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**Multi-Sourcing EPC Assignment (MEA) Work stream**  
***(a Work Stream of Implementation Sharing Interest Group)***  
**Recommendation Document**

Final Draft 1.7 as of 14 May 2008

## 14 **Status of this document**

15 This section describes the status of this document at the time of its publication. Other documents  
16 may supersede this document. The latest status of this document series is maintained at the

17 EPCglobal subscriber website:

18 [http://www.epcglobalinc.org/apps/org/workgroup/ci\\_is/documents.php?folder\\_id=2275#folder\\_2275](http://www.epcglobalinc.org/apps/org/workgroup/ci_is/documents.php?folder_id=2275#folder_2275).

19 This document is limited to EPCglobal subscribers and the GS1 community. It is a working draft.  
20 It is awaiting approval from the GS1 Arc Committee.

21 Comments on this document should be sent to the EPCglobal Multi- Sourcing EPC Assignment  
22 Work Stream of the Implementation Sharing Interest Group mailing list.

23

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## Table of Contents

Executive Summary .....	4
1 Intended Audience .....	4
2 Change History .....	4
3 Definitions: .....	5
4 Use Cases.....	6
4.1 Single Sourcing .....	6
4.2 Transition between single sources.....	7
4.3 Brand Owner to Retailer .....	8
4.4 Multi-sourcing (manufacturer and retailer) .....	9
4.5 Manufacturer's who uses Multi-Sourcing to Retailer .....	10
5 Preferred Option:.....	11
6 Alternatives: .....	11
6.1 Separate GTIN Assignment .....	11
6.2 Create Query.....	12
6.3 Tag User Memory.....	12
6.4 Company Internal Numbering - GS1 Prefix 04 use .....	12
7 Enhancements .....	13
8 Next Steps.....	13
9 Appendix .....	13
9.1 Acknowledgements .....	13
9.2 General Definitions:.....	14
9.3 EPCglobal and GSMP process .....	17

## 55 **Executive Summary**

56 This recommendation document is meant to address the management of EPC read events using  
57 the current EPCglobal Standards in a multi-sourcing environment. It is to address the needs of  
58 the Retail Supply Chain and Consumer Electronic participants. This recommendation is intended  
59 to aid in avoiding the duplication of serial numbers within the EPC for **retailer's EPC assigned**  
60 objects while identifying the ownership of the registered event. The Multi-sourcing EPC  
61 Assignment work stream is a part of the Cross Industry Implementation Sharing (IS) Group and  
62 has aligned this recommendation with members of the Global Data Synchronization Network  
63 (GDSN). One of Implementation Sharing's goals is to actually drive adoption by easing the  
64 implementation of RFID using existing standards.

## 65 **1 Intended Audience**

- 66 • EPCglobal Members
- 67 • GS1 Member Organizations
- 68 • EPCglobal Inc Staff

## 69 **2 Change History**

<b>Change</b>	<b>Ver. #</b>	<b>Author</b>	<b>Date</b>	<b>File Name</b>
Initial Draft Version	0.1	Team at January 2006 JAG Meeting	10 January 2007	MEA Draft Recommendation
Draft Version	0.2	N. Debouvry M. Southall	05 February 2007	MEA Draft Recommendation_0.2.doc
Draft Version	0.3	J. Garrett	28 February 2007	MEA Draft Recommendation_0.3.doc
Draft Version	0.4	Participants on 15 March 2007; conference call	15 March 2007	MEA Draft Recommendation_0.4.doc
Draft Version	0.5	N. Debouvry (updated based on Wegmans comments)	27 March 2007	MEA Draft Recommendation_0.5.doc
Draft Version	0.6	N. Debouvry & Larry Roth (updated based on Wegmans comments)	04 April 2007	MEA Draft Recommendation_0.6.doc

Final Version	1.0	Randi Katz, legal John Garrett N. Debouvy	05 May 2007	MEA Draft Recommendation_1.0.doc
Final Version	1.1	N. Debouvy (grammatical corrections)	25 June 2007	MEA Draft Recommendation_1.1.doc
Final Version	1.2	N. Debouvy : MO feedback	24 August 2007	MEA Recommendation_1.2_20070824.doc
Draft Version	1.3	Sean Lockhead, Nadine Radomski, Michele Southall, and Natalie Debouvy	7 September 2007	Alignment with GDSN
Draft Version	1.4	Sue Schmid, Natalie Debouvy, Michele Southall	6 November 2007	Alignment with GS1 Architecture
Final Version	1.5	BarCodes & Identification BRG	15 January 2008	Alignment with GS1 Barcodes & Identification BRG
Final Version	1.6	BarCodes & Identification BRG	03/03/08	Alignment with MO's
Final Version	1.7	Clarification on section 6.1	14/05/08	Sue Schmidt

