COUNTERMEASURE TRACKING SYSTEMS (CTS)

INVENTORY DATA EXCHANGE SPECIFICATION

RELEASE 1.0 – VERSION 1.3

JUNE 2017
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<td>CTS Team</td>
<td>10/27/2011</td>
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<td></td>
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1 INTRODUCTION

During the 2009 H1N1 influenza pandemic event, the Centers for Disease Control and Prevention’s (CDC) Division of Strategic National Stockpile (DSNS) needed increased visibility of countermeasure inventory down to the local point-of-dispensing level. DSNS used this information to make critical decisions on the allocation and distribution of antiviral drugs and personal protective equipment. However, this information proved very difficult to obtain, highlighting the need for a system that state and local public health departments could use to report medical countermeasure inventory. As a result, DSNS partnered with CDC’s Division of Health Informatics and Surveillance Countermeasure Tracking Systems (CTS) program to build a nationwide CDC Inventory Management and Tracking System (IMATS). The vision of IMATS is to increase the capacity of all levels of public health to track and manage inventory of medical and non-medical countermeasures during daily operations or an emergency response event.

To support the needs of CDC Public Health Emergency Preparedness (PHEP) cooperative agreement-funded awardees having their own inventory management systems, CDC provides an Inventory Data Exchange (IDE) process for accepting counts of on-hand inventory items. CDC will issue an electronic request message for counts of specific on-hand inventory items. The request will specify the frequency of the reports and the products that should be reported. Awardees having their own inventory management systems must provide counts by electronically transmitting (either automated or manually) a message containing the requested information to CDC. These awardees must use the data exchange protocol described in this document to receive the request message and send the report message.

1.1 DOCUMENT SCOPE

This document provides the data exchange information necessary for awardees to send a message of on-hand inventory information to CDC. This document describes the process by which CDC will request inventory information and the process by which the awardees will reply with that information. The document includes specifications for the data elements, message structures, and transfer mechanisms required by these processes.

1.2 AUDIENCE

This document is designed for use by people responsible for messaging analysis and technical implementation for any PHEP-funded awardee working to send on-hand inventory information to CDC.

1.3 TERMS AND DEFINITIONS

Terms referenced throughout the document include:

- Countermeasure Tracking Systems (CTS) – A CDC program consisting of multiple interoperating components that enhance the capacity of federal, state, and local public health agencies to track and manage countermeasure inventory and usage to support both daily operations and all-hazards events. The system components of the CTS program interoperate to improve communications and event response efficiency while still functioning independently, recognizing the unique requirements and use cases for each system. Collectively, the data consolidated from these systems can show population
coverage, numbers of untreated individuals, drug and equipment shortages, need for resupply, and more.

- **Extensible Markup Language (XML)** – A set of rules using a very flexible text format for encoding documents in machine-readable form.

- **Facility** – The place where inventory is stored.

- **Inventory Data Exchange (IDE)** – The process used for exchanging requests for inventory counts from CDC to awardees and reports of inventory counts from awardees to CDC.

- **Inventory Management and Tracking System (IMATS)** – The IMATS solution provides state and local public health providers with a tool to track medical and non-medical countermeasure inventory and supplies during daily operations or an event. The solution tracks quantity of inventory, monitors reorder thresholds, and facilitates warehouse operations, including receiving, staging, and storing inventory.

- **Inventory report** – A collection of inventory counts for a specific awardee and reporting date usually generated by the awardee and transmitted to CDC.

- **Inventory request** – A request made by CDC to the awardees for a report of inventory counts of specific products at a specific frequency.

- **National Drug Code (NDC)** – The unique numeric identifier for a packaged pharmaceutical as recognized by the Food and Drug Administration (FDA).

- **Non-pharmaceutical** – A product that is not a prescription drug. Examples include personal protective equipment and medical/surgical supplies or equipment.

- **Personal protective equipment (PPE)** – A device or article of clothing used to protect a person from contact with harmful substances. Examples include N95 respirators, surgical gloves, surgical masks, and biohazard suits.

- **Pharmaceutical** – A drug or medicine used in medical treatment.

- **Product** – A pharmaceutical or non-pharmaceutical inventory item that is potentially useful in response to a public health event.

- **Awardee** – A recipient of funds from CDC’s PHEP cooperative agreement. The 62 recipients include 50 states, four directly funded localities and eight insular areas (i.e. territories and freely associated states).

- **Public health event** – An act or series of acts used to prepare for, counteract, or offset a possible (preparedness) or actual (response) agent release or disease outbreak.

- **Public Health Information Network (PHIN)** – A national initiative to improve the capacity of public health to use and exchange information electronically by promoting the use of standards and defining functional and technical requirements.

- **PHIN Messaging System (PHINMS)** – PHINMS is a CDC-provided software that securely sends and receives any message type over the Internet, facilitating interoperability among myriad public health information systems. PHINMS employs Electronic Business using
Extensible Markup Language (ebXML) technology. For IDE, CDC will transmit the inventory request message to each participating awardee via PHINMS each time a new inventory request message is created. PHINMS secure messaging is also used for receipt of inventory report messages to CDC.

- Reporting date – The date and time at which a count of inventory is taken.
- Reporting frequency – The frequency with which the awardees must send an inventory report to CDC for an inventory request.
1.4 CONTACTS

PHIN Help Desk
Phone: 1-800-532-9929
Email: PHINTech@cdc.gov

CTS Team
Email: CTSHelp@cdc.gov
2 OVERVIEW

Understanding the availability of critical inventory will allow CDC to better support the awardees during public health events. The IDE process consists of the following steps:

1. **CDC REQUEST FOR INVENTORY DATA**
   
   CDC will request inventory data from the awardees using an inventory request message.

2. **AWARDEE REPORT OF INVENTORY DATA**
   
   Awardees will reply by reporting the inventory data requested using an inventory report message.

3. **CDC NOTIFICATION OF REPORT PROCESSING**
   
   CDC will provide awardees notification of success or failure of each inventory report message including any detailed error information.

2.1 CDC REQUEST FOR INVENTORY DATA

CDC will provide to the awardees a request in electronic format for a report of inventory counts. The request specifies the list of products to be reported and the reporting frequency. The request will be provided in the message formats described in this document.

The reporting frequency may be monthly, weekly, or possibly more frequently if CDC determines the necessity. If reporting is more frequent than weekly, a frequency of “daily” and a list of the reporting days of the week will be specified in the request.

CDC will issue a new request whenever the reporting frequency and/or the list of reportable products changes. This new request supersedes the previous request.

2.2 AWARDEE REPORT OF INVENTORY DATA

Every awardee will extract inventory counts of the requested products at each facility, including inventory located at regional distribution sites and local dispensing facilities. The awardee will then send the requested information to CDC. The counts will be provided in the message format described in this document.

- Each awardee sending data to CDC is responsible for submitting one set of counts for each reporting date for all requested products at all inventory facilities in the awardee.

- A full replacement of all inventory counts of requested products is required for each reporting date.

- All available inventory of the requested products must be provided in the report, including products received from the federal government, purchased by the awardee from other suppliers, donated to the awardee, and obtained by any other means.

- After the awardee receives an inventory request message, it will send its first inventory report message on the next valid reporting date.
After the awardee sends its first inventory report message, it will continue to send additional inventory report messages at the requested reporting frequency.

- If the reporting frequency is monthly, the report should be compiled as of 11:59 p.m. Eastern Standard Time/Eastern Daylight Time (EST/EDT) on the last day of every month and submitted to CDC by 11:59 p.m. EST/EDT two business days after compilation.

- If the reporting frequency is weekly, the report should be compiled as of 11:59 p.m. EST/EDT every Wednesday and submitted to CDC by 11:59 p.m. EST/EDT on the following Friday.

- If the reporting frequency is daily, the report should be compiled as of 11:59 p.m. EST/EDT on each requested day and submitted to CDC by 10 a.m. EST/EDT the following business day.

The table below depicts the reporting schedule for the possible reporting frequencies.

