

# RFID with EASYLABEL®

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## **Overview**

The need to conform to RFID (Radio Frequency Identification) standards and the growing use of RFID in general requires software to correctly program and print smart labels. EASYLABEL<sup>®</sup> has the tools to meet and surpass these requirements. EASYLABEL's improved RFID Wizard makes creating EPC (Electronic Product Code) and DoD (Department of Defense) smart labels a snap. The RFID Wizard will prompt you for the necessary information and EASYLABEL will do the rest. RFID projects that do not require the EPC or DoD RFID code can use EASYLABEL to directly program HF (High Frequency) or UHF (Ultra High Frequency) smart labels in a hexadecimal or ASCII format.

With EASYLABEL, you have the option to import parts or all of your RFID data from sources such as: databases, serial files, user input, existing bar code or text fields, and external text files. You may also choose to read the RFID data encoded in the RFID tags and print it on your smart labels as a text or bar code field. This feature can be used to comply with industry standards or as a human readable backup of the RFID data.

An additional EASYLABEL RFID feature is the ability to write and print a report that includes the data used to program your printed smart labels. This report can then be used as part of an ASN (Advanced Shipping Notice), to keep a record of labeled items, or other company requirements.

Combining all of these RFID capabilities with EASYLABEL's other time-tested features, will allow you to easily design, report, program, and print smart labels.

## **Advantages**

- The ability to create EPC and DoD smart labels without knowing the RFID tag data specifications
- The ability to import RFID data from numerous data sources
- The ability to keep track of RFID serial numbers
- The ability to include RFID data in a report
- The ability to print RFID data as a bar code or human-readable backup
- The ability to use EASYLABEL's label design tools

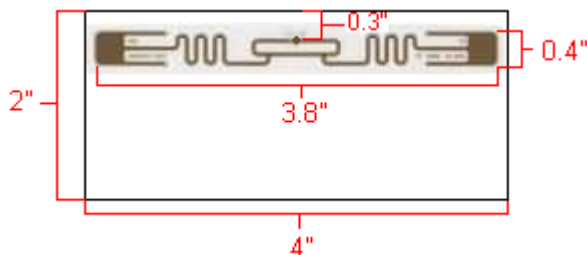
## **Requirements**

- EASYLABEL Platinum or higher

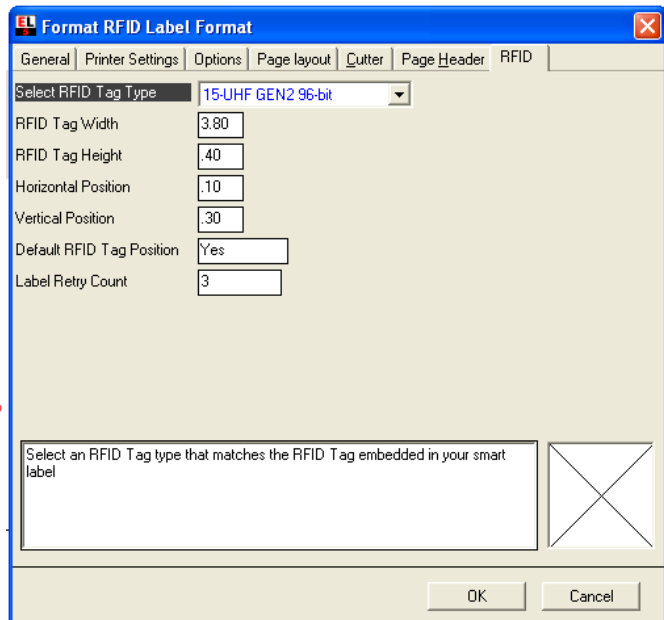
## RFID Tag Setup

When designing label formats, you will have to specify the type of RFID tag that is embedded in your smart labels. Once the correct RFID tag type is selected, you will be prompted to enter the width and height of the RFID tag embedded in your smart label. Next, you will be prompted for the horizontal and vertical position of the RFID tag. In most cases, the coordinates of the RFID tag embedded in the smart label have to match the placement specifications of the printer's manufacturer. Even though it is recommended to use smart labels that meet the placement specifications of the printer's manufacturer, some printers support smart labels with the RFID tag located outside of the specified area. In this case, setting the default RFID tag position option to 'No' will send the RFID tag's coordinates to the printer. The final RFID tag option is the label retry count. In the event of an RFID error, the RFID printer will try to read/program the RFID tag on as many consecutive labels as the label retry count option specifies.

The pictures below show a Generation 2 RFID smart label and the EASYLABEL RFID tag settings for that particular smart label.



