

MO Data Services Session
Jersey City Spring Standards Event 2017

11:15- 17:30

Anti-trust caution

- GS1 operates under the GS1 anti-trust caution. Strict compliance with anti-trust laws is and always has been the policy of GS1.
- The best way to avoid problems is to remember that the purpose of the group is to enhance the ability of all industry members to compete more efficiently.
- This means:
 - There shall be no discussion of prices, allocation of customers, or products, boycotts, refusals to deal, or market share.
 - If any participant believes the group is drifting toward impermissible discussion, the topic shall be tabled until the opinion of counsel can be obtained.
- The full anti-trust caution is available via the link below, if you would like to read it in its entirety: http://www.gs1.org/gs1-anti-trust-caution.



AGENDA

- GLN Service Use Case review for adoption, promotion and growth; review existing Use Cases and determine need for additional Use Cases
- GLN Service next release functionality review
- GLN Service 'Peer-to-Peer' messaging adoption in GLN Service
- Attribute Value Pairs in GLN Service
- GEPIR Modernization and Consolidation with MemberCheck
 - GEPIR SLA terms for all nodes & Sunrise/Sunset for MO deployment and compliance with SLA

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- ICC Compliance as a result of the SLA
- Demo MC v1.1 MO Report capability



AGENDA

- GEPIR Diagnostics & Network Monitoring Tool Features
 - Known good and bad test data supply to GO
- Branding GEPIR or MemberCheck as the service name?
- GTIN-8 in GEPIR
- Hosted MO Data Services API's
- GEPIR Data Integrity





GLN Service Adoption

Kerry

GLN Service Adoption Status

As of March 3, 2017

- 9 MO's in Production
 - Bolivia, Canada, Egypt, Germany, Ireland, Lithuania, Nigeria,
 US
 - 7 using GO Hosting Service:
 - Bolivia, CA, Egypt, Ireland, Lithuania, Macedonia, Nigeria
 - 2 MO Local GLN Registries connected:
 - Germany, US
- 3 MOs Testing:
 - Colombia & Sweden working to test their Local GLN Registry connection
 - Latvia working to use Hosted GLN Service
- 443876 GLN's in production service





GS1 GLN Service Use Cases

2013

Kerry

GLN Service Use Cases

GLN Service MO Zone

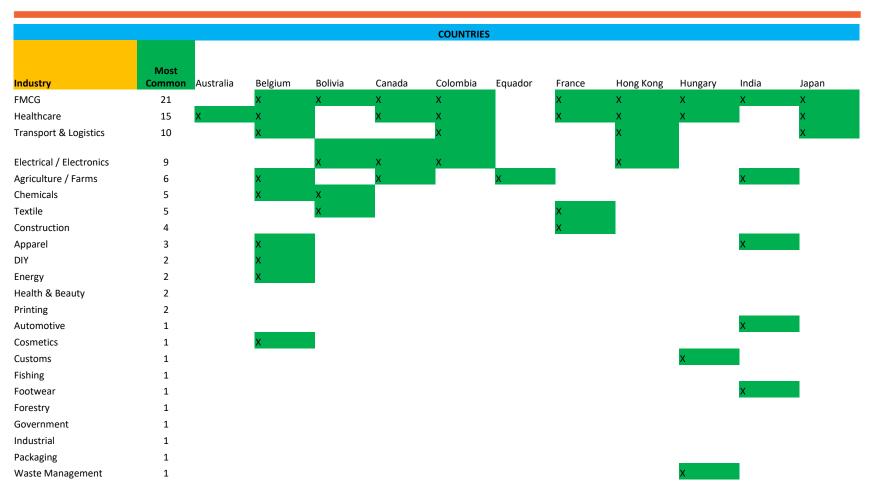
http://mozone.gs1.org/gln-service

GLN Service Engagement Kit MO Use Cases:

