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SERIES H: AUDIOVISUAL AND MULTIMEDIA SYSTEMS

E-health multimedia services and applications – Interoperability compliance testing of personal health systems (HRN, PAN, LAN, TAN and WAN)

Conformance of ITU-T H.810 personal health devices: WAN interface Part 4: SOAP/ATNA: Receiver

Recommendation ITU-T H.830.4

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Recommendation ITU-T H.830.4

Conformance of ITU-T H.810 personal health devices: WAN interface Part 4: SOAP/ATNA: Receiver

Summary

Recommendation ITU-T H.830.4 is the transposition of Continua Health Alliance Test Tool DG2013, Test Suite Structure & Test Purposes, WAN Interface; Part 4: SOAP/ATNA. Receiver (Version 1.4, 2014-01-24), that was developed by the Continua Health Alliance. A number of versions of this specification existed before transposition.

This Recommendation includes an electronic attachment with the protocol implementation conformance statements (PICS) and the protocol implementation extra information for testing (PIXIT) required for the implementation of Annex A.

This Recommendation was initially approved as ITU-T H.834 (01/2015) and later renumbered, without further modifications, as ITU-T H.830.4 (01/2015) for consistency with the numbering of new WAN interface conformance testing specifications.

History

Edition	Recommendation	Approval	Study Group	Unique ID*
1.0	ITU-T H.834	2015-01-13	16	11.1002/1000/12252
1.0	ITU-T H.830.4	2015-01-13	16	11.1002/1000/12590

* To access the Recommendation, type the URL http://handle.itu.int/ in the address field of your web browser, followed by the Recommendation's unique ID. For example, http://handle.itu.int/11.1002/1000/11830-en.

FOREWORD

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The World Telecommunication Standardization Assembly (WTSA), which meets every four years, establishes the topics for study by the ITU-T study groups which, in turn, produce Recommendations on these topics.

The approval of ITU-T Recommendations is covered by the procedure laid down in WTSA Resolution 1.

In some areas of information technology which fall within ITU-T's purview, the necessary standards are prepared on a collaborative basis with ISO and IEC.

NOTE

In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

Compliance with this Recommendation is voluntary. However, the Recommendation may contain certain mandatory provisions (to ensure, e.g., interoperability or applicability) and compliance with the Recommendation is achieved when all of these mandatory provisions are met. The words "shall" or some other obligatory language such as "must" and the negative equivalents are used to express requirements. The use of such words does not suggest that compliance with the Recommendation is required of any party.

INTELLECTUAL PROPERTY RIGHTS

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As of the date of approval of this Recommendation, ITU had not received notice of intellectual property, protected by patents, which may be required to implement this Recommendation. However, implementers are cautioned that this may not represent the latest information and are therefore strongly urged to consult the TSB patent database at http://www.itu.int/ITU-T/ipr/.

Table of Contents

Electronic attachment: Protocol implementation conformance statements (PICS) and protocol implementation extra information for testing (PIXIT) required for the implementation of Annex A.

Introduction

This Recommendation is the transposition of Continua Health Alliance Test Tool DG2013, Test Suite Structure & Test Purposes, WAN Interface; Part 4: SOAP/ATNA. Receiver (Version 1.4, 2014-01-24), that was developed by the Continua Health Alliance. A number of versions of this specification existed before transposition and these can be found in the table below.

Version	Date	Revision history
1.2	2012-10-05	Initial release for Test Tool DG2011. This uses "TSS&TP_1.5_WAN_ PART_4_(REC GEN)_v1.1.doc" as a baseline and adds new features included in [CDG 2011] (Consent management).
1.3	2013-05-24	Initial release for Test Tool DG2012. This uses "TSS&TP_DG2011_ WAN_PART_4_(REC GEN)_v1.2.doc" as a baseline and fixes a typo error in ATNA reliable syslog test cases. It does not include technical changes in test procedures because new features included in [CDG 2012] do not affect the test procedures specified in this document.
1.4	2014-01-24	Initial release for Test Tool DG2013. This is the same version as "TSS&TP_DG2012_WAN_PART_4_(REC GEN)_v1.3.doc" because new features included in [ITU-T H.810] do not affect the test procedures specified in this document.

Recommendation ITU-T H.830.4

Conformance of ITU-T H.810 personal health devices: WAN interface Part 4: SOAP/ATNA: Receiver

1 Scope

The scope of this Recommendation[1] is to provide a test suite structure and the test purposes (TSS & TP) for the WAN interface based on the requirements defined in the Continua Design Guidelines (CDG) [ITU-T H.810]. The objective of this test specification is to provide a high probability of air interface interoperability between different devices.

The TSS & TP for the WAN interface document have been divided into the eight parts specified below. This Recommendation covers Part 4.

– Part 1: Web Services Interoperability. Sender
– Part 2: Web Services Interoperability. Receiver
– Part 3: SOAP/ATNA. Sender
– **Part 4: SOAP/ATNA. Receiver**
– Part 5: PCD-01 HL7 Messages. Sender
– Part 6: PCD-01 HL7 Messages. Receiver
– Part 7: Consent Management. Sender
– Part 8: Consent Management. Receiver

2 References

The following ITU-T Recommendations and other references contain provisions which, through reference in this text, constitute provisions of this Recommendation. At the time of publication, the editions indicated were valid. All Recommendations and other references are subject to revision; users of this Recommendation are therefore encouraged to investigate the possibility of applying the most recent edition of the Recommendations and other references listed below. A list of the currently valid ITU-T Recommendations is regularly published. The reference to a document within this Recommendation does not give it, as a stand-alone document, the status of a Recommendation.

[ITU-T H.810] Recommendation ITU-T H.810 (2013), *Interoperability design guidelines for personal health systems*.

[IEEE 11073-20601A] IEEE 11073-20601A-2010, *IEEE Health informatics – Personal health device communication – Part 20601: Application profile – Optimized Exchange Protocol Amendment 1*.
<http://standards.ieee.org/findstds/standard/11073-20601a-2010.html>

[IETF RFC 3195] IETF RFC 3195 (2001), *Reliable Delivery for syslog*.
<https://datatracker.ietf.org/doc/rfc3195>

[IETF RFC 3881] IETF RFC 3881 (2004), *Security Audit and Access Accountability Message XML Data Definitions for Healthcare Applications*.
<https://datatracker.ietf.org/doc/rfc3881>

[1] This Recommendation includes an electronic attachment with the protocol implementation conformance statements (PICS) and the protocol implementation extra information for testing (PIXIT) required for the implementation of Annex A.

[IHE ITI TF-2] IHE ITI TF 2 (2009), *IHE IT Infrastructure Technical Framework, Volume 2 (ITI TF-2), Revision 6.0*. It comprises three sub-volumes: 2a (Transactions Part A), 2b (Transactions Part B) and 2x (Appendices).
<http://www.ihe.net/Technical_Framework/upload/IHE_ITI_TF_6-0_Vol2a_FT_2009-08-10.pdf>
<http://www.ihe.net/Technical_Framework/upload/IHE_ITI_TF_6-0_Vol2b_FT_2009-08-10.pdf>
<http://www.ihe.net/Technical_Framework/upload/IHE_ITI_TF_6-0_Vol2x_FT_2009-08-10.pdf>

3 Definitions

3.1 Terms defined elsewhere

3.1.1 agent [IEEE 11073-20601A]: A node that collects and transmits personal health data to an associated manager.