### 70 3 Definitions:

71 **Independently from the source relation(s) the EPC (SGTIN) is assigned by the brand owner,**  
72 **This can be a manufacturer, a contract agent (e.g. importer), a retailer or a component**  
73 **supplier if the product is a component.**

74

75 **Single-sourcing:** One-to-one relation between manufacturer/contract agent and retailer. A single-  
76 sourced trade item is identified by the seller's GS1/ seller's company prefix

77 **Multi-sourcing:** Many-to-one relation between manufacturer/component supplier and  
78 retailer/contract agent. A multi-sourced trade item is identified by a buyer prefix not the many  
79 seller's company prefixes (i.e. retailer/ manufacturers or manufacturer/ component suppliers); may  
80 include a brokerage or cooperative buying group. The term multi-sourcing includes Private Label,  
81 Own Brand, and Own Label.)

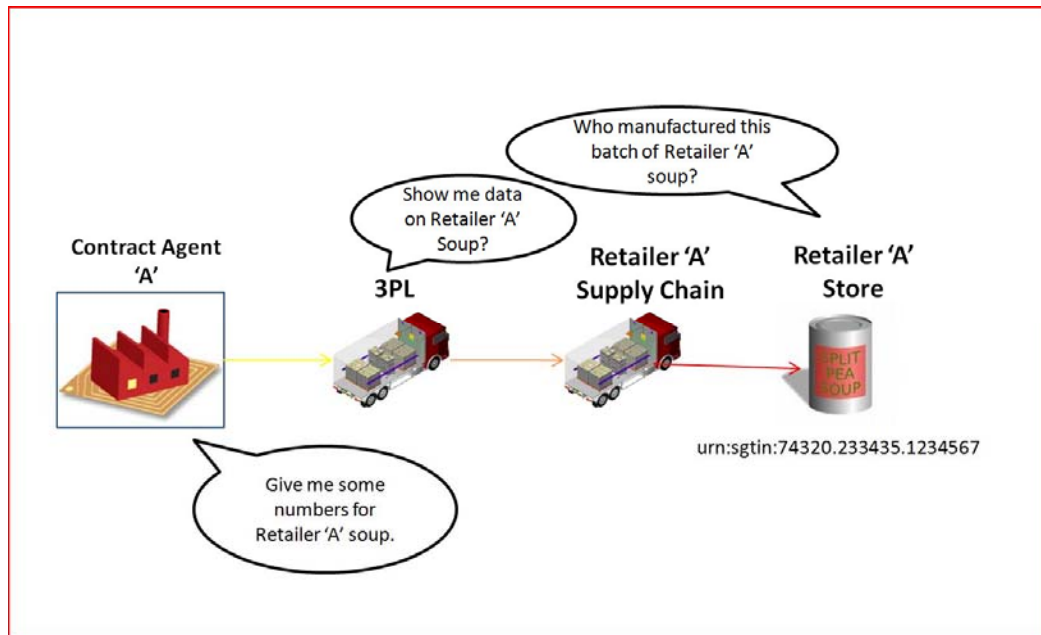
## 82 4 Use Cases

83 To help explain the different circumstances for which this recommendation document can be used  
84 is outlined in the following five use cases:

- 85 • Single Sourcing
- 86 • Transition between Single Sources
- 87 • Brand Owner to Retailer
- 88 • Multi-sourcing (manufacturer and retailer)
- 89 • Manufacturer's who uses Multi-Sourcing to Retailer