- Winning Value through Business Processes Improvements
 - GS1 Canada GLN Success Story
- Fresh Produce and Flowers Delivered via GLN-driven Commerce
 - GS1 Netherlands GLN Success Story
- New Zealand Government Requires GLNs for All Businesses
 - GS1 New Zealand GLN Success Story
- National Health Service Procures Greater Efficiencies
 - GS1 UK GLN Success Story
- Engaging with Major Advocates for GLN Adoption
 - GS1 US GLN Success Story



Industries & Use Cases Reported 2013

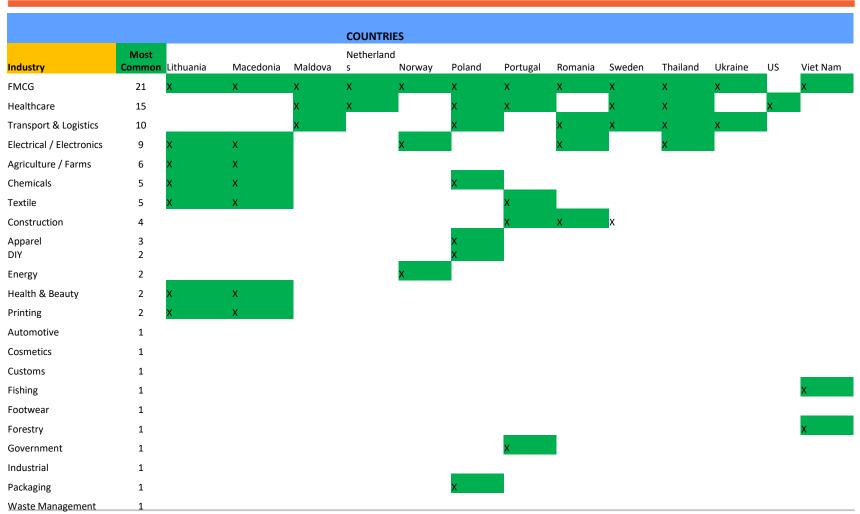


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Note: FMCG = Retail, CPG, Grocery, Food & Beverage, Foodservice and Fruit and Vegetables



Industries & Use Cases Reported 2013



Note: FMCG = Retail, CPG, Grocery, Food & Beverage, Foodservice and Fruit and Vegetables



Use Cases

- Service Values & Benefits
- Healthcare Group Ordering Process Healthcare
- Order to Cash Business Process Use Case Retail Value Chain and Healthcare
- Sharing of Physical Location GLNs Retail Value Chain, Transport & Logistics
 - Retailers
 - Manufacturers
 - Distributors
 - Third Party Logistics Provide
 - Value Added Networks
- Traceability Retail Value Chain



GLN Registries Framework

Service Value & Benefits

The value of the GLN Registries Framework transcends any one industry or single business process

- ✓ It supports the global implementation of the GLN and the multinational/global members of the GS1 Federation
- ✓ Industry & business process specific use cases are defined at the Member Organization level as demonstrated by their larger data models in support of industry specific business processes like product recall or order processing by Healthcare GPOs in North America

Use Case Name: Access to **global** physical location GLN Master Data as an extension to the information available at the Member Organization

Use Case Actors:

- Member Organizations
- End User MO Members



GLN Registries Framework

Service Value & Benefits

Use Case Name: Access to **global** physical location GLN Master Data as an extension to the information available at the Member Organization – **CONT'D**

Use Case Descriptive Values:

- Provides a 'single source of truth' for basic global GLN master data describing physical locations
- Provides member access to basic global GLN master data for physical locations through a 'single point of entry' at one Member Organizations
 - Eliminate need to pay for multiple GLN registry services
- Allow GS1 MOs to quickly verify the validity of any GLN for the member base
- Enable trading partners to confirm information about a physical location GLN regardless of the MO that issued the associate Global Company Prefix
- Provide contact information for the physical location to ask additional information.
 - Finding the correct person to discuss GLNs can be a difficult task
- Allow global manufacturers to understand the GLNs associated with their company around the world.



