

GENIUS™

OUTPUT FORMATTER ADD ON QUICK GUIDE



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Genius™ Output Formatter Add On Quick Guide

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1 GENERAL OVERVIEW

1.1 INTRODUCTION

The Genius™ Output Formatter Add On provides a simple graphical interface to easily manage the output string formatting for 2KN family, 6K family, 8KA family and SC6000 devices.

This add on allows to:

- configure the codes to be read in a wide range of symbologies (Codes Definition)
- configure the decoding rules used by the scanner during the normal working (Code Combination)
- select between two different kinds of output formatting (Standard and Advanced)

Advanced output formatting allows to manage the output string messages in a flexible way by means of a simple graphical interface. Moreover, it allows to configure up to 5 different output message formats for different communication interfaces.

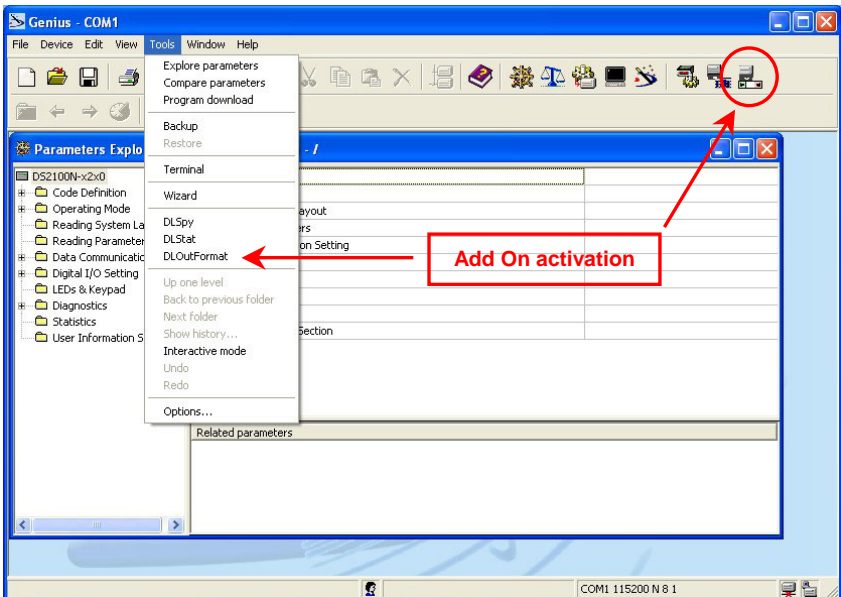


Figure 1 - DL Output Formatter Add On activation

2 CODES DEFINITION

The **Codes Definition** window allows to configure:

- Code Combination
- Codes
- No Read Message
- Multiple Read Message

2.1 CODE COMBINATION

The **Code Combination** parameter allows to define the decoding rule used by the scanner during the normal working mode.

Refer to the Genius™ Help On Line of to the selected device for more details.

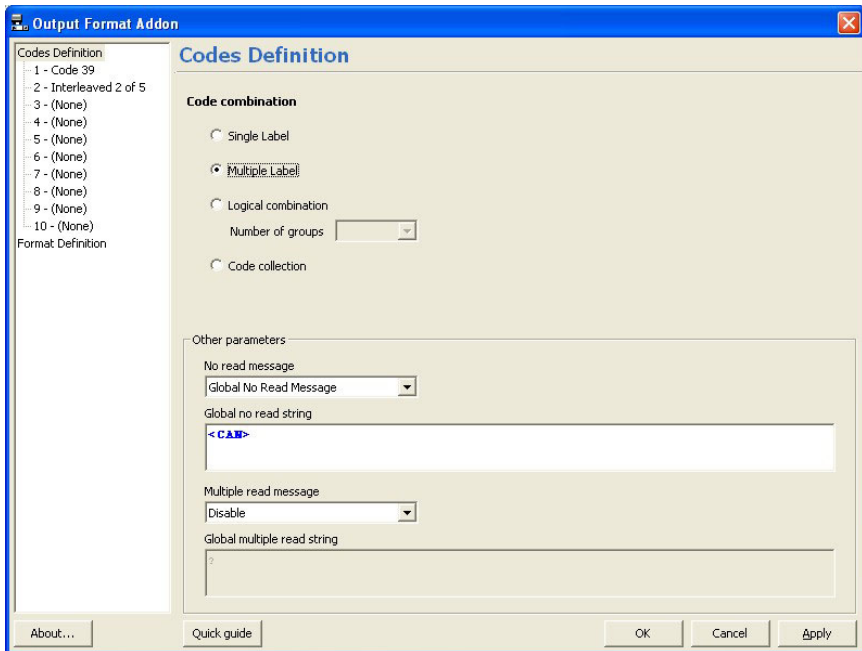
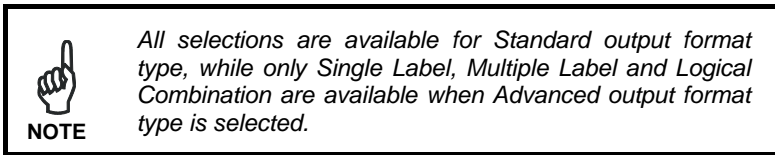


Figure 2 - Code Combination window

The following selections are available:

- Single Label
- Multiple Label (Standard Multi Label)
- Logical Combination
- Code Collection

Refer to the Genius™ Help On Line of the selected device for more details about each option.



