

GS1 HEALTHCARE US

Best Practice Guide: Building a GLN Hierarchy

Developed by the GS1 Healthcare US Location Identification Workgroup

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THE GLOBAL LANGUAGE OF BUSINESS



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GS1 US is the Member Organization of GS1 that serves companies in the United States. As such, it is the national implementation organization of the GS1 System dedicated to the adoption and implementation of standards-based, global supply chain solutions in the United States. GS1 US currently serves over 200,000 U.S. member companies -- 16,000 of which are in healthcare.

About GS1 Healthcare

GS1 Healthcare is a global, voluntary healthcare user group developing global standards for the healthcare supply chain and advancing global harmonization. GS1 Healthcare consists of participants from all stakeholders of the healthcare supply chain: manufacturers, wholesalers & distributors, as well as hospitals and pharmacy retailers. GS1 Healthcare also maintains close contacts with regulatory agencies and trade organizations worldwide. GS1 Healthcare drives the development of GS1 Standards and solutions to meet the needs of the global healthcare industry, and promotes the effective utilization and implementation of global standards in the healthcare industry through local support initiatives like GS1 Healthcare US in the United States.

About GS1 Healthcare US®

GS1 Healthcare US is an industry group that focuses on driving the adoption and implementation of GS1 Standards in the healthcare industry in the United States to improve patient safety and supply chain efficiency. GS1 Healthcare US brings together members from all segments of the healthcare industry to address the supply chain issues that most impact healthcare in the United States. Facilitated by GS1 US, GS1 Healthcare US is one of sixty-six local GS1 Healthcare user groups around the world that supports the adoption and implementation of global standards developed by GS1.



Executive Summary

GS1 Global Location Numbers (GLNs) enable all supply chain partners to identify the same location using one, globally-unique identifier. The GLN Registry for Healthcare® ("the Registry") is a directory of healthcare and healthcare-related facilities in the United States, with their corresponding GLNs. Within the Registry, all supply chain locations for an organization are brought together and presented in a GLN hierarchy defined by the organization.

A GLN hierarchy is a classification structure presenting organizational locations arranged in levels of detail from the broadest to the most detailed. Although it can resemble an organization chart, the purpose of a GLN hierarchy is <u>not</u> to define the legal or corporate structure. Rather, the purpose is to define a relational structure of supply chain locations that supports supply chain operations.

Defining a well thought-out supply chain structure and GLN hierarchy is an essential part of the process of setting-up GLNs to transact business. However, every organization is different. There is no one, standard supply chain structure that fits all companies – *and thus no one GLN hierarchy template*. However, there are some general principles and best practices for companies to follow when creating a GLN hierarchy, and the GS1 Healthcare US® Location Identification Workgroup created this document to explain some of those high-level concepts and best practices. To that end, this document offers definitions of key concepts, examples of hierarchy structures, and best practices for defining a GLN hierarchy.



Introduction

The Global Location Number (GLN) is the globally unique GS1 Identification Number for locations and supply chain partners. Using GS1 data standards and allocation rules, organizations assign GLNs to various supply chain locations within their organization to facilitate precise location identification within business communications and transactions. For example, the questions below reveal some of the supply chain locations that need to be identified with GLNs to support supply chain transactions:

- Who is the buying organization?
- Where will the products be received/shipped?
- Who will receive the invoice?
- Who is the selling organization?
- Where are payments sent?

The GLN Registry for Healthcare® ("the Registry") is a directory of healthcare and healthcare-related facilities in the United States, with their corresponding GLNs. Within the Registry, all supply chain locations for an organization are brought together and presented in a *GLN hierarchy*, a classification structure presenting organizational locations arranged in levels of detail from the broadest to the most detailed. It is not a view of an organization's corporate or legal structure. Rather, it is a multi-level view of an organization based on supply chain locations (e.g., *Bill-to* locations; *Ship-to* locations; *Deliver-to* locations; etc.). Figure 1 below presents a hypothetical GLN hierarchy illustrating how various supply chain locations come together in a GLN hierarchy.



