USAID GLOBAL HEALTH SUPPLY CHAIN PROGRAM

PROCUREMENT AND SUPPLY MANAGEMENT

DATA SYNCHRONIZATION IMPLEMENTATION GUIDE

Version 2.3, March 2022

USAID FROM THE AMERICAN PEOPLE

PEPFAR U.S. President's Emergency Plan for AIDS Relief

USAID FROM THE AMERICAN PEOPLE CDC

U.S. President's Malaria Initiative

DATA SYNCHRONIZATION IMPLEMENTATION GUIDE

Version 2.3, March 2022

This publication was produced for review by the United States Agency for International Development. It was prepared under the USAID Global Health Supply Chain Program-Procurement and Supply Management (GHSC-PSM) Contract No. AID-OAA-I-15-00004; Task Order 01 Contract No. AID-OAA-TO-15-00007; Task Order 02 Contract No. AID-OAA-TO-15-00009; Task Order 03 Contract No. AID-OAA-TO-15-00010; and Task Order 04 Contract No. AID-OAA-TO-15-00018.

Recommended citation: USAID Global Health Supply Chain Program-Procurement and Supply Management Single Award IDIQ. 2019. Data Synchronization Implementation Guide. Washington, D.C.

DISCLAIMER
The authors' views expressed in this publication do not necessarily reflect the views of the U.S. Agency for International Development or the U.S. government.

CONTENTS

Contents 3
ACRONYMS 4
REVISION HISTORY 5
INTRODUCTION 6
GHSC-PSM'S DATA SYNCHRONIZATION INFORMATION 7
- Primary Data Synchronization Contact 7
- GHSC-PSM's GDSN Recipient publication Global Location Number 7
- GHSC-PSM's Data Pool 7

GHSC-PSM ATTRIBUTE REQUIREMENTS 8
- Attribute Cardinality 8
- GHSC-PSM Attribute Groupings 9

GHSC-PSM TARGET MARKET REQUIREMENTS 10
STEPS FOR SYNCHRONIZING DATA WITH GHSC-PSM 13
DATA SYNCHRONIZATION RESOURCES 16
- GHSC-PSM GDSN Attribute Guide 16
- GS1 Healthcare GTIN Allocation Rules 16
- GS1 Global Data Dictionary 16
- GDSN Trade Item Implementation Guidance 16
- GS1 Global Product Classification Browser 17
- GS1 Attribute Explorer 17
- GS1 Package Measurement Rules Standard and Implementation Guide 17
- GHSC-PSM GDSN Training Materials 17

CIC ..... Catalog Item Confirmation
GDD ..... GS1 Global Data Dictionary
GDSN ..... GS1 Global Data Synchronization Network
GHSC-PSM ..... Global Health Supply Chain-Procurement and Supply Management
GLN ..... Global Location Number
GPC ..... Global Product Classification
GTIN ..... Global Trade Item Number
LLIN ..... long-lasting insecticidal net
MIS ..... management information system
TIIG ..... GDSN Trade Item Implementation Guidance
USAID ..... U.S. Agency for International Development

REVISION HISTORY

Date	Version	Description of Change	Author
18 Nov 2018	1.0	Initial document	K. Roche
15 Jan 2018	1.1	• Disaggregated attributes by product type • Updated target market instructions • Clarified Global Trade Item Number (GTIN) submission process	K. Roche
15 May 2019	2.0	• Refactored structure of document • Removed frequently asked questions section • Consolidated "GHSC-PSM'S DATA SYNCHRONIZATION REQUIREMENTS" into the "STEPS TO BEGIN SYNCHRONIZING YOUR DATA WITH GHSC-PSM" section • Updated Attribute Requirements numbers • Updated Target Market Table for easier reference • Added ISO three-digit code (used in GDSN) to Country Code Table • Added GS1 / GDSN Data Synchronization resources	S. Lockhead
08 Sept 2020	2.1	• Replaced Attribute Guide Link	T. Ghine
23 Feb 2021	2.2	• Added information on LLIN attributes • Updated guidance on CICs • Updated attribute counts	R. Smith
28 Mar 2022	2.3	• Updated primary data synchronization contact • Updated attribute counts • Additional GDSN training resources	A, Malek