3.1.2 manager [IEEE 11073-20601A]: A node receiving data from one or more agent systems. Some examples of managers include a cellular phone, health appliance, set top box, or a computer system.

3.2 Terms defined in this Recommendation

None.

4 Abbreviations and acronyms

This Recommendation uses the following abbreviations and acronyms:

ATNA Audit Trail and Node Authentication
ATS Abstract Test Suite
CDG Continua Design Guidelines
DUT Device Under Test
GUI Graphical User Interface
INR International Normalized Ratio
IUT Implementation Under Test
MDS Medical Device System
NFC Near Field Communication
PCD Patient Care Device
PCT Protocol Conformance Testing
PHD Personal Healthcare Device
PHDC Personal Healthcare Device Class
PHM Personal Health Manager
PICS Protocol Implementation Conformance Statement
PIXIT Protocol Implementation extra Information for Testing
SDP Service Discovery Protocol
SOAP Simple Object Access Protocol
TCRL Test Case Reference List
TCWG Test and Certification Working Group
TP Test Purpose

TSS Test Suite Structure

USB Universal Serial Bus

WAN Wide Area Network

WDM Windows Driver Model

WS Web Service

WSDL Web Service Description Language

XML extensible Markup Language

5 Conventions

The key words "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "MAY", "MAY NOT" in this Recommendation are to be interpreted as in [b-ETSI SR 001 262].

– SHALL is equivalent to 'must' or 'it is required to'.

– SHALL NOT is equivalent to 'must not' or 'it is not allowed'.

– SHOULD is equivalent to 'it is recommended to'.

– SHOULD NOT is equivalent to 'it is not recommended to'.

– MAY is equivalent to 'is permitted'.

– MAY NOT is equivalent to 'it is not required that'.

NOTE – The above-mentioned key words are capitalized for illustrative purposes only and they do not appear capitalized within this Recommendation.

Reference is made in the ITU-T H.800-series of Recommendations to different versions of the Continua design guidelines (CDG) by a specific designation. The list of terms that may be used in this Recommendation is provided in Table 1. Furthermore, the 2013 edition of the Continua design guidelines, which is published as [ITU-T H.810], is designated by "CDG 2013" as an extension of the designations indicated in the bibliography.

Table 1 – List of designations associated with the various versions of the CDG

CDG name	Transposed as	Version	Description	Designation
2013 plus errata	[ITU-T H.810]	4.1	CDG 2013 plus errata noting all ratified bugs.	–
2013	–	4.0	Release 2013 of CDG including maintenance updates of the CDG 2012 and additional guidelines that cover new functionalities.	Endorphin
2012 plus errata	–	3.1	CDG 2012 plus errata noting all ratified bugs [b-CDG 2012].	–
2012	–	3.0	Release 2012 of the CDG including maintenance updates of CDG 2011 and additional guidelines that cover new functionalities.	Catalyst
2011 plus errata	–	2.1	CDG 2011 integrated with identified errata.	–
2011	–	2.0	Release 2011 of CDG including maintenance updates of CDG 2010 and additional guidelines that cover new functionalities [b-CDG 2011].	Adrenaline

Table 1 – List of designations associated with the various versions of the CDG

CDG name	Transposed as	Version	Description	Designation
2010 plus errata	–	1.6	CDG 2010 integrated with identified errata	–
2010	–	1.5	Release 2010 of the CDG with maintenance updates of CDG Version 1 and additional guidelines that cover new functionalities [b-CDG 2010].	1.5
1.0	–	1.0	First released version of the CDG [b-CDG 1.0].	–

6 Test suite structure (TSS)

The test purposes (TPs) for the WAN interface have been divided into the main subgroups specified below. Annex A describes the TPs for groups 2.2 and 2.3 (shown in bold).

– Group 1: Sender (SEN)
  - Group 1.1: Web services interoperability (WSI)
    - Subgroup 1.1.1: Basic profile (BP)
    - Subgroup 1.1.2: Basic security profile (BSP)
    - Subgroup 1.1.3: Reliable messaging (RM)
  - Group 1.2: SOAP (SOAP)
    - Subgroup 1.2.1: SOAP headers (HEAD)
  - Group 1.3: Audit (ATNA)
    - Subgroup 1.3.1: General (GEN)
    - Subgroup 1.3.2: PCD-01 (PCD-01)
    - Subgroup 1.3.3: Consent management (CM)
  - Group 1.4: PCD-01 HL7 messages (PCD-01-DATA)
    - Subgroup 1.4.1: General (GEN)
    - Subgroup 1.4.2: Design guidelines (DG)
    - Subgroup 1.4.3: Pulse oximeter (PO)
    - Subgroup 1.4.4: Blood pressure monitor (BPM)
    - Subgroup 1.4.5: Thermometer (TH)
    - Subgroup 1.4.6: Weighing scales (WEG)
    - Subgroup 1.4.7: Glucose meter (GL)
    - Subgroup 1.4.8: Cardiovascular fitness and activity monitor (CV)
    - Subgroup 1.4.9: Strength fitness equipment (ST)
    - Subgroup 1.4.10: Independent living activity hub (HUB)
    - Subgroup 1.4.11: Adherence monitor (AM)
    - Subgroup 1.4.12: Peak expiratory flow monitor (PF)
    - Subgroup 1.4.13: Body composition analyser (BCA)
    - Subgroup 1.4.14: Basic electrocardiograph (ECG)
  - Group 1.5: Consent management (CM)

    - Subgroup 1.5.1: WAN XDR transaction (TRANS)
    - Subgroup 1.5.2: WAN metadata validation (META)
    - Subgroup 1.5.3: WAN consent directive validation (CDV)

– Group 2: Receiver (REC)

- Group 2.1: Web service interoperability (WSI)
    - Subgroup 2.1.1: Basic profile (BP)
    - Subgroup 2.1.2: Basic security profile (BSP)
    - Subgroup 2.1.3: Reliable messaging (RM)
- **Group 2.2: SOAP (SOAP)**
    - **Subgroup 2.2.1: SOAP headers (HEAD)**
- **Group 2.3: Audit (ATNA)**
    - **Subgroup 2.3.1: General (GEN)**
    - **Subgroup 2.3.2: PCD-01 (PCD-01)**
    - **Subgroup 2.3.3: Consent management (CM)**
- Group 2.4: PCD-01 HL7 messages (PCD-01-DATA)
    - Subgroup 2.4.1: General (GEN)
    - Subgroup 2.4.2: Design guidelines (DG)
    - Subgroup 2.4.3: Pulse oximeter (PO)
    - Subgroup 2.4.4: Blood pressure monitor (BPM)
    - Subgroup 2.4.5: Thermometer (TH)
    - Subgroup 2.4.6: Weighing scales (WEG)
    - Subgroup 2.4.7: Glucose meter (GL)
    - Subgroup 2.4.8: Cardiovascular fitness and activity monitor (CV)
    - Subgroup 2.4.9: Strength fitness equipment (ST)
    - Subgroup 2.4.10: Independent living activity hub (HUB)
    - Subgroup 2.4.11: Adherence monitor (AM)
    - Subgroup 2.4.12: Peak expiratory flow monitor (PF)
    - Subgroup 2.4.13: Body composition analyser (BCA)
    - Subgroup 2.4.14: Basic electrocardiograph (ECG)
- Group 2.5: Consent management (CM)
    - Subgroup 2.5.1: WAN XDR transaction (TRANS)
    - Subgroup 2.5.2: WAN service validation (SER)

7 Electronic attachment

The protocol implementation conformance statements (PICS) and the protocol implementation extra information for testing (PIXIT) required for the implementation of Annex A can be downloaded from http://handle.itu.int/11.1002/2000/12067.