90

### 91 4.1 Single Sourcing



92

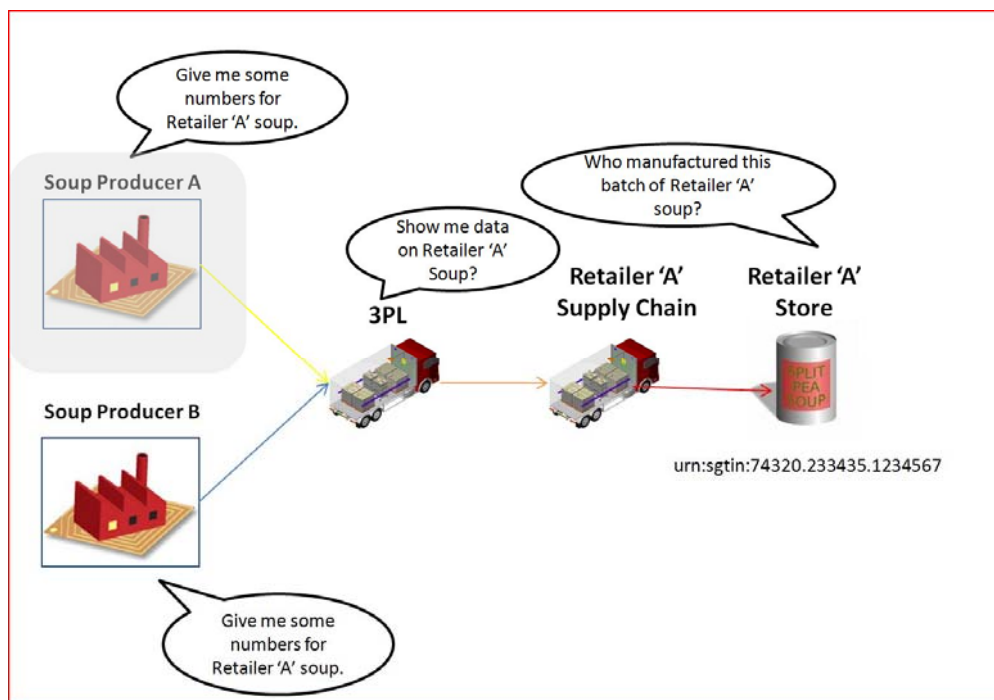
93

94 The product is a private label and retailer A is the brand owner.

- 95 1. Contract agent A is not the same company as the 3PL or the retailer.
- 96 2. Contract agent A would like to understand the information of their product's data (for  
97 example promotional sales, return rate, rate of replenishment, regional sales, location of  
98 object in their shipping route, etc.)

- 99 3. Contract agent A requests the information from the 3PL.
- 100 4. The 3PL requests the information from the retailer (though information can be requested in
- 101 upstream or downstream).
- 102 5. The retailer needs to be able to identify which product came from the contract agent A to
- 103 be able to provide the appropriate observation information.
- 104 6. The owner of the event data depends on the observation.
- 105 7. Solution: The retailer assigns an EPC number as a serialized Global Trade Identification
- 106 Numbers (GTIN) with a block of serial numbers to the sourced manufacturer.
- 107

## 108 4.2 Transition between single sources.



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110

111 The product is a private label and retailer A is the brand owner.

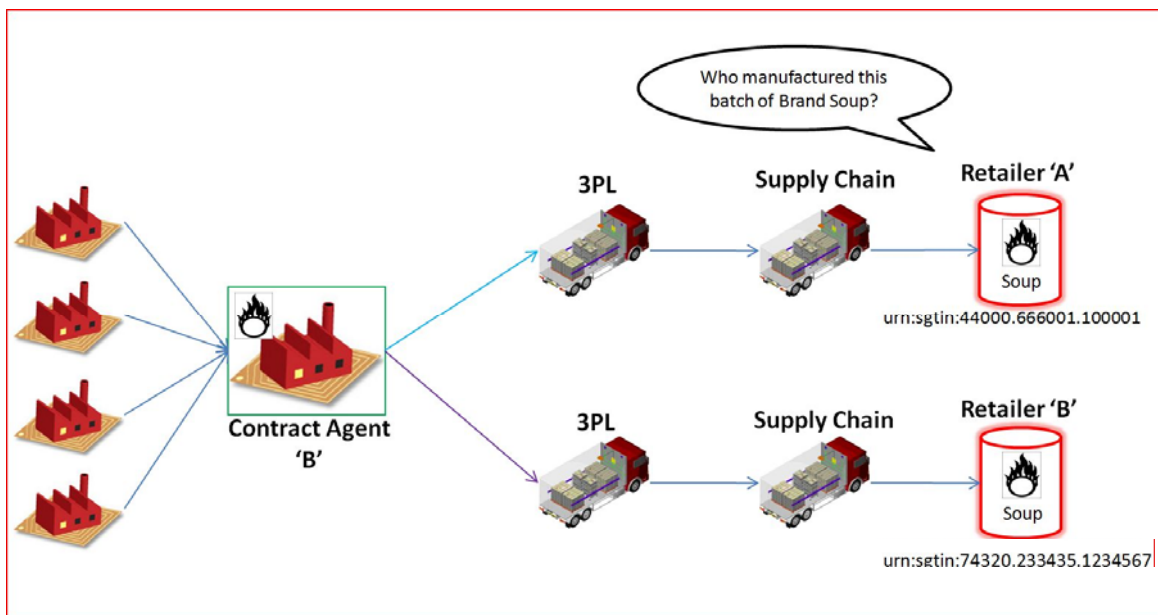
- 112 1. Contract agent A is not the same company as contract agent B, the 3PL or the retailer.
- 113 2. The retailer has decided to transition the contract from agent A to agent B. There will be a
- 114 time in which the same product from different contract manufactures will be selling in the
- 115 stores.
- 116 3. The retailer has decided to multi-source from a multiple of contract agents for stores in
- 117 different regions.
- 118 4. Both contract agent A and B would like to understand the information of their product's
- 119 data (for example promotional sales, return rate, rate of replenishment, regional sales,
- 120 location of object in their shipping route, etc.)
- 121 5. Individually each contract agent requests the information from the 3PL.