Order to Cash Business Process

Business Process

- Use Case Name: Retail Value Chain Order to Cash
- Actors:
 - Retailer
 - Manufacturer
 - Logistics Provider
- Use Case Description:
 - GLN identifies sender and recipient of eCom messages
 - GLN identifies delivery points involved in the order-to-cash eCom flow
 - Only GLN is included in eCom messages; make use of the GLN Registry Service to look up the associated master data
- GLN Registry services enables users to share high quality GLN data about physical locations in the supply chain



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Healthcare Group Ordering Process

MO Level

Use Case Name: Healthcare Order to Cash

- Actors:
 - Pharmaceutical Distributor
 - Hospitals
 - GPO
- Use Case Description: GPO gathers order details from multiple hospitals to complete a group orders. GPO places order through Pharmaceutical Distributor. Order must include the individual 'ship to addresses' for each of the individual hospitals in the group order.....

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Sharing of Physical Location GLNs

MO Level - Colombia

Use Case Name: Sharing of Physical Location GLNs

- Use Case Actors:
 - Retailers
 - **Manufacturers**
 - **Distributors**
 - Value Added Networks
- Use Case Description:
 - The major Colombian retailers are currently opening stores on a daily basis, it causes problems to process purchase orders and other electronic documents due to lack of GLN information (which normally is being communicated via email).
 - Due to this situation today on average 22% of the customer service calls to the VAN services corresponds to physical location GLN inquiries.
 - A GLN Registry will decrease the number of inquiries, providing a suitable mechanism to maintain the GLN information up to date.



Retail Value Chain Traceability

MO Level - Sweden

Use Case Name: Retail Value Chain Traceability

- Actors:
 - Retailer / Certificate Authority
 - Supplier
- Use Case Description: A Retailer must identify upstream manufacturing plants for traceability requirements as part of Corporate Social Responsibility for related certification management.
- Retailer sources products from a different country by contracting a company in the source country (the supplier). That company, in turn, finds manufacturers willing to produce the products where the intent is to work with plants that are certified. The certification can be done by a third party certification agency, or by the retailer himself.

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Candidate Functionality for Future Release

CANDIDATE ITEM	STATUS
•Consider use of reason codes to authenticate why a P2P request is being made; what will the returned P2P Query	
Response data be used for?	Discussed in June 2016 London meeting. table for further learnings via
•Reason codes would be sent in the P2P Query Request to indicate 'why' that data is requested	adoption of the Service over time. Now is not the time to introduce this
•Introduce new message orchestration that would support a Local Registry Operator receiving a P2P Query that	type of functionality that fully modifies the initial product positioning
included a reason code to Data Owner who would give permission to the Local GLN Registry Operator to send (or	of a real time query/response system for Location information
not) a P2P Query Response	
•Require functionality (e.g. such as auto complete) to help stop name duplication when entering new GLNs	
Validate all GLN's in Hosted GLN Registries against GEPIR	
•Develop report on duplicate rows of GLN data in GI; for Local Registries to research for validity noting there are	
valid instances where mulitiple GLN's could share the same address and Party Role. Align creation of this report to	
the frequency of DQ Conformance tool runs by GO	
•deliver a warning and not a failure as a requirement for this format? Will stay with this rule but inform the larger	
MO Interest Group	
Make rationalization of addresses, spelling through post office standards a requirement of all Local GLN	
Registries including the Hosted GLN Service. DQ check by Declaration? Hosted GLN Service will need to handle	
•Consider/research ability to maintain list by Local Registry of attributes implemented but not in global model.	
Local Registries and the Global Index will validate against the published XML Schema format; report anomalies.	
Data Model for global service may evolve over time.	
Add GPC as an attribute of Party to support UNGC Farm Registry; initial support will use AVP	
Local language support in XML	
•Remove Country, add City in both GLN Maintenance and Company Maintenance views	
•Today the Global Index Query Results screen and P2P () Query Results screen share the same view of the P2P	
attribute list; consider in future constraining the GI Query Results screen to only display those attribute and use a	
different view for the P2P Query Results Screen	
•ability to export/print GLN master data and other reports	
•Consider use of partyStartEffectiveDateTime and partyEndEffectiveDateTime to define functionality / validation	
rules for additional use cases around party active / party non-active for query by owner of data and query by non	
data owner	
Create Validations where possible:	
• Create error message for any Key or GCP that starts with '950'	
• Create error message for any Key or GCP that starts with '970' or '978'	
Create error message for any Key or GCP that starts with restricted circulation (20 series) - WARNING	
• Create error message for: EAN Type must align with length of GCP; ie 8 has GCP length of 8 etc.	
• Validate the country code to GCP against the MO Country Code list that would be a table look-up in the software	
and create error message	
Flexible Import Sheet: Reduce/remove unnecessary columns for import, Allow users to import data in any column	
order they choose	