In the electronic attachment, letters "C" and "I" in the column labelled "Mandatory" are used to distinguish between "PICS" and "PIXIT" respectively during testing. If the cell is empty, the corresponding PICS is "independent". If the field contains a "C", the corresponding PICS is dependent on other PICS, and the logical expression is detailed in the "SCR_Expression" field. The static conformance review (SCR) is used in the test tool to assert whether the PICS selection is consistent.

Annex A

Test purposes

(This annex forms an integral part of this Recommendation.)

A.1 TP definition conventions

The test purposes (TP) are defined according to the following rules:

- **TP Id**: This is a unique identifier (TP/<TT>/<DUT>/<GR>/<SGR>/<XX> – <NNN>). It is specified according to the naming convention defined below:
  - Each test purpose identifier is introduced by the prefix "TP".
  - <TT>: This is the test tool that will be used in the test case.
    - WAN: Wide area network
  - <DUT>: This is the device under test.
    - SEN: WAN observation sender
    - REC: WAN observation receiver
  - <GR>: This identifies a group of test cases.
  - <SGR>: This identifies a subgroup of test cases.
  - <XX>: This identifies the type of testing.
    - BV: Valid behaviour test
    - BI: Invalid behaviour test
  - <NNN>: This is a sequential number that identifies the test purpose (TP).
- **TP label**: This is the title of the TP.
- **Coverage**: This contains the specification reference and clause to be checked by the TP.
  - Spec: This indicates the earliest version of the specification from which the testable items to be checked by the TP are included.
  - Testable Item: This contains testable items to be checked by the TP.
- **Test purpose**: This is a description of the requirements to be tested.
- **Applicability**: This contains the PICS items that define if the test case is applicable or not for a specific device. When a TP contains an "ALL" in this field it means that it applies to the device under test within that scope of the test (specialization, transport used, etc.).
- **Initial condition**: This indicates the state to which the DUT needs to be moved at the beginning of TC execution.
- **Test procedure**: This describes the steps to be followed in order to execute the test case.
- **Pass/Fail criteria**: This provides criteria to decide whether the DUT passes or fails the test case.

A.2 Subgroup 2.2.1: SOAP headers (HEAD)

<table>
<tr><td colspan="2">TP Id</td><td colspan="3">TP/WAN/REC/SOAP/HEAD/BV-000</td></tr>
<tr><td colspan="2">TP label</td><td colspan="3">Requirements for Transactions which don't use HL7 V3 Messages</td></tr>
<tr><td rowspan="5">Coverage</td><td>Spec</td><td colspan="3">[IHE ITI-TF-2], Volume 2x, Appendix V</td></tr>
<tr><td rowspan="4">Testable items</td><td>Namespaces; M</td><td>IHE-WSP201; M</td><td>IHE-WSP202; M</td></tr>
<tr><td>IHE-WSP203; M</td><td>IHE-WSP205; M</td><td>IHE-WSP206; M</td></tr>
<tr><td>IHE-WSP207; M</td><td>IHE-WSP208; M</td><td>IHE-WSP211; M</td></tr>
<tr><td>IHE-WSP212; M</td><td>IHE-WSP300; M</td><td>IHE-WSA101; M</td></tr>
<tr><td colspan="2">Applicability</td><td colspan="3">C_REC_000</td></tr>
<tr><td colspan="2">Initial condition</td><td colspan="3">The receiver under test has a WebService published and the simulated sender is ready to send a SOAP message.</td></tr>
<tr><td colspan="2">Test procedure</td><td colspan="3">1. The simulated sender takes the WSDL description of the WebService provided by the receiver and checks:
a. Namespaces:
❑ wsdl: "http://schemas.xmlsoap.org/wsdl/"
❑ soap12: "http://schemas.xmlsoap.org/wsdl/soap12"
❑ xsd: "http://www.w3.org/2001/XMLSchema"
❑ wsaw: "http://www.w3.org/2006/05/addressing/wsdl"
b. WSDL artifacts:
❑ message request -> {Transaction Name}_Message
❑ message response -> {Transaction Name}_Response_Message
❑ portType -> {NAME}_PortType
❑ Operation -> {NAME}_{Transaction Name}[_OperationID]
❑ SOAP 1.2 binding -> {NAME}_Binding_Soap12
❑ SOAP 1.2 port -> {NAME}_Port_Soap12
where NAME is the value of the /wsdl:definitions/@name attribute and Transaction Name represents the formal IHE transaction name for this particular web-service exchange with spaces omitted from the name.
c. The targetNamespace is urn:ihe:{DOMAIN}:{PROFILE}:{YEAR} and can be extended to urn:ihe:{DOMAIN}:{PROFILE}:{YEAR}:{TYPE}
d. Two WSDL messages are defined, one for the request transaction and another for the response transaction.
e. A single WSDL part named Body is defined for each WSDL message and the part type refers to an element defined in the schema definition included in the xsd reference.
f. For each input and output message defined in the WSDL portType operation an attribute wsaw:Action is included and:
❑ wsdl:operation/wsdl:input/@wsaw:Action = "urn:ihe:{Domain}:{Year}:{Transaction name}"
❑ wsdl:operation/wsdl:output/@wsaw:Action = "urn:ihe:{Domain}:{Year}:{Transaction name}Response"
g. For each operation defined in the WSDL portType a wsoap:operation/@soapAction attribute is provided and its value is consistent with the name for the corresponding WSDL operation defined in the WSDL portType
h. WSDL provided with an IHE specification uses the binding extension for SOAP 1.2
2. The simulated sender sends a SOAP message to the receiver using addressing header blocks.
3. The receiver responds with another SOAP message. Check that all <wsa:Action> elements have the mustUnderstand attribute set (mustUnderstand='1' ir 'true)</td></tr>
<tr><td colspan="2">Pass/Fail criteria</td><td colspan="3">In step 1, all elements are in the WSDL description.
In step 3, the response messages are as specified.</td></tr>
<tr><td colspan="2">Notes</td><td colspan="3"></td></tr>
</table>

TP Id		TP/WAN/REC/SOAP/HEAD/BV-001		
TP label		Security Guidelines		
Coverage	**Spec**	[b-CDG 2012]		
	Testable items	CommonReq 4; M	SecGuidelines 1; M	SecGuidelines 4; M
Applicability		C_REC_000		
Initial condition		The receiver under test has a WebService published and the simulated sender is ready to establish a connection using TLS [b-IETF RFC 2246] and SAML 2.0 as an authentication token [b-OASIS SAMLTP].		
Test procedure		1. The simulated sender starts a connection with the receiver using HTTP over TLS v1.0. 2. The receiver under test allows the connection. 3. The sender sends a message using an SAML 2.0 token as an authentication token. 4. The receiver accepts the token and responds to the message without a security error.		
Pass/Fail criteria		All steps are as specified above. If the receiver responds with an error in step 4, it shall not be provoked by security reasons.		
Notes				

TP Id		TP/WAN/REC/SOAP/HEAD/BV-002		
TP label		WAN Observation Receiver Requirements		
Coverage	**Spec**	[b-CDG 2011]		
	Testable items	ReceiverReq 2; M	ReceiverReq 3; M	
Applicability		C_REC_000		
Initial condition		The simulated sender using WS-RM and the Receiver under test are in a none sequence state.		
Test procedure		1. The simulated sender sends a CreateSequence message to the receiver with an offer element. 2. The receiver under test responds with CreateSequenceResponse or with CreateSequenceRefused. 3. If the sequence created is not refused, the simulated sender sends an HL7 message within the soap body of a sequence message indicating that it is the last one. 4. The receiver responds with a SequenceAck header block message, a sequence header block and an HL7 message in the body. 5. The simulated sender sends a SequenceAcknowledgement.		
Pass/Fail criteria		All steps are as specified above.		
Notes		The receiver acts as an RM source in step 4 and as an RM destination in the other steps.		

