



DoD Tag Data Constructs

July 1, 2004

Tag Data Constructs

Class	User Memory Size (bits)	Shipment Origin	Encoding Scheme	Tag Data Constructs
0	64	Supplier	Serialization	Tag Manufacturer Encoded Serialization
1	96	Supplier	EPC	Serialized Shipment Container Code (SSCC) Serialized Global Trade Item Number (SGTIN) Global Returnable Asset Identifier (GRAI) Global Individual Asset Identifier (GIAI)
1	96	Supplier	DoD	DoD Tag Construct
1	96	DoD	DoD	DoD Tag Construct

Serialized tag data construct for 64 bit Class 0 tag from supplier

64 bits total user memory on tag
Serial number
64 bits

Fields:

Serial Number – encoded by manufacturer, uniquely identifies up to $2^{64} = 18,446,744,073,709,551,616$ tagged items

NOTE: Since there is no header or filter values, this is not an EPC data construct but it is in current use.

Serialized tag data construct for 64 bit Class 0 tag from supplier

Tag Requirement	EPC Data Construct	When Used	Advance Shipping Notice (ASN) Required
UID Pack	Tag Mfgr Encoded Serialization	On item packaging for items meeting the DoD criteria for assignment of UID	Yes
Case, Transport Package, Palletized Unit Load	Tag Mfgr Encoded Serialization	Items shipped as either pure or mixed case, pallet, or transport unit	Yes

EPC Tag data construct for 96 bit Class 1 tag from supplier

96 bits total user memory on tag						
	Header	Filter	Partition	Company Prefix	Item Reference	Serial number
SGTIN	8 bits	3 bits	3 bits	20-40 bits	24-4 bits	38 bits
	Header	Filter	Partition	Company Prefix	Asset Type	Serial number
GRAI	8 bits	3 bits	3 bits	20-40 bits	24-4 bits	38 bits
	Header	Filter	Partition	Company Prefix	Individual Asset Reference	
GIAI	8 bits	3 bits	3 bits	20-40 bits	62-42 bits	
	Header	Filter	Partition	Company Prefix	Serial Reference	Unallocated
SSCC	8 bits	3 bits	3 bits	20-40 bits	37-17 bits	25 bits

SGTIN – Serial Global Trade Item Number

GRAI – Global Returnable Asset Identifier

GIAI – Global Individual Asset Identifier

SSCC – Serial Shipping Container Code

EPC Tag data construct for 96 bit Class 1 tag from supplier

Tag Requirement	EPC Data Construct	When Used	ASN Required
UID Pack	SGTIN	On item packaging for items meeting the DoD criteria for assignment of UID where a serial number is used to augment a GTIN - (Global Trade Item Number) which is used for the unique identification of trade items worldwide within the UCC.EAN System.	Yes
	GRAI	On item packaging for items meeting the DoD criteria for assignment of UID (reusable package or transport equipment of specific or certain value)	Yes
	GIAI	On item packaging for items meeting the DoD criteria for assignment of UID (used to uniquely identify an entity that is part of the fixed inventory of a company – GIAI can be used to identify any fixed asset of an organization)	Yes
Case, Transport Package, Palletized Unit Load	SGTIN	Items shipped as either pure case, pallet, or transport package (see above)	Yes
	SSCC	Items shipped as either pure or mixed case, pallet, or transport package (SSCC can be used by all parties in the supply chain as a reference number to the relevant information held in computer database or file)	Yes

DoD Tag data construct for 96 bit Class 1 tag from supplier or DoD

96 bits total user memory on tag			
Header	Filter	DODAAC/CAGE	Serial number
8 bits	4 bits	48 bits	36 bits

Fields:

- Header – specifies that the tag data is encoded as a DoD 96-bit tag construct (use “CF” encoded in binary as 1100 1111).

- Filter – identifies a pallet, case, or UID item associated with tag.

(0000 = pallet, 0001 = case, 0010 = UID item, all other combinations = reserved for future use)

- DODAAC/CAGE – identifies the supplier, insures uniqueness of serial number across all suppliers, represented in ASCII format.

- Serial Number – uniquely identifies up to $2^{36} = 68,719,476,736$ tagged items, represented in binary format.

DoD Tag data construct for 96 bit Class 1 tag from supplier or DoD

Header (DoD construct)	1100 1111
Filter (Case)	0001
DODAAC (ZA18D3)	0101 1010 0100 0001 0011 0001 0011 1000 0100 0100 0011 0011
Serial Number (12,345,678,901)	0010 1101 1111 1101 1100 0001 1100 0011 0101

Complete contents of the above encoded sample tag:

11001111000110110100100000100110001001110000100010000110011001011011111101 11000001110000110101