

Final report

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Bar Coding Training Programs

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Abstract

This project was intended to ensure that applicable training material includes relevant uniform bar-coding standard information.

In Stage 1 of the project, all Units of Competency in the MTM11 *Australian Meat Industry Training Package* were reviewed to identify those units which had an association with bar coding – 58 units were identified as being affected.

The Training and Assessment support materials for each Unit of Competency were then updated to address the requirements.

Stage 2 involved the upskilling of meat industry trainers through a Train-the-Trainer program.

Six workshops upskill trainers were held to ensure they are familiar with the requirements of the Red Meat Supply Chain Committee meat industry bar coding information documents, and to use the updated training materials.

Executive summary

Over the last 10 years the red meat industry has agreed to and adopted uniform bar-coding standards for carcase and carton product. Over 90% of export product and a majority of domestic products are compliant to the uniform bar-coding standards.

This project was intended to ensure that applicable training material includes relevant uniform bar-coding standard information.

The project called for the review of existing meat industry training qualifications and support materials with a view to ensuring that the outcomes and requirements of the Red Meat Supply Chain Committee meat industry bar coding information documents are addressed.

In Stage 1 of the project, all Units of Competency in the MTM11 *Australian Meat Industry Training Package* were reviewed to identify those units which had an association with bar coding – 58 units were identified as being affected.

The Training and Assessment support materials for each Unit of Competency were then updated to address the requirements. This involved:

- inclusion of appropriate text and training activities
- identification of reference materials
- updating of assessment tasks to address the changed requirements.

Stage 2 involved the upskilling of meat industry trainers through a Train-the-Trainer program.

Presentations were made immediately prior to six Training Network meetings to upskill trainers to ensure they are familiar with the requirements of the Red Meat Supply Chain Committee meat industry bar coding information documents, and to use the updated training materials.

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1 Background

Over the last 10 years the red meat industry has agreed to and adopted uniform bar-coding standards for carcase and carton product. Over 90% of export product and a majority of domestic products are compliant to the uniform bar-coding standards.

This project was intended to ensure that applicable training material includes relevant uniform bar-coding standards information.

This project covered the review of existing meat industry training qualifications and support materials with a view to ensuring that the outcomes and requirements of the Red Meat Supply Chain Committee meat industry bar coding documents were addressed.

2 Project objectives

Under this project, MINTRAC was to achieve the following objectives:

1. ensure that the outcomes of the Red Meat industry Bar Coding Project are incorporated into the industry training system
2. facilitate consistency of implementation of the Red Meat Supply Chain Committee meat industry bar coding documents throughout the industry.

3 Methodology

3.1 Stage 1 - Review existing meat industry qualifications and training materials to determine where meat industry bar coding information should be included.

3.1.1 Updating Units of Competency

In the original Project brief, four Units of Competency were identified as needing review and attention under this project:

- MTMPS203C Operate scales and semi-automatic labelling machinery
- MTMP2131C Prepare and dispatch meat product orders
- MTMP2063C Operate semi-automatic tagging machine
- MTMPS412A Participate in product recall.

3.1.2 Updating Training and Assessment materials

The contract required the following adjustments to be made to the Training and Assessment materials:

- inclusion of appropriate text and training activities
- identification of reference materials
- updating of assessment tasks to address the changed requirements.

3.2 Stage 2: Upskilling of meat industry trainers

Two-hour workshops were conducted immediately prior to six Training Network meetings from February 2012 - May 2012. These workshops were designed to upskill trainers and relevant industry personnel in the nature and structure of the bar-coding requirements, plus typical operator errors, their implications, and how these can be prevented through applicable training.

4 Results and discussion

4.1 Stage 1 - Review existing meat industry qualifications and training materials to determine where meat industry bar coding information should be included.

4.1.1 Updating Units of Competency

In the original Project Proposal, only four Units of Competency were identified as needing review and attention under this project:

- MTMPS203C Operate scales and semi-automatic labelling machinery
- MTMP2131C Prepare and dispatch meat product orders
- MTMP2063C Operate semi-automatic tagging machine
- MTMPS412A Participate in product recall.

However once the project commenced and the materials already prepared through the Red Meat Supply Chain Committee were received at MINTRAC, it became evident that the GS1 system would affect far more Units than was originally anticipated. Therefore, a review of all 470 Units in the Training Package was undertaken, and fifty-eight Units of Competency were identified as being affected (see Appendix 1).

Once the list of Units had been identified, the content of each Unit of Competency was examined to assess whether changes needed to be made to the unit itself, or just to the Training and Assessment supporting materials. All but one of the Units was assessed as not needing change; a very minor change to the Required Skills and Knowledge section of MTMR304C *Manage stock* is required and will be addressed in future Continuous Improvement changes to the Package.

For each Unit the type of information needed to be added to the training materials was then assessed according to the level of the worker (labourer, skilled worker, supervisor, manager) and the nature of the task (See Appendices 2,3 and 4).

The nominated contact person for the Red Meat Supply Chain Committee was Des Bowler, and the list was validated with him before proceeding with the development of additional text.

4.1.2 Updating Training and Assessment materials

The contract required the following adjustments to be made to the Training and Assessment materials:

- inclusion of appropriate text and training activities
- identification of reference materials
- updating of assessment tasks to address the changed requirements.

4.1.3 Inclusion of appropriate text and training activities

Eleven documents were developed for insertion into the Training and Assessment support materials, and were matched to the Units of Competency. These documents drew on materials and diagrams developed through the Red Meat Supply Chain Committee, as supplied by Des Bowler.

All eleven sheets were sent to Des Bowler to seek endorsement from the Red Meat Supply Chain Committee on 15th November 2011.

In addition, the sheets relating to eDEC were sent to Duncan Bruce-Smith at MLA for comment, at the suggestion of Des Bowler.

Sheets relating to meat retail were sent to Kevin Cottrill at AMIC (National Meat Retail Council), Woolworths and Coles to ensure that the statements and processes described were consistent with the practices of their respective organisations.

Comments from all bodies were incorporated into the final versions of the documents.

4.1.4 Identification of reference materials

References to industry-produced documentation were included in the training materials.

4.1.5 Updating of assessment tasks to address the changed requirements

As the unit requirements were not changed, assessment tasks did not need to be updated.

4.1.6 Production of a supporting CD

A CD containing access to on-line resources, quizzes and a range of useful reference materials was created by Management for Technology to be trialled during the workshops conducted as Stage 2 of this project. This CD has now been made available as a free product through the MINTRAC product catalogue, and has also been cross-referenced to all relevant Units of Competency on the Unit-by-Unit Resources list maintained by MINTRAC and utilised by all meat industry trainers.

4.2 Stage 2: Upskilling of meat industry trainers

Two-hour workshops were conducted immediately prior to six Training Network meetings from February 2012- May 2012.

State	Location	Venue	Date	No. attendees
VIC	Melbourne	Best Western Airport Motel & Convention Centre, 33 Ardlie Street MELBOURNE (Attwood) VIC 3049	Thursday 16 February 2012	15
WA	Perth	Comfort Inn Bel Eyre Motel, 285 Great Eastern Highway, BELMONT WA 6104	Thursday 8 March 2012	7
QLD	Brisbane	Hamilton Hotel, 442 Kingsford Smith Drive, Hamilton QLD 4007	Thursday 15 March 2012	8
NSW	Wagga	Quality Inn Carriage House, corner of Sturt Highway & Eunony Bridge Rd, Wagga Wagga NSW 2650	Friday 20 April 2012	5
SA	Adelaide	Rydges Hotel South Park, Adelaide 1 South Terrace Adelaide SA 5000	Thursday 3 May 2012	8
NSW	Tamworth	Quality Hotel Powerhouse Tamworth, New England Hwy (Armidale Road), Tamworth NSW 2340	Thursday 10 May 2012	7

These workshops were designed to upskill trainers and relevant industry personnel in the nature and structure of the bar-coding requirements, plus typical operator errors, their implications, and how these can be prevented through applicable training.

The standard agenda used for these workshops appears below:

Time	Topic	Speaker	Notes
0800	Introduction	Jenny Kroonstuiver	explain what our project was about; identify the units affected; explain why we are conducting the workshop
0815	GS1/bar coding detail	Des Bowler	overview of system and red meat industry response; explain interaction with system across the supply chain; detail on what the labelling actually means; common problems currently occurring
0930	Changes to the T&A materials	Jenny Kroonstuiver	the vetting process, what changed; how to incorporate into assessment
1000	Question and answer time		
10.30	Finish		

Attendees at the workshops included both trainers and company personnel such as QA Managers, warehouse/logistic supervisors and operators. Many brought along copies of their own labels for scrutiny and the interaction between company personnel and trainers gave rise to considerable discussion about the cost of errors and the role of training in reducing those errors.

