Biometric Identity Assurance Services (BIAS) SOAP Profile Version 1.0

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

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Table of Contents

1 Introduction 8
1.1 Purpose/Scope 8
1.2 Overview 8
1.3 Background 8
1.4 Relationship to Other Standards 8
1.5 Terminology 9
1.6 References 10
1.6.1 Normative References 10
1.6.2 Non-Normative References 11
2 Design Concepts and Architecture (non-normative) 13
2.1 Philosophy 13
2.2 Context 13
2.3 Architecture 13
3 Data dictionary 16
3.1 Documentation Conventions 16
3.2 Common Elements 17
3.2.1 ApplicationIdentifier 17
3.2.2 ApplicationUserIdentifier 17
3.2.3 BaseBIRType 17
3.2.4 BIASBiometricDataType 17
3.2.5 BIASFaultCode 17
3.2.6 BIASFaultDetail 18
3.2.7 BIASIdentity 19
3.2.8 BIASIDType 19
3.2.9 BinaryBIR 19
3.2.10 BiographicDataItemType 20
3.2.11 BiographicDataSetType 20
3.2.12 BiographicDataType 21
3.2.13 BiometricDataElementType 22
3.2.14 BiometricDataListType 22
3.2.15 CandidateListResultType 22
3.2.16 CandidateListType 23
3.2.17 CandidateType 23
3.2.18 CapabilityListType 23
3.2.19 CapabilityName 23
3.2.20 CapabilityType 24
3.2.21 CBEFF_BIR_ListType 24
3.2.22 CBEFF_BIR_Type 25
3.2.23 Classification 25
3.2.24 ClassificationAlgorithmType 25
3.2.25 ClassificationData 26
3.2.26 EncounterListType 26
3.2.27 FusionDecision 26

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3.2.28 FusionInformationListType 26
3.2.29 FusionInformationType 26
3.2.30 FusionResult 27
3.2.31 FusionScore 27
3.2.32 GenericRequestParameters 27
3.2.33 IdentifySubjectResultType 27
3.2.34 InformationType 27
3.2.35 ListFilterType 28
3.2.36 MatchType 28
3.2.37 ProcessingOptionsType 28
3.2.38 ProductID 28
3.2.39 QualityData 28
3.2.40 ResponseStatus 29
3.2.41 ReturnCode 29
3.2.42 Score 29
3.2.43 TokenResultType 29
3.2.44 TokenType 30
3.2.45 URI_BIR 30
3.2.46 VendorIdentifier 30
3.2.47 Version 30
3.2.48 VersionType 30
3.2.49 XML_BIR 30
4 BIAS Messages 32
4.1 Primitive Operations 32
4.1.1 AddSubjectToGallery 32
4.1.2 CheckQuality 33
4.1.3 ClassifyBiometricData 35
4.1.4 CreateSubject 37
4.1.5 DeleteBiographicData 38
4.1.6 DeleteBiometricData 39
4.1.7 DeleteSubject 40
4.1.8 DeleteSubjectFromGallery 41
4.1.9 GetIdentifySubjectResults 43
4.1.10 IdentifySubject 45
4.1.11 ListBiographicData 47
4.1.12 ListBiometricData 50
4.1.13 PerformFusion 54
4.1.14 QueryCapabilities 56
4.1.15 RetrieveBiographicInformation 57
4.1.16 RetrieveBiometricInformation 59
4.1.17 SetBiographicData 60
4.1.18 SetBiometricData 62
4.1.19 TransformBiometricData 64
4.1.20 UpdateBiographicData 65
4.1.21 UpdateBiometricData 67

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4.1.22 VerifySubject 68
4.2 Aggregate Operations 70
4.2.1 Enroll 70
4.2.2 GetEnrollResults 72
4.2.3 GetIdentifyResults 73
4.2.4 GetVerifyResults 74
4.2.5 Identify 76
4.2.6 RetrieveInformation 77
4.2.7 Verify 79
5 Message structure and rules 82
5.1 Purpose and constraints 82
5.2 Message requirements 83
5.3 Handling binary data 84
5.3.1 Base64 encoding 84
5.3.2 Use of XOP 84
5.4 Discovery 85
5.5 Identifying operations 85
5.5.1 Operation name element 85
5.5.2 WS-Addressing Action 86
5.6 Security 87
5.6.1 Use of SSL 3.0 or TLS 1.0 87
5.6.2 Data Origin Authentication 87
5.6.3 Message Integrity 87
5.6.4 Message Confidentiality 87
5.6.5 CBEFF BIR security features 87
5.6.6 Security Considerations 88
5.6.7 Security of Stored Data 88
5.6.8 Key Management 88
5.7 Use with other WS* standards 88
5.8 Tailoring 88
6 Error handling 90
6.1 BIAS operation return codes 90
6.2 SOAP fault codes 90
7 Conformance 91
Annex A. XML Schema 92
Annex B. Use Cases (non-normative) 175
B.1 Verification Use Case 175
B.2 Asynchronous Verification 176
B.3 Primitive Verification 177
B.4 Identification Use Case 178
B.5 Biometric Enrollment 179
B.6 Primitive Enrollment 180
Annex C. Samples (non-normative) 181
C.1 Create Subject Request/Response Example 181
C.2 Set Biographic Data Request/Response Example 183

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C.3 Set Biometric Data Request/Response Example 184
Annex D. Acknowledgements 186
Annex E. Revision History 187

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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 442-2008 – 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:

- Clause2presents the design concepts and architecture for invoking SOAP-based services that implement BIAS operations.
- Clause3 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.
- Clause5 presents the BIAS message structure, as well as rules and considerations for its application.
- Clause6 presents information on error handling.
- Clause7specifies conformance requirements.
- Annexes include the OASIS BIAS XML schema/sample Web Service Definition Language (WSDL), 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 442-2008 – Biometric Identity Assurance Services, which defines the BIAS requirements and taxonomy, specifying the identity

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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

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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

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1.6.1 Normative References

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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.

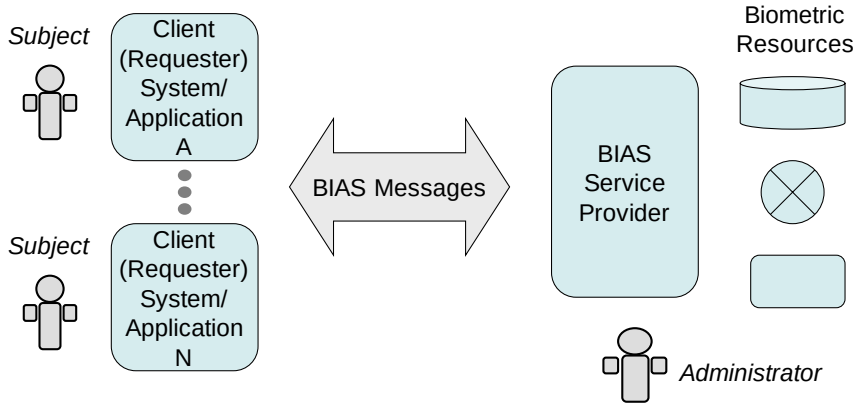

Figure 1. BIAS Context

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.

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- Client sends and receives SOAP messages that conform to the BIAS schemas
- The 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.

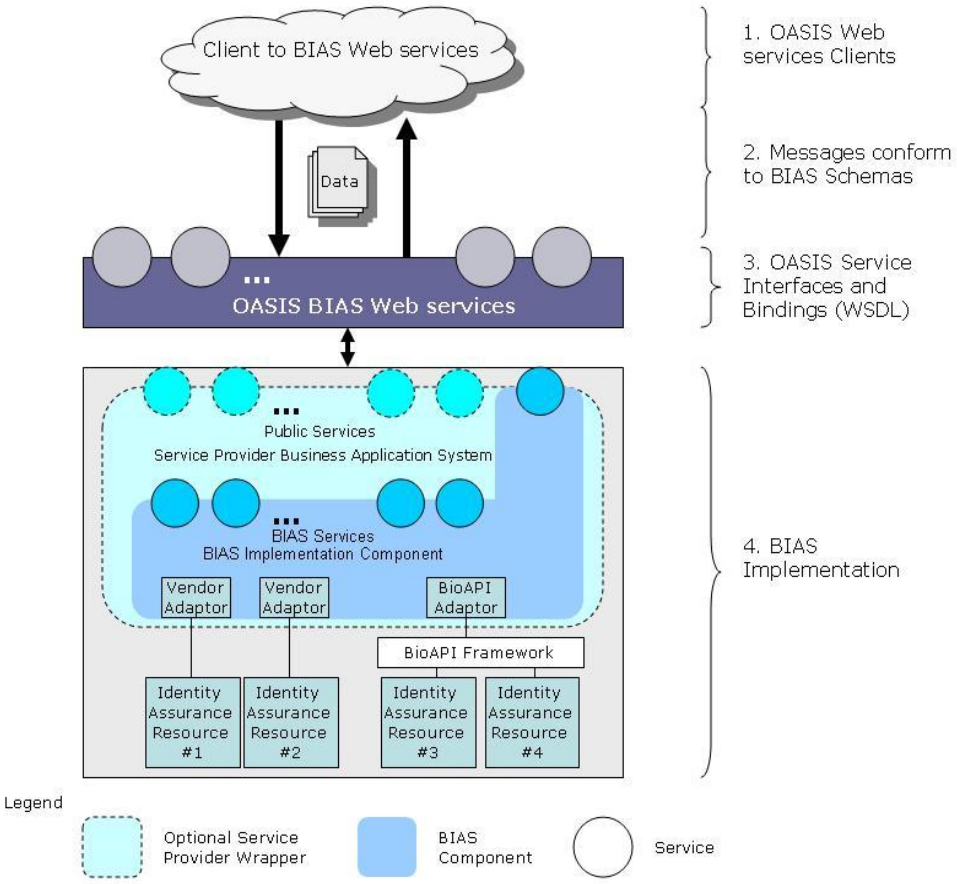

Figure 2. Representative BIAS Architecture

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 messaging protocol 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

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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.

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

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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 442-2008.The elements, complex types and simple types described for the BIAS messages belong to the followingnamespace: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 operationhas 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 messagerequest/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 ↑ 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).

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3.2 Common Elements

3.2.1 ApplicationIdentifier

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

3.2.2 ApplicationUserIdentifier

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

3.2.3 BaseBIRType

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

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

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Description:	Error code referenced in a SOAP fault.

292 **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.

293 NOTES:

294 (1) See Clause 6(Error handling) for an explanation of BIAS faults and return codes.

295 (2) Service provider MAY define additional values specific to their service implementation.

296 (3) See section 5.5 for additional information on BIAS security.

297 ### 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.
↑ BIASFaultDescription	string	0..1	N	Provides detailed information about a BIAS fault, such as trace details.

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298 ### 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.

299 ### 3.2.8 BIASIDType

Type:	string
Description:	A BIAS Identifier.

300 ### 3.2.9 BinaryBIR

Field	Type	#	?	Meaning
BinaryBIR	BaseBIRType		Y	Defines a BIR type of Binary
↳Binary	base64Binary	1	Y	BIR information in base64 binary format

301

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3.2.10 BiographicDataItemType

Field	Type	#	?	Meaning
BiographicDataItemType			Y	Defines a single biographic data element.
↑L Name	string	1	Y	The name of the biographic data item.
↑L Type	string	1	Y	The data type for the biographic data item.
↑L 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 BiographicDataSetType

Field	Type	#	?	Meaning
BiographicDataSetType			Y	Defines a set of biographic data that is formatted according to the specified format.
↑L 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].
↑L version	string	0..1	N	The version of the biographic data format (e.g., "7.1" for FBI-EFTS or "2.0" for NIEM).
↑L 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.
↑L 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).
↑L *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 MUSTbe indicated by the specified name values; however, the service provider MAY offer other formats. See INCITS 442 for further information.

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3.2.12 BiographicDataType

Field	Type	#	?	Meaning
BiographicDataType			Y	Defines a set of biographic data elements, utilizing either the BinaryBIR **Field** / **Type** / **#** / **?** / **Meaning** BinaryBIR / BaseBIRType / / Y / Defines a BIR type of Binary ↳Binary / base64Binary / 1 / Y / BIR information in base64 binary format BiographicDataItemType to represent a list of elements or theBiographicDataSetTypeto 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		0..1	N	A list of biographic data elements.
↳BiographicDataItems	BiographicDataItemType	1..*	N	A single biographic data element.
↳BiographicDataSet	BiographicDataSetType	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 BiographicDataItemType
- Use a pre-defined set of biographic data (e.g., as specified in another standard) using the BiographicDataSetType.

See also INCITS 442, section 8.1 for further information.

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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	iso-iec19785-3-7: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	iso-iec19785-3-7: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.

NOTE: XML biometric metadata (BIR header elements) is aligned with ISO/IEC 19785-3, XML Patron Format. [CBEFF]

3.2.14 BiometricDataListType

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

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	CandidateListType	1	Y	The candidate list

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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.

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.

3.2.18 CapabilityListType

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

3.2.19 CapabilityName

Type:	string
Description:	A list of capability items.

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.

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Value	Description
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.
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.

328 ### 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.

329 ### 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.

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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.
↳BIR_Information		0..1	N	Describes what is contained in a BIR.
↳BIR_Info	iso-iec19785-3-7:BIRInfoType	0..1	N	Contains information about the CBEFF-BIR.
↳BDB_Info	iso-iec19785-3-7:BDBInfoType	0..1	N	Contains information about the BDB in a simple CBEFF-BIR.
↳SB_Info	iso-iec19785-3-7: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 [CBEFF] Part 3, Clause 13)
- 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:

(1) XML BIRs MUST conform to ISO/IEC 19785-3 (clause 13, XML Patron Format); however, non-XML (binary) and URI BIRs MAY implement any CBEFF patron format.

(2) 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.

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346 ### 3.2.25 ClassificationData

Field	Type	#	?	Meaning
ClassificationData			Y	Contains information on classification results and the algorithm used to determine the classification.
↳Classification	Classification	1	Y	The result of the classification.
↳ClassificationAlgorithmType	ClassificationAlgorithmType	1	Y	Identifies the type of classification algorithm that was used to perform the classification.

347 ### 3.2.26 EncounterListType

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

348 ### 3.2.27 FusionDecision

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

349

350 ### 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.

351 ### 3.2.29 FusionInformationType

Field	Type	#	?	Meaning
FusionInformationType			Y	Represents the information necessary to perform a fusion operation.
↳BiometricType	iso-iec19785-3-7:MultipleTypesType	1	Y	The type of biological or behavioral data stored in the biometric record, as defined by CBEFF.
↳BiometricSubType	iso-iec19785-3-7: SubtypeType	0..1	N	More specifically defines the type of biometric data stored in the biometric record.

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Field	Type	#	?	Meaning
↳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	EitherFusionScorea or a FusionDecisionelement MUST be used.

352 ### 3.2.30 FusionResult

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

353 ### 3.2.31 FusionScore

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

354

355 ### 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.

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

358 ### 3.2.33 IdentifySubjectResultType

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

359

360 ### 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.

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Field	Type	#	?	Meaning
↳*unspecified*	any	0..*	N	

361 ## 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	iso-iec19785-3-7: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.

362 ## 3.2.36 MatchType

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

363 ## 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.

364 ## 3.2.38 ProductID

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

365 ## 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.

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Field	Type	#	?	Meaning
↳QualityScore	iso-iec19785-3-7: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	0..1	N	The version of the algorithm used to determine the quality.

366 ### 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.

367 ### 3.2.41 ReturnCode

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

368 **ReturnCode Enumeration Values**

Value	Description
0	Success

369 ### 3.2.42 Score

Type:	float
Description:	Match result or quality score.

370 NOTE: Matching scores MAY be in a standardized or proprietary form in terms of value range and
371 interpretation. Quality scores, however, follow the definition found in ISO/IEC 19785-3, section 13.

372 ### 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.

373

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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 ISO/IEC 19785-3 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 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

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Field	Type	#	?	Meaning
↳XML	Iso-iec19785-3-7:BIRType	1	Y	BIR information in XML format

386

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4 BIAS Messages

This section describes the BIAS messages implementing BIAS operations as defined in ANSI INCITS 442-2008. 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.

4.1 Primitive Operations

4.1.1 AddSubjectToGallery

AddSubjectToGallery

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 MUSTbe unique across the gallery. If no claim to identity is specified, the subject ID (assigned with the CreateSubjectoperation) 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	
↳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: "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.

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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.

402 **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.

403 ## 4.1.2 CheckQuality

404 CheckQuality

405 CheckQualityResponse

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

413 **Request Message**

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

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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.

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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	iso-iec19785-3-7: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.

4.1.3 ClassifyBiometricData

ClassifyBiometricData

ClassifyBiometricDataResponse

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

To obtain the types of classification algorithms and classes, see the QueryCapabilitiesoperation.

Request Message

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

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Field	Type	#	?	Meaning
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: “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.

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.

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

4.1.4 CreateSubject

CreateSubject

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.

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Field	Type	#	?	Meaning
Message	string	0..1	N	A short message corresponding to the return code.
Identity	BIASIdentity	1	Y	
SubjectID	BIASIDType	1	Y	A system unique identifier for a subject.

4.1.5 DeleteBiographicData

DeleteBiographicData

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.

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

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.

4.1.6 DeleteBiometricData

DeleteBiometricData

DeleteBiometricDataResponse

The DeleteBiometricData operation erases all of the biometric data associated with a given subject record. In the encounter-centric model the operation erases all of the biometric 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
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	

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Field	Type	#	?	Meaning
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: “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.

453 ### 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.

454 ## 4.1.7 DeleteSubject

455 DeleteSubject

456 DeleteSubjectResponse

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

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When deleting a subject, BIAS implementations MAY completely erase the subject information in order to prevent the ability to reconstruct a record or records 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
DeleteSubject			Y	Delete an existing subject record and, in an encounter-centric model, any associated encounter information.
↳ DeleteSubjectRequest		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: “DeleteSubject”.
↳ Identity	BIASIdentity	1	Y	The identity of the subject to delete.
↳ SubjectID	BIASIDType	1	Y	A system unique identifier for a subject.

Response Message

Field	Type	#	?	Meaning
DeleteSubjectResponse			Y	The response to a DeleteSubject operation.
↳ DeleteSubjectResponsePackage		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.

4.1.8 DeleteSubjectFromGallery

DeleteSubjectFromGallery

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467 DeleteSubjectFromGalleryResponse

468 The DeleteSubjectFromGallery operation removes the registration of a subject from a gallery or
469 population group. The subject is identified by either the subject ID or the claim to identity that was
470 specified in the AddSubjectToGalleryoperation.

471 ## Request Message

Field	Type	#	?	Meaning
DeleteSubjectFromGallery			Y	Remove the registration of a subject from a gallery or population group.
↳DeleteSubjectFromGalleryRequest		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: “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.

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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.

4.1.9 GetIdentifySubjectResults

GetIdentifySubjectResults

GetIdentifySubjectResultsResponse

The GetIdentifySubjectResults operation retrieves the identification results for the specified token. This opereation is used in conjunction with the IdentifySubjectoperation. If the IdentifySubject operation is implemented as an asynchronous service, the implementing system returns a token and the GetIdentifySubjectResults operation is used to poll for the results of the original IdentifySubject request.

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.

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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.

481 ## 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.
BIRList	CBEFF_BIR_ListType	1	Y	Biometric data associated with the candidate match.

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Field	Type	#	?	Meaning
↳BIR	CBEFF_BIR_Type	0..*	N	CBEFF structure containing information about a biometric sample.

4.1.10 IdentifySubject

IdentifySubject

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.
↳Identity	BIASIdentity	1	Y	Contains the BIR, a data structure containing the biometric sample for the search.

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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.
↳MaxListSize	positiveInteger	1	Y	The maximum size of the candidate list that should be returned.

493 ## 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.
↳BiographicData	BiographicDataType	0..1	N	Biographic data associated with the candidate match.

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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.
↳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

ListBiographicData

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 RetrieveBiographicInformationoperation 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.

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509 **Request Message**

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

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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	
↳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.

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

4.1.12 ListBiometricData

ListBiometricData

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.).

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526 **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”.
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	iso-iec19785-3-7:Multiple-types	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.

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527 ## Response Message

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.

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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	iso-iec19785-3-7: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	iso-iec19785-3-7: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.

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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.

4.1.13 PerformFusion

PerformFusion

PerformFusionResponse

The PerformFusion operation accepts either match score or match decision information and creates a fused match result. The FusionDecision

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

FusionInformationListType, through the FusionInformationType, provides specific elements for match score input and match decision input. The fusion method and processes are left to the implementing system.

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.

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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	iso-iec19785-3-7:MultipleTypesType	1	Y	The type of biological or behavioral data stored in the biometric record, as defined by CBEFF.
↳BiometricSubType	iso-iec19785-3-7: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	EitherFusionScorea or a FusionDecisionelement MUST be used.

538 ## Response Message

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

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Field	Type	#	?	Meaning
↳Message	string	0..1	N	A short message corresponding to the return code.
↳Match	MatchType	1	1	Indicates the result of the fusion method.

539 ### 4.1.14 QueryCapabilities

540 QueryCapabilities

541 QueryCapabilitiesResponse

542 The QueryCapabilities operation returns a list of the capabilities, options, galleries, etc. that are supported
543 by the BIAS implementation. Refer to Annex A in the INCITS BIAS standard for conformance
544 requirements regarding which capability names an implementation must use in the QueryCapabilities
545 operation.

546 #### 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	
↳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: “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.

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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.
↳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 RetrieveBiographicInformation

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 operationwill 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.

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Field	Type	#	?	Meaning
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	
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.

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Field	Type	#	?	Meaning
↳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.

558 ### 4.1.16 RetrieveBiometricInformation

559 RetrieveBiometricInformation

560 RetrieveBiometricInformationResponse

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

567 #### Request Message

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

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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.
↳BiometricType	iso-iec19785-3-7:Multiple-types	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.
↳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.

569 ## 4.1.17 SetBiographicData

570 SetBiographicData

571 SetBiographicDataResponse

572 The SetBiographicData operation associates biographic data to a given subject record. The identity
573 model of the system determines whether the biographic information should replace any existing

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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”.
↳ 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.

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Field	Type	#	?	Meaning
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.

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.
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

SetBiometricData

SetBiometricDataResponse

The SetBiometricData operation associatesbiometric 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 SetBiographicDataoperation). If the encounter ID is omitted for the encounter-centric model, the operation returns a system-assigned encounter ID.

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591 ## Request Message

Field	Type	#	?	Meaning
SetBiometricData			Y	Associates biometric data to a given subject record.
↳ SetBiometricDataRequest		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: “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.
↳ 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	

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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	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.

4.1.19 TransformBiometricData

TransformBiometricData

TokenType

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

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”.

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Field	Type	#	?	Meaning
↳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.
↳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.

601 ## 4.1.20 UpdateBiographicData

602 UpdateBiographicData

603 UpdateBiographicDataResponse

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

607 ### Request Message

Field	Type	#	?	Meaning
UpdateBiographicData			Y	Updates the biographic data for a given subject record.

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Field	Type	#	?	Meaning
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: “UpdateBiographicData”.
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.

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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.
↳ Message	string	0..1	N	A short message corresponding to the return code.

609 ## 4.1.21 UpdateBiometricData

610 UpdateBiometricData

611 UpdateBiometricDataResponse

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

617 ### 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”.

