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Electronic Signatures and Infrastructures (ESI);
Registered Electronic Mail (REM);
Part 5: REM-MD Interoperability Profiles

Reference

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ETSI

650 Route des Lucioles
F-06921 Sophia Antipolis Cedex - FRANCE

Tel.: +33 4 92 94 42 00   Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - NAF 742 C
Association à but non lucratif enregistrée à la
Sous-Préfecture de Grasse (06) N° 7803/88

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Foreword

This Technical Specification (TS) has been produced by ETSI Technical Committee Electronic Signatures and Infrastructures (ESI).

The present document is part 5 of a multi-part deliverable. Full details of the entire series can be found in part 1 [1].

Introduction

Business and administrative relationships among companies, public administrations and private citizens, are the more and more implemented electronically. Trust is becoming essential for their success and continued development of electronic services. It is therefore important that any entity using electronic services have suitable security controls and mechanisms in place to protect their transactions and to ensure trust and confidence with their partners.

Electronic mail is a major tool for electronic business and administration. Additional security services are necessary for e-mail to be trusted. At the time of writing the present document, in some European Union Member States (Italy, Belgium, etc.) regulation(s) and application(s) are being developed**, if not already in place,** on mails transmitted by electronic means providing origin authentication and proof of delivery. A range of Registered E-Mail ("REM") services is already established and their number is set to grow significantly over the next few years. Without the definition of common standards there will be no consistency in the services provided, making it difficult for users to compare them. Under these circumstances, users might be prevented from easily changing to alternative providers, damaging free competition. Lack of standardization might also affect interoperability between REM based systems implemented based on different models. The present document is to ensure a consistent form of service across Europe, especially with regard to the form of evidence provided, in order to maximize interoperability even between e-mail domains governed by different policy rules.

In order to move towards the general recognition and readability of evidence provided by registered e-mail services, it is necessary to specify technical formats, as well as procedures and practices for handling REM, and the ways the electronic signatures are applied to it. In this respect, the electronic signature is an important security component to protect the information and to provide trust in electronic business. It is to be noted that a simple "electronic signature" would be insufficient to provide the required trust to an information exchange. Therefore the present document assumes the usage of at least an Advanced Electronic Signature, with the meaning of article 2(2) of EU Directive 1999/93/EC [i.5] issued with a Secure Signature Creation Device, with the meaning of article 2(6) of the same Directive.

The summarised scope of each part and sub-part can be found in part 1 [1] of this multi-part deliverable.

1   Scope

The present document profiles the implementation of TS 102 640 (REM TS) based systems, addressing issues relating to authentication, authenticity and integrity of the information to achieve interoperability between such systems.

The present document covers all the options to profile REM-MD for both styles of operation: S&N and S&F.

The mandatory requirements defined in the referenced REM TS are not repeated here but when necessary, the present document contains some references to them.

2   References

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the reference document (including any amendments) applies.

Referenced documents which are not found to be publicly available in the expected location might be found at http://docbox.etsi.org/Reference.

NOTE: While any hyperlinks included in this clause were valid at the time of publication, ETSI cannot guarantee their long term validity.

2.1   Normative references

The following referenced documents are necessary for the application of the present document.

[1]   ETSI TS 102 640-1: "Electronic Signatures and Infrastructures (ESI); Registered Electronic Mail (REM); Part 1: Architecture".

[2]   ETSI TS 102 640-2: "Electronic Signatures and Infrastructures (ESI); Registered Electronic Mail (REM); Part 2: Data requirements, Formats and Signatures for REM".

[3]   ETSI TS 102 640-3: "Electronic Signatures and Infrastructures (ESI); Registered Electronic Mail (REM); Part 3: Information Security Policy Requirements for REM Management Domains".

[4]   IETF RFC 3207 (2002): "SMTP Service Extension for Secure SMTP over Transport Layer Security".

2.2   Informative references

The following referenced documents are not necessary for the application of the present document but they assist the user with regard to a particular subject area.