INTRODUCTION

Chemonics is acting on behalf of the U.S. Agency for International Development (USAID) to implement the Global Health Supply Chain-Procurement and Supply Management (GHSC-PSM) project. The purpose of the project is to:

- Serve as the primary vehicle through which USAID will procure and provide health commodities for all USAID health programs, including but not limited to HIV/AIDS, Malaria, Reproductive Health, and Maternal and Child Health
- Provide systems strengthening technical assistance to improve supply chain management and commodity security in partner countries

USAID has been investigating the use of global standards to improve health commodity procurement management for many years and has instructed GHSC-PSM to:

- Develop a contract requirement on implementing global standards for product identification, labeling, and data exchange
- Seek to harmonize requirements and implementation timelines with other global stakeholders
- Design its management information system (MIS) to support and exchange data leveraging global standards
- Support country governments with regulation on global standards, product authentication, and track-and-trace solutions

GHSC-PSM has adopted and implemented the GS1 Global Data Synchronization Network (GDSN®) to receive trade item attribute information as the basis of our product catalog and seeks the benefits of synchronizing product data with trading partners for new and existing items. Using the GDSN process will help improve supply chain data quality and management for you and all our trading partners. It will provide USAID-supported countries with the information they need to optimize decision making for GHSC-PSM order planning, procurement, shipping and receiving. With master data received from synchronization, countries can make the best purchasing decisions when ordering life-saving commodities for global health programs across the world.

This document provides the process and methods to be used by GHSC-PSM and our trading partners in achieving the goal of data synchronization.

SECTION NO. 1

GHSC-PSM'S DATA SYNCHRONIZATION INFORMATION

PRIMARY DATA SYNCHRONIZATION CONTACT

Andrew Godlewicz
GHSC-PSM MIS Catalog
Managerdatasync@ghsc-psm.org

GHSC-PSM'S GDSN RECIPIENT PUBLICATION GLOBAL LOCATION NUMBER

GHSC-PSM's production Global Location Number (GLN) is **0858939007009**. Please note that the registered name associated with GHSC-PSM's GLN is Chemonics International.

GHSC-PSM'S DATA POOL

GHSC-PSM's GDSN data pool is 1WorldSync. To learn more about 1WorldSync and its services, visit https://www.1worldsync.com, email businessdevelopment@1worldsync.com, or call +1 (866) 280-4013, Option 1

SECTION NO. 2

GHSC-PSM ATTRIBUTE REQUIREMENTS

The GHSC-PSM GDSN Attribute Guide is the primary reference document for trading partners regarding GHSC-PSM attribute requirements. It includes all initial priority attributes to be provided as relevant on trade items supplied to GHSC-PSM. For each attribute, the guide provides the common name, GDSN field name, data type and a brief definition of the attribute.

The guide is available: https://www.ghsupplychain.org/Data-Sync-Implementation-Guide

ATTRIBUTE CARDINALITY

The GHSC-PSM GDSN Attribute Guide identifies the cardinality of each attribute. There are three types:

Attribute requirement	Pharmaceuticals: No. of attributes	LLINs: No. of attributes	Other commodities: No. of attributes
GDSN mandatory: attributes that must be populated to load and/or share data through GDSN	16	24	24
Required: attributes that are required for data synchronization with GHSC-PSM	59	44	29
Suggested: attributes that should be populated if available, but not yet required by GHSC-PSM	89	85	97
Total attributes	164	153	150

GHSC-PSM prefers immediate publication of all attributes that are readily available rather than delaying publication to retrieve missing attributes. "GDSN mandatory" attributes must be populated to synchronize data about a trade item through GDSN. "Required" and "suggested" attributes are being requested by GHSC-PSM. However, if some of the required attributes are not immediately available, load and publish the attributes that are and add the additional attributes when available. GHSC-PSM prefers that you not delay publication while seeking data for the additional attributes.