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Field	Type	#	?	Meaning
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.
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 VerifySubject

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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	
↳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: “VerifySubject”.
↳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.
↳Identity	BIASIdentity	1	Y	Includes the identifying information and/or input and reference biometric samples.
↳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	1	Y	An Identity’s biometric data.

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Field	Type	#	?	Meaning
↳InputBIR	CBEFF_BIR_Type	1	Y	Maps to specific INCITS BIAS elements as required by that specification.
↳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 # 4.2 Aggregate Operations

628 ## 4.2.1 Enroll

629 Enroll

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 operationis used to poll for the results of the Enroll request.

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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	
↳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: “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.

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4.2.2 GetEnrollResults

GetEnrollResults

GetEnrollResultsResponse

The GetEnrollResults operation retrieves the enrollment results for the specified token. This operation is used in conjunction with the Enroll operation. If the Enroll operation is implemented as an asynchronous service, the implementing system returns a token and the GetEnrollResults operation is used to poll for the results of the original Enroll request.

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

Request Message

Field	Type	#	?	Meaning
GetEnrollResults			Y	Retrieves the enrollment results for the specified token.
↳ GetEnrollResultsRequest		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: “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.

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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.
↳ 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.

651 ## 4.2.3 GetIdentifyResults

652 GetIdentifyResults

653 GetIdentifyResultsResponse

654 The GetIdentifyResults operation retrieves the identification results for the specified token. This operation
655 is used in conjunction with the Identify operation. If the Identify operation is implemented as an
656 asynchronous service, the implementing system returns a token and the GetIdentifyResults operation is
657 used to poll for the results of the original Identify request.

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

660

661 ### 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.

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Field	Type	#	?	Meaning
↳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 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 GetVerifyResults

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.

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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	
↳ 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: “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.

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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.
↳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.

674 ### 4.2.5 Identify

675 Identify

676 IdentifyResponse

677 The Identify operation performs an identification function according to system requirements and/or
678 resources.If the Identify operation is implemented as a synchronous service, the implementing system
679 immediately processes the request and returns the results in the Return Data parameter. If the Identify
680 operation is implemented as an asynchronous service, the implementing system returns a token in the
681 Return Data parameter, which is an indication that the request is being handled asynchronously. In this
682 case, the GetIdentifyResultsoperation is used to poll for the results of the Identify request.

683 #### 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”.

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Field	Type	#	?	Meaning
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.

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.

4.2.6 RetrieveInformation

RetrieveInformation

RetrieveInformationResponse

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

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.

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Field	Type	#	?	Meaning
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”.
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.

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Field	Type	#	?	Meaning
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.

4.2.7 Verify

Verify

VerifyResponse

The Verify operation performs a 1:1 verification function according to system requirements and/or resources. Either the Identity Claim or Reference BIR input parameters are REQUIRED.If the Verify 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 Verify 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 GetVerifyResultsoperation is used to poll for the results of the Verify request.

Request Message

Field	Type	#	?	Meaning
Verify			Y	Performs a 1:1 verification function.
VerifyRequest		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: “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.

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Field	Type	#	?	Meaning
↳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.
↳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.

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Field	Type	#	?	Meaning
↳Score	Score	0..1	N	The score if the biometric information matched.

707

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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 Section3 and BIAS messages in Section 4.

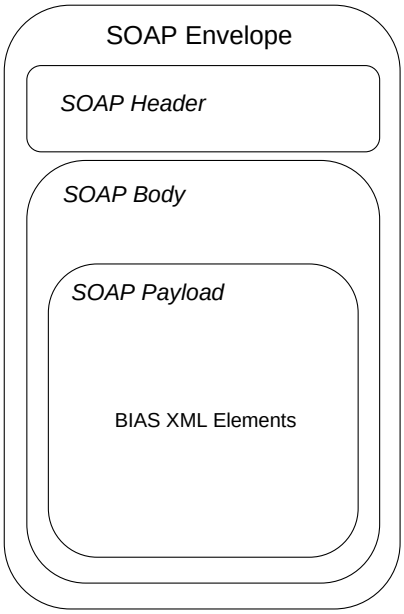

Figure 4. BIAS SOAP Structure

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:

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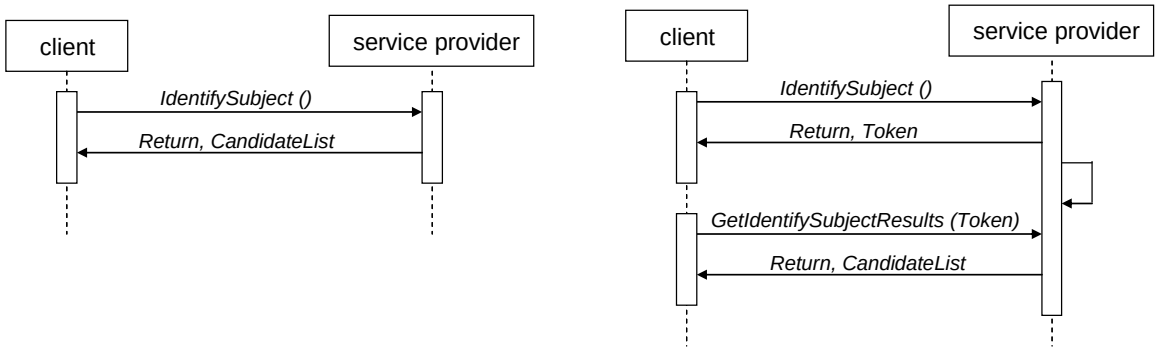
- SOAP messages will carry BIAS XML [XML10] payloads.
- SOAP messages will follow WS-I and will deviate only when absolutely necessary.
- Message structures and interchanges will be kept as simple as possible – “nice to have” features will be addressed in future revisions.
- XML schemas will be produced 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:



(a) Synchronous Operation (b) Asynchronous Operation

Figure 5. Example of Synchronous and Asynchronous BIAS Operations

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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 [CBEFF] Part 3, 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

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

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

5.4 Discovery

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

In addition, it is REQUIRED that the BIAS implementation include the QueryCapabilitiesoperation to provide dynamic information regarding BIAS capabilities, options, galleries, etc. that are supported.

5.5 Identifying operations

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

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

5.5.1 Operation name element

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

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

```
POST /bias HTTP/1.1
Host: www.acme.com
Content-Type: application/soap+xml; charset="utf-8"
Content-Length: nnnn
SOAPAction: ""
<?xml version="1.0"?>
<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope">
    <soap:Body>
         <tns:CreateSubjectRequest
         xmlns:tns="http://docs.oasis-open.org/bias/bias-1.0/">
             <tns:GenericRequestParameters>
                 <tns:Application>BIAS Application</tns:Application>
                 <tns:ApplicationUser>BIAS User</tns:ApplicationUser>
                 <tns:BIASOperationName>CreateSubject</tns:BIASOperationName
>
              </tns:GenericRequestParameters>
              <tns:Identity>
```


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```
                    <tns:SubjectID>123456789</tns:SubjectID>
                </tns:Identity>
            </tns:CreateSubjectRequest>
        </soap:Body>
</soap:Envelope>
```

5.5.2 WS-Addressing Action

WS-Addressing [WS-Addr] provides a mechanism for including action information inside any SOAP message. The information is in the SOAP Header. The WS-Addressing 'Action' element is used to indicate the intent of the message. The value is a URI/IRI identifying that intent; however, there are no restrictions on the format or specificity of the URI/IRInor a requirement that it can be resolved. Adoption of this option also requires that the WS-Addressing 'To', 'ReplyTo', and 'MessageID' elements are supplied, as they are mandatory elements in a request-reply message pattern as used within BIAS. Response messages would also need to use WS-Addressing, requiring the 'To' (matching the 'ReplyTo' element in the request), 'RelatesTo' (matching the 'MessageID' element in the request), and 'RelationshipType' (default value to "wsa:Reply") elements.

Use of WS-Addressing is OPTIONAL in this profile as is this method of using the 'Action' field for this purpose. However, when BIAS is used within an environment using WS-Addressing, it is RECOMMENDED that this approach for use of the 'Action' field to carry the BIAS operation name is employed, either alone or in combination with the BIASOperationName approach described in section 5.4.1.

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

```
        POST /bias HTTP/1.1
        Host: www.acme.com
        Content-Type: application/soap+xml; charset="utf-8"
        Content-Length: nnnn
        SOAPAction: ""
        <?xml version="1.0"?>
        <soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
                        xmlns:wsa="http://schemas.xmlsoap.org/ws/2004/08/addr
                    essing">
              <soap:Header>
                    <wsa:MessageID>some-ID</wsa:MessageID>
                    <wsa:ReplyTo>
                          <wsa:Address>response-URI</wsa:Address>
                    </wsa:ReplyTo>
                    <wsa:To>destination-URI</wsa:To>
                    <wsa:Action>CreateSubject</wsa:Action>
              </soap:Header>
              <soap:Body>
                    <tns:CreateSubjectRequest

        xmlns:tns="http://docs.oasis-open.org/bias/bias-1.0/" />
              </soap:Body>
        </soap:Envelope>
```


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5.6 Security

The end-points that exchange SOAP messages (or handle the contents of the BIAS operations) are expected to be protected and trusted such that message-level security mechanisms may not be required. The use of SSL (HTTPS) or VPN technology that provides end-point to end-point security is RECOMMENDED and MAY be sufficient in some cases. Other mechanisms such as Signed XML or WSS [WSS]could also be implemented.

Unless stated otherwise, the following security statements apply to all BIAS bindings.

5.6.1 Use of SSL 3.0 or TLS 1.0

Unless otherwise specified, in any BIAS binding's use of SSL 3.0 [SSL3] or TLS1.0 [RFC2246], servers MUST authenticate clients using a X.509 v3 certificate [X509]. The client MUST establish server identity based on contents of the certificate (typically through examination of the certificate's subject DN field, subjectAltName attribute, etc.).

Use of transport level security in the form of SSL or TLS is OPTIONAL but highly RECOMMENDED. Use of these mechanisms alone may not be sufficient for end-to-end integrity and confidentiality, however (see 5.5.3 and 5.5.4 below).

5.6.2 Data Origin Authentication

Authentication of both the BIAS requester and the BIAS responder associated with a message is OPTIONAL and depends on the environment of use: Authentication mechanisms available at the SOAP message exchange layer or from the underlying substrate protocol (for example, in many bindings the SSL/TLS or HTTP protocol) MAY be utilized to provide data origin authentication.

Transport authentication will not meet end-to-end origin authentication requirements in bindings where the BIAS SOAP message passes through an intermediary – in this case, message authentication is RECOMMENDED.

Note that SAML [SAML] MAY be used as the mechanism for parties to authenticate to one another.

5.6.3 Message Integrity

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

Transport integrity will not meet end-to-end integrity requirements in bindings where the BIAS SOAP message passes through an intermediary – in this case, message integrity is RECOMMENDED.

5.6.4 Message Confidentiality

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

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

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

5.6.5 CBEFF BIR security features

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

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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

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

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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.

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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 [INCIS-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.

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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:iso-iec19785-3-7="urn:oid:1.1.19785.0.257.1.7.0"
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="urn:oid:1.1.19785.0.257.1.7.0" 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>
```


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```
</xsd:annotation>
</xsd:element>
</xsd:sequence>
</xsd:extension>
</xsd:complexContent>
</xsd:complexType>
<xsd:complexType name="AggregateResponseTemplate">
<xsd:annotation>
<xsd:documentation>Base template for BIAS aggregate service responses.</xsd:documentation>
</xsd:annotation>
<xsd:complexContent>
<xsd:extension base="tns:ResponseTemplate">
<xsd:sequence>
<xsd:element name="ReturnData" type="tns:InformationType" minOccurs="0" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>Contains the output data for the aggregate service response.</xsd:documentation>
</xsd:annotation>
</xsd:element>
</xsd:sequence>
</xsd:extension>
</xsd:complexContent>
</xsd:complexType>
<xsd:simpleType name="ApplicationIdentifier">
<xsd:annotation>
<xsd:documentation>Identifies an application.</xsd:documentation>
</xsd:annotation>
<xsd:restriction base="xsd:string">
<xsd:minLength value="1"/>
<xsd:maxLength value="255"/>
</xsd:restriction>
</xsd:simpleType>
<xsd:simpleType name="ApplicationUserIdentifier">
<xsd:annotation>
<xsd:documentation>Identifies an application user or instance.</xsd:documentation>
</xsd:annotation>
<xsd:restriction base="xsd:string">
<xsd:minLength value="1"/>
<xsd:maxLength value="255"/>
</xsd:restriction>
</xsd:simpleType>
```


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```
<xsd:complexType name="BIASBiometricDataType">
<xsd:annotation>
<xsd:documentation>Wraps the various BIAS biometric types.</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
<xsd:element name="BIRList" type="tns:CBEFF_BIR_ListType" minOccurs="0" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>A list of CBEFF-BIR elements.</xsd:documentation>
</xsd:annotation>
</xsd:element>
<xsd:element name="BIR" type="tns:CBEFF_BIR_Type" minOccurs="0" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>Contains biometric information in either a non-XML and an XML
representation.</xsd:documentation>
</xsd:annotation>
</xsd:element>
<xsd:element name="InputBIR" type="tns:CBEFF_BIR_Type" minOccurs="0" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>Maps to specific INCITS BIAS elements as required by that specification.</xsd:documentation>
</xsd:annotation>
</xsd:element>
<xsd:element name="ReferenceBIR" type="tns:CBEFF_BIR_Type" minOccurs="0" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>Maps to specific INCITS BIAS elements as required by that specification.</xsd:documentation>
</xsd:annotation>
</xsd:element>
<xsd:element name="BiometricDataList" type="tns:BiometricDataListType" minOccurs="0" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>A list of biometric data elements.</xsd:documentation>
</xsd:annotation>
</xsd:element>
</xsd:sequence>
</xsd:complexType>
<xsd:simpleType name="BIASFaultCode">
<xsd:annotation>
<xsd:documentation></xsd:documentation>
</xsd:annotation>
<xsd:restriction base="xsd:string">
<xsd:enumeration value="UNKNOWN_ERROR">
<xsd:annotation>
```


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```
<xsd:documentation>The service failed for an unknown reason.</xsd:documentation>
</xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="UNSUPPORTED_CAPABILITY">
<xsd:annotation>
<xsd:documentation>A requested capability is not supported by the service implementation.</xsd:documentation>
</xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="INVALID_INPUT">
<xsd:annotation>
<xsd:documentation>The data in a service input parameter is invalid.</xsd:documentation>
</xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="BIR_QUALITY_ERROR">
<xsd:annotation>
<xsd:documentation>Biometric sample quality is too poor for the service to succeed.</xsd:documentation>
</xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="INVALID_BIR">
<xsd:annotation>
<xsd:documentation>The input BIR is empty or in an invalid or unrecognized format.</xsd:documentation>
</xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="BIR_SIGNATURE_FAILURE">
<xsd:annotation>
<xsd:documentation>The service could not validate the signature, if used, on the input BIR.</xsd:documentation>
</xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="BIR_DECRYPTION_FAILURE">
<xsd:annotation>
<xsd:documentation>The service could not decrypt an encrypted input BIR.</xsd:documentation>
</xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="INVALID_ENCOUNTER_ID">
<xsd:annotation>
<xsd:documentation>The input encounter ID is empty or in an invalid format.</xsd:documentation>
</xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="INVALID_SUBJECT_ID">
<xsd:annotation>
```


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```
<xsd:documentation>The input subject ID is empty or in an invalid format.</xsd:documentation>
</xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="UNKNOWN_SUBJECT">
<xsd:annotation>
<xsd:documentation>The subject referenced by the input subject ID does not exist.</xsd:documentation>
</xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="UNKNOWN_GALLERY">
<xsd:annotation>
<xsd:documentation>The gallery referenced by the input gallery ID does not exist.</xsd:documentation>
</xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="UNKNOWN_ENCOUNTER">
<xsd:annotation>
<xsd:documentation>The encounter referenced by the input encounter ID does not exist.</xsd:documentation>
</xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="UNKNOWN_BIOGRAPHIC_FORMAT">
<xsd:annotation>
<xsd:documentation>The biographic data format is not known or not supported.</xsd:documentation>
</xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="UNKNOWN_IDENTITY_CLAIM">
<xsd:annotation>
<xsd:documentation>The identity referenced by the input identity claim does not exist.</xsd:documentation>
</xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="INVALID_IDENTITY_CLAIM">
<xsd:annotation>
<xsd:documentation>The identity claim requested is already in use.</xsd:documentation>
</xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="NONEXISTANT_DATA">
<xsd:annotation>
<xsd:documentation>The data requested for deletion does not exist.</xsd:documentation>
</xsd:annotation>
</xsd:enumeration>
</xsd:restriction>
</xsd:simpleType>
```


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```
<xsd:complexType name="BIASFaultDetail">
<xsd:annotation>
<xsd:documentation>Defines the error information associated with a SOAP fault.</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
<xsd:element minOccurs="1" maxOccurs="1" name="BIASFaultType" type="tns:BIASFaultCode">
<xsd:annotation>
<xsd:documentation>References an error code.</xsd:documentation>
</xsd:annotation>
</xsd:element>
<xsd:element minOccurs="1" maxOccurs="1" name="BIASFaultMessage" type="xsd:string">
<xsd:annotation>
<xsd:documentation>Provides an explanation of the fault.</xsd:documentation>
</xsd:annotation>
</xsd:element>
<xsd:element minOccurs="0" maxOccurs="1" name="BIASFaultDescription" type="xsd:string">
<xsd:annotation>
<xsd:documentation>Provides detailed information about a BIAS fault, such as trace details.</xsd:documentation>
</xsd:annotation>
</xsd:element>
</xsd:sequence>
</xsd:complexType>
<xsd:complexType name="BIASIdentity">
<xsd:annotation>
<xsd:documentation>
Defines a single element for encapsulating the data associated
with an Identity.  Includes the Identity's reference identifiers,
biographic data, and biometric data.
</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
<xsd:element name="SubjectID" type="tns:BIASIDType" minOccurs="0" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>A system unique identifier for a subject.</xsd:documentation>
</xsd:annotation>
</xsd:element>
<xsd:element name="IdentityClaim" type="tns:BIASIDType" minOccurs="0" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>An identifier by which a subject is known to a particular gallery or population
group.</xsd:documentation>
```


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```
1286    </xsd:annotation>
1287    </xsd:element>
1288    <xsd:element name="EncounterID" type="tns:BIASIDType" minOccurs="0" maxOccurs="1">
1289    <xsd:annotation>
1290    <xsd:documentation>The identifier of an encounter associated with the subject, required for encounter-centric
1291    models.</xsd:documentation>
1292    </xsd:annotation>
1293    </xsd:element>
1294    <xsd:element name="EncounterList" type="tns:EncounterListType" minOccurs="0" maxOccurs="1">
1295    <xsd:annotation>
1296    <xsd:documentation>A list of encounters associated with a subject.</xsd:documentation>
1297    </xsd:annotation>
1298    </xsd:element>
1299    <xsd:element name="BiographicData" type="tns:BiographicDataType" minOccurs="0" maxOccurs="1">
1300    <xsd:annotation>
1301    <xsd:documentation>An Identity's biographic data.</xsd:documentation>
1302    </xsd:annotation>
1303    </xsd:element>
1304    <xsd:element name="BiographicDataElements" type="tns:BiographicDataType" minOccurs="0" maxOccurs="1">
1305    <xsd:annotation>
1306    <xsd:documentation>An Identity's biographic data elements that are stored in the implementing
1307    system.</xsd:documentation>
1308    </xsd:annotation>
1309    </xsd:element>
1310    <xsd:element name="BiometricData" type="tns:BIASBiometricDataType" minOccurs="0" maxOccurs="1">
1311    <xsd:annotation>
1312    <xsd:documentation>An Identity's biometric data.</xsd:documentation>
1313    </xsd:annotation>
1314    </xsd:element>
1315    </xsd:sequence>
1316    </xsd:complexType>
1317    <xsd:simpleType name="BIASIDType">
1318    <xsd:annotation>
1319    <xsd:documentation>A BIAS identifier</xsd:documentation>
1320    </xsd:annotation>
1321    <xsd:restriction base="xsd:string"/>
1322    </xsd:simpleType>
1323    <xsd:complexType name="BiographicDataItemType">
1324    <xsd:annotation>
1325    <xsd:documentation>Defines a single biographic data element.</xsd:documentation>
```


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```
1326    </xsd:annotation>
1327    <xsd:sequence>
1328    <xsd:element name="Name" type="xsd:string" minOccurs="1" maxOccurs="1">
1329    <xsd:annotation>
1330    <xsd:documentation>The name of the biographic data item.</xsd:documentation>
1331    </xsd:annotation>
1332    </xsd:element>
1333    <xsd:element name="Type" type="xsd:string" minOccurs="1" maxOccurs="1">
1334    <xsd:annotation>
1335    <xsd:documentation>The data type for the biographic data item.</xsd:documentation>
1336    </xsd:annotation>
1337    </xsd:element>
1338    <xsd:element name="Value" type="xsd:string" minOccurs="0" maxOccurs="1">
1339    <xsd:annotation>
1340    <xsd:documentation>The value assigned to the biographic data item.</xsd:documentation>
1341    </xsd:annotation>
1342    </xsd:element>
1343    </xsd:sequence>
1344    </xsd:complexType>
1345    <xsd:complexType name="BiographicDataSetType">
1346    <xsd:annotation>
1347    <xsd:documentation>Defines a set of biographic data that is formatted according to the specified
1348    format.</xsd:documentation>
1349    </xsd:annotation>
1350    <xsd:sequence>
1351    <xsd:element name="name" type="xsd:string" minOccurs="1" maxOccurs="1">
1352    <xsd:annotation>
1353    <xsd:documentation>The name of the biographic data format. Use these names for common formats: FBI-EFTS, FBI-
1354    EBTS, DOD-EBTS, INT-I, NIEM, xNAL, HR-XML.</xsd:documentation>
1355    </xsd:annotation>
1356    </xsd:element>
1357    <xsd:element name="version" type="xsd:string" minOccurs="0" maxOccurs="1">
1358    <xsd:annotation>
1359    <xsd:documentation>The version of the biographic data format (e.g., “7.1" for FBI-EFTS or “2.0" for
1360    NIEM).</xsd:documentation>
1361    </xsd:annotation>
1362    </xsd:element>
1363    <xsd:element name="source" type="xsd:string" minOccurs="1" maxOccurs="1">
1364    <xsd:annotation>
```


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```
<xsd:documentation>Reference to a URI/IRI describing the biographic data format. For example: (FBI-EFTS)
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.</xsd:documentation>
</xsd:annotation>
</xsd:element>
<xsd:element name="type" type="xsd:string" minOccurs="1" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>The biographic data format type. Use these types for common formats: ASCII (e.g., for non-XML
versions of FBI-EFTS, FBI-EBTS, DOD-EFTS, or INT-I), XML (e.g., for NIEM, xNAL, and HR-XML or future version of FBI-
EBTS).</xsd:documentation>

</xsd:annotation>
</xsd:element>
<xsd:any namespace="##any">
<xsd:annotation>
<xsd:documentation>Biographic data formatted according to a specific format.</xsd:documentation>
</xsd:annotation>
</xsd:any>
</xsd:sequence>
</xsd:complexType>
<xsd:complexType name="BiographicDataType">
<xsd:annotation>
<xsd:documentation>
Defines a set of biographic data elements, utilizing either the
BiographicDataItemType to represent a list of elements or the
BiographicDataSetType to represent a complete, formatted set of
biographic information.
</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
<xsd:element name="LastName" type="xsd:string" minOccurs="0" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>The last name of a subject.</xsd:documentation>
</xsd:annotation>
</xsd:element>
<xsd:element name="FirstName" type="xsd:string" minOccurs="0" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>The first name of a subject.</xsd:documentation>
</xsd:annotation>
</xsd:element>
<xsd:element name="BiographicDataItems" minOccurs="0">
```