It also became evident that for many QA personnel, there was a need for more rigour in their checking systems.

5 Success in achieving objectives

5.1 Ensure that the outcomes of the Red Meat industry Bar Coding Project are incorporated into the industry training system

The Bar Coding requirements are now embedded into the accredited training Units and Training and Assessment materials. Currency will be ensured into the future through the Continuous Improvement processes that underpin Training Packages, and the annual review and update of products conducted by MINTRAC.

MINTRAC is aware that additional Train-the-Trainer workshops may need to be conducted during the second half of 2012. The small attendance numbers at the first round indicated that many trainers and plant personnel did not appreciate the importance of the bar coding training. However, comments from workshop attendees at MINTRAC Network meetings have raised this awareness.

MINTRAC will offer additional workshops under the Professional Development program during the second half of 2012.

5.2 Facilitate consistency of implementation of the Red Meat Supply Chain Committee meat industry bar coding documents throughout the industry

As standard text has been used in the Training and Assessment materials, and this aligns with and is cross-referenced to industry documentation, consistency is assured.

6 Impact on meat and livestock industry – Now and in five years time

6.1 Reduction in operator error

MINTRAC expects that there will be an immediate reduction in operator error as trainers roll out the training. Unfortunately, the scope of this reduction will only be anecdotal, as there was no benchmarking of the cost of operator error prior to the commencement of the project. It was evident in some of the workshops that many plants accepted a surprisingly high level of operator error as standard practice and the only strategies applied were those required to fix up the errors (e.g. additional staff to hand-record data for a whole day), rather than strategies to address the cause of the errors.

6.2 Training system will support the roll-out of the GS1 system across the chain

At the time this project was run, the GS1 system had been substantially implemented with carcass, carton and pallet labelling. However, there was only minimal roll-out in the areas of messaging for National Vendor Declarations (eDEC) and Electronic Meat Transfer Certificates (eMTC).

Now that there is a greater level of trainer awareness, and information about the system has already been included in the training and assessment materials related to eDEC and eMTC, applicable training will be in place to support roll-out across the industry as it occurs.

In addition, trainers and operators will have an appreciation of the whole-of-chain nature and impact of the GS1 system. This will substantially increase awareness of the impact of incorrect coding and operator area to the whole process.

7 Conclusions and recommendations

This project has successfully met the stated objectives.

There are no recommendations arising from this project.

8 Bibliography

MLA (2007) Guide to Information Standards Numbering, Bar Coding and eMessaging for the Australian Red Meat Industry, available at: <http://www.gs1au.org/industry/meat.asp>

Australian Red Meat Industry Technical Fact Sheet - Variable Weight Carton Label, available at <http://www.gs1au.org/industry/meat.asp>

Australian Red Meat Industry Technical Fact Sheet - Variable Weight Carcase Label, available at <http://www.gs1au.org/industry/meat.asp>

Australian Red Meat Industry Technical Fact Sheet - Pallets Labels, available at <http://www.gs1au.org/industry/meat.asp>

Australian Red Meat Industry Technical Fact Sheet - the electronic Meat Transfer Certificate (eMTC) <http://www.gs1au.org/industry/meat.asp>

Australian Red Meat Industry Technical Fact Sheet - the electronic Messaging for Cattle and Sheep National Vendor Declaration (eDEC) System <http://www.gs1au.org/industry/meat.asp>

MLA (2008) Case Study – Supply Chain Management, Electronic meat transfer certificate (eMTC) at Nolan Meats.) <http://www.gs1au.org/industry/meat.asp>

MLA92008) Case Study – Supply Chain Management, Electronic national vendor declaration (eDEC) at Nolan Meats, <http://www.gs1au.org/industry/meat.asp>

MLA (2008) Case Study – Supply Chain Management - GS1 integration along the meat supply chain at Nolan Meats, available at: <http://www.gs1au.org/industry/meat.asp>

9 Appendices

9.1 Appendix 1 – List of affected Units of Competency in Training and Assessment materials

9.1.1 Certificate II in Meat Processing (Abattoirs)

- MTMCOR203A Apply quality assurance practices
- MTMP2011C Identify animals using electronic systems
- MTMP2042C Operate new technology or process
- MTMPS204C Maintain production records
- MTMP2021C Number carcase and head
- MTMP2026B Remove and record tag
- MTMP2063C Operate semi-automatic tagging machine
- MTMP2065C Label and stamp carcase
- MTMP2141C Overview offal processing on the slaughter floor
- MTMP2074C Identify cuts and specifications
- MTMP2075C Pack meat products
- MTMP2081C Operate carton sealing machine
- MTMP2082C Operate carton scales
- MTMP2083C Operate strapping machine
- MTMPSR201C Vacuum pack product
- MTMP2186C Pack and despatch rendered products
- MTMP2132C Load out meat product
- MTMP2133C Store carcase product
- MTMP2134C Store carton product
- MTMP2135C Locate storage areas and product
- MTMP2136C Complete re-pack operation
- MTMP2137B Bag carcase
- MTMPS203C Operate scales and semi-automatic labelling machinery

9.1.2 Certificate III in Meat Processing - Abattoirs qualifications

- MTMCOR203A Apply quality assurance practices
- MTMP3073B Implement food safety program
- MTMP3074B Perform carcase meat hygiene assessment
- MTMP3075B Perform process monitoring for meat hygiene
- MTMP3076B Perform boning room meat hygiene assessment
- MTMP3077B Perform offal Meat Hygiene Assessment
- MTMP3090B Implement a Quality Assurance program for rendering plant
- MTMPS300A Assess product in chillers
- MSL922001A Record and present data

9.1.3 Certificates I – III in Meat Processing - Meat retailing qualifications

- MTMCOR203A Apply quality assurance practices
- MTMR304C Manage stock
- MTMR101C Identify species and meat cuts
- MTMR109B Monitor meat temperature from receipt to sale
- MTMR203C Select, weigh and package meat for sale
- MTMR314B Order stock in a meat enterprise
- MTMSR203C Package product using automatic packing and labelling equipment
- MTMSR204C Despatch meat product

9.1.4 Certificates I-III in Meat Processing - Smallgoods qualifications

- MTMCOR203 Apply quality assurance practices
- MTMPS204C Maintain production records
- FDFOP2007A Work in a freezer storage area
- FDFOP2010A Work with temperature controlled stock
- MTMPSR201C Vacuum pack product
- MTMP2133C Store carcass product
- MTMP2134C Store carton product
- MTMPS300A Operate scales and semi-automatic labelling machinery
- MTMSR203C Package product using automatic packing and labelling equipment
- MTMSR204C Despatch meat product
- MTMS216B Inspect carton meat
- BSBINM302A Utilise a knowledge management system
- FDFOP3002A Set up a production or packaging line for operation
- TLIA2009A Complete and check import/export documentation
- MSL922001A Record and present data

9.1.5 Certificate IV in Meat Processing qualifications

- MTMCOR203A Apply quality assurance practices
- MTMP406A Develop and implement Quality Assurance program for a rendering plant
- MTMCOR402C Facilitate Quality Assurance process
- MTMPS418A Oversee export requirements
- MTMPSR406C Manage and maintain a food safety plan
- MTMPSR407A Assess and evaluate meat industry requirements and processes
- MTMPSR412A Participate in product recall

- MTMPSR413A Participate in ongoing development and Implementation of a HACCP and Quality Assurance system
- MTMPSR414A Establish sampling program
- BSBKRG404A Monitor and maintain records in an online environment
- BSBINM401A Implement workplace information system
- SIRXINV005A Control inventory

9.1.6 Meat Safety Inspection Kit

- MTMCOR203A Apply quality assurance practices
- MTMP3073B Implement food safety program
- MTMP3074B Perform carcass meat hygiene assessment
- MTMP3075B Perform process monitoring for meat hygiene
- MTMP3076B Perform boning room meat hygiene assessment
- MTMP3077B Perform offal Meat Hygiene Assessment
- MTMCOR402C Facilitate Quality Assurance process
- MTMPS418A Oversee export requirements
- MTMPSR413A Participate in ongoing development and Implementation of a HACCP and Quality Assurance system
- MTMPSR414A Establish sampling program
- MSL922001A Record and present data