GHSC-PSM ATTRIBUTE GROUPINGS

GHSC-PSM has categorized project-specific attributes into 17 groups, provided below.

Attribute Grouping	Description
General Item Information	General information about the trade item
Product Description Information	Supplier product descriptions and other descriptive information
Unit Indicators	Supply chain characteristics
Dimensions	Trade item dimensions, weights and measures
Contact/Role Information	Manufacturer, supplier and information provider contact information (name, address and contact method)
Additional Trade Item Identification	Since the GTIN is mandatory, the Additional Trade Identification Information provides a way to include other identifiers, for example, vendor part number
Warranty Information	Warranty types and details
Packaging Information	Information about packaging and labeling
Pharmaceutical Information	Information on dosage and route of administration
Hierarchy	Trade item hierarchy (packaging levels) information
Pallets and Logistic Units	Information to manage GTIN and non-GTIN pallets
Storage, Handling and Shelf Life	Information regarding storage and handling requirements, and estimated shelf life
Classifications	Product classification details
Ingredient Information	Information on ingredients and strengths
Dangerous/Hazardous Goods	Information on dangerous and hazardous goods and waste classification
Links to Additional Information	Links to additional external content for trade item
Market Authorization Information	Information about market authorizations

SECTION NO. 3

GHSC-PSM TARGET MARKET REQUIREMENTS

GHSC-PSM may procure and deliver global health commodities on behalf of the countries below over the project duration. **All suppliers need to publish data for all products to Target Market Development Assistance (D_A) at a minimum, which will be used as the default for GHSC-PSM's product catalog.**

When supplying data about products that can be consumed in multiple countries (multimarket packs), use of the Target Market D_A for registration of the product and publication of the data is required. When products are specifically targeted for consumption in specific countries due to regulations, label requirements or other factors in those countries, registration and publication using the specific target market is required in addition to the Target Market D_A. Those additional target markets of interest are provided below.

Target Market	Country Code	GDSN Code
Development Assistance*	**D_A**	**D_A**
Afghanistan	AF	004
Angola	AO	024
Bangladesh	BD	050
Barbados	BB	052
Benin	BJ	204
Bolivia	BO	068
Botswana	BW	072
Brazil	BR	076
Burkina Faso	BF	854
Burundi	BI	108
Cambodia	KH	116
Cameroon	CM	120
Cape Verde	CV	132
Central African Republic	CF	140
Chad	TD	148
Comoros	KM	174
Congo, Democratic Republic of the	CD	180
Congo, the	CG	178
Côte d'Ivoire	CI	384
Djibouti	DJ	262
Dominican Republic	DO	214
El Salvador	SV	222
Eritrea	ER	232
Ethiopia	ET	231

Gambia	GM	270
Georgia	GE	268
Ghana	GH	288
Guatemala	GT	320
Guinea	GN	324
Guinea-Bissau	GW	624
Guyana	GY	328
Haiti	HT	332
Honduras	HN	340
Indonesia	ID	360
Iraq	IQ	368
Jamaica	JM	388
Jordan	JO	400
Kazakhstan	KZ	398
Kenya	KE	404
Kyrgyzstan	KG	417
Lao People's Democratic Republic	LA	418
Lesotho	LS	426
Liberia	LR	430
Madagascar	MG	450
Malawi	MW	454
Mali	ML	466
Mauritania	MR	478
Mozambique	MZ	508
Myanmar	MM	104
Namibia	NA	516
Nepal	NP	524
Nicaragua	NI	558
Niger	NE	562
Nigeria	NG	566
Pakistan	PK	586
Papua New Guinea	PG	598
Paraguay	PY	600
Peru	PE	604
Philippines	PH	608
Rwanda	RW	646
São Tomé and Príncipe	ST	678
Senegal	SN	686
Sierra Leone	SL	694