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```
<xsd:complexType>
<xsd:sequence>
<xsd:element name="BiographicDataItem" type="tns:BiographicDataItemType" maxOccurs="unbounded">
<xsd:annotation>
<xsd:documentation>A single biographic data element.</xsd:documentation>
</xsd:annotation>
</xsd:element>
</xsd:sequence>
</xsd:complexType>
</xsd:element>
<xsd:element name="BiographicDataSet" type="tns:BiographicDataSetType" minOccurs="0" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>A set of biographic data information.</xsd:documentation>
</xsd:annotation>
</xsd:element>
</xsd:sequence>
</xsd:complexType>
<xsd:complexType name="BiometricDataElementType">
<xsd:annotation>
<xsd:documentation>
Provides descriptive information about biometric data, such as
the biometric type, subtype, and format, contained in the BDB of
the CBEFF-BIR.
</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
<xsd:element name="BiometricType" type="iso-iec19785-3-7:MultipleTypesType" minOccurs="1" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>The type of biological or behavioral data stored in the biometric record, as defined by
CBEFF.</xsd:documentation>
</xsd:annotation>
</xsd:element>
<xsd:element name="BiometricTypeCount" type="xsd:positiveInteger" minOccurs="0" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>The number of biometric records having the biometric type recorded in the biometric type
field.</xsd:documentation>
</xsd:annotation>
</xsd:element>
<xsd:element name="BiometricSubType" type="iso-iec19785-3-7:SubtypeType" minOccurs="0" maxOccurs="1">
<xsd:annotation>
```


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```
<xsd:documentation>More specifically defines the type of biometric data stored in the biometric record, as defined by
CBEFF.</xsd:documentation>
</xsd:annotation>
</xsd:element>
<xsd:element name="BDBFormatOwner" type="xsd:positiveInteger" minOccurs="1" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>Identifies the standards body, working group, industry consortium, or other CBEFF biometric
organization that has defined the format for the biometric data.</xsd:documentation>
</xsd:annotation>
</xsd:element>
<xsd:element name="BDBFormatType" type="xsd:positiveInteger" minOccurs="1" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>Identifies the specific biometric data format specified by the CBEFF biometric organization
recorded in the BDB Format Owner field.</xsd:documentation>
</xsd:annotation>
</xsd:element>
</xsd:sequence>
</xsd:complexType>
<xsd:complexType name="BiometricDataListType">
<xsd:annotation>
<xsd:documentation>A list of biometric data elements.</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
<xsd:element name="BiometricDataElement" type="tns:BiometricDataElementType" minOccurs="0"
maxOccurs="unbounded">
<xsd:annotation>
<xsd:documentation>Data structure containing information about a biometric record.</xsd:documentation>
</xsd:annotation>
</xsd:element>
</xsd:sequence>
</xsd:complexType>
<xsd:complexType name="CandidateListType">
<xsd:annotation>
<xsd:documentation>
Defines a set of candidates, utilizing the Candidate Type to
represent each element in the set.
</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
<xsd:element name="Candidate" type="tns:CandidateType" minOccurs="0" maxOccurs="unbounded">
<xsd:annotation>
```


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```
1487 <xsd:documentation>A single candidate.</xsd:documentation>
1488 </xsd:annotation>
1489 </xsd:element>
1490 </xsd:sequence>
1491 </xsd:complexType>
1492 <xsd:complexType name="CandidateType">
1493 <xsd:annotation>
1494 <xsd:documentation>
1495 Defines a single candidate as a possible match in response to a
1496 biometric identification request.
1497 </xsd:documentation>
1498 </xsd:annotation>
1499 <xsd:sequence>
1500 <xsd:element name="Score" type="tns:Score" minOccurs="0" maxOccurs="1">
1501 <xsd:annotation>
1502 <xsd:documentation>The match score.</xsd:documentation>
1503 </xsd:annotation>
1504 </xsd:element>
1505 <xsd:element name="Rank" type="xsd:integer" minOccurs="1" maxOccurs="1">
1506 <xsd:annotation>
1507 <xsd:documentation>The rank of the candidate in relation to other candidates for the same biometric identification
1508 operation.</xsd:documentation>
1509 </xsd:annotation>
1510 </xsd:element>
1511 <xsd:element name="BiographicData" type="tns:BiographicDataType" minOccurs="0" maxOccurs="1">
1512 <xsd:annotation>
1513 <xsd:documentation>Biographic data associated with the candidate match.</xsd:documentation>
1514 </xsd:annotation>
1515 </xsd:element>
1516 <xsd:element name="BIRList" type="tns:CBEFF_BIR_ListType" minOccurs="1" maxOccurs="1">
1517 <xsd:annotation>
1518 <xsd:documentation>Biometric data associated with the candidate match.</xsd:documentation>
1519 </xsd:annotation>
1520 </xsd:element>
1521 </xsd:sequence>
1522 </xsd:complexType>
1523 <xsd:complexType name="CapabilityListType">
1524 <xsd:annotation>
1525 <xsd:documentation>Defines a set of capabilities.</xsd:documentation>
1526 </xsd:annotation>
```


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```
<xsd:sequence>
<xsd:element name="Capability" type="tns:CapabilityType" minOccurs="0" maxOccurs="unbounded">
<xsd:annotation>
<xsd:documentation>A single capability.</xsd:documentation>
</xsd:annotation>
</xsd:element>
</xsd:sequence>
</xsd:complexType>
<xsd:simpleType name="CapabilityName">
<xsd:annotation>
<xsd:documentation>A list of capability items.</xsd:documentation>
</xsd:annotation>
<xsd:restriction base="xsd:string">
<xsd:enumeration value="AggregateInputDataOptional">
<xsd:annotation>
<xsd:documentation>A data element accepted as optional input by the implementing system for the aggregate
services.</xsd:documentation>
</xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="AggregateInputDataRequired">
<xsd:annotation>
<xsd:documentation>A data element required as input by the implementing system for the aggregate
services.</xsd:documentation>
</xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="AggregateProcessingOption">
<xsd:annotation>
<xsd:documentation>A processing option supported by the implementing system for the aggregate
services.</xsd:documentation>
</xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="AggregateReturnData">
<xsd:annotation>
<xsd:documentation>A data element returned by the implementing system for the aggregate
services.</xsd:documentation>
</xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="AggregateServiceDescription">
<xsd:annotation>
<xsd:documentation>Describes the processing logic of an aggregate service supported by the implementing
system.</xsd:documentation>
```


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```
1568    </xsd:annotation>
1569    </xsd:enumeration>
1570    <xsd:enumeration value="BiographicDataSet">
1571    <xsd:annotation>
1572    <xsd:documentation>Identifies a biographic data set supported by the implementing system.</xsd:documentation>
1573    </xsd:annotation>
1574    </xsd:enumeration>
1575    <xsd:enumeration value="CBEFFPatronFormat">
1576    <xsd:annotation>
1577    <xsd:documentation>A patron format supported by the implementing system.</xsd:documentation>
1578    </xsd:annotation>
1579    </xsd:enumeration>
1580    <xsd:enumeration value="ClassificationAlgorithmType">
1581    <xsd:annotation>
1582    <xsd:documentation>A classification algorithm type supported by the implementing system.</xsd:documentation>
1583    </xsd:annotation>
1584    </xsd:enumeration>
1585    <xsd:enumeration value="ConformanceClass">
1586    <xsd:annotation>
1587    <xsd:documentation>Identifies the conformance class of the BIAS implementation.</xsd:documentation>
1588    </xsd:annotation>
1589    </xsd:enumeration>
1590    <xsd:enumeration value="Gallery">
1591    <xsd:annotation>
1592    <xsd:documentation>A gallery or population group supported by the implementing system.</xsd:documentation>
1593    </xsd:annotation>
1594    </xsd:enumeration>
1595    <xsd:enumeration value="IdentityModel">
1596    <xsd:annotation>
1597    <xsd:documentation>Identifies whether the implementing system is person-centric or encounter-centric
1598    based.</xsd:documentation>
1599    </xsd:annotation>
1600    </xsd:enumeration>
1601    <xsd:enumeration value="MatchScore">
1602    <xsd:annotation>
1603    <xsd:documentation> Identifies the use of match scores returned by the implementing system.</xsd:documentation>
1604    </xsd:annotation>
1605    </xsd:enumeration>
1606    <xsd:enumeration value="QualityAlgorithm">
1607    <xsd:annotation>
```


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```
<xsd:documentation>A quality algorithm vendor and algorithm vendor product ID supported by the implementing system.</xsd:documentation>
</xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="SupportedBiometric">
<xsd:annotation>
<xsd:documentation>A biometric type supported by the implementing system.</xsd:documentation>
</xsd:annotation>
</xsd:enumeration>
<xsd:enumeration value="TransformOperation">
<xsd:annotation>
<xsd:documentation>A transform operation type supported by the implementing system.</xsd:documentation>
</xsd:annotation>
</xsd:enumeration>
</xsd:restriction>
</xsd:simpleType>
<xsd:complexType name="CapabilityType">
<xsd:annotation>
<xsd:documentation>Defines a single capability supported by an implementing system.</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
<xsd:element name="CapabilityName" type="tns:CapabilityName" minOccurs="1" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>The name of the capability.</xsd:documentation>
</xsd:annotation>
</xsd:element>
<xsd:element name="CapabilityID" type="xsd:string" minOccurs="0" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>An identifier assigned to the capability by the implementing system.</xsd:documentation>
</xsd:annotation>
</xsd:element>
<xsd:element name="CapabilityDescription" type="xsd:string" minOccurs="0" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>A description of the capability.</xsd:documentation>
</xsd:annotation>
</xsd:element>
<xsd:element name="CapabilityValue" type="xsd:string" minOccurs="0" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>A value assigned to the capability.</xsd:documentation>
</xsd:annotation>
```


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```
</xsd:element>
<xsd:element name="CapabilitySupportingValue" type="xsd:string" minOccurs="0" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>A secondary value supporting the capability.</xsd:documentation>
</xsd:annotation>
</xsd:element>
<xsd:element name="CapabilityAdditionalInfo" type="xsd:string" minOccurs="0" maxOccurs="1">
<xsd:annotation>
<xsd:documentation> Contains additional information for the supported capability.</xsd:documentation>
</xsd:annotation>
</xsd:element>
</xsd:sequence>
</xsd:complexType>
<xsd:complexType name="CBEFF_BIR_ListType">
<xsd:annotation>
<xsd:documentation>A list of CBEFF-BIR elements.</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
<xsd:element name="BIR" type="tns:CBEFF_BIR_Type" minOccurs="0" maxOccurs="unbounded">
<xsd:annotation>
<xsd:documentation>CBEFF structure containing information about a biometric sample.</xsd:documentation>
</xsd:annotation>
</xsd:element>
</xsd:sequence>
</xsd:complexType>
<xsd:complexType name="CBEFF_BIR_Type">
<xsd:annotation>
<xsd:documentation>Represents biometric information, with either a non-XML or XML
representation.</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
<xsd:element name="FormatOwner" type="xsd:positiveInteger" minOccurs="1" maxOccurs="1" />
<xsd:element name="FormatType" type="xsd:positiveInteger" minOccurs="1" maxOccurs="1" />
<xsd:element name="BIR_Information" minOccurs="0" maxOccurs="1">
<xsd:complexType>
<xsd:sequence>
<xsd:element name="BIR_Info" type="iso-iec19785-3-7:BIRInfoType" minOccurs="0" maxOccurs="1"/>
<xsd:element name="BDB_Info" type="iso-iec19785-3-7:BDBInfoType" minOccurs="0" maxOccurs="1"/>
<xsd:element name="SB_Info" type="iso-iec19785-3-7:SBInfoType" minOccurs="0" maxOccurs="1"/>
</xsd:sequence>
```


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```
1688    </xsd:complexType>
1689    </xsd:element>
1690    <xsd:element name="BIR" type="tns:BaseBIRType" />
1691    </xsd:sequence>
1692    </xsd:complexType>
1693    <xsd:complexType name="BaseBIRType">
1694    </xsd:complexType>
1695    <xsd:complexType name="BinaryBIR">
1696    <xsd:complexContent>
1697    <xsd:extension base="tns:BaseBIRType">
1698    <xsd:sequence>
1699    <xsd:element name="Binary" type="xsd:base64Binary" />
1700    </xsd:sequence>
1701    </xsd:extension>
1702    </xsd:complexContent>
1703    </xsd:complexType>
1704    <xsd:complexType name="URI_BIR">
1705    <xsd:complexContent>
1706    <xsd:extension base="tns:BaseBIRType">
1707    <xsd:sequence>
1708    <xsd:element name="URI" type="xsd:anyURI" />
1709    </xsd:sequence>
1710    </xsd:extension>
1711    </xsd:complexContent>
1712    </xsd:complexType>
1713    <xsd:complexType name="XML_BIR">
1714    <xsd:complexContent>
1715    <xsd:extension base="tns:BaseBIRType">
1716    <xsd:sequence>
1717    <xsd:element name="XML" type="iso-iec19785-3-7:BIRType" />
1718    </xsd:sequence>
1719    </xsd:extension>
1720    </xsd:complexContent>
1721    </xsd:complexType>
1722    <xsd:simpleType name="Classification">
1723    <xsd:annotation>
1724    <xsd:documentation>The result of a classification.</xsd:documentation>
1725    </xsd:annotation>
1726    <xsd:restriction base="xsd:string"/>
1727    </xsd:simpleType>
```


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```
<xsd:simpleType name="ClassificationAlgorithmType">
<xsd:annotation>
<xsd:documentation>Type of classification algorithm that was used to perform the
classification.</xsd:documentation>
</xsd:annotation>
<xsd:restriction base="xsd:string"/>
</xsd:simpleType>
<xsd:complexType name="ClassificationData">
<xsd:annotation>
<xsd:documentation>Contains information on classification results and the algorithm used to determine the
classification.</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
<xsd:element name="Classification" type="tns:Classification" minOccurs="1" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>The result of the classification.</xsd:documentation>
</xsd:annotation>
</xsd:element>
<xsd:element name="ClassificationAlgorithmType" type="tns:ClassificationAlgorithmType" minOccurs="1"
maxOccurs="1">
<xsd:annotation>
<xsd:documentation>Identifies the type of classification algorithm that was used to perform the
classification.</xsd:documentation>
</xsd:annotation>
</xsd:element>
</xsd:sequence>
</xsd:complexType>
<xsd:complexType name="EncounterListType">
<xsd:annotation>
<xsd:documentation>Defines a set of encounters.</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
<xsd:element name="EncounterID" type="tns:BIASIDType" minOccurs="0" maxOccurs="unbounded">
<xsd:annotation>
<xsd:documentation>The identifier of an encounter.</xsd:documentation>
</xsd:annotation>
</xsd:element>
</xsd:sequence>
</xsd:complexType>
<xsd:complexType name="FusionInformationListType">
<xsd:annotation>
```


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```
<xsd:documentation>
Contains at a minimum two sets of fusion input
elements, as input to the PerformFusion request.
</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
<xsd:element name="FusionElement" type="tns:FusionInformationType" minOccurs="2" maxOccurs="unbounded">
<xsd:annotation>
<xsd:documentation>A set of fusion information.</xsd:documentation>
</xsd:annotation>
</xsd:element>
</xsd:sequence>
</xsd:complexType>
<xsd:complexType name="FusionInformationType">
<xsd:annotation>
<xsd:documentation>Represents the information necessary to perform a fusion operation.</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
<xsd:element name="BiometricType" type="iso-iec19785-3-7:MultipleTypesType" minOccurs="1" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>The type of biological or behavioral data stored in the biometric record, as defined by
CBEFF.</xsd:documentation>
</xsd:annotation>
</xsd:element>
<xsd:element name="BiometricSubType" type="iso-iec19785-3-7:SubtypeType" minOccurs="0" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>More specifically defines the type of biometric data stored in the biometric
record.</xsd:documentation>
</xsd:annotation>
</xsd:element>
<xsd:element name="AlgorithmOwner" type="xsd:string" minOccurs="1" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>The owner or vendor of the algorithm used to determine the score or
decision.</xsd:documentation>
</xsd:annotation>
</xsd:element>
<xsd:element name="AlgorithmType" type="xsd:string" minOccurs="1" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>The Algorithm Owner's identifier for the specific algorithm product and version used to
determine the score or decision.</xsd:documentation>
</xsd:annotation>
```


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```
</xsd:element>
<xsd:element name="FusionResult" type="tns:FusionResult" />
</xsd:sequence>
</xsd:complexType>
<xsd:complexType name="FusionResult">
<xsd:sequence />
</xsd:complexType>
<xsd:complexType name="FusionScore">
<xsd:complexContent>
<xsd:extension base="tns:FusionResult">
<xsd:sequence>
<xsd:element name="Score" type="tns:Score">
<xsd:annotation>
<xsd:documentation>The similarity score assigned by the matching algorithm.</xsd:documentation>
</xsd:annotation>
</xsd:element>
</xsd:sequence>
</xsd:extension>
</xsd:complexContent>
</xsd:complexType>
<xsd:complexType name="FusionDecision">
<xsd:complexContent>
<xsd:extension base="tns:FusionResult">
<xsd:sequence>
<xsd:element name="Decision" type="xsd:string">
<xsd:annotation>
<xsd:documentation>The match decision assigned by the matching algorithm.</xsd:documentation>
</xsd:annotation>
</xsd:element>
</xsd:sequence>
</xsd:extension>
</xsd:complexContent>
</xsd:complexType>
<xsd:complexType name="GenericRequestParameters">
<xsd:annotation>
<xsd:documentation>Common request paramters that can be used to identify the requester.</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
<xsd:element name="Application" type="tns:ApplicationIdentifier" minOccurs="0" maxOccurs="1">
<xsd:annotation>
```


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```
<xsd:documentation>Identifies the requesting application.</xsd:documentation>
</xsd:annotation>
</xsd:element>
<xsd:element name="ApplicationUser" type="tns:ApplicationUserIdentifier" minOccurs="0" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>Identifers the user or instance of the requesting application.</xsd:documentation>
</xsd:annotation>
</xsd:element>
<xsd:element name="BIASOperationName" type="xsd:string" minOccurs="0" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>Identifers the BIAS operation name that is being requested.</xsd:documentation>
</xsd:annotation>
</xsd:element>
</xsd:sequence>
</xsd:complexType>
<xsd:complexType name="InformationType">
<xsd:annotation>
<xsd:documentation>
Allows for an unlimited number of data element types, and it does
not specify nor require any particular data element.
</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
<xsd:any namespace="##any" processContents="lax" minOccurs="0" maxOccurs="unbounded"/>
</xsd:sequence>
</xsd:complexType>
<xsd:complexType name="ListFilterType">
<xsd:annotation>
<xsd:documentation>
Provides a method to filter the amount of information returned in
a search of biometric data.
</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
<xsd:element name="BiometricTypeFilters">
<xsd:complexType>
<xsd:sequence>
<xsd:element name="BiometricTypeFilter" type="iso-iec19785-3-7:MultipleTypesType" minOccurs="1"
maxOccurs="unbounded">
<xsd:annotation>
```


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```
<xsd:documentation>Limits the returned information to a specific type of biometric, as defined by
CBEFF.</xsd:documentation>
</xsd:annotation>
</xsd:element>
</xsd:sequence>
</xsd:complexType>
</xsd:element>
<xsd:element name="IncludeBiometricSubtype" type="xsd:boolean" minOccurs="1" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>A Boolean flag indicating if biometric subtype information should be
returned.</xsd:documentation>
</xsd:annotation>
</xsd:element>
</xsd:sequence>
</xsd:complexType>
<xsd:simpleType name="MatchType">
<xsd:annotation>
<xsd:documentation>The result of a fusion method.</xsd:documentation>
</xsd:annotation>
<xsd:restriction base="xsd:boolean"/>
</xsd:simpleType>
<xsd:complexType name="ProcessingOptionsType">
<xsd:annotation>
<xsd:documentation>
BIAS aggregate services support the ability to include various
processing options which direct and possibly control the business
logic for that service. The ProcessingOptionsType provides a
method to represent those options. Processing options should be
defined by the implementing system.
</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
<xsd:element name="Option" type="xsd:string" minOccurs="0" maxOccurs="unbounded">
<xsd:annotation>
<xsd:documentation>An option supported by the implementing system.</xsd:documentation>
</xsd:annotation>
</xsd:element>
</xsd:sequence>
</xsd:complexType>
<xsd:simpleType name="ProductID">
```


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```
<xsd:annotation>
<xsd:documentation>The vendor's ID for a particular product.</xsd:documentation>
</xsd:annotation>
<xsd:restriction base="xsd:string"/>
</xsd:simpleType>
<xsd:complexType name="QualityData">
<xsd:annotation>
<xsd:documentation>Contains information about a biometric sample's quality and the algorithm used to compute the
quality.</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
<xsd:element name="QualityScore" type="iso-iec19785-3-7:QualityType" minOccurs="0" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>The quality of a biometric sample.</xsd:documentation>
</xsd:annotation>
</xsd:element>
<xsd:element name="AlgorithmVendor" type="tns:VendorIdentifier" minOccurs="1" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>The vendor of the qualilty algorithm used to determine the quality score.</xsd:documentation>
</xsd:annotation>
</xsd:element>
<xsd:element name="AlgorithmVendorProductID" type="tns:ProductID" minOccurs="1" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>The vendor's ID for the algorithm used to determine the quality.</xsd:documentation>
</xsd:annotation>
</xsd:element>
<xsd:element name="AlgorithmVersion" type="tns:VersionType" minOccurs="0" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>The version of the algorithm used to determine the quality.</xsd:documentation>
</xsd:annotation>
</xsd:element>
</xsd:sequence>
</xsd:complexType>
<xsd:complexType name="RequestTemplate">
<xsd:annotation>
<xsd:documentation>Base template for BIAS primitive service requests.</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
<xsd:element name="GenericRequestParameters" type="tns:GenericRequestParameters" minOccurs="0"
maxOccurs="1"/>
```