Improving GLN Service

P2P Adoption Global Index modifications

All

GLN Service Improvements

Discussion Points:

- Thin Global Index
 - Most attributes are optional
 - GLN's and Name (Company Name) = mandatory
 - Address not included in Index and is optional in the Peer-2-Peer message
- P2P message attributes are mostly optional
 - P2P in place at Hosted Service; as mostly optional attributes are populated, the P2P Hosted Service response contains same information as that given from Global Index Response
 - P2P not fully implemented across all self-hosted GLN Service nodes
- Address not mandatory in a service that is designed to provide
 'location' information = address is crucial for value

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GLN Service new attributes and codes

Selected GS1 MO Data Services (GLN Service, GEPIR, MemberCheck)

Deniss Dobrovolskis, Business manager, GS1 Sweden 2017-03-17



Agenda

- Absense of addresses in GLN Service
- AdditionalPartyIdentification
- GLNs published in GEPIR



Absence of addresses in GLN Service

Business need:

Users are interested in having access to address information of delivery locations in a shared service.

Challenge:

- GLN Registry contains more than 400 000 GLNs, however, a large number of these records do not contain any address information.
- In Sweden it is possible to have official address without street address if a company "owns" a postal number (not postal code, but postal number).



Absence of addresses in GLN Service

Proposal:

- Introduce GLN types and make these types mandatory:
 - Physical
 - Functional
 - Legal
 - Digital
- Based on type of GLN create dependencies on which attributes become mandatory in GLN Service.

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AdditionalPartyIdentification

- AdditionalPartyIdentification is available in GEPIR framework but missing in GLN Service.
 - Introduce this attribute in both frameworks?
 - Adding this attribute to GLN service will make it easier for MOs that want to promote usage of GLNs. Today many companies use internal numbers for their locations and share these numbers with business partners. The companies use these numbers in internal processes. Adding this attribute and code will not solve this problem, however, it will make transition from internal numbers to GLNs easier.
- Introduce generic codes for:
 - Company registration number
 - Company registration number is used EDI messages and is (in some cases) a mandatory attribute for parties identified by GLNs. Our users asked for this information to be found in GLN Service.

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GLNs published in GEPIR

- MOs publish GLNs in GEPIR
 - Are these GLNs one-offs or party information?
 - If these GLNs are to describe party information, what method should be used in GEPIR to retrieve party information?

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GEPIR Modernization and Consolidation with MemberCheck

Mike, Sean, Kerry

'Modernized GEPIR' w/MemberCheck Capabilities & SLA

- MemberCheck functional capabilities will be integrated into current GEPIR
 - Coordinated with a SLA for self-hosted GEPIR nodes that aligns with the Hosted GEPIR SLA to ensure response times meet the original MC product positioning
 - Must implement and fully support the diagnostic library file that needs to be installed on every GEPIR node
 - Compliance to the defined SLA aligns with 'Production Deployment Date' for the GEPIR/MC release;
 - Sunrise/Sunset for MO deployment and compliance All self-hosted MOs will have input to these two critical dates