**Figure 2-1 - IDE Reporting Schedule**

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Compile As Of</th>
<th>Submit By</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monthly</td>
<td>11:59 p.m. EST/EDT</td>
<td>11:59 p.m. EST/EDT</td>
</tr>
<tr>
<td></td>
<td>Last day of every month</td>
<td>Second business day of following month</td>
</tr>
<tr>
<td>Weekly</td>
<td>11:59 p.m. EST/EDT</td>
<td>11:59 p.m. EST/EDT</td>
</tr>
<tr>
<td></td>
<td>Every Wednesday</td>
<td>Following Friday</td>
</tr>
<tr>
<td>Daily</td>
<td>11:59 p.m. EST/EDT</td>
<td>10:00 a.m. EST/EDT</td>
</tr>
<tr>
<td></td>
<td>Every requested day</td>
<td>Following day</td>
</tr>
</tbody>
</table>

### 2.3 DATA TYPES

The definitions for the data types are described here:

1. **Alphanumeric** – Using the Latin characters [A-Z], [0-9], [@ # & * ( ) - + : < > . , ?]

2. **Integer** – Using the characters [+-], [0-9] appearing 0 or more times

3. **Date time** – Formatted as YYYY-MM-DD HH24:MI:SS

   a. Year format: YYYY – exactly 4 digits [0-9]

   b. Month format: MM – exactly 2 digits [0-9] which gives values from 01 to 12

   c. Day format: DD – exactly 2 digits [0-9] which gives values from 01 to 31

   d. 24-hour format: HH24 – exactly 2 digits [0-2], [0-9] which gives values from 00 to 23

   e. Minutes format: MI – exactly 2 digits [0-9] which gives values from 00 to 59

   f. Seconds format: SS – exactly 2 digits [0-9] which gives values from 00 to 59

   g. All times are EST/EDT.

   h. Must be a valid reporting date based on the reporting frequency of the active CDC request.
2.4 MESSAGE FORMATS

2.4.1 DELIMITED TEXT FORMAT

Please note the following requirements for using the delimited text format:

- The vertical bar or pipe character ("|") must be used to delimit fields and cannot occur within a data element.
- The semicolon (";") is used to delimit values within a field.
- Alphanumeric data values must be provided in UPPER CASE.
- There should be no leading or trailing white space for any values.
- An ASCII carriage return ("<CR>" with ASCII value x0D) indicates the end of a record.

2.4.2 XML FORMAT

Please note the following requirements for using XML:

- All tag names are case sensitive. Note the use of camelCase where the second (and all subsequent) words in a tag name are capitalized.
- Alphanumeric data values must be provided in UPPER CASE.
- There should be no leading or trailing white space for any values.
- The special characters ampersand (“&”), less-than (“<”), greater-than (“>”), double-quote (“""”), and single-quote (“’”) must be escaped if they appear in data elements. For example, “&amp;” is used in place of “&” in the productDescription tag below.

  <productDescription>
    MASK, N95 PARTICULATE RESPIRATOR/SURGICAL, MED/LG, NIOSH & FDA CERTIFIED
  </productDescription>

- All leading and trailing white space will be ignored. For example, in the XML productDescription tag below, the value is simply "SURGICAL MASK, LARGE" with no leading or trailing spaces.

  <productDescription>
    SURGICAL MASK, LARGE
  </productDescription>

More detailed information on XML, including escaping of special characters, may be found at http://www.xmlnews.org/docs/xml-basics.html.

2.5 PARTICIPATION IN INVENTORY DATA EXCHANGE

Participating in IDE requires the completion of a series of start-up activities by the awardees. Appendix C: IDE Startup Guide contains the list of steps the awardees must take in completing the start-up activities.
3 CDC INVENTORY REQUEST MESSAGE

CDC will provide an inventory request message to the awardees. The message will include a list of products on which the awardees are to report and the frequency of the reporting process.

3.1 INVENTORY REQUEST MESSAGE RECORDS

The inventory request message includes an identification record and commonly one or more product records. The identification record is a header and occurs once at the beginning of the message. Zero or more product records specifying the products to be reported follow the identification record. There is one product record for each product requested.

3.1.1 INVENTORY REQUEST MESSAGE: IDENTIFICATION RECORD

The data elements for the inventory request message identification record are listed in the following table. There will be one identification record in the inventory request message.

*Figure 3-1 – Inventory Request Message Identification Record Data Definitions*

<table>
<thead>
<tr>
<th>#</th>
<th>Data Element Name</th>
<th>Description</th>
<th>Data Type</th>
<th>Maximum Length</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Message Type</td>
<td>The type of message</td>
<td>Alphanumeric</td>
<td>50</td>
<td>Possible Values: INVENTORY COUNT REQUEST INVENTORY COUNT STOP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>See <em>Notes on message types</em> below.</td>
</tr>
<tr>
<td>2.</td>
<td>Message Version</td>
<td>The version number for the message.</td>
<td>Alphanumeric</td>
<td>10</td>
<td>Current value: 1.0</td>
</tr>
<tr>
<td>3.</td>
<td>Request ID</td>
<td>The unique identifier assigned to the request</td>
<td>Integer</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Request Name</td>
<td>The name of the request</td>
<td>Alphanumeric</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Reporting Frequency</td>
<td>The frequency of recurring reports for this request</td>
<td>Alphanumeric</td>
<td>10</td>
<td>Possible values: MONTHLY WEEKLY DAILY</td>
</tr>
<tr>
<td>6.</td>
<td>Days</td>
<td>A list of days when the reporting is to be compiled</td>
<td>Alphanumeric</td>
<td>60</td>
<td>Elements in list will be delimited by a semicolon (&quot;;&quot;) with no</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>imbedded spaces. If Reporting Frequency is MONTHLY or WEEKLY, will be</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>blank. If Reporting Frequency is DAILY, will be a list of days on</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>which reporting should occur (e.g., &quot;MONDAY;FRIDAY&quot;).</td>
</tr>
<tr>
<td>7.</td>
<td>Product Count</td>
<td>The number of product records in the message</td>
<td>Integer</td>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>

*Notes on message types: CDC will send an inventory request message displaying “INVENTORY COUNT STOP” in the message type field only if it becomes necessary to discontinue or suspend.*
future reporting. The product count for this request will be zero and the request will contain no products. Awardees should discontinue the sending of inventory report messages until CDC provides a new inventory request message.

3.1.2 INVENTORY REQUEST MESSAGE: PRODUCT RECORD

The data elements for the inventory request message product record are listed in the following table. There will be one record for each non-pharmaceutical product requested and one record for each NDC of a pharmaceutical product requested.

*Figure 3-2 – Inventory Request Message Product Record Data Definitions*

<table>
<thead>
<tr>
<th>#</th>
<th>Data Element Name</th>
<th>Description</th>
<th>Data Type</th>
<th>Maximum Length</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Product Name</td>
<td>The non-proprietary name of the product to report</td>
<td>Alphanumeric</td>
<td>120</td>
<td>For pharmaceuticals, entry is the generic name of the product. See <em>Notes on product name</em> below.</td>
</tr>
<tr>
<td>2.</td>
<td>Brand Name</td>
<td>The proprietary name for this product</td>
<td>Alphanumeric</td>
<td>120</td>
<td>If product is a non-pharmaceutical, entry will be blank.</td>
</tr>
<tr>
<td>3.</td>
<td>NDC</td>
<td>The unique identifier of the packaged product as recognized by the FDA</td>
<td>Alphanumeric</td>
<td>13</td>
<td>If product is a non-pharmaceutical, entry will be blank. For pharmaceuticals, entry will be the NDC recognized by the FDA. See <em>Notes on NDC</em> below.</td>
</tr>
</tbody>
</table>

*Notes on product name:* The nature of an event determines the products that will be included in a request. The product name for non-pharmaceutical products will be declared at the time a request is created.

*Notes on NDC:* The FDA-recognized NDC allows CDC to specify packaged pharmaceutical products precisely. It consists of three segments (labeler code, product code, and packaging code) separated by hyphens.

The FDA has recently revised the NDC product file definitions. Extra leading zeroes and asterisks have been eliminated from the NDC. The new NDC formats for labeler code-product code-package code are now 4-4-2, 5-4-1, and 5-3-2. In order to ease the transition from the old format to the new format, the inventory request message will contain records in both old NDC format and new NDC format for any requested product whose NDC previously had extra leading zeroes or asterisks.

