Customs-to Customs (C2C) Electronic Information Exchange for Transit

Georgia – Turkey

Project Status (Georgia)

Central Exchange Platform (CEP)

UNDA project 1213AA / UNECE sub-project
“Strengthening the Capacities of Developing Countries and Countries with Economies in Transition to Facilitate Legitimate Border Crossing, Regional Cooperation and Integration”

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Georgia – Turkey Pilot Project

Brief Status: Georgian Customs
Project Status

• Since May 2016, the software is fully operational, hosted by the infrastructure of the Revenues Service of Georgia, working in the test mode and contributing for operational testing of the Central Exchange Platform (CEP)

Implementation Timeline

January 2016:
• Linked to CEP

July 2015:
• Technical Specification elaborated
• Back-end software deployed

April 2015:
• Project launched

April 2016:
• Linked to CEP

May 2016:
• Exchanges information with CEP in test mode

Status

• **Outbound messages**: sending, analyzing exceptions, improving operational practice

• **Inbound massages**: tested on test data sets, not operational so far

• **Utilization of information**: interim interfaces, analyzing outbound data sets, waiting for inbound information
Limitations

• Messages are structures according current capabilities of Georgian Customs (data, operations)

• Data sets, structure of information and sequence of underlying operations/documents partially differ from the sequence as required by the eTIR, but comparable to enable exchange of information

• The secondary sources of information are used (export declaration, T1)

• Technically, the data exchange is organized in the way, allowing gradual improvement/switch to other sources of information without interventions in the data exchange interfaces.
<table>
<thead>
<tr>
<th>No. (eTIR Ref. Model)</th>
<th>Description</th>
<th>Limitations</th>
<th>Status (As of date of Report)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I5</td>
<td>Query guarantee</td>
<td>No limitations</td>
<td>Implemented, but tested using the test data (no operational testing)</td>
</tr>
<tr>
<td>I6</td>
<td>Query results</td>
<td>Triggered by export declaration, cannot provide route information</td>
<td>Implemented and tested in operational setting</td>
</tr>
<tr>
<td>I7</td>
<td>Record Advance Cargo Information</td>
<td>Triggered by export declaration, cannot provide route information</td>
<td>Implemented and tested in operational setting</td>
</tr>
<tr>
<td>I8</td>
<td>Record Advance Cargo Information results</td>
<td>Triggered by export declaration, cannot provide route information</td>
<td>Implemented and tested in operational setting</td>
</tr>
<tr>
<td>I9</td>
<td>Start TIR operation</td>
<td>Triggered by internal transit operations (T1)</td>
<td>Implemented and tested in operational setting</td>
</tr>
<tr>
<td>I10</td>
<td>Start results</td>
<td>Triggered by internal transit operations (T1)</td>
<td>Implemented and tested in operational setting</td>
</tr>
<tr>
<td>I11</td>
<td>Terminate TIR operation</td>
<td>Triggered by internal transit operations (T1)</td>
<td>Implemented and tested in operational setting</td>
</tr>
<tr>
<td>I12</td>
<td>Termination results</td>
<td>Triggered by internal transit operations (T1)</td>
<td>Implemented and tested in operational setting</td>
</tr>
<tr>
<td>I13</td>
<td>Discharge TIR operation</td>
<td>Triggered by closing internal transit documents</td>
<td>Implemented and tested in operational setting</td>
</tr>
<tr>
<td>I14</td>
<td>Discharge results</td>
<td>Receives without limitations</td>
<td>Implemented, but tested using the test data (no operational testing)</td>
</tr>
<tr>
<td>I15</td>
<td>Notify Customs</td>
<td>Receives without limitations</td>
<td>Implemented, but tested using the test data (no operational testing)</td>
</tr>
<tr>
<td>I16</td>
<td>Notification confirmation</td>
<td>Receives without limitations</td>
<td>Implemented, but tested using the test data (no operational testing)</td>
</tr>
</tbody>
</table>
Flow of Operations (Scenarios)

Georgia is capable to process:

As well as:

*If route is not changed*
High Level Architecture

The architecture is flexible enough to enhance the system in the future

- **ASYCUDA (eCustoms)**
  - Data / Triggers

- **ORACLE**
  - Monitoring GUI
  - Risk Management

**Interim Layer**
- Interim Data
- Business Logic
- Structured Data

**Data Exchange Application**
- Business Logic (Transmission / Receiving)
- Inbound/Outbound Messages

- DB Link, Secured channel

- SOAP WS Security

- CEP
Next Steps

• **Integration and utilization**
  • Monitoring of information implemented. Decision on future integration will be made and integration implemented by Georgian Customs

• **Transition to full data set and original flow of operations**
  • Switch to original sources of information, ensure completeness of data sets and implementation of original flow of operations

• **Transition to full eTIR Model**
  • Enhance the structure of the database in accordance with the eTIR Reference Model requirements in the future, when needs for such enhancement will raised, as well as completeness of information will enable implementation of such exercise
Central Exchange Platform (CEP)

Brief overview of Capabilities
What is CEP?

CEP is a secure C2C electronic exchange platform, taking due account of the specific challenges faced by developing countries and countries with economies in transition.