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'Modernized GEPIR' w/MemberCheck Capabilities & SLA

- The MC GTIN queries will continue to get the simple 'yes/no' response to GTIN Queries.
 - MO's must load all GCP data in order to provide an accurate yes or no response
 - Loading the is historical GCP data helps with businesses like marketplaces to know if their stock holding has products with GS1 issued prefixes or not.
 - Coordinate with a 'Modernized GEPIR' Service Diagnostic tool to test, evaluate and ensure the network integrity of all GEPIR nodes in contribution to the GEPIR Network in total and displayed in a 'dashboard' to provide results as indicated below:

МО	Node	Time Request	Time Response	GEPIR Query	Actual Request	Actual Response	Result	Is Cascaded?	Cascaded To
		Initiated	Received	Method					

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'Modernized GEPIR' w/MemberCheck Capabilities & SLA Project Planning

- A GEPIR Release, limited to the inclusion of the MemberCheck functional capabilities, will be planned and executed ASAP and will include but not be limited to modifications for:
 - An on-line self-help support webpage and related content, FAQ's, help guides and recommended best practices on how to implement, etc. will be made available to all MO's to aid in deployment, configuration and compliance
 - Sunrise/Sunset for MO deployment and compliance to this new GEPIR Release and the SLA with input from self-hosted MO's
 - Root Directory Updates; will move to a DNS-like lookup of current GEPIR node IP addresses (production and test) for all GEPIR nodes
 - GO GEPIR GTIN Search modified for 'MC GTIN Validation functionality'
 - New GEPIR XML Schema for MC GTIN Search
 - Local instance of a diagnostic code module for self-hosted nodes



'Modernized GEPIR' w/MemberCheck Capabilities & SLA Project Planning

- A GEPIR Release Project Plan will created and include alignment among all MO's on:
 - Well vetted dates for:
 - GEPIR Development Alpha & Quality Assurance testing duration
 - MO testing duration in a defined BETA environment for GO & each self-hosted MO node
 - Production Deployment
 - MO test data sheets must be submitted by MO's to be used in the scope of the Test Scripts being created by a GEPIR subteam of MO's
 - Testing of the 'Modernized GEPIR' Diagnostic Tool that will also utilize the test script

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'Modernized GEPIR' w/MemberCheck

Decisions Needed:

- Branding: GEPIR? MemberCheck? New Service Name?
- User Authentication: used in current MC but not in the federated GEPIR model. Introduce in federated GEPIR as part of this release?
 - User Authentication was implemented as a requirement in current MC but is not used in the federated GEPIR model. If introduced into GEPIR user authorization (logins/passwords) must be implemented at any self-hosted node that does not use this today and all self-hosted nodes will need to provide this information to a common user authentication layer at GO)
- Sunrise/Sunset for MO deployment and compliance to this new GEPIR Release and the SLA with input from selfhosted MO's. How long do self-hosted MO's have to match local nodes to this new release criteria?





GEPIR Diagnostics & Network Monitoring Tool Features

Ensuring network availability, credibility and

Sean

GEPIR Network Stability / Reliability

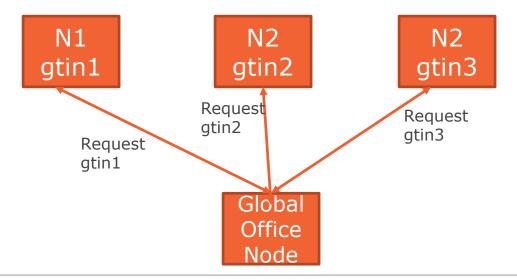
- Establishment of set Service Level Agreements (SLA) for all Mos
 - Network Nodes are up
 - Network Nodes are responding as expected
 - Full-Matrix Response / Replies with expected Data
- GS1 GO to create a Diagnostic Tool monitor
 - Analysis of all components of the network
 - Self-Hosted and Go-Hosted
 - Test Script Sub-Team of the GS1 GEPIR MO providing Use Cases