3.2 INVENTORY REQUEST MESSAGE FORMATS

CDC will provide inventory request messages in both XML encoded format and delimited text format. Each awardee must choose its desired format.
3.2.1 INVENTORY REQUEST MESSAGE: XML ENCODED FORMAT

The following figures illustrate the syntax for the XML encoded format of the inventory request message. The XML schema document (XSD) for this message format can be found in Appendix B: XML Schemas under B1.1 Inventory Request Message XML Schema Document. The document type definition (DTD) for this message format can be found in Appendix B: XML Schemas under B1.2 Inventory Request Message Document Type Definition.

*Figure 3-3 – XML Syntax for Inventory Request Message*

```xml
<?xml version="1.0" encoding="UTF-8" ?>
<request>
  <identification>
    <messageType>MESSAGE TYPE</messageType>
    <messageVersion>MESSAGE VERSION</messageVersion>
    <requestId>REQUEST ID</requestId>
    <requestName>REQUEST NAME</requestName>
    <reportingFrequency>REPORTING FREQUENCY</reportingFrequency>
    <days>DAYS</days>
    <productCount>PRODUCT COUNT</productCount>
  </identification>
  <product>
    <productName>PRODUCT NAME 1</productName>
    <brandName>BRAND NAME 1</brandName>
    <ndc>NDC 1</ndc>
  </product>
  <product>
    <productName>PRODUCT NAME 2</productName>
    <brandName>BRAND NAME 2</brandName>
    <ndc>NDC 2</ndc>
  </product>
</request>
```

*Figure 3-4 – XML Sample of Inventory Request Message*

```xml
<?xml version="1.0" encoding="UTF-8" ?>
<request>
  <identification>
    <messageType>INVENTORY COUNT REQUEST</messageType>
    <messageVersion>1.0</messageVersion>
    <requestId>12345</requestId>
    <requestName>EVENT 1</requestName>
    <reportingFrequency>DAILY</reportingFrequency>
    <days>MONDAY;WEDNESDAY</days>
    <productCount>2</productCount>
  </identification>
  <product>
    <productName>PHENYLPROPANOLAMINE HYDROCHLORIDE</productName>
    <brandName>ROLATUSS SR TABLET</brandName>
    <ndc>00904-1198-40</ndc>
  </product>
  <product>
    <productName>N95 RESPIRATOR</productName>
  </product>
</request>
```

3.2.2 INVENTORY REQUEST MESSAGE: DELIMITED TEXT FORMAT

The following figures illustrate the syntax for the delimited text format of the inventory request message.
### 3.3 INVENTORY REQUEST MESSAGE TRANSFER MECHANISM

CDC will provide a new inventory request message when a change is made to the reporting frequency and/or the list of requested products. Each awardee may choose one of the following transfer mechanisms for obtaining the new inventory request message:

- CDC emails the inventory request message to the awardee.
- CDC transmits the inventory request message to the awardee via the Public Health Information Network Messaging System (PHINMS).
- The awardee manually downloads the inventory request message.

#### 3.3.1 INVENTORY REQUEST MESSAGE: EMAIL (INTERIM TRANSFER METHOD)

In order to expedite the initial IDE release, CDC will send an email containing the inventory request message to awardees.

**Note:** The email transfer method will no longer be available once the manual download transfer method is available.

#### 3.3.2 INVENTORY REQUEST MESSAGE: AUTOMATIC TRANSMISSION

CDC supports a mechanism for automatically transmitting messages to the awardees. The automatic message transfer uses PHINMS. CDC will transmit the inventory request message to each participating awardee via PHINMS each time a new inventory request message is created.

See the PHINMS page on the PHIN website for more information on connecting using PHINMS for secure messaging with CDC. ([http://www.cdc.gov/phin/tools/phinms/index.html](http://www.cdc.gov/phin/tools/phinms/index.html)).

#### 3.3.3 INVENTORY REQUEST MESSAGE: MANUAL DOWNLOAD (LATER RELEASE)

CDC will place the inventory request message in both XML and delimited text format on a website available to the awardees. CDC will then notify each awardee electing this option of its availability and location. The awardee may access the website and download the inventory request message.
4 AWARDEE INVENTORY REPORT MESSAGE

For each reporting date specified by an inventory request message, the awardee must compile and send an inventory report message of all requested on-hand inventory counts located at all facilities in the awardee. The inventory report message is uniquely identified by the awardee and the reporting date.

4.1 INVENTORY REPORT MESSAGE RECORDS

The inventory report message includes an identification record and zero, one, or more count records. The identification record is a header and occurs once at the beginning of the message. Zero, one or more count records containing inventory count information follow the identification record. There is one count record for each unique facility/product/lot number/units per case reported.

4.1.1 INVENTORY REPORT MESSAGE: IDENTIFICATION RECORD

The data elements for the inventory report message identification record are listed in the following table. There must be exactly one identification record in the inventory report message.

If there is no on-hand inventory for any requested product in any facility, the awardee must send an inventory report message containing only an identification record with a zero in the record count data element.

*Figure 4-1 – Inventory Report Message Identification Record Data Definitions*

<table>
<thead>
<tr>
<th>#</th>
<th>Data Element Name</th>
<th>Description</th>
<th>Data Type</th>
<th>Maximum Length</th>
<th>Req'd</th>
<th>Format/Validation/Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Message Type</td>
<td>The type of message</td>
<td>Alphanumeric</td>
<td>50</td>
<td>Yes</td>
<td>Valid Value: INVENTORY COUNT REPORT</td>
</tr>
<tr>
<td>2.</td>
<td>Message Version</td>
<td>The version number of the message</td>
<td>Alphanumeric</td>
<td>10</td>
<td>Yes</td>
<td>Current Value: 1.0</td>
</tr>
<tr>
<td>3.</td>
<td>Request ID</td>
<td>The identifier of the CDC request with which this report is associated</td>
<td>Integer</td>
<td>10</td>
<td>Yes</td>
<td>Validation: Must correspond to the request id of the active CDC request.</td>
</tr>
<tr>
<td>4.</td>
<td>Awardee (Project Area)</td>
<td>The code identifying the awardee reporting the inventory counts</td>
<td>Alphanumeric</td>
<td>5</td>
<td>Yes</td>
<td>Validation: See Section Error! Reference source not found. Error! Reference source not found. in Appendix A: Valid Value Lists.</td>
</tr>
</tbody>
</table>

*Figure 4-1 – Inventory Report Message Identification Record Data Definitions*
### Data Element Name | Description | Data Type | Maximum Length | Req’d | Format/Validation>Note
---|---|---|---|---|---
5. Reporting Date | The ending date and time of the reporting period of this message | Date time | 19 | Yes | Format: YYYY-MM-DD HH24:MI:SS Validation: EST/EDT Must be a valid reporting date based on the reporting frequency of the active CDC request. (See Section 2.3 Data Types above.)
6. Creation Date | The date and time at which the message was created on the originating system. | Date time | 19 | Yes | Format: YYYY-MM-DD HH24:MI:SS Validation: EST/EDT (See Section 2.3 Data Types above.)
7. Report Count | The number of count records in the message | Integer | 10 | Yes | Validation: Must agree with the number of actual count records in the message.

### 4.1.2 INVENTORY REPORT MESSAGE: COUNT RECORD

The data elements for the inventory report message count record are listed in the following table. There will be one count record for each uniquely identifiable facility/product/lot number/units per case. All sixteen fields need to be accounted for in the report even if they are not required.