9.2 Appendix 2 – Sample of changes made to level II training materials

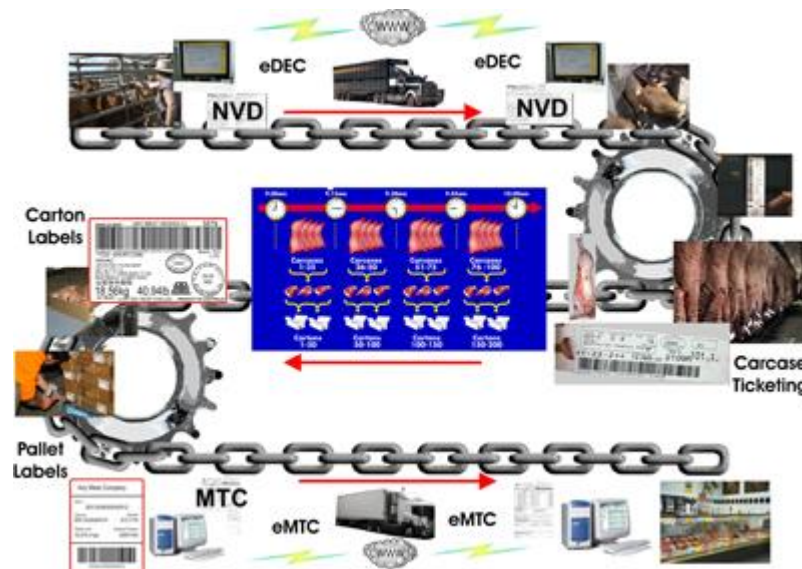
Electronic systems in the meat industry

The red meat supply chain has adopted the GS1 standards for Numbering, Bar coding and Electronic messaging for specific red meat supply chain activities such as:

- carton labelling
- carcass ticketing
- pallet labelling
- electronic messaging for National Vendor Declarations (eDEC)
- Electronic Meat Transfer Certificates (eMTC).

Many meat processing plants have commenced introducing these electronic systems. Therefore meat processing workers need not only be aware that these systems exist, but also of the responsibilities associated with their daily work.

The diagram below shows the red meat supply chain and identifies each of the activities, what the relationship is of each of the activities and their respective importance along the supply chain.



© Meat and Livestock Australia

The implementation is being coordinated by the Red Meat Supply Chain Committee. To date the committee has produced the Australian Red Meat Numbering and Bar coding guidelines for non retail meat products, Message Implementation Guidelines, technical fact sheets, case studies, interactive CDs and a cost benefit analysis relating to project outcomes.

What are GS1 Logistics (pallets) Labels?

The GS1 Logistics label provides information about the unit to which it is fixed. The GS1 Logistics Label can be applied to a single item, or a grouping of several items made up to facilitate the operation of handling, storing and shipping. This can be a carton, a pallet, a container or any other similar type of packaging created for the purpose of handling, storing or shipping.

This information on the Logistics Label is supported and complimented by Application Identifiers and the GS1-128 Symbology. These are important components of the Logistics Label and apply to all of the specifications relating to the logistics label.

The core information on the label should be represented both in bar code and human readable form. There may be other information, which is represented in human readable form only.

Some trading partners may request additional information in a separate bar code above the SSCC. Major supermarket chains may have specific pallet label requirements that are additional to the basic requirements for pallet labels. Check for any specific pallet label requirements and ensure that they are included in the company work instructions and quality assurance programs.

The SSCC is a unique, non-significant, eighteen-digit number, which is assigned by the company constructing the logistic unit. It remains the same for the life of the logistic unit.

Any Meat Company	
SSCC	
39312438000000012	
ITEM No	Quantity
99312438260074	672 CTN
Weight (net)	Shipping Program
18,278.4 kgs	32691005
	
(00)39312438000000012	

© Meat and Livestock Australia

What are the operator's responsibilities in relation to Logistics (pallets) Labels?

Operators handling Logistics Labels would not usually be responsible for setting up and encoding the labels.

However, they will need to check that:

- pallet contents match the label description
- all information on the label is clear and legible
- the print registration is correct and no information has been miss-printed on the label
- the bar code is at least 8mm from any edge
- no crinkling or jamming that may have damaged the bar code has occurred while printing
- labels are correctly positioned on the pallet
- the correct pallet label information has been applied for the customer
- no crinkling or other damage to the label that will stop the bar code being scanned or information being read has occurred
- the label is not be covered by strapping or any other labels or packaging
- no domestic or other manually or automatically applied stamps cover any portion of the bar code or commercial information
- samples are scanned to check that the bar codes are scannable as per company QA program.

9.3 Appendix 3 – Sample of changes made to supervisor level training materials

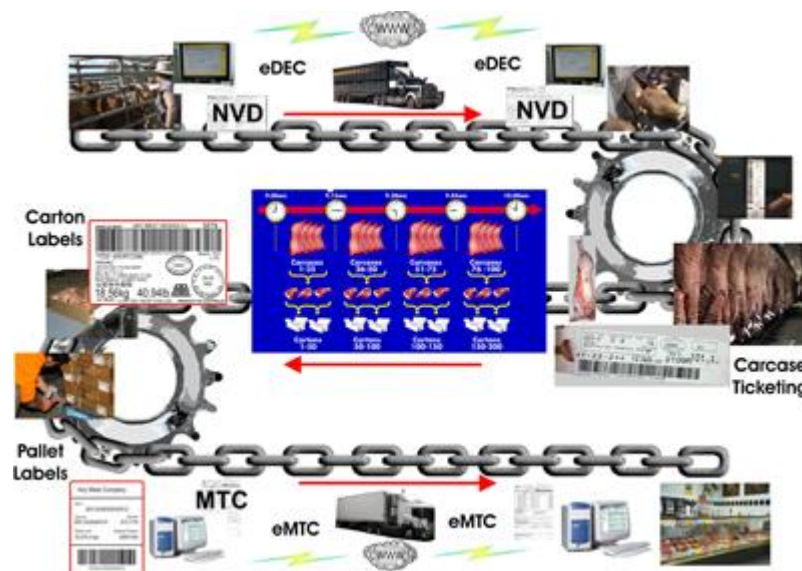
Electronic systems in the meat industry

The red meat supply chain has adopted the GS1 standards for Numbering, Bar coding and Electronic messaging for specific red meat supply chain activities such as:

- carton labelling
- carcase ticketing
- pallet labelling
- electronic messaging for National Vendor Declarations (eDEC)
- Electronic Meat Transfer Certificates (eMTC).

Many meat processing plants have commenced introducing these electronic systems. Meat processing supervisors need not only be aware of the nature and general requirements of these systems, but also be able to identify and rectify errors and to take responsibility for the smooth operation of the system at the plant.

The diagram below shows the red meat supply chain and identifies each of the activities, what the relationship is of each of the activities and their respective importance along the supply chain.



© Meat and Livestock Australia

The implementation is being coordinated by the Red Meat Supply Chain Committee. To date the committee has produced the Australian Red Meat Numbering and Bar coding guidelines for non retail meat products, Message Implementation Guidelines, technical fact sheets, case studies, interactive CDs and a cost benefit analysis relating to project outcomes.

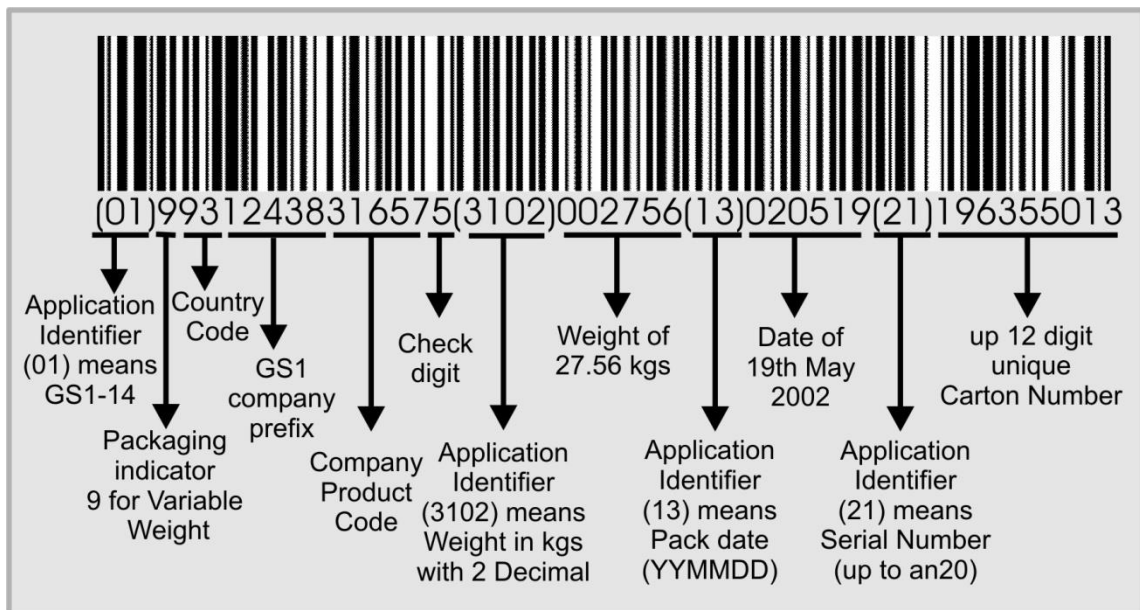
What is a Variable Weight Carton Label?