- 122 6. The 3PL requests the information from the retailer (though information can be requested in  
 123 upstream or downstream).
- 124 7. The retailer needs to be able to identify which product is from which contract agent to be  
 125 able to provide the appropriate information.
- 126 8. The owner of the event data depends on the observation.
- 127 9. Solution: The retailer assigns an EPC number as a serialized GTIN with a block of serial  
 128 numbers to each of the sourced contract agents.
- 129 Note: After a transition or a manufacture source has gone out of business, the given block of  
 130 EPC numbers reverts back to the retailer. It is recommended that a retailer only issues blocks  
 131 of EPC numbers that they are confident will be used.

132

### 133 4.3 Brand Owner to Retailer

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The product is a brand product and the brand owner is contract agent B. Each retailer will assign their own GTIN.

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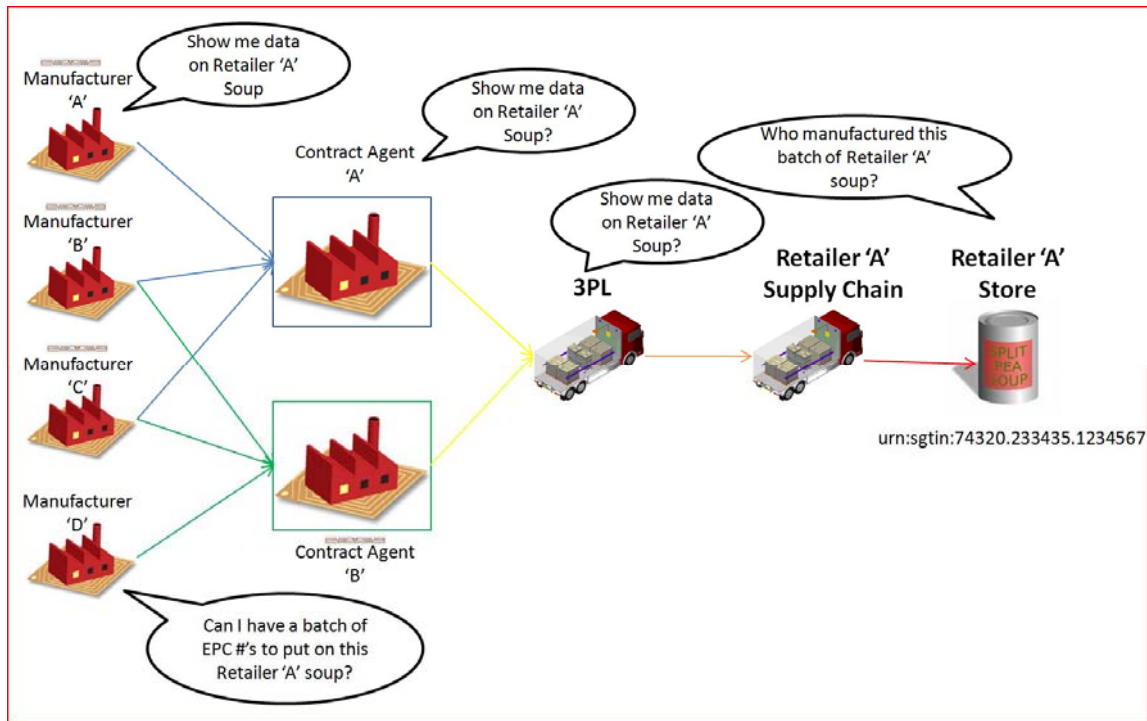
145