**Figure 4-2 – Inventory Report Message Count Record Data Definitions**

<table>
<thead>
<tr>
<th>#</th>
<th>Data Element Name</th>
<th>Description</th>
<th>Data Type</th>
<th>Maximum Length</th>
<th>Req’d</th>
<th>Format/Validation&gt;Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Facility Name</td>
<td>The name of the facility having the product on hand</td>
<td>Alphanumeric</td>
<td>120</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Location Jurisdiction Type Code</td>
<td>The type of jurisdiction for the inventory location</td>
<td>Alphanumeric</td>
<td>50</td>
<td>Yes</td>
<td>Validation: Valid values are: STATE REGIONAL LOCAL</td>
</tr>
<tr>
<td>3.</td>
<td>Facility Type Code</td>
<td>The code identifying the type of facility</td>
<td>Alphanumeric</td>
<td>20</td>
<td>Cond’t</td>
<td>Validation: Required and allowed for local facilities only See Section A1 Facility Type in Appendix A: Valid Value Lists.</td>
</tr>
<tr>
<td>#</td>
<td>Data Element Name</td>
<td>Description</td>
<td>Data Type</td>
<td>Maxi- mum Length</td>
<td>Req’d</td>
<td>Format/Validation/Note</td>
</tr>
<tr>
<td>----</td>
<td>------------------</td>
<td>-------------</td>
<td>-----------</td>
<td>-----------------</td>
<td>------</td>
<td>-----------------------</td>
</tr>
<tr>
<td>4.</td>
<td>ZIP Code</td>
<td>The ZIP code for the facility</td>
<td>Alphanumeric</td>
<td>10</td>
<td>Yes</td>
<td>Format: 99999-9999 Validation: Provide ZIP code or ZIP plus four. If providing ZIP code, supply only five characters.</td>
</tr>
<tr>
<td>5.</td>
<td>Product Description</td>
<td>The description of the product</td>
<td>Alphanumeric</td>
<td>500</td>
<td>Yes</td>
<td>Locally used description for the product.</td>
</tr>
<tr>
<td>6.</td>
<td>NDC</td>
<td>The unique identifier of the product recognized by the FDA</td>
<td>Alphanumeric</td>
<td>13</td>
<td>Cond’l</td>
<td>Validation: Required for pharmaceuticals. Must match an NDC in the active CDC Inventory Count Request.</td>
</tr>
<tr>
<td>7.</td>
<td>Lot Number</td>
<td>The lot number as it appears on the product</td>
<td>Alphanumeric</td>
<td>50</td>
<td>Cond’l</td>
<td>Validation: Required for pharmaceuticals</td>
</tr>
<tr>
<td>8.</td>
<td>Expiration Year</td>
<td>The expiration year on the product</td>
<td>Alphanumeric</td>
<td>4</td>
<td>Cond’l</td>
<td>Format: YYYY Validation: Required for pharmaceuticals</td>
</tr>
<tr>
<td>9.</td>
<td>Expiration Month</td>
<td>The expiration month on the product</td>
<td>Alphanumeric</td>
<td>2</td>
<td>Cond’l</td>
<td>Format: MM Validation: Required if expiration year is provided. Not allowed if expiration year is not provided. Must be valid month (01 – 12).</td>
</tr>
<tr>
<td>10.</td>
<td>Expiration Day</td>
<td>The expiration day on the product.</td>
<td>Alphanumeric</td>
<td>2</td>
<td>Cond’l</td>
<td>Format: DD Validation: Allowed if and only if expiration year is provided. Must be a valid day for the expiration month if provided. No expiration day when year and month are provided indicates last day of the month.</td>
</tr>
<tr>
<td>#</td>
<td>Data Element Name</td>
<td>Description</td>
<td>Data Type</td>
<td>Maximum Length</td>
<td>Req'd</td>
<td>Format/Validation/Note</td>
</tr>
<tr>
<td>----</td>
<td>-------------------</td>
<td>-------------</td>
<td>-----------</td>
<td>----------------</td>
<td>-------</td>
<td>------------------------</td>
</tr>
<tr>
<td>11</td>
<td>Product Name</td>
<td>The non-proprietary name of the product</td>
<td>Alphanumeric</td>
<td>120</td>
<td>Cond’l</td>
<td>Validation: Required for non-pharmaceutical products Must match a product name in the active CDC Inventory Count Request.</td>
</tr>
<tr>
<td>12</td>
<td>Catalog/Stock Number</td>
<td>A code used by the awardee to identify the product</td>
<td>Alphanumeric</td>
<td>50</td>
<td>Cond’l</td>
<td>Validation: Allowed for non-pharmaceutical products only</td>
</tr>
<tr>
<td>13</td>
<td>Size</td>
<td>The size of the product (e.g., SMALL, MEDIUM, LARGE)</td>
<td>Alphanumeric</td>
<td>50</td>
<td>No</td>
<td>Validation: Allowed for non-pharmaceutical products only. Must be NULL for products with an NDC.</td>
</tr>
<tr>
<td>14</td>
<td>Units per Case</td>
<td>The number of dispensable units of the product in one case</td>
<td>Integer</td>
<td>10</td>
<td>Cond’l</td>
<td>Validation: Provide EITHER units per case plus on-hand cases OR on-hand units.</td>
</tr>
<tr>
<td>15</td>
<td>On-Hand Cases</td>
<td>The number of cases of the product at the facility</td>
<td>Integer</td>
<td>10</td>
<td>Cond’l</td>
<td><strong>Do not provide all three fields.</strong> See Notes on Inventory Counts below.</td>
</tr>
<tr>
<td>16</td>
<td>On-Hand Units</td>
<td>The number of dispensable units of the product at the facility</td>
<td>Integer</td>
<td>10</td>
<td>Cond’l</td>
<td></td>
</tr>
</tbody>
</table>

Notes on Inventory Counts: The purpose of the last three fields in this record is to provide the countable quantity of the specific product on hand at the facility. CDC can accept either the number of units inside a case and the number of cases, or the total number of units. A unit is either a single instance of a product, such as an N95 respirator, or a dispensable package of the product, such as a bottle, a blister-pack, a vial, or a box (for example, a box of syringes). The third component of the NDC for a pharmaceutical identifies the packaging for one unit of the product.

4.2 INVENTORY REPORT MESSAGE FORMATS

CDC will accept inventory report messages in both XML encoded format and delimited text format. Each awardee must identify its desired format.

Syntax illustrations and sample messages for the two supported message formats appear below. The examples are for illustration purposes only. The content of the examples is fictitious and should not be used to report actual inventory counts.
4.2.1 INVENTORY REPORT MESSAGE: XML ENCODED FORMAT

The following figures illustrate the syntax for the XML encoded format of the inventory report message. The XSD for this message format can be found in Appendix B: XML Schemas under B2.1 Inventory Report Message XML Schema Document. The DTD for this message format can be found in Appendix B: XML Schemas under B2.2 Inventory Report Message Document Type Definition.

Figure 4-3 – XML Syntax for Inventory Report Message

```xml
<?xml version="1.0" encoding="UTF-8" ?>
<report>
  <identification>
    <messageType>MESSAGE TYPE</messageType>
    <messageVersion>MESSAGE VERSION</messageVersion>
    <requestId>REQUEST ID</requestId>
    <projectArea>AWARDEE</projectArea>
    <reportingDate>REPORTING DATE</reportingDate>
    <creationDate>CREATION DATE</creationDate>
    <reportCount>RECORD COUNT</reportCount>
  </identification>
  <count>
    <facilityName>FACILITY NAME</facilityName>
    <locationJurisdictionType>LOCATION JURISDICTION TYPE</locationJurisdictionType>
    <facilityTypeCode>FACILITY TYPE CODE</facilityTypeCode>
    <zipCode>ZIP CODE</zipCode>
    <productDescription>PRODUCT DESCRIPTION</productDescription>
    <ndc>NDC</ndc>
    <lotNumber>LOT NUMBER</lotNumber>
    <expirationYear>EXPIRATION YEAR</expirationYear>
    <expirationMonth>EXPIRATION MONTH</expirationMonth>
    <expirationDay>EXPIRATION DAY</expirationDay>
    <productName>PRODUCT NAME</productName>
    <catalogStockNumber>CATALOG STOCK NUMBER</catalogStockNumber>
    <size>SIZE</size>
    <unitsPerCase>UNITS PER CASE</unitsPerCase>
    <onHandCases>ON HAND CASES</onHandCases>
    <onHandUnits>ON HAND UNITS</onHandUnits>
  </count>
  <count>
    <facilityName>FACILITY NAME</facilityName>
    <locationJurisdictionType>LOCATION JURISDICTION TYPE</locationJurisdictionType>
    <facilityTypeCode>FACILITY TYPE CODE</facilityTypeCode>
    <zipCode>ZIP CODE</zipCode>
    <productDescription>PRODUCT DESCRIPTION</productDescription>
    <ndc>NDC</ndc>
    <lotNumber>LOT NUMBER</lotNumber>
    <expirationYear>EXPIRATION YEAR</expirationYear>
    <expirationMonth>EXPIRATION MONTH</expirationMonth>
    <expirationDay>EXPIRATION DAY</expirationDay>
    <productName>PRODUCT NAME</productName>
    <catalogStockNumber>CATALOG STOCK NUMBER</catalogStockNumber>
    <size>SIZE</size>
    <unitsPerCase>UNITS PER CASE</unitsPerCase>
    <onHandCases>ON HAND CASES</onHandCases>
    <onHandUnits>ON HAND UNITS</onHandUnits>
  </count>
</report>
```
4.2.2 INVENTORY REPORT MESSAGE: DELIMITED TEXT FORMAT

The following figures illustrate the syntax for the delimited text format of the inventory report message. Line breaks and indents in the sample records below are for readability only and are not included in the construction of a message.