[i.1]   ETSI TS 102 640-4: "Electronic Signatures and Infrastructures (ESI); Registered Electronic Mail (REM); Part 4: REM-MD Conformance Profiles".

[i.2]   ETSI TS 102 640-6-1: "Electronic Signatures and Infrastructures (ESI); Registered Electronic Mail (REM); Part 6: Interoperability Profiles; Sub-part 1: REM-MD UPU PReM Interoperability Profile".

[i.3]   ETSI TS 102 640-6-2: "Electronic Signatures and Infrastructures (ESI); Registered Electronic Mail (REM); Part 6: Interoperability Profiles; Sub-part 2: REM-MD BUSDOX Interoperability Profile".

[i.4]   ETSI TS 102 640-6-3: "Electronic Signatures and Infrastructures (ESI); Registered Electronic Mail (REM); Part 6: Interoperability Profiles; Sub-part 3: REM-MD SOAP Binding Profile".

[i.5]   Directive 1999/93/EC of the European Parliament and of the Council of 13 December 1999 on a Community framework for electronic signatures.

[i.6]   ISO/IEC 27001:2005: "Information technology - Security techniques - Information security management systems - Requirements".

3   Definitions

For the purposes of the present document, the terms and definitions given in TS 102 640-1 [1] apply.

Throughout the present document a number of verbal forms are used, whose meaning is defined below:

- **shall, shall not:** indicate requirements strictly to be followed in order to conform to the present document and from which no deviation is permitted.

- **should, should not:** indicate that among several possibilities one is recommended as particularly suitable, without mentioning or excluding others, or that a certain course of action is preferred but not necessarily required, or that (in the negative form) a certain possibility or course of action is deprecated but not prohibited.

- **may, need not:** indicate a course of action permissible within the limits of the present document.

4   General requirements

This clause describes the tools and the formalities used for defining the profiles in the present document.

4.1   Compliance requirements

Requirements are grouped in three different categories, each one having its corresponding identifier. Table 1 defines these categories and their identifiers.

Table 1: Requirement categories

Identifier	Requirement to implement
M	System **shall** implement the element
R	System **should** implement the element
O	System **may** implement the element

All the requirements will be defined in tabular form.

Table 2: Requirements template

Nº	Service/Protocol element	TS reference	Requirement	Implementation guidance	Notes

Column **Nº** will identify a unique number for the requirements. This number will start from 1 in each clause. The eventual references to it would also include the clause number to avoid any ambiguity.

Column **Service/Protocol element** will identify the service element or protocol element the requirement applies to.

Column **TS Reference** will reference the relevant clause of the standard where the element is defined. The reference is to TS 102 640-1 [1], TS 102 640-2 [2] or TS 102 640-3 [3] except where explicitly indicated otherwise.

Column **Requirement** will contain an identifier, as defined in table 1.

Column **Implementation guidance** will contain numbers referencing notes and/or letters referencing explanation of the requirement. It is intended either to explain how the requirement is implemented or to include any other information not mandatory.

Column **Notes** will contain additional notes to the requirement.

NOTE: Within one REM-PD may be in force provision different from the ones specified in the present document, if and only if such REM-PD does not envisage to interoperate with other REM-PDs.

5   REM profile for SMTP interoperability

This clause defines a profile for interoperability among REM-MDs based on SMTP relay protocol.

5.1   Style of operation

From an interoperability standpoint, the style of operation adopted by a REM-MD (Store and Forward vs. Store and Notify) is foreseen to have no impact, so it is feasible to deal with both of them in a single profile.

The reason for that lies in the fact that any REM-MD Message exchanged between two REM-MD (even REM-MD Messages that contain a reference to the REM Object in a Store-And-Notify context) is conveyed using the Relay Interface which, within the present interoperability profile, is based on the SMTP protocol. Henceforth protocols, message formats and evidence formats are the same in the two cases.

Then all the Store-And-Notify systems also need a Store-And-Forward system that represents a common layer among the two styles of operations.