Singapore	SG	702
South Africa	ZA	710
South Sudan	SS	728
Sri Lanka	LK	144
Sudan	SD	729
Suriname	SR	740
eSwatini (Swaziland)	SZ	748
Tajikistan	TJ	762
Tanzania	TZ	834
Thailand	TH	764
Timor-Leste	TL	626
Togo	TG	768
Trinidad and Tobago	TT	780
Uganda	UG	800
Ukraine	UA	804
Uzbekistan	UZ	860
Venezuela	VE	862
Vietnam	VN	704
Yemen	YE	887
Zambia	ZM	894
Zimbabwe	ZW	716

SECTION NO. 4

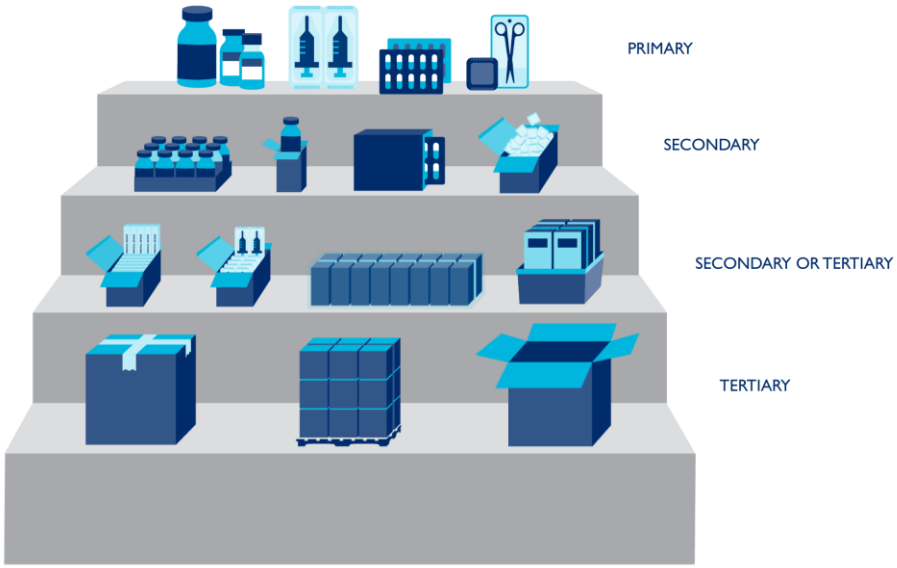
STEPS FOR SYNCHRONIZING DATA WITH GHSC-PSM

To synchronize data with GHSC-PSM, trading partners are advised to undertake the following actions:

1. Assign a GLN[1] for each of your legal entities, functional entities, and physical locations. Supply-side trading partner locations generally include corporate headquarters, regional offices, warehouses, plants and distribution centers. Demand-side trading partner locations generally include corporate headquarters, divisional offices, stores and distribution centers. At the minimum, the GLN that will be used for the GDSN data synchronization process must be registered.

2. Assign a GTIN to each level of the trade item packaging hierarchy (e.g., each, inner, case, pallet).[2] An example of a trade item packaging hierarchy in the healthcare context is:

Figure 1. Identification at healthcare levels of packaging[3]



3. Submit your GTINs and GLNs to the GHSC-PSM Data Synchronization Team (datasync@ghsc-psm.org) by using the GTIN/GLN submission form.[4] This will ensure that GHSC-PSM is prepared for the data synchronization process with your trade items.

4. If your organization is not currently registered in the GDSN, identify and sign up with a GDSN-

[1] For more information on the GLN, please refer to the GS1 website: https://www.gs1.org/gln
[2] For more information on definitions and assigning GTINs in the healthcare context, please reference the GS1 Healthcare GTIN Allocation Rules available: https://www.gs1.org/1/gtinrules/en/healthcare
[3] "Primary packaging" is usually also the unit of use. "Tertiary packaging" in this context refers only to trade items and not to logistic units.
[4] The GTIN/GLN submission form is available: https://www.ghsupplychain.org/global-standards/gtinglnsubmissionform

certified data pool of your choice.[5] Your data pool provider and GS1 Member Organization should be your primary support for any technical questions about implementing the steps that follow.

