ISO 8000 DATA QUALITY SOLUTIONS

Advanced Cataloging and Master Data Management

Abstract

Cataloging is a system fundamental to the collection and maintenance of master data and an integral part of data governance. The purpose of cataloging is twofold; the first is to create a master data record of an item to make it easier to reference the item within an organization, and second, to collect sufficient characteristic data to determine whether the item is a substitute or duplicate. The key to cataloging is the cataloging template, which describes an item in a class in a way that it can be differentiated from other items of the same class. This white paper outlines the cataloging process based on the NATO Codification System, from which the ISO 22745 and ISO 8000 standards are derived.

An ECCMA White Paper
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Contents

NOTE:
Appendix A, B, C & D have been extracted from the NATO Manual on Codification (ACodP-1) and have been used for illustrative purposes only.

Background

The terms Cataloging and Codification are synonyms, they are used to name a process to create and maintain Master Data. Master Data is defined in ISO 8000 as "data held by an organization that describes the entities that are both independent and fundamental for that organization, and that it needs to reference in order to perform its transactions"

Probably the best guide to cataloging is the ACodP-1, the NATO Manual on Codification. The manual is updated twice a year and it is available for free in both English and French from the NATO AC/135 and the ECCMA web sites. NATO codification dates back to 1950 and its fundamental principles have changed very little, with only a few adjustments to allow for process improvement brought about by advances in technology, such as computers, the internet and the World Wide Web.

Originally designed for describing physical items purchased by the military, the NATO cataloging methodology has been successfully adapted for describing services and manufacturing processes as well as individuals and organizations. It has also been successfully adapted in ISO 22745 for creating standardized computer processable representations of standards, policies, rules and regulations.

ISO 22745 and ISO 29002, international standards for the exchange of characteristic data are based on the NATO Codification System (NCS), as is ISO 8000, the international standard for quality data and quality information.

This document describes the NATO codification process as it is implemented today not only by the NATO Codification Bureaus (NCB) but also by both the commercial "data cleansing" service providers and the cataloging application providers, of which there are many.

What are the purposes and the objective of cataloging?

"Boeing currently buys 200 different kinds of safety glasses and 80 different shades of white paper. The defense and commercial aircraft divisions each negotiate for their own aluminum and titanium. Why can't we buy two or three kinds of safety glasses? Why can't we have standard part numbers that go across the enterprise?"
James F. Albaugh, CEO Boeing Integrated Defense Systems, Business Week March 13, 2006

Cataloging serves two purposes, the first is to create a master data record for an item to make it easier to reference the item within an organization; the second is to collect sufficient characteristic data to

determine the degree to which the item is duplicate or substitutable as compared to other existing items.

- A duplicate item exists when an item manufactured by an organization is assigned different dentifiers by the supply chain. For example an item may have a different part number assigned by the manufacturer, the distributor, the integrator or the retailer yet it is the exact same item.
- A substitutable item exists when two or more items share the same characteristics of fit, form and function.

While duplication is absolute, substitution is relative; it is time, function and organization specific. Items determined to be duplicates will always be substitutable as they are an exact match. Items are determined to be substitutable by an organization for a specific purpose at a specific time.

Substitutable items are not an exact match but the differing characteristics are not important for the specific purpose for which they are required at a specific time. Two ball point pens made by different manufacturers may be very different or very similar in style. You may consider them to be substitutable, but the manufacturers will disagree, saying one is clearly a superior product (theirs of course). Substitution is important to a buyer, and most buyers will go to considerable length to identify duplicate and substitutable items. On the other side, manufacturers and suppliers will go to great lengths to differentiate items so that they are not substitutable either in reality or in the mind of the customer. Many pharmaceutical products provide good examples. Aspirin must meet a very specific and heavily regulated formulation specification so all aspirin sold meets the exact same specification, and the product on the shelf differs only in its packaging, which clearly has little to do with its function. Yet prices vary enormously. I actually know someone who swears that Bayer Aspirin works better than generic aspirin: obviously the advertising and the packaging must make a real contribution to pain relief.

The tires on your car also provide a good example. If you need to replace one tire, you will need to find duplicate, exact matches for the other three. You will do this by specifying the manufacturer name and part number. However, if you need to replace all four tires, you will look at a number of substitutable tires that fit your car; they will have the same size characteristics, but they will differ in their price and in a number of other physical (weight) or performance (guaranteed miles) characteristics, some of which will be important to you at that specific time (you may realize at a later date that what was not important then is important now, and you may question your original choice of tires).

“The NCS is the official program under which equipment components and parts of the military supply systems are uniformly named, described, classified, and assigned a NATO Stock Number. These stock numbers and item descriptions are published in supply catalogues and repair parts lists, and are used as the key identifiers within logistic

information systems. The NCS is a common supply language which operates effectively in a multilingual environment. It facilitates interoperability, curbs duplication (both within nations and between nations), permits interchangeability, promotes standardization and maximizes logistics support in the most economical manner possible."

Part management

Part management is a special process in design, manufacture and procurement that seeks to reduce the number of parts used in a single system or across multiple systems. Cataloging is an integral part of most Part Information Management (PIM) applications and Parts Libraries associated with design, engineering and manufacturing systems. Cataloging is at the heart of part management, where it is complimented by a formal process that seeks to find the balance between allowing engineers the freedom to use the "best" material and the "optimum" material when characteristics such as availability of supply and price are taken into consideration. In the end, the unit cost of a single part will be small compared to the cost of design and design maintenance, as well as the cost of purchasing and stocking the part itself. Reducing the number of parts also reduces maintenance costs in terms of the tools and training needed for assembly, maintenance and repair.

In defense contracting it is now a common requirement that contractors demonstrate that they have implemented a parts standardization program, and where multiple contractors are contributing to a single system, they are often required to participate in a common part standardization program.

The Parts Standardization and Management Committee (PSMC), a joint committee of the US Department of Defense and industry, defines the goal of parts management as "to improve operational readiness and reduce life-cycle costs by promoting the use of common, widely available, reliable parts and processes".

The PSMC goes on to state "Parts management helps program managers achieve their objectives for improving logistics support, enhancing supportability, and managing obsolescence. Parts management saves money, enhances logistics readiness and interoperability, increases system reliability and safety, and reduces acquisition lead-time."

PSMC research further states: "The average total cost for adding a new part into a system is about $20,000. An effective parts management program will avoid this cost every time it precludes introducing an unnecessary new part into the system. For example, by not introducing a single new part as trivial as a nut or bolt, parts management can save approximately $20,000 during a weapon system's life cycle."

Cataloging directives

Cataloging costs money, it takes time, and it requires training, so it is easy for companies to consider it low priority. Recently, however, companies are realizing the importance of data and introducing data governance programs. Cataloging is fundamental to the collection and maintenance of master data, so it is an integral part of data governance. It does help if there is a formal policy regarding cataloging.

In the USA, the law requires that "each item recurrently used, bought, stocked, or distributed by the Department of Defense" be cataloged. Recurrently used is defined as more than once in a three month period. The law is Public Law (Public law defines the responsibilities of government officials typically as they apply to the organization of government and the relations between the government and its citizens), and although it is written to apply to the Department of Defense, it is implemented by all US Federal agencies. It has also been adopted by many states for their procurement and the management of state owned assets.

Cataloging and Standardization Act

Public Law 82-436 as codified by United States Code, Title 10, Chapter 145 Sec. 2451

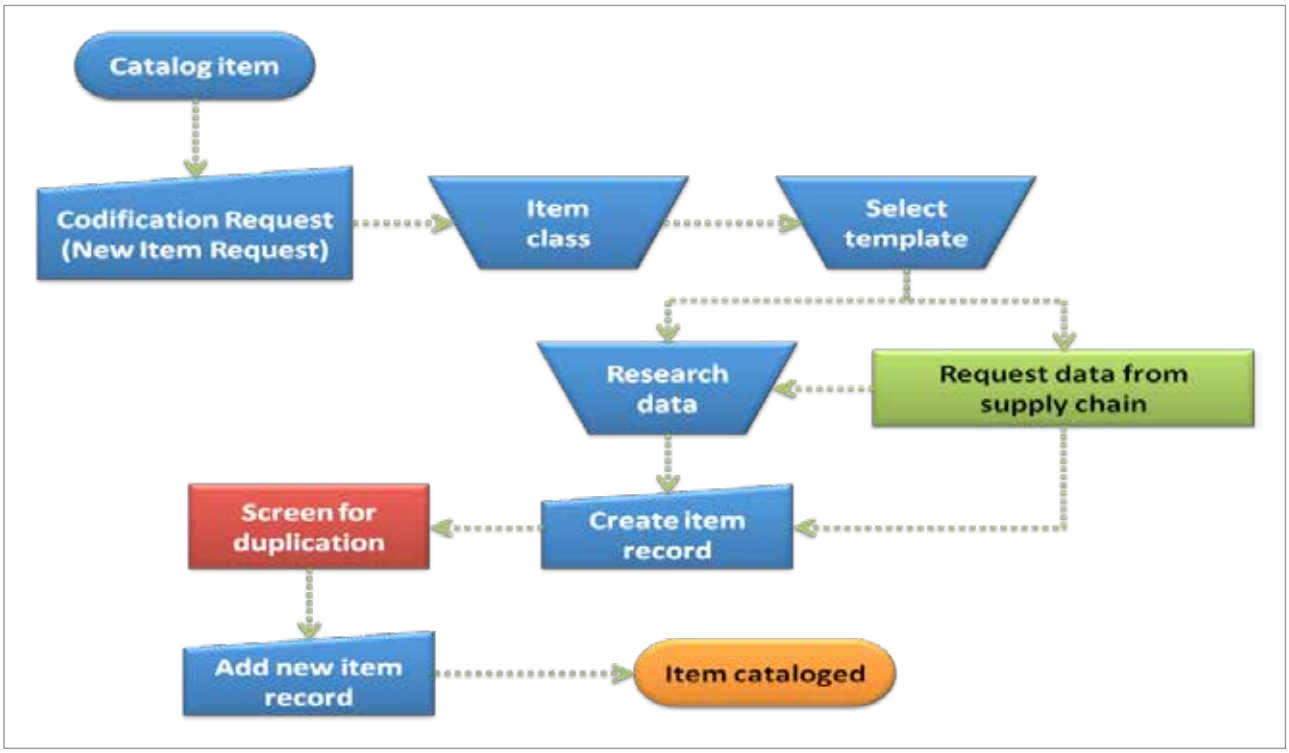
(a) The Secretary of Defense shall develop a single catalog system and related program of standardizing supplies for the Department of Defense.