**Figure 4-5 – Delimited Text Syntax for Inventory Report Message**

<table>
<thead>
<tr>
<th>MESSAGE TYPE</th>
<th>MESSAGE VERSION</th>
<th>REQUEST ID</th>
<th>AWARDEE</th>
<th>REPORTING DATE</th>
<th>CREATION DATE</th>
<th>REPORT COUNT</th>
<th>FACILITY NAME</th>
<th>LOCATION JURISDICTION TYPE</th>
<th>FACILITY TYPE CODE</th>
<th>ZIP CODE</th>
<th>PRODUCT DESCRIPTION</th>
<th>NDC</th>
<th>LOT NUMBER</th>
<th>EXPIRATION YEAR</th>
<th>EXPIRATION MONTH</th>
<th>EXPIRATION DAY</th>
<th>PRODUCT NAME</th>
<th>CATALOG STOCK NUMBER</th>
<th>SIZE</th>
<th>UNITS PER CASE</th>
<th>ON HAND CASES</th>
<th>ON HAND UNITS</th>
</tr>
</thead>
</table>

**Figure 4-4 – XML Sample of Inventory Report Message**

```xml
<?xml version="1.0" encoding="UTF-8" ?>
<report>
  <identification>
    <messageType>INVENTORY COUNT REPORT</messageType>
    <messageVersion>1.0</messageVersion>
    <requestId>12345</requestId>
    <projectArea>AL</projectArea>
    <reportingDate>2011-05-01 23:59:00</reportingDate>
    <creationDate>2011-05-02 00:15:00</creationDate>
    <reportCount>2</reportCount>
  </identification>
  <count>
    <facilityName>Alabama RSS</facilityName>
    <locationJurisdictionType>STATE</locationJurisdictionType>
    <zipCode>36106</zipCode>
    <productDescription>DOXYCYCLINE 100MG ORAL TABLET, #20TAB UNIT OF USE</productDescription>
    <ndc>24658-0220-20</ndc>
    <lotNumber>65047A</lotNumber>
    <expirationYear>2011</expirationYear>
    <expirationMonth>09</expirationMonth>
    <expirationDay>15</expirationDay>
    <unitsPerCase>200</unitsPerCase>
    <onHandCases>50</onHandCases>
  </count>
  <count>
    <facilityName>HUNTSVILLE PUBLIC HEALTH DEPARTMENT</facilityName>
    <locationJurisdictionType>LOCAL</locationJurisdictionType>
    <facilityTypeCode>LHD</facilityTypeCode>
    <zipCode>35801-1234</zipCode>
    <productDescription>MASK, N95 PARTICULATE RESPIRATOR/SURGICAL, MED/LG, NIOSH &amp; FDA CERTIFIED</productDescription>
    <lotNumber>26511</lotNumber>
    <productName>N95 RESPIRATOR</productName>
    <catalogStockNumber>1860</catalogStockNumber>
    <size>MEDIUM/LARGE</size>
    <onHandUnits>5000</onHandUnits>
  </count>
</report>
```
4.3 INVENTORY REPORT MESSAGE TRANSFER MECHANISM

CDC supports PHINMS secure messaging for receipt of inventory report messages. See the PHINMS page on the PHIN website for more information (http://www.cdc.gov/phin/tools/phinms/index.html).
5 INVENTORY REPORT MESSAGE PROCESSING NOTIFICATION

CDC will send an e-mail notification if the inventory report message was successful or not successful. If the message is not successful, the e-mail notification will list any errors. Once corrected, the message can be resent.
APPENDIX A: VALID VALUE LISTS

Appendix A contains the lists of valid values for the facility type and project area data elements in the inventory report message.

A1 FACILITY TYPE

The following table lists the valid values for the Facility Type Code data element in Section 4.1.2 Inventory Report Message: Count Record

<table>
<thead>
<tr>
<th>Facility Type Code</th>
<th>Facility Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALTCARE</td>
<td>Alternate Care Facility</td>
</tr>
<tr>
<td>COMMPHARM</td>
<td>Commercial Pharmacy</td>
</tr>
<tr>
<td>COMMCLNC</td>
<td>Community Clinic, Other (non-profit community clinics)</td>
</tr>
<tr>
<td>CORRECTIONS</td>
<td>Correctional Facilities (Fed / State / County / City)</td>
</tr>
<tr>
<td>EMS</td>
<td>Emergency Medical Services</td>
</tr>
<tr>
<td>FEDFAC</td>
<td>Federal Facilities (VA, DoD, Agencies)</td>
</tr>
<tr>
<td>FEDHLTHCLNC</td>
<td>Federally Qualified Community Health Clinic (HRSA funded)</td>
</tr>
<tr>
<td>HOSP</td>
<td>Hospital</td>
</tr>
<tr>
<td>HIS</td>
<td>Indian Health Service Center / Hospital</td>
</tr>
<tr>
<td>LHD</td>
<td>Local Health Department</td>
</tr>
<tr>
<td>NURSHOME</td>
<td>Nursing Home / Assisted Living Facilities</td>
</tr>
<tr>
<td>OTHR</td>
<td>Other</td>
</tr>
<tr>
<td>POD-C</td>
<td>Point of Dispensing (closed)</td>
</tr>
<tr>
<td>POD-O</td>
<td>Point of Dispensing (open)</td>
</tr>
<tr>
<td>PRIVPHYS</td>
<td>Private Physician(s)</td>
</tr>
<tr>
<td>STRGFAC</td>
<td>Storage Facility (for future deployment)</td>
</tr>
<tr>
<td>TRIBAL</td>
<td>Tribal Government</td>
</tr>
<tr>
<td>VISITNURS</td>
<td>Visiting Nurses / Home Health</td>
</tr>
</tbody>
</table>
### A2 AWARDEE

The following table lists the valid values for the *Awardee* data type in Section 4.1.1 Inventory Report Message: Identification Record.

