**Finnish project**

**RealTime SafeTIR**

**Web Services Interface Specification**

**Version 1.1**

**June-2012**

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# Introduction

Real Time SafeTIR (RTS) facilitates the integration of the TIR Procedure within Customs Authorities’ existing computerized systems, providing real time capabilities for both inland and border posts. RTS improves safety and security, facilitates trade, preserves Custom’s existing information technology investments, and works within existing custom’s TIR procedures.

RTS is composed of 2 different independent services:

###### 1.1 CarnetService which contain the following web methods:

**queryCarnet** :This method allows the Customs Authorities to validate (in real time) TIR Carnet presented by hauliers against the IRU’s central database. The primary use of this service is to facilitate the procedures at customs offices of departure, exit and entry.

**getStoppedCarnets**: This method allow the Customs to have all the invalid TIR carnets with the details of the invalidation

###### 1.2 TerminationService which contain the following methods:

**transmitTIROperationTerminations**: This method allows the Customs Authorities to transmit SafeTIR data to the IRU at the same time the TIR Carnet is terminated.

The following methods will be implemented in at later stage into this service:

**getReconciliationRequests**: method allowing the customs to get the request for reconciliation addressed to them

**transmitReconciliationRequestReplies**: method allowing the Customs to reply the request for reconciliation

# Purpose of this document

The document is for a technical audience - the architects, designers and implementers of the technical solutions that use RTS services.

# Version History

|  |  |  |
| --- | --- | --- |
| **Version** | **Author** | **Date** |
| 1.0 | L. Lagier, IT Project Manager  D. Schenk, Application Engineer  M. Verbert, Systems Architect | December 2011 |
|  |  |  |

# Security

Customs Authorities and the IRU communicate directly. There are no intermediaries.

## Transmission Security (https)

The Internet is used for the information exchange. However, the information in the SafeTIR Transmission and TIR Carnet Query exchanges is sensitive. It must be protected from unauthorized access to insure the confidentiality and integrity of the information. Authentication of the senders and receivers of the information is also be assured.

The currently supported key strength is RSA 1024 bits. It will be possible in future revisions of this document, in agreement with both parties, to update the list of supported key lengths to cope with the advances in security technologies.

## Service Security

The Services will support only OASIS “Password Digest”, <http://docs.oasis-open.org/wss/v1.1/wss-v1.1-spec-os-UsernameTokenProfile.pdf> either identification by certificate X509 <http://docs.oasis-open.org/wss/v1.1/wss-v1.1-spec-os-x509TokenProfile.pdf>.

## Message Signature

The services will use RSA-SHA1 (<http://www.w3.org/2000/09/xmldsig#rsa-sha1>) digital signature with SHA1 (<http://www.w3.org/2000/09/xmldsig#sha1>) digest values that will ensure both parties to have non-reputable messages <http://www.w3.org/TR/2002/REC-xmldsig-core-20020212/>. The XML signature will be part of the SOAP Header and it will sign the SOAP Body as a referenced object (cf. OASIS X509 Token Profile document).

The algorithms can be changed in the future if a serious weakness is discovered.

# Standards

## Web-Services and XML

"Extensible Markup Language (XML) 1.0 (Second Edition)": [http://www.w3.org/TR/REC-xml](http://www.w3.org/TR/2000/REC-xml-20001006);

"Namespaces in XML": [http://www.w3.org/TR/REC-xml-names](http://www.w3.org/TR/1999/REC-xml-names-19990114);

"XML Schema Part 1: Structures" & "XML Schema Part 2: Datatypes", [http://www.w3.org/TR/xmlschema-1/](http://www.w3.org/TR/2000/CR-xmlschema-1-20001024/) & [http://www.w3.org/TR/xmlschema-2/](http://www.w3.org/TR/2000/CR-xmlschema-2-20001024/);

“Web Services Description Language (WSDL)” 1.1, W3C Note 15 March 2001: <http://www.w3.org/TR/wsdl>;

Web Services Security, SOAP Message Security 1.0, OASIS Standard, 01.03.2004.

## SOAP messages

"Extensible Markup Language (XML) 1.0 (Second Edition: <http://www.w3.org/TR/REC-xml>;

"Namespaces in XML: <http://www.w3.org/TR/REC-xml-names>;

“Simple Object Access Protocol (SOAP)” 1.2: <http://schemas.xmlsoap.org/wsdl/soap12>

<http://schemas.xmlsoap.org/ws/2004/09/policy>

# Participants, Business Processes and Messages

This section describes the participants, business processes, and the list of messages that may be used.

## Information Exchange

| **№** | **Participant** | **Responsible unit (service)** |
| --- | --- | --- |
| 1 | Customs Authority | TBD |
| 2 | International Road Transport Union (IRU) | TIR System Department |

Table -- Participants

## Business Processes

|  |  |  |
| --- | --- | --- |
| **№** | **Business process** | **Characteristics of business process** |
| 1 | transmitTIROperationTerminations: Transmission of information from the Customs Authority to the IRU under the SafeTIR procedure (ws: TerminationService-1). | This information is sent at the time the termination is first registered in the Custom’s application. Normally this should be immediately before or after the TIR Carnet is stamped. |
| 2 | queryCarnet: Query from Customs Authority to IRU under the «TIR Carnet Holder» procedure (ws: CarnetService-1). | This business process is used by the Customs Authority to obtain information regarding TIR Carnets presented at one of their customs offices. |
| 3 | getStoppedCarnets: Query from Customs Authority to IRU regarding the invalid TIR carnets (ws: CarnetService-1). | This business process is used by the Customs Authority to obtain all the invalid TIR carnets recently updated |
| 4 | getReconciliationRequests Query from Customs Authority to IRU regarding the request for reconciliation (ws: TerminationService-1). | This business process is used by the Customs Authority to obtain request for reconciliation addressed to them |
| 5 | transmitReconciliationRequestReplies : Transmission of information from the Customs Authority to the IRU under the Reconciliationprocedure (ws: TerminationService-1). | This business process is used by the Customs Authority to reply the request for reconciliation |

# CarnetService WSDL + TerminationService with XSD on Annex 1 (zip file)

Note: some elements are only holders for other elements or attributes. If they don’t hold business information by themselves, only their sub-nodes are described using “/” as a hierarchical separators. Attributes are prefixed with “@”.