(Picture 1: Smart Label)



(Picture 2: EASYLABEL RFID Tag Setup)

## Programming RFID Tags

EASYLABEL's intuitive RFID Wizard will guide you through the process of entering and/or importing data to program RFID tags. The first screen of the RFID Wizard allows you to enter a comment, choose an RFID data format, select a number of retries per smart label, and to include the RFID data in a report. The comment is simply a brief optional description of the RFID tag or data. The RFID data format option determines what data will be required and in what format this data will be programmed. If the RFID printer experiences RFID errors, the number of retries will determine how many times the printer will try to program a single RFID tag. Enabling the report data option will add the RFID data sent to your RFID printer to an EASYLABEL report file, which could be used as part of an advanced shipping notice.

Program Tag Data

RFID Tag Information

Field Name: RFID1

Comment: RFID PROJECT 1

Tag Type: 15-UHF GEN2 96-bit

Data Format: EPC

Number of Retries: 6

Report Data: Yes

Next > Cancel

(Picture 3)

## EPC Data Format

When the EPC data format is chosen, the RFID Wizard will guide you through the process of entering the data required to create an EPC. The first thing you'll have to do is choose the EPC encoding scheme that you wish to use. Each selection will prompt you for different data fields that are necessary to create a valid EPC. If you are not sure what type of data is required, simply click on one of the input fields and the RFID Wizard will display a description of the required data. You may then enter this data manually or import it from a field on the label format or an external data source such as a database or serial file. After the required data has been provided you, can use the password option to write protect your RFID tags. Once an RFID tag has been write protected, EASYLABEL cannot reprogram the tag or unprotect it.

**Program Tag Data**

Encoding Scheme  
SGTIN-96--Serialized Global Trade Item Number

Encoding Data

|                           |               |             |
|---------------------------|---------------|-------------|
| Filter Value              | 1             | Import Data |
| Indicator/Extension Digit | 3             | Import Data |
| Company Prefix            | 123456        | Import Data |
| Item Reference            | 654321        | Import Data |
| Serial Number             | Serial File 1 | Import Data |

Use Password to write protect the RFID tag

Serial Number contains the serial number. Only numeric digits are permitted. The range of this field is between 1 and 12 numeric digits.

Clear Data   < Back   Finish   Cancel

(Picture 4)

## DoD Data Format

When the DoD data format is chosen, the RFID Wizard will guide you through the process of entering the data required to create the DoD RFID construct. The RFID Wizard will prompt you for the data fields necessary to create a valid EPC. If you are not sure what type of data is required, simply click on one of the input fields and the RFID Wizard will display a description of the required data. You may then enter this data manually or import it from a field on the label format or an external data source such as a database or serial file. After the required data has been provided, you can use the password option to write protect your RFID tags. Once an RFID tag has been write protected, EASYLABEL cannot reprogram the tag or unprotect it.

Visit [easylabel.com](http://easylabel.com) for more information

**Program Tag Data**

Encoding Scheme  
DOD-96--DoD UHF Tag Construct

Encoding Data

Filter Value: 1 [Import Data]

DoDAAC/CAGE Code: 123Z4 [Import Data]

Serial Number: TEXT17 [Import Data]

Use Password to write protect the RFID tag

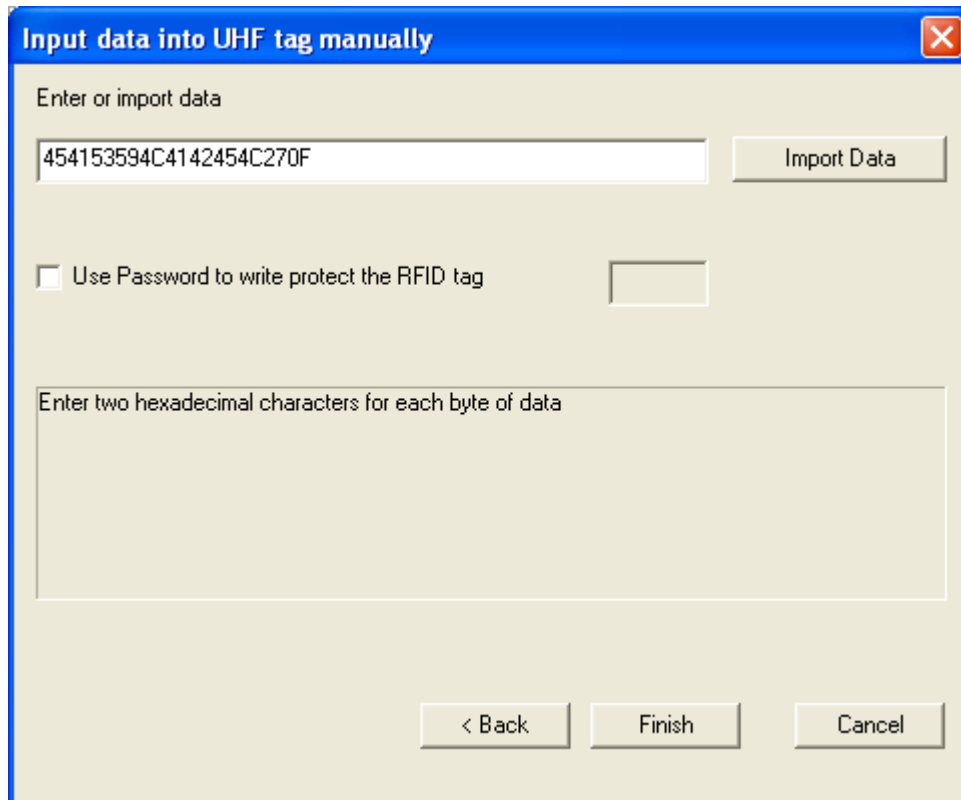
Uniquely identifies labeled items. The range of this field is between 1 and 11 numeric digits.