Differences only arise in the set of mandatory evidence which are dealt with in the two styles of operations, as described in clause 5.4.

5.2   REM interfaces

5.2.1   REM-MD Sender Message Submission Interface

Nº	Service/Protocol element	TS 102 640-1 [1] reference	Requirement	Implementation guidance	Notes
1	Any protocol provided that it is secured	Clause 5	M	a	

Implementation guidance:

a)   The Message Submission interface **shall** be implemented using any protocol securing the communication from the originating mail User Agent to the SMTP server. As an example SMTP on TLS or SSL **may** be used.

5.2.2   REM-MD Sender/Recipient Message Store Retrieval Interfaces

Nº	Service/Protocol element	TS 102 640-1 [1] reference	Requirement	Implementation guidance	Notes
1	Any protocol provided that it is secured	Clause 5	M	a	

Implementation guidance:

a)   The Message Store Retrieval interface **shall** be implemented using any protocol securing the communication from the sender/recipient mail User Agent to the REM-MD server. As an example IMAP or POP on TLS or SSL **may** be used.

5.2.3   REM-MD Repository Retrieval Interface

Nº	Service/Protocol element	TS 102 640-1 [1] reference	Requirement	Implementation guidance	Notes
1	Any protocol provided that it is secured	Clause 5	M	a	

Implementation guidance:

a)   The Repository Retrieval interface **shall** be implemented using any protocol securing the communication from the sender/recipient mail User Agent to the REM-MD server. As an example HTTP on SSL **may** be used (other common protocols like FTP and TLS for securing **may** be used and different agreements **may** exist between the involved REM-MDs).

5.2.4   REM Object Relay Interface

Nº	Service/Protocol element	TS 102 640-1 [1] reference	Requirement	Implementation guidance	Notes
1	SMTP on TLS	Clause 5	M	a	see note
NOTE:	This is a profile for SMTP relay protocol among REM-MDs and it reflects in this requirement.				

Implementation guidance:

a)   The Object Relay interface **shall** be implemented using SMTP protocol securing the communication from the sender REM-MD server to the recipient REM-MD server using TLS according to [4].

5.3   REM-MD Envelope

5.3.1   REM-MD Message/REM Dispatch Headers Constraints

Nº	Service/Protocol element	TS 102 640-2 [2] reference	Requirement	Implementation guidance	Notes
1	X-REM-Msg-Type	Clause 4.1	R	a	
2	X-REM-<component>	Clause 4.1	R	b	

Implementation guidance:

a)   The headers list **should** contain an "X-REM-Msg-Type:" header specifying the type of the actual message. Its value will be either "Dispatch" for a REM Dispatch message or "Message" for a REM-MD.

b)   The headers list **should** contain at least three "X-REM-<component>:" headers specifying the following couples components/values:

-   X-REM-*EvidenceIdentifier*: <value1>:   (i.e. *G00 - REM-MD Evidence Identifier* defined in clause 5.2.2.1.1 of TS 102 640-2 [2]).

-   X-REM-*EvidenceType*: <value2>:(i.e. *G01 - REM-MD Evidence Type* defined in clause 5.1 of TS 102 640-2 [2]).

-   X-REM-*EventCode*: <value3>   (i.e. *G02 - REM Event* defined in clause 5.2.2.1.3 of TS 102 640-2 [2]).

    Where the values **shall** be filled respectively as:

   ▪   <value1>   a string UID according to clause 5.2.2.1.1 of TS 102 640-2 [2].

   ▪   <value2>   one of the values of the string "name" specified in clause B.2 of TS 102 640-2 [2] (e.g. *SubmissionAcceptanceRejection*, *RelayToREMMDAcceptanceRejection*, etc.).

- ▪ <value3> number representing the "eventCode" according to clause A.1.1 of TS 102 640-2 [2].

NOTE: Items 1 and 2 facilitate achieving interoperability, that, however, **may** also be achieved without them.