A.3 Subgroup 2.3.1: ATNA general (GEN)

TP Id		TP/WAN/REC/ATNA/GEN/BV-006		
TP label		Reliable Syslog ATNA Actor behaviour		
Coverage	**Spec**	[IHE ITI-TF-2]		
	Testable items	Audit_MT-1; M		
Applicability		C_REC_000 AND C_REC_GEN_001 AND C_REC_ATNA_001		
Initial condition		The WAN receiver under test is shutdown. The simulated WAN sender has a SOAP message (a PCD-01 message or a consent document) ready to be sent and the Simulated Audit Repository with Reliable Syslog transport is intentionally disabled.		
Test procedure		1. The WAN receiver application under test is started and it sends the corresponding audit record message to the audit repository. As the simulated audit repository receiver is disabled, the message will not be delivered. 2. Wait for one minute. 3. The test tool starts the simulated audit repository. 4. If C_REC_GEN_002 = FALSE (the SUT does not support consent management) THEN the simulated WAN sender sends a PCD-01 message to the WAN receiver under test. IF C_REC_GEN_002 = TRUE (the SUT supports consent management) THEN the simulated WAN sender sends a consent document to the WAN receiver under test. 5. The test tool receives the SOAP message (a PCD-01 message or a consent document) acknowledge and the audit record messages sent by the WAN receiver under test.		
Pass/Fail criteria		• Two audit record messages must be received by the simulated audit repository: One for the WAN receiver start action (step 1) and the other for the SOAP message sent in step 4. • There is one audit record with the attribute "code" of the element EventID set to "110107" (PHI-import) and the EventDateTime attribute of the EventIdentification element is set to the expedition time of the SOAP message sent in step 4. • There is one audit record with the attribute "code" of the element EventID set to "110120" (start action) and the EventDateTime attribute of the EventIdentification element is set at least one minute before the expedition time of the SOAP message sent in step 4.		
Notes		In step 4, the way to force the WAN receiver to send the pendant audit record not delivered in step 1, depends on the vendor implementation. A typical strategy could be to send another WAN message and its corresponding ATNA record, in this way, when WAN receiver under test sends the ATNA record PHI-import then it would send the pendant audit record along with the newer one.		

A.4 Subgroup 2.3.2: ATNA PCD-01 (PCD-01)

TP Id		TP/WAN/REC/ATNA/PCD-01/BV-000		
TP label		PCD-01 - Reliable Syslog ATNA Actor Start		
Coverage	**Spec**	[IHE ITI-TF-2]		
	Testable items	AuditMess-2; R	AuditMess-3; M	ActTrans-8; O
		ActTrans-6; O	ATNA_IP-2; O	ATNA_PF-1; M
		ChainTrust-2; M	DirectCert-1; M	DirectCert-2; M
		DirectCert-3; M	Trigg_Event-1; M	Audit_RF-1; M
		Rel_Syslog-1; M	Rel_Syslog-2; M	
	Spec	[b-CDG 2012]		
	Testable items	SecGuidelines 3; O		
	Spec	[IETF RFC 3881]		
	Testable items	SAAAM-DD-01; M	SAAAM-DD-02; O	SAAAM-DD-03; M
		SAAAM-DD-04; M	SAAAM-DD-05; O	SAAAM-DD-06; M
		SAAAM-DD-07; O	SAAAM-DD-08; O	SAAAM-DD-09; O
		SAAAM-DD-10; O	SAAAM-DD-11; O	SAAAM-DD-12; O
		SAAAM-DD-13; O	SAAAM-DD-14; M	SAAAM-DD-15; O
		SAAAM-DD-16; O	SAAAM-DD-17; O	SAAAM-DD-18; O
		SAAAM-DD-19; M	SAAAM-DD-20; O	SAAAM-DD-21; M
Applicability		C_REC_000 AND C_REC_GEN_001 AND C_REC_ATNA_001		
Initial condition		The WAN receiver under test is shut down and a simulated audit repository with reliable syslog transport is running.		
Test procedure		1. The WAN receiver application under test is started and sends the corresponding audit record message to the audit repository. 2. The audit repository receives the audit record message and verifies that: a. TLS is used and the encryption suite is TLS_RSA_WITH_AES_128_CBC_SHA b. It conforms to the reliable syslog's cooked profile [IETF RFC 3195]		
Pass/Fail criteria		• The ATNA XML log file conforms to the [IETF RFC 3881] schema included in Annex B. • In the audit record, the attribute "code" of the element EventID is set to "110120" and the attribute "displayName" of the EventTypeCode element is set to "Communicate PCD Data". • The received audit message conforms to the reliable syslog's cooked profile [IETF RFC 3195].		
Notes				

TP Id		TP/WAN/REC/ATNA/PCD-01/BV-001		
TP label		PCD-01 - BSD Syslog ATNA Actor Start		
Coverage	**Spec**	[IHE ITI-TF-2]		
	Testable items	AuditMess-2; R	AuditMess-3; M	ActTrans-8; O
		ActTrans-6; O	ATNA_IP-2; O	ATNA_PF-1; M
		ChainTrust-2; M	DirectCert-1; M	DirectCert-2; M
		DirectCert-3; M	Trigg_Event-1; M	Audit_RF-1; M
		BSD_Syslog-1; O	BSD_Syslog-2; M	BSD_Syslog-3; M
		BSD_Syslog-4; M	BSD_Syslog-5; R	BSD_Syslog-6; O
	Spec	[b-CDG 2012]		
	Testable items	SecGuidelines 3; O		
	Spec	[IETF RFC 3881]		
	Testable items	SAAAM-DD-01; M	SAAAM-DD-02; O	SAAAM-DD-03; M
		SAAAM-DD-04; M	SAAAM-DD-05; O	SAAAM-DD-06; M
		SAAAM-DD-07; O	SAAAM-DD-08; O	SAAAM-DD-09; O
		SAAAM-DD-10; O	SAAAM-DD-11; O	SAAAM-DD-12; O
		SAAAM-DD-13; O	SAAAM-DD-14; M	SAAAM-DD-15; O
		SAAAM-DD-16; O	SAAAM-DD-17; O	SAAAM-DD-18; O
		SAAAM-DD-19; M	SAAAM-DD-20; O	SAAAM-DD-21; M
Applicability		C_REC_000 AND C_REC_GEN_001 AND C_REC_ATNA_002		
Initial condition		The WAN receiver under test is shut down and a simulated audit repository with BSD syslog transport is running.		
Test procedure		1. The WAN receiver application under test is started and sends the corresponding audit record message to the audit repository. 2. The audit repository receives the audit record message and verifies that it conforms to BSD Syslog [b-IETF RFC 3164].		
Pass/Fail criteria		• The ATNA XML log file conforms to the [IETF RFC 3881] schema included in Annex B. • In the audit record, the attribute "code" of the element EventID is set to "110120" and the attribute "displayName" of the EventTypeCode element is set to "Communicate PCD Data". • The received audit message conforms to the BSD Syslog [b-IETF RFC 3164].		
Notes				