The Australian red meat industry Standard Variable Weight Carton Label uses Bar code symbology known as GS1-128. The GS1-128 bar code allows primary item information and secondary attribute information to be represented in the bar code. Application Identifiers (AIs) effectively act as prefixes for this information and define the meaning and structure of the embedded data.

GS1 Australia allocates a parcel of numbers to member companies. These numbers include a GS1 Company Prefix to identify the company and a range of numbers to identify products (which members themselves allocate sequentially), followed by a Check Digit which is mathematically calculated to verify that the details of the GS1 number (GTIN) are correct.

The system also allows the meat processor to represent attribute information such as batch numbers, serial numbers, expiry dates and weight in a standard format. This ensures that the attribute information encoded by one company can also be scanned and interpreted by any other company in the supply chain.

Below is an explanation of the construction of the bar code.



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What are a supervisor’s responsibilities in relation to Variable Weight Carton Labels?

The supervisor has a responsibility to ensure:

- that the minimum bar code information required (represented by Application Identifiers (AIs)) is accurate and is formatted correctly
- that the maximum length, magnification and height of bars of the bar codes conforms to the requirements described in the Technical Fact Sheet
- that the Application Identifiers (AIs) are clearly recognisable by placing them in brackets in the human readable interpretation
- that the bar code symbols are placed according to the specifications in the Technical Fact Sheet.

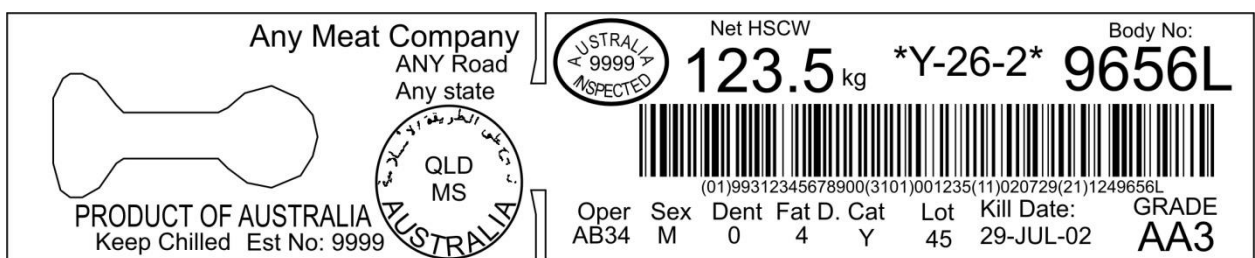
What are Variable Weight Carcass labels?

Australian red meat industry standard Variable Weight Carcass Labels use bar code symbology known as GS1-128.

The GS1-128 Bar Code Symbol allows primary item identification and secondary attribute information to be represented in the bar code. Application Identifiers (AIs) effectively act as prefixes for this information and define the meaning and structure of the embedded data which follows.

The system also allows a processor to represent attribute information such as weight, slaughter date and serial numbers in a standard format. This ensures that the attribute information encoded by one company can also be scanned and interpreted by any other company in the supply chain.

An example of a carcass label appears below.



© Meat and Livestock Australia

What are a supervisor's responsibilities in relation to Variable Weight Carcase Labels?

The supervisor has a responsibility to ensure:

- that the minimum bar code information required (represented by Application Identifiers (AIs)) is accurate and is formatted correctly
- that the maximum length, magnification and height of bars of the bar codes conforms to the requirements described in the Technical Fact Sheet
- that the Application Identifiers (AIs) are clearly recognisable by placing them in brackets in the human readable interpretation.

What are GS1 Logistics (pallets) Labels?

The GS1 Logistics label provides information about the unit to which it is fixed. The GS1 Logistics Label can be applied to a single item, or a grouping of several items made up to facilitate the operation of handling, storing and shipping. This can be a carton, a pallet, a container or any other similar type of packaging created for the purpose of handling, storing or shipping.

This information on the Logistics Label is supported and complimented by Application Identifiers (AIs) and the GS1-128 Symbology. These are important components of the Logistics Label and apply to all of the specifications relating to the logistics label.

The core information on the label should be represented both in bar code and human readable form. There may be other information, which is represented in human readable form only.

Some trading partners may request additional information in a separate bar code above the SSCC. Major supermarket chains may have specific pallet label requirements that are additional to the basic requirements for pallet labels. Check for any specific pallet label requirements and ensure that they are included in the company work instructions and quality assurance programs.

The SSCC is a unique, non-significant, eighteen-digit number, which is assigned by the company constructing the logistic unit. It remains the same for the life of the logistic unit.

Below is an example of a pallet label.

Any Meat Company	
SSCC 393124380000000012	
ITEM No 99312438260074	Quantity 672 CTN
Weight (net) 18,278.4 kgs	Shipping Program 32691005
	
(00)393124380000000012	

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What are a supervisor's responsibilities in relation to GS1 Logistics (pallets) Labels?

The supervisor must ensure that:

- the allocated SSCC (a unique, non-significant, eighteen-digit number, which is assigned by the company constructing the logistic unit) is encoded in a GS1-128 Bar Code Symbol, and is identified by the Application Identifier (00)
- that an individual SSCC number is not reallocated within one year of the shipment date from the SSCC assignor to a trading partner
- the accuracy and placement of the Application Identifier (AI)
- the accuracy and placement of the Extension Digit
- the accuracy and placement of the GS1 Company Prefix
- the accuracy and placement of the Serial Reference
- the calculation of the Check Digit which ensures the whole number is correct

- that any other labelling information over and above the SSCC complies with the specification of the Technical Fact Sheet and with the proper use of AIs
- that the label layout conforms to the specification in the Technical Fact Sheet
- that the Bar Code Symbol specifications, including magnification, height of bars, human readable information, and label location are correctly applied.

What is the electronic Messaging for Cattle and Sheep National Vendor Declaration (eDEC) System?

The eDEC system is a means to communicate between trading partners:

- producer to producer
- producer to saleyard
- producer to feedlot
- producer/ feedlot/ saleyard to abattoir)

using common standards. The eDEC system is based on the use of the GS1 system and specifically EANCOM messaging standards.

The livestock declarations (NDV, Waybill, MSA declaration) and commercial consignment information can be represented in the standard EANCOM Despatch Advice message that is used for information related to consignments and commercial information transmission between businesses.

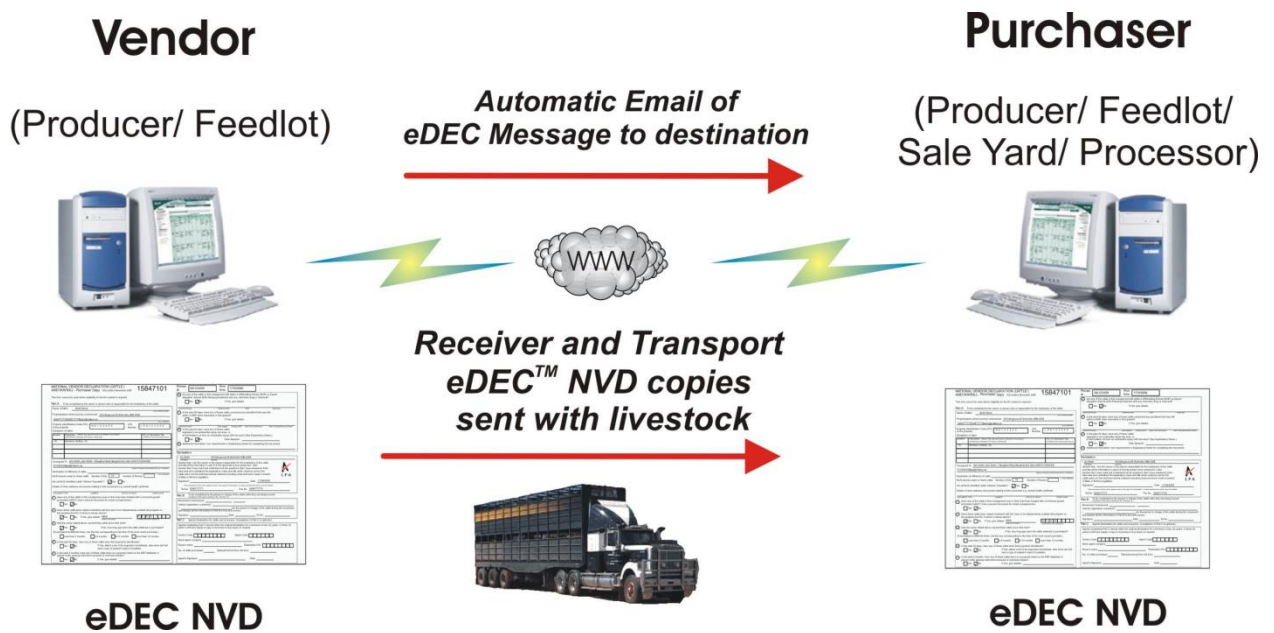
The requirement for efficiently sending industry and company specific commercial information electronically between businesses is also included in the eDEC system.

