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The Center for Medical Interoperability Document
TOGETHER for PPE Readiness Data Export

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Draft

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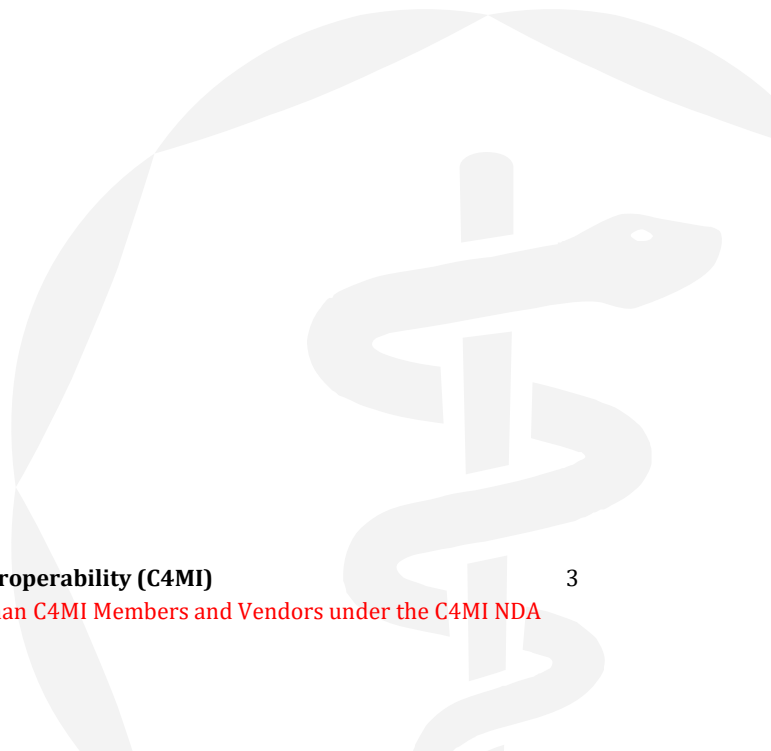
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Key to Document Status Codes

Work in Progress	An incomplete document designed to guide discussion and generate feedback that may include several alternative requirements for consideration.
Draft	A document considered largely complete but lacking review by Members and vendors. Drafts are susceptible to substantial change during the review process.
Issued	A public document that has undergone Member and Technology Supplier review, cross-vendor interoperability, and is for Certification testing if applicable. Issued Specifications are subject to the Engineering Change Process.
Closed	A static document, reviewed, tested, validated, and closed to further engineering change requests to the specification through C4MI.

Change log:

D02:

- Added CSV support (use *.csv extension for comma-delimited and *.tsv for tab-delimited)
- Added support for reporting multiple facilities in a single file
- Replaced CCN with C4MI-provided 'Facility ID'
- Made 'item_eaches_per_uom' a required element in all export files
- Clarified partial order handling and order status flow; changed 'RECEIVED' status name to 'CLOSED'

1 Overview

The TOGETHER for PPE Readiness project is a public-private partnership between C4MI and the CDC to improve nationwide readiness and response to pandemics by ensuring appropriate personal protective equipment (PPE) inventory awareness by leveraging C4MI's Healthcare Trust Platform (HTP) for data exchange. As participants in this project, hospitals, health systems, and other organizations provide data related to the supply and demand of personal protective equipment (PPE). This document defines requirements for data exports from those project participants' information systems (e.g. inventory management systems, ordering systems), to be consumed by other software systems developed for this project. There are two required data exports:

- **Inventory Data** – captures a snapshot of data related to inventory of personal protective equipment (PPE)
- **Order Data** – captures a snapshot of data related to orders of PPE

2 Export File Format

Export files should be an IETF-RFC4180-compliant CSV file that uses a US-ASCII character set and includes a header line; the contents of each column are named (in order) and described in Section 3 below. Lines should be limited to 2048 characters; columns have no general character limit, although specific column constraints may be defined in Section 3 below. A tab-separated format is also supported and should meet the same requirements except with tabs instead of commas. Comma-separated files should use a *.csv extension; tab-separated files should use a *.tsv extension.

3 Export File Contents

Each of the following sections describes the data elements for a specific export file. Each section includes a table to define the requirements for its corresponding file; the column headings in those requirement tables are given below:

Name	Name of the data element
Type	Data type of the element; will be one of: <ul style="list-style-type: none"> • String (alphanumeric text) • Integer (whole numbers) • Date (YYYYMMDD)
Description	Description of the element.
Requirement	All elements are required if they are available in the reporting organization's information system. Elements marked 'SHALL' are an absolute requirement; elements marked 'SHOULD' should be populated, but may be empty (populated with the empty string) if they are not available.

Validation errors and the methods for reporting them are specific to software consuming this export and will be included in appropriate documentation for those tools.

The following C4MI-assigned identifiers are used to identify reporting organizations and facilities, and should be obtained by participating organizations as part of the TOGETHER for PPE Readiness onboarding process:

- HTP Member Code - participating organizations are identified by this C4MI-assigned identifier
- Facility ID - facilities are identified by a C4MI-assigned GUID

3.1 Inventory Data

Name: C4MI_DEX_PPE_ID_v1-1_<HTP Member Code>_<YYYYMMDDHHMM>.[csv/tsv]

Example: C4MI_DEX_PPE_ID_v1-1_EXAMPLE-HEALTH-SYSTEM_202001060830.csv

This file contains a snapshot of inventory at a specific point in time. Multiple rows should be used for the same equipment if the same equipment is used at multiple locations within the facility, with multiple packaging types, etc. If possible, the inventory reported in this file should be limited to the following categories of items:

- Gloves
- Respirators and respirator accessories (e.g. N95 masks, PAPRs, PAPR batteries and filters)
- Protective garments (e.g. surgical gowns, isolation gowns, coveralls)
- Foot Protection (e.g. boot covers)
- Eye Protection (e.g. goggles)
- Face and Head Protection (e.g. surgical masks, face shields, surgical hoods)

Table 1. Inventory Data Export File (v1.1) Contents

Name	Type	Description	Requirement
facility_name	String	The (participant-defined) name of the facility	SHALL
facility_id	String	Facility ID (C4MI-assigned)	SHALL
manufacturer	String	The manufacturer of the equipment	SHALL
manufacturer_model	String	The model number, designated by the manufacturer	SHALL
gtin	String	Global Trade Item Number for the equipment (<i>please report if possible</i>)	SHOULD
internal_model	String	Model number designated by facility	SHOULD
item_description	String	Name or description of the piece of equipment as listed in the inventory system	SHOULD
distributor	String	The fulfiller of the equipment	SHOULD
distributor_model	String	Model or SKU designated by distributor.	SHOULD
location	String	The location of the item within the facility (e.g. '2nd floor ICU', 'Emergency Stockpile 1')	SHOULD
location_is_stockpile	String	'TRUE' if the location of the item is a dedicated "stockpile" or "emergency preparedness supply"; 'FALSE' otherwise	SHOULD

Name	Type	Description	Requirement
in_possession_quantity	Integer	Number of items currently in possession and available in inventory. Expressed in units (e.g. eaches, boxes, crates, etc.)	SHALL
item_uom	String	Unit of measure for the item (e.g. eaches, boxes, crates, etc.). Format: free-form text.	SHOULD
item_eaches_per_uom	Integer	The number of eaches in the unit of measure for the item (e.g. 50 individual gloves per box)	SHALL

3.2 Order Data

Name: C4MI_DEX_PPE_OD_v1-1_<HTP Member Code>_<YYYYMMDDHHMM>.[csv/tsv]

Example: C4MI_DEX_PPE_OD_v1-1_EXAMPLE-HEALTH-SYSTEM_202001060830.csv

This file contains a snapshot of all existing orders at a specified point in time, limited (if possible) to equipment types reported in the Inventory Data file as specified in Section 3.1.

Orders are reported on a per-item basis. The following statuses indicate the state of an ordered item:

- 'ORDERED' – an order for the item has been placed with the distributor, but either the purchase order remains unfilled, or an expected delivery date has not been given
- 'FILLED' – the order has been filled by the distributor and given an expected delivery date
- 'CLOSED' - the order is closed (i.e. because no more items will be delivered or because the order was cancelled)

The first elements before 'order_status' (i.e. the first 16 elements) capture details about the initial order, and are constant through all order states. The elements after 'order_status' (i.e. the last 4 elements) capture details about order activity, and should change as the order progresses as captured in the table below.

Table 2. Order Status Constraints

order_status	expected_delivery_date	expected_delivery_delayed	total_received_quantity	last_received_date
ORDERED	(empty string)	(empty string)	0	(empty string)
FILLED & CLOSED	The currently expected date the ordered items will be delivered.	'TRUE' if the current expected delivery date is later than the originally expected delivery date; 'FALSE' otherwise	The total quantity of the ordered item that have been received to date. Shall be updated every time last_received_date is updated.	The most recent date that items were received. Shall be updated every time total_received_quantity is updated.

Table 3. Order Data Export File (v1.1) Contents

Name	Type	Description	Requirement
facility_name	String	The (participant-defined) name of the facility	SHALL
facility_id	String	Facility ID (C4MI-assigned)	SHALL
manufacturer	String	The manufacturer of the equipment	SHALL
manufacturer_model	String	The model number, designated by the manufacturer	SHALL
gtin	String	Global Trade Item Number for the equipment (<i>please report if possible</i>)	SHOULD
internal_model	String	Model number designated by facility	SHOULD
item_description	String	Name or description of the piece of equipment as listed in the inventory system	SHOULD
distributor	String	The fulfiller of the equipment	SHOULD
distributor_model	String	Model or SKU designated by distributor	SHOULD
location	String	The location of the item within the facility (e.g. '2nd floor ICU', 'Emergency Stockpile 1')	SHOULD
location_is_stockpile	String	'TRUE' if the location of the item is a dedicated "stockpile" or "emergency preparedness supply"; 'FALSE' otherwise	SHOULD
order_number	String	Unique purchase order number	SHALL
order_quantity	Integer	Number of items ordered. Expressed in units (eaches, boxes, crates, etc.)	SHALL
item_uom	String	Unit of measure for the item (e.g. eaches, boxes, crates, etc.) Format: free-form text	SHOULD
item_eaches_per_uom	Integer	The number of eaches in the unit of measure for the item (e.g. 50 individual gloves per box)	SHALL

Name	Type	Description	Requirement
order_placed_date	Date	Date order was placed	SHALL
order_status	String	'ORDERED', 'FILLED', or 'CLOSED' (see introduction to this section for details)	SHALL
expected_delivery_date	Date	The currently expected date the ordered items will be delivered. Constraints: (see Table 2)	(see Table 2)
expected_delivery_delayed	String	'TRUE' if the current expected delivery date is later than the originally expected delivery date; 'FALSE' otherwise	(see Table 2)
received_quantity	Integer	The total quantity of the ordered item that has been received to date, expressed in the same units as order_quantity. (eaches, boxes, crates, etc.). Should be updated every time last_received_date is updated. Constraints: (see Table 2)	(see Table 2)
last_received_date	Date	The most recent date items that items in the order were received. Should be updated every time received_quantity is updated. Constraints: (see Table 2)	(see Table 2)