5.3.2 REM-MD Signature Headers Constraints

Nº	Service/Protocol element	TS 102 640-2 [2] reference	Requirement	Implementation guidance	Notes
1	Content-Type	Clause 4.3	M	a	
2	Content-Disposition	Clause 4.3	M	b	

Implementation guidance:

a) The Content-Type header field **shall** be present. The value of the header **shall** be "**application/pkcs7-signature**". An additional "name" parameter **shall** be provided that has the value "**smime.p7s**".

b) The Content-Disposition field **shall** be present. The value of the header **shall** be "**attachment**". An additional "filename" parameter **shall** be provided that has the value "**smime.p7s**".

Every REM-MD Message generated by a REM-MD **shall** include the field Content-Disposition and fill in the name/filename parameters. To maximize the level of interoperability the REM-MDs **shall** be able to correctly interpret incoming messages without the presence of Content-Disposition and/or name/filename parameters.

5.3.3 REM-MD Introduction Headers Constraints

Nº	Service/Protocol element	TS 102 640-2 [2] reference	Requirement	Implementation guidance	Notes
1	X-REM-Section-Type	Clause 4.4	M	a	

Implementation guidance:

a) An **X-REM-Section-Type** header **shall** be provided that has the value "**rem_message/introduction**".

5.3.3.1 Multipart/alternative: Free text subsection header constraints

Nº	Service/Protocol element	TS 102 640-2 [2] reference	Requirement	Implementation guidance	Notes
1	Content-Type	Clause 4.4.1	R	a	

Implementation guidance:

a) The value for this field **shall** be: "text/plain;". It also is recommended that this field assumes also the value charset="UTF-8".

5.3.3.2 Multipart/alternative: Html subsection header constraints

Nº	Service/Protocol element	TS 102 640-2 [2] reference	Requirement	Implementation guidance	Notes
1	Content-Type	Clause 4.4.2	R	a	

Implementation guidance:

a) The value for this field **shall** be: "text/html;". It also is recommended that this field assumes also the value charset="UTF-8".

5.3.4   Original Message MIME Section headers constraints

Nº	Service/Protocol element	TS 102 640-2 [2] reference	Requirement	Implementation guidance	Notes
1	X-REM-Section-Type	Clause 4.5	M	a	

Implementation guidance:

a)   An **X-REM-Section-Type** header **shall** be provided that has the value "**rem_message/original**".

5.3.5   REM-MD Evidence MIME Section headers constraints

Nº	Service/Protocol element	TS 102 640-2 [2] reference	Requirement	Implementation guidance	Notes
1	X-REM-Section-Type	Clause 4.6	M	a	

Implementation guidance:

a)   An **X-REM-Section-Type** header **shall** be provided that has the value "**rem_message/evidence**".

Nº	Service/Protocol element	TS 102 640-2 [2] reference	Requirement	Implementation guidance	Notes
2	Content-Type	Clause 4.6.2	M	a	

Implementation guidance:

a)   The value for this field **shall** be: "application/xml;" and name/charset fields **shall** assume the values specified in the TS 102 640-2 [2].

The present profile requires that at least the evidence in XML format (defined in clause 4.6.2 of TS 102 640-2 [2]) is present in all the REM-MD messages.

Optionally the PDF format, a defined in clause 4.6.3 of TS 102 640-2 [2], **may** be present.

NOTE: If the optional evidence in PDF format carries an embedded XML structure, it replicates the data in the mandatory XML evidence.

5.3.6   REM-MD Extensions MIME Section headers constraints

The present extension is optional and, when present, is contained in a XML attachment of the REM-MD Message. If it is present the following restrictions apply.

Nº	Service/Protocol element	TS 102 640-2 [2] reference	Requirement	Implementation guidance	Notes
1	X-REM-Section-Type	Clause 4.7	M	a	

Implementation guidance:

a)   An **X-REM-Section-Type** header **shall** be provided that has the value "**rem_message/extensions**".

5.4   REM-MD evidence

5.4.1   REM-MD Evidence types

5.4.1.1   Mandatory evidence - all styles of operation

The following evidence types specified in the indicated clauses of TS 102 640-2 [2] are always required.