The electronic Livestock Declaration (NDV, Waybill, MSA declaration and NFAS declarations) eDEC system works by recording the required declaration and commercial information by the consignor (sender). The information is then sent electronically to the consignee. A duplicate declaration docket is generated and is signed by the consignor. The original is sent with the consignment and the duplicate is kept with the consignor.

When the consignee (receiver) receives the physical shipment they check it against the eDEC and if all is correct then generate a receipt message. This message is automatically emailed back to the consignor (sender).

The eDEC system uses the EANCOM Despatch Advice message for the consignment details and the EANCOM Receiving Advice message for the proof of delivery.

Below is a diagrammatic explanation of the eDec system.



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What are the supervisor’s responsibilities in relation to the eDEC system?

The supervisor should be familiar with the technical elements of the eDEC system, security issues to be considered, methods to send and receive messages and the regulatory considerations.

The specifications for the eDEC system are described in the Australian Red Meat Industry Technical Fact Sheet - the electronic Messaging for Cattle and Sheep National Vendor Declaration (eDEC) System.

In particular, the supervisor's responsibilities include:

- ensuring the security and application of the company password
- management and storage of original and duplicate documents
- correlating actual numbers received on site with what was provided in the emailed NVD, following up inconsistencies in members and recording discrepancies
- identifying errors or possible issues with the way questions have been answered in the emailed NVD and taking appropriate action according to company procedures (e.g. telephoning the producer to seek additional information)
- checking that all critical pieces of information have been correctly entered (including signatures) and any invalid information is identified and correct information provided
- ensuring that the common information (such as the trading names, address and phone number of a specific property) held in the eDEC message creator tool is accurate
- ensuring that reports printed showing the consignment details are matched to the physical consignment
- checking that the EANCOM Receiving Advice receipt message is created and then sent via email to the required consignor and nominated AQIS recipient
- addressing and resolving errors identified in the reports
- ensuring that records of matched messages are filed electronically and manually and held for the statutory period
- ensuring that the EANCOM Quality Test Report message is generated, checked and provided to the consignee, according to company procedures.

What are the Electronic Meat Transfer Certificates (eMTC)?

The eMTC system is a means to communicate between trading partners using common standards. The eMTC system is based on the use of the GS1 system and specifically GS1 EANCOM messaging standards.

The Electronic Meat Transfer Certificate (eMTC) system is based on industry trials that involved the development of the EANCOM Despatch Advice message for the export of carton product matching the health certificates MLA trial completed in 2003.

The EANCOM Despatch Advice message implementation guidelines for export product were expanded to take into account the specific requirements of Meat Transfer Certificates. This included the requirements for an EANCOM Receiving Advice message for the proof of delivery (Attestation of Receiving Official).

The requirement for efficiently sending commercial information electronically between businesses was also considered and included in the eMTC system.

The Electronic Meat Transfer Certificate (eMTC) system works by recording the required MTC information by the consignor (sender). The information is then sent electronically to both the consignee (receiver), AQIS central recording systems and where relevant to the nominated AQIS on-plant email address.

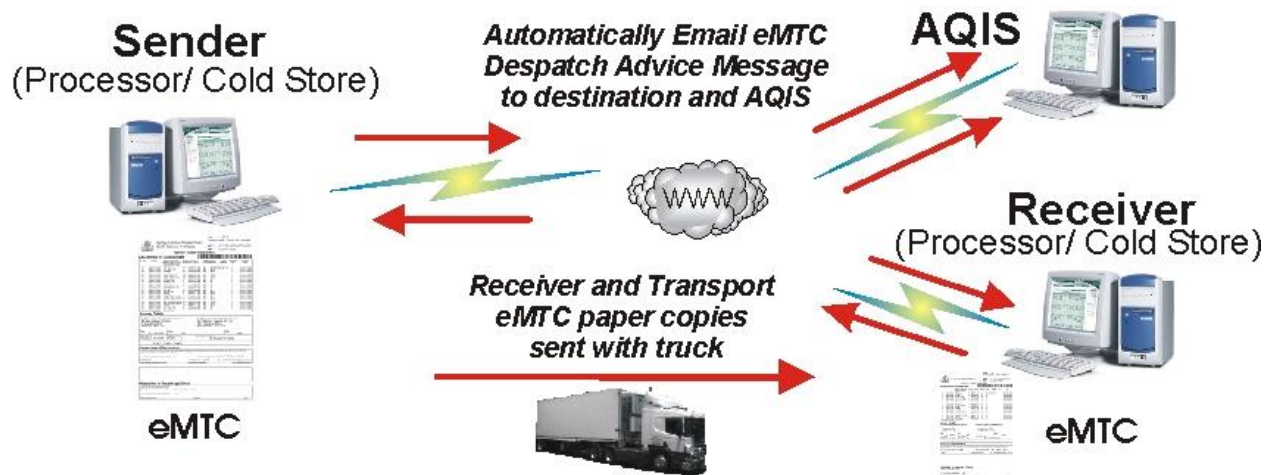
A 'look-a-like' MTC form can be printed to accompany the consignment and/or for record keeping.

When the consignee (receiver) receives the physical shipment the consignee checks it against the eMTC and if all is correct generates a receipt message.

This message is automatically emailed back to the consignor (sender) and the AQIS officer.

The eMTC system uses the EANCOM Despatch Advice message for the consignment details and the EANCOM Receiving Advice message for the proof of delivery.

Below is a diagrammatic explanation of the eMTC process.



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What are the supervisor's responsibilities in relation to the eMTC?

The supervisor has a responsibility to ensure that the technical elements of the eMTC system are observed, security issues are managed, methods to send and receive messages and the regulatory (Meat Export Orders, acts and codes of conduct) are observed.

These requirements are described in detail in the Australian Red Meat Industry Technical Fact Sheet - the electronic Meat Transfer Certificate (eMTC)

In particular, these responsibilities include ensuring:

- the security and application of the company password
- that emailed GS1 EANCOM messages for each consignment are matched to the physical consignment
- that any errors identified between the GS1 EANCOM message and the physical consignment details are identified, reports are created showing the errors and action taken on the identified errors
- that the nominated AQIS recipient of the eMTC messages about consignments receives the messages

- that Message Details conform to the EANCOM Despatch Advice Message Implementation Guidelines and the EANCOM Receiving Advice Message Implementation Guidelines
- that System Vendor solutions print a paper MTC in the format that is approved AQIS and which conform, to the specifications described in the Technical Fact Sheet - the electronic Meat Transfer Certificate (eMTC)
- that all printed documents conform to the specifications described in the Technical Fact Sheet - the electronic Meat Transfer Certificate (eMTC), and are stored appropriately.

9.4 Appendix 4 – Sample of changes made to management level training materials

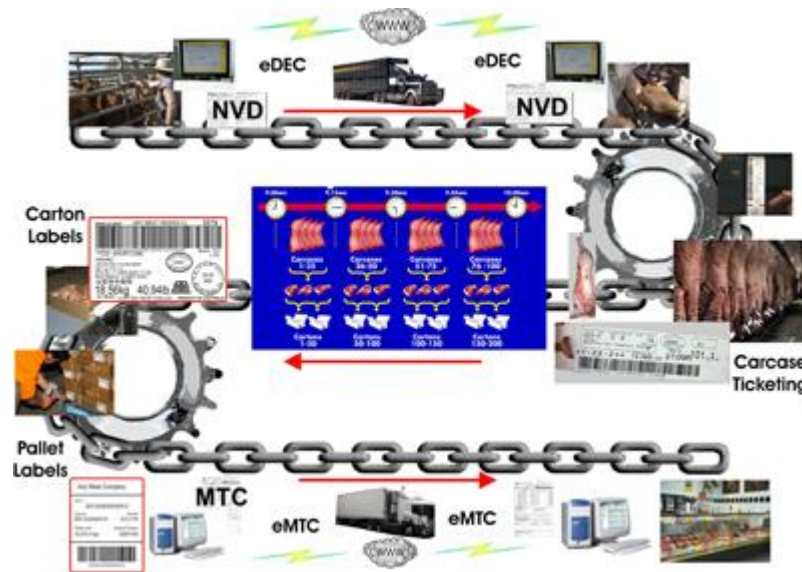
Electronic systems in the meat industry

The red meat supply chain has adopted the GS1 standards for Numbering, Bar coding and Electronic messaging for specific red meat supply chain activities such as:

- carton labelling
- carcass ticketing
- pallet labelling
- electronic messaging for National Vendor Declarations (eDEC)
- Electronic Meat Transfer Certificates (eMTC).