To configure *Logical Combination* option, first select the number of desired **Groups** in the related drop down menu as indicated in Figure 3.

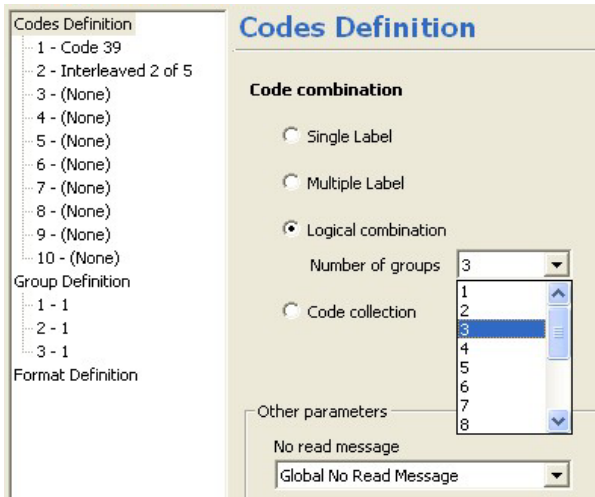


Figure 3 - Logical Combination

Then define each single Group as indicated in Figure 4; click on the related check box to include the desired code in the selected group.

Refer to the Genius™ Help On Line of the selected device for more details.

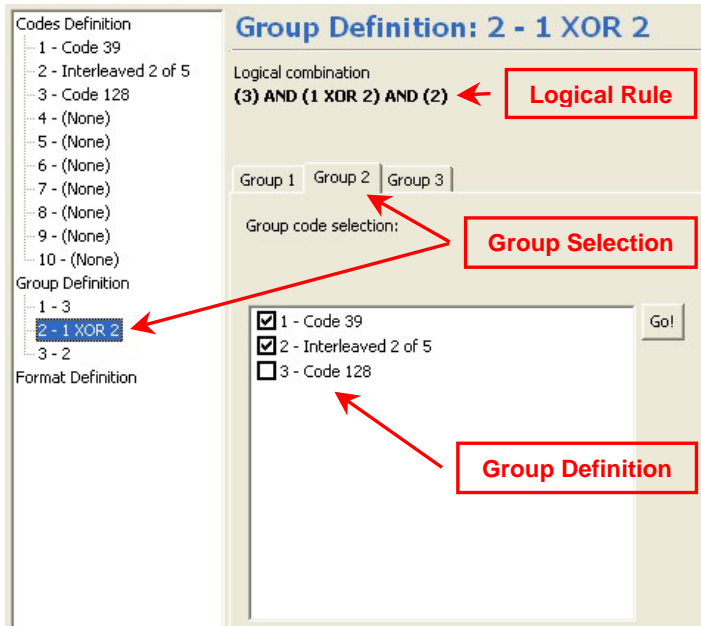


Figure 4 - Group Definition

The defined **Logical Rule** can be checked at the end of the Groups configuration on the top of the window.

2.2 CODES

Up to **10 different codes** to be read can be selected in a wide range of symbologies. For each selected code the following properties can be configured:

- Code Symbology
- Code Length
- Check Digit Calculation
- Check Digit Type (only for Interleaved 2/5, Code 39 and Code 39 Full ASCII)
- Start/Stop Characters Transmission (only for Codabar and ABC Codabar)
- Concatenation (only for ISBT 128 and ABC Codabar)

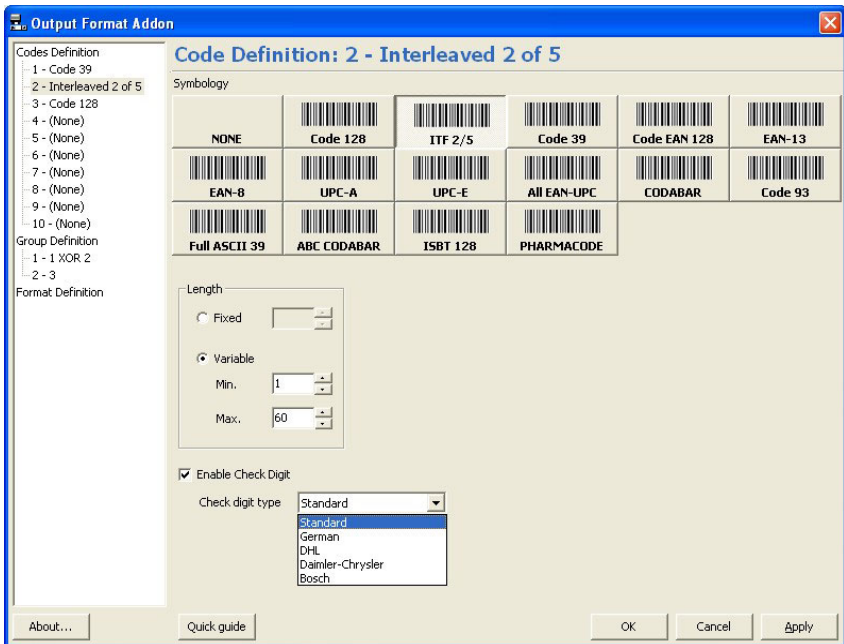
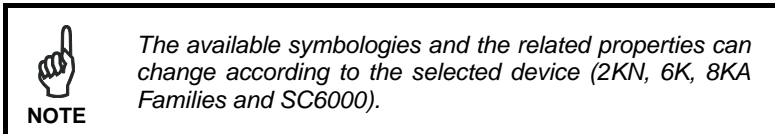


Figure 5 - Code Definition



The available symbologies and the related properties can change according to the selected device (2KN, 6K, 8KA Families and SC6000).

