>, and <SBInfo> and their content form the standard biometric header of the BIR.

B.11.2.3 The <Version> element (if present) carries the major and minor version number of this patron format.

B.11.2.4 The <CBEFFVersion> element (if present) carries the major and minor version number of the CBEFF standard.

B.11.2.5 Each <BIR> element is a whole BIR (of the same patron format) that is a child BIR of the BIR.

4493 **B.11.2.6** The **<BDB>** or **<bdbX>** element (if present) carries the biometric data block (BDB) of the
4494 BIR.

4495 NOTE – A **<BDB>** or **<bdbX>** element and a **<BIR>** element cannot coexist as children of
4496 the same **<BIR>** element (see B.11.1.2).

4497 **B.11.2.7** The **<SB>** element (if present) carries the security block (SB) of the BIR.

4498 NOTE – A **<SB>** element can coexist with either a **<BIR>** element or a **<BDB>** or
4499 **<bdbX>** element that is a child of the same **<BIR>** element.

4500 **B.11.2.8** The **<BIRInfo>** element carries information about both the BIR and (possibly) about its
4501 descendant BIRs (if the **<BIR>** element has one or more child **<BIR>** elements), as specified in B.14.2.1.

4502 **B.11.2.9** The **<BDBInfo>** element (if present) carries information about either the BDB of the BIR
4503 (if the **<BIR>** element has a child **<BDB>** or **<bdbX>** element) or about the BDBs of the descendant BIRs
4504 that have a child **<BDB>** or **<bdbX>** element (if the **<BIR>** element has one or more child **<BIR>**
4505 elements), as specified in B.15.2.1.

4506 **B.11.2.10** The **<SBInfo>** element (if present) carries information about either the SB of the BIR (if
4507 the **<BIR>** element has a child **<SB>** element) or about the SBs of the descendant BIRs that have a child
4508 **<SB>** element (if the **<BIR>** element has one or more child **<BIR>** elements but no child **<SB>** element),
4509 as specified in B.16.2.1.

4510

4511 **B.12Element <Version>**

4512 **B.12.1 Syntax**

4513 This element shall have contents consisting of the following (in order):

4514 a) a required **<Major>** element – the value of this element shall be a valid representation of a non-
4515 negative integer.

4516 b) a required **<Minor>** element – the value of this element shall be a valid representation of a non-
4517 negative integer.

4518 **B.12.2 Semantics**

4519 **B.12.2.1** This element represents the data element CBEFF_patron_header_version, and carries
4520 the (major and minor) version number of the patron format. The number assigned to this version of the
4521 patron format is major 1, minor 0.

4522 **B.12.2.2** The **<Major>** element represents the major version number (1 in this version).

4523 **B.12.2.3** The **<Minor>** element represents the minor version number (0 in this version).

4524 **B.12.2.4** If this element is not present, the values **Major="1" Minor="0"** are implied.

4525 **B.12.2.5** A child **<BIR>** element shall have the same (major and minor) version number as its
4526 parent **<BIR>** element.

4527 NOTE – This implies that the **<Version>** element, if present in a child **<BIR>** element,
4528 has to carry the same values as the **<Version>** element in the parent **<BIR>** element.
4529 This is equivalent to omitting the **<Version>** element. Therefore, this element is
4530 normally omitted in child **<BIR>** elements.

4531

4532 **B.13 Element <CBEFFVersion>**

4533 **B.13.1 Syntax**

4534 This element shall have content consisting of the following (in order):

- 4535 a) a required **<Major>** element – the value of this element shall be a valid representation of a non-
4536 negative integer (see B.17);
- 4537 b) a required **<Minor>** element – the value of this element shall be a valid representation of a non-
4538 negative integer.

4539 **B.13.2 Semantics**

4540 **B.13.2.1** This element represents the data element CBEFF_version, and carries the version
4541 number of the CBEFF standard supported by this patron format. The number assigned to the version of
4542 CBEFF supported by this patron format is Major=2, Minor=0.

4543 **B.13.2.2** The **<Major>** element represents the major version number (2 in this version).

4544 **B.13.2.3** The **<Minor>** element represents the minor version number (0 in this version).

4545 **B.13.2.4** If this element is not present, the values **Major="2"** **Minor="0"** are implied.

4546 **B.13.2.5** A child **<BIR>** element shall have the same CBEFF version number (major and minor) as
4547 its parent **<BIR>** element.

4548 NOTE – Thus, the **<CBEFFVersion>** element is normally omitted from all child **<BIR>**
4549 elements, as it would be redundant.

4550

4551 **B.14 Element <BIRInfo>**

4552 **B.14.1 Syntax**

4553 **B.14.1.1** This element shall have a content consisting of the following (in order):

- 4554 a) an optional **<Creator>** element – the content of this element shall be a string of ISO/IEC 10646
4555 characters;
- 4556 b) an optional **<Index>** element – the content of this element shall be a valid representation of a
4557 universally unique identifier (see B.20), and shall not inherit its value from any other level BIR;
- 4558 c) an optional **<Payload>** element – the content of this element shall be a valid representation of an
4559 octet string, and shall not inherit its value from any other level BIR.
- 4560 d) a required **<Integrity>** element – the value of this element shall be one of the character strings in
4561 the third cell of the corresponding row of Table B.1;
- 4562 e) an optional **<CreationDate>** element – the value of this element shall be a valid representation of a
4563 date and time of the day (see B.19);
- 4564 f) an optional **<NotValidBefore>** element – the value of this element shall be a valid representation
4565 of a date and time of the day;
- 4566 g) an optional **<NotValidAfter>** element – the value of this element shall be a valid representation of
4567 a date and time of the day.

B.14.2 Semantics

B.14.2.1 The **<BIRInfo>** element carries information about the BIR. In addition, if the BIR has one or more child BIRs (the **<BIR>** element has one or more child **<BIR>** elements), the information carried by the attributes and child elements of the **<BIRInfo>** element is inherited by those child BIRs except where overridden by a corresponding attribute or child element of the **<BIRInfo>** element of a child BIR. The information inherited by a BIR applies to that BIR, and (if the BIR has itself child BIRs) is further inherited by its child BIRs in the same way (and so on recursively).

NOTE – Since the **Integrity** element is required and the **<BIRInfo>** element is mandatory in all **<BIR>** elements, inheritance of the **Integrity** element can never occur.

B.14.2.2 The **Integrity** element indicates whether integrity information about this BIR is provided within the security block (SB) of the BIR (the child **<SB>** element of the parent **<BIR>** element of this **<BIRInfo>** element).

NOTE – This information may consist of a digital signature or MAC, a reference to a key or certificate, an encrypted key (with or without a reference to the key used to encrypt that key), or other parameters of the digital signing (or MAC) process.

B.14.2.3 If the value of the **<Integrity>** element is "true", then the parent **<BIR>** element of this **<BIRInfo>** element shall have a child **<SB>** element.

B.14.2.4 Table B.1 specifies the correspondence between the attributes and child elements of this element and CBEFF data elements, and specifies the supported abstract values and their encodings (see also B.10.7).

NOTE - This element represents all CBEFF data elements whose name begins with "CBEFF_BIR_".

I) Table B.1 – BIR information

CBEFF data element name	XML element	Supported abstract values and encodings	Reference
CBEFF_BIR_creator	<Creator>	All ISO/IEC 10646 character strings are supported. The character string shall be encoded as the string itself.	
CBEFF_BIR_index	<Index>	All well-formed UUIDs are supported. The UUIDs shall be encoded as specified in B.20. Shall not inherit its value from any other BIR level.	
CBEFF_BIR_payload	<Payload>	All octet strings are supported. The octet strings shall be encoded as specified in B.18. Shall not inherit its value from any other BIR level.	
CBEFF_BIR_integrity_options	<Integrity>	The following abstract values are supported. The abstract values shall be encoded as shown below. NO INTEGRITY:	

CBEFF data element name	XML element	Supported abstract values and encodings	Reference
		"false" INTEGRITY: "true"	
CBEFF_BIR_creation_date	<CreationDate>	All date and time-of-the-day abstract values permitted by CBEFF are supported. The abstract values shall be encoded as specified in B.19.	
CBEFF_BIR_validity_period (lower end)	<NotValidBefore>	All date and time-of-the-day abstract values permitted by CBEFF are supported. The abstract values shall be encoded as specified in B.19.	
CBEFF_BIR_validity_period (upper end)	<NotValidAfter>	All date and time-of-the-day abstract values permitted by CBEFF are supported. The abstract values shall be encoded as specified in B.19.	