Figure 1: Example of a Customer GLN Hierarchy



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The purpose of a GLN hierarchy is to define a structure of supply chain locations that supports supply chain processes and transactions. Although every organization is different, there are some high level concepts and best practices that can help organizations define their GLN hierarchy. Those high level concepts and best practices are provided throughout the remainder of this guide.

Allocating/Assigning GLNs

GLNs are used to identify *functional entities* (like a hospital pharmacy or accounting department), *physical entities* (like a warehouse or hospital wing or even a nursing station), and/or *legal entities* (like a health system corporation). GLNs are assigned to locations in order to support supply chain transactions. For example, trading partners will assign one of their own unique GLNs for the following types of locations in order to support supply chain transactions and communications:

- Location where orders are placed
- Location where orders are processed (e.g., Customer Service)
- Location where products are shipped
- Location where invoices are sent
- Location where payments are sent

There is no one, standard supply chain structure that fits all companies. For example, *the location where orders are placed* and *the location where payments are sent* may be the same for Supplier A. In that case, Supplier A could assign one GLN to the location, and that one GLN would then be used in supply chain transactions to indicate <u>both</u> the *location where orders are placed* and *the location where payments are sent*. In contrast, *the location where orders are placed* and *the location where payments are sent*. In contrast, *the location where orders are placed* and *the location where payments are sent* may be two different locations for Supplier B. In this case, Supplier B would assign a unique GLN to each location, and then one GLN would be used in supply chain transactions to indicate the *location where orders are placed*, and the other GLN would be used to indicate *the location where payments are sent*.



Best Practice(s) for Assigning GLNs

Because every organization is different, it is important to understand how your organization operates and what you are trying to accomplish with the use of the GLN. This insight is essential for determining what locations need a unique GLN assigned to them, and how to structure all of those GLNs in your organization's hierarchy.



Understanding Location Types

There are several different types of locations to be specified in supply chain transactions. Figure 2 provides examples of some common location types. (NOTE: Figure 2 is not intended to depict dependencies or relationships.)

Corporate / Organizational Entity

The *Corporate* location is generally the organization's main office or corporate headquarters. (The official name of this location type is "*Organizational Entity*.") The *Corporate* location is the top level of the organization, and may be used to tie the entire "system" together for total spend reporting purposes. This is the location where a supplier would send information that needs to be disseminated to your entire organization. Examples: a corporate office; the business office of a smaller hospital or clinic; or the only office in a single physician practice or small clinic.



Best Practice(s) for the Corporate location

The GLN for the *Corporate* location is usually the top level of the GLN hierarchy that is used to tie all of the organization's GLNs together. Beyond that, it is possible that no commerce will occur at this level for a large organization.



Figure 2: Examples of Location Types

Bill-to / Paid-by

The *Bill-to* location is the location where invoices are sent for payment. This may be an office next to the receiving dock, a department in another building, etc. The *Paid-by* location is the location that pays the bills (e.g., third party).



Best Practice(s) for Bill-to / Paid-by locations

- In many cases, invoices are sent to and paid by the same location. In this scenario, either the same GLN would be used for both location types, or alternatively only a *Bill-to* would be implemented.
- In other cases, invoices go to one department for approval and then to a central accounts payable office (or a third party) for actual payment. In this scenario, the *Bill-to* would be the GLN for the location that receives and approves the invoice. The *Paid-by* would be the GLN for the location cutting the check.
- It may also help to think about the path paper invoices follow within your organization to best define these location types.
- EDI invoices may be handled differently based on system automation.



Bill-to

The *Bill-to* location is the location where invoices are sent for payment. This may be an office next to the receiving dock, a department in another building, etc.



Best Practice(s) for Bill-to locations

- In many cases, invoices are sent to and paid by the same location. In this scenario, either the same GLN would be used for both location types, or alternatively only a *Bill-to* would be implemented.
- In other cases, invoices go to one department for approval and then to a central accounts payable office (or a third party) for actual payment. In this scenario, the *Bill-to* would be the GLN for the location that receives and approves the invoice.
- It may also help to think about the path paper invoices follow within your organization to best define this location type.
- EDI invoices may be handled differently based on system automation.