[Clear Data] [ < Back ] [ Finish ] [ Cancel ]

(Picture 5)

## Hexadecimal Data Format

The RFID Wizard enables you to program RFID tags with your own hexadecimal data. This data can be entered manually or imported from a field on the label format or an external data source such as a database or serial file. After the required data has been provided you can use the password option to write protect your RFID tags. Once an RFID tag has been write protected, EASYLABEL cannot reprogram the tag or unprotect it.



Input data into UHF tag manually

Enter or import data

454153594C4142454C270F Import Data

Use Password to write protect the RFID tag

Enter two hexadecimal characters for each byte of data

< Back Finish Cancel

(Picture 6)

## ASCII Data Format

The RFID Wizard enables you to program RFID tags with your own ASCII text. This text can be entered manually or imported from a field on the label format or an external data source such as a database or serial file. After the required data has been provided you can use the password option to write protect your RFID tags. Once an RFID tag has been write protected, EASYLABEL cannot reprogram the tag or unprotect it.

easylabel.com for more information'. The main area is titled 'Enter or import data' and contains a text input field with 'Product 1' and an 'Import Data' button. Below this is a checkbox labeled 'Use Password to write protect the RFID tag' with an empty password input field. A larger text area below contains the instruction 'Enter two hexadecimal characters for each byte of data'. At the bottom are three buttons: '< Back', 'Finish', and 'Cancel'."/>

Input data into UHF tag manually

Visit [easylabel.com](http://easylabel.com) for more information

Enter or import data

Product 1 Import Data

Use Password to write protect the RFID tag

Enter two hexadecimal characters for each byte of data

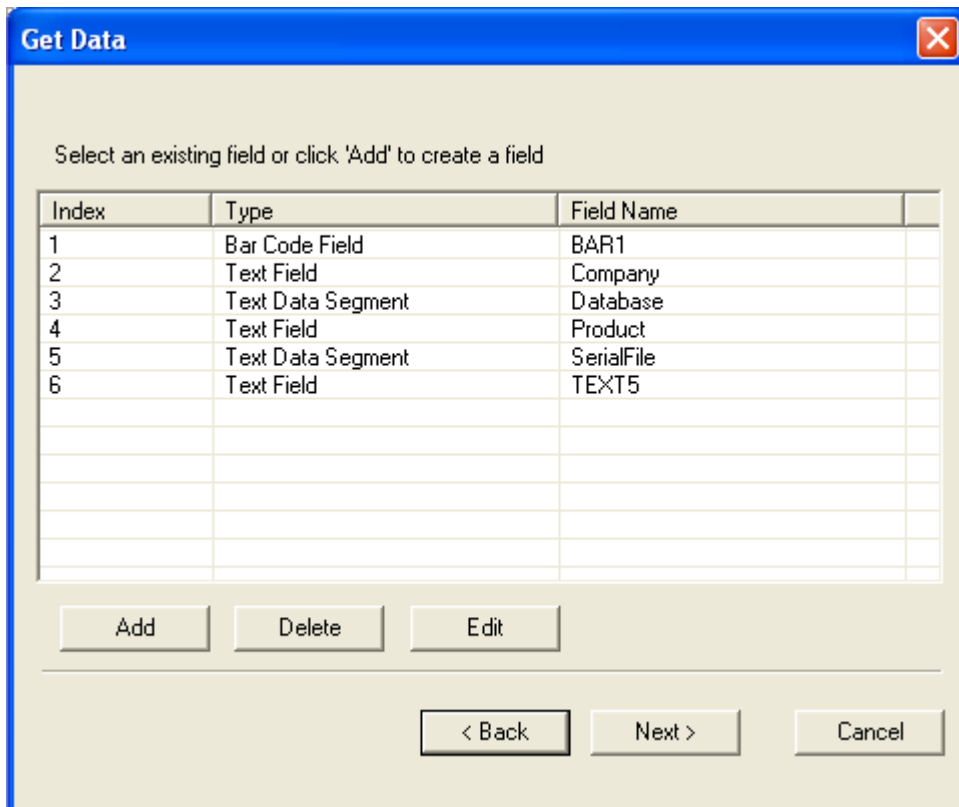
< Back Finish Cancel

(Picture 7)