4592

4593 B.15 Element <BDBInfo>

4594 B.15.1 Syntax

4595 **B.15.1.1** This element shall have a content consisting of the following (in order):

- 4596 a) an optional <ChallengeResponse> element – the content of this element shall be a valid
4597 representation of an octet string (see B.18);
- 4598 b) an optional <Index> element – the content of this element shall be a valid representation of a
4599 universally unique identifier (see B.20).
- 4600 c) an optional <FormatOwner> element – the value of this element shall be a valid representation
4601 of an integer in the range 1 to 65535 (see B.17);
- 4602 d) an optional <FormatType> element – the value of this element shall be a valid representation of
4603 an integer in the range 1 to 65535;
- 4604 e) an optional <Encryption> element – the value of this element shall be one of the character
4605 strings in the third cell of the corresponding row of Table B.2;
- 4606 f) an optional <CreationDate> element – the value of this element shall be a valid
4607 representation of a date and time of the day (see B.19);
- 4608 g) an optional <NotValidBefore> element – the value of this element shall be a valid
4609 representation of a date and time of the day;
- 4610 h) an optional <NotValidAfter> element – the value of this element shall be a valid
4611 representation of a date and time of the day;

- 4612 i) an optional **<Type>** element – the value of this element shall be one of the character strings in
4613 the third cell of the corresponding row of Table B.2;
- 4614 j) an optional **<Subtype>** element – the value of this element shall be one of the character strings
4615 in the third cell of the corresponding row of Table B.2;
- 4616 k) an optional **<Level1>** element – the value of this element shall be one of the character strings in
4617 the third cell of the corresponding row of Table B.2;
- 4618 l) an optional **<ProductOwner>** element – the value of this element shall be a valid
4619 representation of an integer in the range 1..65535 (see B.17);
- 4620 m) an optional **<ProductType>** element – the value of this element shall be a valid representation
4621 of an integer in the range 1..65535;
- 4622 n) an optional **<CaptureDeviceOwner>** element – the value of this element shall be a valid
4623 representation of an integer in the range 1..65535 (see B.17);
- 4624 o) an optional **<CaptureDeviceType>** element – the value of this element shall be a valid
4625 representation of an integer in the range 1..65535;
- 4626 p) an optional **<FeatureExtractionAlgorithmOwner>** element – the value of this element
4627 shall be a valid representation of an integer in the range 1..65535 (see B.17);
- 4628 q) an optional **<FeatureExtractionAlgorithmType>** element – the value of this element shall
4629 be a valid representation of an integer in the range 1..65535;
- 4630 r) an optional **<ComparisonAlgorithmOwner>** element – the value of this element shall be a
4631 valid representation of an integer in the range 1..65535 (see B.17);
- 4632 s) an optional **<ComparisonAlgorithmType>** element – the value of this element shall be a valid
4633 representation of an integer in the range 1..65535;
- 4634 t) an optional **<QualityAlgorithmOwner>** element – the value of this element shall be a valid
4635 representation of an integer in the range 1..65535 (see B.17);
- 4636 u) an optional **<QualityAlgorithmType>** element – the value of this element shall be a valid
4637 representation of an integer in the range 1..65535;
- 4638 v) an optional **<CompressionAlgorithmOwner>** element – the value of this element shall be a
4639 valid representation of an integer in the range 1..65535 (see B.17);
- 4640 w) an optional **<CompressionAlgorithmType>** element – the value of this element shall be a
4641 valid representation of an integer in the range 1..65535;
- 4642 x) an optional **<Purpose>** element – the value of this element shall be one of the character strings
4643 in the third cell of the corresponding row of Table B.2;
- 4644 y) an optional **<Quality>** element – the value of this element shall be a valid representation of an
4645 integer in the range –2..100 (see B.17), as specified in the third cell of the corresponding row of
4646 Table B.2.

4647 **B.15.1.3** If the parent **<BIR>** element has a child **<BDB>** element, then the **<Encryption>**
 4648 element shall be present in this **<BDBInfo>** element unless it is present in the child **<BDBInfo>** element
 4649 of an ancestor **<BIR>** element (see also B.11.1.4).

B.15.1.4 If the parent **<BIR>** element has a child **<BDB>** element, then the **<FormatOwner>** element shall be present in this **<BDBInfo>** element unless it is present in the child **<BDBInfo>** element of an ancestor **<BIR>** element (see also B.11.1.4).

B.15.1.5 If the parent **<BIR>** element has a child **<BDB>** element, then the **<FormatType>** element shall be present in this **<BDBInfo>** element unless it is present in the child **<BDBInfo>** element of an ancestor **<BIR>** element (see also B.11.1.4).

NOTE – The ancestor **<BIR>** elements mentioned in the last three subclauses above need not be the same.

B.15.2 Semantics

B.15.2.1 If the BIR has a BDB (the **<BIR>** element has a child **<BDB>** element), then the **<BDBInfo>** element carries information about that BDB. Otherwise, the information carried by the attributes and child elements of the **<BDBInfo>** element is inherited by all the BIRs that are children of the BIR except where overridden by a corresponding attribute or child element of the **<BDBInfo>** element of a child BIR. The information inherited by a BIR with a BDB applies to that BDB, whereas the information inherited by a BIR that has itself child BIRs is further inherited by all the BIRs that are children of the BIR in the same way (and so on recursively).

B.15.2.2 If the BIR has a BDB and encryption is applied to that BDB (either by including the **encryption** attribute with the value "true" in the **<BDBInfo>** element or by having the BIR inherit that attribute value from its parent BIR), then the BDB in the **<BDB>** element shall be encrypted.

B.15.2.3 If the BDB of a BIR is encrypted, information about the encryption process may be provided within the security block (SB) of that BIR (the child **<SB>** element of the parent **<BIR>** element of this **<BIRInfo>** element).

NOTE – This information may consist of a reference to an encryption key, an encrypted key (with or without a reference to the key used to encrypt that key), or other parameters of the encryption process.

B.15.2.4 Table B.2 specifies the correspondence between the attributes and child elements of this element and CBEFF data elements, and specifies the supported abstract values and their encodings (see also F.10.7).

NOTE – This element represents all CBEFF data elements whose name begins with "CBEFF_BDB_".

II) Table B.2 – BDB information

CBEFF data element name	XML element	Supported abstract values and encodings	Reference
CBEFF_BDB_format_owner	<FormatOwner>	All integers in the range 1 to 65535 are supported. The integers shall be encoded as specified in B.17.	
CBEFF_BDB_format_type	<FormatType>	All integers in the range 1 to 65535 are supported. The integers shall be encoded as specified in B.17.	
CBEFF_BDB_encryption_options	<Encryption>	The following abstract values are supported. The abstract values shall be encoded as shown below. NO ENCRYPTION: "false"	

CBEFF data element name	XML element	Supported abstract values and encodings	Reference
		ENCRYPTION: "true"	
CBEFF_BDB_creation_date	<CreationDate>	All date and time-of-the-day abstract values permitted by CBEFF are supported. The abstract values shall be encoded as specified in B.19.	
CBEFF_BDB_validity_period (lower end)	<NotValidBefore>	All date and time-of-the-day abstract values permitted by CBEFF are supported. The abstract values shall be encoded as specified in B.19.	
CBEFF_BDB_challenge_response	<ChallengeResponse>	All octet strings are supported. The octet strings shall be encoded as specified in B.18. Shall appear only in BIRs that have a BDB.	
CBEFF_BDB_index	<Index>	All well-formed UUIDs are supported. The UUIDs shall be encoded as specified in B.20 Shall appear only in BIRs that have a BDB.	
CBEFF_BDB_validity_period (upper end)	<NotValidAfter>	All date and time-of-the-day abstract values permitted by CBEFF are supported. The abstract values shall be encoded as specified in B.19.	
CBEFF_BDB_biometric_type	<Type>	The following abstract values and all their unordered combinations are supported. A single abstract value shall be encoded as the corresponding string shown below. A combination of two or more abstract values shall be encoded as the concatenation of the corresponding strings, using a single space as separator. SCENT: "Scent" DNA: "DNA" EAR: "Ear" FACE: "Face" FINGER: "Finger" FOOT: "Foot" VEIN:	

CBEFF data element name	XML element	Supported abstract values and encodings	Reference
		"Vein" HAND GEOMETRY: "HandGeometry" IRIS: "Iris" RETINA: "Retina" VOICE: "Voice" GAIT: "Gait" KEYSTROKE: "Keystroke" LIP MOVEMENT: "LipMovement" SIGNATURE OR SIGN: "SignatureSign"	
CBEFF_BDB_biometric_subtype	<Subtype>	The following abstract values are supported. The abstract values shall be encoded as shown below. A combination of two or more abstract values shall be encoded as the concatenation of the corresponding strings, using a single space as separator. LEFT: "Left" RIGHT: "Right" THUMB: "Thumb" INDEX FINGER: "IndexFinger" MIDDLE FINGER: "MiddleFinger" RING FINGER: "RingFinger" LITTLE FINGER: "LittleFinger"	
CBEFF_BDB_processed_level	<Level>	The following abstract values are supported. The abstract values shall be encoded as shown below. RAW: "Raw" INTERMEDIATE: "Intermediate" PROCESSED: "Processed"	

CBEFF data element name	XML element	Supported abstract values and encodings	Reference
CBEFF_BDB_product_owner	<ProductOwner>	All integers in the range 1 to 65535 are supported. The integers shall be encoded as specified in B.17.	
CBEFF_BDB_product_type	<ProductType>	All integers in the range 1 to 65535 are supported. The integers shall be encoded as specified in B.17.	
CBEFF_BDB_capture_device_owner	<CaptureDeviceOwner>	All integers in the range 1 to 65535 are supported. The integers shall be encoded as specified in B.17.	
CBEFF_BDB_capture_device_type	<CaptureDeviceType>	All integers in the range 1 to 65535 are supported. The integers shall be encoded as specified in B.17.	
CBEFF_BDB_feature_extraction_algorithm_owner	<FeatureExtractionAlgorithmOwner>	All integers in the range 1 to 65535 are supported. The integers shall be encoded as specified in B.17.	
CBEFF_BDB_feature_extraction_algorithm_type	<FeatureExtractionAlgorithmType>	All integers in the range 1 to 65535 are supported. The integers shall be encoded as specified in B.17.	
CBEFF_BDB_comparison_algorithm_owner	<ComparisonAlgorithmOwner>	All integers in the range 1 to 65535 are supported. The integers shall be encoded as specified in B.17.	
CBEFF_BDB_comparison_algorithm_type	<ComparisonAlgorithmType>	All integers in the range 1 to 65535 are supported. The integers shall be encoded as specified in B.17.	
CBEFF_BDB_quality_algorithm_owner	<QualityAlgorithmOwner>	All integers in the range 1 to 65535 are supported. The integers shall be encoded as specified in B.17.	
CBEFF_BDB_quality_algorithm_type	<QualityAlgorithmType>	All integers in the range 1 to 65535 are supported. The integers shall be encoded as specified in B.17.	
CBEFF_BDB_compression_algorithm_owner	<CompressionAlgorithmOwner>	All integers in the range 1 to 65535 are supported. The integers shall be encoded as specified in B.17.	
CBEFF_BDB_compression_algorithm_type	<CompressionAlgorithmType>	All integers in the range 1 to 65535 are supported. The integers shall be encoded as specified in B.17.	