(b) In cataloging, the Secretary shall name, describe, classify, and number each item recurrently used, bought, stocked, or distributed by the Department of Defense, so that only one distinctive combination of letters or numerals, or both, identifies the same item throughout the Department of Defense. Only one identification may be used for each item for all supply functions from purchase to final disposal in the field or other area.

The principles of cataloging

The cataloging process starts with a request for codification; this is followed by a determination of the item class (NATO Approved Item Name or AIN) and commodity group (NATO Supply Class) and the selection of the appropriate cataloging template within the item class (the NATO applicability key). This is then followed by the acquisition of the characteristic data as specified in the cataloging template. The commercial cataloging process may include the assignment of one or more item classifications and the creation of an item name (the short description) and one or more descriptions (most commonly the

purchase order description, but there may also be a technical description).



The codification request

Codification starts with a codification request, or in a modern master data management or ERP system, a "New Item Request" form. Appendix A contains the NATO equivalent of the commercial form, the NATO FORM AC/135-No 7. Today within NATO, however, nearly all of these new item requests are made through electronic L07 transactions.

The purpose of the request is to collect as much information as possible about the item to be catalogued. On the NATO form, the user is directed to pay particular attention to block 080 where the item is named and described.

080	EQUIPMENT / MATÉRIEL	
081	NAME OF EQUIPMENT / NOM DU MATÉRIEL	
082	TYPE OR MODEL / TYPE OU MODÈLE	
083	ASSEMBLY / ENSEMBLE	
084	MANUFACTURER'S NCAGE CODE / CODE NCAGE DU FABRICANT	
085	USER SERVICE / SERVICE UTILISATEUR	
086	OTHER INFORMATION / AUTRES RENSEIGNEMENTS	
087	LSAs GROUPED BY / LSA REGROUPÉES PAR	

Interestingly, one of the most important pieces of information can be found in block 097 and surprisingly in the NATO system it is not mandatory. It is the identifier assigned to the item by the manufacturer or supplier, the part number.

097	ORDER NUMBER / NUMÉRO DE COMMANDE	

The combination of answers to block 084 and block 097 are used to create the “Reference” one of the most important pieces of information and the key to automating data acquisition and data validation.

A reference number is any number used to designate an item of production, to identify an item of supply, either by itself or in conjunction with other reference numbers, or to provide some additional information relevant for management purposes. Reference numbers may be any of the following:

- manufacturer's part numbers;
- manufacturer's drawing numbers;
- manufacturer's model or type numbers;
- manufacturer's source controlling numbers;
- specification controlling numbers;
- manufacturer's trade name, when the manufacturer designates the item by trade name only;
-

The “Reference” is defined in ACodP-1 as:

Reference: The combination of a NATO Commercial and Government Entity Code (NCAGE) and a Reference Number forms the "Reference".

See Appendix B for detailed discussion of NATO references

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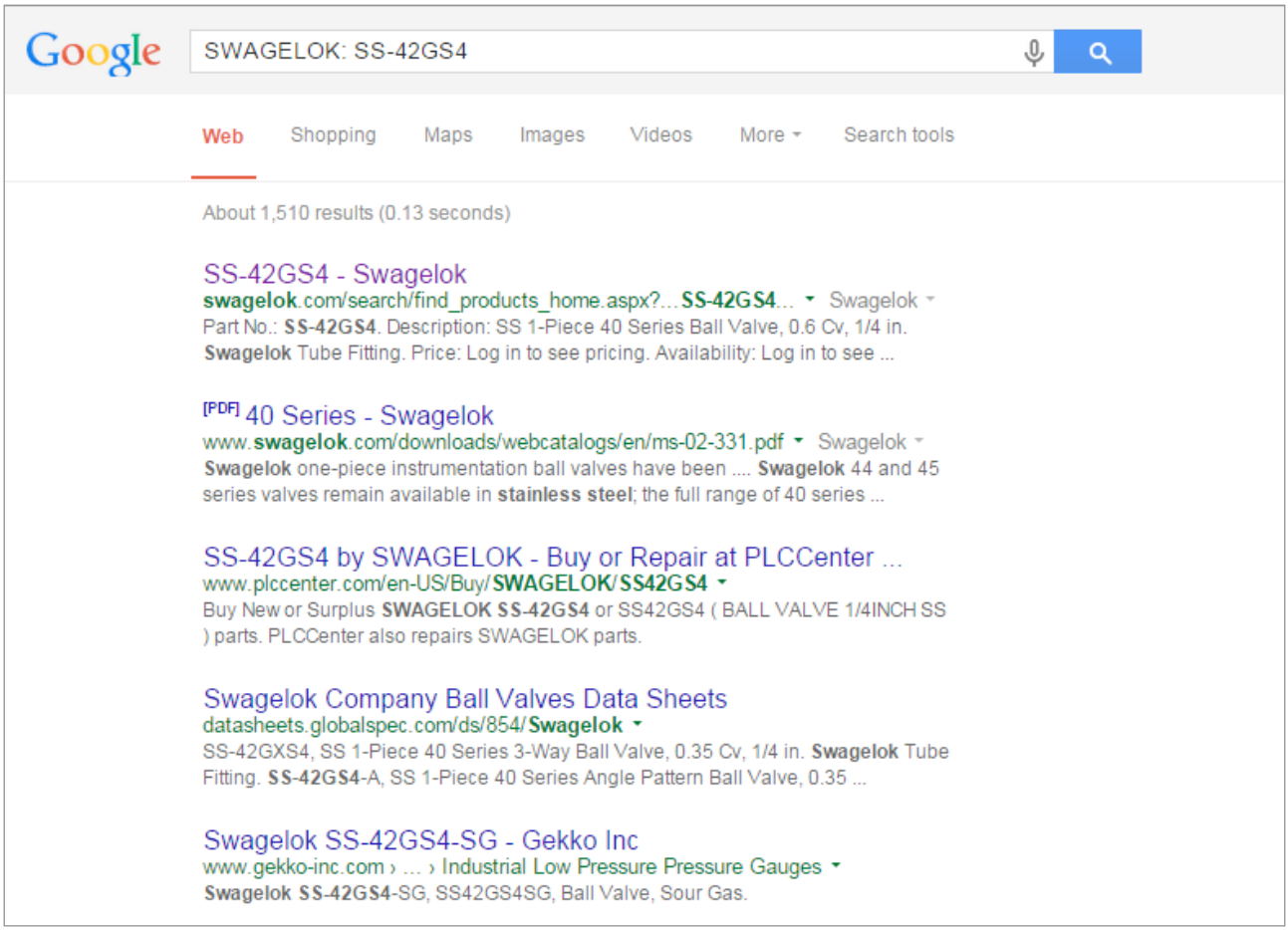
If we use SWAGELOK as the manufacturer and SS-42GS4 as one of the SWAGELOK part numbers we have the following:
SWAGELOK NCAGE: 3T9T9
SWAGELOK Reference Number (aka the part number): SS-AFSS12
NATO Reference: 3T9T9: SS-42GS4

Cataloging

The key to cataloging is the cataloging template (NATO Item Identification Guide). This determines the characteristics necessary to describe an item in a class, in a way that it can be differentiated from the other items in the class. Cataloging consists in researching the characteristics necessary to complete a template.

An informal (Google) search for SWAGELOK: SS-42GS4 yields the following:



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Visiting the Swagelok site (the first in the list) would provide more information:

Part No.: SS-42GS4

Description: SS 1-Piece 40 Series Ball Valve, 0.6 Cv, 1/4 in. Swagelok Tube Fitting

Price: Log in to see pricing

Availability: Log in to see availability

Quantity: Buy Quote

SPECIFICATION SUMMARY	
Actuator Type	Manual
Flow Path	Standard (2-way)
Flow Pattern	Straight (2-way)
Valve Material	Stainless Steel
End Connection 1 Size	1/4 in
End Connection 1 Type	Swagelok tube fitting
End Connection 2 Size	1/4 in
End Connection 2 Type	Swagelok tube fitting
Handle Color	Black
Handle Style	Lever
Approval	No Approval
Ball/Stem Material	Stainless Steel
Body Vent	No
Cleaning	Swagelok SC-10
Lubricant	Dow M111
Packing	Modified PTFE
Ring/Disc Material	Stainless Steel
Sour Gas	No
Testing	Testing according to WS-22
Max Temperature Pressure Rating	300°F @ 2500 PSIG /148°C @ 172 BAR
Orifice	0.125
Room Temperature Pressure Rating	2500 PSIG @ 100°F /172 @ BAR 37°C

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Government catalogers would, however, also search the Federal Logistic Information System (FLIS) (http://www.dlis.dla.mil/webflis/pub/pub_search.aspx please note WebFLIS will be taken down in the 2nd quarter of 2015 and replaced by a restricted access tool. FLIS data will no longer be available on the open web. Go to http://www.dlis.dla.mil/webflis/pub/pub_search.aspx# for details.)

Results for Part Number: SS-42GS4

Part Number	CAGE Code	Item Name	NSN
SS-42GS4	3T9T9	VALVE,BALL	4820010130242

A second search using the NSN yields a wealth of information, including alternate references (PARKER: 4Z-B2LJ-SSP and WALTRON:01190PC13). These are references of items that NATO considers to be substitutable in that they have the same Fit, Form and Function. The FLIS also shows the price paid when the item is ordered through the Department of Defense supplier systems. Of interest is the fact that the FLIS characteristic data does not contain the pipe size, which Swagelok calls the end connection size

NSN:	4820010130242
Item Name:	VALVE,BALL
Query Type:	PUBLIC
Date of query:	11/28/2014 4:01:59 AM