Paid-by

The Paid-by location is the location that pays the bills (e.g., third party).



Best Practice(s) for Paid-by locations

- In many cases, invoices are sent to and paid by the same location. In this scenario, either the same GLN would be used for both location types, or alternatively only a *Bill-to* would be implemented.
- In other cases, invoices go to one department for approval and then to a central accounts payable office (or a third party) for actual payment. In this scenario, the *Paid-by* would be the GLN for the location cutting the check.
- It may also help to think about the path paper invoices follow within your organization to best define this location type.
- EDI invoices may be handled differently based on system automation.



Ship-to

The *Ship-to* location is a top level location where the supplier "drops" products that were ordered. This is normally a bulk delivery location where trucks unload pallets or boxes of goods and supplies (e.g., receiving dock, central warehouse, etc.). Most often, this is <u>not</u> the final destination for the products. However, for most businesses, this is where ownership of the goods transfers from the vendor/supplier to the customer.



- There may be a need to create multiple Ship-to GLN's for the same physical address in order to accommodate legal, regulatory and/or tax distinctions.
- For example, 340B is an outpatient drug pricing program that limits the cost manufacturers can charge "covered entities" for outpatient drugs. If part of an organization has 340B status and part does not, suppliers may require the organization to have one *Ship-to* GLN for the part of your organization that has a 340B and a separate *Ship-to* GLN for the part of your organization that does not, even though both may be at the same physical address. (NOTE: 340Bs are discussed in more detail later in this document).
- Similarly, an organization may have a need to create multiple Ship-to GLN's for the same physical address in order to
 accommodate tax distinctions based on the nature of their business (e.g., taxable vs. non-taxable; for profit vs. non-profit; etc.).

Deliver-to

A *Deliver-to* location is a location deeper within a *Ship-to* location. This is usually a department or specific area within the business [e.g., Just-In-Time (JIT) location, nursing station, floor, lab, etc.]. Often, *Deliver-to* location is the final destination for the products.

Best Practice(s) for Deliver-to locations

- If products are only taken from the receiving dock to the final destination <u>by internal staff</u>, this location may not need to have a GLN assigned to it because the supplier is not involved with the delivery to the final destination. In this case, assigning a GLN to this location is optional.
- If suppliers provide the "internal delivery" service or desk-top delivery, this location should have a GLN assigned to it in order to
 accurately identify the *Deliver-to* location in supply chain transactions.

Naming Practices

Refer to the definitions in the GLN Registry User Manual for guidance about using the *Name* and *Name2* fields.



Use Deliver-to GLNs in SDQ Segments

The Ship Destination Quantity (SDQ) segment is typically used in a low unit-of-measure environment where suppliers deliver products to end departments because the customer only has a small store room. In these applications, the information in the SDQ segment is used to identify the end department where suppliers are to deliver the products [e.g., Labor & Delivery, Operating Room (OR), Nurses Station Level 1, Intensive Care Unit (ICU), etc.]. Often, internal identifiers are used in the SDQ segment to indicate the specific departments where the products are to be delivered.



However, a better approach is to assign GLNs to those end departments and use those GLNs to specify the *Deliver-to* locations in the SDQ segment instead of internal identifiers.

Transaction Segment	Location	Location Identifier
N1 BT segment	General Hospital	GLN 1234500000001
N1 ST segment	Central Receiving	GLN 1234500000011
SDQ segments	Labor & Delivery	Dept. 92000 GLN
	Nurses Station Level 1	Dept. 77000 GLN



Best Practice(s) for SDQ Segments

Use Deliver-to GLNs to specify internal location(s) to which products are to be delivered.



General Structure of a GLN Hierarchy

As discussed above, a GLN hierarchy is a multi-level view of an organization based on supply chain functions and locations (e.g., *Bill-to* locations; *Ship-to* locations; *Deliver-to* locations; etc.). Although there is no one GLN hierarchy template that fits all companies, there is a general structure for GLN hierarchies. In general, GLN hierarchies are multi-level structures. The levels in the general structure are defined as follows:

- Level One (1) is the Main Parent. This should be a location that actively receives products or is the corporate entity.
- Level Two (2) is any entity that reports directly to the Main Parent.
- Level Three (3) is other buildings and/or the subordinate departments of Level Two.