Many meat processing plants have commenced introducing these electronic systems. Meat Processing managers need not only be aware of the nature and general applications of these systems, but also be able to assess and evaluate their application to and operation within their meat processing plants.

The diagram below shows the red meat supply chain and identifies each of the activities, what the relationship is of each of the activities and their respective importance along the supply chain.



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The implementation is being coordinated by the Red Meat Supply Chain Committee. To date the committee has produced the Australian Red Meat Numbering and Bar coding guidelines for non retail meat products, Message Implementation Guidelines, technical fact sheets, case studies, interactive CDs and a cost benefit analysis relating to project outcomes.

There are three distinct components to the GS1 system:

- standard numbering structures for the identification of goods, services, shipments, assets and locations
- data carriers to represent the identification numbers in machine readable format
- eMessaging standards to transmit the captured data between trading parties.

Of these three areas, the key component of the GS1 System is the numbering structure used for identification.

Why has the red meat processing industry adopted the GS1 system?

GS1 global standards provide for the unique identification of all trade items, services, logistic units, consignments, assets, documents, relationships, parties and locations at any point in the supply chain.

The use of global standards for numbering, bar coding and eMessaging offers benefits to all parties in the red meat industry supply chain by reducing costs, saving time, providing traceability and increasing accuracy through management of the entire supply chain.

<p>For all trading partners, benefits include:</p>	<p>For Livestock Production (breeding, backgrounding and finishing), benefits include:</p>	<p>For Domestic Processing (slaughter, boning, cold store, value adding, retail ready, by-product/ co-products) benefits include:</p>
<ul style="list-style-type: none"> • The ability to identify goods and shipments quickly and accurately • Track forward and trace back of products • Faster delivery of goods • Fewer handling and shipping errors • Better inventory management and reduced inventory holdings • Reduction of order and replenishment times 	<ul style="list-style-type: none"> • The ability to identify livestock (mobs and individuals) and consignments quickly and accurately (refer to NLIS) • Electronic NVD, Waybills and other regulatory and market access forms (eDEC) • Producer feedback matched to properties, mob and even individual animals 	<ul style="list-style-type: none"> • The ability to identify carcasses, cartons, bulk packs, pallets and shipments quickly and accurately • Compliance with customer (retail or export) requirements for bar coding • Track forward and trace back from slaughter to retail shelf • Integration with the National Livestock Identification Scheme (NLIS) • Ability for using eMessaging for NVDs, Waybills, Meat Transfer

		Certificates, producer feedback <ul style="list-style-type: none"> • Compliance with customer traceability requirements
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A trial program implemented at Nolan Meats in 2008 identified significant benefits to the meat industry in moving to an e-business environment. The project demonstrated the implementation of internationally accepted standards and the benefits of a standard system.

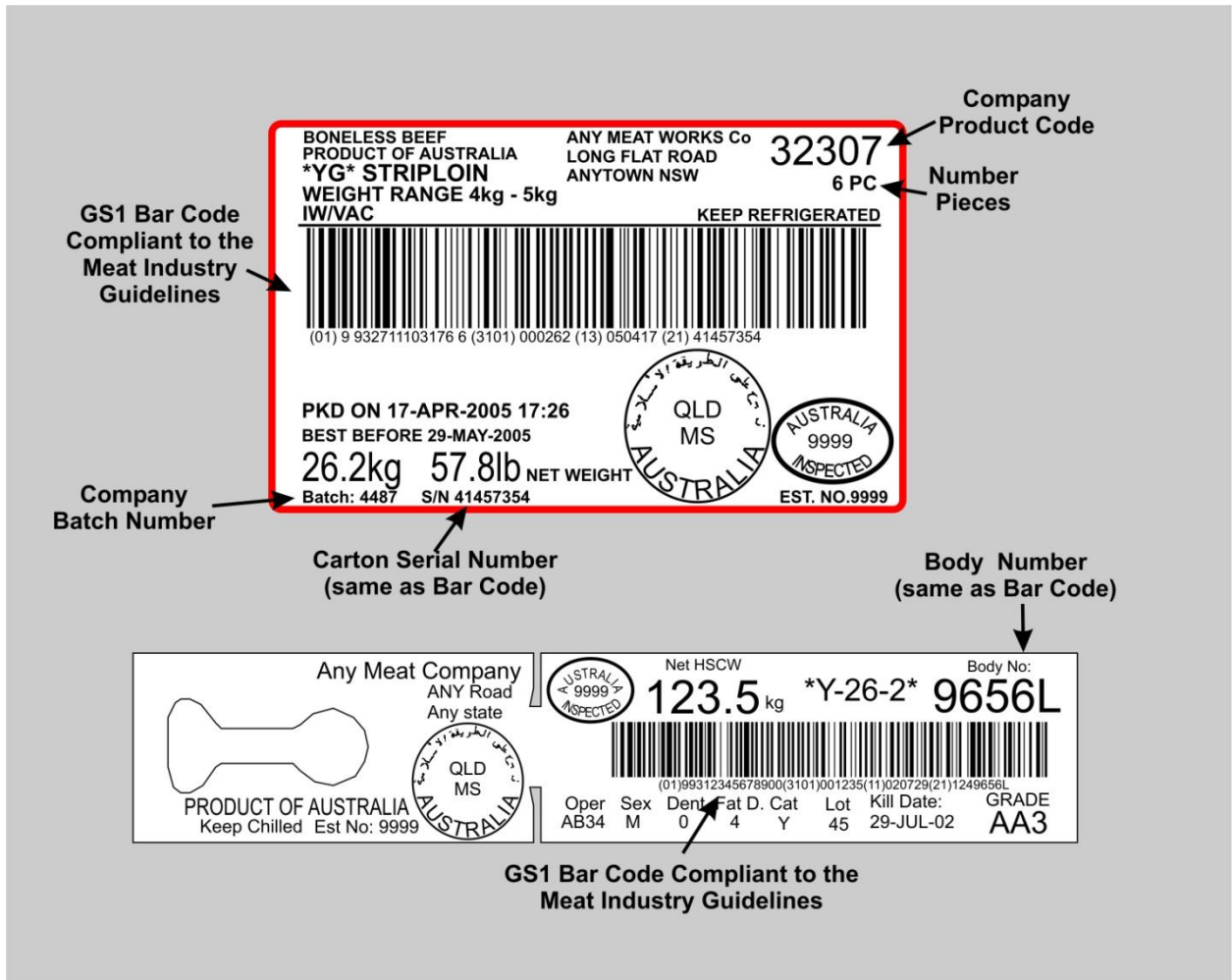
Carton and carcass labels

The Australian red meat industry Standard Variable Weight Carton Label and Variable Weight Carcass Labels use Bar code symbology known as GS1-128. The GS1-128 bar code allows primary item information and secondary attribute information to be represented in the bar code. Application Identifiers (AIs) effectively act as prefixes for this information and define the meaning and structure of the embedded data.

GS1 Australia allocates a parcel of numbers to member companies. These numbers include a GS1 Company Prefix to identify the company and a range of numbers to identify products (which members themselves allocate sequentially), followed by a Check Digit which is mathematically calculated to verify that the details of the GS1 number (GTIN) are correct.

The system also allows the meat processor to represent attribute information such as batch numbers, serial numbers, expiry dates and weight in a standard format. This ensures that the attribute information encoded by one company can also be scanned and interpreted by any other company in the supply chain.

Following is an explanation of the coding system used on carcass and carton labels.



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Introduction

Trade items consisting of a single unit are identified with a unique Global Trade Item Number (GTIN).

Standard groupings of identical or different units are identified with a separate, unique Global Trade Item Numbers (GTINs).

There are two main types of trade items utilised - retail trade items and non-retail trade items:

- a retail trade item is any item that is intended to be sold to the final consumer through retail POS

- a non-retail trade item is any item that is traded between companies and not primarily intended for sale to consumers at retail POS.

The reason for this distinction is the differing requirements for retail and non-retail numbers and bar codes.

Re-using numbers

A deleted Global Trade Item Numbers (GTINs) must not be re-used for a minimum of four years after the date a product was last issued into the marketplace. When re-issuing GTINs, give consideration to the product type and its possible life in the market. It may be advisable for some trade items to never re-issue GTINs.

Creating a GTIN-14

The GTIN-14 number is created by the company applying the bar code. A variable weight indicator of 9 is used on carcasses and carton bar codes and must be completed with the measure information.

Specifications

The specifications for the Variable Weight Carton Labels are described in Australian Red Meat Industry Technical Fact Sheet - Variable Weight Carton Label . It is essential that responsible supervisors and operators are familiar with the requirements and able to quickly identify and rectify errors.