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```
</xsd:sequence>
</xsd:complexType>
<xsd:complexType name="ResponseStatus">
<xsd:sequence>
<xsd:element name="Return" type="tns:ReturnCode" minOccurs="1" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>The return code indicates the return status of the operation.</xsd:documentation>
</xsd:annotation>
</xsd:element>
<xsd:element name="Message" type="xsd:string" minOccurs="0" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>A short message corresponding to the return code.</xsd:documentation>
</xsd:annotation>
</xsd:element>
</xsd:sequence>
</xsd:complexType>
<xsd:complexType name="ResponseTemplate">
<xsd:annotation>
<xsd:documentation>Base template for BIAS responses.</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
<xsd:element name="ResponseStatus" type="tns:ResponseStatus" minOccurs="1" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>Returned status for the operation.</xsd:documentation>
</xsd:annotation>
</xsd:element>
</xsd:sequence>
</xsd:complexType>
<xsd:simpleType name="ReturnCode">
<xsd:annotation>
<xsd:documentation>BIAS Operation Return Codes</xsd:documentation>
</xsd:annotation>
<xsd:restriction base="xsd:unsignedLong">
<xsd:enumeration value="0">
<xsd:annotation>
<xsd:documentation>Success</xsd:documentation>
</xsd:annotation>
</xsd:enumeration>
</xsd:restriction>
</xsd:simpleType>
```


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```
<xsd:simpleType name="Score">
<xsd:annotation>
<xsd:documentation>Match result or quality score.</xsd:documentation>
</xsd:annotation>
<xsd:restriction base="xsd:float"/>
</xsd:simpleType>
<xsd:complexType name="TokenType">
<xsd:annotation>
<xsd:documentation>Defines a token that is returned for asynchronous processing.</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
<xsd:element name="TokenValue" type="xsd:string" minOccurs="1" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>A value returned by the implementing system that is used to retrieve the results to a service at a
later time.</xsd:documentation>
</xsd:annotation>
</xsd:element>
<xsd:element name="Expiration" type="xsd:date" minOccurs="1" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>A date and time at which point the token expires and the service results are no longer
guaranteed to be available.</xsd:documentation>
</xsd:annotation>
</xsd:element>
</xsd:sequence>
</xsd:complexType>
<xsd:simpleType name="VendorIdentifier">
<xsd:annotation>
<xsd:documentation>Identifies a vendor.</xsd:documentation>
</xsd:annotation>
<xsd:restriction base="xsd:string"/>
</xsd:simpleType>
<xsd:complexType name="Version">
<xsd:annotation>
<xsd:documentation>
For a description or definition of each data element, see the
referenced CBEFF standards in the CBEFF_XML_BIR_Type schema.
</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
<xsd:element name="major" type="xsd:nonNegativeInteger" minOccurs="1" maxOccurs="1"/>
```


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```
<xsd:element name="minor" type="xsd:nonNegativeInteger" minOccurs="1" maxOccurs="1"/>
</xsd:sequence>
</xsd:complexType>
<xsd:simpleType name="VersionType">
<xsd:annotation>
<xsd:documentation>The version of a component.</xsd:documentation>
</xsd:annotation>
<xsd:restriction base="xsd:string"/>
</xsd:simpleType>
<xsd:element name="AddSubjectToGallery">
<xsd:complexType>
<xsd:annotation>
<xsd:documentation>
Register a subject to a given gallery or population group.
</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
<xsd:element name="AddSubjectToGalleryRequest" nillable="true">
<xsd:complexType>
<xsd:complexContent>
<xsd:extension base="tns:RequestTemplate">
<xsd:sequence>
<xsd:element name="GalleryID" type="tns:BIASIDType" minOccurs="1" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>The identifier of the gallery or population group to which the subject will be
added.</xsd:documentation>
</xsd:annotation>
</xsd:element>
<xsd:element name="Identity" type="tns:BIASIdentity" minOccurs="1" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>The identity to add to the gallery.</xsd:documentation>
</xsd:annotation>
</xsd:element>
</xsd:sequence>
</xsd:extension>
</xsd:complexContent>
</xsd:complexType>
</xsd:element>
</xsd:sequence>
</xsd:complexType>
```


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```
</xsd:element>
<xsd:element name="AddSubjectToGalleryResponse">
<xsd:complexType>
<xsd:annotation>
<xsd:documentation>
The response to an AddSubjectToGallery request.
</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
<xsd:element name="AddSubjectToGalleryResponsePackage" nillable="true">
<xsd:complexType>
<xsd:complexContent>
<xsd:extension base="tns:ResponseTemplate"/>
</xsd:complexContent>
</xsd:complexType>
</xsd:element>
</xsd:sequence>
</xsd:complexType>
</xsd:element>
<xsd:element name="CheckQuality">
<xsd:complexType>
<xsd:annotation>
<xsd:documentation>
Calculate a quality score for a given biometric.
</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
<xsd:element name="CheckQualityRequest" nillable="true">
<xsd:complexType>
<xsd:complexContent>
<xsd:extension base="tns:RequestTemplate">
<xsd:sequence>
<xsd:element name="BiometricData" type="tns:BIASBiometricDataType" minOccurs="1" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>Data structure containing a single biometric sample for which a quality score is to be
determined.</xsd:documentation>
</xsd:annotation>
</xsd:element>
<xsd:element name="Quality" type="tns:QualityData" minOccurs="0" maxOccurs="1">
<xsd:annotation>
```


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```
<xsd:documentation>Specifies a particular algorithm vendor and vender product ID.</xsd:documentation>
</xsd:annotation>
</xsd:element>
</xsd:sequence>
</xsd:extension>
</xsd:complexContent>
</xsd:complexType>
</xsd:element>
</xsd:sequence>
</xsd:complexType>
</xsd:element>
<xsd:element name="CheckQualityResponse">
<xsd:complexType>
<xsd:annotation>
<xsd:documentation>
The response to a CheckQuality request.
</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
<xsd:element name="CheckQualityResponsePackage" nillable="true">
<xsd:complexType>
<xsd:complexContent>
<xsd:extension base="tns:ResponseTemplate">
<xsd:sequence>
<xsd:element name="QualityInfo" type="tns:QualityData" minOccurs="1" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>Contains the quality information for the submitted biometric sample.</xsd:documentation>
</xsd:annotation>
</xsd:element>
</xsd:sequence>
</xsd:extension>
</xsd:complexContent>
</xsd:complexType>
</xsd:element>
</xsd:sequence>
</xsd:complexType>
</xsd:element>
<xsd:element name="ClassifyBiometricData">
<xsd:complexType>
<xsd:annotation>
```


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```
<xsd:documentation>
Classifies a biometric sample.
</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
<xsd:element name="ClassifyBiometricDataRequest" nillable="true">
<xsd:complexType>
<xsd:complexContent>
<xsd:extension base="tns:RequestTemplate">
<xsd:sequence>
<xsd:element name="BiometricData" type="tns:BIASBiometricDataType" minOccurs="1" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>Data structure containing a single biometric sample for which the classification is to be
determined.</xsd:documentation>
</xsd:annotation>
</xsd:element>
</xsd:sequence>
</xsd:extension>
</xsd:complexContent>
</xsd:complexType>
</xsd:element>
</xsd:sequence>
</xsd:complexType>
</xsd:element>
<xsd:element name="ClassifyBiometricDataResponse">
<xsd:complexType>
<xsd:annotation>
<xsd:documentation>
The response to a ClassifyBiometricData request, containing
the classification of a biometric sample.
</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
<xsd:element name="ClassifyBiometricDataResponsePackage" nillable="true">
<xsd:complexType>
<xsd:complexContent>
<xsd:extension base="tns:ResponseTemplate">
<xsd:sequence>
<xsd:element name="ClassificationData" type="tns:ClassificationData" minOccurs="1" maxOccurs="1">
<xsd:annotation>
```


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```
<xsd:documentation>Information on the results and type of classification performed.</xsd:documentation>
</xsd:annotation>
</xsd:element>
</xsd:sequence>
</xsd:extension>
</xsd:complexContent>
</xsd:complexType>
</xsd:element>
</xsd:sequence>
</xsd:complexType>
</xsd:element>
<xsd:element name="CreateSubject">
<xsd:complexType>
<xsd:annotation>
<xsd:documentation>
Create a new subject record.
</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
<xsd:element name="CreateSubjectRequest" nillable="true">
<xsd:complexType>
<xsd:complexContent>
<xsd:extension base="tns:RequestTemplate"/>
</xsd:complexContent>
</xsd:complexType>
</xsd:element>
</xsd:sequence>
</xsd:complexType>
</xsd:element>
<xsd:element name="CreateSubjectResponse">
<xsd:complexType>
<xsd:annotation>
<xsd:documentation>
The response to a CreateSubject request, containing the subject
ID of the new subject record.
</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
<xsd:element name="CreateSubjectResponsePackage" nillable="true">
<xsd:complexType>
```


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```
<xsd:complexContent>
<xsd:extension base="tns:ResponseTemplate">
<xsd:sequence>
<xsd:element name="Identity" type="tns:BIASIdentity" minOccurs="1" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>Contains the subject ID of the new subject record.</xsd:documentation>
</xsd:annotation>
</xsd:element>
</xsd:sequence>
</xsd:extension>
</xsd:complexContent>
</xsd:complexType>
</xsd:element>
</xsd:sequence>
</xsd:complexType>
</xsd:element>
<xsd:element name="DeleteBiographicData">
<xsd:complexType>
<xsd:annotation>
<xsd:documentation>
Erase all of the biographic data associated with a given
subject record or, in the encounter-centric model, with a
given encounter.
</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
<xsd:element name="DeleteBiographicDataRequest" nillable="true">
<xsd:complexType>
<xsd:complexContent>
<xsd:extension base="tns:RequestTemplate">
<xsd:sequence>
<xsd:element name="Identity" type="tns:BIASIdentity" minOccurs="1" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>Contains either the subject ID or encounter ID reference.</xsd:documentation>
</xsd:annotation>
</xsd:element>
</xsd:sequence>
</xsd:extension>
</xsd:complexContent>
</xsd:complexType>
```


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```
</xsd:element>
</xsd:sequence>
</xsd:complexType>
</xsd:element>
<xsd:element name="DeleteBiographicDataResponse">
<xsd:complexType>
<xsd:annotation>
<xsd:documentation>
The response to a DeleteBiographicData request.
</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
<xsd:element name="DeleteBiographicDataResponsePackage" nillable="true">
<xsd:complexType>
<xsd:complexContent>
<xsd:extension base="tns:ResponseTemplate"/>
</xsd:complexContent>
</xsd:complexType>
</xsd:element>
</xsd:sequence>
</xsd:complexType>
</xsd:element>
<xsd:element name="DeleteBiometricData">
<xsd:complexType>
<xsd:annotation>
<xsd:documentation>
Erase all of the biometric data associated with a given
subject record or, in the encounter-centric model, with a
given encounter.
</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
<xsd:element name="DeleteBiometricDataRequest" nillable="true">
<xsd:complexType>
<xsd:complexContent>
<xsd:extension base="tns:RequestTemplate">
<xsd:sequence>
<xsd:element name="Identity" type="tns:BIASIdentity" minOccurs="1" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>Contains either the subject ID or encounter ID reference.</xsd:documentation>
```


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```
</xsd:annotation>
</xsd:element>
</xsd:sequence>
</xsd:extension>
</xsd:complexContent>
</xsd:complexType>
</xsd:element>
</xsd:sequence>
</xsd:complexType>
</xsd:element>
<xsd:element name="DeleteBiometricDataResponse">
<xsd:complexType>
<xsd:annotation>
<xsd:documentation>
The response to a DeleteBiometricData request.
</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
<xsd:element name="DeleteBiometricDataResponsePackage" nillable="true">
<xsd:complexType>
<xsd:complexContent>
<xsd:extension base="tns:ResponseTemplate"/>
</xsd:complexContent>
</xsd:complexType>
</xsd:element>
</xsd:sequence>
</xsd:complexType>
</xsd:element>
<xsd:element name="DeleteSubject">
<xsd:complexType>
<xsd:annotation>
<xsd:documentation>
Delete an existing subject record and, in an encounter-centric
model, any associated encounter information.
</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
<xsd:element name="DeleteSubjectRequest" nillable="true">
<xsd:complexType>
<xsd:complexContent>
```


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```
<xsd:extension base="tns:RequestTemplate">
<xsd:sequence>
<xsd:element name="Identity" type="tns:BIASIdentity" minOccurs="1" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>Subject ID of the identity to delete.</xsd:documentation>
</xsd:annotation>
</xsd:element>
</xsd:sequence>
</xsd:extension>
</xsd:complexContent>
</xsd:complexType>
</xsd:element>
</xsd:sequence>
</xsd:complexType>
</xsd:element>
<xsd:element name="DeleteSubjectResponse">
<xsd:complexType>
<xsd:annotation>
<xsd:documentation>
The response to a DeleteSubject request.
</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
<xsd:element name="DeleteSubjectResponsePackage" nillable="true">
<xsd:complexType>
<xsd:complexContent>
<xsd:extension base="tns:ResponseTemplate"/>
</xsd:complexContent>
</xsd:complexType>
</xsd:element>
</xsd:sequence>
</xsd:complexType>
</xsd:element>
<xsd:element name="DeleteSubjectFromGallery">
<xsd:complexType>
<xsd:annotation>
<xsd:documentation>
Remove the registration of a subject from a gallery or
population group.
</xsd:documentation>
```


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```
2410    </xsd:annotation>
2411    <xsd:sequence>
2412    <xsd:element name="DeleteSubjectFromGalleryRequest" nillable="true">
2413    <xsd:complexType>
2414    <xsd:complexContent>
2415    <xsd:extension base="tns:RequestTemplate">
2416    <xsd:sequence>
2417    <xsd:element name="GalleryID" type="tns:BIASIDType" minOccurs="1" maxOccurs="1">
2418    <xsd:annotation>
2419    <xsd:documentation>The identifier of the gallery or population group from which the subject will be
2420    deleted.</xsd:documentation>
2421    </xsd:annotation>
2422    </xsd:element>
2423    <xsd:element name="Identity" type="tns:BIASIdentity" minOccurs="1" maxOccurs="1">
2424    <xsd:annotation>
2425    <xsd:documentation>The identity to remove from the gallery.</xsd:documentation>
2426    </xsd:annotation>
2427    </xsd:element>
2428    </xsd:sequence>
2429    </xsd:extension>
2430    </xsd:complexContent>
2431    </xsd:complexType>
2432    </xsd:element>
2433    </xsd:sequence>
2434    </xsd:complexType>
2435    </xsd:element>
2436    <xsd:element name="DeleteSubjectFromGalleryResponse">
2437    <xsd:complexType>
2438    <xsd:annotation>
2439    <xsd:documentation>
2440    The response to a DeleteSubjectFromGallery request.
2441    </xsd:documentation>
2442    </xsd:annotation>
2443    <xsd:sequence>
2444    <xsd:element name="DeleteSubjectFromGalleryResponsePackage" nillable="true">
2445    <xsd:complexType>
2446    <xsd:complexContent>
2447    <xsd:extension base="tns:ResponseTemplate"/>
2448    </xsd:complexContent>
2449    </xsd:complexType>
```


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```
</xsd:element>
</xsd:sequence>
</xsd:complexType>
</xsd:element>
<xsd:element name="GetIdentifySubjectResults">
<xsd:complexType>
<xsd:annotation>
<xsd:documentation>
Retrieve the identification results for a specified token,
which was returned by the Identify Subject service.
</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
<xsd:element name="GetIdentifySubjectResultsRequest" nillable="true">
<xsd:complexType>
<xsd:complexContent>
<xsd:extension base="tns:RequestTemplate">
<xsd:sequence>
<xsd:element name="Token" type="tns:TokenType" minOccurs="1" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>A value used to retrieve the results of an IdentifySubject request.</xsd:documentation>
</xsd:annotation>
</xsd:element>
</xsd:sequence>
</xsd:extension>
</xsd:complexContent>
</xsd:complexType>
</xsd:element>
</xsd:sequence>
</xsd:complexType>
</xsd:element>
<xsd:element name="GetIdentifySubjectResultsResponse">
<xsd:complexType>
<xsd:annotation>
<xsd:documentation>
The response to a GetIdentifySubjectResults request, which includes a candidate list.
</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
<xsd:element name="GetIdentifySubjectResultsResponsePackage" nillable="true">
```


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```
<xsd:complexType>
<xsd:complexContent>
<xsd:extension base="tns:ResponseTemplate">
<xsd:sequence>
<xsd:element name="CandidateList" type="tns:CandidateListType" minOccurs="1" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>A rank-ordered list of candidates that have a likelihood of matching the input biometric
sample.</xsd:documentation>
</xsd:annotation>
</xsd:element>
</xsd:sequence>
</xsd:extension>
</xsd:complexContent>
</xsd:complexType>
</xsd:element>
</xsd:sequence>
</xsd:complexType>
</xsd:element>
<xsd:element name="IdentifySubject">
<xsd:complexType>
<xsd:annotation>
<xsd:documentation>
Perform an identification search against a given gallery for
a given biometric.
</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
<xsd:element name="IdentifySubjectRequest" nillable="true">
<xsd:complexType>
<xsd:complexContent>
<xsd:extension base="tns:RequestTemplate">
<xsd:sequence>
<xsd:element name="GalleryID" type="tns:BIASIDType" minOccurs="1" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>The identifier of the gallery or population group which will be searched.</xsd:documentation>
</xsd:annotation>
</xsd:element>
<xsd:element name="Identity" type="tns:BIASIdentity" minOccurs="1" maxOccurs="1">
<xsd:annotation>
```


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```
<xsd:documentation>Contains the BIR, a data structure containing the biometric sample for the
search.</xsd:documentation>
</xsd:annotation>
</xsd:element>
<xsd:element name="MaxListSize" type="xsd:positiveInteger" minOccurs="1" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>The maximum size of the candidate list that should be returned.</xsd:documentation>
</xsd:annotation>
</xsd:element>
</xsd:sequence>
</xsd:extension>
</xsd:complexContent>
</xsd:complexType>
</xsd:element>
</xsd:sequence>
</xsd:complexType>
</xsd:element>
<xsd:element name="IdentifySubjectResponse">
<xsd:complexType>
<xsd:annotation>
<xsd:documentation>
The response to an IdentifySubject request, returning a
rank-ordered candidate list.
</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
<xsd:element name="IdentifySubjectResponsePackage" nillable="true">
<xsd:complexType>
<xsd:complexContent>
<xsd:extension base="tns:ResponseTemplate">
<xsd:sequence>
<xsd:element name="IdentifySubjectResult" type="tns:IdentifySubjectResultType" />
</xsd:sequence>
</xsd:extension>
</xsd:complexContent>
</xsd:complexType>
</xsd:element>
</xsd:sequence>
</xsd:complexType>
</xsd:element>
```


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```
<xsd:complexType name="IdentifySubjectResultType">
<xsd:sequence />
</xsd:complexType>
<xsd:complexType name="CandidateListResultType">
<xsd:complexContent>
<xsd:extension base="tns:IdentifySubjectResultType">
<xsd:sequence>
<xsd:element name="CandidateList" type="tns:CandidateListType">
<xsd:annotation>
<xsd:documentation>A rank-ordered list of candidates that have a likelihood of matching the input biometric sample;
returned with successful synchronous request processing.</xsd:documentation>
</xsd:annotation>
</xsd:element>
</xsd:sequence>
</xsd:extension>
</xsd:complexContent>
</xsd:complexType>
<xsd:complexType name="TokenResultType">
<xsd:complexContent>
<xsd:extension base="tns:IdentifySubjectResultType">
<xsd:sequence>
<xsd:element name="Token" type="tns:TokenType">
<xsd:annotation>
<xsd:documentation>A token used to retrieve the results of the IdentifySubject request; returned with asynchronous
request processing.</xsd:documentation>
</xsd:annotation>
</xsd:element>
</xsd:sequence>
</xsd:extension>
</xsd:complexContent>
</xsd:complexType>
<xsd:element name="ListBiographicData">
<xsd:complexType>
<xsd:annotation>
<xsd:documentation>
Lists the biographic data elements stored for a subject.
</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
<xsd:element name="ListBiographicDataRequest" nillable="true">
```


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```
<xsd:complexType>
<xsd:complexContent>
<xsd:extension base="tns:RequestTemplate">
<xsd:sequence>
<xsd:element name="Identity" type="tns:BIASIdentity" minOccurs="1" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>Identifies the subject or, in the encounter-centric model, a subject and an
encounter.</xsd:documentation>
</xsd:annotation>
</xsd:element>
</xsd:sequence>
</xsd:extension>
</xsd:complexContent>
</xsd:complexType>
</xsd:element>
</xsd:sequence>
</xsd:complexType>
</xsd:element>
<xsd:element name="ListBiographicDataResponse">
<xsd:complexType>
<xsd:annotation>
<xsd:documentation>
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.
</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
<xsd:element name="ListBiographicDataResponsePackage" nillable="true">
<xsd:complexType>
<xsd:complexContent>
<xsd:extension base="tns:ResponseTemplate">
<xsd:sequence>
<xsd:element name="Identity" type="tns:BIASIdentity" minOccurs="0" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>
Contains a list of biographic data elements associated with a
```


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```
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.
</xsd:documentation>
</xsd:annotation>
</xsd:element>
<xsd:element name="EncounterList" type="tns:EncounterListType" minOccurs="0" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>
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.
</xsd:documentation>
</xsd:annotation>
</xsd:element>
</xsd:sequence>
</xsd:extension>
</xsd:complexContent>
</xsd:complexType>
</xsd:element>
</xsd:sequence>
</xsd:complexType>
</xsd:element>
<xsd:element name="ListBiometricData">
<xsd:complexType>
<xsd:annotation>
<xsd:documentation>
Lists the biometric data elements stored for a subject. Note
that no actual biometric data is returned by this service (see
the RetrieveBiometricInformation service to obtain the biometric
data).
</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
<xsd:element name="ListBiometricDataRequest" nillable="true">
<xsd:complexType>
```


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```
<xsd:complexContent>
<xsd:extension base="tns:RequestTemplate">
<xsd:sequence>
<xsd:element name="Identity" type="tns:BIASIdentity" minOccurs="1" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>Identifies the subject or, in the encounter-centric model, a subject and an
encounter.</xsd:documentation>
</xsd:annotation>
</xsd:element>
<xsd:element name="ListFilter" type="tns:ListFilterType" minOccurs="0" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>Indicates what biometric information should be returned.</xsd:documentation>
</xsd:annotation>
</xsd:element>
</xsd:sequence>
</xsd:extension>
</xsd:complexContent>
</xsd:complexType>
</xsd:element>
</xsd:sequence>
</xsd:complexType>
</xsd:element>
<xsd:element name="ListBiometricDataResponse">
<xsd:complexType>
<xsd:annotation>
<xsd:documentation>
The response to a ListBiometricData request, 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.
</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
<xsd:element name="ListBiometricDataResponsePackage" nillable="true">
<xsd:complexType>
<xsd:complexContent>
<xsd:extension base="tns:ResponseTemplate">
<xsd:sequence>
```


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```
<xsd:element name="Identity" type="tns:BIASIdentity">
<xsd:annotation>
<xsd:documentation>
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.
</xsd:documentation>
</xsd:annotation>
</xsd:element>
</xsd:sequence>
</xsd:extension>
</xsd:complexContent>
</xsd:complexType>
</xsd:element>
</xsd:sequence>
</xsd:complexType>
</xsd:element>
<xsd:element name="PerformFusion">
<xsd:complexType>
<xsd:annotation>
<xsd:documentation>
Accepts either match score or match decision information and creates a fused match result.
</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
<xsd:element name="PerformFusionRequest" nillable="true">
<xsd:complexType>
<xsd:complexContent>
<xsd:extension base="tns:RequestTemplate">
<xsd:sequence>
<xsd:element name="FusionInput" type="tns:FusionInformationListType" minOccurs="1" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>Score or decision input information to the fusion method.</xsd:documentation>
</xsd:annotation>
</xsd:element>
</xsd:sequence>
</xsd:extension>
</xsd:complexContent>
</xsd:complexType>
```