CBEFF data element name	XML element	Supported abstract values and encodings	Reference
CBEFF_BDB_purpose	<Purpose>	The following abstract values are supported. The abstract values shall be encoded as shown below. VERIFY: "Verify" IDENTIFY: "Identify" ENROLL: "Enroll" ENROLL FOR VERIFICATION ONLY: "EnrollVerify" ENROLL FOR IDENTIFICATION ONLY: "EnrollIdentify" AUDIT: "Audit"	
CBEFF_BDB_quality	<Quality>	The following abstract values are supported. The integers shall be encoded as specified in B.17. The other abstract values shall be encoded as shown below. INTEGER QUALITY NOT SUPPORTED BY BDB CREATOR: "-2" QUALITY SUPPORTED BY BDB CREATOR BUT NOT SET: "-1"	

4682

4683 B.16 Element <SBInfo>

4684 B.16.1 Syntax

4685 **B.16.1.1** This element shall have content consisting of the following (in order):

4686 a) an optional <FormatOwner> element – the value of this element shall be a valid representation of an
4687 integer in the range 1 to 65535 (see B.17);

4688 b) an optional <FormatType> element – the value of this element shall be a valid representation of an
4689 integer in the range 1 to 65535

4690 **B.16.1.2** If the parent <BIR> element has a child <SB> element, then the <FormatOwner>
4691 element shall be present in this <SBInfo> element unless it is present in the child <SBInfo> element of
4692 an ancestor <BIR> element (see also B.11.1.5).

4693 **B.16.1.3** If the parent <BIR> element has a child <SB> element, then the <FormatType> element
4694 shall be present in this <SBInfo> element unless it is present in the child <SBInfo> element of an
4695 ancestor <BIR> element (see also B.11.1.5).

NOTE 1 – The ancestor **<BIR>** elements mentioned in the last two subclauses above need not be the same.

NOTE 2 – When the parent **<BIR>** element has a child **<SB>** element and one omits both children of the **<SBInfo>** element, the **<SBInfo>** element will have no attributes and an empty content. Omission of the **<SBInfo>** element is not allowed in this case (see B.11.1.5).

B.16.2 Semantics

B.16.2.1 If the BIR has an SB (the **<BIR>** element has a child **<SB>** element), then the **<SBInfo>** element carries information about that SB. In addition, if the BIR has one or more child BIRs (the **<BIR>** element has one or more child **<BIR>** elements), the information carried by the child element of the **<SBInfo>** element is inherited by those child BIRs except where overridden by a corresponding child element of the **<SBInfo>** element of a child BIR. The information inherited by a BIR with an SB applies to that SB, and (if the BIR has itself child BIRs) is further inherited by its child BIRs in the same way (and so on recursively).

B.16.2.2 Table B.3 specifies the correspondence between the attributes and child elements of this element and CBEFF data elements, and specifies the supported abstract values and their encodings (see also B.10.7).

NOTE – This element represents all CBEFF data elements whose name begins with "CBEFF_SB_".

III) Table B.3 – SB information

CBEFF data element name	XML element	Supported abstract values and encodings	Reference
CBEFF_SB_format_owner	<FormatOwner>	All integers in the range 1 to 65535 are supported. The integers shall be encoded as specified in B.17.	
CBEFF_SB_format_type	<FormatType>	All integers in the range 1 to 65535 are supported. The integers shall be encoded as specified in B.17.	

B.17 Representation of Integers

B.17.1 A non-negative integer shall be represented as a string of one or more ISO/IEC 10646 characters in the range DIGIT ZERO to DIGIT NINE ("0" to "9") in decimal notation.

B.17.2 A negative integer shall be represented as the corresponding positive integer, preceded by a HYPHEN-MINUS character ("-").

B.17.3 Arbitrary whitespace is allowed before and after the encoding, but is forbidden inside the encoding.

B.18 Representation of Octet Strings

B.18.1 An octet string shall be represented as a string of the following ISO/IEC 10646 characters:

a) LATIN CAPITAL LETTER A to LATIN CAPITAL LETTER Z;

b) LATIN SMALL LETTER A to LATIN SMALL LETTER Z;

4731 c) DIGIT ZERO to DIGIT NINE;

4732 d) PLUS SIGN;

4733 e) SOLIDUS;

4734 f) EQUALS SIGN.

4735 forming the Base64 encoding of the octet string (see IETF RFC 2045), with all whitespace removed.

4736 **B.18.2** Arbitrary whitespace is allowed before and after the encoding, but is forbidden inside the
4737 encoding.

4738

4739 **B.19 Representation of Date and Time of the Day**

4740 **B.19.1** A date and time of the day shall be represented as a string of ISO/IEC 10646 characters in the
4741 following format, which conforms to ISO 8601.

4742 **B.19.2** The encoding shall be the concatenation of all the following components (in order):

4743 a) the "year" component, consisting of the year encoded in four digits ("2000" to "2999") ;

4744 b) the hyphen character "-"

4745 c) the "month" component, consisting of the month encoded in two digits ("01" to "12");

4746 d) the hyphen character "-"

4747 e) the "day" component, consisting of the day encoded in two digits ("01" to "31");

4748 f) the letter "T";

4749 g) the "hour" component, consisting of the hour encoded in two digits ("00" to "23");

4750 h) the colon character ":"

4751 i) the "minute" component, consisting of the minute encoded in two digits ("00" to "59");

4752 j) the colon character ":"

4753 k) the "second" component, consisting of the second encoded in two digits ("00" to "59");

4754 l) the letter "Z".

4755 **B.19.3** The "year", "month", "day", "hour", "minute", and "second" components shall be present.

4756 **B.19.4** The letter "T" shall be present.

4757 **B.19.5** The letter "Z" shall be present whether or not the "hour" component is present.

4758 NOTE This letter indicates that the date and time of the day are UTC.

4759 **B.19.6** Arbitrary whitespace is allowed before and after the encoding, but is forbidden inside the
4760 encoding.

4761

B.20 Representation of Universally Unique Identifiers

NOTE: The following subclauses describe the same representation of a UUID as is specified in ISO/IEC 9834-8, clause 8. An example of such a representation is: f81d4fae-7dec-11d0-a765-00a0c91e6bf6

- B.20.1** A universally unique identifier (UUID) shall be represented as a string of ISO/IEC 10646 characters. Each string shall contain exactly 36 characters from the union of the following sets:
- a) DIGIT ZERO to DIGIT NINE ("0" to "9"), each representing a hexadecimal digit 0 through 9;
 - b) LATIN CAPITAL LETTER A to LATIN CAPITAL LETTER F ("A" to "F"), each representing a hexadecimal digit A through F;
 - c) LATIN SMALL LETTER A to LATIN SMALL LETTER F ("a" to "f"), each representing a hexadecimal digit A through F; and
 - d) HYPHEN-MINUS ("-").

B.20.2 Each of the positions 9, 14, 19, and 24 of an encoding shall contain a character from set (d). The other 32 positions shall contain characters from sets (a) through (c).

B.20.3 Arbitrary whitespace is allowed before and after the encoding, but is forbidden inside the encoding.

B.21 Patron format conformance statement

B.21.1 Identifying information

Required Information	Patron format reference
Patron name	See B.1
Patron identifier	See B.2
Patron format name	See B.3
Patron format identifier	See B.4
Patron format ASN.1 object identifier	See B.5
Domain of use description	See B.6
Patron format version	See B.7
CBEFF version	See B.8

B.21.2 ISO/IEC 19785-1:2006/Amd 1:2010 to Patron Format Mapping

CBEFF data element name	Mandatory/ optional	Patron format field name	Abstract values specified?	Encodings specified?
CBEFF_BDB_format_owner	Mandatory (specified or inherited) if a BDB is present	<FormatOwner> child of <BDBInfo>	Yes	Yes
CBEFF_BDB_format_type	Mandatory (specified or inherited)	<FormatType> child of <BDBInfo>	Yes	Yes

