



**TERMS OF REFERENCE**  
**For Electronic Tracking of Containerized Cargo (E-TRACC) System**

**1.0 Introduction**

The Bureau’s Electronic Tracking of Containerized Cargo (E-TRACC) System will employ advanced technology, including GPS-equipped electronic customs seals, in order to monitor the inland movement of containerized cargo and ensure that cargoes transported arrive at the intended destination untampered.

The E-TRACC System aims to stop smuggling through transit pilferage, and diversion of import goods from its intended destination that result to loss of revenue to the government.

**2.0 Qualifications**

<b>Eligibility Criteria</b>	<b>Evidence of Compliance</b>	<b>Rationale</b>
A. Service Providers shall be restricted to Philippine nationals which shall refer to citizens of the Philippines or a domestic partnership wholly owned by citizens of the Philippines; or a corporation organized under the laws of the Philippines of which at least sixty percent (60%) of the capital stock outstanding and entitled to vote is owned and held by citizens of the Philippines.	<ol style="list-style-type: none"> <li>1. If the Service Provider is a corporation - SEC registration and latest GIS showing that 60% of the outstanding capital stocks are owned by citizens of the Philippines.</li> <li>2. If sole proprietorship or partnership – owners must be citizens of the Philippines.</li> </ol>	R.A. 9184
B. The proposed solution must have been used by a customs administration that is part of the World Customs Organization (WCO) for at least the past five (5) years.	Contracts, accreditations or certifications	Reliability of the solution; Precedent case for the solution to be implemented
C. The proposed solution must have been used in the Philippines, with a track record of successfully securing at least 10,000 containers	Reports and system logs validated by clients or regulating agencies.	Reliability of the solution in the local environment since the Philippines has a unique geographic configuration and telecoms infrastructure which can affect

		performance of the solution.
D. The proposed solution, which includes the hardware and software components, must be owned and controlled by the Service Provider.	Certification of Ownership (product patent, proof of ownership of hardware and software)	Ability of the Service Provider to maintain, improve and customize the solution.
E. The primary application and database servers hosting the central control software application and the database must be in the Philippines.	Certification by Service Provider with attached photos	Data security, national security
F. The Service Provider must be able to deliver the solution within  30 days max – Port of Manila, MICP, Port of Batangas  180 days max- remaining ports nationwide	A sworn statement of an implementation timetable and a PhP5 Million bond shall be posted by the Service Provider.	The project needs to be implemented immediately to arrest revenue leakages.

### 3. Technical Requirements

The Service Provider shall provide the electronic transit cargo monitoring solution for sealing and monitoring of cargoes with the following specifications:

*[Note: If any documents are not in English, a certified translation, authentication by the Philippine Consulate in the country of issuance, is required.]*

#### 3.1. Hardware Seal

##### 3.1.1 Physical Construction

Technical Requirements	Evidence of Compliance	Rationale
A. Waterproof and Dust Proof (IP66 rating)	IP66 Certification of the device	Containers are subject to harsh weather and environmental conditions while in transit
B. Uses an expandable standard container bolt seal that conforms to ISO standards	ISO Compliance Certification of the bolt used in the device	Compliance to international standards
C. Must be capable of sealing standard intermodal containers, securing across the middle 2 vertical locking bars, one of each door, without opening the container.	<ol style="list-style-type: none"> <li>1. Manufacturer's Unamended product literature</li> <li>2. Actual Product demonstration</li> </ol>	Higher security
D. Must be capable of sealing standard closed cargo compartments by securing a standard latch of a closed or winged van without opening the cargo compartments.	<ol style="list-style-type: none"> <li>1. Manufacturer's Unamended product literature</li> <li>2. Actual Product demonstration</li> </ol>	Must be able to secure cargo movement in airport terminals
E. Must be capable of sealing multiple compartments or doors using multiple seals electronically linked together.	<ol style="list-style-type: none"> <li>1. Manufacturer's Unamended product literature</li> <li>2. Actual Product demonstration</li> </ol>	Must be able to secure bulk carriers such as fuel tankers
F. Must have external visible indicators lights to show device status	<ol style="list-style-type: none"> <li>1. Manufacturer's Unamended product literature</li> <li>2. Actual product demonstration</li> </ol>	User friendly design

G. The device must be sealed and unsealed without the use of external tools or devices.	1. Manufacturer's Unamended product literature 2. Actual product demonstration	Operational efficiency to avoid delays and traffic congestion
H. Must be uniquely identifiable physically and electronically.	Actual Product	Auditable
I. Must be reusable	Actual Product	Efficacy and quality of the device
J. Must bear visible marks of " <i>Tampering of this Customs Seal is punishable under Customs Laws</i> ".	Actual Product	Identification and Security notice

### 3.1.2 Geographical Positioning System (GPS)

Technical Requirements	Evidence of Compliance	Rationale
A. Supports up to 66 Channels	Technical documentation	Performance efficiency and efficacy of the device
B. Sensitivity up to -165 dBm	Technical documentation	
C. Location Accuracy: 5–10 m	Technical documentation	
D. Velocity Accuracy: 0.1m/s	Technical documentation	
E. Acquisition Time: 1 second (Hot Start), 35 seconds maximum (Warm Start)	Technical documentation	