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Node to Node Connectivity

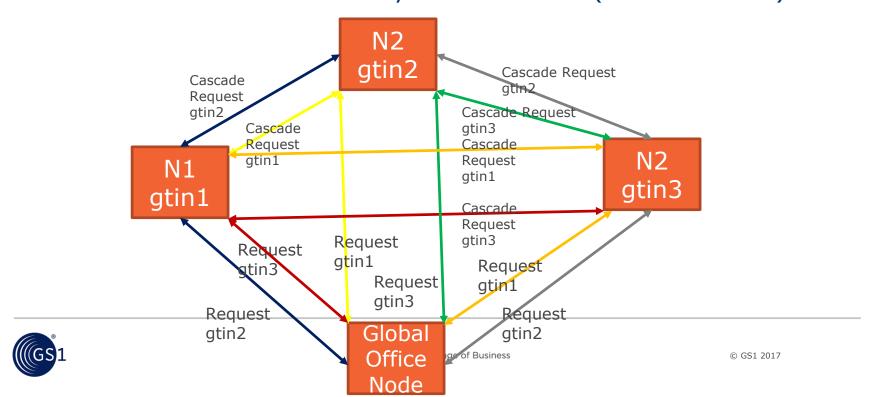
- Tool initiates a request to a node.
 - GTIN in the request is maintained by the tested node
 - Expected that the node must not cascade request
- Connectivity test performs a validation against expected response
- Tool will test all network nodes and response time
 - Validated against an expected response time (SLA)





Full Matrix Connectivity

- Tool initiates a request to a node.
 - GTIN in the request is maintained by the tested node
 - Expected that the node must not cascade request
- Each node will be tested multiple times
- At least 1 GTIN maintained by all other nodes (Full Matrix Test)



Statistics

МО	Node	Request	Time Response	Method	Actual request	Actual response	Result	Is Cascaded	Cascaded to
		initiated	received						

- Minimum information logged by the monitoring tool
- A Graphical Dashboard can be created
- The actual Request/Response is available for issue resolution
- The meaning of each column is described below.
 - **MO**: The country of the Member Organization
 - Node : self-hosted or hosted
 - **Time Request initiated**: the actual time the request was made
 - Time Response received: the actual time the response was received
 - Method: The method that was used for the test (i.e getItemByGTIN)
 - Actual Request: The XML that was used for the request.
 - **Actual Response**: Then XML received as a response to the request
 - **Result**: Result of the validation. (Maybe "PASSED" or FAILED with error message)
 - **Is Cascaded**: True if the request was cascaded to another node
 - Cascaded to: if "is Cascaded" is true, this is the MO where the request was cascaded



ICC Compliance as a result of the SLA

Internal Compliance Committee (..of the GS1 Management Board)

Mike



ICC Compliance as a result of the SLA

GEPIR SLA terms for all nodes:

- Performance minimums derived from the actual performance of the current GO Hosted nodes performance
- Data must be update no less than once per week however the recommended solution is to connect via the API and update whenever changes take place
- Agreement that failure to meet the SLA terms empowers the ICC to require the failing MO to cooperate with moving their GEPIR node to GO hosting until they can demonstrate they can meet and sustain compliance
 - -In the event that the MO does not cooperate, the ICC will be empowered to open the escrow file and extract the minimum amount of data necessary to populate the GO hosted node for their country

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GTIN-8 in GEPIR

Sean



GTIN-8 GTIN Query Issues in Hosted GEPIR

Proposed change to GEPIR Hosting Service results:

- Assuming there is a GCP-7 that exists and then Search By GTIN (Ownership) is queried using a GTIN-8 based on that GCP-7, the GO GEPIR Search returns that GCP-7 record as the result.
- This issue was raised by GS1 Thailand who said that they haven't issued GTIN-8s so the result for such query should be "No record found"

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Hosted MO Data Services API Review