2.3 NO READ MESSAGE

The **No Read** condition occurs whenever one or more programmed codes cannot be read or decoded (refer to the Genius™ Help On Line of the selected device for more details).



NOTE

This feature is available only when the Code Combination is configured as Standard Multi Label (Multiple Label) or Logical Combination.

The No Read Message parameter affects the output format only in case of No Read event and Partial Read events.

Up to 3 different No Read Message handling events are available:

- Disable No Read Message
- Global No Read Message
- Local No Read Message(s)

Other parameters

No read message
Global No Read Message

Global no read string
< CAN >

Figure 6 – No Read Message Selection

When the *Global No Read Message* option and **Advanced Format Type** are selected also the Global No Read message position in the output string can be configured as follows:

- **Only No Read:** the output message will contain only the No Read Message without any other information.
- **Lead:** the Global No read string will be placed at the beginning of the output string.
- **Trail:** the Global No read string will be placed at the end of the output string.

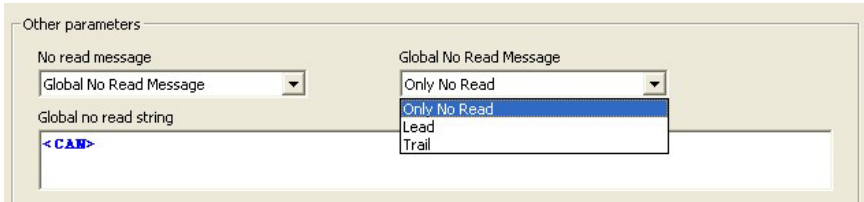


Figure 7 – Global No Read Message position

When the *Local No Read Message(s)* option is selected, a **Local No Read String** can be configured for each Code (if Code Combination is equal to *Multiple Label*) or for each Group (if Code Combination is equal to *Logical Combination*).

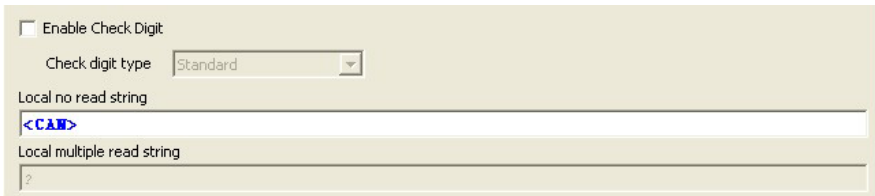


Figure 8 - Local No Read String(s)

2.4 MULTIPLE READ MESSAGE

The **Multiple Read** condition occurs when the scanner reads more than the expected codes programmed in the Codes Definition section.

The following Multiple Read handling events are available:

- Global Multiple Read Message
- Local Multiple Read Message(s)

Multiple read message
 Enable

Global multiple read string
 ?

Figure 9 - Multiple Read Message



NOTE

Global Multiple Read or Local Multiple Read will be activated according to the selected Global No Read or Local No Read handling events.

When the *Local No Read Message(s)* option is selected, a **Local Multiple Read String** can be configured for each Code (if Code Combination is equal to *Multiple Label*) or for each Group (if Code Combination is equal to *Logical Combination*).

Enable Check Digit

Check digit type Standard

Local no read string
 <CAW>

Local multiple read string
 ?

Figure 10 - Local Multiple Read String(s)

3 FORMAT DEFINITION

The **Format Definition** window allows to select between two different output Format Types:

- Standard
- Advanced

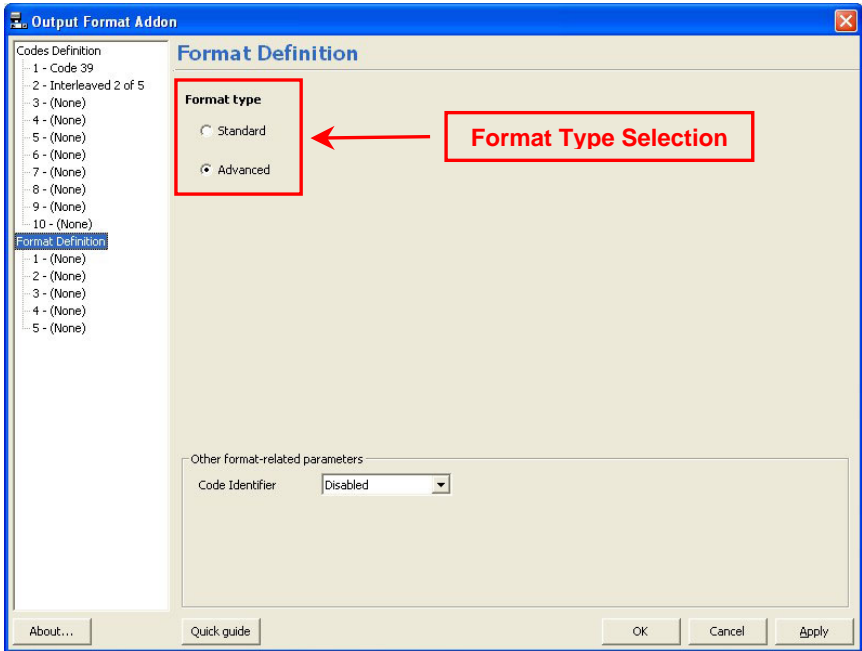


Figure 11 - Format Definition window

3.1 STANDARD FORMAT

Standard Format Type allows to configure the following output format parameters:

- Header String
- Data Packet Separators
- Terminator String

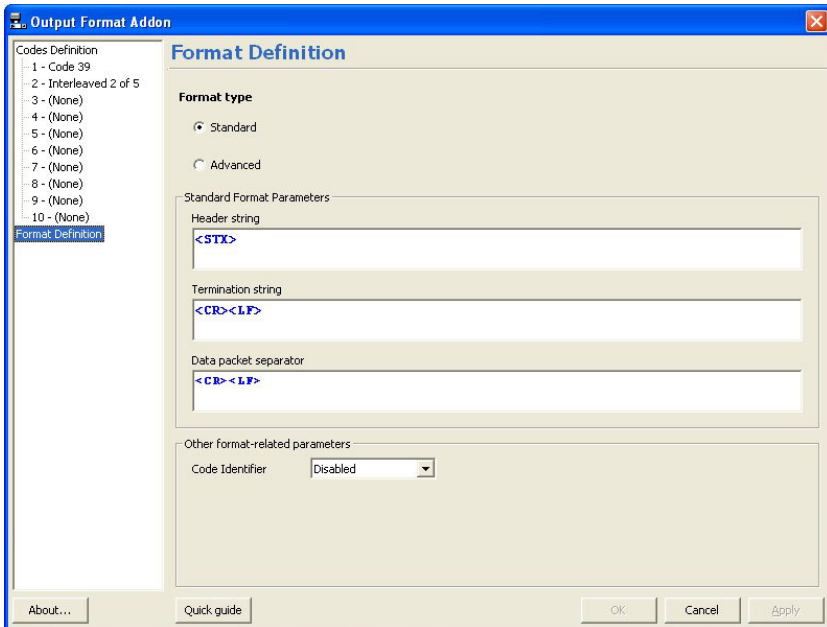


Figure 12 - Standard Format Type definition

The output message could assume, depending on the reading event (COMPLETE READ, NO READ, PARTIAL READ) and on the programmed No Read Message (Local or Global), the following formats:

- COMPLETE READ:
 <Header String>CODE 1<Data Packet Separator>
 CODE 2 ... <Termination String>
- NO READ & Global No Read Message:
 <Header String><Global No Read String><Termination String>

- NO READ & Local No Read Message(s):
<Header String><Local No Read String 1><Data Packet Separator>
< Local NO READ String 2> ... <Termination String>
- PARTIAL READ & Global No Read Message
<Header String>< Global No Read String><Termination String>
- PARTIAL READ & Local No Read Message(s):
<Header String>CODE 1<Data Packet Separator>
<Local No Read String 2> ... <Termination String>

If the Multiple Read Message option is enabled, the output message could assume the following formats depending on the reading event(s) and on the programmed No Read Message (Local or Global), the following formats:

- MULTIPLE READ & Global No Read Message:
<Header String><Global Multiple Read String><Termination String>
- MULTIPLE READ & PARTIAL READ & Global No Read Message:
<Header String><Global No Read String><Termination String>
- MULTIPLE READ & Local No Read Message(s) :
<Header String>< Local Multiple Read String 1><Data Packet Separator>
< Local Multiple Read String 2> ... <Termination String>
- MULTIPLE READ & GOOD READ & Local No Read Message(s) :
<Header String>< Local Multiple Read String 1><Data Packet Separator>
CODE 2 ... <Termination String>
- MULTIPLE READ & PARTIAL READ & Local No Read Message(s):
<Header String><Local Multiple Read String 1><Data Packet Separator>
< Local No Read String 2> ... <Termination String>

The decoded codes will be formatted in the output string according to the order of the configured Code Label Settings.

Refer to the Genius™ Help On Line of the selected device for more details

3.2 ADVANCED FORMAT

Advanced Format Type allows to create a large variety of output messages in a flexible way by means of a user friendly graphical interface. The following functions are available:

- Add Code-related Information (Items)
- Add Global Information (Items)
- Add Miscellaneous Information (Items)
- Global Message Alignment
- Additional Information (Items) Alignment
- Code Cutting