The specifications for the Variable Weight Carcass Labels are described in Australian Red Meat Industry Technical Fact Sheet - Variable Weight Carcass Label .

Pallets and shipments

Logistic Units Numbering and Bar Coding

A logistic unit is an item of any composition established for transport and/or storage, which needs to be managed through the supply chain, and may include cartons and pallets. The Serial Shipping Container Code (SSCC) is a standard identification number, used for the unique identification of logistic (transport and/or storage) units.

At various points on the way from sender to final recipient, the bar code can be scanned to identify the shipment. The unique number encoded in the bar code will also be used in electronic messages regarding the shipment's progress, allowing all participants in the transport and distribution chain to access the information. A SSCC is a unique 18 digit number. If your company is a member of GS1 Australia the following structure will apply:

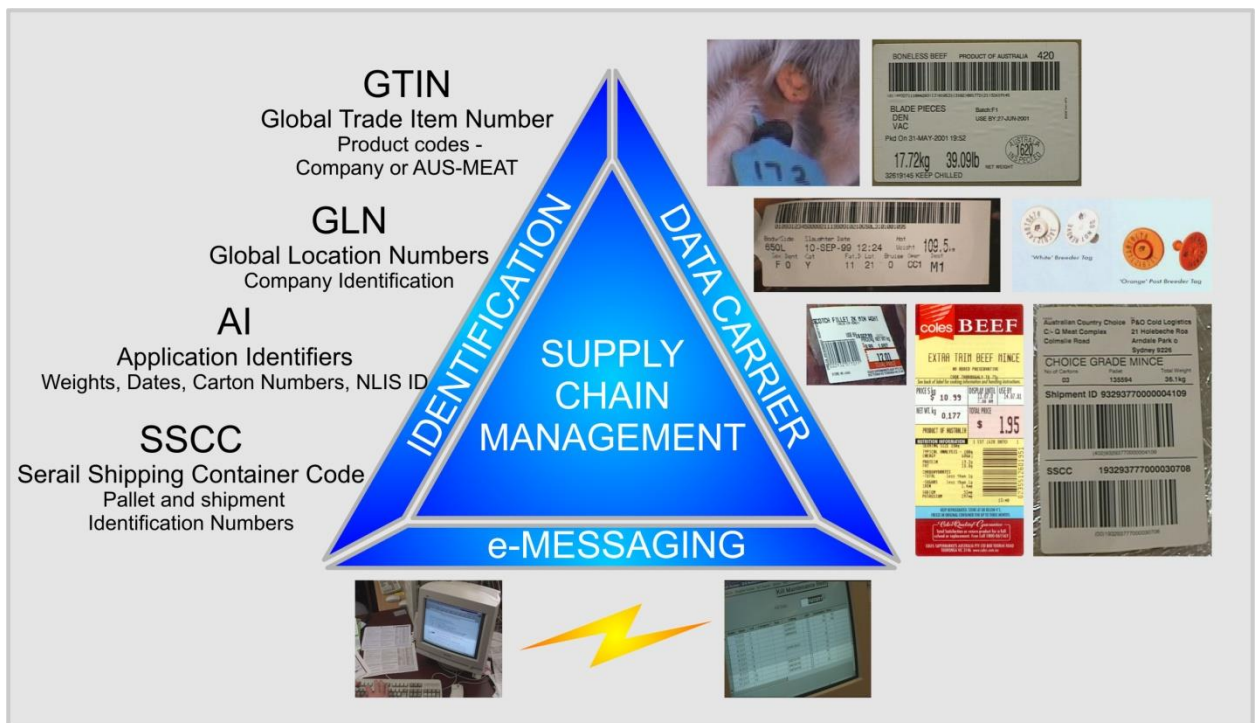
- Application Identifier: (00)
- Extension Digit or Packaging Indicator: Single digit between 0-9 used to increase the capacity of the Serial Reference within the SSCC
- Country Prefix: two digits to identify the nationality of the issued number
- GS1 Company prefix: five, six or seven digit number to identify the company issuing the number
- Serial Reference: Uniquely identifies a shipping unit and is issued sequentially by the shipping company. The number must not be re-used for at least 12 months
- Check Digit: Mathematically verifies the validity of the whole number

When coupled with an electronic delivery device, the value of the SSCC comes from its ability to identify a shipment regardless of its contents. For example, some shipments may consist of pallets or containers of the one product while others could be shipments of mixed products or single products.

In each case, the shipment receives a unique number and this SSCC identifies that shipment for its lifetime within the transport and distribution chain.

The specifications for logistics labels are described in Australian Red Meat Industry Technical Fact Sheet - Pallets Labels.

Below is a diagrammatic representation of the logistics system.



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Electronic Messaging for Cattle and Sheep National Vendor Declaration (eDEC) System

The eDEC system is a means to communicate between trading partners:

- producer to producer
- producer to saleyard
- producer to feedlot
- producer/ feedlot/ saleyard to abattoir)

using common standards. The eDEC system is based on the use of the GS1 system and specifically EANCOM messaging standards.

The livestock declarations (NDV, Waybill, MSA declaration) and commercial consignment information can be represented in the standard EANCOM Despatch Advice message that is used for information related to consignments and commercial information transmission between businesses.

The requirement for efficiently sending industry and company specific commercial information electronically between businesses is also included in the eDEC system.

The electronic Livestock Declaration (NDV, Waybill, MSA declaration and NFAS declarations) eDEC system works by recording the required declaration and commercial information by the consignor (sender). The information is then sent electronically to the consignee. A duplicate declaration docket is generated and is signed by the consignor. The original is sent with the consignment and the duplicate is kept with the consignor.

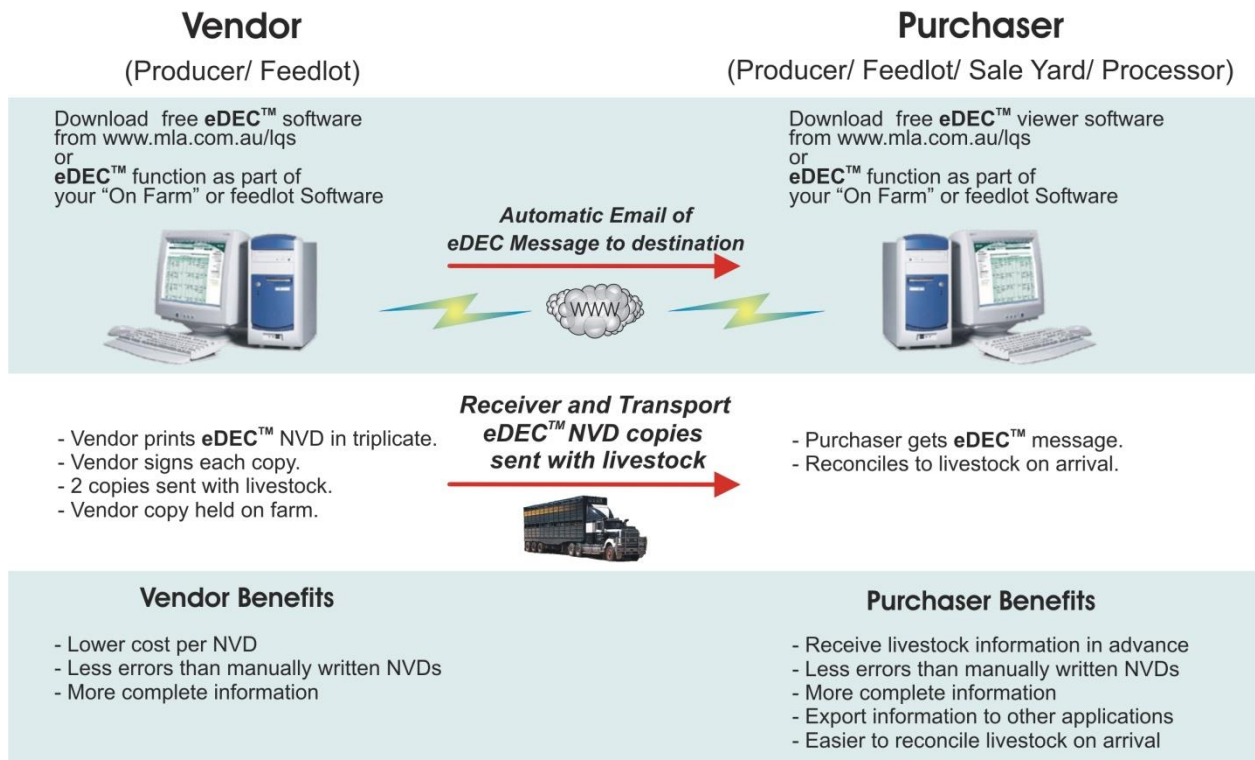
When the consignee (receiver) receives the physical shipment they check it against the eDEC and if all is correct then generate a receipt message. This message is automatically emailed back to the consignor (sender).