API Technical Specification: Functions they Support and how to get them

Sean

Hosted MO Data Services API's

CURRENT:

- Separate API's for GEPIR, MemberCheck & GLN Services
- Available in draft format for MO's desiring to pilot API
 - Feedback from early adopters needed for continuous improvement

FUTURE:

- Working to eliminate as many of the unique API Technical Specifications as possible for ease of development by those who will write code to utilize the API
- How to get API Functional Specifications
 - <u>support@gepirsupport.org</u> = GEPIR API docs
 - support@memberchecksupport.org = MemberCheck API docs

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<u>support@glnregistries.org</u> = GLN Service API docs



Hosted MO Data Services API Functionality

SERVICE	API Functionality		
GEPIR	Import data from Excel sheet to Hosted database		
GEPIR	Maintain data in Hosting Service		
MemberCheck	Import data from Excel sheet to service index		
MemberCheck	Maintain data in Hosting Service		
GLN Service	Import/validate data from Excel sheet to Hosting Service		
GLN Service	Maintain data in Hosting Service		
GLN Service	Import/validate data from self- hosted GEPIR node to Global Index		

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Kerry, Owen, Sean



Data Quality is more important than ever as GS1 moves toward realization of the Data Strategy, Cloud Service and now the integration of MemberCheck Capabilities into GEPIR

- MO's need to begin a routine of Data Quality reviews toward improving the quality of the data they expose to the GEPIR Network and the world...
- For example, every GS1 Key has an associated global company prefix (Gen Spec)
 - New VR for Hosted GEPIR Data Import will require an associated GCP exist (in sheet first, if not found in sheet, then in db)

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MO APPROACH & NEXT STEPS

GEPIR databases queries

- Self-Hosted & Hosted (hosted MO's can request GEPIR Support) to provide an Excel Report for you)
 - Run queries against the GS1 Prefix List (http://www.gs1.org/company-prefix)

What should you see?

- GPC's/GLN's for your country range and authorized Alliance Numbers assigned to you from another MO
- GTIN-8's assigned by you must be within your assigned country prefix range
 - NOTE: We are seeing UPC Prefixes (minus leading zero) entered as GS1 Company Prefixes (must have a leading zero)



MO APPROACH & NEXT STEPS

GEPIR databases queries - Cont'd

What should you not see?

- No data in a prefix range for another MO w/exception of Alliance Numbers agreed and issued by another MO
 - GTIN-8's ONLY issued within a MO's assigned prefix range
- No data in any prefix range that is NOT assigned at all = reserved or in GCP number range gaps
- No data in the RCN range
- GO reserved numbers
- GS1 Coupon numbers



GTIN-8 GTIN Formatting Issues in GEPIR

Issuance of GTIN-8s

- The range of 960-969 is reserved for Global Office use ONLY
- MO's can create GTIN-8s ONLY within their country code prefix range.
- Policy on GTIN-8 includes the following rule:
 - Transfer of GTIN-8 number banks
 - If a Member Organisation has spare GTIN-8 capacity and wants to transfer GTIN-8 number blocks to another Member Organisation, it may only do so via the GS1 Global Office and GS1 Board.
 - GO has never been informed by MOs about transfers of GTIN-8 capacity from one MO to another.
 - ...thus "MO's can create GTIN-8s ONLY within their country code prefix range" as stated above

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MO APPROACH & NEXT STEPS

- Corrective Actions:
 - Research to determine if key entry/true data error
 - If so correct in your GEPIR database/record storage and if Hosted MO in the GEPIR Hosting Service database
 - If not a true data error and you issued a prefix in another MO's prefix range instead of your own contact the MO who has rights to the Prefix Range and determine an agreed resolution
 - Cannot support duplicate prefix in supply chain for Key Resolution in GEPIR/MemberCheck

MO's who have data in the MemberCheck system can use the MO Data Report feature in Release 1.1 once it deploys to Production (date tbd)

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