### 3.1.3 Data Communications Requirements

Technical Requirements	Evidence of Compliance	Rationale
A. Supports 2G and 3G Network (850 / 900 / 1800 / 1900 / 2100 MHz) with built-in GSM antenna	Technical documentation and QA test	Ensures continuous tracking
B. Must have at least two (2) Subscriber Identification Module (SIM) slots, capable of automatically switching between the two current major telecommunication networks (Globe and Smart) with capability to switch to a third network if available (i.e. auto-roaming between all 3 networks)	Technical documentation and QA test	Ensures continuous tracking and minimizing blind spots.

C. Static memory that can store at least 2,000 locations when GSM data is unavailable and must be able to send the stored data upon reconnection to the network.	Technical documentation and QA test	Maintains tracking even when data signal is interrupted.
D. Queue priority where tamper, sealing and unsealing events are always sent first followed by normal events.	Technical documentation and QA test	Ensures that risk events are instantaneously reported
E. Variable reporting frequency so that reporting is more frequent when unsealing/tampering is detected and return to normal reporting cycle when done.	Technical documentation and QA test	Higher detection rate during risk events
F. Must be able to report event time, position, security status, battery status	Technical documentation and QA test	Audit and monitoring feature

### 3.1.4 Battery Life

Technical Requirements	Evidence of Compliance	Rationale
A. Fully charged battery must be able to function continuously for at least four days without the need to recharge.	Technical documentation and QA test	Able to track containers for multiple days; Reusability of the device for continuous operation

### 3.1.5 Certifications and Accreditations

Technical Requirements	Evidence of Compliance	Rationale
A. Equipment Safety Certification	Information Technology Equipment Safety Certificate, International Electrotechnical Commission (IEC) 60950-1 Certification	Adherence to international standards
B. Customer Premises Equipment Type Approval Certificate	Certification from the Philippine National Telecommunications Commission (NTC)	NTC regulatory requirement
C. Accreditation Certificate of Customer Provided Terminal Equipment Supplier	Certification from the Philippine National Telecommunications Commission (NTC)	NTC regulatory requirement

### 3.2. Software Application

#### 3.2.1 Central Control Software

Technical Requirements	Evidence of Compliance	Rationale
A. Allow BOC to easily create Geozones and corridors for trip monitoring	Demonstration and QA test of the software feature	Ease of use
B. Automatically create a record of the cargo or container to be sealed based on existing data validated by the Bureau of Customs	Demonstration and QA test of the software feature	Vet the identity and existence of the container being tracked
C. Assign a device to the container to record and/or monitor the transit process	Demonstration and QA test of the software feature	Auditable, Secure and Transparent Process
D. Remotely and visually validate proper installation of the device to seal the cargo compartment. The visual audit trail shall be part of / integrated with the cargo's audit record in real time.	Demonstration and QA test of the software feature	Auditable, Secure and Transparent Process
E. Remotely confirm that the device is armed and remotely authorize container for departure	Demonstration and QA test of the software feature	Auditable, Secure and Transparent Process
F. Track the location of the container/cargo and status of the device in real time (maximum of one-minute interval) and get real time alarms for unauthorized departure, route deviation, tampering or unauthorized unsealing.	Demonstration and QA test of the software feature	Auditable, Secure and Transparent Process
G. Remotely verify the arrival at the destination and remotely and visually verify the physical integrity of the container and the seal. The visual audit trail shall be part of / integrated with the cargo's audit record in real time.	Demonstration and QA test of the software feature	Auditable, Secure and Transparent Process

H. Electronically deactivate/shut off the alarm to close the trip	Demonstration and QA test of the software feature	To enable the device to be reused in case it is unsealed without proper approval.
I. Multi-level hierarchy: <ul style="list-style-type: none"> <li>➤ Central bureau-wide access of all cargo / containers under a single view</li> <li>➤ Port / District access is limited only where cargo / containers originated</li> </ul>	Demonstration and QA test of the software feature	Auditable, Secure and Transparent Process
J. A Dashboard that will allow the BOC control center to monitor all containers movements simultaneously and get real time notifications both on the dashboard and by e-mail	Demonstration and QA test of the software feature	Auditable, Secure and Transparent Process
K. The central control software must be capable of providing Tag Released, Tag Arrived, and Tag Received information in real time.	Demonstration and QA test of the software feature	Auditable, Secure and Transparent Process
L. Must provide the consignee or its authorized representative real time access to the location and status of their cargo.	Demonstration and QA test of the software feature	End user visibility and monitoring

### 3.2.2 Field Software Application

The solution must include a mobile application that allows BOC field personnel at the ORIGIN's arming station to:

Technical Requirements	Evidence of Compliance	Rationale
A. Verify the physical container details against the BOC container-record	Demonstration and QA test of the software feature	Auditable, Secure and Transparent Process
B. Gather visual evidence via photographs or videos that the container has been properly sealed and send the evidence to the central control software, linked to	Demonstration and QA test of the software feature	Auditable, Secure and Transparent Process

the trip record, for authorization to depart		
C. Receive approval from the central control software for the container to depart	Demonstration and QA test of the software feature	Auditable, Secure and Transparent Process

The solution must include a mobile application that allows BOC field personnel at the DESTINATION to:

<b>Technical Requirements</b>	<b>Evidence of Compliance</b>	<b>Rationale</b>
A. Verify the physical container details against the BOC container-record	Demonstration and QA test of the software feature	Auditable, Secure and Transparent Process
B. Gather visual evidence via photographs or videos that the container seal is intact send the evidence to the central control software, linked to the trip record, for authorization to unseal	Demonstration and QA test of the software feature	Auditable, Secure and Transparent Process
C. Receive approval to unseal from the central control software	Demonstration and QA test of the software feature	Auditable, Secure and Transparent Process

### 3.3. System Security and Reliability

<b>Technical Requirements</b>	<b>Evidence of Compliance</b>	<b>Rationale</b>
A. Must have a multi-hierarchy administrative function to manage security of access to the application and an audit trail that records every activity on the platform. Records must be kept for at least 5 years.	Demonstration and QA test	Data and Access security
B. The application and database servers shall be hosted in the Philippines	Certification by Service Provider with attached photos	Data and Access security
C. The system should be able to document the entire process from sealing to unsealing, including both data and visual audit trails under one integrated record created in real time.	Demonstration and QA test	Data and Access security



#### 4. Operational Requirements

<b>Requirements</b>	<b>Evidence of Compliance</b>	<b>Rationale</b>
A. The sealing process must be completed within three (3) minutes	Demonstration and QA test	Operational efficiency to avoid delays and traffic congestion
B. The unsealing process must be completed within three (3) minutes	Demonstration and QA test	Operational efficiency to avoid delays and traffic congestion
C. Provide enough seals at each port equivalent to at least the average number of transit containers per day for that port. 80% of the devices should be made available within thirty (30) days and 100% of the devices should be made available within forty-five (45) days	Evidence of physical devices	Ensure availability of sufficient number of sealing devices
D. Operate 24x7 at all major customs ports	1. Organizational chart, list of personnel 2. Process documentation	Operational efficiency to avoid delays and traffic congestion
E. Provide 24x7 technical support	1. Organizational chart, list of personnel 2. Process documentation	Ensure continuous and immediate technical support

#### 5. Quality Assurance Test (QAT)

As part of the post qualification procedure, the Service Provider must pass a Quality Assurance Test (QAT) satisfying the following requirements:

<b>Requirements</b>	<b>Evidence of Compliance</b>	<b>Rationale</b>
A. Conduct full cycle demonstrations of the system to demonstrate compliance to all technical requirements specified under Section 3 and operational requirements specified under section 4	Actual demonstration of process	

B. Demonstrate the reliability of the system and device by successfully arming, tracking and disarming during a 2-day dry run at a selected port.	Actual demonstration of process	
---	---------------------------------	--

## 6. Scoring system

Criteria	Weight	Raw Score
Relevant experience and track record	15%	1-100
Quality of devices	15%	1-100
System design (ease of use, adaptability to customs procedures)	15%	1-100
Security of the system	20%	1-100
Auditability of the system	15%	1-100
Training	10%	1-100
Technical support	10%	1-100
<b>TOTAL</b>	<b>100%</b>	

## 7. Scope of Work

### 7.1 Responsibilities of the Service Providers

**7.1.1** Provide the necessary monitoring workstation hardware and software to the relevant BOC offices including the following:

- Office of the Commissioner
- Office of the Deputy Commissioner for MISTG
- Office of the Deputy Commissioner for AOCG
- Office of the Deputy Commissioner for EG
- Office of the Deputy Commissioner for IG
- Office of the District Collector at every port
- Office of the Deputy Collector for operations at every port
- Other authorized offices as required by the Commissioner

**7.1.2** Provide the necessary mobile devices for unsealing operations at all ports of destinations

**7.1.3** Setup the infrastructure for sealing stations at major ports of departure including:

- Container parking area to install the seals
- Enough devices always
- Personnel to physically install the seals
- CCTV infrastructure to capture all activities from the time of truck arrival, the container sealing process, and the truck departure

**7.1.4** Provide training for all BOC users and stakeholders

**7.1.5** Remit to BOC on a monthly basis the 10% share per transaction fee

**7.1.6** Provide reports as needed/required by the Bureau

**7.1.7** Provide 24x7 support to BOC users and stakeholders

**7.1.8** Provide power and LAN internet connection with at least 5Mbps of bandwidth for the work stations.

## **7.2 Responsibilities of BOC**

- 7.2.1** Provide secured and sufficient space (i.e. minimum 8x20 feet) at each port/terminal for the Service Provider to set up workstations and storage stations.
- 7.2.2** Provide the authorized personnel to oversee the sealing, unsealing and monitoring of containers.