Nº	Service/Protocol element	TS 102 640-2 [2] reference	Requirement	Implementation guidance	Notes
1	SubmissionAcceptanceRejection	Clause 5.1.1	M	a	see note 1
2	DeliveryNonDeliveryToRecipient	Clause 5.1.4	M	b	see note 2
NOTE 1: Rationale: The sender **shall** be aware of the successful/unsuccessful outcome of his/her message submission.					
NOTE 2: Rationale: The sender **shall** have evidence on whether the recipient was/was not delivered: - The original message he/she sent (where the sender's REM-MD style of operation is "S&F"). - The notification the sender's REM-MD generated in relation to the original message (where the sender's REM-MD style of operation is "S&N").					

Implementation guidance:

a)   The sender's REM-MD **shall** include the SubmissionAcceptanceRejection (obviously related to a successful submission) in the REM Dispatch(es) to be forwarded to the final recipient(s).

b)   The recipient's REM-MD **shall** send back to the sender one REM-MD Message including the DeliveryNonDeliveryToRecipient evidence.

5.4.1.2   Mandatory evidence - S&N style of operation

The following evidence types specified in the indicated clause of TS 102 640-2 [2] is always required for messages conveyed to the recipient by reference.

Nº	Service/Protocol element	TS 102 640-2 [2] reference	Requirement	Implementation guidance	Notes
1	DownloadNonDownloadByRecipient	Clause 5.1.5	M	a	see note
NOTE: Rationale: The sender needs to have evidence on whether the recipient downloaded/non downloaded within a predefined time period the Original Message referenced in the notification.					

Implementation guidance:

a)   The recipient's REM-MD **shall** send back to the sender one REM-MD Message including the DownloadNonDownloadByRecipient.

5.4.1.3   Conditional evidence - all styles of operation

To the following evidence types, specified in the indicated clauses of TS 102 640-2 [2], the below specified conditions apply.

Nº	Service/Protocol element	TS 102 640-2 [2] reference	Requirement	Implementation guidance	Notes
1	RelayToREMMDAcceptanceRejection	Clause 5.1.2	Conditional "M"	a, b, c	see note
2	RelayToREMMDFailure	Clause 5.1.3	Conditional "M"	d, e	see note
NOTE: Rationale for both evidence types: the sender needs to know if the sent message did not successfully reach, or was rejected by, the recipient's REM-MD, to enact possible backup measures.					

Implementation guidance:

a)   Mandatory if:

-   no opposite provision is explicitly specified in the applicable REM-PD rules;

- no previous opposite agreement exists between the involved REM-MDs.

Such agreement or policy provision **should** specify one of the following:

I)   The sender's REM-MD will assume that one REM-MD Message has been rejected by the recipient's REM-MD if no contrary indication is received within a predefined time period.

II)   The sender's REM-MD will assume that one REM-MD Message has been accepted by the recipient's REM-MD if no contrary indication is received within a predefined time period.

Alternative conditions **may** be specified in the above agreement, provided that the issue is exhaustively dealt with.

b)   If this Evidence type is mandatory, the recipient's REM-MD **shall** send back to the sender's REM-MD one REM-MD Message including the RelayToREMMDAcceptanceRejection.

c)   In the cases addressed in the previous item a)I) and item a)II), the sender's REM-MD **shall** build a REM-MD Message, including one RelayToREMMDAcceptanceRejection Evidence and **shall** send it to the sender.

d)   Mandatory if no opposite requirement within REM-PD exists.
Such policy requirement **should** specify that, if no contrary indication is received within a predefined time period, it is to be assumed that it was impossible to deliver one REM-MD Envelope within a given time period to the recipient's REM-MD, due to any kind of problems.
Alternative conditions **may** be specified in the above policy, provided that the issue is exhaustively dealt with.

e)   The sender's REM-MD **shall** build a REM-MD Message, including one RelayToREMMDFailure Evidence and **shall** send it back to the sender.