1. Contract agent B sources from many manufacturers for two different retailers. These products are made from the different manufacturers, but made to the agents' specification therefore that contract agent number is needed.
2. The retailer would like to understand which manufacturer made the product.
3. The retailer requests the information to the supply chain, who forwards it to the 3PL, who forwards the request to contract agent B.
4. Contract Agent B needs to be able to determine which manufacturer made the product.

146 5. Solution: The contract agent assigns an EPC number as a serialized GTIN with a block of  
147 serial numbers to each manufacturer.

148  
149

#### 150 4.4 Multi-sourcing (manufacturer and retailer)



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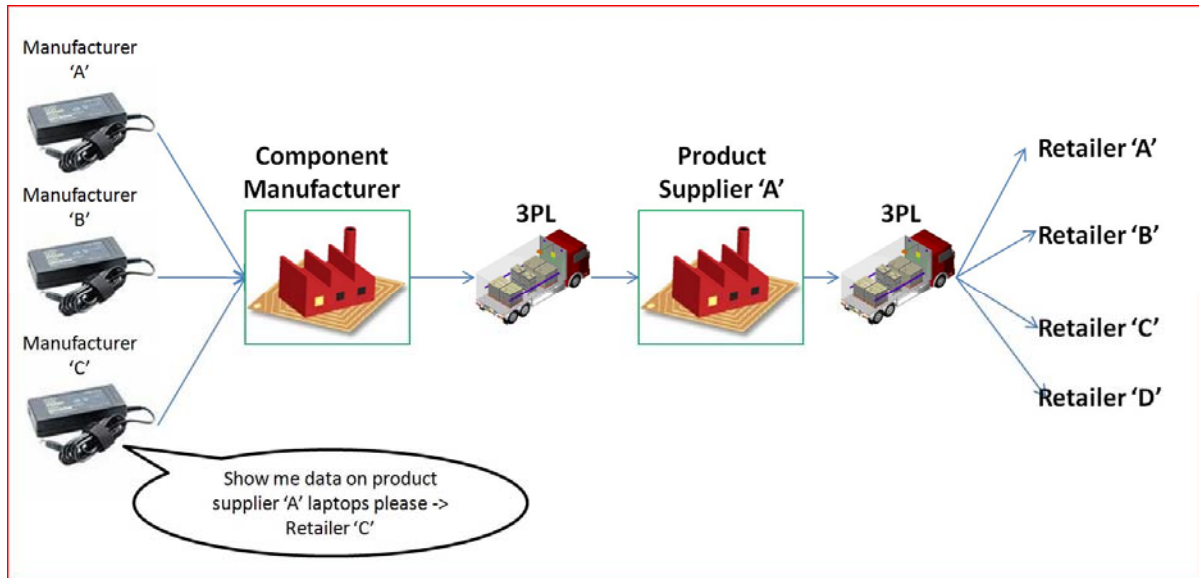
153 The product is a private label and the brand owner is retailer A.

- 154 1. Manufacturer's A, B, C, and D are different companies not necessarily located in the same  
155 region. The manufacturer A, B, C and contract Agent A register the first event.  
156 Manufacturer D is not the first registrant of event data, because contract agent A  
157 commissions the tag.
- 158 2. Manufacturer A would like to understand the information of their product's data (for  
159 example promotional sales, return rate, rate of replenishment, regional sales, location of  
160 object in their shipping route, etc.)
- 161 3. Contract agent A, no relation to contract agent B, requests the information from the 3PL.
- 162 4. The 3PL requests the information from the retailer (though information can be requested in  
163 upstream or downstream).
- 164 5. The retailer needs to be able to identify which product is from which manufacturer to be  
165 able to provide the appropriate information.
- 166 6. The owner of the event data depends on the observation.
- 167 7. Solution: The retailer assigns a EPC number as a serialized GTIN with a block of serial  
168 numbers for each contract agent who is then responsible to assign sub-blocks of SGTIN to  
169 the sourced manufacturer.  
170

171

## 172 4.5 Manufacturer's who uses Multi-Sourcing to Multiple Retailers

173



174

175 The components are brand products and the brand owner is the component manufacturer.  
176 The final product is a brand product and the brand owner is supplier A.