CBEFF data element name	Mandatory/ optional	Patron format field name	Abstract values specified?	Encodings specified?
	if a BDB is present			
CBEFF_BDB_encryption_options	Mandatory (specified or inherited) if a BDB is present	<Encryption> child of <BDBInfo>	Yes	Yes
CBEFF_BIR_integrity_options	Mandatory	<Integrity> child of <BIRInfo>	Yes	Yes
CBEFF_BDB_subheader_count	Mandatory	implied in the number of occurrences of the child <BIR> element	No (implied)	No (implied)
CBEFF_BDB_biometric_type	Optional	<Type> child of <BDBInfo>	Yes	Yes
CBEFF_BDB_biometric_subtype	Optional	<Subtype> child of <BDBInfo>	Yes	Yes
CBEFF_BDB_challenge_response	Optional	<ChallengeResponse> child of <BDBInfo>	Yes	Yes
CBEFF_BDB_creation_date	Optional	<CreationDate> child of <BDBInfo>	Yes	Yes
CBEFF_BDB_index	Optional	<Index> child of <BDBInfo>	Yes	Yes
CBEFF_BDB_product_owner	Optional	<ProductOwner> child of <BDBInfo>	Yes	Yes
CBEFF_BDB_product_type	Optional	<ProductType> child of <BDBInfo>	Yes	Yes
CBEFF_BDB_capture_device_owner	Optional	<CaptureDeviceOwner> child of <BDBInfo>	Yes	Yes
CBEFF_BDB_capture_device_type	Optional	<CaptureDeviceType> child of <BDBInfo>	Yes	Yes
CBEFF_BDB_feature_extraction_algorithm_owner	Optional	<FeatureExtractionAlgorithm Owner> child of <BDBInfo>	Yes	Yes
CBEFF_BDB_feature_extraction_algorithm_type	Optional	<FeatureExtractionAlgorithm Type> child of <BDBInfo>	Yes	Yes
CBEFF_BDB_comparison_algorithm_owner	Optional	<ComparisonAlgorithmOwner> child of <BDBInfo>	Yes	Yes
CBEFF_BDB_comparison_algorithm_type	Optional	<ComparisonAlgorithmType> child of <BDBInfo>	Yes	Yes
CBEFF_BDB_quality_algorithm_owner	Optional	<QualityAlgorithmOwner> child of <BDBInfo>	Yes	Yes
CBEFF_BDB_quality_algorithm_type	Optional	<QualityAlgorithmType> child of <BDBInfo>	Yes	Yes
CBEFF_BDB_compression_algorithm_owner	Optional	<CompressionAlgorithmOwner> child of <BDBInfo>	Yes	Yes
CBEFF_BDB_compression_algorithm_type	Optional	<CompressionAlgorithmType> child of <BDBInfo>	Yes	Yes
CBEFF_BDB_processed_level	Optional	<Level> child of <BDBInfo>	Yes	Yes
CBEFF_BDB_purpose	Optional	<Purpose> child of <BDBInfo>	Yes	Yes

CBEFF data element name	Mandatory/ optional	Patron format field name	Abstract values specified?	Encodings specified?
CBEFF_BDB_quality	Optional	<Quality> child of <BDBInfo>	Yes	Yes
CBEFF_BDB_validity_period	Optional	<NotValidBefore> and <NotValidAfter> children of <BDBInfo>	Yes	Yes
CBEFF_BIR_creation_date	Optional	<CreationDate> child of <BIRInfo>	Yes	Yes
CBEFF_BIR_creator	Optional	<Creator> child of <BIRInfo>	Yes	Yes
CBEFF_BIR_index	Optional	<Index> child of <BDBInfo>	Yes	Yes
CBEFF_BIR_patron_format_owner	N/A		No	No
CBEFF_BIR_patron_format_type	N/A		No	No
CBEFF_BIR_payload	Optional	<Payload> child of <BDBInfo>	Yes	Yes
CBEFF_SB_format_owner	Optional	<FormatOwner> child of <SBInfo>	Yes	Yes
CBEFF_SB_format_type	Optional	<FormatType> child of <sb-info>	Yes	Yes
CBEFF_BIR_validity_period	Optional	<NotValidBefore> and <NotValidAfter> attributes of <BIRInfo>	Yes	Yes
patron_header_version	Optional	<Major> and <Minor> children of <Version>	Yes	Yes
CBEFF_version	Optional	<Major> and <Minor> children of <CBEFFVersion>	Yes	Yes
BDB	Optional	<BDB>	Yes	Yes
SB	Optional	<SB>	Yes	Yes

4783

4784 B.22 XML schema of the BIAS patron format

```

4785 <?xml version='1.0' encoding="utf-8"?>
4786 <xs:schema
4787   xmlns:xs="http://www.w3.org/2001/XMLSchema"
4788   xmlns="http://docs.oasis-open.org/bias/ns/biaspatronformat-1.0/"
4789   targetNamespace="http://docs.oasis-open.org/bias/ns/biaspatronformat-1.0/"
4790   elementFormDefault="qualified">
4791
4792   <xs:element name="BIR" type="BIRType"/>
4793
4794   <xs:complexType name="BIRType">
4795     <xs:sequence>
4796       <xs:element name="Version" type="VersionType" minOccurs="0"/>
4797       <xs:element name="CBEFFVersion" type="VersionType" minOccurs="0"/>
4798       <xs:any namespace="##other" processContents="skip" minOccurs="0" maxOccurs="unbounded"/>
4799       <xs:element name="BIRInfo" type="BIRInfoType"/>
4800       <xs:element name="BDBInfo" type="BDBInfoType" minOccurs="0"/>
4801       <xs:element name="SBInfo" type="SBInfoType" minOccurs="0"/>
4802       <xs:element name="BIR" type="BIRType" minOccurs="0" maxOccurs="unbounded"/>
4803       <xs:element name="BDB" type="xs:base64Binary" minOccurs="0"/>
4804       <xs:element name="SB" type="xs:base64Binary" minOccurs="0"/>
4805     </xs:sequence>
4806   </xs:complexType>
4807
4808   <xs:complexType name="VersionType">

```

```

4809     <xs:sequence>
4810       <xs:element name="Major" type="xs:nonNegativeInteger" />
4811       <xs:element name="Minor" type="xs:nonNegativeInteger" />
4812     </xs:sequence>
4813   </xs:complexType>
4814
4815   <xs:complexType name="BIRInfoType">
4816     <xs:sequence>
4817       <xs:element name="Creator" type="xs:string" minOccurs="0"/>
4818       <xs:element name="Index" type="UUIDType" minOccurs="0"/>
4819       <xs:element name="Payload" type="xs:base64Binary" minOccurs="0"/>
4820       <xs:element name="Integrity" type="xs:boolean" />
4821       <xs:element name="CreationDate" type="xs:dateTime" minOccurs="0" />
4822       <xs:element name="NotValidBefore" type="xs:dateTime" minOccurs="0" />
4823       <xs:element name="NotValidAfter" type="xs:dateTime" minOccurs="0" />
4824     </xs:sequence>
4825   </xs:complexType>
4826
4827   <xs:complexType name="BDBInfoType">
4828     <xs:sequence>
4829       <xs:element name="ChallengeResponse" type="xs:base64Binary" minOccurs="0"/>
4830       <xs:element name="Index" type="UUIDType" minOccurs="0"/>
4831       <xs:element name="FormatOwner" type="xs:positiveInteger" minOccurs="0" />
4832       <xs:element name="FormatType" type="xs:positiveInteger" minOccurs="0" />
4833       <xs:element name="Encryption" type="xs:boolean" minOccurs="0" />
4834       <xs:element name="CreationDate" type="xs:dateTime" minOccurs="0" />
4835       <xs:element name="NotValidBefore" type="xs:dateTime" minOccurs="0" />
4836       <xs:element name="NotValidAfter" type="xs:dateTime" minOccurs="0" />
4837       <xs:element name="Type" type="MultipleTypesType" minOccurs="0" />
4838       <xs:element name="Subtype" type="SubtypeType" minOccurs="0" />
4839       <xs:element name="Level" type="ProcessedLevelType" minOccurs="0" />
4840       <xs:element name="ProductOwner" type="xs:positiveInteger" minOccurs="0" />
4841       <xs:element name="ProductType" type="xs:positiveInteger" minOccurs="0" />
4842       <xs:element name="CaptureDeviceOwner" type="xs:positiveInteger" minOccurs="0" />
4843       <xs:element name="CaptureDeviceType" type="xs:positiveInteger" minOccurs="0" />
4844       <xs:element name="FeatureAlgorithmOwner" type="xs:positiveInteger" minOccurs="0" />
4845       <xs:element name="FeatureAlgorithmType" type="xs:positiveInteger" minOccurs="0" />
4846       <xs:element name="ComparisonAlgorithmOwner" type="xs:positiveInteger" minOccurs="0" />
4847       <xs:element name="ComparisonAlgorithmType" type="xs:positiveInteger" minOccurs="0" />
4848       <xs:element name="QualityAlgorithmOwner" type="xs:positiveInteger" minOccurs="0" />
4849       <xs:element name="QualityAlgorithmType" type="xs:positiveInteger" minOccurs="0" />
4850       <xs:element name="CompressionAlgorithmOwner" type="xs:positiveInteger" minOccurs="0" />
4851       <xs:element name="CompressionAlgorithmType" type="xs:positiveInteger" minOccurs="0" />
4852       <xs:element name="Purpose" type="PurposeType" minOccurs="0" />
4853       <xs:element name="Quality" type="QualityType" minOccurs="0" />
4854     </xs:sequence>
4855   </xs:complexType>
4856
4857   <xs:complexType name="SBInfoType">
4858     <xs:sequence>
4859       <xs:element name="FormatOwner" type="xs:positiveInteger" minOccurs="0" />
4860       <xs:element name="FormatType" type="xs:positiveInteger" minOccurs="0" />
4861     </xs:sequence>
4862   </xs:complexType>
4863
4864   <xs:simpleType name="QualityType">
4865     <xs:restriction base="xs:integer">
4866       <xs:minInclusive value="-2"/>
4867       <xs:maxInclusive value="100"/>
4868     </xs:restriction>
4869   </xs:simpleType>
4870
4871   <xs:simpleType name="SingleTypeType">
4872     <xs:restriction base="xs:string">
4873       <xs:enumeration value="Scent"/>
4874       <xs:enumeration value="DNA"/>
4875       <xs:enumeration value="Ear" />
4876       <xs:enumeration value="Face"/>
4877       <xs:enumeration value="Finger"/>
4878       <xs:enumeration value="Foot"/>
4879       <xs:enumeration value="HandGeometry"/>