5. Load trade item attribute information in preparation for publication.

   It is imperative that the data be of the highest quality upon registration and publication. A set of GS1 (GDSN)-based validation rules is applied to your inputted master data to aid in this effort. However, the actual content of what is populated must be correct and consistent with the physical trade item itself. This is especially true of classes of information, such as dimensions and weights.

   - The GHSC-PSM Attribute Guide[6] provides a detailed list of mandatory, required and suggested attribute fields.
   - GHSC-PSM requests information for all additional target markets listed in the target market table in Section 3, as available.
   - All suppliers need to register data for all items in Target Market Development Assistance at a minimum—the default for GHSC-PSM's product catalog (see Section 3).
   - Suppliers need to register data for additional specific target markets as necessary (see Section 3).

   Register accurate item information at each level of the packaging hierarchy relevant to your trade items, and ensure it is ready for publication with as many attributes as possible.

   Product (item) data are required to be registered at every level of the packaging hierarchy (e.g., BASE_UNIT_OR_EACH (EA), PACK_OR_INNER_PACK (PK), CASE (CS)). The different levels of the packaging hierarchy according to GDSN are defined by the "Trade Item Unit Descriptor" in the Catalogue Item Synchronization Business Message Standard.

   Publication of this information will include the highest level of the packaging hierarchy (parent), along with all the levels (children) contained in that hierarchy.

6. Inform the GHSC-PSM Data Synchronization Team (datasync@ghsc-psm.org) when your organization is ready for initial publication. GHSC-PSM will create a subscription to your organization's data sync GLN. This subscription request will be routed to you through your data pool and will enable the rest of the synchronization process.

7. Publish items to GHSC-PSM's GLN **0858939007009.**
   a. Ensure your data are accurate before publishing
   b. Publish your items with the appropriate Publication Type of "Initial Load" or "New"
   c. Publish only trade items applicable to GHSC-PSM

8. Manage Catalog Item Confirmation (CIC) Responses from GHSC-PSM:
   a. Establish a process for handling and responding to CIC messages sent back to you from GHSC-PSM.
   b. You will receive one of two CIC Responses after GHSC-PSM receives your published item:

[5] A list of GDSN-certified data pools is available: http://www.gs1.org/gdsn/certified-data-pools
[6] The GHSC-PSM GDSN Attribute Guide is available: http://ghsupplychain.org/psmgdsnattributeguide

c. A CIC of "SYNCHRONIZED" indicates that GHSC-PSM has received your published item and the published data was linked to an item in the GHSC-PSM catalog. This does not indicate that the message has been reviewed for completeness or accuracy; the GHSC-PSM team may contact you with additional questions or concerns after further review.

d. A CIC of "REVIEW" indicates that GHSC-PSM received your published item, but the GTIN was not linked to an item in the GHSC-PSM catalog. If you believe this is in error, please contact datasync@ghsc-psm.org.

9. Perform ongoing item maintenance through your GDSN-certified data pool. Any time a change is made to the item information, an update should be made and communicated through the GDSN using a publication using the "CHANGE_BY_REFRESH" choreography.

   Data synchronization is not a one-time effort. It is a continuous, integral part of the overall supply chain process. The master data strategy must include a data quality component to ensure the most accurate and up-to-date trade item data are communicated to all trading partners at all times.

SECTION NO. 5

DATA SYNCHRONIZATION RESOURCES

GHSC-PSM GDSN ATTRIBUTE GUIDE

The GHSC-PSM GDSN Attribute Guide is the primary reference document for trading partners regarding GHSC-PSM attribute requirements. It includes all initial priority attributes to be provided as relevant on trade items supplied to GHSC-PSM. For each attribute, the guide provides the common name, GDSN field name, data type and a brief definition of the attribute.