5.4.2 REM-MD Evidence components

In the following clauses, details on the Evidence Components are listed for each "Mandatory Evidence type" indicated in above clauses from 5.4.1.1 through 5.4.1.3. The line of conduct adopted in the following clauses differs from the one adopted in the other clauses of the present document. More in detail, the following clauses list all Evidence Components that are required to ensure interoperability, including those that in TS 102 640-2 [2] are already indicated as mandatory or whose absence implies a value by default.

NOTE: This different line of conduct has been adopted to give a more complete and comfortable view to the reader.

5.4.2.1 SubmissionAcceptanceRejection - clause 5.1.1

Nº	Evidence element	TS 102 640-2 [2] reference	Requirement	Implementation guidance	Notes
1	REM-MD Evidence Identifier	G00	M		see note 1
2	REM-MD Evidence Type = "SubmissionAcceptanceRejection"	G01	M		see note 1
3	REM Event	G02	M		see note 1
4	Reason code	G03	M (1..N)	a	see note 1
5	REM-MD Evidence Version	G04	M		see note 1
6	Event Time	G05	M		see note 1
7	REM-MD Evidence issuer Policy Identifier	R01	M (1..N)		see note 1
8	REM-MD Evidence issuer Details	R02	M		see note 1
9	Sender's details	I00	M		see note 1
10	Recipient's details	I01	M (1..N)		see note 1
11	Sender Authentication details	I04	O	b	see note 2
12	REM-MD Message/REM Dispatch details	M00	M		see note 1
13	Reply-to	M01	M	c	
14	Message Submission Time	M03	M	d	
NOTE 1: Readers are reminded that this requirement is present as mandatory in TS 102 640-2 [2].					
NOTE 2: Readers are reminded that this requirement is present with a default value in TS 102 640-2 [2].					

Implementation guidance:

a) At least one Reason Code **shall** be present, unless the applicable REM-PDs explicitly require that when submission is regularly accepted no Reason Code is necessary.

Multiple Reason Code **may** be present depending on the found exceptions.

b) If this field is not present it means that the class of authentication is Basic. In the other cases it specifies the class of Authentication.

c) This field **shall** be present containing the email address of the original sender, unless the applicable REM-PDs explicitly require that no Reply-to is necessary.

d) This field **shall** be present.

5.4.2.2   DeliveryNonDeliveryToRecipient - clause 5.1.4

Nº	Evidence element	TS 102 640-2 [2] reference	Requirement	Implementation guidance	Notes
1	REM-MD Evidence Identifier	G00	M		see note
2	REM-MD Evidence Type = "DeliveryNonDeliveryToRecipient"	G01	M		see note
3	REM Event	G02	M		see note
4	Reason code	G03	M (1..N)	a	
5	REM-MD Evidence Version	G04	M		see note
6	Event Time	G05	M		see note
7	REM-MD Evidence issuer Policy Identifier	R01	M (1..N)		see note
8	REM-MD Evidence issuer Details	R02	M		see note
9	Sender's details	I00	M		see note
10	Recipient's details	I01	M (1..N)		see note
11	Recipient referred to by the Evidence	I03	M	b	
12	REM-MD Message/REM Dispatch details	M00	M		see note
13	Notification Message Tag	M02	O	c	
NOTE: Readers are reminded that this requirement is present as mandatory in TS 102 640-2 [2].					

Implementation guidance:

a) At least one Reason Code **shall** be present, unless the applicable REM-PDs explicitly require that when delivery regularly occurred no Reason Code is necessary.

Multiple Reason Code **may** be present depending on the found exceptions:

b) This field **shall** be present.

c) This field **shall** be present with value TRUE if the REM-MD Message to which this evidence refers is a notification. Otherwise, if this evidence refers to a REM-MD Message that includes the Original Message, it **may** be absent or assume the value FALSE.