```



```

4880      <xs:enumeration value="Vein"/>
4881      <xs:enumeration value="Iris"/>
4882      <xs:enumeration value="Retina"/>
4883      <xs:enumeration value="Voice"/>
4884      <xs:enumeration value="Gait"/>
4885      <xs:enumeration value="Keystroke"/>
4886      <xs:enumeration value="LipMovement"/>
4887      <xs:enumeration value="SignatureSign"/>
4888    </xs:restriction>
4889  </xs:simpleType>
4890
4891  <xs:simpleType name="MultipleTypesType">
4892    <xs:list itemType="SingleTypeType"/>
4893  </xs:simpleType>
4894
4895  <xs:simpleType name="SingleAnySubtypeType">
4896    <xs:restriction base="xs:string">
4897      <xs:enumeration value="Left"/>
4898      <xs:enumeration value="Right"/>
4899      <xs:enumeration value="Thumb"/>
4900      <xs:enumeration value="IndexFinger"/>
4901      <xs:enumeration value="MiddleFinger"/>
4902      <xs:enumeration value="RingFinger"/>
4903      <xs:enumeration value="LittleFinger"/>
4904    </xs:restriction>
4905  </xs:simpleType>
4906
4907  <xs:simpleType name="SingleVeinOnlySubtypeType">
4908    <xs:restriction base="xs:string">
4909      <xs:enumeration value="LeftVein"/>
4910      <xs:enumeration value="RightVein"/>
4911      <xs:enumeration value="Palm"/>
4912      <xs:enumeration value="BackOfHand"/>
4913      <xs:enumeration value="Wrist"/>
4914      <xs:enumeration value="Reserved1"/>
4915      <xs:enumeration value="Reserved2"/>
4916    </xs:restriction>
4917  </xs:simpleType>
4918
4919  <xs:simpleType name="MultipleAnySubtypesType">
4920    <xs:list itemType="SingleAnySubtypeType"/>
4921  </xs:simpleType>
4922
4923  <xs:simpleType name="MultipleVeinOnlySubtypesType">
4924    <xs:list itemType="SingleVeinOnlySubtypeType"/>
4925  </xs:simpleType>
4926
4927  <xs:simpleType name="SubtypeType">
4928    <xs:union memberTypes="MultipleAnySubtypesType MultipleVeinOnlySubtypesType"/>
4929  </xs:simpleType>
4930
4931  <xs:simpleType name="ProcessedLevelType">
4932    <xs:restriction base="xs:string">
4933      <xs:enumeration value="Raw"/>
4934      <xs:enumeration value="Intermediate"/>
4935      <xs:enumeration value="Processed"/>
4936    </xs:restriction>
4937  </xs:simpleType>
4938
4939  <xs:simpleType name="PurposeType">
4940    <xs:restriction base="xs:string">
4941      <xs:enumeration value="Verify"/>
4942      <xs:enumeration value="Identify"/>
4943      <xs:enumeration value="Enroll"/>
4944      <xs:enumeration value="EnrollVerify"/>
4945      <xs:enumeration value="EnrollIdentify"/>
4946      <xs:enumeration value="Audit"/>
4947    </xs:restriction>
4948  </xs:simpleType>
4949
4950  <xs:simpleType name="UUIDType">

```

```

4951      <xs:restriction base="xs:string">
4952      <xs:pattern value="[a-fA-F0-9]{8}\-([a-fA-F0-9]{4}\-){3}[a-fA-F0-9]{12}"/>
4953      </xs:restriction>
4954    </xs:simpleType>
4955  </xs:schema>
4956

```

4957 NOTE NO VALUE AVAILABLE is encoded by the absence of optional fields in the XML
 4958 encoding. There is little value in, for example, having the following string appear in a
 4959 record: <level> no value available <level>.

4960

4961 B.23 Sample BIR encoding

4962 An example of a simple BIR in XML encoding (complying with the XSD schema and the normative textual
 4963 description) follows.

```

4964
4965      <?xml version="1.0" encoding="utf-8"?>
4966      <BIR xmlns=" http://docs.oasis-open.org/bias/ns/biaspatronformat-1.0/">
4967        <Version>
4968          <Major>1</Major>
4969          <Minor>0</Minor>
4970        </Version>
4971        <CBEFFVersion>
4972          <Major>2</Major>
4973          <Minor>0</Minor>
4974        </CBEFFVersion>
4975        <BIRInfo>
4976          <Creator>ABCDE</Creator>
4977          <Index>86CA3100-43F3-0D23-A941-7871E519A00E</Index>
4978          <Payload>a2V2aW4ubWFuZ29sZEBuaXN0Lmdvdg==</Payload>
4979          <Integrity>true</Integrity>
4980          <CreationDate>2004-03-02T15:03:15Z</CreationDate>
4981          <NotValidBefore>2004-03-02T15:00:00Z</NotValidBefore>
4982          <NotValidAfter>2004-03-03T15:00:00Z</NotValidAfter>
4983        </BIRInfo>
4984        <BDBInfo>
4985
4986          <ChallengeResponse>VmlzaXQgaHR0cDovL2J3cy5uaXN0LmdvdiBmb3lgc29tZSBhd2Vzb21lIGJpb21ldH
4987          JpY3Mvd2ViIHNIcnZpY2UgcHJvamVjdHMh</ChallengeResponse>
4988          <Index>86CA3100-43F3-0D23-A941-7871E519A00E</Index>
4989          <FormatOwner>51</FormatOwner>
4990          <FormatType>88</FormatType>
4991          <Encryption>true</Encryption>
4992          <CreationDate>2004-03-02T15:00:00Z</CreationDate>
4993          <NotValidBefore>2004-03-02T15:00:00Z</NotValidBefore>
4994          <NotValidAfter>2004-03-02T15:00:00Z</NotValidAfter>
4995          <Type>Iris</Type>
4996          <Subtype>Left</Subtype>
4997          <Level>Processed</Level>
4998          <ProductOwner>16</ProductOwner>
4999          <ProductType>2</ProductType>
5000          <Purpose>Verify</Purpose>
5001          <Quality>100</Quality>

```

```
5002      </BDBInfo>
5003      <SBInfo>
5004          <FormatOwner>51</FormatOwner>
5005          <FormatType>99</FormatType>
5006      </SBInfo>
5007      <BDB>a2V2aW4ubWFuZ29sZEBuaXN0Lmdvdg==</BDB>
5008      <SB>TmF0aW9uYWwgSW5zdGI0dXRlIG9mIFN0YW5kYXJkcyBhbmQgVG5jaG5vbG9neQ==</SB>
5009  </BIR>
```

Annex C. Use Cases (non-normative)

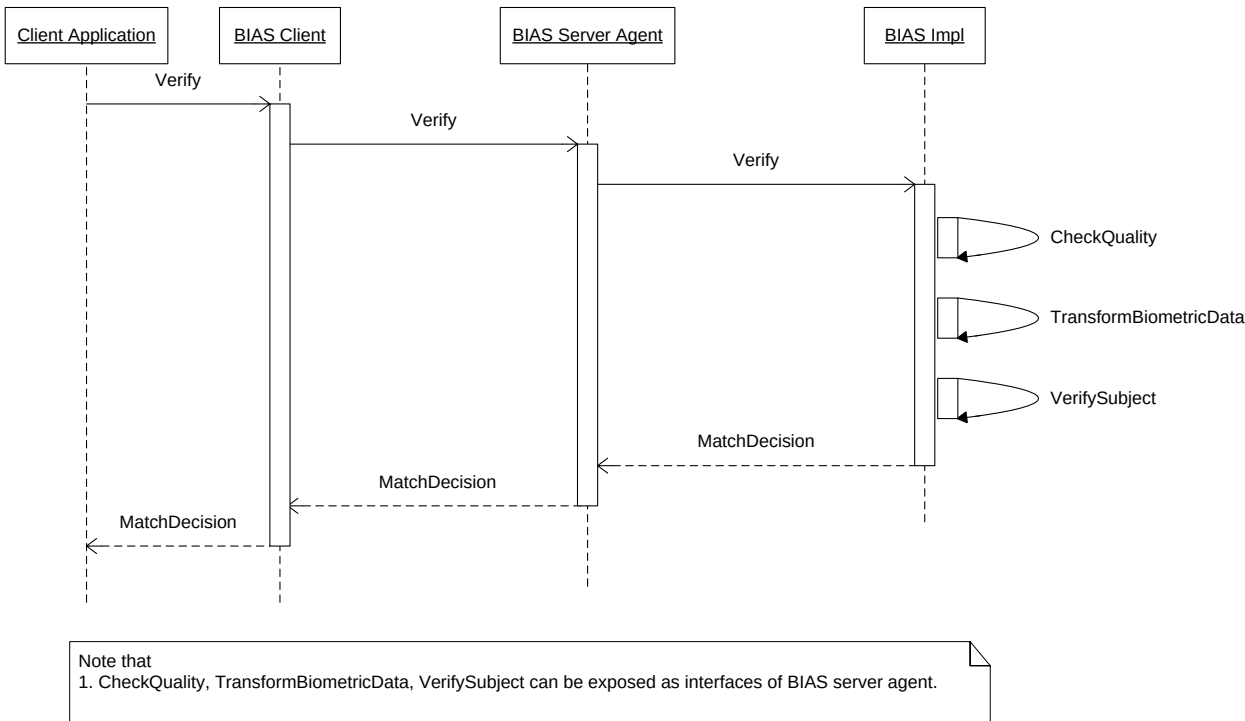
The intent of this annex is to provide operational sequence diagrams / flow charts that show how the higher level usage scenarios within [INCITS-BIAS] could be implemented using the BIAS SOAP profile.