- 177
- 178 1. Manufacturers' A, B, and C produce parts for one Component Manufacturer.
  - 179 2. This Component Manufacturer ships the product via a 3PL to another company Product Supplier 'A'.
  - 180 3. The Product Supplier 'A' ships the product via a 3PL to multiple retailers.
  - 181 4. Manufacturer C would like to understand the information of their product's data (for  
182 example promotional sales, return rate, rate of replenishment, regional sales, location of  
183 object in their shipping route, etc.)
  - 184 5. Both the Component Manufacturer and the Product Supplier 'A' (supply chain participants  
185 would need information available regarding the products).
  - 186 6. The retailers would also require visibility and progress of objects in motion.
  - 187 7. The Component Manufacturer and Product Supplier 'A' would assign different EPC  
188 numbers – the Component Manufacturer for the parts and Product Supplier 'A' for the final  
189 object.

190

191

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193

## 194 **5 Preferred Option:**

195 The brand owner assigns the EPC (SGTIN) including the serialisation. If the brand owner is not  
196 the manufacturer (tag commissioner) then the retailer or contract agent owning the brand (private  
197 label) should assign a block of serial numbers to each Tag commissioner to identify  
198 manufacturers.

- 199 • It is not recommended to assign logic in serial assignment due to it creating “wasted”  
200 numbers. For example, if a retailer assigns certain logic to the block such as these  
201 numbers are for the month of March, then if there are left over numbers. They are lost.
- 202 • The retailer should keep a generic block of numbers for use when a tag is needed in the  
203 store (i.e. a tag has fallen off and must be replaced). While history would be lost, it is the  
204 preferred option.

205

## 206 **6 Other practices not recommended by GS1 EPCglobal:**

207 In section 5 the preferred option for the management of multi-sourced private label items is  
208 presented. Industry best practice suggests that this methodology be used to manage the  
209 distribution of EPC numbers amongst multiple manufactures. Alternative practices have been  
210 provided in the following section some more preferred than others. Great care should be taken  
211 when adopting these alternate solutions as they can be considered not industry best practice and  
212 may create divergence in the adoption of a global standard. The goal is always to migrate to the  
213 preferred solution. The other practices not recommended by GS1 EPCglobal include:

- 214 • Separate GTIN Assignment for each manufacturer
- 215 • Create query to EPCIS for authentication of use
- 216 • Identify tag commissioner by user memory in tag
- 217 • Company Internal Numbering (Restricted Circulation Numbers) (for example GS1 Prefix  
218 04 & 20-29) This is only one solution for internal marking. For GTIN-12, GTIN-13 there is  
219 a different set of prefixes. If this recommendation is to be used all prefixes available should  
220 be specified for internal use. See Gen Specs 2.1.2.3 v7.1 for further definition.

221

### 222 **6.1 Separate GTIN Assignment**

- 223 • Buyer assigns separate GTIN by each trade item for each manufacturer. It eliminates  
224 issues of serialization management. It identifies the manufacturer without having to look at  
225 the serialization number.
- 226 • Challenges: Potentially a retailer would have to use many more company prefixes due to  
227 the large number of more product ID's.
- 228 • Challenges: Product file size is large. Some retailers systems are not equipped to handle  
229 this request.

230

231 In the GS1 System typically the Brand Owner, the organisation that owns the specifications of the  
232 trade item regardless of where and by whom it is manufactured, is normally responsible for the  
233 allocation of the Global Trade Item Number™ (GTIN™). The separate GTIN assignment based on

234 the manufacturer for multisource product is not recommended as it conflicts with the GS1 General  
235 Specifications for GTIN assignment

236 The Brand Owner is the organisation that owns the trade item specifications and may be:

237 **The manufacturer or supplier** - the company manufactures the trade item or has it  
238 manufactured, in any country, and sells it under its own brand name

239 **The importer or wholesaler** - the importer or wholesaler has the trade item manufactured, in any  
240 country, and sells it under its own brand name or the importer or wholesaler changes the trade  
241 item (for example by modifying the packaging of the trade item).

242 **The retailer** - the retailer has the trade item manufactured, in any country, and sells it under its  
243 own brand.

244 **Exceptions and non branded items – see appendix 9.2**

245

## 246 **6.2 Create Query**

247 • Create query to EPCIS for authentication of use, or identify commissioner by serial  
248 number or identify commissioner by user memory in tag. For example in this case the  
249 source (because of the EPC Manager Number) is the retailer (buyer) who would have to  
250 forward to the manufacturer.