Additional levels could be used for desktop delivery or Just-in-Time ("JIT") locations.



Be sure to differentiate clearly between *Ship-to* versus *Deliver-to* locations.

Figure 3 below identifies the hierarchy levels of the hypothetical GLN hierarchy from Figure 1 above in order to illustrate each level and the types of locations that can be found on each level.



Figure 3: Levels of a GLN Hierarchy



A GLN hierarchy is a multi-level view of an organization created to support order-to-cash transactions and the use of the GLNs within the managing organization. This section presents two different GLN hierarchy structures as examples. However, it is important to note that a GLN hierarchy does not answer all of the relationship questions between trading partners. Keep in mind that hierarchy design may impact your trading partners in your collaborative business relationship.

Hierarchical Structure

This hierarchy example shows how *Deliver-to* GLNs and *Ship-to* GLNs roll up into *Bill-to* GLNs, and eventually to the Corporate GLN in the Registry. NOTE: Companies often use *Bill-to* and *Ship-to* terminology differently. Therefore, it is important to focus on the structure presented in Figure 4, not the titles.

Figure 4: Sample GLN Hierarchy Using a Hierarchical Structure



Pr	o's	C	on's
:	Clear relationship between <i>Bill-to</i> and <i>Ship-to</i> to Corporate Would not require cross-referencing between buyer and seller <i>Bill-to Ship-to</i> Establishes a best practice for hierarchy setup that allows	:	May not reflect the actual organization of the company Delivery-to locations under the Ship-to level might be billed to a different location than the Ship-to More maintenance or validating that Bill-to and Ship-to are
	for easy linking or movement from one corporation to another		depicted correctly

Table 1: Pro's and Con's of Using a GLN Hierarchy with a Hierarchical Structure



Detailed Structure

This hierarchy presents a structure that does not include a relationship between *Bill-to* and *Ship-to* in order to demonstrate that such a relationship is not required or necessary.



Figure 5: Sample GLN Hierarchy Using a Detailed Structure

Pr	o's	С	on's
•	Does not limit the <i>Ship-to</i> relationship to multiple <i>Bill-to's</i>	-	Would require cross-referencing between buyer and seller for <i>Bill-to / Ship-to</i> Not a clear relationship between <i>Bill-to / Ship-to</i> to corporate May not establish a hierarchy allowing for easier linking or movement from one corporation to another (more maintenance)
		т	able 2: Pro's and Con's of Using a GLN Hierarchy with a Detailed Structure



Owned vs. Leased Structures

Figure 6: Sample GLN Hierarchy for Owned vs. Leased Structure







340B Hierarchy

PHS-340B ("340B") is an outpatient drug pricing program that limits the cost manufacturers can charge "eligible covered entities" for outpatient drugs. Manufacturers participating in the Medicaid Drug Rebate Program are required to offer 340B pricing to eligible covered entities. 340B accounts are set-up based on outpatient pharmacy requests for product that is reimbursed based on Medicare/Medicaid. Regardless of how the facility manages inventory, a 340B location should have its own GLN in order to accommodate contracting and reporting based on reimbursement. This section presents two options for setting up 340B accounts in the Registry. It offers guidance to suppliers, providers and trading partners on how to create their account hierarchy to support the use of GLNs for 340B accounts and suggestions on what will work based on internal ERP account structures.



Best Practice(s) for 340B Accounts – Option 1

Providers: To minimize the number of GLNs a provider would have to setup, the recommendation is to:

- setup a GLN for the 340B account as a Ship-to under the Bill-to hierarchy to which it would be associated,
- enter "Outpatient 340B PHS" in Address Line 3 in the Registry and flag it as a *Deliver-to*, and then send the 340B GLN in the N1 ST UL segment.