The following use cases are given:

- Verification (synchronous/aggregate)
- Verification (asynchronous/aggregate)
- Verification (primitive)
- Identification (primitive)
- Enrollment (aggregate)
- Enrollment (primitive)

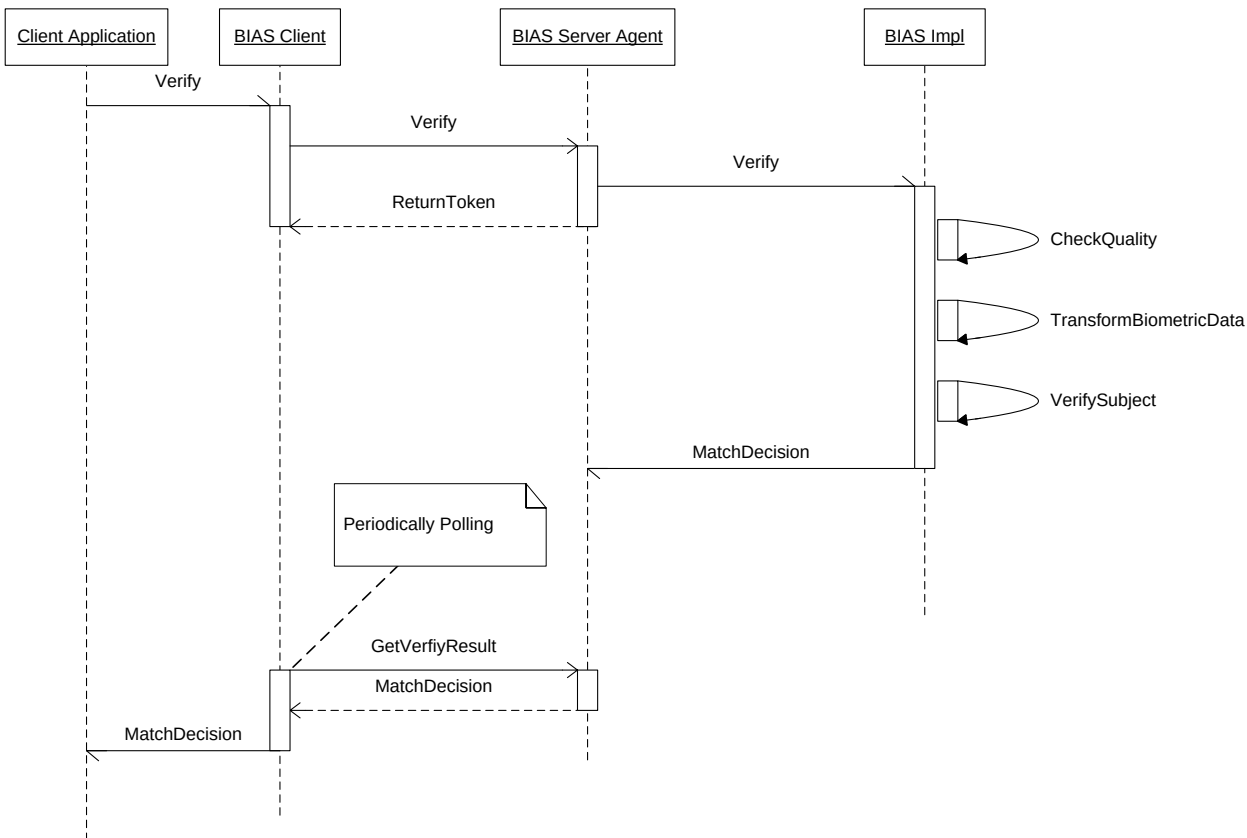
C.1 Verification Use Case

This use case uses the aggregate Verify operation in which a single request results in some set of operations (in this case, a series of primitive BIAS operations) being performed by the BIAS service provider.



C.2 Asynchronous Verification Use Case

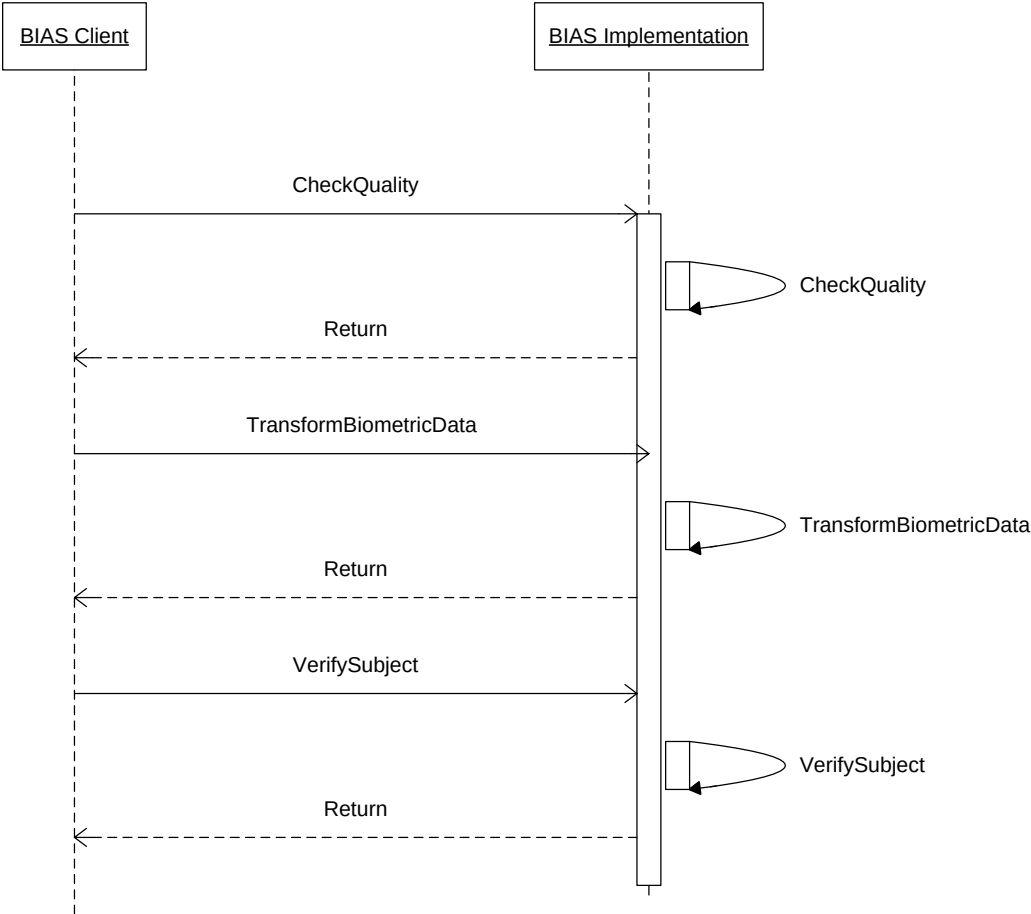
In this use case, the requester issues two requests – the BIAS Verify request to initiate the operation followed by a BIAS GetVerifyResult request to retrieve the results of that operation.



Note that
1. CheckQuality, TransformBiometricData, VerifySubject can be exposed as interfaces of BIAS server agent.

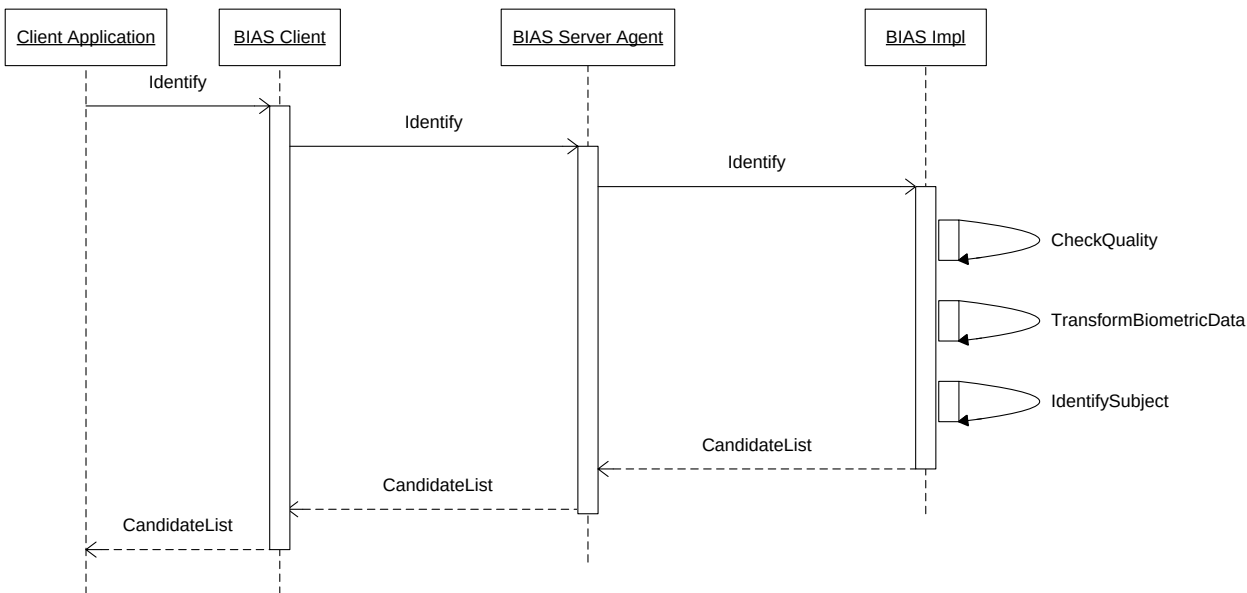
C.3 Primitive Verification Use Case

In this use case, the verification operation is performed as a series of requests using the BIAS primitive operations. In this case, the client rather than the service provider controls the workflow of the higher level operation.