TP Id		TP/WAN/REC/ATNA/PCD-01/BV-002		
TP label		PCD-01 - Reliable Syslog ATNA Actor PHI-import		
Coverage	**Spec**	[IHE ITI-TF-2]		
	Testable items	AuditMess-2; R	AuditMess-3; M	ActTrans-8; O
		ActTrans-6; O	ATNA_IP-2; O	ATNA_PF-1; M
		ChainTrust-2; M	DirectCert-1; M	DirectCert-2; M
		DirectCert-3; M	Trigg_Event-16; M	Audit_RF-1; M
		Rel_Syslog-1; M	Rel_Syslog-2; M	
	Spec	[b-CDG 2012]		
	Testable items	SecGuidelines 3; O		
	Spec	[IETF RFC 3881]		
	Testable items	SAAAM-DD-01; M	SAAAM-DD-02; O	SAAAM-DD-03; M
		SAAAM-DD-04; M	SAAAM-DD-05; O	SAAAM-DD-06; M
		SAAAM-DD-07; O	SAAAM-DD-08; O	SAAAM-DD-09; O
		SAAAM-DD-10; O	SAAAM-DD-11; O	SAAAM-DD-12; O
		SAAAM-DD-13; O	SAAAM-DD-14; M	SAAAM-DD-15; O
		SAAAM-DD-16; O	SAAAM-DD-17; O	SAAAM-DD-18; O
		SAAAM-DD-19; M	SAAAM-DD-20; O	SAAAM-DD-21; M
Applicability		C_REC_000 AND C_REC_GEN_001 AND C_REC_ATNA_001		
Initial condition		The WAN receiver under test has a WebService enabled for PCD-01 message reception, the simulated WAN sender has a PCD-01 message ready to be sent and a simulated audit repository with reliable syslog transport is running.		
Test procedure		1. The simulated WAN sender sends a PCD-01 message to the WAN receiver under test. 2. The WAN receiver under test replies with PCD-01 ACK message and it sends the corresponding audit record message to the audit repository. 3. The audit repository receives the audit record message and verifies that: a. TLS is used and the encryption suite is TLS_RSA_WITH_AES_128_CBC_SHA b. It conforms to the reliable syslog's cooked profile [IETF RFC 3195].		
Pass/Fail criteria		• The ATNA XML log file conforms to the [IETF RFC 3881] schema included in Annex B. • In the audit record, the attribute "code" of the element EventID is set to "110107"and the attribute "displayName" of the EventTypeCode element is set to "Communicate PCD Data". • In the audit record, the value of the attribute EventDateTime of the element EventIdentification is inside a one minute interval of the Data and Time indicated in the MSH-7 field of the PCD-01 ACK message sent by the WAN receiver under test. • The received audit message conforms to the reliable syslog's cooked profile [IETF RFC 3195].		
Notes				

TP Id		TP/WAN/REC/ATNA/PCD-01/BV-003		
TP label		PCD-01 - BSD Syslog ATNA Actor PHI-import		
Coverage	**Spec**	[IHE ITI-TF-2]		
	Testable items	AuditMess-2; R	AuditMess-3; M	ActTrans-8; O
		ActTrans-6; O	ATNA_IP-2; O	ATNA_PF-1; M
		ChainTrust-2; M	DirectCert-1; M	DirectCert-2; M
		DirectCert-3; M	Trigg_Event-16; M	Audit_RF-1; M
		BSD_Syslog-1; O	BSD_Syslog-2; M	BSD_Syslog-3; M
		BSD_Syslog-4; M	BSD_Syslog-5; R	BSD_Syslog-6; O
	Spec	[b-CDG 2012]		
	Testable items	SecGuidelines 3; O		
	Spec	[IETF RFC 3881]		
	Testable items	SAAAM-DD-01; M	SAAAM-DD-01; M	SAAAM-DD-01; M
		SAAAM-DD-04; M	SAAAM-DD-04; M	SAAAM-DD-04; M
		SAAAM-DD-07; O	SAAAM-DD-07; O	SAAAM-DD-07; O
		SAAAM-DD-10; O	SAAAM-DD-10; O	SAAAM-DD-10; O
		SAAAM-DD-13; O	SAAAM-DD-13; O	SAAAM-DD-13; O
		SAAAM-DD-16; O	SAAAM-DD-16; O	SAAAM-DD-16; O
		SAAAM-DD-19; M	SAAAM-DD-19; M	SAAAM-DD-19; M
Applicability		C_REC_000 AND C_REC_GEN_001 AND C_REC_ATNA_002		
Initial condition		The WAN receiver under test has a WebService enabled for PCD-01 message reception, the simulated WAN sender has a PCD-01 message ready to be sent and a simulated audit repository with BSD syslog transport is running.		
Test procedure		1. The simulated WAN sender sends a PCD-01 message to the WAN receiver under test. 2. The WAN receiver under test replies with a PCD-01 ACK message and sends the corresponding audit record message to the audit repository. 3. The audit repository receives the Audit Record Message and verifies that it conforms to the BSD Syslog [b-IETF RFC 3164].		
Pass/Fail criteria		• The ATNA XML log file conforms to the [IETF RFC 3881] schema included in Annex B. • The attribute "code" of the element EventID is set to "110107" and the attribute "displayName" of the EventTypeCode element is set to "Communicate PCD Data". • In the audit record, the value of the attribute EventDateTime of the element EventIdentification is inside a one minute interval of the Data and Time indicated in the MSH-7 field of the PCD-01 ACK message sent by the WAN receiver under test. • The received audit message conforms to the BSD Syslog [b-IETF RFC 3164].		
Notes				