- Based on eTIR Reference Model v.4.1a, WCO data model v.3.5 and taking into account the overall structure of the WCO transit data model.
- Taking into account the availability of data that pilot countries will be exchanging and National procedures.
- Hosted and managed by the IT centre of the UN Office at Geneva.
Project Status

• Since May 2016, the platform is fully operational, hosted by the infrastructure of the UN Office, and working in test mode
• Georgia Customs is linked

• Ongoing activities
  • Exchange of information with Turkish Customs in progress
  • Operational testing / monitoring / improvements
  • Development of reporting capabilities
The Actors

- The Customs Authorities of Countries Participants of the Project – Georgia and Turkey
- UNECE/TIR secretariat by the means of hosting of the Central Exchange Platform and ensuring security and confidentiality of the data received
- ITDB

- The CEP potentially supports any number of System Agents of National Customs Authorities
- The process of new system agent addition to the CEP is developed in a way that it would require no serious manipulations
- Actually the process of adding new agent consists of adding new record in a special table and registering of certificate which is generated and sent by agent in CEP’s keys store.
High Level Architecture

National Customs Systems

CEP

Central DB

ITDB

TIR Database

Messages (SOAP with WS Security)

Holder Status (SOAP with WS Security)

Guarantee Status

Not available in the current release

Not available in the current release
Implemented Messages

Six C2C messages are available (in accordance with requirements of the eTIR Reference Model v.4.1a)

1. I5 – I6: Query Guarantee
2. I7 – I8: Record Advance Cargo Information
3. I9 – I10: Start TIR Operation
4. I11 – I12: Terminate TIR Operation
5. I13 – I14: Discharge TIR Operation
6. I15 – I16: Notify Customs
Capabilities

• CEP platform’s interface is designed as simple as possible to deliver potentially any type of document (message) to the Central Exchange Platform and then to the appropriate system agent(s) used by the National Customs Authorities.

• CEP Web Service requires the message to have three parameters:
  • Identifier of National Customs Authority system agent posting the message;
  • Type of the message, which is supported by the CEP;
  • Message content.

Such simple and straightforward interface does not strictly tight CEP platform to any type of document. Currently CEP platform implements only XML documents based on eTIR Reference Model - Version 4.1a XML schemas (http://www.unece.org/trans/bcf/etir/xml_schemas.html), but potentially other messages support could be added without changing CEP principles and interface.
Exchange Platform in Action (eTIR Model)

But not so simple as seen... Intermediate loads and unloads are matter

Country of Departure
- Office of Departure
- Declaration
- (1) Record Advance Cargo Information
- (2) Start
- (3) Terminate
- (4) Discharge
- National System

Country of Transit
- Office of Entry
- (1.1) Notify Customs
- (5) Start
- (6) Terminate
- (7) Discharge
- National System

Country of Destination
- Office of Destination
- Declaration
- (8) Start
- (9) Terminate
- (10) Discharge
- National System

EXCHANGE PLATFORM
C2C Platform vs. eTIR Model

Flow of Information

**eTIR Model (fragment)**

- **Holder**
- **CO of Departure**
- **CO of Int. Load/Departure**

  - AC Declaration (Original, update)
  - Approved AC info
  - Declaration (Original)
  - Declaration (Amendment/Update)

  [Diagram showing flow of information through eTIR Platform]

**C2C Model (fragment)**

- **Authorized Party**
  - Declaration (Export, AC)
  - CO of Departure
  - CO of Int. Load/Departure
  - Processed info
  - Border

  [Diagram showing flow of information through C2C Platform]
Validation of Messages

• Sequence is built around the TIR Guarantee
• Only TIR Guarantee number and structure of message are strictly validated
• Possibility to configure separate incoming messages validation rules for each type of incoming XML message
• Possibility to configure different validation rules for each specific National Customs Authority system agent in case of necessity

Message validation rules are configured via special XML document called as Message Descriptor. Message descriptor defines entire structure of the incoming message (document) and can define validation rule(s) for any node.

The flexible validation architecture of the CEP gives the possibility to extend a list of already available types of validations with any number of new types. This can be achieved without changing Message Descriptor format or validation architecture core.
Methods

• The CEP considers availability of both PULL and PUSH outgoing message communication mechanisms
• The message communication mechanism can be chosen by the System Agents of National Customs Authorities depending on the System Agent requirements

Georgia: PULL is selected
Turkey: PUSH is selected
Security

• Messages transmitted between CEP and System Agents of National Customs Authorities integrated with the CEP are signed and encrypted to ensure messages integrity and confidentiality

• Web Services Security (WS-Security, WSS) SOAP extension was chosen for that purpose

• CEP and participating Agents have their own pair of public and private keys

• All public keys (certificated) will be available to all parties of the system in order to verify message signatures and to perform data encryption

WS-Security is a member of the Web service specifications and was published by OASIS. Its main focus is the use of XML Signature and XML Encryption to provide end-to-end security

To maximally simplify agents integration process WS-SecurityPolicy specification is used to define WS-Security requirements, which are directly embedded into WSDL
Data Sets

• Covers and processes full set of data according to eTIR reference Model v.4.1.

• Currently allows processing of incomplete data: allows circulation and storage of subsets of messages as well as complete eTIR messages based on configuration.

The CEP is assumed to enable full set of information as defined by the eTIR reference model in order to enable both extension of scope by participants of the current project in the future and smooth involvement of other countries in the project.
Configurability

• Capability to configure separate validation rules for each type of incoming XML messages and individually for each Agent

• PUSH and PULL methods are also subject of configuration for each particular Agent
Acknowledgement: We Appreciate

• UNECE/Transport Division, and especially Mr. Andre Sceia for supporting and encouragement of the project

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Thank You for Attention!

Questions?

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