The eDEC system uses the EANCOM Despatch Advice message for the consignment details and the EANCOM Receiving Advice message for the proof of delivery.

The specifications for the eDEC system are described in the Australian Red Meat Industry Technical Fact Sheet - the electronic Messaging for Cattle and Sheep National Vendor Declaration (eDEC) System.

The eDEC system was trialled at Nolan Meats in 2008. This case study looks at how the electronic national vendor declaration (eDEC) system was used by Nolan Meats as part of their supply chain integration project. Yearly savings for Nolan Meats on time saved in cattle dispatch were estimated to be around \$65,000 with a return on investment in approximately two years.

Below is a diagrammatic explanation of the eDEC system.



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Electronic Meat Transfer Certificates (eMTC)

The eMTC system is a means to communicate between trading partners using common standards. The eMTC system is based on the use of the GS1 system and specifically GS1 EANCOM messaging standards.

The Electronic Meat Transfer Certificate (eMTC) system is based on industry trials that involved the development of the EANCOM Despatch Advice message for the export of carton product matching the health certificates MLA trial completed in 2003.

The EANCOM Despatch Advice message implementation guidelines for export product were expanded to take into account the specific requirements of Meat Transfer Certificates. This included the requirements for an EANCOM Receiving Advice message for the proof of delivery (Attestation of Receiving Official).

The requirement for efficiently sending commercial information electronically between businesses was also considered and included in the eMTC system.

The Electronic Meat Transfer Certificate (eMTC) system works by recording the required MTC information by the consignor (sender). The information is then sent electronically to both the consignee (receiver), AQIS central recording systems and where relevant to the nominated AQIS on-plant email address.

A 'look-a-like' MTC form can be printed to accompany the consignment and/or for record keeping.

When the consignee (receiver) receives the physical shipment the consignee checks it against the eMTC and if all is correct generates a receipt message.

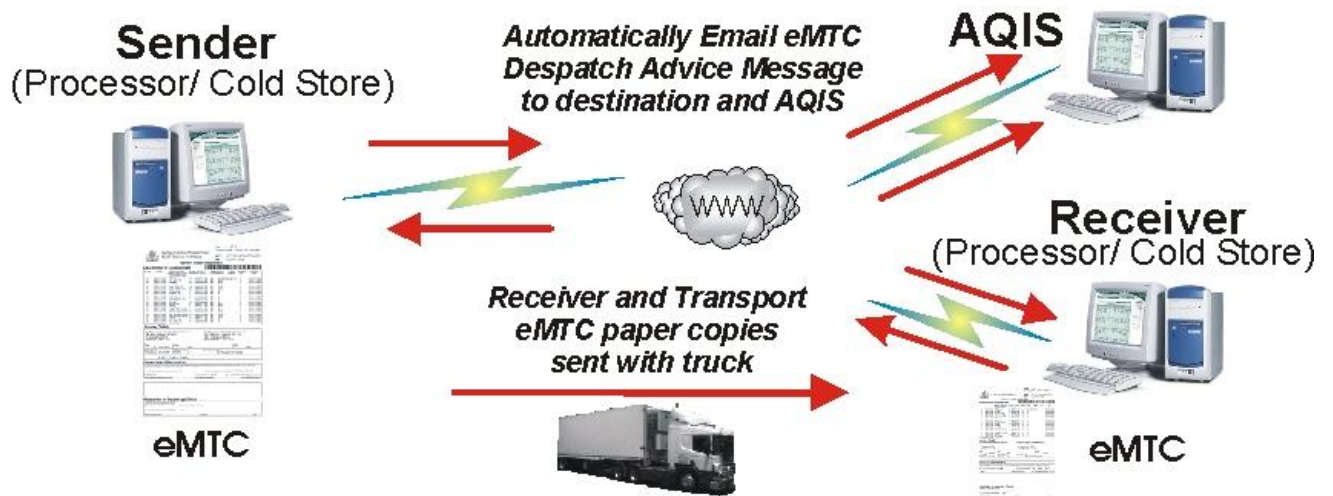
This message is automatically emailed back to the consignor (sender) and the AQIS officer.

The eMTC system uses the EANCOM Despatch Advice message for the consignment details and the EANCOM Receiving Advice message for the proof of delivery.

These specifications are described in detail in the Australian Red Meat Industry Technical Fact Sheet - the electronic Meat Transfer Certificate (eMTC)

The system was trialled at Nolan Meats in 2008. This case study looks at how the electronic meat transfer certificate (eMTC) system was utilised by Nolan Meats as part of a supply chain integration project.

Below is a diagrammatic representation of the eMTC system.



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Implementing the GS1 system

Making a Start

It is important to understand that full implementation does not have to take place in one step. A proper business plan will help to carry out the process over an extended period of time, which can smooth the impact of cultural, operational and organisational changes.

Implementation or just compliance?

Partial implementation of the GS1 System - possibly to comply with the needs of a trading partner - should not be confused with a planned implementation of the system with a clear objective of achieving desired operational and administrative efficiencies.

Compliance will bring benefits to a relationship with a trading partner. Implementation offers the full spectrum of cost savings and benefits.

There are strategic reasons to implement the GS1 System; for example, when your organisation wishes to introduce the benefits of efficient supply chain management throughout all departments, extend into the supply chains of other business partners and create a free flow of information between all parties involved to effect costs and efficiencies.

There are also tactical reasons; for example when your organisation wishes to achieve efficiencies in specific business procedures such as inventory or production control, based on the additional flow of information enabled by the adoption of GS1 numbering and bar coding.

Steps to Implement

The GS1 Standards have been available and used in many industries, including the red meat industry for more than ten years so your system vendors should know about the GS1 System. Almost all bar code printers that are less than eight years old can print the GS1 Bar Codes.

There are several steps that need to occur to implement the GS1 System successfully in your organisation.

The steps defined here have been tailored to suit different size organisations operating in the red meat industry. These steps should be used in conjunction with the applicable technical fact sheet.

For a processor who is currently applying bar coded carcass tickets and/ or carton labels:

1. Check your carcass ticket system and/ or carton labelling system is GS1 capable by contacting your system vendor. If not then enquire whether it can be upgraded to become GS1 capable.
2. Apply to GS1 Australia to become a member and obtain a GS1 Company Prefix number. This number makes up a component of your bar code and uniquely identifies your company.
3. Review your product codes for compatibility with the GS1 System. Options for product numbers (GTINs) are:

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- .. Match your product codes to the bar code number product codes (GTIN).
 - .. Use different bar code products codes to you human readable product codes and use the scanners and computer to match the different numbers.
4. Generate some test carton label / carcass tickets and confirm that the bar code number matches the requirements outlined in the applicable technical fact sheets
 5. Send some samples bar codes to GS1 Australia for verification.
 6. Once you receive a satisfactory verification report, start using the GS1 compliant numbering and bar coding on your carcass tickets/ carton labels.

For a processor who is not currently applying bar coded carcass tickets and/ or carton labels:

1. Check your carcass ticket system and/ or carton labelling system is GS1 capable by contacting your system vendor. If not then enquire whether it can be upgraded to become GS1 capable.
2. Once you have a carton labelling/ carcass ticketing system that can generate the GS1 Bar Codes, apply to GS1 Australia to become a member and obtain a GS1 Company Prefix number. This number is incorporated into your bar code and uniquely identifies you.
3. Review your product codes for compatibility with the GS1 System. Options for product numbers are:
 - .. Match your product codes to the bar code number product codes (GTIN).
 - .. Use different bar code products code to you human readable product codes and use the scanners and computer to match the different numbers.
4. Generate some test carton label / carcass tickets. Confirm that the bar code number matches the requirements outlined in the applicable technical fact sheets.
5. Send some samples to GS1 Australia for verification. You will receive a verification report.
6. Once you receive a satisfactory verification report, start using the GS1 compliant numbering and bar coding on your carcass tickets/ carton labels.

For a processor or cold store that is not currently applying GS1 (SSCC) Pallet labels:

1. Determine where and when the pallet labels will be applied. This will most likely be where the pallets are scanned and wrapped. You will need to have a computer and bar code label printer as well as suitable software at that location. Check with the vendors that any system offered is GS1 capable.
2. Once you have a pallet labelling system that can generate GS1 SSCC Bar Codes, apply to GS1 Australia to become a member and obtain a GS1 Company Prefix number. This number is part of your SSCC bar code and uniquely identifies you.
3. You may prepare pallet labels for cartons that you have produced or that have arrived into your cold store.
4. Generate some test pallet labels and see that the bar code number matches the requirements outlined in the applicable technical fact sheets
5. Send some samples to GS1 Australia for verification.
6. Once you receive a satisfactory verification report, start using the GS1 compliant numbering and bar coding on your pallet labels.