### transmitTIROperationTerminations+ transmitTIROperationTerminationsResponse: Business Data Definitions

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Parent Element name or type** | **Element/attribute name** | **Data type and constraints** | **Explanation** | **Cardinality** |
| transmitTIROperationTerminations | transmissionTime | dateTime | Time of transmission | [1] |
| transmitTIROperationTerminations | transmissionId | token | Identifier of transmission | [1] |
| transmitTIROperationTerminations | TIROperationTerminations | TIROperationTerminationsType | List of terminations | [1] |
| TIROperationTerminations | NewTIROperationTermination | TIROperationTerminationType | New termination | [0..n] |
| TIROperationTerminations | CancelledTIROperationTermination | TIROperationTerminationType | cancelled termination | [0..n] |
| TIROperationTerminations | UpdatedTIROperationTermination | UpdatedTIROperationTerminationType | Updated termination | [0..n] |
| UpdatedTIROperationTermination | CancelledTIROperationTermination | TIROperationTerminationType | The termination that was previously sent | [1] |
| UpdatedTIROperationTermination | NewTIROperationTermination | TIROperationTerminationType | The termination that replaces the previousy sent one. | [1] |
| TIROperationTerminationType | TIRCarnetNumber | TIRCarnetNumberType:  string with 2 alphabets (A-Z) followed by 8 numeric digits (0-9) | TIR Carnet Reference Number | [1] |
| TIROperationTerminationType | VoletPageNumber | VoletPageNumberType: even unsignedByte between 2 and 20 | Volet Page Number. | [1] |
| TIROperationTerminationType | Customs/CountryCode | CountryCodeType: 3 uppercase characters | ISO 3166-1 alpha-3 code for the country | [1] |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| TIROperationTerminationType | CustomsOffice | String of maximum Length: 255 characters | Name or Number of Customs Office | [1] |
| TIROperationTerminationType | CustomsLedgerEntryReference | String of maximum Length: 255 characters | Record Number in Customs Ledger (Termination) | [0..1] |
| TIROperationTerminationType | CustomsLedgerEntryDate | dateTime | Date in Customs Ledger (Termination), including a timezone | [0..1] |
| TIROperationTerminationType | CertificateOfTerminationReference | String of maximum Length: 255 characters | Reference Number of Discharge | [0..1] |
| TIROperationTerminationType | CertificateOfTerminationDate | dateTime | Date of Discharge , including a timezone | [0..1] |
| TIROperationTerminationType | IsFinal | Boolean | Indicates that the discharge is final or not | [1] |
| TIROperationTerminationType | SequenceNumber | Unsigned byte | Optional sequence number of discharge | [0..1] |
| TIROperationTerminationType | IsWithReservation | Boolean | Discharge with or without Reservation. | [1] |
| TIROperationTerminationType | CustomsComment | Free form up to 126 Characters | Optional comment by customs | [0..1] |
| TIROperationTerminationType | PackageCount | Unsigned integer | Number of packages discharged | [0..1] |
| transmitTIROperationTerminationsResponse | transmissionTime | dateTime | Time of transmission | [1] |
| transmitTIROperationTerminationsResponse | success | boolean | Whether the terminations were received successfully | [1] |

Note on transmitTIROperationTerminationsResponse/success:

* if true, it means that the terminations were transmitted successfully. It doesn’t mean that the content of the terminations were deemed correct.
* If false, the terminations were not transmitted successfully. It is safe to try to retransmit at a later time (this is contrary to the case of a SOAP fault when the transmission should not be re-attempted).

### queryCarnet +queryCarnetResponse: Business Data Definitions

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Parent Element name or type** | **Element/attribute name** | **Data type and constraints** | **Explanation** | **Cardinality** |
| queryCarnet | TIRCarnetNumber | TIRCarnetNumberType:  string with 2 alphabets (A-Z) followed by 8 numeric digits (0-9) | The queried carnet number | [1] |
| queryCarnetResponse | TIRCarnet | CarnetType | The full carnet information | [1] |
| TIRCarnet | TIRCarnetNumber | TIRCarnetNumberType | TIR Carnet Reference Number |  |
| TIRCarnet | ExpiryDate | dateTime | Final Validity date of the TIR carnet |  |
| TIRCarnet | Association/@id | Unsigned integer | Association code number | [0..1] |
| TIRCarnet | Holder/@id | HaulierIdType: string composed of 3 letters + “/” + association id + “/” + haulier number | Holder identification ID | [0..1] |
| TIRCarnet | Status | CarnetStatusType: one of ISSUED\_TO\_ASSOCIATION, ISSUED\_TO\_HAULIER, RETURNED\_TO\_ASSOCIATION, RETURNED\_TO\_IRU, STOPPED, INCORRECT\_NUMBER | Current status of the TIR carnet into the IRU DB | [1] |
| TIRCarnet | TIROperationTerminations/@count | Unsigned integer | Number of terminations | [1] |
| TIRCarnet | TIROperationTerminations/@hasFinal | Boolean | True if one of the termination is final | [1] |