251 • EPCIS query is one option to implement the preferred solution. The retailer would always  
252 be able to tell who produced the tag, and a query would be needed every time the product  
253 was read. A con of this option is that it would require many look-ups.

254

## 255 **6.3 Tag User Memory**

- 256 • Add the GLN of the commissioned source to user memory.
- 257 • Challenge: Adding GLN of the commissioned source to user memory of TAG will add  
258 cost.
- 259 • Challenge: The downside is that a table lookup may be required for identification of who  
260 to share the data with.
- 261 • In the future, this option is not recommended due to higher tag costs and additional  
262 system changes for the both encoder and reader locations.

263

## 264 **6.4 Company Internal Numbering - GS1 Prefix 04 and 20-29 use**

265 • **This option is internal restricted circulation and should not be used for any external**  
266 **partners.**

267 • In the GS1 General Specification, there is a provision called: Company Internal  
268 Numbering - GS1 Prefix 04 & 20-29. Any company in the world may use this Element  
269 String for company internal trade item numbering. If the GS1 Prefix 04 & 20-29 is being  
270 applied, the user company may structure the trade item number.

271 • Some companies implement this option for internal use only, but it is difficult to apply as a  
272 standardized global process. Other companies use a proprietary numbering system for  
273 internal use only. Sometimes, this number is given to the manufacturers to use. In the

274 future, this option is not recommended due to the use of this function not creating a  
275 globally unique identification.

## 276 **7 Enhancements**

277 Determine the need and applicability for Data Exchange and EPCIS query structures.

## 278 **8 Next Steps**

279 Share scenarios for input from other Industry representations for completeness.

280 January 2007 Group becomes a work stream of Implementation Sharing.

281 February 2007 Review of Draft Documentation

282 March 2007 Follow-up Conference Calls

283 April 2007 BSC approval of Recommendation Document

284 - submit requirements to Reader Operations, Reader Management or ALE  
285 Document for serialization assignment process. Document should be sent to Data  
286 Exchange or EPCIS to make sure that there is a standardized request and  
287 response.

288

289 If needed from the end users in a future phase could look at retailer multi-sourcing to other  
290 retailers.

291

## 292 **9 Appendix**

293

### 294 **9.1 Acknowledgements**

295

Function	Name	Company/ Organization
MEA WS Co-chair	Larry Roth	Kimberly- Clark Corporation
MEA WS Co-chair	John Garrett	Tesco
IS IG Co-Chair	Ulrich Wertz	Metro Group
IS IG Co-Chair	Nancy Tai	YFY
MEA Participant	Vivian Underwood	Anderson Merchandising
MEA Participant	Wayne Garzancich	Daymon Worldwide
MEA Participant	Greg Edds	Hewlett- Packard
MEA Participant	Dave Hutchins	Kraft
MEA Participant	Uwe Guide	Metro Group- Kaufhof
MEA Participant	Don Mowrey	Nestle
MEA Participant	Rick Schendel	Target

MEA Participant	Ron Moser	Wal-Mart	296
MEA Participant	Deborah Ventura	Wegmans	297
MEA Participant	Kristen Anderson	Wegmans	298
MEA Participant	Lynn Palatas	Wegmans	299
MEA Participant	Mike Gross	Wegmans	
GS1 (GDSN) Participant	Nadine Radomski	Dean Foods	
GS1 Participant	Greg Cooper	Dean Foods	
GS1 Participant	Ken Holland	Dean Foods	
GS1 Participant	Michele Southall	EPCglobal NA	
GS1 Participant	Fiona van der Linde	GS1 South Africa	
GS1 Architecture Committee	Pere Rosell	GS1 Spain	
GS1 (GDSN) Participant	Sean Lockhead	GS1 US	
GS1 Architecture Committee	Sue Schmid	GS1 Australia	
GS1 Participant	Ilka Machemer	GS1 Germany	

300

## 301 **9.2 General Definitions:**

302 **3rd Party Logistics (3PL)** - Is a company providing logistics related services, such as transport  
303 management, supply chain management, warehousing, re-packing products, distribution, and/or  
304 assembly

### 305 **GTIN (Trade Item)**

306 For the purpose of this document, the identification of Trade Items is through the use of the Global  
307 Trade Item Number, GTIN, which is used as part of the GS1 Numbering system.