**Figure A2 - 1 Awardees**

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AK</td>
<td>Alaska</td>
<td>MP</td>
<td>Northern Mariana Islands</td>
</tr>
<tr>
<td>AL</td>
<td>Alabama</td>
<td>MS</td>
<td>Mississippi</td>
</tr>
<tr>
<td>AR</td>
<td>Arkansas</td>
<td>MT</td>
<td>Montana</td>
</tr>
<tr>
<td>AS</td>
<td>American Samoa</td>
<td>NC</td>
<td>North Carolina</td>
</tr>
<tr>
<td>AZ</td>
<td>Arizona</td>
<td>ND</td>
<td>North Dakota</td>
</tr>
<tr>
<td>CA</td>
<td>California</td>
<td>NE</td>
<td>Nebraska</td>
</tr>
<tr>
<td>CHI</td>
<td>Chicago</td>
<td>NH</td>
<td>New Hampshire</td>
</tr>
<tr>
<td>CO</td>
<td>Colorado</td>
<td>NJ</td>
<td>New Jersey</td>
</tr>
<tr>
<td>CT</td>
<td>Connecticut</td>
<td>NM</td>
<td>New Mexico</td>
</tr>
<tr>
<td>DC</td>
<td>District of Columbia</td>
<td></td>
<td>NV</td>
</tr>
<tr>
<td>DE</td>
<td>Delaware</td>
<td>NY</td>
<td>New York</td>
</tr>
<tr>
<td>FL</td>
<td>Florida</td>
<td>NYC</td>
<td>New York City</td>
</tr>
<tr>
<td>FM</td>
<td>Micronesia</td>
<td>OH</td>
<td>Ohio</td>
</tr>
<tr>
<td>GA</td>
<td>Georgia</td>
<td>OK</td>
<td>Oklahoma</td>
</tr>
<tr>
<td>GU</td>
<td>Guam</td>
<td>OR</td>
<td>Oregon</td>
</tr>
<tr>
<td>HI</td>
<td>Hawaii</td>
<td>PA</td>
<td>Pennsylvania</td>
</tr>
<tr>
<td>IA</td>
<td>Iowa</td>
<td>PR</td>
<td>Puerto Rico</td>
</tr>
<tr>
<td>ID</td>
<td>Idaho</td>
<td>PW</td>
<td>Palau</td>
</tr>
<tr>
<td>IL</td>
<td>Illinois</td>
<td>RI</td>
<td>Rhode Island</td>
</tr>
<tr>
<td>IN</td>
<td>Indiana</td>
<td>SC</td>
<td>South Carolina</td>
</tr>
<tr>
<td>KS</td>
<td>Kansas</td>
<td>SD</td>
<td>South Dakota</td>
</tr>
<tr>
<td>KY</td>
<td>Kentucky</td>
<td>TN</td>
<td>Tennessee</td>
</tr>
<tr>
<td>LA</td>
<td>Louisiana</td>
<td>TX</td>
<td>Texas</td>
</tr>
<tr>
<td>LOS</td>
<td>Los Angeles</td>
<td>UT</td>
<td>Utah</td>
</tr>
<tr>
<td>MA</td>
<td>Massachusetts</td>
<td>VA</td>
<td>Virginia</td>
</tr>
<tr>
<td>MD</td>
<td>Maryland</td>
<td>VI</td>
<td>Virgin Islands</td>
</tr>
<tr>
<td>ME</td>
<td>Maine</td>
<td>VT</td>
<td>Vermont</td>
</tr>
<tr>
<td>MH</td>
<td>Marshall Islands</td>
<td>WA</td>
<td>Washington</td>
</tr>
<tr>
<td>MI</td>
<td>Michigan</td>
<td>WI</td>
<td>Wisconsin</td>
</tr>
<tr>
<td>MN</td>
<td>Minnesota</td>
<td>WV</td>
<td>West Virginia</td>
</tr>
<tr>
<td>MO</td>
<td>Missouri</td>
<td>WY</td>
<td>Wyoming</td>
</tr>
</tbody>
</table>
APPENDIX B: XML SCHEMAS

The following sections contain the XML schema documents (XSD) and document type definitions (DTD) for the XML versions of the inventory request message and the inventory report message.

B1 INVENTORY REQUEST MESSAGE

B1.1 INVENTORY REQUEST MESSAGE XML SCHEMA DOCUMENT

The following is the XSD for the XML version of the inventory request message.

```xml
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema" elementFormDefault="qualified">
  <xs:element name="request">
    <xs:complexType>
      <xs:sequence>
        <xs:element name="identification">
          <xs:complexType>
            <xs:sequence>
              <xs:element name="messageType" type="xs:string"/>
              <xs:element name="messageVersion" type="xs:string"/>
              <xs:element name="requestId" type="xs:int"/>
              <xs:element name="requestName" type="xs:string"/>
              <xs:element name="reportingFrequency" type="frequency"/>
              <xs:element name="days" type="days" minOccurs="0"/>
              <xs:element name="productCount" type="xs:int"/>
            </xs:sequence>
          </xs:complexType>
        </xs:element>
        <xs:element name="product" minOccurs="0" maxOccurs="unbounded">
          <xs:complexType>
            <xs:sequence>
              <xs:element name="productName" type="xs:string"/>
              <xs:element name="brandName" type="xs:string" minOccurs="0"/>
              <xs:element name="ndc" type="xs:string" minOccurs="0"/>
            </xs:sequence>
          </xs:complexType>
        </xs:element>
      </xs:sequence>
    </xs:complexType>
  </xs:element>
</xs:schema>
```
<xs:complexType>
  <xs:element>
    <xs:simpleType name="frequency">
      <xs:restriction base="xs:string">
        <xs:enumeration value="MONTHLY"/>
        <xs:enumeration value="WEEKLY"/>
        <xs:enumeration value="DAILY"/>
      </xs:restriction>
    </xs:simpleType>
    <xs:element name="days">
      <xs:restriction base="xs:token">
        <xs:pattern value="((MON|TUES|WEDNES|THURS|FRI|SATUR|SUN)DAY)?(;TUESDAY)?(;WEDNESDAY)?(;THURSDAY)?(;FRIDAY)?(;SATURDAY)?(;SUNDAY)?"/>
      </xs:restriction>
    </xs:element>
  </xs:complexType>

B1.2 INVENTORY REQUEST MESSAGE DOCUMENT TYPE DEFINITION

The following is the DTD for the XML version of the inventory request message.

<?xml version="1.0" encoding="UTF-8"?>
<!ELEMENT request (identification, product*)>
<!ELEMENT identification (messageType, messageVersion, requestId, requestName, reportingFrequency, days?, productCount)>
<!ELEMENT messageType (#PCDATA)>
<!ELEMENT messageVersion (#PCDATA)>
<!ELEMENT requestId (#PCDATA)>
<!ELEMENT requestName (#PCDATA)>
<!ELEMENT reportingFrequency (#PCDATA)>
<!ELEMENT days (#PCDATA)>
<!ELEMENT productCount (#PCDATA)>

<!ELEMENT product (productName, brandName?, ndc?)>
<!ELEMENT productName (#PCDATA)>
<!ELEMENT brandName (#PCDATA)>
<!ELEMENT ndc (#PCDATA)>
B2 INVENTORY REPORT MESSAGE

B2.1 INVENTORY REPORT MESSAGE XML SCHEMA DOCUMENT

The following is the XSD for the XML version of the inventory report message.

```xml
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema" elementFormDefault="qualified">
  <xs:element name="report">
    <xs:complexType>
      <xs:sequence>
        <xs:element name="identification">
          <xs:complexType>
            <xs:sequence>
              <xs:element name="messageType" type="xs:string"/>
              <xs:element name="messageVersion" type="xs:string"/>
              <xs:element name="requestId" type="xs:int"/>
              <xs:element name="projectArea" type="projectArea"/>
              <xs:element name="reportingDate" type="dateTime"/>
              <xs:element name="creationDate" type="dateTime"/>
              <xs:element name="reportCount" type="xs:int"/>
            </xs:sequence>
          </xs:complexType>
        </xs:element>
        <xs:element name="count" minOccurs="0" maxOccurs="unbounded">
          <xs:complexType>
            <xs:sequence>
              <xs:element name="facilityName" type="xs:string"/>
              <xs:element name="locationJurisdictionType" type="locationJurisdictionType"/>
              <xs:element name="facilityTypeCode" type="facilityTypeCode" minOccurs="0"/>
              <xs:element name="zipCode" type="zipCode"/>
              <xs:element name="productName" type="xs:string" minOccurs="0"/>
              <xs:element name="catalogStockNumber" type="xs:string" minOccurs="0"/>
              <xs:element name="size" type="xs:string" minOccurs="0"/>
              <xs:element name="unitsPerCase" type="xs:int" minOccurs="0"/>
            </xs:sequence>
          </xs:complexType>
        </xs:element>
      </xs:sequence>
    </xs:complexType>
  </xs:element>
</xs:schema>
```
<xs:element name="onHandCases" type="xs:int" minOccurs="0"/>
<xs:element name="onHandUnits" type="xs:int" minOccurs="0"/>
</xs:sequence>
</xs:complexType>
</xs:element>
</xs:complexType>
</xs:element>
<xs:simpleType name="year">
  <xs:restriction base="xs:token">
    <xs:pattern value="(19|20)\d\d"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="month">
  <xs:restriction base="xs:token">
    <xs:pattern value="(0[1-9]|1[012])"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="day">
  <xs:restriction base="xs:token">
    <xs:pattern value="(0[1-9]|1[0-9]|2[0-9]|3[01])"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="dateTime">
  <xs:restriction base="xs:token">
    <xs:pattern value="((19|20)\d\d[-](0[1-9]|1[0-2])[-](0[1-9]|1[0-9]|2[0-9]|3[01])) ([0-1]?[0-9]|2[0-3]):[0-5]?[0-9]:[0-5]?[0-9])"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="zipCode">
  <xs:restriction base="xs:token">
    <xs:pattern value="(\d{5}(?:[-]\d{4})?)"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="locationJurisdictionType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="STATE"/>
    <xs:enumeration value="REGIONAL"/>
    <xs:enumeration value="LOCAL"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="facilityTypeCode">
</xs:simpleType>
<xs:restriction base="xs:string">
    <xs:enumeration value="ALTCARE"/>
    <xs:enumeration value="COMMPHARM"/>
    <xs:enumeration value="COMMCLNC"/>
    <xs:enumeration value="CORRECTIONS"/>
    <xs:enumeration value="EMS"/>
    <xs:enumeration value="FEDFAC"/>
    <xs:enumeration value="FEDHLTHCLNC"/>
    <xs:enumeration value="HOSP"/>
    <xs:enumeration value="HIS"/>
    <xs:enumeration value="LHD"/>
    <xs:enumeration value="NURSHOME"/>
    <xs:enumeration value="OTH"/>
    <xs:enumeration value="POD-C"/>
    <xs:enumeration value="POD-O"/>
    <xs:enumeration value="PRIVPHYS"/>
    <xs:enumeration value="STRGFAC"/>
    <xs:enumeration value="TRIBAL"/>
    <xs:enumeration value="VISITNURS"/>
</xs:restriction>
</xs:simpleType>