If some of the prioritized attributes are not immediately available to publish, GHSC-PSM prefers immediate publication of all attributes that are readily available rather than delaying publication to retrieve missing attributes.

The GHSC-PSM GDSN Attribute Guide is available: https://www.ghsupplychain.org/Data-Sync-Implementation-Guide

GS1 HEALTHCARE GTIN ALLOCATION RULES

The GS1 Healthcare GTIN Allocation Rules voluntary guideline is developed and maintained GS1 Healthcare so that, when and where product identification is required, use of data structures is consistent worldwide. The guideline also covers specific Point-of-Sale requirements, which are essential for prescription and nonprescription healthcare items.

The GS1 Healthcare GTIN Allocation Rules are available from: https://www.gs1.org/standards/gs1-healthcare-gtin-allocation-rules-standard/current-standard

GS1 GLOBAL DATA DICTIONARY

The GS1 Global Data Dictionary (GDD) is a repository of the data elements defined across all GS1 Standards. Attributes in the GDD are described using data types, some of which may contain code lists. Each GS1 Standard is represented in the GDD, sorted by the type of data exchange standard, including GDSN.

The GDD is available: http://apps.gs1.org/GDD/SitePages/Home.aspx

GDSN TRADE ITEM IMPLEMENTATION GUIDANCE

The GDSN Trade Item Implementation Guidance (TIIG) supplements the formal GS1 GDSN standards with guidance on their implementation and operation. This resource supports a variety of the more complicated issues encountered when implementing GDSN while increasing consistency and ease of implementation through real-world examples.

The TIIG is available: https://www.gs1.org/standards/gdsn/trade_implementation_guide

GS1 GLOBAL PRODUCT CLASSIFICATION BROWSER

With the GS1 Global Product Classification (GPC) Browser, you can search all components (Segment, Family, Class, Brick and Attribute) of the published GPC schemas. The GPC has been translated into more than 20 different languages.

The GPC Browser is available: https://gpc-browser.gs1.org/

GS1 ATTRIBUTE EXPLORER

The GS1 Attribute Explorer is designed to help users search, filter and view standardized attributes as defined in the GS1 GDD. The tool contains attributes, code list values, and definitions. The attributes and code list values contained in the tool include but are not limited to GDSN standards.

The GS1 Attribute Explorer is available: https://ae.gs1.org/FESAttributeExplorer/

GS1 PACKAGE MEASUREMENT RULES STANDARD AND IMPLEMENTATION GUIDE

To improve the consistency and quality of the data that is communicated through the GDSN, additional standards and guidelines can help with questions on implementation.

The GS1 Package Measurement Rules Standard establishes rules for the global, unambiguous definition of nominal measurement attributes for product packaging. These rules are designed to facilitate communication of these attributes for retail and nonretail products from the consumer unit to the case level and all intermediate packaging levels in between. The GDSN Package Measurement Rules Implementation Guide provides further clarity on using and implementing the GS1 Package Measurement Rules Standard.

The GS1 Package Measurement Rules Standard is available:
http://www.gs1.org/docs/gdsn/3.1/GS1_Package_Measurement_Rules.pdf

The GDSN Package Measurement Rules Implementation Guide is available:
https://www.gs1.org/sites/default/files/docs/gdsn/GDSN_Pack_Measure_Rules_Implementation_Guide.pdf

GHSC-PSM GDSN TRAINING MATERIALS

These "LearnBite" videos provide guidance and answers to common questions regarding the data sync process and requirements. If you have any questions regarding this material, please reach out to your data pool provider or email datasync@ghsc-psm.org. Topics include:

- How to interpret CIC messages
- How to address common GDSN attribute challenges
- How 1WorldSync can assist suppliers with syncing data with GHSC-PSM (intended for suppliers with 1WorldSync as a datapool)
- How to navigate 1WorldSync's GDSN portal (intended for suppliers with 1WorldSync as a datapool)

The Learnbite videos are available: https://www.ghsupplychain.org/gdsn-training-materials