TP Id		TP/WAN/REC/ATNA/PCD-01/BV-004		
TP label		PCD-01 - Reliable Syslog ATNA Actor Stop		
Coverage	**Spec**	[IHE ITI-TF-2]		
	Testable items	AuditMess-2; R	AuditMess-3; M	ActTrans-8; O
		ActTrans-6; O	ATNA_IP-2; O	ATNA_PF-1; M
		ChainTrust-2; M	DirectCert-1; M	DirectCert-2; M
		DirectCert-3; M	Trigg_Event-1; M	Audit_RF-1; M
		Rel_Syslog-1; M	Rel_Syslog-2; M	
	Spec	[b-CDG 2012]		
	Testable items	SecGuidelines 3; O		
	Spec	[IETF RFC 3881]		
	Testable items	SAAAM-DD-01; M	SAAAM-DD-02; O	SAAAM-DD-03; M
		SAAAM-DD-04; M	SAAAM-DD-05; O	SAAAM-DD-06; M
		SAAAM-DD-07; O	SAAAM-DD-08; O	SAAAM-DD-09; O
		SAAAM-DD-10; O	SAAAM-DD-11; O	SAAAM-DD-12; O
		SAAAM-DD-13; O	SAAAM-DD-14; M	SAAAM-DD-15; O
		SAAAM-DD-16; O	SAAAM-DD-17; O	SAAAM-DD-18; O
		SAAAM-DD-19; M	SAAAM-DD-20; O	SAAAM-DD-21; M
Applicability		C_REC_000 AND C_REC_GEN_001 AND C_REC_ATNA_001		
Initial condition		The WAN receiver under test has a WebService enabled and a simulated audit repository with reliable syslog transport is running.		
Test procedure		1. The WAN receiver application under test shuts down the application and sends the corresponding audit record message to the audit repository. 2. The audit repository receives the audit record message and verifies that: a. TLS is used and the encryption suite is TLS_RSA_WITH_AES_128_CBC_SHA b. It conforms to the reliable syslog's cooked profile [IETF RFC 3195].		
Pass/Fail criteria		• The ATNA XML log file conforms to the [IETF RFC 3881] schema included in Annex B. • In the audit record, the attribute "code" of the element EventID is set to "110121" and the attribute "displayName" of the EventTypeCode element is set to "Communicate PCD Data". • The received audit message conforms to the reliable syslog's cooked profile [IETF RFC 3195].		
Notes				

TP Id		TP/WAN/REC/ATNA/PCD-01/BV-005		
TP label		PCD-01 - BSD Syslog ATNA Actor Stop		
Coverage	**Spec**	[IHE ITI-TF-2]		
	Testable items	AuditMess-2; R	AuditMess-3; M	ActTrans-8; O
		ActTrans-6; O	ATNA_IP-2; O	ATNA_PF-1; M
		ChainTrust-2; M	DirectCert-1; M	DirectCert-2; M
		DirectCert-3; M	Trigg_Event-1; M	Audit_RF-1; M
		BSD_Syslog-1; O	BSD_Syslog-2; M	BSD_Syslog-3; M
		BSD_Syslog-4; M	BSD_Syslog-5; R	BSD_Syslog-6; O
	Spec	[b-CDG 2012]		
	Testable items	SecGuidelines 3; O		
	Spec	[IETF RFC 3881]		
		SAAAM-DD-01; M	SAAAM-DD-02; O	SAAAM-DD-03; M
		SAAAM-DD-04; M	SAAAM-DD-05; O	SAAAM-DD-06; M
		SAAAM-DD-07; O	SAAAM-DD-08; O	SAAAM-DD-09; O
		SAAAM-DD-10; O	SAAAM-DD-11; O	SAAAM-DD-12; O
		SAAAM-DD-13; O	SAAAM-DD-14; M	SAAAM-DD-15; O
		SAAAM-DD-16; O	SAAAM-DD-17; O	SAAAM-DD-18; O
		SAAAM-DD-19; M	SAAAM-DD-20; O	SAAAM-DD-21; M
Applicability		C_REC_000 AND C_REC_GEN_001 AND C_REC_ATNA_002		
Initial condition		The WAN receiver under test has a WebService enabled and a simulated audit repository with BSD syslog transport is running.		
Test procedure		1. The WAN receiver application under test shuts down the application and sends the corresponding audit record message to the audit repository. 2. The audit repository receives the audit record message and verifies that it conforms to BSD Syslog [b-IETF RFC 3164].		
Pass/Fail criteria		• The ATNA XML log file conforms to the [IETF RFC 3881] schema included in Annex B. • The attribute "code" of the element EventID is set to "110121" and the attribute "displayName" of the EventTypeCode element is set to "Communicate PCD Data". • The received audit message conforms to the BSD Syslog [b-IETF RFC 3164].		
Notes				

A.5 Subgroup 2.3.3: ATNA consent management (CM)

<table>
<tr><td colspan="2">TP Id</td><td colspan="3">TP/WAN/REC/ATNA/CM/BV-000</td></tr>
<tr><td colspan="2">TP label</td><td colspan="3">CM - Reliable Syslog ATNA Actor PHI-import</td></tr>
<tr><td rowspan="13">Coverage</td><td>Spec</td><td colspan="3">[IHE ITI-TF-2], Volume 2a</td></tr>
<tr><td rowspan="5">Testable items</td><td>AuditMess-2; R</td><td>AuditMess-3; M</td><td>ActTrans-8; O</td></tr>
<tr><td>ActTrans-6; O</td><td>ATNA_IP-2; O</td><td>ATNA_PF-1; M</td></tr>
<tr><td>ChainTrust-2; M</td><td>DirectCert-1; M</td><td>DirectCert-2; M</td></tr>
<tr><td>DirectCert-3; M</td><td>Trigg_Event-16; M</td><td>Audit_RF-1; M</td></tr>
<tr><td>Rel_Syslog-1; M</td><td>Rel_Syslog-2; M</td><td></td></tr>
<tr><td>Spec</td><td colspan="3">[IHE ITI-TF-2], Volume 2b</td></tr>
<tr><td>Testable items</td><td>ProvideAudit1; O</td><td></td><td></td></tr>
<tr><td>Spec</td><td colspan="3">[IETF RFC 3881]</td></tr>
<tr><td rowspan="6">Testable items</td><td>SAAAM-DD-01; M</td><td>SAAAM-DD-02; O</td><td>SAAAM-DD-03; M</td></tr>
<tr><td>SAAAM-DD-04; M</td><td>SAAAM-DD-05; O</td><td>SAAAM-DD-06; M</td></tr>
<tr><td>SAAAM-DD-07; O</td><td>SAAAM-DD-08; O</td><td>SAAAM-DD-09; O</td></tr>
<tr><td>SAAAM-DD-10; O</td><td>SAAAM-DD-11; O</td><td>SAAAM-DD-12; O</td></tr>
<tr><td>SAAAM-DD-13; O</td><td>SAAAM-DD-14; M</td><td>SAAAM-DD-15; O</td></tr>
<tr><td>SAAAM-DD-16; O</td><td>SAAAM-DD-17; O</td><td>SAAAM-DD-18; O</td></tr>
<tr><td>SAAAM-DD-19; M</td><td>SAAAM-DD-20; O</td><td>SAAAM-DD-21; M</td></tr>
<tr><td colspan="2">Applicability</td><td colspan="3">C_REC_000 AND C_REC_GEN_001 AND C_REC_ATNA_001 AND C_REC_GEN_002</td></tr>
<tr><td colspan="2">Initial condition</td><td colspan="3">The WAN receiver under test has a WebService enabled for consent document reception. The simulated WAN sender has a consent message ready to be sent and a simulated audit repository with reliable syslog is running.</td></tr>
<tr><td colspan="2">Test procedure</td><td colspan="3">1. The simulated WAN sender sends the consent document to the WAN receiver under test.
2. When the WAN receiver under test receives the consent document it then sends the corresponding audit record message to the audit repository.
3. The audit repository receives the audit record message and verifies that:
a. TLS is used and the encryption suite is TLS_RSA_WITH_AES_128_CBC_SHA
b. It conforms to the reliable syslog's cooked profile [IETF RFC 3195].
4. The audit record includes the following elements:
a. An EventIdentification element that contains:
❑ "EventActionCode" attribute set to "C"
❑ EventID sub-element with attributes "code" set to "110107" and "displayName" set to "Import"
❑ EventTypeCode subelement with attributes "code" set to "ITI-41", "displayName" set to "Provide and Register Document Set-b" and "codeSystemName" set to "IHE Transactions"
b. An ActiveParticipant element that contains:
❑ "UserIsRequestor" attribute set to "true"
❑ "NetworkAccessPointTypeCode" attribute set to "1" or "2"
❑ RoleIDCode sub-element with attributes "code" set to "110153" and "displayName" set to "Source"
c. An ActiveParticipant element that contains:</td></tr>
</table>