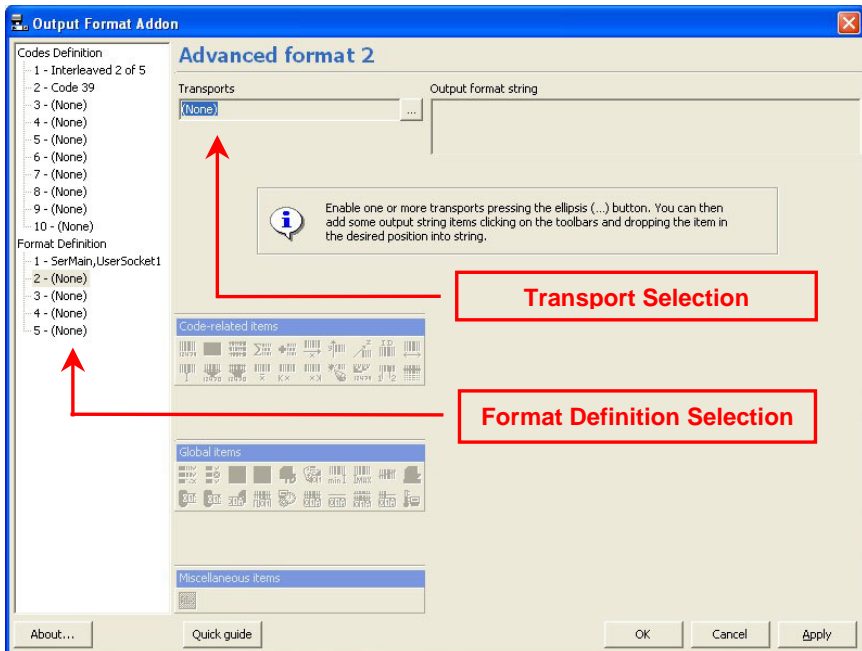



Figure 13 - Advanced Format Type definition

Moreover, it allows to configure up to 5 different output message formats for different communication channels (**Transports**).

First select the Advanced Format Definition number, then select the associated Transport(s) using the dedicated check box (refer to Figure 14).

Each Advanced Format selection can be associated to one or more different Transports. So, different output message formats will be available for different output transports.

 **NOTE** *Each Advanced Format Definition can be assigned to one or more Transport type, but each available Transport can be associated only to one Advanced Format Definition.*

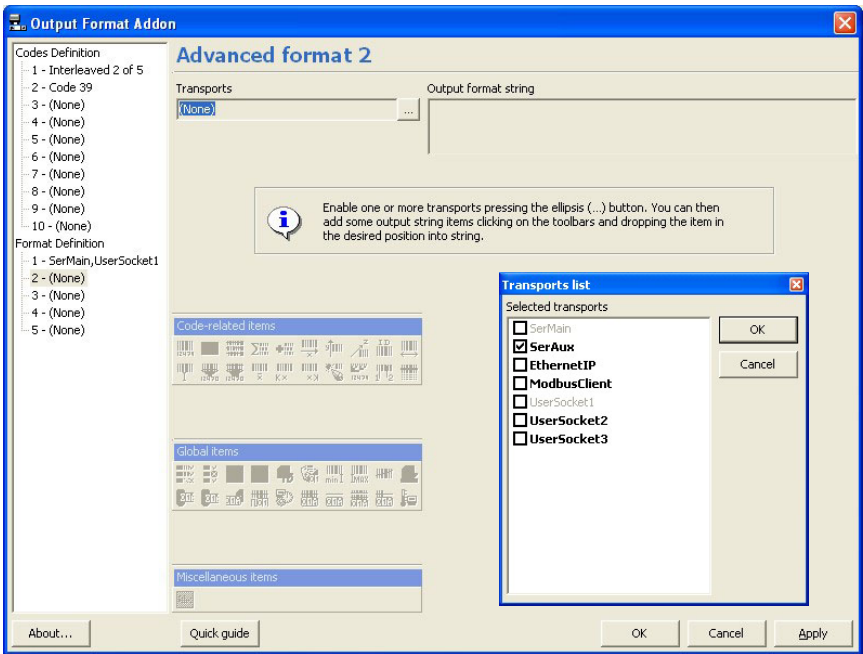



Figure 14 – Advanced Format Type configuration

 **NOTE** *The available transports can change according to the selected device (2KN, 6K, 8KA Families and SC6000). This figure refers to the 6K Family devices.*

3.3 ITEMS

Up to 3 different **Item** types can be used to create the output string message:

- Code Related Items: Information related to a specific programmed Code or Group Label.
- Global Items: General information related to the device or to the reading phase.
- Miscellaneous Items: Generic programmable string.

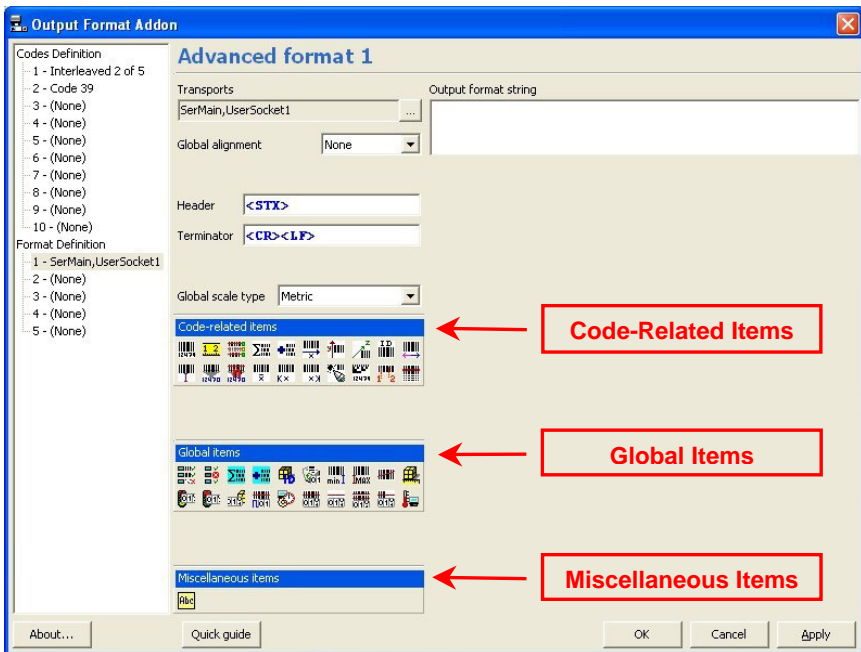


Figure 15 - Items



NOTE

The available Items can change according to the selected device (2KN, 6K, 8KA Families and SC6000). This figure refers to the 6K Family devices.