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```
</xsd:element>
</xsd:sequence>
</xsd:complexType>
</xsd:element>
<xsd:element name="PerformFusionResponse">
<xsd:complexType>
<xsd:annotation>
<xsd:documentation>
The response to the PerformFusion request.
</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
<xsd:element name="PerformFusionResponsePackage" nillable="true">
<xsd:complexType>
<xsd:complexContent>
<xsd:extension base="tns:ResponseTemplate">
<xsd:sequence>
<xsd:element name="Match" type="tns:MatchType" minOccurs="1" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>Indicates the result of the fusion method</xsd:documentation>
</xsd:annotation>
</xsd:element>
</xsd:sequence>
</xsd:extension>
</xsd:complexContent>
</xsd:complexType>
</xsd:element>
</xsd:sequence>
</xsd:complexType>
</xsd:element>
<xsd:element name="QueryCapabilities">
<xsd:complexType>
<xsd:annotation>
<xsd:documentation>
Returns a list of the capabilities, options, galleries, etc.
that are supported by the BIAS implementation.
</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
<xsd:element name="QueryCapabilitiesRequest" nillable="true">
```


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```
<xsd:complexType>
<xsd:complexContent>
<xsd:extension base="tns:RequestTemplate"/>
</xsd:complexContent>
</xsd:complexType>
</xsd:element>
</xsd:sequence>
</xsd:complexType>
</xsd:element>
<xsd:element name="QueryCapabilitiesResponse">
<xsd:complexType>
<xsd:annotation>
<xsd:documentation>
The response to a QueryCapabilities request.
</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
<xsd:element name="QueryCapabilitiesResponsePackage" nillable="true">
<xsd:complexType>
<xsd:complexContent>
<xsd:extension base="tns:ResponseTemplate">
<xsd:sequence>
<xsd:element name="CapabilityList" type="tns:CapabilityListType" minOccurs="1" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>A list of capabilities supported by the BIAS implementation.</xsd:documentation>
</xsd:annotation>
</xsd:element>
</xsd:sequence>
</xsd:extension>
</xsd:complexContent>
</xsd:complexType>
</xsd:element>
</xsd:sequence>
</xsd:complexType>
</xsd:element>
<xsd:element name="RetrieveBiographicInformation">
<xsd:complexType>
<xsd:annotation>
<xsd:documentation>
Retrieves the biographic data associated with a subject ID.
```


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```
</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
<xsd:element name="RetrieveBiographicInformationRequest" nillable="true">
<xsd:complexType>
<xsd:complexContent>
<xsd:extension base="tns:RequestTemplate">
<xsd:sequence>
<xsd:element name="Identity" type="tns:BIASIdentity" minOccurs="1" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>Identifies the subject or, in the encounter-centric model, a subject and an
encounter.</xsd:documentation>
</xsd:annotation>
</xsd:element>
</xsd:sequence>
</xsd:extension>
</xsd:complexContent>
</xsd:complexType>
</xsd:element>
</xsd:sequence>
</xsd:complexType>
</xsd:element>
<xsd:element name="RetrieveBiographicInformationResponse">
<xsd:complexType>
<xsd:annotation>
<xsd:documentation>
The response to a RetrieveBiographicInformation request,
containing the biographic data associated with a subject ID. In
the encounter-centric model, the biographic data associated with
a specified encounter is returned. If the encounter ID is not
specified in the encounter-centric model, the biographic
information associated with the most recent encounter is returned.
</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
<xsd:element name="RetrieveBiographicInformationResponsePackage" nillable="true">
<xsd:complexType>
<xsd:complexContent>
<xsd:extension base="tns:ResponseTemplate">
<xsd:sequence>
```


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```
<xsd:element name="Identity" type="tns:BIASIdentity" minOccurs="1" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>Includes the set of biographic data associated with a subject.</xsd:documentation>
</xsd:annotation>
</xsd:element>
</xsd:sequence>
</xsd:extension>
</xsd:complexContent>
</xsd:complexType>
</xsd:element>
</xsd:sequence>
</xsd:complexType>
</xsd:element>
<xsd:element name="RetrieveBiometricInformation">
<xsd:complexType>
<xsd:annotation>
<xsd:documentation>
Retrieves the biometric data associated with a subject ID.
</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
<xsd:element name="RetrieveBiometricInformationRequest" nillable="true">
<xsd:complexType>
<xsd:complexContent>
<xsd:extension base="tns:RequestTemplate">
<xsd:sequence>
<xsd:element name="Identity" type="tns:BIASIdentity" minOccurs="1" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>Identifies the subject or, in the encounter-centric model, a subject and an
encounter.</xsd:documentation>
</xsd:annotation>
</xsd:element>
<xsd:element name="BiometricType" type="iso-iec19785-3-7:MultipleTypesType" minOccurs="0" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>The type of biological or behavioral data to retrieve.</xsd:documentation>
</xsd:annotation>
</xsd:element>
</xsd:sequence>
</xsd:extension>
</xsd:complexContent>
```


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```
</xsd:complexType>
</xsd:element>
</xsd:sequence>
</xsd:complexType>
</xsd:element>
<xsd:element name="RetrieveBiometricInformationResponse">
<xsd:complexType>
<xsd:annotation>
<xsd:documentation>
The response to a RetrieveBiometricInformation request,
containing the biometric data associated with a subject ID. In
the encounter-centric model, the biometric data associated with
a specified encounter is returned. If the encounter ID is not
specified in the encounter-centric model, the biometric
information associated with the most recent encounter is returned.
</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
<xsd:element name="RetrieveBiometricInformationResponsePackage" nillable="true">
<xsd:complexType>
<xsd:complexContent>
<xsd:extension base="tns:ResponseTemplate">
<xsd:sequence>
<xsd:element name="Identity" type="tns:BIASIdentity" minOccurs="1" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>Includes the biometric data associated with a subject.</xsd:documentation>
</xsd:annotation>
</xsd:element>
</xsd:sequence>
</xsd:extension>
</xsd:complexContent>
</xsd:complexType>
</xsd:element>
</xsd:sequence>
</xsd:complexType>
</xsd:element>
<xsd:element name="SetBiographicData">
<xsd:complexType>
<xsd:annotation>
<xsd:documentation>
```


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```
Associates biographic data to a given subject record.
</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
<xsd:element name="SetBiographicDataRequest" nillable="true">
<xsd:complexType>
<xsd:complexContent>
<xsd:extension base="tns:RequestTemplate">
<xsd:sequence>
<xsd:element name="Identity" type="tns:BIASIdentity" minOccurs="1" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>Identifies the subject or, in the encounter-centric model, a subject and an encounter, and
includes the biographic data to store.</xsd:documentation>
</xsd:annotation>
</xsd:element>
</xsd:sequence>
</xsd:extension>
</xsd:complexContent>
</xsd:complexType>
</xsd:element>
</xsd:sequence>
</xsd:complexType>
</xsd:element>
<xsd:element name="SetBiographicDataResponse">
<xsd:complexType>
<xsd:annotation>
<xsd:documentation>
The response to a SetBiographicData request.
</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
<xsd:element name="SetBiographicDataResponsePackage" nillable="true">
<xsd:complexType>
<xsd:complexContent>
<xsd:extension base="tns:ResponseTemplate">
<xsd:sequence>
<xsd:element name="Identity" type="tns:BIASIdentity" minOccurs="0" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>In an encounter-centric model, identifies the encounter ID assigned to a new
encounter.</xsd:documentation>
```


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```
3009    </xsd:annotation>
3010    </xsd:element>
3011    </xsd:sequence>
3012    </xsd:extension>
3013    </xsd:complexContent>
3014    </xsd:complexType>
3015    </xsd:element>
3016    </xsd:sequence>
3017    </xsd:complexType>
3018    </xsd:element>
3019    <xsd:element name="SetBiometricData">
3020    <xsd:complexType>
3021    <xsd:annotation>
3022    <xsd:documentation>
3023    Associates biometric data to a given subject record.
3024    </xsd:documentation>
3025    </xsd:annotation>
3026    <xsd:sequence>
3027    <xsd:element name="SetBiometricDataRequest" nillable="true">
3028    <xsd:complexType>
3029    <xsd:complexContent>
3030    <xsd:extension base="tns:RequestTemplate">
3031    <xsd:sequence>
3032    <xsd:element name="Identity" type="tns:BIASIdentity" minOccurs="1" maxOccurs="1">
3033    <xsd:annotation>
3034    <xsd:documentation>Identifies the subject or, in the encounter-centric model, a subject and an encounter, and
3035    includes the biometric data to store.</xsd:documentation>
3036    </xsd:annotation>
3037    </xsd:element>
3038    </xsd:sequence>
3039    </xsd:extension>
3040    </xsd:complexContent>
3041    </xsd:complexType>
3042    </xsd:element>
3043    </xsd:sequence>
3044    </xsd:complexType>
3045    </xsd:element>
3046    <xsd:element name="SetBiometricDataResponse">
3047    <xsd:complexType>
3048    <xsd:annotation>
```


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```
<xsd:documentation>
The response to a SetBiometricData request.
</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
<xsd:element name="SetBiometricDataResponsePackage" nillable="true">
<xsd:complexType>
<xsd:complexContent>
<xsd:extension base="tns:ResponseTemplate">
<xsd:sequence>
<xsd:element name="Identity" type="tns:BIASIdentity" minOccurs="0" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>In an encounter-centric model, identifies the encounter ID assigned to a new
encounter.</xsd:documentation>
</xsd:annotation>
</xsd:element>
</xsd:sequence>
</xsd:extension>
</xsd:complexContent>
</xsd:complexType>
</xsd:element>
</xsd:sequence>
</xsd:complexType>
</xsd:element>
<xsd:element name="TransformBiometricData">
<xsd:complexType>
<xsd:annotation>
<xsd:documentation>
Transforms or processes a given biometric in one format into a new target format.
</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
<xsd:element name="TransformBiometricDataRequest" nillable="true">
<xsd:complexType>
<xsd:complexContent>
<xsd:extension base="tns:RequestTemplate">
<xsd:sequence>
<xsd:element name="InputBIR" type="tns:CBEFF_BIR_Type" minOccurs="1" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>Data structure containing the biometric information to be transformed.</xsd:documentation>
```


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```
</xsd:annotation>
</xsd:element>
<xsd:element name="TransformOperation" type="xsd:unsignedLong" minOccurs="1" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>Value indicating the type of transformation to perform.</xsd:documentation>
</xsd:annotation>
</xsd:element>
<xsd:element name="TransformControl" type="xsd:string" minOccurs="0" maxOccurs="1">
<xsd:annotation>
<xsd:documentation> Specifies controls for the requested transform operation.</xsd:documentation>
</xsd:annotation>
</xsd:element>
</xsd:sequence>
</xsd:extension>
</xsd:complexContent>
</xsd:complexType>
</xsd:element>
</xsd:sequence>
</xsd:complexType>
</xsd:element>
<xsd:element name="TransformBiometricDataResponse">
<xsd:complexType>
<xsd:annotation>
<xsd:documentation>
The response to a TransformBiometricData request.
</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
<xsd:element name="TransformBiometricDataResponsePackage" nillable="true">
<xsd:complexType>
<xsd:complexContent>
<xsd:extension base="tns:ResponseTemplate">
<xsd:sequence>
<xsd:element name="OutputBIR" type="tns:CBEFF_BIR_Type" minOccurs="0" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>Data structure containing the new, transformed biometric information.</xsd:documentation>
</xsd:annotation>
</xsd:element>
</xsd:sequence>
</xsd:extension>
```


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```
3129    </xsd:complexContent>
3130    </xsd:complexType>
3131    </xsd:element>
3132    </xsd:sequence>
3133    </xsd:complexType>
3134    </xsd:element>
3135    <xsd:element name="UpdateBiographicData">
3136    <xsd:complexType>
3137    <xsd:annotation>
3138    <xsd:documentation>
3139    Updates the biographic data for a given subject record.
3140    </xsd:documentation>
3141    </xsd:annotation>
3142    <xsd:sequence>
3143    <xsd:element name="UpdateBiographicDataRequest" nillable="true">
3144    <xsd:complexType>
3145    <xsd:complexContent>
3146    <xsd:extension base="tns:RequestTemplate">
3147    <xsd:sequence>
3148    <xsd:element name="Identity" type="tns:BIASIdentity" minOccurs="1" maxOccurs="1">
3149    <xsd:annotation>
3150    <xsd:documentation>Identifies the subject or, in the encounter-centric model, a subject and an encounter, and
3151    includes the biographic data to update.</xsd:documentation>
3152    </xsd:annotation>
3153    </xsd:element>
3154    </xsd:sequence>
3155    </xsd:extension>
3156    </xsd:complexContent>
3157    </xsd:complexType>
3158    </xsd:element>
3159    </xsd:sequence>
3160    </xsd:complexType>
3161    </xsd:element>
3162    <xsd:element name="UpdateBiographicDataResponse">
3163    <xsd:complexType>
3164    <xsd:annotation>
3165    <xsd:documentation>
3166    The response to an UpdateBiographicData request.
3167    </xsd:documentation>
3168    </xsd:annotation>
```


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```
<xsd:sequence>
<xsd:element name="UpdateBiographicDataResponsePackage" nillable="true">
<xsd:complexType>
<xsd:complexContent>
<xsd:extension base="tns:ResponseTemplate"/>
</xsd:complexContent>
</xsd:complexType>
</xsd:element>
</xsd:sequence>
</xsd:complexType>
</xsd:element>
<xsd:element name="UpdateBiometricData">
<xsd:complexType>
<xsd:annotation>
<xsd:documentation>
Updates a single biometric sample for a given subject record.
</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
<xsd:element name="UpdateBiometricDataRequest" nillable="true">
<xsd:complexType>
<xsd:complexContent>
<xsd:extension base="tns:RequestTemplate">
<xsd:sequence>
<xsd:element name="Identity" type="tns:BIASIdentity" minOccurs="1" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>Identifies the subject or, in the encounter-centric model, a subject and an encounter, and
includes the biometric data to update.</xsd:documentation>
</xsd:annotation>
</xsd:element>
<xsd:element name="Merge" type="xsd:boolean" minOccurs="0" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>Value indicating if the input biometric sample should be merged with any existing biometric
information.</xsd:documentation>
</xsd:annotation>
</xsd:element>
</xsd:sequence>
</xsd:extension>
</xsd:complexContent>
</xsd:complexType>
```


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```
3209    </xsd:element>
3210    </xsd:sequence>
3211    </xsd:complexType>
3212    </xsd:element>
3213    <xsd:element name="UpdateBiometricDataResponse">
3214    <xsd:complexType>
3215    <xsd:annotation>
3216    <xsd:documentation>
3217    The response to an UpdateBiometricData request.
3218    </xsd:documentation>
3219    </xsd:annotation>
3220    <xsd:sequence>
3221    <xsd:element name="UpdateBiometricDataResponsePackage" nillable="true">
3222    <xsd:complexType>
3223    <xsd:complexContent>
3224    <xsd:extension base="tns:ResponseTemplate"/>
3225    </xsd:complexContent>
3226    </xsd:complexType>
3227    </xsd:element>
3228    </xsd:sequence>
3229    </xsd:complexType>
3230    </xsd:element>
3231    <xsd:element name="VerifySubject">
3232    <xsd:complexType>
3233    <xsd:annotation>
3234    <xsd:documentation>
3235    Performs a 1:1 verification match between a given biometric and
3236    either a claim to identity in a given gallery or another given
3237    biometric.
3238    </xsd:documentation>
3239    </xsd:annotation>
3240    <xsd:sequence>
3241    <xsd:element name="VerifySubjectRequest" nillable="true">
3242    <xsd:complexType>
3243    <xsd:complexContent>
3244    <xsd:extension base="tns:RequestTemplate">
3245    <xsd:sequence>
3246    <xsd:element name="GalleryID" type="tns:BIASIDType" minOccurs="0" maxOccurs="1">
3247    <xsd:annotation>
```


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```
<xsd:documentation>The identifier of the gallery or population group of which the subject must be a
member.</xsd:documentation>
</xsd:annotation>
</xsd:element>
<xsd:element name="Identity" type="tns:BIASIdentity" minOccurs="1" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>Includes the identifying information and/or input and reference biometric
samples.</xsd:documentation>
</xsd:annotation>
</xsd:element>
</xsd:sequence>
</xsd:extension>
</xsd:complexContent>
</xsd:complexType>
</xsd:element>
</xsd:sequence>
</xsd:complexType>
</xsd:element>
<xsd:element name="VerifySubjectResponse">
<xsd:complexType>
<xsd:annotation>
<xsd:documentation>
The response to a VerifySubject request.
</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
<xsd:element name="VerifySubjectResponsePackage" nillable="true">
<xsd:complexType>
<xsd:complexContent>
<xsd:extension base="tns:ResponseTemplate">
<xsd:sequence>
<xsd:element name="Match" type="xsd:boolean" minOccurs="0" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>Indicates if the Input BIR matched either the biometric information associated with the Identity
Claim or the Reference BIR.</xsd:documentation>
</xsd:annotation>
</xsd:element>
<xsd:element name="Score" type="tns:Score" minOccurs="0" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>The score if the biometric information matched.</xsd:documentation>
</xsd:annotation>
```


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```
3289    </xsd:element>
3290    </xsd:sequence>
3291    </xsd:extension>
3292    </xsd:complexContent>
3293    </xsd:complexType>
3294    </xsd:element>
3295    </xsd:sequence>
3296    </xsd:complexType>
3297    </xsd:element>
3298    <xsd:element name="Enroll">
3299    <xsd:complexType>
3300    <xsd:annotation>
3301    <xsd:documentation>
3302    The Enroll aggregate service adds a new subject or, in an
3303    encounter-centric model, a new encounter to the system. This may
3304    be accomplished in a number of different ways according to
3305    system requirements and/or resources. If the Enroll aggregate
3306    service is implemented as a synchronous service, the
3307    implementing system immediately processes the request and
3308    returns the results in the ReturnData parameter. If the Enroll
3309    aggregate service is implemented as an asynchronous service, the
3310    implementing system returns a token in the ReturnData
3311    parameter, which is an indication that the request is being
3312    handled asynchronously. In this case, the GetEnrollResults
3313    service is used to poll for the results of the Enroll request.
3314    </xsd:documentation>
3315    </xsd:annotation>
3316    <xsd:sequence>
3317    <xsd:element name="EnrollRequest" nillable="true">
3318    <xsd:complexType>
3319    <xsd:complexContent>
3320    <xsd:extension base="tns:AggregateRequestTemplate"/>
3321    </xsd:complexContent>
3322    </xsd:complexType>
3323    </xsd:element>
3324    </xsd:sequence>
3325    </xsd:complexType>
3326    </xsd:element>
3327    <xsd:element name="EnrollResponse">
3328    <xsd:complexType>
```


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```
<xsd:annotation>
<xsd:documentation>The response to an Enroll request.</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
<xsd:element name="EnrollResponsePackage" nillable="true">
<xsd:complexType>
<xsd:complexContent>
<xsd:extension base="tns:AggregateResponseTemplate"/>
</xsd:complexContent>
</xsd:complexType>
</xsd:element>
</xsd:sequence>
</xsd:complexType>
</xsd:element>
<xsd:element name="GetEnrollResults">
<xsd:complexType>
<xsd:annotation>
<xsd:documentation>
The GetEnrollResults aggregate service retrieves the enrollment
results for the specified token. This service is used in
conjunction with the Enroll aggregate service. If the Enroll
aggregate service is implemented as an asynchronous service, the
implementing system returns a token, and the GetEnrollResults
service is used to poll for the results of the original Enroll
request.
</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
<xsd:element name="GetEnrollResultsRequest" nillable="true">
<xsd:complexType>
<xsd:complexContent>
<xsd:extension base="tns:RequestTemplate">
<xsd:sequence>
<xsd:element name="Token" type="tns:TokenType" minOccurs="1" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>A value used to retrieve the results of the Enroll request.</xsd:documentation>
</xsd:annotation>
</xsd:element>
</xsd:sequence>
</xsd:extension>
```


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```
3369    </xsd:complexContent>
3370    </xsd:complexType>
3371    </xsd:element>
3372    </xsd:sequence>
3373    </xsd:complexType>
3374    </xsd:element>
3375    <xsd:element name="GetEnrollResultsResponse">
3376    <xsd:complexType>
3377    <xsd:annotation>
3378    <xsd:documentation>The response to a GetEnrollResults request.</xsd:documentation>
3379    </xsd:annotation>
3380    <xsd:sequence>
3381    <xsd:element name="GetEnrollResultsResponsePackage" nillable="true">
3382    <xsd:complexType>
3383    <xsd:complexContent>
3384    <xsd:extension base="tns:AggregateResponseTemplate"/>
3385    </xsd:complexContent>
3386    </xsd:complexType>
3387    </xsd:element>
3388    </xsd:sequence>
3389    </xsd:complexType>
3390    </xsd:element>
3391    <xsd:element name="GetIdentifyResults">
3392    <xsd:complexType>
3393    <xsd:annotation>
3394    <xsd:documentation>
3395    The GetIdentifyResults aggregate service retrieves the
3396    identification results for the specified token. This service is
3397    used in conjunction with the Identify aggregate service. If the
3398    Identify aggregate service is implemented as an asynchronous
3399    service, the implementing system returns a token, and the
3400    GetIdentifyResults service is used to poll for the results of
3401    the original Identify request.
3402    </xsd:documentation>
3403    </xsd:annotation>
3404    <xsd:sequence>
3405    <xsd:element name="GetIdentifyResultsRequest" nillable="true">
3406    <xsd:complexType>
3407    <xsd:complexContent>
3408    <xsd:extension base="tns:RequestTemplate">
```


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```
<xsd:sequence>
<xsd:element name="Token" type="tns:TokenType" minOccurs="1" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>A value used to retrieve the results of the Identify request.</xsd:documentation>
</xsd:annotation>
</xsd:element>
</xsd:sequence>
</xsd:extension>
</xsd:complexContent>
</xsd:complexType>
</xsd:element>
</xsd:sequence>
</xsd:complexType>
</xsd:element>
<xsd:element name="GetIdentifyResultsResponse">
<xsd:complexType>
<xsd:annotation>
<xsd:documentation>The response to a GetIdentifyResults request.</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
<xsd:element name="GetIdentifyResultsResponsePackage" nillable="true">
<xsd:complexType>
<xsd:complexContent>
<xsd:extension base="tns:AggregateResponseTemplate"/>
</xsd:complexContent>
</xsd:complexType>
</xsd:element>
</xsd:sequence>
</xsd:complexType>
</xsd:element>
<xsd:element name="GetVerifyResults">
<xsd:complexType>
<xsd:annotation>
<xsd:documentation>
The GetVerifyResults aggregate service retrieves the verification
results for the specified token. This service is used in
conjunction with the Verify aggregate service. If the Verify
aggregate service is implemented as an asynchronous service, the
implementing system returns a token, and the GetVerifyResults
service is used to poll for the results of the original Verify
```


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```
request.
</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
<xsd:element name="GetVerifyResultsRequest" nillable="true">
<xsd:complexType>
<xsd:complexContent>
<xsd:extension base="tns:RequestTemplate">
<xsd:sequence>
<xsd:element name="Token" type="tns:TokenType" minOccurs="1" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>A value used to retrieve the results of the Verify request.</xsd:documentation>
</xsd:annotation>
</xsd:element>
</xsd:sequence>
</xsd:extension>
</xsd:complexContent>
</xsd:complexType>
</xsd:element>
</xsd:sequence>
</xsd:complexType>
</xsd:element>
<xsd:element name="GetVerifyResultsResponse">
<xsd:complexType>
<xsd:annotation>
<xsd:documentation>The response to a GetVerifyResults request.</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
<xsd:element name="GetVerifyResultsResponsePackage" nillable="true">
<xsd:complexType>
<xsd:complexContent>
<xsd:extension base="tns:AggregateResponseTemplate">
<xsd:sequence>
<xsd:element name="Match" type="xsd:boolean" minOccurs="0" maxOccurs="1">
<xsd:annotation>
<xsd:documentation>Indicates if the Input BIR matched either the biometric information associated with the Identity
Claim or the Reference BIR.</xsd:documentation>
</xsd:annotation>
</xsd:element>
<xsd:element name="Score" type="tns:Score" minOccurs="0" maxOccurs="1">
```