5.4.2.3 DownloadNonDownloadByRecipient - clause 5.1.5

Nº	Evidence element	TS 102 640-2 [2] reference	Requirement	Implementation guidance	Notes
1	REM-MD Evidence Identifier	G00	M		see note
2	REM-MD Evidence Type = "DownloadNonDownloadByRecipient"	G01	M		see note
3	REM Event	G02	M		see note
4	Reason code	G03	M (1..N)	a	
5	REM-MD Evidence Version	G04	M		see note
6	Event Time	G05	M		see note
7	REM-MD Evidence issuer Policy Identifier	R01	M (1..N)		see note
8	REM-MD Evidence issuer Details	R02	M		see note
9	Sender's details	I00	M		see note
10	Recipient's details	I01	M (1..N)		see note
11	Recipient referred to by the Evidence	I03	M	b	
12	Recipient Authentication details	I05	O	c	
13	REM-MD Message/REM Dispatch details	M00	M		see note
NOTE:	Readers are reminded that this requirement is present as mandatory in TS 102 640-2 [2].				

Implementation guidance:

a) At least one Reason Code **shall** be present, unless the applicable REM-PDs explicitly require that when download regularly occurred no Reason Code is necessary.

Multiple Reason Code **may** be present depending on the found exceptions.

b) This field **shall** be present.

c) If this field is not present it means that the class of authentication is Basic. In the other cases it specifies the class of Authentication.

5.4.2.4 RelayToREMMDAcceptanceRejection - clause 5.1.2

Nº	Evidence element	TS 102 640-2 [2] reference	Requirement	Implementation guidance	Notes
1	REM-MD Evidence Identifier	G00	M		see note
2	REM-MD Evidence Type = RelayToREMMDAcceptanceRejection	G01	M		see note
3	REM Event	G02	M		see note
4	Reason code	G03	M (1..N)	a	
5	REM-MD Evidence Version	G04	M		see note
6	Event Time	G05	M		see note
7	REM-MD Evidence issuer Policy Identifier	R01	M (1..N)		see note
8	REM-MD Evidence issuer Details	R02	M		see note
10	Sender's details	I00	M		see note
11	Recipient's details	I01	M (1..N)		see note
12	Recipient referred to by the Evidence	I03	M		see note
13	REM-MD Message/REM Dispatch details	M00	M		see note
14	Notification Message Tag	M02	M		see note
NOTE:	Readers are reminded that this requirement is present as mandatory in TS 102 640-2 [2].				

Implementation guidance:

a) At least one Reason Code **shall** be present, unless the applicable REM-PDs explicitly require that when the relay to the recipient's REM-MD regularly occurred no Reason Code is necessary.

Multiple Reason Code **may** be present depending on the found exceptions.

5.4.2.5 RelayToREMMDFailure - clause 5.1.3

Nº	Evidence element	TS 102 640-2 [2] reference	Requirement	Implementation guidance	Notes
1	REM-MD Evidence Identifier	G00	M		see note
2	REM-MD Evidence Type = "RelayToREMMDFailure"	G01	M		see note
3	REM Event	G02	M		see note
4	Reason code	G03	M (1..N)	a	
5	REM-MD Evidence Version	G04	M		see note
6	Event Time	G05	M		see note
7	REM-MD Evidence issuer Policy Identifier	R01	M (1..N)		see note
8	REM-MD Evidence issuer Details	R02	M		see note
9	Sender's details	I00	M		see note
11	Recipient's details	I01	M (1..N)		see note
12	Recipient referred to by the Evidence	I03	M		see note
13	REM-MD Message/REM Dispatch details	M00	M		see note
14	Notification Message Tag	M02	M		see note
NOTE: Readers are reminded that this requirement is present as mandatory in TS 102 640-2 [2].					

Implementation guidance:

a) At least one Reason Code **shall** be present, unless the applicable REM-PDs explicitly require that when relay to the recipient's REM-MD failed no Reason Code is necessary.

Multiple Reason Code **may** be present depending on the found exceptions.

History

Document history		
V2.1.1	January 2010	Publication
V2.1.2	September 2011	Publication