Decode Mode: indicates if the code has been read using Linear or Reconstruction reading mode.



Decode Scans Number: indicates the minimum number of decoded scans referred to the single characters in a code when the device is reading in Reconstruction mode. This Item can be used as Code Quality Index.



Average Code Position: average position of the code in the scan line



Minimum Code Position: minimum position of the code in the scan line



Maximum Code Position: maximum position of the code in the scan line



Ink Spread: indicates the calculated Ink Spread value.



Encoder Value:



Laser Number: if more than one laser is present in the working device, this item indicates the laser used to read the code.



Reading Persistence: indicates how many times the laser beam has crossed the complete code during the reading phase.



NOTE

When more than one device is connected in a Lonworks or ID-NET™ Master/Slave reading layout, some Code-related Items can be available only when the associated code is read by a specific device (Master device, Master or Slave devices, ..).

EXAMPLE: 6K and 8KA Families

1. *Code Direction, Code Distance, Decode Mode, Decode Scans Number, Ink Spread, Laser Number, Reading Persistence* are available only when the associated code is read by the Master device.
2. *Average Code Position, Minimum Code Position, Maximum Code Position* are available if the associated code is read either by the Master Synchronized or by a Slave Synchronized device.


3.3.2 Global Items


The **Global Items** are information associated to the working device and not to a specific programmed code.





Figure 17 – Global Items


The available Global Items are:


- 


Total Reading Mask: indicates the complete reading mask related to all codes read during the reading phase
- 


Failure Mask: 32-bit mask indicating which devices in the network are in fault (when character <1> is present in the related position)
- 


Total Reading Count: sum of all Code-related Total Reading Counts of each code read during the reading phase
- 


Partial Reading Count: sum of all Code-related Partial Reading Counts of each code read during the reading phase
- 


Pack Identifier: indicates the internal pack index
- 

Number Of Rejected Codes: indicates the number of codes rejected during the internal analysis (unexpected code, multiple read, discarded by the programmed logical rule)
- 

Minimum Code Distance: indicates the distance of the code closest to the device read during the reading phase
- 

Maximum Code Distance: indicates the distance of the code most distant from the scanner that has been read during the reading phase
- 

Global Reading Mode: indicates the programmed Reading Mode, either Linear or Reconstruction.
- 

Pack Length:
- 

Start Counter:



Stop Counter



Exit Counter:



Total Number of Reading Phases:



Total Number of Working Hours per Scanner:



Total Number of Complete Reads:



Total Number of No Reads:



Total Number of Multiple Reads:



Number of Total Partial Reads:



Scanner Temperature:

3.3.3 Miscellaneous Items

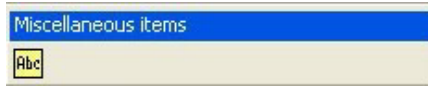



Figure 18 - Miscellaneous Items

The only available item is:

 User Defined String generic programmable string

This item can be used as a separator string or to write specific information in the output string message in a specific position.

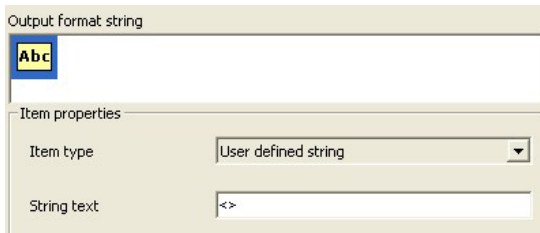


Figure 19 - Example of User Defined String

The User Defined String can be associated to the previous code or to the following code defined and selected in the output format string (refer to paragraph 3.4). If the linked code is missed (No Read event), the User Defined String will not be present in the final output message.

If the User Defined String is not linked to any code (*None* selection), it will be always present in the output message independent of the read codes.

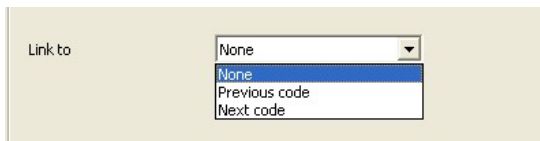


Figure 20 – Link to User Defined String

3.3.4 Items Selection

To select Items, drag & drop the related icons in the Output Format String window as showed in Figure 21.

The selected Items will be included in the output message in the same order they have been placed in the Output Format String window.