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```
<xsd:annotation>
<xsd:documentation>The score if the biometric information matched.</xsd:documentation>
</xsd:annotation>
</xsd:element>
</xsd:sequence>
</xsd:extension>
</xsd:complexContent>
</xsd:complexType>
</xsd:element>
</xsd:sequence>
</xsd:complexType>
</xsd:element>
<xsd:element name="Identify">
<xsd:complexType>
<xsd:annotation>
<xsd:documentation>
The Identify aggregate service performs an identification
function according to system requirements and/or resources. If
the Identify aggregate service is implemented as a synchronous
service, the implementing system immediately processes the
request and returns the results in the ReturnData parameter. If
the Identify aggregate service is implemented as an asynchronous
service, the implementing system returns a token in the
ReturnData parameter, which is an indication that the request is
being handled asynchronously. In this case, the
GetIdentifyResults service is used to poll for the results of
the Identify request.
</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
<xsd:element name="IdentifyRequest" nillable="true">
<xsd:complexType>
<xsd:complexContent>
<xsd:extension base="tns:AggregateRequestTemplate"/>
</xsd:complexContent>
</xsd:complexType>
</xsd:element>
</xsd:sequence>
</xsd:complexType>
</xsd:element>
```


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```
<xsd:element name="IdentifyResponse">
<xsd:complexType>
<xsd:annotation>
<xsd:documentation>The response to an Identify request.</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
<xsd:element name="IdentifyResponsePackage" nillable="true">
<xsd:complexType>
<xsd:complexContent>
<xsd:extension base="tns:AggregateResponseTemplate"/>
</xsd:complexContent>
</xsd:complexType>
</xsd:element>
</xsd:sequence>
</xsd:complexType>
</xsd:element>
<xsd:element name="RetrieveInformation">
<xsd:complexType>
<xsd:annotation>
<xsd:documentation>
The RetrieveInformation aggregate service retrieves requested
information about a subject, or in an encounter-centric model
about an encounter. In a person-centric model, this aggregate
service may be used to retrieve both biographic and biometric
information for a subject record. In an encounter-centric model,
this aggregate service may be used to retrieve biographic and/or
biometric information for either a single encounter or all
encounters. Either a SubjectID or EncounterID must be specified
in the Identify parameter.
</xsd:documentation>
</xsd:annotation>
<xsd:sequence>
<xsd:element name="RetrieveInformationRequest" nillable="true">
<xsd:complexType>
<xsd:complexContent>
<xsd:extension base="tns:RequestTemplate">
<xsd:sequence>
<xsd:element name="ProcessingOptions" type="tns:ProcessingOptionsType" minOccurs="1" maxOccurs="1">
<xsd:annotation>
```


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```
3568 <xsd:documentation>Options that guide how the service request is processed, and may identify what type(s) of
3569 information should be returned.</xsd:documentation>
3570 </xsd:annotation>
3571 </xsd:element>
3572 <xsd:element name="Identity" type="tns:BIASIdentity" minOccurs="1" maxOccurs="1">
3573 <xsd:annotation>
3574 <xsd:documentation>Includes the identifier of the subject or encounter.</xsd:documentation>
3575 </xsd:annotation>
3576 </xsd:element>
3577 </xsd:sequence>
3578 </xsd:extension>
3579 </xsd:complexContent>
3580 </xsd:complexType>
3581 </xsd:element>
3582 </xsd:sequence>
3583 </xsd:complexType>
3584 </xsd:element>
3585 <xsd:element name="RetrieveInformationResponse">
3586 <xsd:complexType>
3587 <xsd:annotation>
3588 <xsd:documentation>The response to a RetrieveInformation request.</xsd:documentation>
3589 </xsd:annotation>
3590 <xsd:sequence>
3591 <xsd:element name="RetrieveInformationResponsePackage" nillable="true">
3592 <xsd:complexType>
3593 <xsd:complexContent>
3594 <xsd:extension base="tns:AggregateResponseTemplate"/>
3595 </xsd:complexContent>
3596 </xsd:complexType>
3597 </xsd:element>
3598 </xsd:sequence>
3599 </xsd:complexType>
3600 </xsd:element>
3601 <xsd:element name="Verify">
3602 <xsd:complexType>
3603 <xsd:annotation>
3604 <xsd:documentation>
3605 The Verify aggregate service performs a 1:1 verification
3606 function according to system requirements and/or resources.
3607 Either the IdentityClaim or ReferenceBIR input data elements in
```


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```
3608 the Identity parameter are required. If the Verify aggregate
3609 service is implemented as a synchronous service, the
3610 implementing system immediately processes the request and returns
3611 the results in the ReturnData parameter. If the Verify aggregate
3612 service is implemented as an asynchronous service, the
3613 implementing system returns a token in the ReturnData parameter,
3614 which is an indication that the request is being handled
3615 asynchronously. In this case, the GetVerifyResults service is
3616 used to poll for the results of the Verify request.
3617 </xsd:documentation>
3618 </xsd:annotation>
3619 <xsd:sequence>
3620 <xsd:element name="VerifyRequest" nillable="true">
3621 <xsd:complexType>
3622 <xsd:complexContent>
3623 <xsd:extension base="tns:AggregateRequestTemplate">
3624 <xsd:sequence>
3625 <xsd:element name="Identity" type="tns:BIASIdentity" minOccurs="1" maxOccurs="1">
3626 <xsd:annotation>
3627 <xsd:documentation>Includes either the IdentityClaim or ReferenceBIR.</xsd:documentation>
3628 </xsd:annotation>
3629 </xsd:element>
3630 <xsd:element name="GalleryID" type="tns:BIASIDType" minOccurs="0" maxOccurs="1">
3631 <xsd:annotation>
3632 <xsd:documentation>The identifier of the gallery or population group of which the subject must be a
3633 member.</xsd:documentation>
3634 </xsd:annotation>
3635 </xsd:element>
3636 </xsd:sequence>
3637 </xsd:extension>
3638 </xsd:complexContent>
3639 </xsd:complexType>
3640 </xsd:element>
3641 </xsd:sequence>
3642 </xsd:complexType>
3643 </xsd:element>
3644 <xsd:element name="VerifyResponse">
3645 <xsd:complexType>
3646 <xsd:annotation>
3647 <xsd:documentation>The response to a Verify request.</xsd:documentation>
```


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```
3648    </xsd:annotation>
3649    <xsd:sequence>
3650    <xsd:element name="VerifyResponsePackage" nillable="true">
3651    <xsd:complexType>
3652    <xsd:complexContent>
3653    <xsd:extension base="tns:AggregateResponseTemplate">
3654    <xsd:sequence>
3655    <xsd:element name="Match" type="xsd:boolean" minOccurs="0" maxOccurs="1">
3656    <xsd:annotation>
3657    <xsd:documentation>Indicates if the Input BIR matched either the biometric information associated with the Identity
3658    Claim or the Reference BIR.</xsd:documentation>
3659    </xsd:annotation>
3660    </xsd:element>
3661    <xsd:element name="Score" type="tns:Score" minOccurs="0" maxOccurs="1">
3662    <xsd:annotation>
3663    <xsd:documentation>The score if the biometric information matched.</xsd:documentation>
3664    </xsd:annotation>
3665    </xsd:element>
3666    </xsd:sequence>
3667    </xsd:extension>
3668    </xsd:complexContent>
3669    </xsd:complexType>
3670    </xsd:element>
3671    </xsd:sequence>
3672    </xsd:complexType>
3673    </xsd:element>
3674    <xsd:element name="BIASFault" type="tns:BIASFaultDetail"/>
3675    </xsd:schema>
3676    </wsdl:types>
3677    <wsdl:message name="BIASFaultMessage">
3678    <wsdl:part name="parameters" element="tns:BIASFault"/>
3679    </wsdl:message>
3680    <wsdl:message name="AddSubjectToGalleryRequestMessage">
3681    <wsdl:part name="parameters" element="tns:AddSubjectToGallery"/>
3682    </wsdl:message>
3683    <wsdl:message name="AddSubjectToGalleryResponseMessage">
3684    <wsdl:part name="parameters" element="tns:AddSubjectToGalleryResponse"/>
3685    </wsdl:message>
3686    <wsdl:message name="CheckQualityRequestMessage">
3687    <wsdl:part name="parameters" element="tns:CheckQuality"/>
```


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```
3688    </wsdl:message>
3689    <wsdl:message name="CheckQualityResponseMessage">
3690    <wsdl:part name="parameters" element="tns:CheckQualityResponse"/>
3691    </wsdl:message>
3692    <wsdl:message name="ClassifyBiometricDataRequestMessage">
3693    <wsdl:part name="parameters" element="tns:ClassifyBiometricData"/>
3694    </wsdl:message>
3695    <wsdl:message name="ClassifyBiometricDataResponseMessage">
3696    <wsdl:part name="parameters" element="tns:ClassifyBiometricDataResponse"/>
3697    </wsdl:message>
3698    <wsdl:message name="CreateSubjectRequestMessage">
3699    <wsdl:part name="parameters" element="tns:CreateSubject"/>
3700    </wsdl:message>
3701    <wsdl:message name="CreateSubjectResponseMessage">
3702    <wsdl:part name="parameters" element="tns:CreateSubjectResponse"/>
3703    </wsdl:message>
3704    <wsdl:message name="DeleteBiographicDataRequestMessage">
3705    <wsdl:part name="parameters" element="tns:DeleteBiographicData"/>
3706    </wsdl:message>
3707    <wsdl:message name="DeleteBiographicDataResponseMessage">
3708    <wsdl:part name="parameters" element="tns:DeleteBiographicDataResponse"/>
3709    </wsdl:message>
3710    <wsdl:message name="DeleteBiometricDataRequestMessage">
3711    <wsdl:part name="parameters" element="tns:DeleteBiometricData"/>
3712    </wsdl:message>
3713    <wsdl:message name="DeleteBiometricDataResponseMessage">
3714    <wsdl:part name="parameters" element="tns:DeleteBiometricDataResponse"/>
3715    </wsdl:message>
3716    <wsdl:message name="DeleteSubjectRequestMessage">
3717    <wsdl:part name="parameters" element="tns:DeleteSubject"/>
3718    </wsdl:message>
3719    <wsdl:message name="DeleteSubjectResponseMessage">
3720    <wsdl:part name="parameters" element="tns:DeleteSubjectResponse"/>
3721    </wsdl:message>
3722    <wsdl:message name="DeleteSubjectFromGalleryRequestMessage">
3723    <wsdl:part name="parameters" element="tns:DeleteSubjectFromGallery"/>
3724    </wsdl:message>
3725    <wsdl:message name="DeleteSubjectFromGalleryResponseMessage">
3726    <wsdl:part name="parameters" element="tns:DeleteSubjectFromGalleryResponse"/>
3727    </wsdl:message>
```


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```
<wsdl:message name="GetIdentifySubjectResultsRequestMessage">
<wsdl:part name="parameters" element="tns:GetIdentifySubjectResults"/>
</wsdl:message>
<wsdl:message name="GetIdentifySubjectResultsResponseMessage">
<wsdl:part name="parameters" element="tns:GetIdentifySubjectResultsResponse"/>
</wsdl:message>
<wsdl:message name="IdentifySubjectRequestMessage">
<wsdl:part name="parameters" element="tns:IdentifySubject"/>
</wsdl:message>
<wsdl:message name="IdentifySubjectResponseMessage">
<wsdl:part name="parameters" element="tns:IdentifySubjectResponse"/>
</wsdl:message>
<wsdl:message name="ListBiographicDataRequestMessage">
<wsdl:part name="parameters" element="tns:ListBiographicData"/>
</wsdl:message>
<wsdl:message name="ListBiographicDataResponseMessage">
<wsdl:part name="parameters" element="tns:ListBiographicDataResponse"/>
</wsdl:message>
<wsdl:message name="ListBiometricDataRequestMessage">
<wsdl:part name="parameters" element="tns:ListBiometricData"/>
</wsdl:message>
<wsdl:message name="ListBiometricDataResponseMessage">
<wsdl:part name="parameters" element="tns:ListBiometricDataResponse"/>
</wsdl:message>
<wsdl:message name="PerformFusionRequestMessage">
<wsdl:part name="parameters" element="tns:PerformFusion"/>
</wsdl:message>
<wsdl:message name="PerformFusionResponseMessage">
<wsdl:part name="parameters" element="tns:PerformFusionResponse"/>
</wsdl:message>
<wsdl:message name="QueryCapabilitiesRequestMessage">
<wsdl:part name="parameters" element="tns:QueryCapabilities"/>
</wsdl:message>
<wsdl:message name="QueryCapabilitiesResponseMessage">
<wsdl:part name="parameters" element="tns:QueryCapabilitiesResponse"/>
</wsdl:message>
<wsdl:message name="RetrieveBiographicInformationRequestMessage">
<wsdl:part name="parameters" element="tns:RetrieveBiographicInformation"/>
</wsdl:message>
<wsdl:message name="RetrieveBiographicInformationResponseMessage">
```


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```
<wsdl:part name="parameters" element="tns:RetrieveBiographicInformationResponse"/>
</wsdl:message>
<wsdl:message name="RetrieveBiometricInformationRequestMessage">
<wsdl:part name="parameters" element="tns:RetrieveBiometricInformation"/>
</wsdl:message>
<wsdl:message name="RetrieveBiometricInformationResponseMessage">
<wsdl:part name="parameters" element="tns:RetrieveBiometricInformationResponse"/>
</wsdl:message>
<wsdl:message name="SetBiographicDataRequestMessage">
<wsdl:part name="parameters" element="tns:SetBiographicData"/>
</wsdl:message>
<wsdl:message name="SetBiographicDataResponseMessage">
<wsdl:part name="parameters" element="tns:SetBiographicDataResponse"/>
</wsdl:message>
<wsdl:message name="SetBiometricDataRequestMessage">
<wsdl:part name="parameters" element="tns:SetBiometricData"/>
</wsdl:message>
<wsdl:message name="SetBiometricDataResponseMessage">
<wsdl:part name="parameters" element="tns:SetBiometricDataResponse"/>
</wsdl:message>
<wsdl:message name="TransformBiometricDataRequestMessage">
<wsdl:part name="parameters" element="tns:TransformBiometricData"/>
</wsdl:message>
<wsdl:message name="TransformBiometricDataResponseMessage">
<wsdl:part name="parameters" element="tns:TransformBiometricDataResponse"/>
</wsdl:message>
<wsdl:message name="UpdateBiographicDataRequestMessage">
<wsdl:part name="parameters" element="tns:UpdateBiographicData"/>
</wsdl:message>
<wsdl:message name="UpdateBiographicDataResponseMessage">
<wsdl:part name="parameters" element="tns:UpdateBiographicDataResponse"/>
</wsdl:message>
<wsdl:message name="UpdateBiometricDataRequestMessage">
<wsdl:part name="parameters" element="tns:UpdateBiometricData"/>
</wsdl:message>
<wsdl:message name="UpdateBiometricDataResponseMessage">
<wsdl:part name="parameters" element="tns:UpdateBiometricDataResponse"/>
</wsdl:message>
<wsdl:message name="VerifySubjectRequestMessage">
<wsdl:part name="parameters" element="tns:VerifySubject"/>
```


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```
3808    </wsdl:message>
3809    <wsdl:message name="VerifySubjectResponseMessage">
3810    <wsdl:part name="parameters" element="tns:VerifySubjectResponse"/>
3811    </wsdl:message>
3812    <wsdl:message name="EnrollRequestMessage">
3813    <wsdl:part name="parameters" element="tns:Enroll"/>
3814    </wsdl:message>
3815    <wsdl:message name="EnrollResponseMessage">
3816    <wsdl:part name="parameters" element="tns:EnrollResponse"/>
3817    </wsdl:message>
3818    <wsdl:message name="GetEnrollResultsRequestMessage">
3819    <wsdl:part name="parameters" element="tns:GetEnrollResults"/>
3820    </wsdl:message>
3821    <wsdl:message name="GetEnrollResultsResponseMessage">
3822    <wsdl:part name="parameters" element="tns:GetEnrollResultsResponse"/>
3823    </wsdl:message>
3824    <wsdl:message name="GetIdentifyResultsRequestMessage">
3825    <wsdl:part name="parameters" element="tns:GetIdentifyResults"/>
3826    </wsdl:message>
3827    <wsdl:message name="GetIdentifyResultsResponseMessage">
3828    <wsdl:part name="parameters" element="tns:GetIdentifyResultsResponse"/>
3829    </wsdl:message>
3830    <wsdl:message name="GetVerifyResultsRequestMessage">
3831    <wsdl:part name="parameters" element="tns:GetVerifyResults"/>
3832    </wsdl:message>
3833    <wsdl:message name="GetVerifyResultsResponseMessage">
3834    <wsdl:part name="parameters" element="tns:GetVerifyResultsResponse"/>
3835    </wsdl:message>
3836    <wsdl:message name="IdentifyRequestMessage">
3837    <wsdl:part name="parameters" element="tns:Identify"/>
3838    </wsdl:message>
3839    <wsdl:message name="IdentifyResponseMessage">
3840    <wsdl:part name="parameters" element="tns:IdentifyResponse"/>
3841    </wsdl:message>
3842    <wsdl:message name="RetrieveInformationRequestMessage">
3843    <wsdl:part name="parameters" element="tns:RetrieveInformation"/>
3844    </wsdl:message>
3845    <wsdl:message name="RetrieveInformationResponseMessage">
3846    <wsdl:part name="parameters" element="tns:RetrieveInformationResponse"/>
3847    </wsdl:message>
```


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```
<wsdl:message name="VerifyRequestMessage">
<wsdl:part name="parameters" element="tns:Verify"/>
</wsdl:message>
<wsdl:message name="VerifyResponseMessage">
<wsdl:part name="parameters" element="tns:VerifyResponse"/>
</wsdl:message>
<wsdl:portType name="BIAS_v1">
<wsdl:operation name="AddSubjectToGallery">
<wsdl:input name="AddSubjectToGallery" message="tns:AddSubjectToGalleryRequestMessage"/>
<wsdl:output name="AddSubjectToGalleryResponse" message="tns:AddSubjectToGalleryResponseMessage"/>
<wsdl:fault name="BIASFault" message="tns:BIASFaultMessage"/>
</wsdl:operation>
<wsdl:operation name="CheckQuality">
<wsdl:input name="CheckQuality" message="tns:CheckQualityRequestMessage"/>
<wsdl:output name="CheckQualityResponse" message="tns:CheckQualityResponseMessage"/>
<wsdl:fault name="BIASFault" message="tns:BIASFaultMessage"/>
</wsdl:operation>
<wsdl:operation name="ClassifyBiometricData">
<wsdl:input name="ClassifyBiometricData" message="tns:ClassifyBiometricDataRequestMessage"/>
<wsdl:output name="ClassifyBiometricDataResponse" message="tns:ClassifyBiometricDataResponseMessage"/>
<wsdl:fault name="BIASFault" message="tns:BIASFaultMessage"/>
</wsdl:operation>
<wsdl:operation name="CreateSubject">
<wsdl:input name="CreateSubject" message="tns:CreateSubjectRequestMessage"/>
<wsdl:output name="CreateSubjectResponse" message="tns:CreateSubjectResponseMessage"/>
<wsdl:fault name="BIASFault" message="tns:BIASFaultMessage"/>
</wsdl:operation>
<wsdl:operation name="DeleteBiographicData">
<wsdl:input name="DeleteBiographicData" message="tns:DeleteBiographicDataRequestMessage"/>
<wsdl:output name="DeleteBiographicDataResponse" message="tns:DeleteBiographicDataResponseMessage"/>
<wsdl:fault name="BIASFault" message="tns:BIASFaultMessage"/>
</wsdl:operation>
<wsdl:operation name="DeleteBiometricData">
<wsdl:input name="DeleteBiometricData" message="tns:DeleteBiometricDataRequestMessage"/>
<wsdl:output name="DeleteBiometricDataResponse" message="tns:DeleteBiometricDataResponseMessage"/>
<wsdl:fault name="BIASFault" message="tns:BIASFaultMessage"/>
</wsdl:operation>
<wsdl:operation name="DeleteSubject">
<wsdl:input name="DeleteSubject" message="tns:DeleteSubjectRequestMessage"/>
<wsdl:output name="DeleteSubjectResponse" message="tns:DeleteSubjectResponseMessage"/>
```