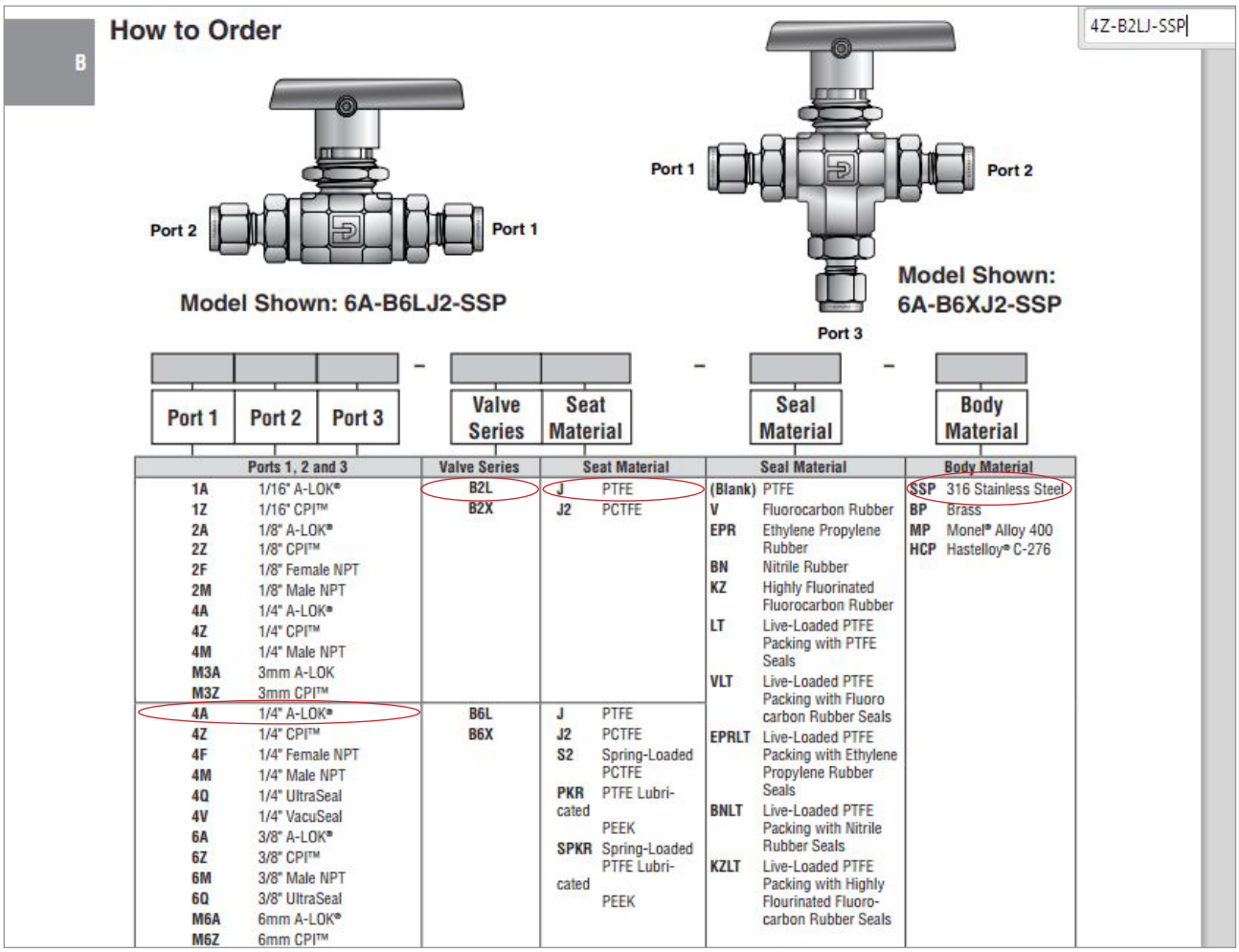
REF/PN	CAGE CD	STAT	RNCC	RNVC	DAC	RNAAC	RNFC	RNSC
SS-42GS4	3T9T9	A	3	2	4	ZZ		
01190PC13	71229	A	5	9	5	AX	1	A
4Z-B2LJ-SSP	54939	A	5	2	E	AX		

(continued overleaf)

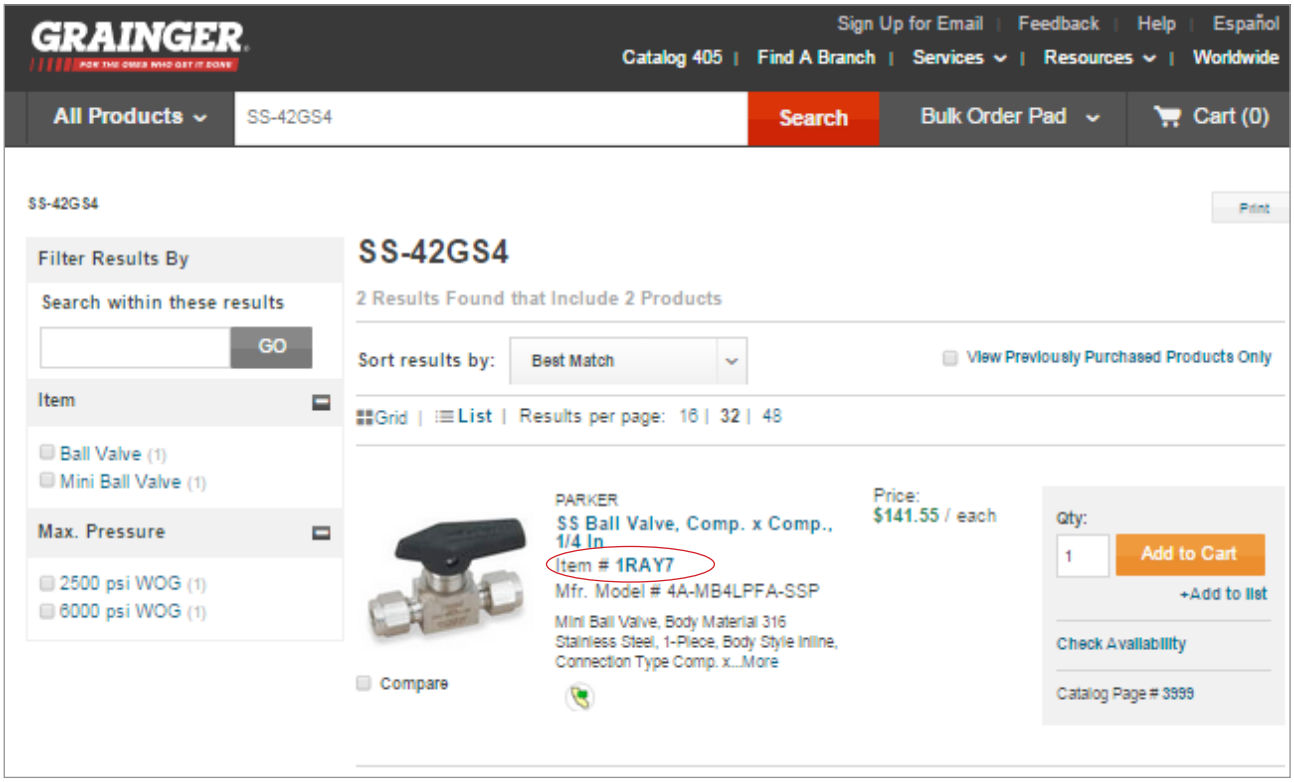
REQUIREMENT STATEMENT	CLEAR TEXT REPLY
ITEM NAME	VALVE,BALL
THREAD CLASS	2A ALL ENDS
THREAD DIRECTION	RIGHT-HAND ALL ENDS
BONNET TYPE	INSIDE SCREW
BONNET ATTACHMENT METHOD	THREADED
RENEWABLE SEAT RING	TYPE PRESSED-IN
MAXIMUM OPERATING TEMP	150.0 DEG FAHRENHEIT SINGLE RESPONSE
CONNECTION STYLE	PLAIN (TUBE) ALL ENDS
VALVE OPERATION METHOD	MANUAL
CONNECTION TYPE THREADED	EXTERNAL TUBE ALL ENDS
MOUNTING FACILITY	PANEL
MAXIMUM OPERATING PRESSURE	2500.0 POUNDS PER SQUARE INCH SINGLE RESPONSE
NOMINAL THREAD SIZE	0.438 INCHES ALL ENDS
SPECIAL FEATURES	INCL 2 SLEEVE
MATERIAL	STEEL COMP 316 BODY
MATERIAL	STEEL COMP 316 FLOW CONTROL DEVICE
MATERIAL	PLASTIC POLYTETRAFLUOROETHYLENE SEAT
MATERIAL	STEEL CORROSION RESISTING STEM
MATERIAL DOCUMENT AND CLASSIFICATION	FEDSTD66,AISI 316/SAE 30316 FED STD SINGLE MATERIAL RESPONSE BODY
MATERIAL DOCUMENT AND CLASSIFICATION	FEDSTD66,AISI 316/SAE 30316 FED STD SINGLE MATERIAL RESPONSE FLOW CONTROL DEVICE
MEDIA FOR WHICH DESIGNED	WATER-OIL-GAS SINGLE RESPONSE
STYLE DESIGNATOR	STRAIGHT THRU
THREAD SERIES DESIGNATOR	UNF ALL ENDS
FURNISHED ITEMS AND QUANTITY	2 FERRULE AND 2 NUT

One needs to search the Parker website to find the PDF catalog for Ball and Plug Valves to identify the characteristics of the PARKER: 4Z-B2LJ-SSP part specified in the FLIS record in order to create the following description:

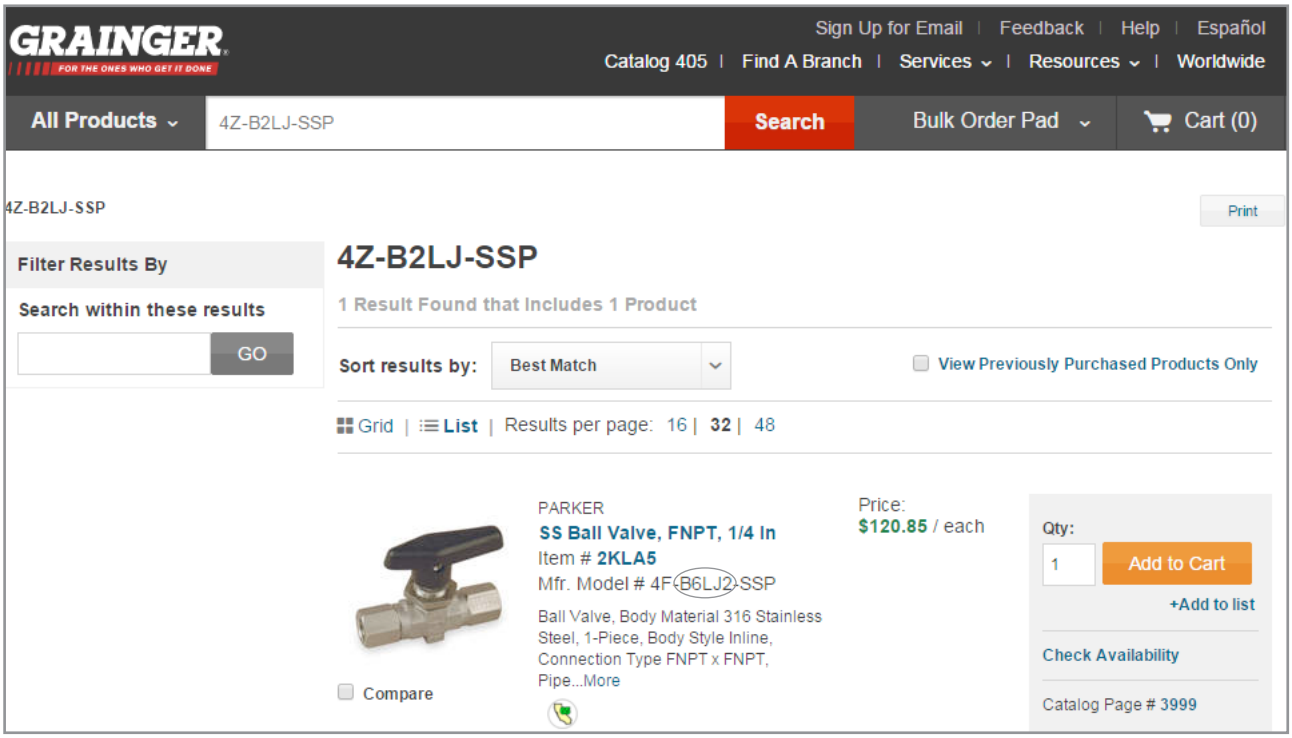
PARKER: 4Z-B2LJ-SSP Class= Ball Valve; Type=Two-Way; Port=¼" CPI™; Valve Series=B2L; Seal Material=PTFE; Body Material=316 Stainless Steel.