<xs:simpleType name="projectArea">
    <xs:restriction base="xs:string">
        <xs:enumeration value="AK"/>
        <xs:enumeration value="AL"/>
        <xs:enumeration value="AR"/>
        <xs:enumeration value="AS"/>
        <xs:enumeration value="AZ"/>
        <xs:enumeration value="CA"/>
        <xs:enumeration value="CHI"/>
        <xs:enumeration value="CO"/>
        <xs:enumeration value="CT"/>
        <xs:enumeration value="DC"/>
        <xs:enumeration value="DE"/>
        <xs:enumeration value="FL"/>
        <xs:enumeration value="FM"/>
        <xs:enumeration value="GA"/>
        <xs:enumeration value="GU"/>
        <xs:enumeration value="HI"/>
        <xs:enumeration value="IA"/>
        <xs:enumeration value="ID"/>
    </xs:restriction>
</xs:simpleType>
<xs:enumeration value="IL"/>
<xs:enumeration value="IN"/>
<xs:enumeration value="KS"/>
<xs:enumeration value="KY"/>
<xs:enumeration value="LA"/>
<xs:enumeration value="LOS"/>
<xs:enumeration value="MA"/>
<xs:enumeration value="MD"/>
<xs:enumeration value="ME"/>
<xs:enumeration value="MH"/>
<xs:enumeration value="MI"/>
<xs:enumeration value="MN"/>
<xs:enumeration value="MO"/>
<xs:enumeration value="MP"/>
<xs:enumeration value="MS"/>
<xs:enumeration value="MT"/>
<xs:enumeration value="NC"/>
<xs:enumeration value="ND"/>
<xs:enumeration value="NE"/>
<xs:enumeration value="NH"/>
<xs:enumeration value="NJ"/>
<xs:enumeration value="NM"/>
<xs:enumeration value="NV"/>
<xs:enumeration value="NY"/>
<xs:enumeration value="NYC"/>
<xs:enumeration value="OH"/>
<xs:enumeration value="OK"/>
<xs:enumeration value="OR"/>
<xs:enumeration value="PA"/>
<xs:enumeration value="PR"/>
<xs:enumeration value="PW"/>
<xs:enumeration value="RI"/>
<xs:enumeration value="SC"/>
<xs:enumeration value="SD"/>
<xs:enumeration value="TN"/>
<xs:enumeration value="TX"/>
<xs:enumeration value="UT"/>
<xs:enumeration value="VA"/>
<xs:enumeration value="VI"/>
<xs:enumeration value="VT"/>
<xs:enumeration value="WA"/>
B2.2 INVENTORY REPORT MESSAGE DOCUMENT TYPE DEFINITION

The following is the DTD for the XML version of the inventory report message.

```xml
<?xml version="1.0" encoding="UTF-8"?>
<!ELEMENT report (identification, count*)>
<!ELEMENT identification (messageType, messageVersion, requestId, projectArea, reportingDate, creationDate, reportCount)>
<!ELEMENT messageType (#PCDATA)>
<!ELEMENT messageVersion (#PCDATA)>
<!ELEMENT requestId (#PCDATA)>
<!ELEMENT projectArea (#PCDATA)>
<!ELEMENT reportingDate (#PCDATA)>
<!ELEMENT creationDate (#PCDATA)>
<!ELEMENT reportCount (#PCDATA)>

<!ELEMENT count (facilityName, locationJurisdictionType, facilityTypeCode?, zipCode, productDescription, ndc?, lotNumber?, expirationYear?, expirationMonth?, expirationDay?, productName?, catalogStockNumber?, size?, unitsPerCase?, onHandCases?, onHandUnits?)>
<!ELEMENT facilityName (#PCDATA)>
<!ELEMENT locationJurisdictionType (#PCDATA)>
<!ELEMENT facilityTypeCode (#PCDATA)>
<!ELEMENT zipCode (#PCDATA)>
<!ELEMENT productDescription (#PCDATA)>
<!ELEMENT ndc (#PCDATA)>
<!ELEMENT lotNumber (#PCDATA)>
<!ELEMENT expirationYear (#PCDATA)>
<!ELEMENT expirationMonth (#PCDATA)>
<!ELEMENT expirationDay (#PCDATA)>
<!ELEMENT productName (#PCDATA)>
<!ELEMENT catalogStockNumber (#PCDATA)>
<!ELEMENT size (#PCDATA)>
<!ELEMENT unitsPerCase (#PCDATA)>
<!ELEMENT onHandCases (#PCDATA)>
```
<!ELEMENT onHandUnits (#PCDATA)>
APPENDIX C: IDE STARTUP GUIDE

The IDE startup guide identifies the steps an awardee must take to begin participating in the IDE process. CDC is providing a test environment to enable awardees to assess their inventory data exchange capabilities using non-production data.

Awardees participating in IDE must take the following steps:

Steps 1–7 describe how to complete the IDE test.

1. Select the desired message encoding format.
   o Choices are delimited text format and XML format. (See Section 2.4 Message Formats.)

2. Select the desired request message transfer method.
   o Choices are email and PHINMS. (See Section 3.3 Inventory Request Message Transfer Mechanism.)

3. Set up PHINMS for communication with CDC IDE.
   o See Appendix D: PHINMS Setup Guide.

4. Develop a system or component that uses the selected message encoding format and is capable of:
   o Receiving an inventory request message via the selected request message transfer method
   o Processing the inventory request message (See Section 3 CDC Inventory Request above.)
   o Generating an inventory report message (See Section 4 Awardee Inventory Report above.)
   o Sending an inventory report message via PHINMS

5. Verify the IDE instance is pointed to the PHINMS staging receiver for testing.

6. Complete the IDE Participation Form in Appendix E and email it to the CTS Help Desk at CTSHelp@cdc.gov. An electronic copy of the form is available.
   o CDC will use information collected in the IDE Participation Form to send a test inventory request message to the awardee.

7. Receive and process the test inventory request message sent from CDC. Send an inventory report message to the PHINMS staging server at CDC.
   o The counts in the inventory report message should be synthetic and not actual product counts.
o An email from CDC will be sent acknowledging a successful inventory report message or defining errors found in the report.

o Examine the email from CDC. If there are errors, correct the errors and re-send the report until a successful result is obtained.

Steps 8–10 describe how to send the IDE report using the production receiver.

8. Verify the IDE instance is pointed to the PHINMS production receiver.

9. Send an email to the CTS Help Desk at CTSHelp@cdc.gov requesting participation in CDC IDE production.

   o CDC will grant access to CDC IDE production and send the currently active production inventory request message to the awardee using the request message transfer method specified in the IDE Participation Form.

10. Receive and process the production inventory request message sent by CDC. Begin generating and sending inventory report messages to the PHINMS production receiver in response to the received inventory request message at the requested frequency.

   o CDC will send a return email for each inventory report message received acknowledging a successful inventory report message or defining errors found in the report.
APPENDIX D: PHINMS SETUP GUIDE

The PHINMS setup guide is targeted for awardees that have a working PHINMS installation and need to configure PHINMS to exchange IDE requests and reports with CDC. Any awardees that do not have an active PHINMS installation should contact the CDC PHINMS Support Team at:

- CDC PHINMS Support Email – PHINTech@cdc.gov

CDC PHINMS Support Telephone – 1-800-532-9929, option 2

D1 RECEIVING IDE REQUESTS

Note: This section is only for those awardees that will receive IDE requests via PHINMS. Awardees that will receive IDE requests visa email should proceed to Section D2 Sending IDE Reports.