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```
3888    <wsdl:fault name="BIASFault" message="tns:BIASFaultMessage"/>
3889    </wsdl:operation>
3890    <wsdl:operation name="DeleteSubjectFromGallery">
3891    <wsdl:input name="DeleteSubjectFromGallery" message="tns:DeleteSubjectFromGalleryRequestMessage"/>
3892    <wsdl:output name="DeleteSubjectFromGalleryResponse"
3893    message="tns:DeleteSubjectFromGalleryResponseMessage"/>
3894    <wsdl:fault name="BIASFault" message="tns:BIASFaultMessage"/>
3895    </wsdl:operation>
3896    <wsdl:operation name="GetIdentifySubjectResults">
3897    <wsdl:input name="GetIdentifySubjectResults" message="tns:GetIdentifySubjectResultsRequestMessage"/>
3898    <wsdl:output name="GetIdentifySubjectResultsResponse"
3899    message="tns:GetIdentifySubjectResultsResponseMessage"/>
3900    <wsdl:fault name="BIASFault" message="tns:BIASFaultMessage"/>
3901    </wsdl:operation>
3902    <wsdl:operation name="IdentifySubject">
3903    <wsdl:input name="IdentifySubject" message="tns:IdentifySubjectRequestMessage"/>
3904    <wsdl:output name="IdentifySubjectResponse" message="tns:IdentifySubjectResponseMessage"/>
3905    <wsdl:fault name="BIASFault" message="tns:BIASFaultMessage"/>
3906    </wsdl:operation>
3907    <wsdl:operation name="ListBiographicData">
3908    <wsdl:input name="ListBiographicData" message="tns:ListBiographicDataRequestMessage"/>
3909    <wsdl:output name="ListBiographicDataResponse" message="tns:ListBiographicDataResponseMessage"/>
3910    <wsdl:fault name="BIASFault" message="tns:BIASFaultMessage"/>
3911    </wsdl:operation>
3912    <wsdl:operation name="ListBiometricData">
3913    <wsdl:input name="ListBiometricData" message="tns:ListBiometricDataRequestMessage"/>
3914    <wsdl:output name="ListBiometricDataResponse" message="tns:ListBiometricDataResponseMessage"/>
3915    <wsdl:fault name="BIASFault" message="tns:BIASFaultMessage"/>
3916    </wsdl:operation>
3917    <wsdl:operation name="PerformFusion">
3918    <wsdl:input name="PerformFusion" message="tns:PerformFusionRequestMessage"/>
3919    <wsdl:output name="PerformFusionResponse" message="tns:PerformFusionResponseMessage"/>
3920    <wsdl:fault name="BIASFault" message="tns:BIASFaultMessage"/>
3921    </wsdl:operation>
3922    <wsdl:operation name="QueryCapabilities">
3923    <wsdl:input name="QueryCapabilities" message="tns:QueryCapabilitiesRequestMessage"/>
3924    <wsdl:output name="QueryCapabilitiesResponse" message="tns:QueryCapabilitiesResponseMessage"/>
3925    <wsdl:fault name="BIASFault" message="tns:BIASFaultMessage"/>
3926    </wsdl:operation>
3927    <wsdl:operation name="RetrieveBiographicInformation">
```


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```
3928  <wsdl:input name="RetrieveBiographicInformation" message="tns:RetrieveBiographicInformationRequestMessage"/>
3929  <wsdl:output name="RetrieveBiographicInformationResponse"
3930  message="tns:RetrieveBiographicInformationResponseMessage"/>
3931  <wsdl:fault name="BIASFault" message="tns:BIASFaultMessage"/>
3932  </wsdl:operation>
3933  <wsdl:operation name="RetrieveBiometricInformation">
3934  <wsdl:input name="RetrieveBiometricInformation" message="tns:RetrieveBiometricInformationRequestMessage"/>
3935  <wsdl:output name="RetrieveBiometricInformationResponse"
3936  message="tns:RetrieveBiometricInformationResponseMessage"/>
3937  <wsdl:fault name="BIASFault" message="tns:BIASFaultMessage"/>
3938  </wsdl:operation>
3939  <wsdl:operation name="SetBiographicData">
3940  <wsdl:input name="SetBiographicData" message="tns:SetBiographicDataRequestMessage"/>
3941  <wsdl:output name="SetBiographicDataResponse" message="tns:SetBiographicDataResponseMessage"/>
3942  <wsdl:fault name="BIASFault" message="tns:BIASFaultMessage"/>
3943  </wsdl:operation>
3944  <wsdl:operation name="SetBiometricData">
3945  <wsdl:input name="SetBiometricData" message="tns:SetBiometricDataRequestMessage"/>
3946  <wsdl:output name="SetBiometricDataResponse" message="tns:SetBiometricDataResponseMessage"/>
3947  <wsdl:fault name="BIASFault" message="tns:BIASFaultMessage"/>
3948  </wsdl:operation>
3949  <wsdl:operation name="TransformBiometricData">
3950  <wsdl:input name="TransformBiometricData" message="tns:TransformBiometricDataRequestMessage"/>
3951  <wsdl:output name="TransformBiometricDataResponse" message="tns:TransformBiometricDataResponseMessage"/>
3952  <wsdl:fault name="BIASFault" message="tns:BIASFaultMessage"/>
3953  </wsdl:operation>
3954  <wsdl:operation name="UpdateBiographicData">
3955  <wsdl:input name="UpdateBiographicData" message="tns:UpdateBiographicDataRequestMessage"/>
3956  <wsdl:output name="UpdateBiographicDataResponse" message="tns:UpdateBiographicDataResponseMessage"/>
3957  <wsdl:fault name="BIASFault" message="tns:BIASFaultMessage"/>
3958  </wsdl:operation>
3959  <wsdl:operation name="UpdateBiometricData">
3960  <wsdl:input name="UpdateBiometricData" message="tns:UpdateBiometricDataRequestMessage"/>
3961  <wsdl:output name="UpdateBiometricDataResponse" message="tns:UpdateBiometricDataResponseMessage"/>
3962  <wsdl:fault name="BIASFault" message="tns:BIASFaultMessage"/>
3963  </wsdl:operation>
3964  <wsdl:operation name="VerifySubject">
3965  <wsdl:input name="VerifySubject" message="tns:VerifySubjectRequestMessage"/>
3966  <wsdl:output name="VerifySubjectResponse" message="tns:VerifySubjectResponseMessage"/>
3967  <wsdl:fault name="BIASFault" message="tns:BIASFaultMessage"/>
```


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```
3968    </wsdl:operation>
3969    <wsdl:operation name="Enroll">
3970    <wsdl:input name="Enroll" message="tns:EnrollRequestMessage"/>
3971    <wsdl:output name="EnrollResponse" message="tns:EnrollResponseMessage"/>
3972    <wsdl:fault name="BIASFault" message="tns:BIASFaultMessage"/>
3973    </wsdl:operation>
3974    <wsdl:operation name="GetEnrollResults">
3975    <wsdl:input name="GetEnrollResults" message="tns:GetEnrollResultsRequestMessage"/>
3976    <wsdl:output name="GetEnrollResultsResponse" message="tns:GetEnrollResultsResponseMessage"/>
3977    <wsdl:fault name="BIASFault" message="tns:BIASFaultMessage"/>
3978    </wsdl:operation>
3979    <wsdl:operation name="GetIdentifyResults">
3980    <wsdl:input name="GetIdentifyResults" message="tns:GetIdentifyResultsRequestMessage"/>
3981    <wsdl:output name="GetIdentifyResultsResponse" message="tns:GetIdentifyResultsResponseMessage"/>
3982    <wsdl:fault name="BIASFault" message="tns:BIASFaultMessage"/>
3983    </wsdl:operation>
3984    <wsdl:operation name="GetVerifyResults">
3985    <wsdl:input name="GetVerifyResults" message="tns:GetVerifyResultsRequestMessage"/>
3986    <wsdl:output name="GetVerifyResultsResponse" message="tns:GetVerifyResultsResponseMessage"/>
3987    <wsdl:fault name="BIASFault" message="tns:BIASFaultMessage"/>
3988    </wsdl:operation>
3989    <wsdl:operation name="Identify">
3990    <wsdl:input name="Identify" message="tns:IdentifyRequestMessage"/>
3991    <wsdl:output name="IdentifyResponse" message="tns:IdentifyResponseMessage"/>
3992    <wsdl:fault name="BIASFault" message="tns:BIASFaultMessage"/>
3993    </wsdl:operation>
3994    <wsdl:operation name="RetrieveInformation">
3995    <wsdl:input name="RetrieveInformation" message="tns:RetrieveInformationRequestMessage"/>
3996    <wsdl:output name="RetrieveInformationResponse" message="tns:RetrieveInformationResponseMessage"/>
3997    <wsdl:fault name="BIASFault" message="tns:BIASFaultMessage"/>
3998    </wsdl:operation>
3999    <wsdl:operation name="Verify">
4000    <wsdl:input name="Verify" message="tns:VerifyRequestMessage"/>
4001    <wsdl:output name="VerifyResponse" message="tns:VerifyResponseMessage"/>
4002    <wsdl:fault name="BIASFault" message="tns:BIASFaultMessage"/>
4003    </wsdl:operation>
4004    </wsdl:portType>
4005    <wsdl:binding name="BIAS_v1HttpBinding" type="tns:BIAS_v1">
4006    <soap:binding style="document" transport="http://schemas.xmlsoap.org/soap/http"/>
4007    <wsdl:operation name="AddSubjectToGallery">
```


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```
4008    <soap:operation soapAction="AddSubjectToGallery"/>
4009    <wsdl:input name="AddSubjectToGallery">
4010    <soap:body use="literal"/>
4011    </wsdl:input>
4012    <wsdl:output name="AddSubjectToGalleryResponse">
4013    <soap:body use="literal"/>
4014    </wsdl:output>
4015    <wsdl:fault name="BIASFault">
4016    <soap:fault name="BIASFault" use="literal"/>
4017    </wsdl:fault>
4018    </wsdl:operation>
4019    <wsdl:operation name="CheckQuality">
4020    <soap:operation soapAction="CheckQuality"/>
4021    <wsdl:input name="CheckQuality">
4022    <soap:body use="literal"/>
4023    </wsdl:input>
4024    <wsdl:output name="CheckQualityResponse">
4025    <soap:body use="literal"/>
4026    </wsdl:output>
4027    <wsdl:fault name="BIASFault">
4028    <soap:fault name="BIASFault" use="literal"/>
4029    </wsdl:fault>
4030    </wsdl:operation>
4031    <wsdl:operation name="ClassifyBiometricData">
4032    <soap:operation soapAction="ClassifyBiometricData"/>
4033    <wsdl:input name="ClassifyBiometricData">
4034    <soap:body use="literal"/>
4035    </wsdl:input>
4036    <wsdl:output name="ClassifyBiometricDataResponse">
4037    <soap:body use="literal"/>
4038    </wsdl:output>
4039    <wsdl:fault name="BIASFault">
4040    <soap:fault name="BIASFault" use="literal"/>
4041    </wsdl:fault>
4042    </wsdl:operation>
4043    <wsdl:operation name="CreateSubject">
4044    <soap:operation soapAction="CreateSubject"/>
4045    <wsdl:input name="CreateSubject">
4046    <soap:body use="literal"/>
4047    </wsdl:input>
```


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```
<wsdl:output name="CreateSubjectResponse">
<soap:body use="literal"/>
</wsdl:output>
<wsdl:fault name="BIASFault">
<soap:fault name="BIASFault" use="literal"/>
</wsdl:fault>
</wsdl:operation>
<wsdl:operation name="DeleteBiographicData">
<soap:operation soapAction="DeleteBiographicData"/>
<wsdl:input name="DeleteBiographicData">
<soap:body use="literal"/>
</wsdl:input>
<wsdl:output name="DeleteBiographicDataResponse">
<soap:body use="literal"/>
</wsdl:output>
<wsdl:fault name="BIASFault">
<soap:fault name="BIASFault" use="literal"/>
</wsdl:fault>
</wsdl:operation>
<wsdl:operation name="DeleteBiometricData">
<soap:operation soapAction="DeleteBiometricData"/>
<wsdl:input name="DeleteBiometricData">
<soap:body use="literal"/>
</wsdl:input>
<wsdl:output name="DeleteBiometricDataResponse">
<soap:body use="literal"/>
</wsdl:output>
<wsdl:fault name="BIASFault">
<soap:fault name="BIASFault" use="literal"/>
</wsdl:fault>
</wsdl:operation>
<wsdl:operation name="DeleteSubject">
<soap:operation soapAction="DeleteSubject"/>
<wsdl:input name="DeleteSubject">
<soap:body use="literal"/>
</wsdl:input>
<wsdl:output name="DeleteSubjectResponse">
<soap:body use="literal"/>
</wsdl:output>
<wsdl:fault name="BIASFault">
```


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```
4088    <soap:fault name="BIASFault" use="literal"/>
4089    </wsdl:fault>
4090    </wsdl:operation>
4091    <wsdl:operation name="DeleteSubjectFromGallery">
4092    <soap:operation soapAction="DeleteSubjectFromGallery"/>
4093    <wsdl:input name="DeleteSubjectFromGallery">
4094    <soap:body use="literal"/>
4095    </wsdl:input>
4096    <wsdl:output name="DeleteSubjectFromGalleryResponse">
4097    <soap:body use="literal"/>
4098    </wsdl:output>
4099    <wsdl:fault name="BIASFault">
4100    <soap:fault name="BIASFault" use="literal"/>
4101    </wsdl:fault>
4102    </wsdl:operation>
4103    <wsdl:operation name="GetIdentifySubjectResults">
4104    <soap:operation soapAction="GetIdentifySubjectResults"/>
4105    <wsdl:input name="GetIdentifySubjectResults">
4106    <soap:body use="literal"/>
4107    </wsdl:input>
4108    <wsdl:output name="GetIdentifySubjectResultsResponse">
4109    <soap:body use="literal"/>
4110    </wsdl:output>
4111    <wsdl:fault name="BIASFault">
4112    <soap:fault name="BIASFault" use="literal"/>
4113    </wsdl:fault>
4114    </wsdl:operation>
4115    <wsdl:operation name="IdentifySubject">
4116    <soap:operation soapAction="IdentifySubject"/>
4117    <wsdl:input name="IdentifySubject">
4118    <soap:body use="literal"/>
4119    </wsdl:input>
4120    <wsdl:output name="IdentifySubjectResponse">
4121    <soap:body use="literal"/>
4122    </wsdl:output>
4123    <wsdl:fault name="BIASFault">
4124    <soap:fault name="BIASFault" use="literal"/>
4125    </wsdl:fault>
4126    </wsdl:operation>
4127    <wsdl:operation name="ListBiographicData">
```


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```
<soap:operation soapAction="ListBiographicData"/>
<wsdl:input name="ListBiographicData">
<soap:body use="literal"/>
</wsdl:input>
<wsdl:output name="ListBiographicDataResponse">
<soap:body use="literal"/>
</wsdl:output>
<wsdl:fault name="BIASFault">
<soap:fault name="BIASFault" use="literal"/>
</wsdl:fault>
</wsdl:operation>
<wsdl:operation name="ListBiometricData">
<soap:operation soapAction="ListBiometricData"/>
<wsdl:input name="ListBiometricData">
<soap:body use="literal"/>
</wsdl:input>
<wsdl:output name="ListBiometricDataResponse">
<soap:body use="literal"/>
</wsdl:output>
<wsdl:fault name="BIASFault">
<soap:fault name="BIASFault" use="literal"/>
</wsdl:fault>
</wsdl:operation>
<wsdl:operation name="PerformFusion">
<soap:operation soapAction="PerformFusion"/>
<wsdl:input name="PerformFusion">
<soap:body use="literal"/>
</wsdl:input>
<wsdl:output name="PerformFusionResponse">
<soap:body use="literal"/>
</wsdl:output>
<wsdl:fault name="BIASFault">
<soap:fault name="BIASFault" use="literal"/>
</wsdl:fault>
</wsdl:operation>
<wsdl:operation name="QueryCapabilities">
<soap:operation soapAction="QueryCapabilities"/>
<wsdl:input name="QueryCapabilities">
<soap:body use="literal"/>
</wsdl:input>
```


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```
<wsdl:output name="QueryCapabilitiesResponse">
<soap:body use="literal"/>
</wsdl:output>
<wsdl:fault name="BIASFault">
<soap:fault name="BIASFault" use="literal"/>
</wsdl:fault>
</wsdl:operation>
<wsdl:operation name="RetrieveBiographicInformation">
<soap:operation soapAction="RetrieveBiographicInformation"/>
<wsdl:input name="RetrieveBiographicInformation">
<soap:body use="literal"/>
</wsdl:input>
<wsdl:output name="RetrieveBiographicInformationResponse">
<soap:body use="literal"/>
</wsdl:output>
<wsdl:fault name="BIASFault">
<soap:fault name="BIASFault" use="literal"/>
</wsdl:fault>
</wsdl:operation>
<wsdl:operation name="RetrieveBiometricInformation">
<soap:operation soapAction="RetrieveBiometricInformation"/>
<wsdl:input name="RetrieveBiometricInformation">
<soap:body use="literal"/>
</wsdl:input>
<wsdl:output name="RetrieveBiometricInformationResponse">
<soap:body use="literal"/>
</wsdl:output>
<wsdl:fault name="BIASFault">
<soap:fault name="BIASFault" use="literal"/>
</wsdl:fault>
</wsdl:operation>
<wsdl:operation name="SetBiographicData">
<soap:operation soapAction="SetBiographicData"/>
<wsdl:input name="SetBiographicData">
<soap:body use="literal"/>
</wsdl:input>
<wsdl:output name="SetBiographicDataResponse">
<soap:body use="literal"/>
</wsdl:output>
<wsdl:fault name="BIASFault">
```


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```
4208    <soap:fault name="BIASFault" use="literal"/>
4209    </wsdl:fault>
4210    </wsdl:operation>
4211    <wsdl:operation name="SetBiometricData">
4212    <soap:operation soapAction="SetBiometricData"/>
4213    <wsdl:input name="SetBiometricData">
4214    <soap:body use="literal"/>
4215    </wsdl:input>
4216    <wsdl:output name="SetBiometricDataResponse">
4217    <soap:body use="literal"/>
4218    </wsdl:output>
4219    <wsdl:fault name="BIASFault">
4220    <soap:fault name="BIASFault" use="literal"/>
4221    </wsdl:fault>
4222    </wsdl:operation>
4223    <wsdl:operation name="TransformBiometricData">
4224    <soap:operation soapAction="TransformBiometricData"/>
4225    <wsdl:input name="TransformBiometricData">
4226    <soap:body use="literal"/>
4227    </wsdl:input>
4228    <wsdl:output name="TransformBiometricDataResponse">
4229    <soap:body use="literal"/>
4230    </wsdl:output>
4231    <wsdl:fault name="BIASFault">
4232    <soap:fault name="BIASFault" use="literal"/>
4233    </wsdl:fault>
4234    </wsdl:operation>
4235    <wsdl:operation name="UpdateBiographicData">
4236    <soap:operation soapAction="UpdateBiographicData"/>
4237    <wsdl:input name="UpdateBiographicData">
4238    <soap:body use="literal"/>
4239    </wsdl:input>
4240    <wsdl:output name="UpdateBiographicDataResponse">
4241    <soap:body use="literal"/>
4242    </wsdl:output>
4243    <wsdl:fault name="BIASFault">
4244    <soap:fault name="BIASFault" use="literal"/>
4245    </wsdl:fault>
4246    </wsdl:operation>
4247    <wsdl:operation name="UpdateBiometricData">
```


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


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```
<wsdl:output name="GetEnrollResultsResponse">
<soap:body use="literal"/>
</wsdl:output>
<wsdl:fault name="BIASFault">
<soap:fault name="BIASFault" use="literal"/>
</wsdl:fault>
</wsdl:operation>
<wsdl:operation name="GetIdentifyResults">
<soap:operation soapAction="GetIdentifyResults"/>
<wsdl:input name="GetIdentifyResults">
<soap:body use="literal"/>
</wsdl:input>
<wsdl:output name="GetIdentifyResultsResponse">
<soap:body use="literal"/>
</wsdl:output>
<wsdl:fault name="BIASFault">
<soap:fault name="BIASFault" use="literal"/>
</wsdl:fault>
</wsdl:operation>
<wsdl:operation name="GetVerifyResults">
<soap:operation soapAction="GetVerifyResults"/>
<wsdl:input name="GetVerifyResults">
<soap:body use="literal"/>
</wsdl:input>
<wsdl:output name="GetVerifyResultsResponse">
<soap:body use="literal"/>
</wsdl:output>
<wsdl:fault name="BIASFault">
<soap:fault name="BIASFault" use="literal"/>
</wsdl:fault>
</wsdl:operation>
<wsdl:operation name="Identify">
<soap:operation soapAction="Identify"/>
<wsdl:input name="Identify">
<soap:body use="literal"/>
</wsdl:input>
<wsdl:output name="IdentifyResponse">
<soap:body use="literal"/>
</wsdl:output>
<wsdl:fault name="BIASFault">
```