A search on Grainger for SS-42GS4 actually comes up not with Swagelok parts but competing parts from Parker, not to mention that Grainger also assigns it own item number Grainger:1RAY7



Searching Grainger for the 4Z-B2LJ-SSP (the Parker part number) does come up with a Parker part but a with a different part number.



What is obvious is that all the "sources" of data are using different terminology (end connection size, port size, pipe size), different cataloging templates and different formats; mapping the terminology is the purpose of the eOTD and providing a standard format for the exchange of characteristic data is the purpose of ISO 22745.

For example Banyan, an ISO 8000 cataloging service provider, translates technical data specifications into the ISO 22745-40 XML standard format using the eOTD as the Open Technical Dictionary; this is referred to as eOTD-r-xml. The Banyan conversion follows the requirements of ISO 8000-120, and it can be displayed as follows:

Material Number	Date Updated
SWAGELOK: SS-42GS4	2014-11-30

Image data

Property name	Value	Source date	Source organization
IMAGE		2014-11-30	SWAGELOK

Characteristic data			
Property name	Value	Source date	Source organization
CLASS	BALL VALVE	2014-11-30	BANYAN
ACTUATOR TYPE	Manual	2014-11-30	SWAGELOK
FLOW PATH	Standard (2-way)	2014-11-30	SWAGELOK
FLOW PATTERN	Straight (2-way)	2014-11-30	SWAGELOK
VALVE MATERIAL	Stainless Steel	2014-11-30	SWAGELOK
BALL MATERIAL	Stainless Steel	2014-11-30	SWAGELOK
STEM MATERIAL	Stainless Steel	2014-11-30	SWAGELOK
RING MATERIAL	Stainless Steel	2014-11-30	SWAGELOK
DISC MATERIAL	Stainless Steel	2014-11-30	SWAGELOK
END CONNECTION 1 SIZE	1/4 in	2014-11-30	SWAGELOK
END CONNECTION 1 TYPE	Swagelok tube fitting	2014-11-30	SWAGELOK
END CONNECTION 2 SIZE	1/4 in	2014-11-30	SWAGELOK
END CONNECTION 2 TYPE	Swagelok tube fitting	2014-11-30	SWAGELOK
HANDLE COLOR	Black	2014-11-30	SWAGELOK
HANDLE STYLE	Lever	2014-11-30	SWAGELOK
BODY VENT	No	2014-11-30	SWAGELOK
LUBRICANT	Dow M111	2014-11-30	SWAGELOK
PACKING	Modified PTFE	2014-11-30	SWAGELOK
SOUR GAS	No	2014-11-30	SWAGELOK
TESTING	Testing according to WS-22	2014-11-30	SWAGELOK
MAX TEMPERATURE PRESSURE RATING	300°F @ 2500 PSIG /148°C @ 172 BAR	2014-11-30	SWAGELOK
ORIFICE	0.125 mm	2014-11-30	SWAGELOK
ROOM TEMPERATURE PRESSURE RATING	2500 PSIG @ 100°F /172 @ BAR 37°C	2014-11-30	SWAGELOK

In this example, the property names as well as many of the values are referenced in the eOTD. Banyan also added the missing unit of measure to the ORIFICE value, as unit of measure is required in order to conform to ISO 8000.

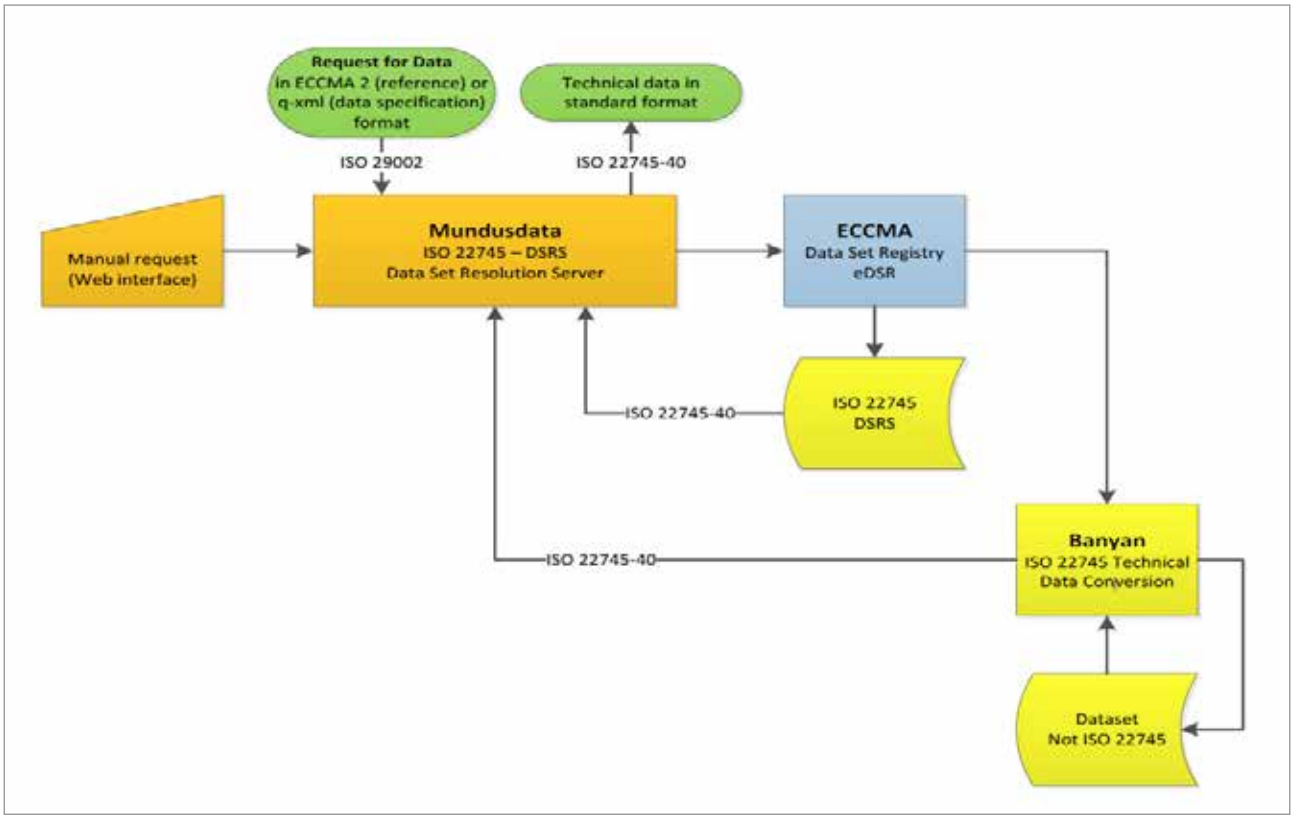
ISO 22745 Data Set Resolution Server (DSRS)

ECCMA 2 is an implementation standard that describes the process of Data Set Resolution using ISO 22745. ECCMA 2 contains the following definitions:
dataset: named collection of data
record: group of date elements within a data set that are relevant to a specific entity
identifier (primary key): sequence of characters representing a unique record in a data set
reference: identifier prefixed by the designation of the data set in which it is meaningful

The ECCMA 2 standard recommends **dataset: identifier** as the preferred format for a Reference where the dataset is registered in the ECCMA Data Set Registry (eDSR).

The ECCMA Data Set Registry (eDSR) contains information regarding the owner of a dataset, any copyright limitations on the use of the identifier or the associated data and most importantly, the URI of the location of the ISO 22745 Data Set Resolution Server (DSRS).

An ISO 22545 Data Set Resolution Server (DSRS) is a server connected to the internet that responds to an ISO 29002 web services request for identification or characteristic data formatted as a q-XML message (ISO 22745-35) by providing the requested data as a standardized r-XML message (ISO 22745-40). An ISO 22745 Data Set Resolution Server (DSRS) is expected to supports two types of query; a Reference query (such as SWAGELOK:SS-42GS4) where the reply is a default collection of data or a q-xml query formatted in accordance with ISO 22745-35. The q-xml query specifies the ISO 22745-30 cataloging template required by the user, this contains the details of the characteristic and identification data needed by the user. Cataloging companies use ECCMA 2 and the ECCMA Data Set Registry (eDSR) to automate cataloging.



For example Mundusdata Inc., manages an ISO 22745 Data Set Resolution Server (DSRS), that provides ISO 22745-40 XML formatted technical specifications as a single or composite view where the Swagelok technical specification is combined with data from FLIS as well as other manufacturers and suppliers. Mundusdata is able to automate this process by sourcing ISO 22745-40 XML formatted data from Banyan.

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Users can request data from the Mundusdata DSRS using an ECCMA 2 formatted Reference (dataset: identifier) or using an ISO 22745-35 (q-xml) formatted query. An ISO 22745-35 (q-xml) query can be used to request specific characteristic data that meets the requirement of a specific cataloging template or it can be used to search for a reference using characteristic data

The following record would be returned for a search on any one of the References contained in the identification data value (with the exception of the ASTM reference which is a reference to a material specification). The record would also be returned if only the characteristic values were provided, essentially turning the query into a search for a reference.