Suppliers: If invoices are submitted to the same location as non-340B accounts, set-up your systems to control the hierarchy based on what is outlined below. The 340B would become a *Bill-to / Ship-to* account tied to the invoicing account.



Figure 8: Example of a GLN Hierarchy with a 340B Account using Best Practice Option 1

The advantage of Option 1 is that it enables the provider to identify the 340B GLN as a *Deliver-to* location, which is more aligned with its actual purpose. Again, this will be based on how the GLN for the 340B account will be communicated to the supplier from whom you are ordering and how your system is set-up.





Provider: Add a Ship-to or Deliver-to GLN under the Ship-to hierarchy associated with the pharmacy depending on how your pharmacy wants the shipments set-up.

Supplier: Set-up the provider GLN in your system based on how you control the pricing. If pricing is loaded at a *Bill-to* account:

- create an account number for the 340B with the attention line that matches the provider setup from registry,
- classify the account as a *Bill-to / Ship-to* for invoicing and shipping purposes, and
- link the Bill-to / Ship-to internal account with the GLN of the parent account and with the GLN for where invoices are routed as well.

Figure 9: Example of a GLN Hierarchy with a 340B Account using Best Practice Option 2







Hierarchy Structure for Divestures and Acquisitions

The GLN Allocation Rules should be followed for all acquisitions, whether it is a supplier purchasing another supplier or a hospital purchasing another hospital. There are many things suppliers will review and decide when purchasing a new company. The decision to establish a new GLN for an acquired supplier facility is dependent on the supplier's internal processes and decisions.

The GLN Allocation Rules should be followed for all divestitures. When a supplier or provider divests a business group or a product line, the divesting company needs to validate how they will conduct business for that group and/or product line going forward and follow the applicable timelines in the guideline.



Best Practice(s) for Divestitures & Acquisitions

Review the GLN Allocation Rules to understand the guidelines for allocating GLNs.

Hierarchy Structure for Manufacturers

There is no real difference in designing a GLN structure for a manufacturer versus a provider. Therefore, manufacturers should follow the same rules. Although manufacturers may define some of the attributes differently for their facilities, the decisions about hierarchy structure can be guided using the same information provided above.

Once the decisions about hierarchy structure have been made, manufacturers need to decide their approach for adding GLNs to the Registry. Manufacturers may choose not to add all of their GLNs to the Registry at this time. For example, some manufacturers have elected to keep a worksheet with the GLNs for all of their facilities (e.g., customer service locations, manufacturing, distribution centers, etc.), and only add the GLNs for their customer service and P.O. Box locations based on current use. Decisions regarding which GLNs to add to the Registry and when are left to manufacturers to determine based on what works best for them.

More information detailing the setup of manufacturer GLNs for use in Provider Vendor Files will be outlined in the BDP for Supplier Vendor File reconciliation.



Hierarchy Structure for Distributors and/or Wholesalers

Distributors use of GLNs to identify locations as a seller versus buyer: The decision of how a distributor/wholesaler identifies their locations in the GLN Registry is truly up to them. However, there is no need for multiple GLNs to be assigned to the same location based on different contracts within a supplier. The need to have separate GLNs within the same location could be based on product inventory, but the GLNs should not drive how they monitor or control inventory.





References

GLN Registry for Healthcare® Website (click on "Sign Up" to subscribe)

http://healthcareportal.gs1us.org/

Online Healthcare Supplier Tool Kits http://www.gs1us.org/hcsuptoolkit

Online Healthcare Provider Tool Kits http://www.gs1us.org/hcptoolkit

GLN Resources:

Links to all of the GLN resources listed below and more are available on the GLN Registry Resources page located at http://www.gs1us.org/hcgInresources

- Success Story: How GLNs and the GLN Registry for Healthcare provided a savvy supplier with a solid foundation for growth.
- Success Story: Healthcare supplier Steris implemented GLNs in record time to stay in the forefront of GS1 Standards adoption
- Mayo Clinic / Cardinal Health GLN Implementation White Paper
- GS1 Healthcare US GLN GPO Roster Pilot Report



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