308 A trade item is any item (product or service) upon which there is a need to retrieve pre-defined  
309 information and that may be priced, or ordered, or invoiced at any point in any supply chain. This  
310 definition covers services and products, from raw materials through to end user products, all of  
311 which may have pre-defined characteristics.

312 When the GTIN-8, GTIN-12, GTIN-13, and GTIN-14 Identification Numbers are used to identify  
313 trade items, they are known as Global Trade Item Numbers™ (GTINs™). These GTINs provide  
314 unique identification when they are stored and processed in their entirety.

315

316 **Global Trade Item Number (GTIN)**<sup>¶</sup> is used to identify any item (trade item or service) upon  
317 which there is a need to retrieve pre-defined information and that maybe priced or ordered or  
318 invoiced at any point in the supply chain. A separate and unique GTIN is required whenever any  
319 of the pre-defined characteristics of an item are different in any way that is relevant to the trading

---

<sup>¶</sup> Reference: GDSN Business Requirements Analysis Document: Section 5.4.1

320 process. The guiding principle is if the consumer is expected to distinguish a new trade item from  
321 an old trade item and purchase accordingly, a new GTIN should be assigned to the new trade  
322 item (product package and shelf edge label declarations should appear the same to the  
323 consumer). However, any law or regulation that contradicts these rules shall supersede these  
324 rules.

325

### 326 **Branded Items<sup>¶</sup> :**

327 **Brand Owner:** The Organization that owns the specification of the Trade Item regardless of  
328 where and by whom it was manufactured is normally responsible for the allocations of the Global  
329 Trade Item Number (GTIN). On joining GS1, the brand owner receives a GS1 company prefix  
330 which is for the sole use of the company to which it was assigned. The company prefix may not  
331 be sold, leased or given, in whole or In part, for use by another company.

332 The brand owner is the organization that owns the trade item specifications and may be:

333 The **manufacturer** or **supplier**- the company manufactures the trade item or has it manufactured,  
334 in any country, and sells it under its own brand name.

335 The **importer** or **wholesaler**- the importer or wholesaler has the trade item manufactured, in any  
336 country, and sells it under its own brand or the importer or wholesaler changes the trade item (for  
337 example by modifying the packaging of the trade item). In the pictures in chapter 4 this is referred  
338 to as contract agent.

339 The **retailer**- the retailer has the trade item manufactured, in any country, and sells it  
340 under its own brand.

341

### 342 **Exceptions and non branded items**

343 There are some exceptions as follows:

344 **Non-Branded Items** - Items without a brand name and generic items – not private labels  
345 – are still assigned Global Trade Item Numbers™ (GTIN™) by their manufacturer. As  
346 different manufacturers and/or suppliers may supply items that appear identical to the  
347 buyer (this could be a consumer as well as a retailer or manufacturer), it is possible that  
348 items that are apparently the same have different GTINs. Companies that trade in these  
349 items need to organise their computer applications (replenishment programs for example)  
350 to cope with this eventuality. Examples of items that sometimes have no brand are apples,  
351 plasterboard, candles, drinking glasses etc. Examples for trade items that sometimes have  
352 no brand and are not intended for retail include salt, fragrances, food cans, etc.

353 **Customer Specific Items** - If a trade item is made specifically for one trade customer  
354 (buyer) and is orderable only by this customer, then the buyer assigns the GTIN. In this  
355 case the GTIN should be formed from the customer's GS1 Company Prefix (see Section  
356 2.6.6). If the supplier (seller) sells a trade item to more than one buyer or intends to sell to  
357 more than one buyer, then the seller assigns the GTIN.

358 **Other Exceptions** - If the Brand Owner does not assign a GTIN, the importer or another  
359 intermediary can assign an item a *temporary* GTIN. This would imply that the importer  
360 takes on the role of the Brand Owner and could, for example, register the product upon a

---

<sup>¶</sup> Reference: GDSN Business Requirements Analysis Document: Section 5.4.2.1

361 Data Catalogue. This temporary GTIN may be used until a GTIN is assigned in the normal  
362 way. Alternatively a retail organisation can assign an *internal* number, for use within its  
363 own stores only, to an item that does not yet have a GTIN assigned to it.  
364  
365

366 **9.3 EPCglobal and GSMP process**

367

368 The following diagram illustrates the new process for standards to help ensure alignment  
369 across the GS1 organization.

370