Image data

Property name	Value	Source date	Source organization
IMAGE		2014-11-30	DLIS
IMAGE		2014-11-30	SWAGELOK

Characteristic data

Property name	Value	Source date	Source organization
CLASS	BALL VALVE	2014-11-30	BANYAN
VALVE OPERATION METHOD	MANUAL	2014-11-30	DLIS
BODY STYLE	INLINE	2014-11-30	GRAINGER
THREAD CLASS	2A ALL ENDS	2014-11-30	DLIS
MATERIAL	STEEL COMP 316 BODY	2014-11-30	DLIS
MATERIAL	STEEL COMP 316 FLOW CONTROL DEVICE	2014-11-30	DLIS
MATERIAL	PLASTIC POLYTETRAFLUOROETHYLENE SEAT	2014-11-30	DLIS
PIPE SIZE	¼ INCH	2014-11-30	GRAINGER
CONNECTION 1 SIZE	¼ INCH	2014-11-30	SWAGELOK
CONNECTION 2 SIZE	¼ INCH	2014-11-30	SWAGELOK
CONNECTION STYLE	G46A PLAIN (TUBE) ALL ENDS	2014-11-30	DLIS
MAX PRESSURE	2500PSI	2014-11-30	GRAINGER

Identification data			
Property name	Value	Source date	Source organization
NATO STOCK NUMBER	DLIS:4820-01-0130242	2014-11-30	DLIS
SUPPLIER REFERENCE	GRAINGER:1RAY7	2014-11-30	GRAINGER
MANUFACTURER REFERENCE	WALTRON:01190PC13	2014-11-30	DLIS
MANUFACTURER REFERENCE	SWAGELOK:SS-42GS4	2014-11-30	DLIS
MANUFACTURER REFERENCE	PARKER:4Z-B2LJ-SSP	2014-11-30	DLIS
STANDARD REFERENCE NUMBER	ASTM:A 276 Type 316	2014-11-30	ASTM

Text data			
Property	Description	Source date	Source
ITEM NAME	VALVE,BALL: SS, ¼", 2500PSI	2014-11-30	BANYAN
PURCHASE ORDER	VALVE,BALL: SIZE=1/4 INCH, MAX PRESSURE=2500PSI, BODY MATERIAL=STEEL COMP 316	2014-11-30	BANYAN

A user requesting data using q-xml would provide their template and receive in reply the completed templates; for example, by specifying the following cataloging template:

Characteristic data
Property name
CLASS
THREAD CLASS
BODY MATERIAL
PIPE SIZE
CONNECTION STYLE
MAX PRESSURE

(continued overleaf)

The reply would be as follows:

Characteristic data			
Property name	Value	Source date	Source organization
CLASS	VALVE,BALL	2013-04-24	DLIS
THREAD CLASS	2A ALL ENDS	2013-04-24	DLIS
BODY MATERIAL	STEEL COMP 316	2013-04-24	DLIS
PIPE SIZE	¼ INCH	2013-04-24	GRAINGER
CONNECTION STYLE	G46A PLAIN (TUBE) ALL ENDS	2013-04-24	DLIS
MAX PRESSURE	2500PSI	2013-04-24	GRAINGER

Identification data			
Property name	Value	Source date	Source organization
NATO STOCK NUMBER	DLIS:4820-01-0130242	2013-04-24	DLIS
SUPPLIER REFERENCE	GRAINGER:1WBL7	2013-04-24	GRAINGER

Basically, only the requested characteristic data and the source of the data.

Master Data Validation

Master Data validation is a process whereby the accuracy of Master Data is verified either by an authoritative source or by multiple sources. The preferred method consists in sending a Master Data validation request to the authoritative source (in the case of materials, this would be the manufacturer). Where the authoritative source maintains a Data Set Resolution Server, this can be an automated process. If the authoritative source does not respond in a timely manner, then it is recommended that the validation request be sent to a number of alternate sources (in the case of materials, this would be the preferred and alternate suppliers).

Mundusdata provides an automated Master Data Validation Server (MDVS) which manages the validation process. Users upload the Master Data to be validated, along with the name and email address of a point of contact. The Mundusdata MDVS sends an email containing a single use hyperlink to a secure web page where the data can be edited or confirmed to be correct. The Mundusdata MDVS is ISO 8000-120 compliant; it tracks the provenance of all data values. The Mundusdata MDVS is specifically designed to migrate master data from NATO Type 2 and Type 4 to Type 1.

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Migrating Master Data from NATO Type 2 and Type 4 to Type 1

Appendix C contains the descriptions used by NATO for describing the different types of item identification. Type 1 item data is ISO 8000 quality master data; it includes all mandatory properties listed in the data specification. Type 4 item data is missing one or more mandatory properties. Type 2 item data includes only reference data: it is not does not provide a description of the item. As of December 1st 2014, the statistics for NATO of 17.8 million active material master records (NATO Stock Numbers) were as follows:

- Type 1 full descriptive: 3.7 million (21%)
- Type 2 reference only: 6.4 million (36%)
- Type 4 partial descriptive: 7.7 million (43%)

There are variants A and B of a Type 1 or Type 4 record to meet specific circumstances. A is used to denote that only one Reference Number can meet the requirements, basically a single material specific to one manufacturer. B is used to denote that again only one Reference Number can meet the requirements but additional data not contained in the reference number is needed to differentiate items, basically items with the same reference may need to be differentiated through additional characteristics.

As Type 2 and 4 will conceal duplicates, the goal of cataloging is to create a Type 1 record. As all NATO records and all commercial material master data contain at least one reference (supplier or manufacturer name + supplier or manufacturer part number), migrating Type 2 or Type 4 to Type 1 can be automated as long as the master data record to be migrated contains a reference to a cataloging template (a NATO Item Identification Guide).

A Master Data Validation Server (MDVS) such as the one used by Mundusdata, sends the supplier a hyperlink to a web page in which the item data is displayed in the cataloging template. Missing data is highlighted. The process makes it very straightforward for suppliers and manufacturers to provide missing data, and while they are at it, validate the data that is already there. A Master Data Validation Server can be used not only for a material master but also for a vendor or even a customer master. In fact, it is highly recommended that the vendor master be validated prior to validating a material or service master.

Screening for duplication

One of the most important tasks of managing any master data is screening for duplication. Appendix D details the NATO process of screening for duplication. It must be remembered that NATO cataloging is performed by many NATO Codification Bureaus (NCB),

so the process of screening is essential to avoid duplicates from entering the system.

Having said this, it is also important to understand that the NATO common material master represents a significant marketing opportunity for manufacturers and suppliers, and therefore they have an incentive to describe (or not describe) their products in a way that they appear unique.

Each NCB is also motivated to represent their national manufacturers and suppliers, so it is both possible and not uncommon for duplicate items to be described in such a way as to defeat the screening process. This is reflected in the high percentage of Type 2 item descriptions (or the use of sub types A and B for Type 1 or 4).

The reference number screening process results in one of four determinations:

1. Exact match: An exact match exists when a reference matches an existing reference designated as either design controlled or preferred. In other words. if two items have the same manufacturer's part number they are an exact match.
2. Potential match: A potential match exists when a reference matches an existing reference but the existing reference is not a design controlled or preferred reference: for example, it may be an alternate source reference.
3. Match through association: This occurs when matching part numbers are found and the manufacturer or supplier identifiers are associated (it is possible for a manufacturer or a supplier to have more than one identifier as identifiers are associated with location)
4. No match

The very fast reference number screening process is occasionally followed by a characteristic data screening process. The characteristic data screening process is considerably slower and requires a sophisticated application. Most commonly, reference number screening is automated while characteristic data screening is partially manual. If characteristics data screening results in a match, then the reference number of the new item is added to the existing item.

Duplicate resolution

Identifying an exact or potential duplicate during the new item creation process requires very little resolution; the reference of the new item is added to the existing item. The challenge is when screening existing master data. This can occur as part of a "data cleansing" exercise or whenever data specifications are reduced.

Once two or more items are determined to be duplicates, then a single record is chosen as the surviving record, and all the references of the

deprecated records are transferred under the surviving record. Using the recommended ISO 8000-120 format, the internal reference (the material id) should also be added as part of the identification. So much for the data, but it is important to remember that the original records may have been used previously, so they will need to be preserved. For this reason, they are "deprecated" but not removed. Basically, the record can be used for analysis but it can no longer be used for ordering new items. It is also recommended that any stock in bins related to the old materials be moved to the bin of the surviving item record.

Putting a note in the old bins "moved to bin #" is a good way to ensure that any orders in progress
are put in the correct bin.

NATO CODIFICATION SYSTEM - SYSTÈME OTAN DE CODIFICATION

REQUEST FOR CODIFICATION AND REGISTRATION OF USER - LSA /
DEMANDE DE CODIFICATION ET INSCRIPTION COMME UTILISATEUR - LSA

010 FROM / DE	020 REFERENCE / RÉFÉRENCE , DATE	030 TO / POUR

040 LOWEST AND HIGHEST DCN / LE PLUS PETIT ET LE PLUS GRAND ND

DCN / ND	ORIG	SUBM / SOUM	TRANSACTION DATE	DCSN / NSND
LOWEST / PLUS PETIT				
HIGHEST / PLUS GRAND				

050 TOTAL QUANTITY OF DCNs / QUANTITÉ TOTALE DE ND	060 NATO FORM AC/135-No 1 CONTROL NUMBER / N° DE CONTRÔLE DU FORMULAIRE OTAN AC/135-N° 1	070 NATO CODIF. PROJECT CODE / CODE PROJET DE CODIF. OTAN

080 EQUIPMENT / MATÉRIEL

081	NAME OF EQUIPMENT / NOM DU MATÉRIEL
082	TYPE OR MODEL / TYPE OU MODÈLE
083	ASSEMBLY / ENSEMBLE
084	MANUFACTURER'S NCAGE CODE / CODE NCAGE DU FABRICANT
085	USER SERVICE / SERVICE UTILISATEUR
086	OTHER INFORMATION / AUTRES RENSEIGNEMENTS
087	LSAs GROUPED BY / LSA REGROUPÉES PAR

090 CONTRACT / CONTRAT

091	MAIN CONTRACTOR'S NCAGE CODE / CODE NCAGE CONTRACTANT PRINCIPAL						
092	SUB CONTRACTOR'S NCAGE CODE OR NAME CODE NCAGE OU NOM SOUS-CONTRACTANT						
093	CONTRACT No. / CONTRAT N°						
094	CODIFICATION CONTRACT CLAUSE / CLAUSE DE CODIFICATION	☐ YES OUI		☐ NO NON	(IF NO, EXPLAIN IN BLOCK 100) (SI NON, PRECISER EN CASE 100)		
095	DOCUMENTATION PROVIDED BY / FOURNIE PAR	☐ MAIN CONTRACTOR CONTRACTANT PRINCIPAL		☐ SUB CONTRACTOR SOUS-CONTRACTANT		☐ OTHER SOURCES AUTRES SOURCES	
096	ATTACHMENTS / PIÈCES JOINTES	☐ YES OUI		☐ NO NON			
097	ORDER NUMBER / NUMÉRO DE COMMANDE						

100 ADDITIONAL DATA / DONNÉES COMPLÉMENTAIRES
(Examples: WWW site URLs, technical data, contact information at the manufacturer, catalogues, etc.) / (Exemples : adresses URL de sites Internet (www), données techniques, coordonnées de la personne à contacter chez le fabricant, catalogues, etc.)