C.4 Identification Use Case

This use case uses the aggregate Identify operation in which a single request results in some set of operations (in this case, a series of primitive BIAS operations) being performed by the BIAS service provider.

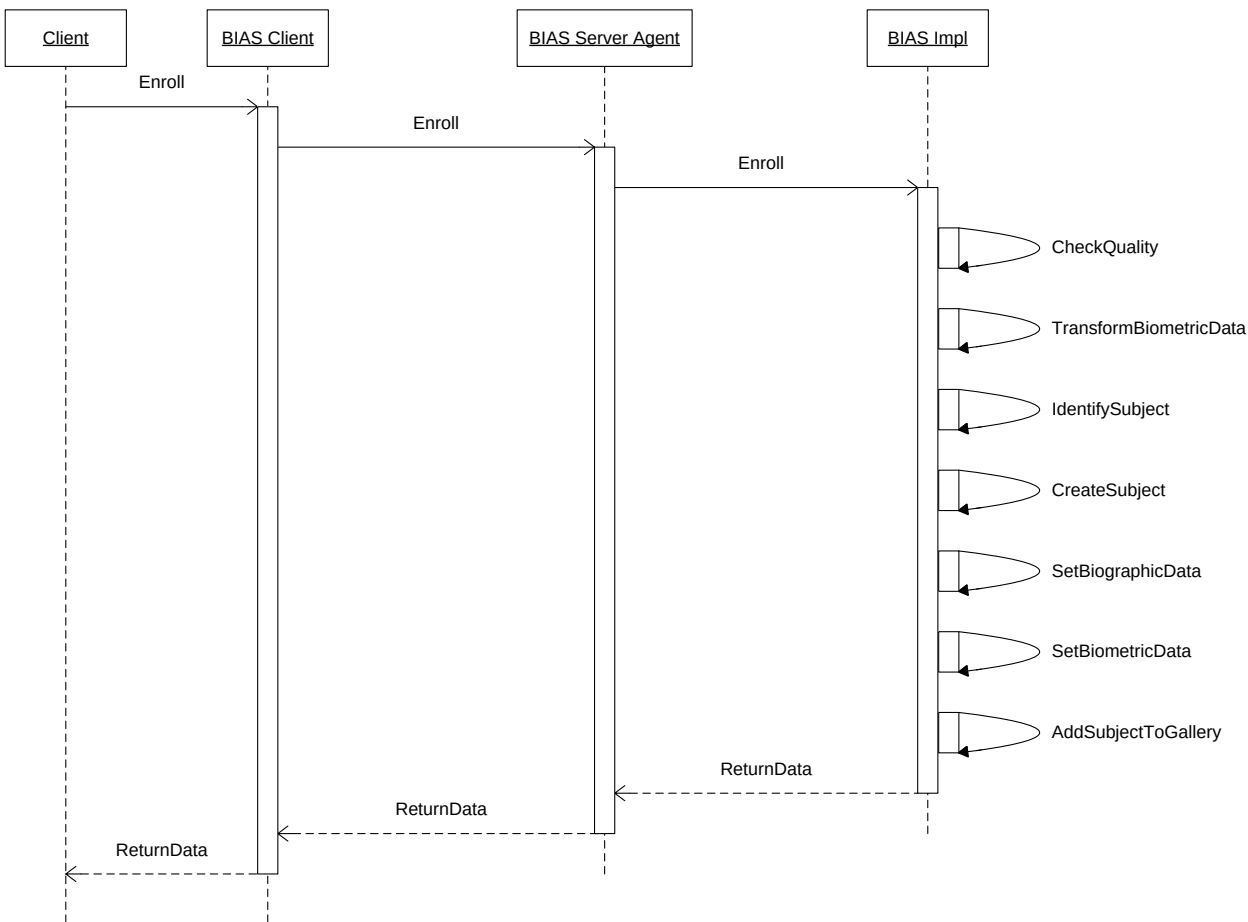


Note that
1. CheckQuality, TransformBiometricData, IdentifySubject can be exposed as interfaces of BIAS server agent.

C.5 Biometric Enrollment Use Case

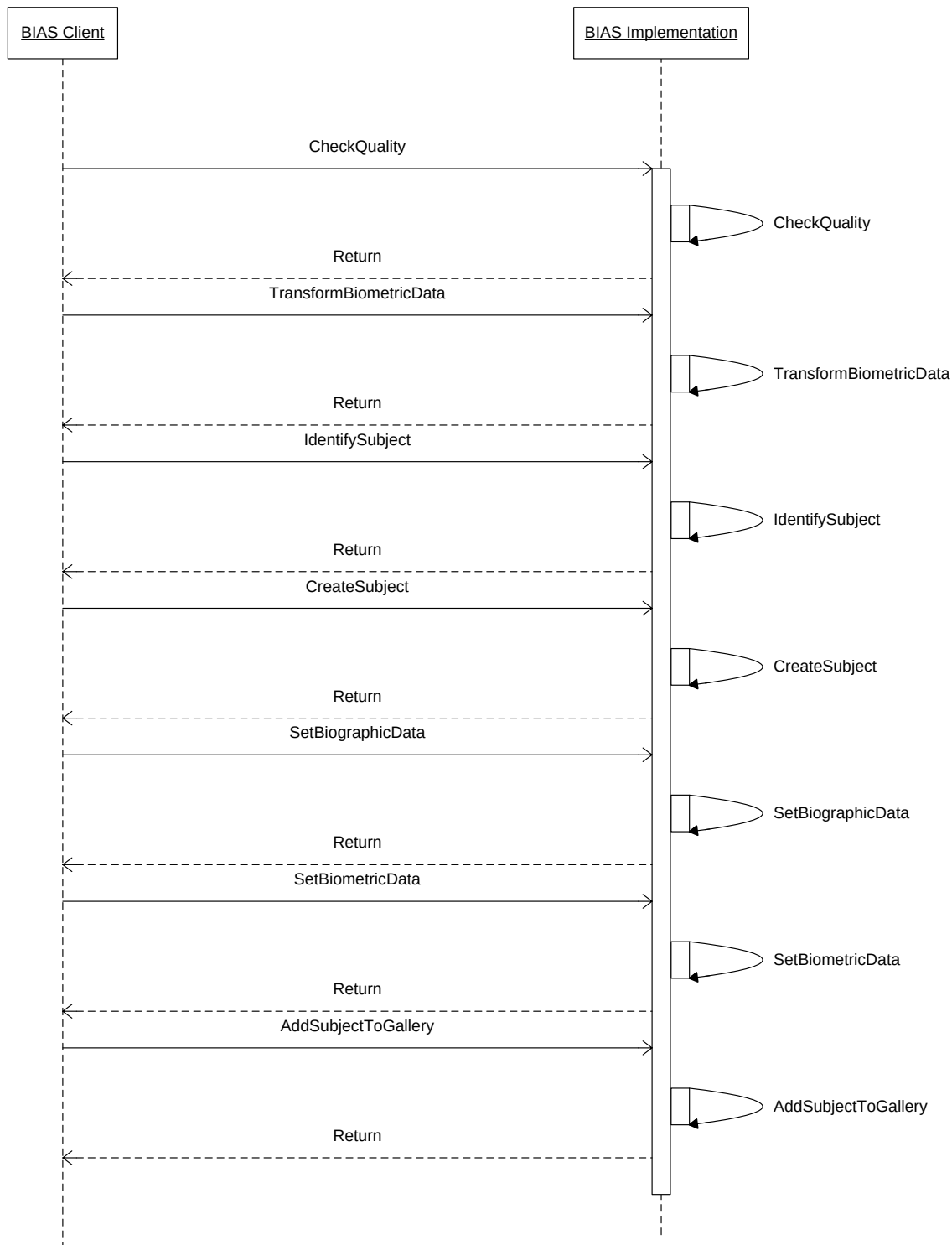
This use case uses the aggregate Enroll operation in which a single request results in some set of operations (in this case, a series of primitive BIAS operations) being performed by the BIAS service provider.

Here, if the result of the IdentifySubject is no matches found, then the subject is added to the gallery. If a match had been found then other logic may have been applied (e.g., return candidate list, add encounter for existing subject, etc.).



C.6 Primitive Enrollment Use Case

In this use case, the enrollment operation is performed as a series of requests using the BIAS primitive operations. In this case, the client rather than the service provider controls the workflow of the higher level operation.