PHINMS provides two methods for a partner to receive data: a) Route Not Read (RNR) Polling and b) Direct Send. RNR Polling is a simple, robust method used by many partners securely reporting to CDC. It is similar in operation to an email client using POP3 protocol to check email on a remote server. RNR Polling has limitations that include a 10mb max file size.

Direct Send provides more flexibility for secure messaging exchange with CDC as well as other partners. However, this flexibility requires additional installation and configuration: a proxy server and ISAPI forwarder should be placed between the Internet and the PHINMS receiver within the partner network (DMZ). These provide authentication and http traffic forwarding capabilities. Also, inbound port 443 (used for secure https) must be opened on the partner’s outer firewall. This allows other PHINMS senders to connect to the partner’s PHINMS receiver. Lastly, port 8009 must be opened on the internal firewall, allowing the ISAPI forwarder to forward traffic to the PHINMS receiver.

This section will outline the configuration updates needed for existing RNR Pollers and DS Receivers. For detailed instructions on setting up new RNR Pollers or DS Receivers, please visit the PHINMS website http://www.cdc.gov/phin/tools/phinms/index.html.

D1.1 DIRECT SEND METHOD – CONFIGURE TO RECEIVE REQUESTS

Note: This section assumes you are already receiving data from CDC using PHINMS. For new connections, please contact PHINMS support at Phintech@cdc.gov.

1. Create a new table called IDE_inq in your database.
2. Open the PHINMS Console.
3. Click on Configure -> Receiver -> Worker Queues.
4. On the Database Tab, choose your database, click Update.
5. On the Database Configuration screen, click on Queue Maps for This Database.
6. Add a new queue called IDE as shown below.
7. Choose OK until you are back at the Receiver Configuration screen.
8. Create a new Service Map using the following values:
   a. Service = IDE
   b. Action = request
   c. Type = WorkerQueue
   d. Select the IDE queue and add it to the right side.
   e. Check Text Payload.
9. Click OK until you are back at the main console.
10. Restart PHINMS.

D1.2 RNR POLLER METHOD – CONFIGURE TO RECEIVE REQUESTS

Note: This section assumes you are already polling the CDC. For new connections, please contact PHINMS support at Phintech@cdc.gov.

1. Create a new table called IDE_inq in your database.
2. Open the PHINMS Console.
3. Click on Configure -> Sender -> Route Not Read.
4. On the Database Tab, choose your database, click Update.
5. On the Database Configuration screen, click on Queue Maps for This Database.
6. Add a new queue called IDE as shown below.

7. Choose OK until you are back at the Sender Configuration screen.
8. Click on the Service Map tab.
9. Create a new Service Map using the following values:
   a. Type = Service
   b. Arguments = IDE_request
   c. Select the IDE queue and add it to the right side.
   d. Check Text Payload.
10. Click OK until you are back at the main console.

11. Restart PHINMS.

**D2 SENDING IDE REPORTS**

These configurations are valid for both Direct Sender and RNR Poller methods. CDC has two PHINMS receivers which are capable of receiving IDE data.

- **Staging** – This receiver is for testing. Awardees should use staging to:
  - Complete “Hello World” tests
  - Test and validate exchange message constructions
  - Complete CTS IDE testing

- **Production** – This receiver is for operational purposes and is used to receive live or production IDE data files.

**D2.2 TRANSPORT QUEUE VALUES CONFIGURATION**

Many awardees insert new records directly into the PHINMS `Transportq_out` table. These awardees will need to configure their applications to insert new outgoing records using the values listed in the following table.
<table>
<thead>
<tr>
<th>Table Column Name</th>
<th>Values for Staging Receiver</th>
<th>Values for Production Receiver</th>
</tr>
</thead>
<tbody>
<tr>
<td>RouteInfo</td>
<td>CDCStagingReceiver</td>
<td>CDCProductionReceiver</td>
</tr>
<tr>
<td>Service</td>
<td>IDE</td>
<td>IDE</td>
</tr>
<tr>
<td>Action</td>
<td>send</td>
<td>Send</td>
</tr>
<tr>
<td>PublicKeyLdapDN</td>
<td>CN=CDC PHINMS</td>
<td>CN=CDC PHINMS</td>
</tr>
</tbody>
</table>

Notes:

- The values are case-sensitive. There is a space between “CN=CDC” and “PHINMS”.
- The table column name for “Arguments” is not listed because it does not require any value to be set (by default, it takes a SQL value of null).
D2.2 FOLDER POLLING VALUES CONFIGURATION

Some awardees use PHINMS Folder Polling to send data to partners. These awardees will need to configure a new Folder Polling configuration to send IDE data.

1. Click on Configure -> Sender -> Folder Polling.
2. Check “Folder Based Polling” and click “Add”.
3. Configure the new folder mapping using the following values:
   a. Staging Folder Polling Configuration

   ![Folder Properties](image)

   * Payload Folder values for outgoing data can be substituted based on your awardee’s requirements.
b. Production Folder Polling Configuration

* Payload Folder values for outgoing data can be substituted based on your awardee’s requirements.

4. Click on “Security Options”.
5. Check “Encrypt Message”.
6. Common Name = CDC PHINMS
7. Click OK.

8. Save your configurations.

9. Restart PHINMS.
APPENDIX E: IDE PARTICIPATION FORM

Every awardee with its own inventory management system must provide setup information for its IDE participation by completing this form and emailing it to the CTS Help Desk at CTSHelp@cdc.gov.

Note: An electronic version of this form is available and should have accompanied this document. If you do not have the electronic version, please contact the CTS Help Desk at CTSHelp@cdc.gov to receive it.

<table>
<thead>
<tr>
<th>Item</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Awardee</td>
<td></td>
</tr>
<tr>
<td>Primary Point of Contact</td>
<td></td>
</tr>
<tr>
<td>Primary E-Mail Address</td>
<td></td>
</tr>
<tr>
<td>Primary Telephone Number</td>
<td></td>
</tr>
<tr>
<td>Message Encoding Format</td>
<td>___ Delimited Text</td>
</tr>
<tr>
<td></td>
<td>___ XML</td>
</tr>
<tr>
<td>Request Message Transfer Method</td>
<td>___ E-Mail</td>
</tr>
<tr>
<td></td>
<td>___ PHINMS</td>
</tr>
<tr>
<td>Testing</td>
<td></td>
</tr>
<tr>
<td>PHINMS Sender Party Identifier</td>
<td></td>
</tr>
<tr>
<td>PHINMS Receiver Party Identifier</td>
<td></td>
</tr>
<tr>
<td>(Required if Request Message</td>
<td></td>
</tr>
<tr>
<td>Transfer Method is PHINMS)</td>
<td></td>
</tr>
<tr>
<td>Notification E-Mail Address</td>
<td></td>
</tr>
<tr>
<td>(Specify one only)</td>
<td></td>
</tr>
<tr>
<td>Type of Configuration</td>
<td>___ Route Not Read</td>
</tr>
<tr>
<td>(Choose one by placing an X before it)</td>
<td>(RNR) Polling</td>
</tr>
<tr>
<td></td>
<td>___ Direct Send</td>
</tr>
<tr>
<td>Production</td>
<td></td>
</tr>
<tr>
<td>PHINMS Sender Party Identifier</td>
<td></td>
</tr>
<tr>
<td>PHINMS Receiver Party Identifier</td>
<td></td>
</tr>
<tr>
<td>(Required if Request Message</td>
<td></td>
</tr>
<tr>
<td>Transfer Method is PHINMS)</td>
<td></td>
</tr>
<tr>
<td>Notification E-Mail Address</td>
<td></td>
</tr>
<tr>
<td>(Specify one only)</td>
<td></td>
</tr>
<tr>
<td>Type of Configuration</td>
<td>___ Route Not Read</td>
</tr>
<tr>
<td>(Choose one by placing an X before it)</td>
<td>(RNR) Polling</td>
</tr>
<tr>
<td></td>
<td>___ Direct Send</td>
</tr>
</tbody>
</table>