	❑ "UserIsRequestor" attribute set to "false" ❑ "NetworkAccessPointTypeCode" attribute set to "1" or "2" ❑ "AlternativeUserID" attribute is present ❑ RoleIDCode subelement with attributes "code" set to "110152" and "displayName" set to "Destination" d. A ParticipantObjectIdentification element that contains: ❑ "ParticipantObjectID" attribute is present and not empty ❑ "ParticipantObjectTypeCode" attribute set to "1" ❑ "ParticipantObjectTypeCodeRole" attribute set to "1" ❑ ParticipantObjectIDTypeCode sub-element with attributes "code" set to "2", "displayName" set to "Patient Number" and "codeSystemName" set to "RFC-3881" e. A ParticipantObjectIdentification element that contains: ❑ "ParticipantObjectID" attribute is present and not empty ❑ "ParticipantObjectTypeCode" attribute set to "2" ❑ "ParticipantObjectTypeCodeRole" attribute set to "20" ParticipantObjectIDTypeCode sub-element with attributes "code" set to "urn:uuid:a54d6aa5-d40d-43f9-88c5-b4633d873bdd", "displayName" set to "submission set classificationNode" and "codeSystemName" set to "IHE XDS Metadata"
Pass/Fail criteria	• The ATNA XML log file conforms to the [IETF RFC 3881] schema included in Annex B. • The audit record content conforms to the values described in step 4. • The received audit message conforms to the reliable syslog's cooked profile [IETF RFC 3195].
Notes	

TP Id		TP/WAN/REC/ATNA/CM/BV-001		
TP label		CM - BSD Syslog ATNA Actor PHI-import		
Coverage	**Spec**	[IHE ITI-TF-2], Volume 2a		
	Testable items	AuditMess-2; R	AuditMess-3; M	ActTrans-8; O
		ActTrans-6; O	ATNA_IP-2; O	ATNA_PF-1; M
		ChainTrust-2; M	DirectCert-1; M	DirectCert-2; M
		DirectCert-3; M	Trigg_Event-16; M	Audit_RF-1; M
		BSD_Syslog-1; O	BSD_Syslog-2; M	BSD_Syslog-3; M
		BSD_Syslog-4; M	BSD_Syslog-5; R	BSD_Syslog-6; O
	Spec	[IHE ITI-TF-2], Volume 2b		
	Testable items	ProvideAudit1; O		
	Spec	[IETF RFC 3881]		
	Testable items	SAAAM-DD-01; M	SAAAM-DD-01; M	SAAAM-DD-01; M
		SAAAM-DD-04; M	SAAAM-DD-04; M	SAAAM-DD-04; M
		SAAAM-DD-07; O	SAAAM-DD-07; O	SAAAM-DD-07; O
		SAAAM-DD-10; O	SAAAM-DD-10; O	SAAAM-DD-10; O
		SAAAM-DD-13; O	SAAAM-DD-13; O	SAAAM-DD-13; O
		SAAAM-DD-16; O	SAAAM-DD-16; O	SAAAM-DD-16; O
		SAAAM-DD-19; M	SAAAM-DD-19; M	SAAAM-DD-19; M
Applicability		C_REC_000 AND C_REC_GEN_001 AND C_REC_ATNA_002 AND C_REC_GEN_002		

Initial condition	The receiver under test has a WebService enabled and the simulated sender has a consent message and an audit repository with BSD syslog transport is running.
Test procedure	1. The WAN sender application under test sends an audit record message to the audit repository. 2. The audit repository receives the audit record message and verifies that it conforms to BSD syslog [b-IETF RFC 3164]. 3. The audit record includes the following elements: a. An EventIdentification element that contains: ❑ "EventActionCode" attribute set to "C" ❑ EventID subelement with attributes "code" set to "110107" and "displayName" set to "Import" ❑ EventTypeCode subelement with attributes "code" set to "ITI-41", "displayName" set to "Provide and Register Document Set-b" and "codeSystemName" set to "IHE Transactions" b. An ActiveParticipant element that contains: ❑ "UserIsRequestor" attribute set to "true" ❑ "NetworkAccessPointTypeCode" attribute set to "1" or "2" ❑ RoleIDCode subelement with attributes "code" set to "110153" and "displayName" set to "Source" c. An ActiveParticipant element that contains: ❑ "UserIsRequestor" attribute set to "false" ❑ "NetworkAccessPointTypeCode" attribute set to "1" or "2" ❑ "AlternativeUserID" attribute is present ❑ RoleIDCode subelement with attributes "code" set to "110152" and "displayName" set to "Destination" d. A ParticipantObjectIdentification element that contains: ❑ "ParticipantObjectID" attribute is present and not empty ❑ "ParticipantObjectTypeCode" attribute set to "1" ❑ "ParticipantObjectTypeCodeRole" attribute set to "1" ❑ ParticipantObjectIDTypeCode subelement with attributes "code" set to "2", "displayName" set to "Patient Number" and "codeSystemName" set to "RFC-3881" e. A ParticipantObjectIdentification element that contains: ❑ "ParticipantObjectID" attribute is present and not empty ❑ "ParticipantObjectTypeCode" attribute set to "2" ❑ "ParticipantObjectTypeCodeRole" attribute set to "20" ❑ ParticipantObjectIDTypeCode subelement with attributes "code" set to "urn:uuid:a54d6aa5-d40d-43f9-88c5-b4633d873bdd", "displayName" set to "submission set classificationNode" and "codeSystemName" set to "IHE XDS Metadata"
Pass/Fail criteria	• The ATNA XML log file conforms to the [IETF RFC 3881] schema included in Annex B. • The audit record content conforms to values described in step 4. • The received audit message conforms to the BSD Syslog [b-IETF RFC 3164].
Notes	