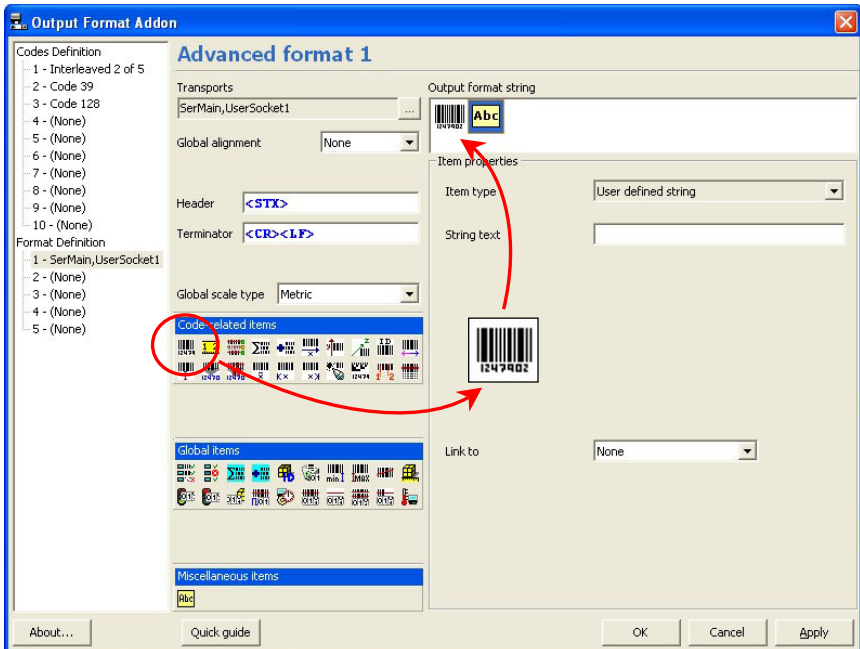


Figure 21 - Items selection

At the end the output format string will appear like the one showed in Figure 22.



Figure 22 - Output Format String

Click the Apply and the OK buttons to complete Output Format String definition.

As described in Paragraph 3.2, up to 5 different output formats can be defined for different communication channels (Transports).

Selecting another Format Definition number a new Output Format String can be defined and associated to other Transports (not already in use for other Format Definition numbers).

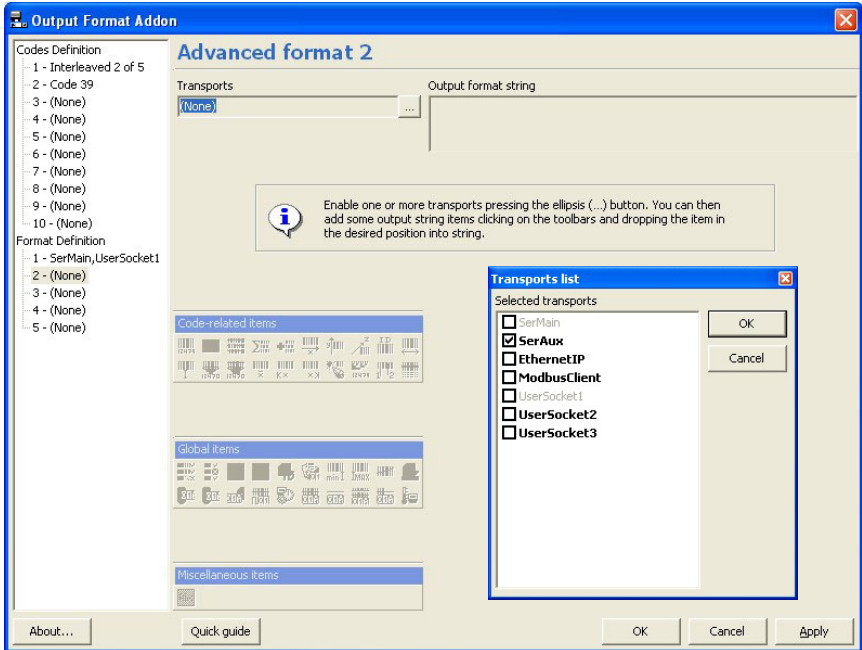


Figure 23 - Available Transports

3.3.5 Global Alignment

This function allows to define the global alignment for the entire output message:

- Global Alignment (None, Left, Right)
- Message Length
- Filler Character

The figure shows two screenshots of the 'Advanced format 1' configuration window. The top screenshot shows the 'Global alignment' dropdown menu open with 'None' selected. The bottom screenshot shows the 'Global alignment' dropdown set to 'Left', with a 'Length' field set to 5 and a 'Filler char' field set to '<Space>'.

Figure 24 – Global Alignment selection

If the complete output message is shorter than the fixed Length, it will be filled using the programmed Filler character.

- **Left Alignment:**
<HEADER>CODE1<ITEM>...<ITEM>...<TERMINATOR><FILLER>...<FILLER>
- **Right Alignment:**
<FILLER>...<FILLER><HEADER>CODE1<ITEM>...<ITEM>...<TERMINATOR>

If the complete output message is longer than the fixed Length, it will be truncated.

3.3.6 Item Alignment

This function allows to define a specific alignment for each programmed Code-related Item and Global Item.

- Item Alignment (None, Left, Right)
- Alignment Length
- Filler Character

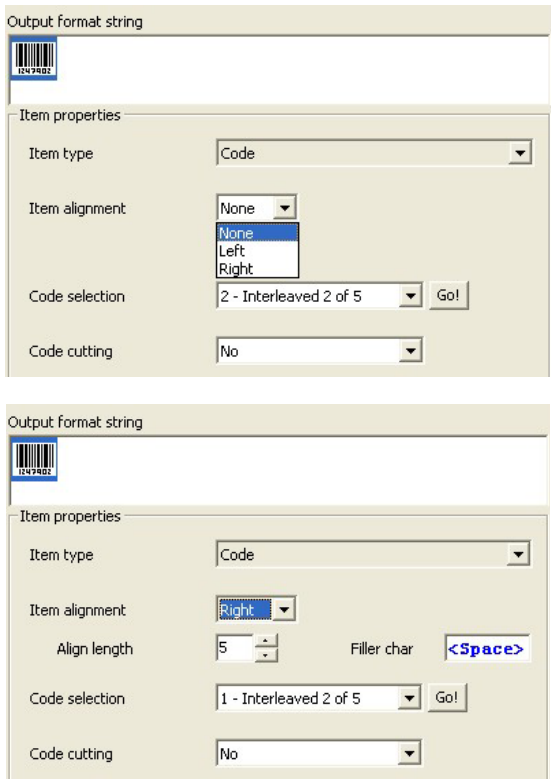


Figure 25 - Item Alignment selection

If the selected Item is shorter than the Alignment Length, it will be filled using the programmed Filler char.