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```
<soap:fault name="BIASFault" use="literal"/>
</wsdl:fault>
</wsdl:operation>
<wsdl:operation name="RetrieveInformation">
<soap:operation soapAction="RetrieveInformation"/>
<wsdl:input name="RetrieveInformation">
<soap:body use="literal"/>
</wsdl:input>
<wsdl:output name="RetrieveInformationResponse">
<soap:body use="literal"/>
</wsdl:output>
<wsdl:fault name="BIASFault">
<soap:fault name="BIASFault" use="literal"/>
</wsdl:fault>
</wsdl:operation>
<wsdl:operation name="Verify">
<soap:operation soapAction="Verify"/>
<wsdl:input name="Verify">
<soap:body use="literal"/>
</wsdl:input>
<wsdl:output name="VerifyResponse">
<soap:body use="literal"/>
</wsdl:output>
<wsdl:fault name="BIASFault">
<soap:fault name="BIASFault" use="literal"/>
</wsdl:fault>
</wsdl:operation>
</wsdl:binding>
<wsdl:service name="BIAS_v1">
<wsdl:port name="BIAS_v1HttpBindingPort" binding="tns:BIAS_v1HttpBinding">
<soap:address location="http://your_URI/IRI_to_your_BIAS_implementation"/>
</wsdl:port>
</wsdl:service>
</wsdl:definitions>
```


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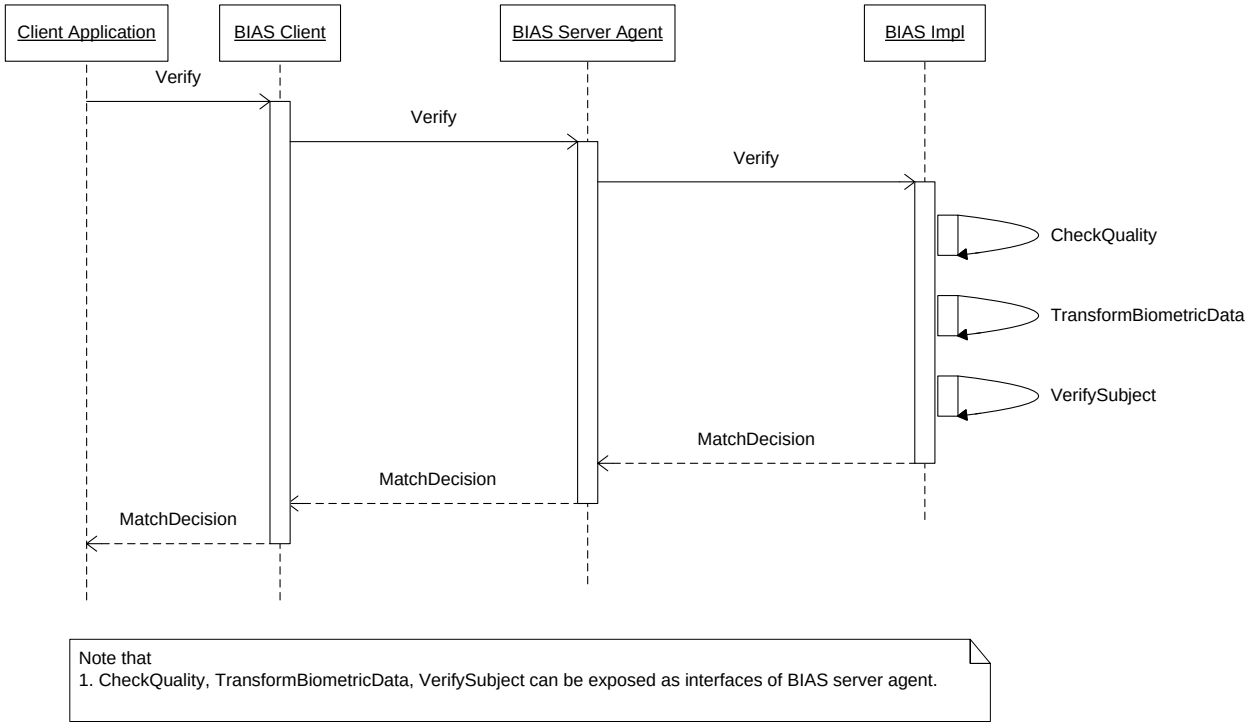
Annex B. Use Cases (non-normative)

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)

B.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.



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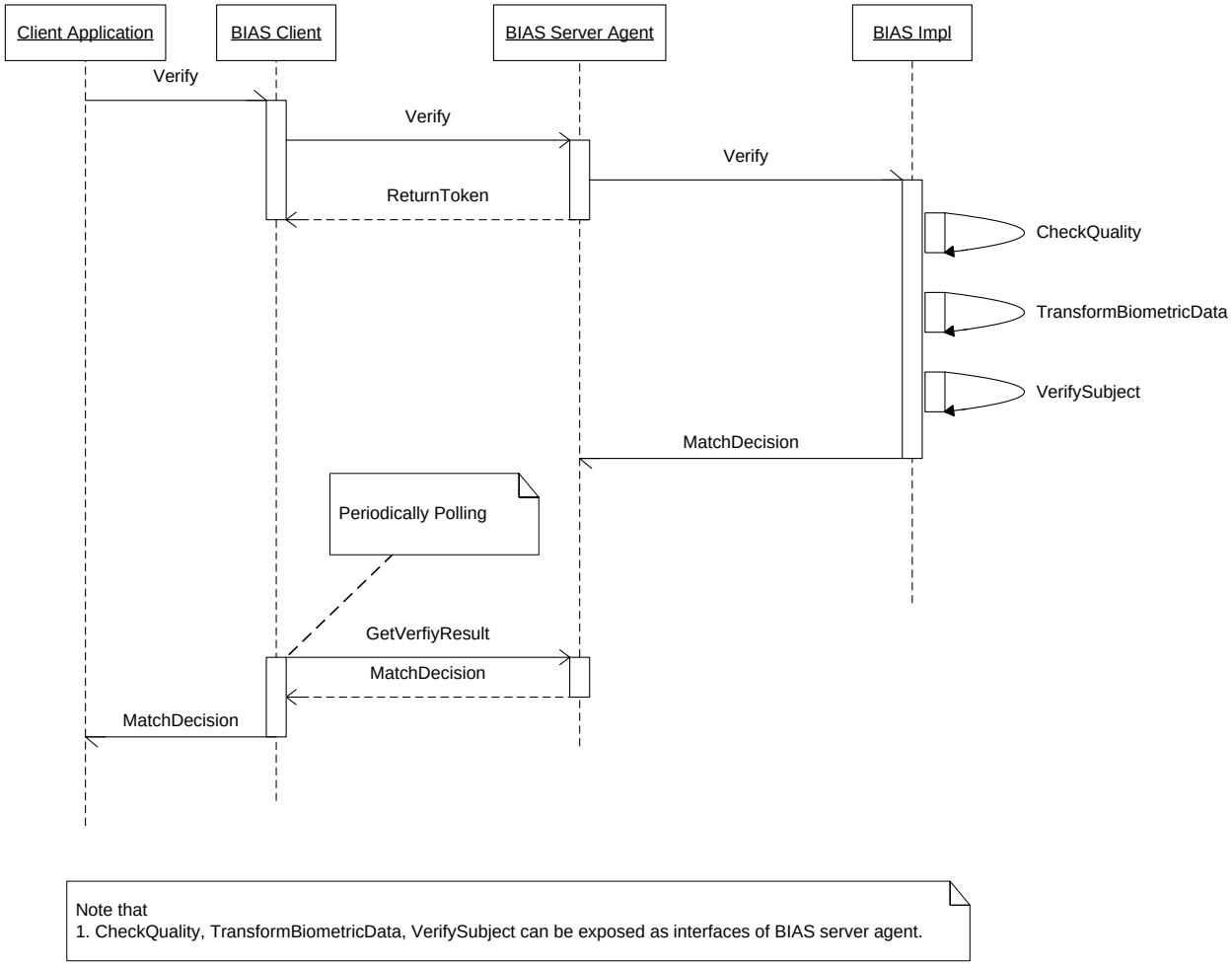
B.2 Asynchronous Verification

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.



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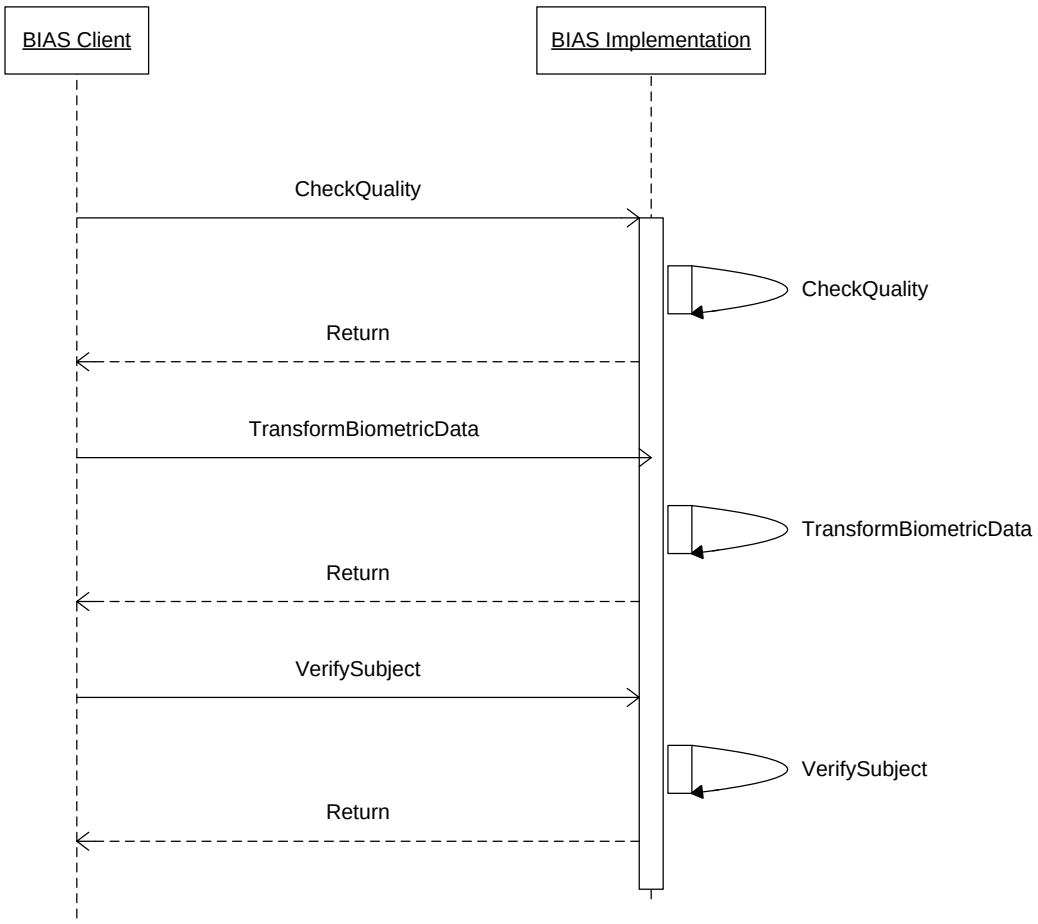
B.3 Primitive Verification

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.



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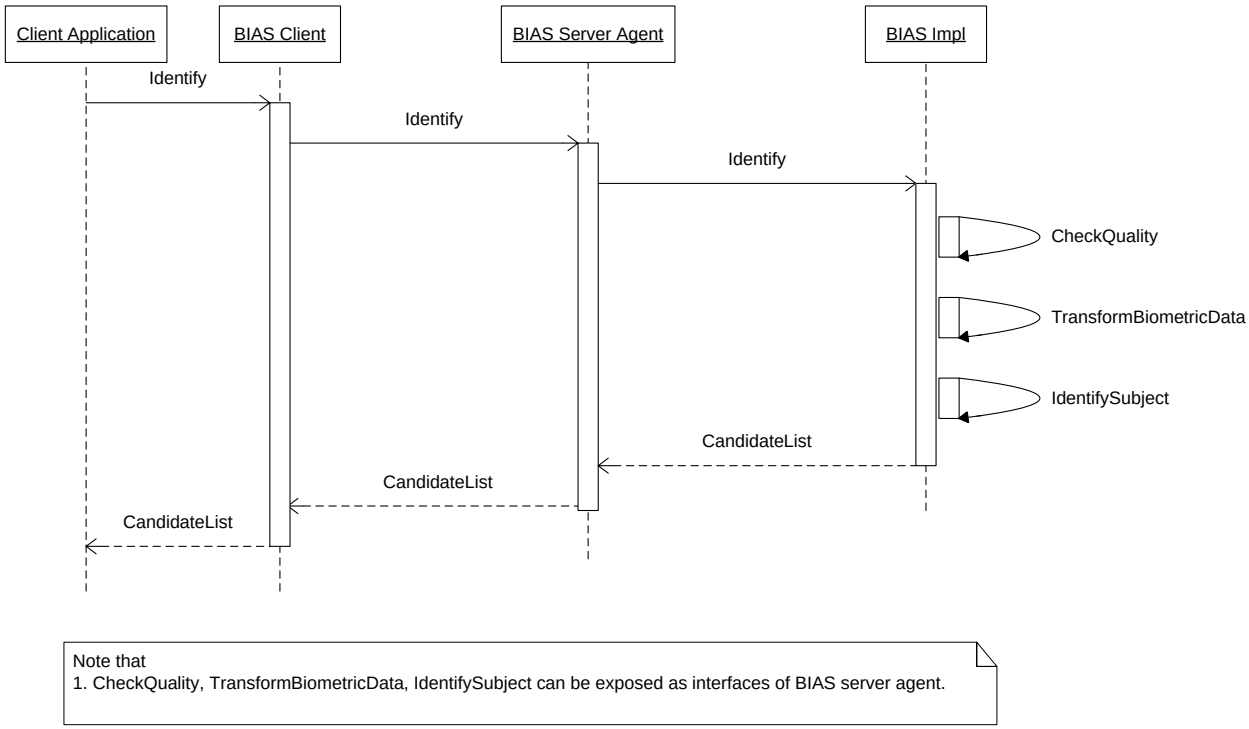
B.4 Identification Use Case

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.



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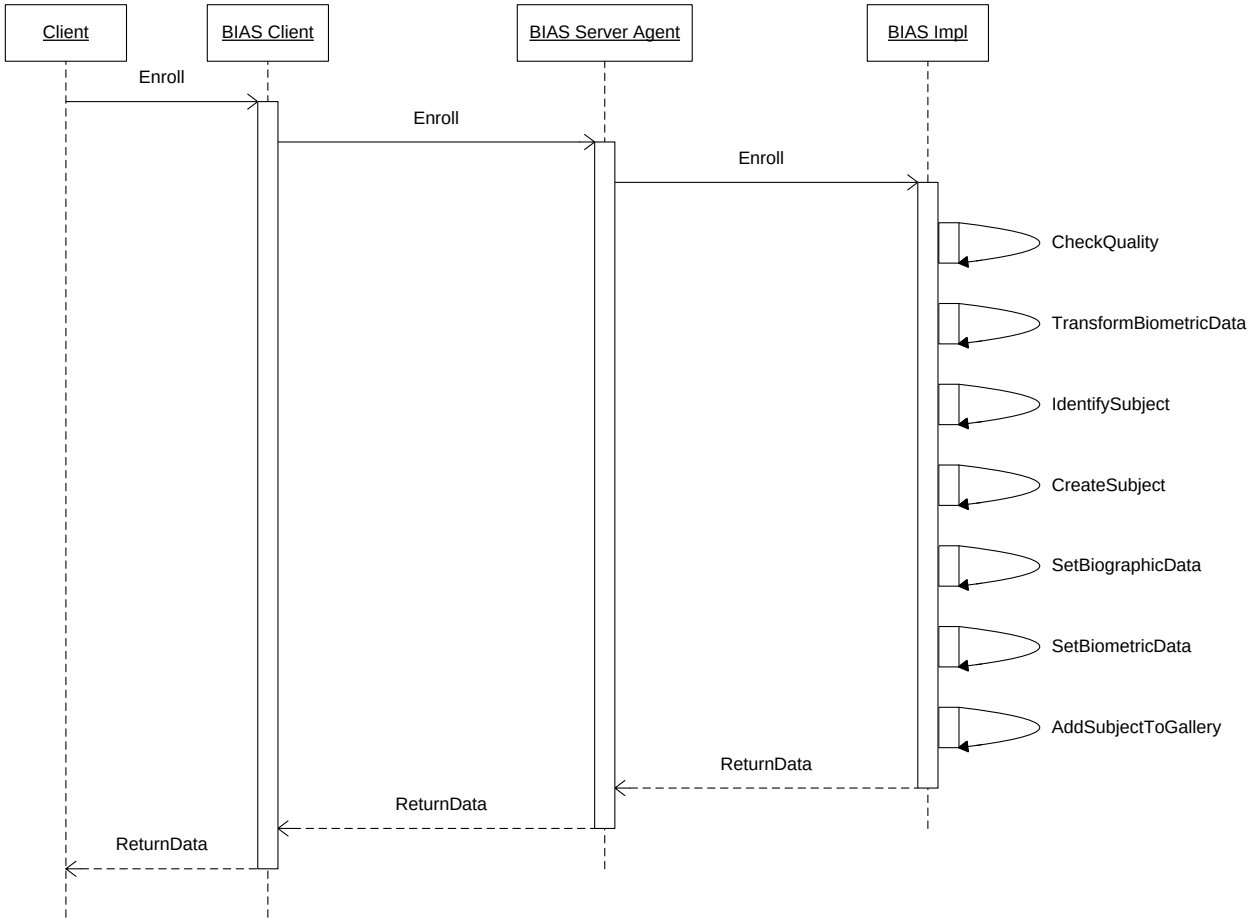
B.5 Biometric Enrollment

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.).



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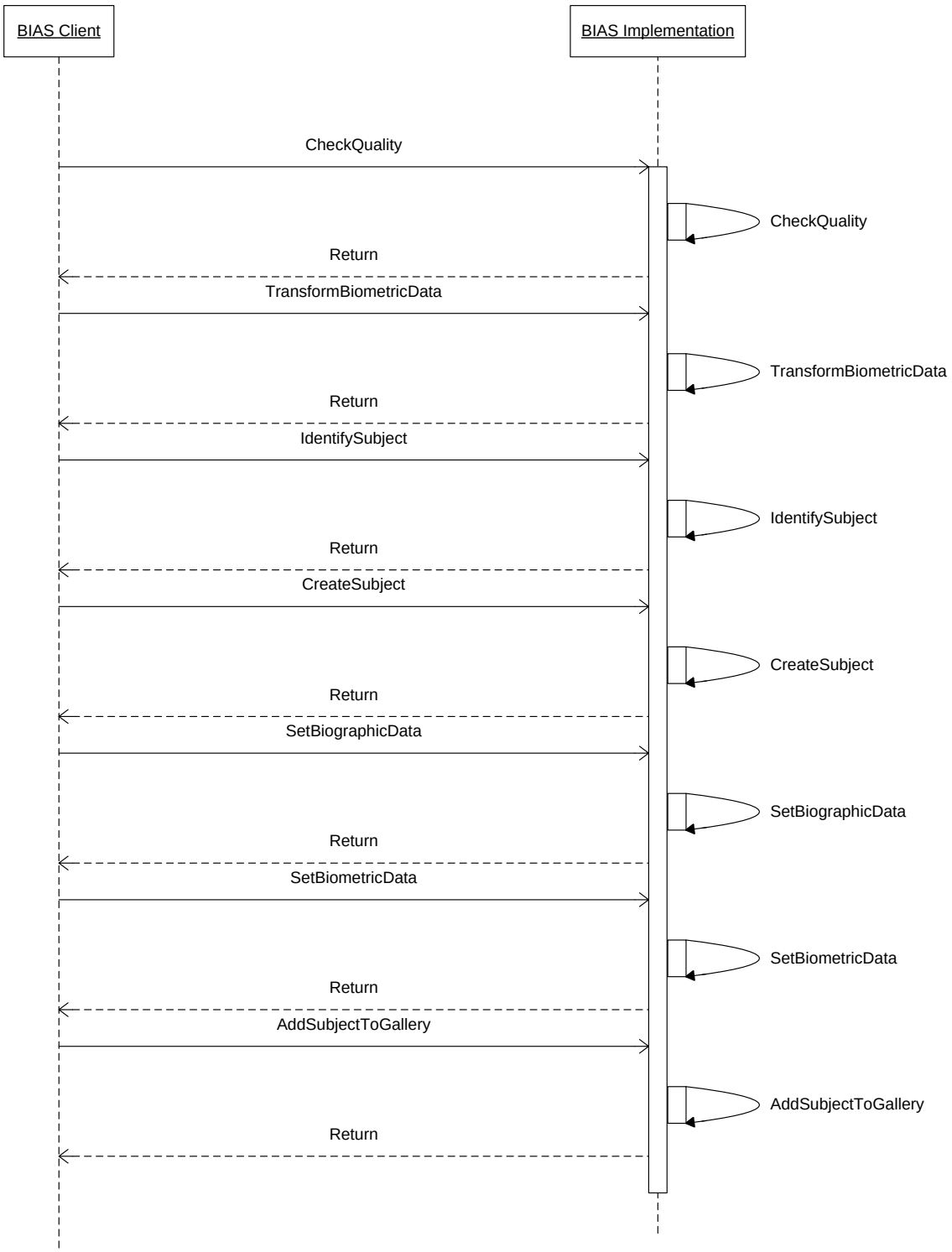
B.6 Primitive Enrollment

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.



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Annex C. Samples (non-normative)

C.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>
```


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```
</soap:Envelope>
```

Create Subject Request with Optional OASIS BIAS Content:

```
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:GenericRequestParameters>
                <tns:Application>BIAS Application</tns:Application>
                <tns:ApplicationUser>BIAS User</tns:ApplicationUser>
            </tns:GenericRequestParameters>
            <tns:Identity>
                <tns:SubjectID>123456789</tns:SubjectID>
            </tns:Identity>
        </tns:CreateSubject>
    </soap:Body>
</soap:Envelope>
```

Simple Create Subject Response:

```
HTTP/1.1 200 OK
Content-Type: application/soap+xml; charset="utf-8"
Content-Length: nnnn
<?xml version="1.0"?>
<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope">
    <soap:Body>
        <tns:CreateSubjectResponse
xmlns:tns="http://docs.oasis-open.org/bias/bias-1.0/">
            <tns:ResponseStatus>
                <tns:Return>0</tns:Return>
            </tns:ResponseStatus>
            <tns:Identity>
                <tns:SubjectID>123456789</tns:SubjectID>
            </tns:Identity>
        </tns:CreateSubjectResponse>
    </soap:Body>
</soap:Envelope>
```

Create Subject Response with Optional OASIS BIAS Content:

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```
HTTP/1.1 200 OK
Content-Type: application/soap+xml; charset=”utf-8”
Content-Length: nnnn
<?xml version=”1.0”?>
<soap:Envelope xmlns:soap=”http://www.w3.org/2003/05/soap-envelope”>
     <soap:Body>
          <tns:CreateSubjectResponse
xmlns:tns=”http://docs.oasis-open.org/bias/bias-1.0/”>
               <tns:ResponseStatus>
                    <tns:Return>0</tns:Return>
                    <tns:Message>Subject ID 123456789 successfully
created.</tns:Message>
               </tns:ResponseStatus>
               <tns:Identity>
                    <tns:SubjectID>123456789</tns:SubjectID>
               </tns:Identity>
          </tns:CreateSubjectResponse>
     </soap:Body>
</soap:Envelope>
```

C.2 Set Biographic Data Request/Response Example

INCITS BIAS Specification

```
<interface name="SetBiographicData">
     <parameter name="SubjectID" type="xs:string" direction="in" />
     <parameter name="IdentityModel" type="IdentityModelType"direction="in" />
     <parameter name="EncounterID"type="xs:string" direction="inout"
use="optional" />
     <parameter name="BiographicData" type="BiographicDataType"direction="in"
/>
     <parameter name="Return" type="xs:unsignedLong" direction="out" />
</interface>
```

OASIS BIAS Examples

Set Biographic Data Request:

```
POST /bias HTTP/1.1
Host: www.acme.com
Content-Type: application/soap+xml; charset=”utf-8”
Content-Length: nnnn
SOAPAction: “SetBiographicData”
<?xml version=”1.0”?>
<soap:Envelope xmlns:soap=”http://www.w3.org/2003/05/soap-envelope”>
     <soap:Body>
          <tns:SetBiographicData
```


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```
                         xmlns:tns=”http://docs.oasis-open.org/bias/bias-1.0/”>
               <tns:Identity>
                    <tns:SubjectID>123456789></tns:SubjectID>
                    <tns:BiographicData>
                         <tns:BiographicDataItem>
                              <tns:Name>Last</tns:Name>
                              <tns:Type>string</tns:Type>
                              <tns:Value>Doe</tns:Value>
                         </tns:BiographicDataItem>
                    </tns:BiographicData>
               </tns:Identity>
               <tns:IdentityModel>person</tns:IdentityModel>
          </tns:SetBiographicData>
     </soap:Body>
</soap:Envelope>
```

Set Biographic Data Response:

```
HTTP/1.1 200 OK
Content-Type: application/soap+xml; charset=”utf-8”
Content-Length: nnnn
<?xml version=”1.0”?>
<soap:Envelope xmlns:soap=”http://www.w3.org/2003/05/soap-envelope”>
     <soap:Body>
          <tns:SetBiographicDataResponse
                         xmlns:tns=”http://docs.oasis-open.org/bias/bias-1.0/”>
               <tns:ResponseStatus>
                    <tns:Return>0</tns:Return>
               </tns:ResponseStatus>
          </tns:SetBiographicDataResponse>
     </soap:Body>
</soap:Envelope>
```

C.3 Set Biometric Data Request/Response Example

INCITS BIAS Specification

```
<interface name="SetBiometricData">
     <parameter name="SubjectID" type="xs:string" direction="in" />
     <parameter name="IdentityModel" type="IdentityModelType"direction="in" />
     <parameter name="EncounterID"type="xs:string" direction="inout"
use="optional" />
     <parameter name="BIRList"type="CBEFF_BIR_ListType" direction="in" />
     <parameter name="Return" type="xs:unsignedLong" direction="out" />
</interface>
```


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Set Biometric Data Request:

```
POST /bias HTTP/1.1
Host: www.acme.com
Content-Type: application/soap+xml; charset="utf-8"
Content-Length: nnnn
SOAPAction: "SetBiometricData"
<?xml version="1.0"?>
<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope">
    <soap:Body>
        <tns:SetBiometricData
                    xmlns:tns="http://docs.oasis-open.org/bias/bias-1.0/">
            <tns:Identity>
                <tns:SubjectID>123456789></tns:SubjectID>
                <tns:BiometricData>
                    <tns:BIRList>
                        <tns:BIR>biometric data</tns:BIR>
                    </tns:BIRList>
                </tns:BiometricData>
            </tns:Identity>
            <tns:IdentityModel>person</tns:IdentityModel>
        </tns:SetBiometricData>
    </soap:Body>
</soap:Envelope>
```

Set Biometric Data Response:

```
HTTP/1.1 200 OK
Content-Type: application/soap+xml; charset="utf-8"
Content-Length: nnnn
<?xml version="1.0"?>
<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope">
    <soap:Body>
        <tns:SetBiometricDataResponse
                    xmlns:tns="http://docs.oasis-open.org/bias/bias-1.0/">
            <tns:ResponseStatus>
                <tns:Return>0</tns:Return>
            </tns:ResponseStatus>
        </tns:SetBiometricDataResponse>
    </soap:Body>
</soap:Envelope>
```


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Annex D. Acknowledgements

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

Participants:

Name	Affiliation
Mr. Young Bang	Booz Allen Hamilton
Mr. Ed. Clay	Sun
Mr. Murty Gurajada *	Raining Data Corporation
Mr. Dale Hapeman	US Department of Defense
Dr. Charles Li	Raytheon
Mr. Kevin Mangold	NIST
Mr. John Mayer-Splain	US Department of Homeland Security
Dr. Ross Michaels	NIST
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Mr. Guy Swope	Raytheon
Mrs. Catherine Tilton	Daon
Mr. Alessandro Triglia	OSS Nokalva
Mr. Brad Wing	NIST (formerly DHS)
Mr. Michael Wittman	Raytheon
Mr. Gregory Zektser	Booz Allen Hamilton

* Though no longer members of the BIAS TC, 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 E. Revision History

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	Tilton/Swayze	Incorporation of public review comments Update WSDL
0.13	2011-01-03	Tilton/Mangold	Clarification regarding xsd:any Updated WSDL

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4634

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