110 ORIGIN OF REFERENCE NUMBERS / SOURCE DES NUMÉROS DE RÉFÉRENCE	120 SIGNATURE

NATO FORM AC/135-No 7 **(16.01)** **FORMULAIRE OTAN AC/135-N° 7**

434.10 NATO Form AC/135-No 7 "REQUEST FOR CODIFICATION AND REGISTRATION OF A USER"

434.10.1 Instructions for the completion of NATO Form AC/135-No 7

Block	Instructions	Man-datory
010	Insert your "3-letter" Country Code according to ISO 3166-1 and as listed in CodSP-3. (see Note*)	YES
020	Insert the reference and date of the submitting NCB or NSPA for control purposes.	YES
030	Insert the "3-letter" Country Code of the receiving NCB according to ISO 3166-1 and as listed in CodSP-3. (see Note*)	YES
040	Enter the lowest and highest Document Control Number.	YES
050	Enter the total quantity of Document Control Numbers.	YES
060	Enter the NATO Form AC/135-No 1 Control Number (9 characters without the revision No) prior ~~transmitted~~transmission.	YES/NO (see Note 1)
070	Where applicable enter the NATO Codification Project Code (DRN 1057). See CodSP-72.	NO
080	This block is to be completed with the greatest possible care. All information shall be related to the requests identified by the DCNs in block 040.	
081	Enter the name of the equipment in accordance with the following criteria: - in case of LSA requests for items belonging to a common end item, enter the name of the end item; - in case of LSA requests grouped on one form (paragraph 434.3), enter the type of equipment or family of items to which the individual items are associated; - in case of single LSA requests (only one DCN) for an item which cannot be associated with a special end item, enter the name of the item requested for codification; - in case of an existing NATO or Common Project, enter the name of the project and of the related equipment.	YES
082	Enter the type or model of the item/equipment designated under block 081.	YES

* Note: NSPA having no NATO code, will be referred to as <<NSPA>>

Block	Instructions	Man-datory
083	If applicable, enter the name of the next higher assembly item where all the items listed in block 081 are assembled. Sometimes could be the end item. NOTE: It could be possible that the items have the same end item but different next higher assembly item.	NO
084	Enter the Manufacturer's NATO Commercial and Government Entity Code -NCAGE CODE- (DRN 4140) related to the item/equipment or family of items designated under block 081.	YES
085	Indicate as precisely as possible the main user (specialised service and/or service branch) e.g. Army, Air Force, Navy, Supply Corps, Medical Service, Communications Branch, etc. Example: Army Communications.	YES
086	If it has not been possible to supply an answer to blocks 081, 082 and 083 mentioned above (in the case of Miscellaneous Items, for instance) indicate the criterion applied in grouping these items or any other helpful information.	NO
087	LSA requests grouped by: - the same type of equipment or assembly - the same constructor or contractor - the same manufacturer - the same family of items or class - the same user	NO
090	Enter the following Contract and Documentation Information:	
091	Enter NCAGE Code of Main Contractor entrusted with the contract and responsible for sub-letting a Codification Contract Clause or an equivalent contractual instrument to sub-contractors, if any, and manufacturers. In the case of Miscellaneous Items ensure that these entries apply to all items grouped on the form.	NO
092	Enter NCAGE Code -if available- or name and address of the sub-contractor, or the constructor or manufacturers in the codifying country, particularly if the contractor indicated under block 091 is located in the submitting country or in a third country. In this case, give the reference of the contract binding the sub-contractor or manufacturer to the main contractor.	NO
093	Enter the number of the contract or order in which the Codification Contract Clause or an equivalent contractual instrument was included.	NO

Block	Instructions	Man-datory
094	Indicate whether the Codification Contract Clause or an equivalent contractual instrument is or is not included by checkmarking the appropriate box and ensure that this statement applies to all items indicated on the form. In the event of a negative answer, explanation or action taken must be specified in block 100, "Remarks".	YES
095	Checkmark the appropriate box to indicate by whom technical documentation is/will be provided. In case of checkmarking "OTHER SOURCES" specify in block 100 or on the reverse side of the form.	YES
096	Checkmark the appropriate box to indicate whether technical documentation or other attachments are included or not. If necessary give explanation in the clear in block 100. Technical data should be sent to receiving countries address as listed in CodSP-4 “LSA Matters + electronic docs”.	YES
097	Enter the applicable Order Number allocated by the Manufacturer.	NO
100	This block must be used to enable NSN assignment when normal processing cannot be accomplished due to lack of technical data or supporting documentation. Information, in lieu of technical data or supporting documentation, must be at least one of the following: a. Website URL b. Contact information at the manufacturer, i.e., Name, Phone number, e-mail address c. Catalogues d. Any additional information that will permit Part Number validation An LSA request with RNJC 1 (DRN 2750) must include the following information: - Differentiating Characteristics Data (to be described by use of existing MRCs) If the assignment of a narrow item of supply concept is required, the request must state desired TYPE OF ITEM IDENTIFICATION CODE (TIIC, DRN 4820), i.e. K, L, M or N. If a Segment M or V is submitted in support of the LSA, the request must state the source of characteristics data.	NO
110	Quote the document(s) from which the references presented in the LSA requests covered by the NATO Form AC/135-No 7 have been obtained (e.g. catalogues, ADP data carriers, labels, listings etc. with indication of date).	NO
120	Enter the signature of the responsible officer in the submitting activity.	YES

NOTES :

(1) The use of NATO Form AC/135-No 1 is mandatory if the volume of LSA requests subject to a single project exceeds the limit stated by nations (see sub-paragraph 134.1.1 and CodSP-71). If this rule is not respected, the processing NCB is advised to return the concerned LSA by means of a K27 with code "601".

(~~1~~2) All LSA transactions should be accompanied by a minimum of **one** of the below pieces of information. The items are listed in order of their priority.

a) End item (included in block 081 and 082).

b) Technical information (indicated in Block 096 and sent separately, or provided as an Internet site with URL in Block 100.

c) Point of contact at the Manufacturer (name and telephone number) included in Block 100.

d) Contract number included in Block 093.

The minimum data elements of Form No. 7 are highlighted in "light blue". If the minimum data is not provided, the processing country is **advised** to return the concerned LSA by a K27 with code "601".

(~~2~~3) Input instructions for the corresponding L07 transaction are given in Sub-Section 532.

(~~3~~4) All **manual** LSA requests sent to the U.S. should be submitted online using E-CAT.

Section 230 - Reference Numbers

Sub-Section 231 - General Definition

A reference number is any number used to designate an item of production, to identify an item of supply, either by itself or in conjunction with other reference numbers or to provide some additional information relevant for management purposes. Reference numbers may be any of the following:

- manufacturer's part numbers;
- manufacturer's drawing numbers;
- manufacturer's model or type numbers;
- manufacturer's source controlling numbers;
- specification controlling numbers;
- manufacturer's trade name, when the manufacturer designates the item by trade name only;
- NATO Item Identification Number (see Sub-Section 233);
- specifications and standard numbers and/or appropriate designators;
- any other information defined by an NCB or AC/135 as relevant for management purposes.

The characters which can be used to create the reference numbers are exclusively those included in Chapter V, Sub-Section 553, Table 21. Some words should not be used within Reference Numbers and some specific characters should be converted as stipulated in Chapter IV, Annex A.

In international transactions, reference numbers are limited in length to 32 characters. When a reference exceeds 32 characters, it is called Extra Long Reference Number (ELRN), and the following actions are to be taken:

(a) Enter the first 31 characters as they appear in the original configuration or with the necessary modifications according to the rules stipulated in the Annex above-mentioned;

(b) Replace the 32nd character by a dash (-), which is the ELRN indicator code (DRN 9380);

(c) No impacts on the Type of the Item Identification are to be generated due to the addition of extra-long reference numbers.

Sub-Section 232 - Quality of Reference Numbers

232.1 General

Reference numbers are qualified by the addition of the following information:

- category: some reference numbers are said to be "primary reference number". They determine the item of supply concept, while others give additional supply information;
- variation: the value of the reference number to identify the item may vary, even among primary reference numbers; some are fully identifying, others require additional information;
- procurement status;
- responsibility for technical documentation and technical documentation availability;
- formatting of the reference number, indicating whether it has been modified.

To these qualifications is added, when required, the justification for the presence of the same reference number in more than one item of supply concept.

In the NATO Codification System, "reference number related codes" are assigned to each of these qualifications.

232.2 Category

In order to portray exactly how a reference number (Item of Production) relates to a given NSN (Item of Supply), each reference number is assigned a Reference Number Category Code -RNCC- (DRN 2910). In conjunction with the RNVC, the RNCC depicts the actual relationship of the reference number to the item of supply. A complete list of RNCCs can be found in Chapter V, Sub-Section 553, Table 08.

232.2.1 Primary Reference Numbers.

They represent, or form part of, the item of supply concept:

- source control reference -RNCC 1-,
- official specification or standard -RNCC 2 or 4-,
- manufacturer reference number -RNCC 3-.

NOTE: An NSN may have more than one primary reference. See Sub-Section 264 for valid combinations of Primary and Additional Reference Numbers.

232.2.2 Additional Reference Numbers

They are reference numbers that may or may not be related to the concept of the item of supply; they provide some relevant information for management purposes, as follows:

- secondary reference -RNCC 5-,
- informative reference -RNCC 6-,
- vendor item drawing reference -RNCC 7-,
- reproduced item reference number -RNCC 8-,
- packaging and related logistic data reference number -RNCC A -,

- reference to establish a peculiar relationship between item of production and an item of supply -RNCC C-,
- drawing number reference related to an item and not qualified for assignment of codes 1, 3, 5, 7 or C -RNCC D-.

232.3 Variation

The Reference Number Variation Code -RNVC- (DRN 4780) is used to indicate the status of the reference number, whether it is item identifying, non-item identifying or for information purposes only. A complete list of RNVCs can be found in Chapter V, Sub-Section 553, Table 12.

For codification purposes, the following definitions will be used to distinguish between Item Identifying and Non-Item Identifying reference numbers:

Item Identifying	This reference number fully identifies an item of production. This item does not require additional information to give it its unique character and identity (i.e., fit, form, and function information).
Non-Item Identifying	This reference number cannot fully identify an item of production. This item requires additional information to give it its unique character and identity (i.e., fit, form, and function information).