## Importing Data into the RFID Wizard

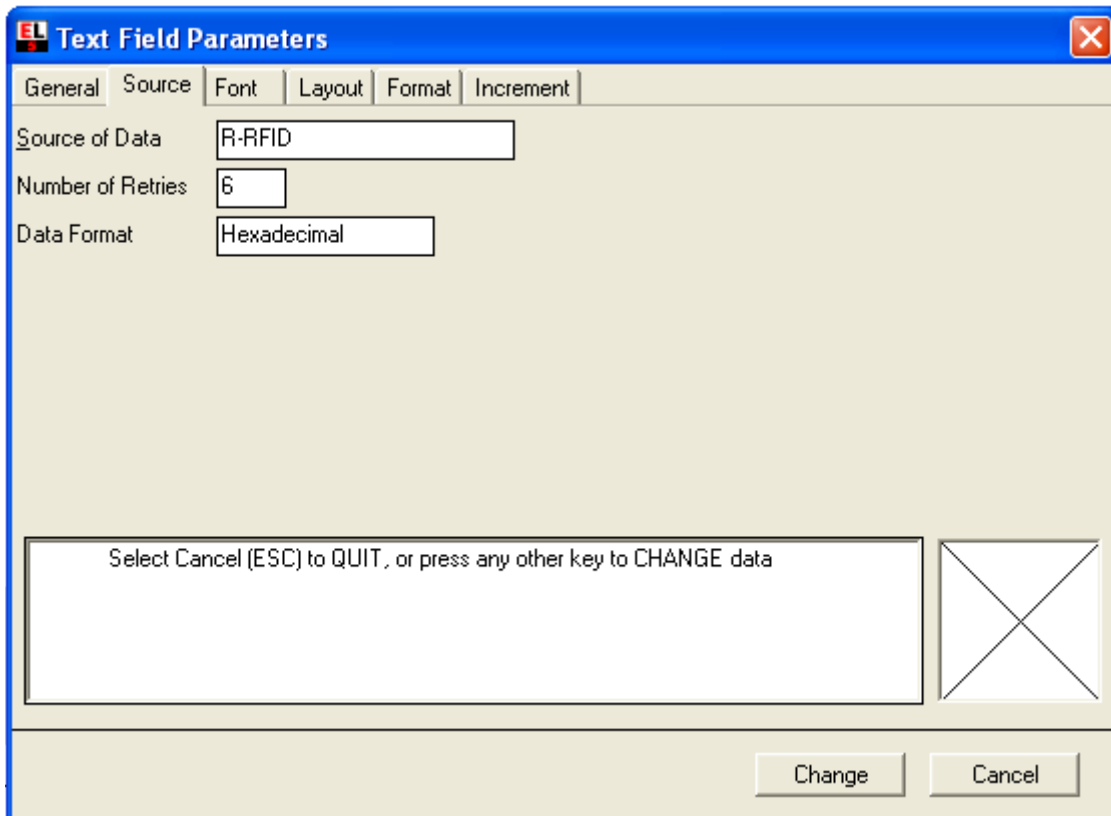
The RFID Wizard enables you to import data that will be used to program your RFID tags. Data can be imported from twelve different data sources that include fields on your label format, databases, serial files and external text files. To import data into the RFID wizard, click on the “Import Data” button next to the desired input box. You will now be presented with the “Get Data” screen, from where you can select existing data sources or create a new data source by clicking the “Add” button. Once you have found or added the desired data source, select it in the list and click the “Next” button to import it into the RFID Wizard. EASYLABEL will now use the data that you have pointed it to, in the RFID Wizard, to program your RFID tags.



(Picture 8)

## RFID as a Source of Data

EASYLABEL enables you to use RFID as a source of data for text and bar code fields. This means that the data used to program the RFID tags can also be printed on the smart labels. In order to copy the RFID data into a field on the label format, you have to select RFID as the source of data for your text or bar code field. When the RFID data is to be copied into a text field, you will need to use a printer internal font. Depending on the capabilities of the selected RFID printer, EASYLABEL will either send the copied RFID data to the printer or tell the printer to read the RFID tag and copy the read data into the designated text or bar code fields.



(Picture 9)