Annex B

Schema for IETF RFC 3881 verification

(This annex forms an integral part of this Recommendation.)

```
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema"
     elementFormDefault="qualified" attributeFormDefault="unqualified">
     <xs:element name="AuditMessage">
          <xs:complexType>
               <xs:sequence>
                    <xs:element name="EventIdentification"
                         type="EventIdentificationType" />
                    <xs:element name="ActiveParticipant"
                         maxOccurs="unbounded">
                         <xs:complexType>
                              <xs:complexContent>
                                   <xs:extension base="ActiveParticipantType" />
                              </xs:complexContent>
                         </xs:complexType>
                    </xs:element>
                    <xs:element name="AuditSourceIdentification"
                         type="AuditSourceIdentificationType"
                         maxOccurs="unbounded" />
                    <xs:element name="ParticipantObjectIdentification"
                         type="ParticipantObjectIdentificationType" minOccurs="0"
                         maxOccurs="unbounded" />
               </xs:sequence>
          </xs:complexType>
     </xs:element>
     <xs:complexType name="EventIdentificationType">
          <xs:sequence>
               <xs:element name="EventID" type="CodedValueType" />
               <xs:element name="EventTypeCode" type="CodedValueType"
                    minOccurs="0" maxOccurs="unbounded" />
          </xs:sequence>
          <xs:attribute name="EventActionCode" use="optional">
               <xs:simpleType>
                    <xs:restriction base="xs:string">
                         <xs:enumeration value="C">
                              <xs:annotation>
                                   <xs:appinfo>Create</xs:appinfo>
                              </xs:annotation>
                         </xs:enumeration>
                         <xs:enumeration value="R">
                              <xs:annotation>
                                   <xs:appinfo>Read</xs:appinfo>
                              </xs:annotation>
                         </xs:enumeration>
                         <xs:enumeration value="U">
                              <xs:annotation>
                                   <xs:appinfo>Update</xs:appinfo>
                              </xs:annotation>
                         </xs:enumeration>
                         <xs:enumeration value="D">
                              <xs:annotation>
                                   <xs:appinfo>Delete</xs:appinfo>
                              </xs:annotation>
                         </xs:enumeration>
```

```
                    <xs:enumeration value="E">
                        <xs:annotation>
                            <xs:documentation>Execute</xs:documentation>
                        </xs:annotation>
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        </xs:attribute>
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/>
        <xs:attribute name="EventOutcomeIndicator" use="required">
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                            <xs:appinfo>Success</xs:appinfo>
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                    <xs:enumeration value="4">
                        <xs:annotation>
                            <xs:appinfo>Minor failure</xs:appinfo>
                        </xs:annotation>
                    </xs:enumeration>
                    <xs:enumeration value="8">
                        <xs:annotation>
                            <xs:appinfo>Serious failure</xs:appinfo>
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                    </xs:enumeration>
                    <xs:enumeration value="12">
                        <xs:annotation>
                            <xs:appinfo>
                                Major failure; action made unavailable
                            </xs:appinfo>
                        </xs:annotation>
                    </xs:enumeration>
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<xs:element name="AuditSourceTypeCode" type="CodedValueType"      minOccurs="0"
maxOccurs="unbounded" />
        </xs:sequence>
        <xs:attribute name="AuditEnterpriseSiteID"
                    type="xs:string" use="optional" />
        <xs:attribute name="AuditSourceID" type="xs:string" use="required" />
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    maxOccurs="unbounded" />
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        <xs:attribute name="UserName" type="xs:string" use="optional" />
        <xs:attribute name="UserIsRequestor"
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default="true" />
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                    type="xs:string" use="optional" />
        <xs:attribute name="NetworkAccessPointTypeCode"
            use="optional">
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                                <xs:appinfo>
                                     Machine Name, including DNS name
                                </xs:appinfo>
                           </xs:annotation>
                      </xs:enumeration>
                      <xs:enumeration value="2">
                           <xs:annotation>
                                <xs:appinfo>IP Address</xs:appinfo>
                           </xs:annotation>
                      </xs:enumeration>
                      <xs:enumeration value="3">
                           <xs:annotation>
                                <xs:appinfo>Telephone Number</xs:appinfo>
                           </xs:annotation>
                      </xs:enumeration>
                 </xs:restriction>
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  </xs:complexType>
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            </xs:choice>
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                           <xs:annotation>
                                <xs:appinfo>Person</xs:appinfo>
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                      </xs:enumeration>
                      <xs:enumeration value="2">
                           <xs:annotation>
                                <xs:appinfo>System object</xs:appinfo>
                           </xs:annotation>
                      </xs:enumeration>
                      <xs:enumeration value="3">
                           <xs:annotation>
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                      </xs:enumeration>
                      <xs:enumeration value="4">
                           <xs:annotation>
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                           </xs:annotation>
                      </xs:enumeration>
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```

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               <xs:enumeration value="2">
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                         <xs:appinfo>Location</xs:appinfo>
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               </xs:enumeration>
               <xs:enumeration value="3">
                    <xs:annotation>
                         <xs:appinfo>Report</xs:appinfo>
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               </xs:enumeration>
               <xs:enumeration value="4">
                    <xs:annotation>
                         <xs:appinfo>Resource</xs:appinfo>
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               </xs:enumeration>
               <xs:enumeration value="5">
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                         <xs:appinfo>Master file</xs:appinfo>
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               </xs:enumeration>
               <xs:enumeration value="6">
                    <xs:annotation>
                         <xs:appinfo>User</xs:appinfo>
                    </xs:annotation>
               </xs:enumeration>
               <xs:enumeration value="7">
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                         <xs:appinfo>Doctor</xs:appinfo>
                    </xs:annotation>
               </xs:enumeration>
               <xs:enumeration value="9">
                    <xs:annotation>
                         <xs:appinfo>Subscriber</xs:appinfo>
                    </xs:annotation>
               </xs:enumeration>
               <xs:enumeration value="10">
                    <xs:annotation>
                         <xs:appinfo>Guarantor</xs:appinfo>
                    </xs:annotation>
               </xs:enumeration>
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                    <xs:annotation>
                         <xs:appinfo>
                              Security User Entity
                         </xs:appinfo>
                    </xs:annotation>
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               <xs:enumeration value="12">
                    <xs:annotation>
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```
                <xs:appinfo>Security User Group</xs:appinfo>
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        </xs:enumeration>
        <xs:enumeration value="13">
            <xs:annotation>
                <xs:appinfo>Security Resource</xs:appinfo>
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        <xs:enumeration value="14">
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                    Security Granualarity Definition
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                            Origination / Creation
                        </xs:appinfo>
                    </xs:annotation>
                </xs:enumeration>
                <xs:enumeration value="2">
                    <xs:annotation>
                        <xs:appinfo>
                            Import / Copy from original
                        </xs:appinfo>
                    </xs:annotation>
                </xs:enumeration>
                <xs:enumeration value="3">
                    <xs:annotation>
                        <xs:appinfo>Amendment</xs:appinfo>
                    </xs:annotation>
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                        <xs:appinfo>Verification</xs:appinfo>
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                <xs:enumeration value="5">
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                <xs:enumeration value="6">
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                </xs:enumeration>
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                        <xs:appinfo>De-identification</xs:appinfo>
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                </xs:enumeration>
                <xs:enumeration value="8">
                    <xs:annotation>
                        <xs:appinfo>
                            Aggregation, summarization, derivation
                        </xs:appinfo>
                    </xs:annotation>
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                <xs:enumeration value="9">
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                        <xs:appinfo>Report</xs:appinfo>
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                <xs:enumeration value="10">
                    <xs:annotation>
                        <xs:appinfo>
                            Export / Copy to target
                        </xs:appinfo>
```

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                    </xs:annotation>
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                        <xs:appinfo>Disclosure</xs:appinfo>
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                <xs:enumeration value="12">
                    <xs:annotation>
                        <xs:appinfo>
                            Receipt of disclosure
                        </xs:appinfo>
                    </xs:annotation>
                </xs:enumeration>
                <xs:enumeration value="13">
                    <xs:annotation>
                        <xs:appinfo>Archiving</xs:appinfo>
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                <xs:enumeration value="14">
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    <xs:restriction base="xs:string">
        <xs:whiteSpace value="collapse" />
    </xs:restriction>
</xs:simpleType>
</xs:schema>
```

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