232.4 RNCC / RNVC Combinations

RNCCs/RNVCs must be used in valid combinations to ensure proper logistics support to field activities as well as safe weapon system support. A list of valid, acceptable RNCC/RNVC combinations can be found in Sub-Section 264. The following are the most commonly used, acceptable RNCC/RNVC combinations:

RNCC	RNVC	EXPLANATION
1	2	An Item Identifying, Non-Reparable Source Control reference number. Along with the Source Control reference number, ACodP-1 edits require that at least one additional reference number with an RNCC 3/RNVC 2 shall also be recorded on the item.
1	3	A Reparable Source Control reference number, which is Item Identifying. ACodP-1 edits require that only one additional RNCC 3/RNVC 3 be recorded on the NSN.
2	2	A definitive reference number developed from a government specification or Standard which is item identifying.
3	1	A design control reference number, which is Non-Item Identifying, assigned by a manufacturer, professional association or standard designator to an item of production.

RNCC	RNVC	EXPLANATION
3	2	A design control reference number, which is Item Identifying, assigned by a manufacturer, professional association or standard designator to identify an item of production. Sometimes referred to as the primary buy item.
3	3	A design control reference number on a Source Control item, which is Item Identifying, assigned by a manufacturer, professional association or standard designator to an item of production.
3	9	A design control reference number that has been canceled as obsolete and is retained for traceability purposes.
4	1	A Non-definitive reference number derived from a Government Specification or Standard. Additional information such as type, class, grade, style, size and material is required to fully identify the item.
5	1	A secondary reference number, which is Non-Item Identifying.
5	2	A secondary reference number, which is, Item Identifying. Sometimes referred to as the secondary buy item.
5	9	A reference number that has been canceled as obsolete or superseded and is retained for informational purposes only (audit trail, visibility and tracking purposes).
6	9	Informative Reference. Any reference related to the NSN which does not fall into any other category.
7	1	A Vendor Item Control Drawing (VICD) number which is Non-Item Identifying. ACodP-1 edits requires that there must also be at least one RNCC 3/RNVC 2 vendor reference number assigned.
7	2	A VICD number, which is Item Identifying. VICD numbers are administrative control numbers and shall not be used as a part identification number. ACodP-1 edits require that there must also be at least one RNCC 3/RNVC 2 vendor reference number assigned.
D	9	Identifies a drawing or other document related to an Item of Supply for informational purposes only, but is not used in item of supply determinations. Envelope drawings, next higher assembly drawings or parts list fall into this category.

232.5. **RNCC / RNVC Compatibility with Type of Item Identification Code (TYPE II CODE)**

This code identifies the type of item identification assigned to the NSN. See Sub-Section 264, for acceptable combinations of reference number and Type II codes. A complete list of Type of Item Identification codes can be found in Chapter V, Sub-Section 553, Table 10.

232.6 **Document Availability**

The document availability will be expressed by the one digit Document Availability Code -DAC- (DRN 2640). The type of document covering the cited reference number, its availability from the activity in charge and its security classification are indicated with this code. Codes are listed in Chapter V, Sub-Section 553, Table 05.

NOTE: Compatibility between RNCC, RNVC and DAC in an item identification is determined by the type of item identification (see type of item identification in Sub-Section 262 and Table of combinations of codes in Sub-Section 264).

232.7 **DAC Action Activity**

The activity (or NCB) in charge of the document as indicated by the DAC is quoted by its two digit Reference Number Action Activity Code -RNAAC- (DRN 2900). The list of these codes is included in Chapter V, Sub-Section 553, Table 18.

232.8 **Procurement Status**

The procurement status, expressed by the one digit Reference Number Status Code -RNSC- (DRN 2923), gives indications as to the procurement of the item of production (source of supply and invitation for bid). The list of codes is included in Chapter V, Sub-Section 553, Table 14.

232.9 **Reference Number Justification**

These are codes used to justify the creation of a new Item Identification (II) despite a recognized condition of possible duplication with an existing item. A Reference Number Justification Code -RNJC- (DRN 2750) is required for each resubmittal of an item identification action for assignment of an NSN or reinstatement of a cancelled NSN which previously matched (output Document Identifier Code KRP) an existing item, and a reference number match is determined to be not suitable for the application. The RNJC is required for each addition or change of a reference number which would create another possible duplication. A complete list of justification codes can be found in Chapter V, Sub-Section 553, Table 06.

232.10 **Reference Number Format**

The reference number format expressed by the one digit Reference Number Format Code -RNFC- (DRN 2920) indicates possible modification applied to the reference number before its introduction into ADP (for more details, see Chapter IV, Sub-Section 432, Paragraphs 432.2 and 432.3, and ANNEX A). The list of codes is included in Chapter V, Sub-Section 553, Table 09.

Sub-Section 233 - Informative Reference – RNCC 6

233.1 Interchangeability indication between NSN from different countries

Whenever interchangeability between a national item of supply and a foreign item is unilaterally recognized by a NCB, this information is indicated in its national system in the following manner:

(1) The foreign NATO Item Identification Number -NIIN- will be recorded in the files as an "informative reference number" against the nationally assigned NATO Stock Number. The format must be:

XX - XXX - XXXX

(2) This informative reference is accompanied by a NATO Commercial and Government Entity (NCAGE) Code INTE9.

(3) RNFC 4, RNCC 6, RNVC 9, DAC 9 and RNSC B should be assigned.

(4) The country which develops this link will also show the reverse link on the interchangeable item. Interchangeability Indications have to be established between non-cancelled NSNs. In case of an item cancellation, the existing Interchangeability Indications have to be revised.

233.2 Indication of the corresponding NSN

In the collaboration and the cooperation procedure for the cancellation of a NATO Stock Number, when a nation wants to temporarily maintain a NSN in the TIR, until the exhaustion of stock or until the end item is withdrawn from circulation, the replacement NSN is indicated in the following manner:

(1) The NATO Item Identification Number -NIIN- of the replacement NATO Stock Number will be recorded in the files as an " informative reference number " against the cancelled NATO Stock Number temporarily maintained in the TIR. The format must be:

XX - XXX - XXXX

(2) This informative reference is accompanied by a NATO Commercial and Government Entity Code INTE8.

(3) RNFC 4, RNCC 6, RNVC 9, DAC 9 and RNSC B should be assigned.

(4) Nations cannot be recorded as user of the cancelled NATO Stock Number temporarily maintained in the TIR.

(5) Once the last user has been withdrawn, the country responsible for the “end of life” NSN (NIIN SC 9) will produce the cancel duplicate (LKD) or cancel use (LKU).

233.3 **Reference indication to an international classification/nomenclature**

When an item of supply refers to an international classification contained in ANNEX A of this Chapter, this information is indicated in its national system in the following manner:

(1) The international classification/nomenclature will be recorded in the files as an "informative reference number" against the nationally assigned NATO Stock Number. The format must be in compliance with the in force rules.

(2) This informative reference is accompanied by a NATO Commercial and Government Entity (NCAGE) Code of the editor organism.

(3) RNFC 4, RNCC 6, RNVC 9, DAC 9 and RNSC B should be assigned.

233.4 **Reference indication to a national classification**

When an item of supply refers to a national classification contained in the CodSP-82, this information will be recorded in the NSN data as an “Informative Reference Number” coded: RNFC 4, RNCC 6, RNVC 9, DAC 9 and RNSC B.

NOTE: The NATO Commercial and Government Entity (NCAGE) codes listed in CodSP-82 are not restricted to be used only with informative references with RNCC 6.

Sub-Section 234 - Use of Standard Reference

234.1 In cases where the design control authority cannot be established the use of a Standard Reference is required.

234.2 For ease of identification the Standard Reference is used in conjunction with the NCAGE code of "IREF0" and a standard RNCC, RNVC, DAC, RNFC, RNSC combination of 3, 2, 9, 4, B.

234.3 The Standard Reference is used in lieu of a Primary Reference when:

A supplier/distributor (Non-Manufacturer) is unable or unwilling to disclose the design control authority. The supplier's/distributor's reference will be recorded as a Secondary Reference RNCC 5. The Standard Reference should be used as a substitute for the Primary Reference.

Example:

RNCC	RNVC	DAC	RNFC	RNSC	NCAGE	REFERENCE NUMBER
3	2	9	4	B	IREF0	NO PRIMARY REF **-***-****

Note:

-*-**** = NIIN in full

NOTE: Implementation of this procedure will be a matter of national discretion (see CodSP-42).

Sub-Section 235 - Reference Review

235.1 When a reference contains an NCAGE code, and the NCAGESD is changed to “F” or “H”, and the reference number has an RNVC of 2, the RNVC must be changed to 9 and RNSC changed to “B” indicating the reference number is not authorized for procurement.

235.2 When a reference contains an NCAGE code, and the NCAGESD is changed to “R”, the RNVC on the reference number must be changed to 9. After a pertinent review has been completed by the applicable RNAAC/NCB and the applicable replacement NCAGE and part number is identified the applicable RNAAC/NCB will process an LAR containing the new reference.

235.3 When a reference contains an NCAGE code, and the NCAGESD is changed to “F”, “H” or “R”, the RNVC changes on the reference number can be requested only by the country responsible for the associated RNAAC on the reference number or the NSN assigning nation when the RNAAC is not registered as a user anymore.

Sub-Section 262 - Type of Item Identification

262.1 The descriptive and reference methods of item identification produce seven types of item identifications ranked in the following order of precedence:

Type 1 : (full descriptive) item identification

Type 1A : (full descriptive-reference) item identification

Type 1B : (full descriptive-reference-descriptive) item identification

Type 4 : (partial descriptive) item identification

Type 4A : (partial descriptive-reference) item identification

Type 4B : (partial descriptive-reference-descriptive) item identification

Type 2 : (reference) item identification

262.2 **Types of Identification for Approved Item Names**

262.2.1 **Type 1 (full descriptive) item identification**

The full descriptive method of item identification produces a Type 1 item identification in which all essential characteristics of an item are contained and by which the item is distinguished from every other item of supply

A Type 1 item identification should be prepared when the item of supply concept can be identified on the basis of the descriptive characteristics alone. The Type 1 item identification delineates the essential characteristics of the item of supply by use of the following kinds of identification data:

a) The Approved Item Name - AIN - is the first element in each Type 1 item identification.

The AIN in the Item Name Directory - H6 indicates the "Item Identification Guide" - IIG - to be used for the description of the items covered by this AIN.