Annex D. Samples (non-normative)

D.1 Create Subject Request/Response Example

INCITS BIAS Specification

```
<interface name="CreateSubject">
  <parameter name="SubjectID" type="xs:string"
    direction="inout" use="optional" />
  <parameter name="Return" type="xs:unsignedLong" direction="out" />
</interface>
```

OASIS BIAS Examples

Simple Create Subject Request:

```
POST /bias HTTP/1.1
Host: www.acme.com
Content-Type: application/soap+xml; charset="utf-8"
Content-Length: nnnn
SOAPAction: "CreateSubject"

<?xml version="1.0"?>
<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope">
  <soap:Body>
    <tns:CreateSubject
      xmlns:tns="http://docs.oasis-open.org/bias/bias-1.0/" />
  </soap:Body>
</soap:Envelope>
```

Create Subject Request with SubjectID Parameter:

```
POST /bias HTTP/1.1
Host: www.acme.com
Content-Type: application/soap+xml; charset="utf-8"
Content-Length: nnnn
SOAPAction: "CreateSubject"

<?xml version="1.0"?>
<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope">
  <soap:Body>
    <tns:CreateSubject
      xmlns:tns="http://docs.oasis-open.org/bias/bias-1.0/"
      <tns:Identity>
        <tns:SubjectID>123456789</tns:SubjectID>
      </tns:Identity>
    </tns:CreateSubject>
  </soap:Body>
```

```

5106 </soap:Envelope>

5107 Create Subject Request with Optional OASIS BIAS Content:
5108 POST /bias HTTP/1.1
5109 Host: www.acme.com
5110 Content-Type: application/soap+xml; charset="utf-8"
5111 Content-Length: nnnn
5112 SOAPAction: "CreateSubject"
5113 <?xml version="1.0"?>
5114 <soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope">
5115     <soap:Body>
5116         <tns:CreateSubject
5117 xmlns:tns="http://docs.oasis-open.org/bias/bias-1.0/">
5118             <tns:GenericRequestParameters>
5119                 <tns:Application>BIAS Application</tns:Application>
5120                 <tns:ApplicationUser>BIAS User</tns:ApplicationUser>
5121             </tns:GenericRequestParameters>
5122             <tns:Identity>
5123                 <tns:SubjectID>123456789</tns:SubjectID>
5124             </tns:Identity>
5125         </tns:CreateSubject>
5126     </soap:Body>
5127 </soap:Envelope>

5128 Simple Create Subject Response:
5129 HTTP/1.1 200 OK
5130 Content-Type: application/soap+xml; charset="utf-8"
5131 Content-Length: nnnn
5132 <?xml version="1.0"?>
5133 <soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope">
5134     <soap:Body>
5135         <tns:CreateSubjectResponse
5136 xmlns:tns="http://docs.oasis-open.org/bias/bias-1.0/">
5137             <tns:ResponseStatus>
5138                 <tns:Return>0</tns:Return>
5139             </tns:ResponseStatus>
5140             <tns:Identity>
5141                 <tns:SubjectID>123456789</tns:SubjectID>
5142             </tns:Identity>
5143         </tns:CreateSubjectResponse>
5144     </soap:Body>
5145 </soap:Envelope>

5146 Create Subject Response with Optional OASIS BIAS Content:

```

```

5147 HTTP/1.1 200 OK
5148 Content-Type: application/soap+xml; charset="utf-8"
5149 Content-Length: nnnn
5150 <?xml version="1.0"?>
5151 <soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope">
5152     <soap:Body>
5153         <tns:CreateSubjectResponse
5154 xmlns:tns="http://docs.oasis-open.org/bias/bias-1.0/">
5155             <tns:ResponseStatus>
5156                 <tns:Return>0</tns:Return>
5157                 <tns:Message>Subject ID 123456789 successfully
5158 created.</tns:Message>
5159             </tns:ResponseStatus>
5160             <tns:Identity>
5161                 <tns:SubjectID>123456789</tns:SubjectID>
5162             </tns:Identity>
5163         </tns:CreateSubjectResponse>
5164     </soap:Body>
5165 </soap:Envelope>
5166

```

D.2 Set Biographic Data Request/Response Example

INCITS BIAS Specification

```

5169 <interface name="SetBiographicData">
5170     <parameter name="SubjectID" type="xs:string" direction="in" />
5171     <parameter name="IdentityModel" type="IdentityModelType" direction="in"
5172 />
5173     <parameter name="EncounterID" type="xs:string" direction="inout"
5174 use="optional" />
5175     <parameter name="BiographicData"
5176 type="BiographicDataType" direction="in" />
5177     <parameter name="Return" type="xs:unsignedLong" direction="out" />
5178 </interface>

```

OASIS BIAS Examples

Set Biographic Data Request:

```

5181 POST /bias HTTP/1.1
5182 Host: www.acme.com
5183 Content-Type: application/soap+xml; charset="utf-8"
5184 Content-Length: nnnn
5185 SOAPAction: "SetBiographicData"
5186 <?xml version="1.0"?>
5187 <soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope">
5188     <soap:Body>

```

```

5189         <tns:SetBiographicData
5190
5191         xmlns:tns="http://docs.oasis-open.org/bias/bias-1.0/">
5192             <tns:Identity>
5193                 <tns:SubjectID>123456789</tns:SubjectID>
5194                 <tns:BiographicData>
5195                     <tns:BiographicDataItem>
5196                         <tns:Name>Last</tns:Name>
5197                         <tns:Type>string</tns:Type>
5198                         <tns:Value>Doe</tns:Value>
5199                     </tns:BiographicDataItem>
5200                 </tns:BiographicData>
5201             </tns:Identity>
5202             <tns:IdentityModel>person</tns:IdentityModel>
5203         </tns:SetBiographicData>
5204     </soap:Body>
5205 </soap:Envelope>

```

5206 **Set Biographic Data Response:**

```

5207 HTTP/1.1 200 OK
5208 Content-Type: application/soap+xml; charset="utf-8"
5209 Content-Length: nnnn
5210 <?xml version="1.0"?>
5211 <soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope">
5212     <soap:Body>
5213         <tns:SetBiographicDataResponse
5214
5215         xmlns:tns="http://docs.oasis-open.org/bias/bias-1.0/">
5216             <tns:ResponseStatus>
5217                 <tns:Return>0</tns:Return>
5218             </tns:ResponseStatus>
5219         </tns:SetBiographicDataResponse>
5220     </soap:Body>
5221 </soap:Envelope>
5222

```

5223 **D.3 Set Biometric Data Request/Response Example**

5224 *INCITS BIAS Specification*

```

5225 <interface name="SetBiometricData">
5226     <parameter name="SubjectID" type="xs:string" direction="in" />
5227     <parameter name="IdentityModel" type="IdentityModelType" direction="in"
5228 />
5229     <parameter name="EncounterID" type="xs:string" direction="inout"
5230 use="optional" />

```

```
5231     <parameter name="BIRList" type="CBEFF_BIR_ListType" direction="in" />
5232     <parameter name="Return" type="xs:unsignedLong" direction="out" />
5233 </interface>
```

5234 *OASIS BIAS Examples*

5235 **Set Biometric Data Request:**

```
5236 POST /bias HTTP/1.1
5237 Host: www.acme.com
5238 Content-Type: application/soap+xml; charset="utf-8"
5239 Content-Length: nnnn
5240 SOAPAction: "SetBiometricData"
5241 <?xml version="1.0"?>
5242 <soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope">
5243     <soap:Body>
5244         <tns:SetBiometricData
5245
5246             xmlns:tns="http://docs.oasis-open.org/bias/bias-1.0/">
5247             <tns:Identity>
5248                 <tns:SubjectID>123456789</tns:SubjectID>
5249                 <tns:BiometricData>
5250                     <tns:BIRList>
5251                         <tns:BIR>biometric data</tns:BIR>
5252                     </tns:BIRList>
5253                 </tns:BiometricData>
5254             </tns:Identity>
5255             <tns:IdentityModel>person</tns:IdentityModel>
5256         </tns:SetBiometricData>
5257     </soap:Body>
5258 </soap:Envelope>
```

5259 **Set Biometric Data Response:**

```
5260 HTTP/1.1 200 OK
5261 Content-Type: application/soap+xml; charset="utf-8"
5262 Content-Length: nnnn
5263 <?xml version="1.0"?>
5264 <soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope">
5265     <soap:Body>
5266         <tns:SetBiometricDataResponse
5267
5268             xmlns:tns="http://docs.oasis-open.org/bias/bias-1.0/">
5269             <tns:ResponseStatus>
5270                 <tns:Return>0</tns:Return>
5271             </tns:ResponseStatus>
5272         </tns:SetBiometricDataResponse>
```

5273 </soap:Body>

5274 </soap:Envelope>

Annex E. Acknowledgements

The following individuals have participated in the creation of this specification and are gratefully acknowledged:

Participants:

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* Though no longer members of the BIAS TC at time of publication, these individuals contributed in the early stages of the development of this standard.

In addition, the inputs from the INCITS technical committee M1 are also gratefully appreciated.

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Annex F. Revision History

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Revision	Date	Editor	Changes Made
0.01	2008-05-23	TBD	Initial draft
0.02	2008-07-23	TBD	Inserted data dictionary Added normative references Updated sec 3 & 5 + Annex B
0.03	2008-08-19	TBD	WSDL updated
0.04	2008-09-11	TBD	Updated references Added security requirements Corrected Fig. 3
0.05	2008-09-29	TBD	SSL/TLS requirement clarified Reordered material in 5.3 & App C/D Updated references 2 new use cases added (App C) Updated examples in App D
0.06	2008-11-17	TBD	Added BIAS operation name methods (new 5.3 + 4.2.27 & App B)
0.06a	2008-11-20	TBD	Updated references
0.07	2008-11-27	TBD	Revised fault structures and error handling
0.08	2009-06-22	TBD	Incorporated comments from informal public review.
0.09	2009-07-24	Tilton/Swayze	Incorporated comments from June review/meeting. Major changes included: - Breaking Clause 3 into 2 clauses for data elements and operations - Specification of URI & IRI - Clarifications and formatting
0.10	2009-10-19	Tilton/Swayze	Expansion of conformance clause
0.11	2009-11-16	Tilton/Swayze	Miscellaneous edits and clarifications [Also published as CD01]
0.12	2010-11-04	Mangold/Tilton/Swayze	Incorporation of public review comments Update WSDL
0.13	2011-01-03	Tilton/Mangold	Clarification regarding xsd:any Updated WSDL
0.14	2011-06-15	Mangold/Tilton	Inserted new Annex B – CBEFF Patron Format miscellaneous editorial changes

0.15	2011-07-18	Mangold/Tilton	Updated namespace for CBEFF Patron Format + corrected finger subtype name in schema
0.16	2011-08-02	Mangold/Tilton	Changed BIAS CBEFF XML Patron Format Identifier to 0x0052 (line 4377).

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