- **Left Alignment:**
ITEM<FILLER>...<FILLER>
- **Right Alignment:**
<FILLER>...<FILLER>ITEM

If the selected Item is longer than the Alignment Length, it will be truncated.

3.3.7 Code Cutting

This function allows to configure two different cutting rules related only to the Code item.

- Simple
- Pattern

The **Simple** cutting rule allows cutting a programmable part of the code either at the beginning or at the end of the code.

The screenshot shows a dialog box titled "Output format string" with a barcode icon in the top left. Below the icon is a section for "Item properties" with the following settings:

- Item type: Code
- Item alignment: Right
- Align length: 5
- Filler char: <Space>
- Code selection: 1 - Interleaved 2 of 5 (with a "Go!" button)
- Code cutting: Simple
- Number of chars to cut: Leading 0, Trailing 0

Figure 26 - Simple Code Cutting

The **Pattern** cutting rule allows cutting a part of the code according to a particular prefixed pattern.

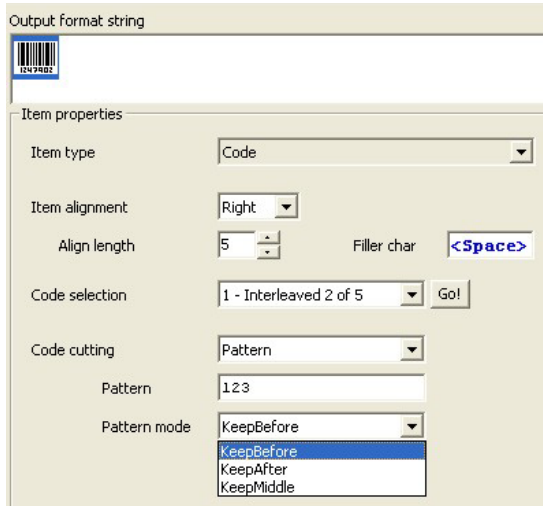


Figure 27 - Pattern Code Cutting

The available rules are:

- **Keep Before:** it will cut the part of the code that starts with the pattern string (data before the string remains)
- **Keep After:** it will cut the part of the code that precedes and includes the pattern string (data after the string remains)
- **Keep Middle:** it will cut the part of the code before and after (including) the two pattern strings (data between the two strings remains)

EXAMPLE:

Referring to Figure 27, if the read code is SDFR**123**5689**123**ASER the transmitted code (depending on the selected Pattern Mode) will be:

- Keep Before: SDFR
- Keep After: 5689123ASER
- Keep Middle: 5689

3.4 ADVANCED FORMAT EXAMPLES

Referring to the following Output Format String (Figure 28), the resultant message will be described for the COMPLETE READ, NO READ and PARTIAL READ events.

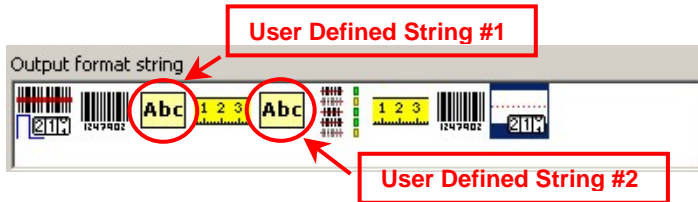


Figure 28 - Output Format String example

The Items added to the Output Format String are:


- Total Reading Phases
- Code #1
- User Defined String #1 (linked to the previous code): <>
- Code #1 Length
- User Defined String #2 (not linked to any code): ><
- Reading Mask #1
- Code #2 Length
- Code #2
- Total No Read Count

The configured Global No Read String is: <CAN>

The resultant **Output Messages** are:

- GOOD READ
<Header String><Total Reading Phases><CODE #1><><><Code #1 Length>
><<ReadingMask#1><Code #2 Length><CODE #2><Total No Read Count>
<Termination String>
- NO READ & Global No Read Message (Only No read)
<Header String><CAN><Termination String>
- NO READ & Global No Read Message (Lead):
<CAN><Header String><Total Reading Phases>><<Total No Read Count>
<Termination String>

- NO READ & Local No Read Message(s):
 <Header String><Total Reading Phases>< Local No Read String #1><>0
 ><<ReadingMask#1>0<Local No Read String #2><Total No Read Count>
 <Termination String>
- PARTIAL READ & Global No Read Message (Only No read):
 <Header String><CAN><Termination String>
- PARTIAL READ & Global No Read Message (Lead):
 <Header String><CAN><Termination String>
- PARTIAL READ & Local No Read Message(s):
 <Header String><Total Reading Phases><Code#1><><Code#1 Length>
 ><<ReadingMask#1>0<LocNoRead#2><Total No Read Count>
 <Termination String>

 NOTE	<p><i>If the Global No Read Message (Lead or Trail) option is selected, the Code-related items will not be sent in case of NO READ or PARTIAL READ events.</i></p>
--	--