NOTE :	When the AIN refers to the "Miscellaneous Items" IIG -A239- and to the “Sets, Kits, Groups and Outfits” IIG -A238- only a partial description will be possible (Type 4, 4A or 4B).

b) The description of the characteristics of the item of supply by a series of statements in words or numerals ordinarily forms the major kind of identification data used in each Type 1 item identification. The specifying of essential characteristics progressively creates a differentiation between items with the same Approved Item Name. When it is not feasible to delineate all essential characteristics of the item in the description, the description may be augmented to indicate additional characteristics by referring to particular documents or other sources of data descriptive of the item of supply. Approved sources to which references may be made are Government manufacturer's or professional/industrial association specifications or standards. It is essential that all references made are to documents which are recognised within Government or Industry and are generally available.

A Type 1 descriptive identification, established with an IIG, is valid when a positive reply is given to every requirement (MRC) listed as compulsory in the Applicability Key Index.

NOTE : If only one compulsory reply is missing, the item identification becomes Type 4.

262.2.2 **Type 1A (full descriptive-reference) item identification**

The Type 1A item identification delineates essential characteristics of the item of supply in the same manner and to the same extent as for a comparable Type 1 item identification. However, it limits the item of supply to a single item of production by a reference to the manufacturer of the single item of production and to his item identification number. The Type 1A item identification combines the data required for a Type 1 item identification with the data required for a Type 2 (reference) item identification representing a single item of production. A Type 1A item identification should be prepared when a single item of production, specific to one manufacturer, is the only one that can fulfil the item of supply concept and is fully identified by the part Reference Number from this manufacturer.

262.2.3 **Type 1B (full descriptive-reference-descriptive) item identification**

The Type 1B Item Identification delineates essential characteristics of the item of supply in the same manner and to the same extent as for a comparable Type 1A item identification. However, it completes the identification of the item of production by a statement of those minimum characteristics required to differentiate the item of production from other items of production having the same manufacturer's Reference Number. A Type 1B item identification should be prepared when the item of supply contains a feature not inherent in the manufacturer's identifying Reference Number.

262.2.4 **Type 4 (Partial Descriptive) item identification**

An Item Identification of this type is prepared when it is not possible or not beneficial to reply to each requirement provided in the IIG under the Approved Item Name.

The minimum characteristics necessary for a Type 4 is a reply to the MRC NAME and a positive reply to one additional MRC of the IIG, as long as this additional MRC is not established by the IIG as the only compulsory MRC for that item besides MRC NAME.

The maximum description is one reply less than a full description.

262.2.5 **Type 4A (Partial descriptive-reference) item identification**

As with an Item Identification of Type 1A, an Item Identification of Type 4A allows for only one item of production which represents exactly the item of supply. The minimum and maximum requirements are the same as for a Type 4 item identification.

262.2.6 **Type 4B (Partial descriptive-reference-descriptive) item identification**

The Type 4B Item Identification reflects the Type 1B concept in that the item of supply is limited to a single item of production, however the Manufacturer's Reference Number assigned does not completely identify the item. The minimum and maximum descriptive requirements as for a Type 4 also apply to a Type 4B.

262.2.7 **Type 2 (Reference) item identification**

This type is used only when the descriptive method item identification is not justified or cannot be used. The essential characteristics of the item of supply are implicitly indicated by the choice of the item(s) of production designated by its/their reference(s). The Type 2 item identification quotes:

- the Approved Item Name or, if that does not exist, the part name given to the item by the manufacturer or by an official body;
- the manufacturer's Reference Number(s) designating the item(s) of production; and/or
- standard or specification identifying the item of supply.

NOTE:	The use of a standard must be exceptional and justified only by urgency. Standard items should be identified by description.

262.3 **Types of Identification for Non Approved Item Names**

262.3.1 Since a Non-Approved Item Name can only be codified to IIG-A239 and cannot have answers to mandatory Master Requirements Codes (DRN 3445), an Item Identification Type 1, 1A or 1B cannot be produced.

262.3.2 A Non-Approved Item Name can however, dependent upon the answers to Master Requirements Codes, have an Item Identification Type 4, 4A, 4B or 2.

262.4 **Coding type of item identification**

For application in ADP procedure a TYPE OF ITEM IDENTIFICATION CODE -TYPE II CODE- (DRN 4820) is assigned to each identification type.

The various codes assigned to item identification types are shown in Chapter 5, Sub-Section 553, Table 10.

Sub-Section 263 - Priority in Use and Reason for the Choice of Item Identification Methods

263.1 Priority in Use

When an Approved Item Name - AIN - and an Item Identification Guide - IIG - exist the descriptive method should be applied whenever possible. When seeking the quality of Item Identification, priority must be given to the full descriptive method (Type 1, 1A and 1B) over the other two methods (Type 2 and 4) which are liable to conceal duplicates. The choice of these last methods must not be based on ease of work or rapidity (except when applying an emergency procedure), but for justified reasons such as:

- no appropriate IIG, except IIG A239;
- it is impossible to obtain all the technical data required for descriptive identification.

When these reasons cease to exist, Item Identification must be completed and revised to a higher quality type.

263.2 Reason for the Choice of the Method of an Item Identification

When an Item Identification is established by reference or by Partial Descriptive Identification, the reason for the choice of the method must be furnished in the proposed Item Identification with the Reference or Partial Descriptive Method Reason Code - RPDMRC - (DRN 4765) provided in Chapter 5, Sub-Section 553, Table 11.

When the RPDMRC shows the provisional nature of an Item Identification it must be transferred into Type 1, 1A or 1B, or the value of the code changed, within a given period of time decided by each NCB.

Sub-Section 432 – Screening of LSA requests

432.1 General

Within the scope of the international exchange of NATO codification data, reference screening against national Total Item Records - TIR - is required for :

LSA : An NSN with full file data is needed to enter an item of supply in the national TIR, including user registration to keep this information up-to-date.

432.2 Structure and Formatting

432.2.1 For screening actions, structure and formatting of all submitted reference numbers must be in conformity with the rules "NATO Formatting of Reference Numbers" defined in ANNEX A.

432.3 Processing

432.3.1 When processing LSA transactions, each NCB will screen input references against its TIR.

NOTE :

If, upon processing an LSA transaction non-national references after conversion are found to provide an exact match on the identification of another NATO or Tier 2 sponsored country which is already stored in the national TIR, the processing NCB may forward a listing of its screening results (DICs KSR, KMR) to the NCB of the related NSN.

In such cases, Segment J (DIC KMR) will show the reference number(s) in the format as originally submitted.

The above-mentioned listing is entitled "List of References with Exact Match After Conversion".

It serves as information to the recipient NCB so that appropriate action can be taken there.

432.3.2 Automatic screening by Item Name Code (INC) and Part Number against NMCRL shall be programmed into nations' NCS software application tools as part of LSA screening to help ensure that duplicate NSNs are not assigned to different subsidiaries of the same corporation.

Sub-Section 433 - Processing of an LSA transaction

433.1 General

433.1.1 This input transaction shall be applied to :

- request the codification of an item identified
  - by a reference number or group of reference numbers and related manufacturer's code(s);
  - where possible, by physical or performance characteristics data (Segment V/M);
- register the submitter as a user of the corresponding item identification.

433.2 Exact match

433.2.1 There are two required conditions for an exact match between the submitted reference number(s) and related manufacturer's code(s) and an item identification of the TIR, namely:

a. all the references (maximum 3) submitted under one DCN must be present in the TIR with only one NSN. There may, however, be additional references in the TIR for that item identification;

Note: The option to allow additional references is a matter of national discretion.

b. at least one reference existing in the TIR for that NSN, should be accompanied with the following related codes:
   - RNCC (DRN 2910) : 2 or 3;
   - RNVC (DRN 4780) : 2;
   - RNJC (DRN 2750) : Blank.

433.2.2 In addition an exact match can occur when the submitted NCAGE Code has been superseded and the match conditions given above are fulfilled when screening is carried out using the superseding NCAGE Code.

433.2.3 When the exact match conditions are fulfilled, the given output data will be provided as follows:

a. If the NSN has been assigned by the destination NCB, the submitter will be registered as a user of the corresponding item identification/NSN and will receive the complete item identification data (KAT) as if a user registration transaction LAU had been submitted. All the other users of the NSN will receive a notification of registration as user (KAU), for updating of their national TIR;

b. If the NSN has been assigned by another NCB (NCB Code is different from that of its own NCB) no user registration action will be taken but a return notification DIC KRE with Return Code AU will be furnished. The submitting NCB is thereby advised to initiate a request for file data (LTI) or user registration (LAU) directly to the responsible NCB.

433.3 Potential match

The search on the TIR can result in a potential match. This situation exists when one of the submitted references (maximum 3) exists in the TIR but the conditions listed in sub-paragraphs 433.2.1 and 433.2.2 are not fulfilled or the combination of INC / Part Number is recorded on one or more NSNs. The codifying NCB can :

- either choose to process potential matches in house and output complete item identification data (KAT). All the other users of the NSN will receive a notification of registration as user (KAU), for updating of their national TIR
- or send the potential match results (KSR, KMR, KMP) to the submitting country when LSA inputs do not show any RNJC.

Potential match results (KSR, KMR, KMP) associated with LSAs showing RNJC will necessarily be retained by the codifying NCB for appropriate action.

433.4 Match through association

This situation exists when at least one part number submitted in the LSA request matches a part number on the TIR of an existing NSN, but the NCAGE codes are different. To justify further investigation, the recorded NCAGE codes must be associated or related to each other.

Example of association:

- LSA: NCAGE ABCDE / Part Number 123 = ACME Enterprises International Div.
- NSN: NCAGE FGHIJ / Part Number 123 = ACME Enterprises INC.

The processing NCB shall attempt to contact the NCAGE identified in the LSA:

1. If the NCAGE confirms the part number in the LSA is the same as the part number on the existing NSN, the processing NCB shall ask the NCAGE to identify which of the NCAGE codes is correct for use with the part number.
   - If the NCAGE code on the existing NSN is correct, the processing NCB shall process the appropriate K27 response/s (see paragraph 436.4), and if required, shall process an LAU using the DCN recorded on the LSA.
   - If the NCAGE code on the LSA is correct, the processing NCB shall submit the appropriate K27 response/s (see paragraph 436.4) as well as the appropriate maintenance action on the existing NSN. The processing NCB shall use the DCN recorded on the LSA when submitting the maintenance action.
2. If the manufacturer does not, or will not confirm a match, to include no response, the LSA request shall be processed as originally requested under the DCN recorded on the LSA.

The submitting NCB or NSPA will receive KAT and/or KAR data while the other users will receive KAU and/or KAR data. See sub-paragraph 433.2.2 for superseded NCAGE Codes

433.5 No match

The TIR of the destination NCB contains none of the references submitted under the same DCN (KNR). A manual handling is necessary in order to initiate a new item identification.

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