

AN15115

UCODE X memory configuration setup for Zebra Printers with BarTender

Rev. 1.0 — 24 July 2026

Application note

Document information

Information	Content
Keywords	UCODE X, memory configuration, Zebra Printer, BarTender
Abstract	This document explains how to setup UCODE X memory configuration on Zebra Printers using BarTender.



1 ZEBRA ZPL Printer commands for UCODE X memory configuration change

UCODE X has six different memory configurations that a user can choose from. Multiple memory options enable tag functionality to be tailored for specific use cases and applications. These options help users strike the right balance between EPC/UII size and available user memory.

Table 1. Memory configuration (1)

Configuration	EPC memory	User memory	Access Password	Kill Password	Permalock	Lock	Untraceable
Default	128 bits	0 bits	Yes	Yes	Yes	Yes	Yes
Config 2	160 bits	0 bits	Yes	No	Yes	Yes	Yes
Config 3	208 bits	0 bits	No	No	Yes	No	No
Config 4	96 bits	32 bits	Yes	Yes	Yes	Yes	Yes
Config 5	128 bits	32 bits	Yes	No	Yes	Yes	Yes
Config 6	176 bits	32 bits	No	No	Yes	No	No

Memory configurations can be changed by writing into the chip config word, which is located in Memory Bank '10' (TID memory), starting at bit address 0x70h (word count 7). In order to make a change in the config word, a standard "WRITE" command can be used.

ZPL Command:

The ZPL command line that supports memory configuration is as follows:

```
^RFW,H,7,2,2^FDXXXX^FS
```

Where RFW represents the write command for ZPL, H represents the Hex format and it is encoding two bytes of data at block number 7 in the TID memory of the tag. Refer to the table below which contains six different memory configurations to their corresponding ZPL command line.

Table 2. Memory configuration (2)

EPC	User memory	Access Password disabled	Kill Password disabled	User memory disabled	ZPL command line
128 bits	0 bits	0	0	1	^RFW,H,7,2,2^FD0001^FS
160 bits	0 bits	0	1	1	^RFW,H,7,2,2^FD0003^FS
208 bits	0 bits	1	1	1	^RFW,H,7,2,2^FD0007^FS
96 bits	32 bits	0	0	0	^RFW,H,7,2,2^FD0000^FS
128 bits	32 bits	0	1	0	^RFW,H,7,2,2^FD0002^FS
176 bits	32 bits	1	1	0	^RFW,H,7,2,2^FD0006^FS

2 How to change UCODE X configuration through Zebra Printer

This chapter provides a detailed, step-by-step procedure on how to change UCODE X configuration through Zebra Printer using BarTender software.

1. After the initial calibration of the tag with Zebra Printer, go to "File" → "BarTender Document Options..." in the BarTender software.

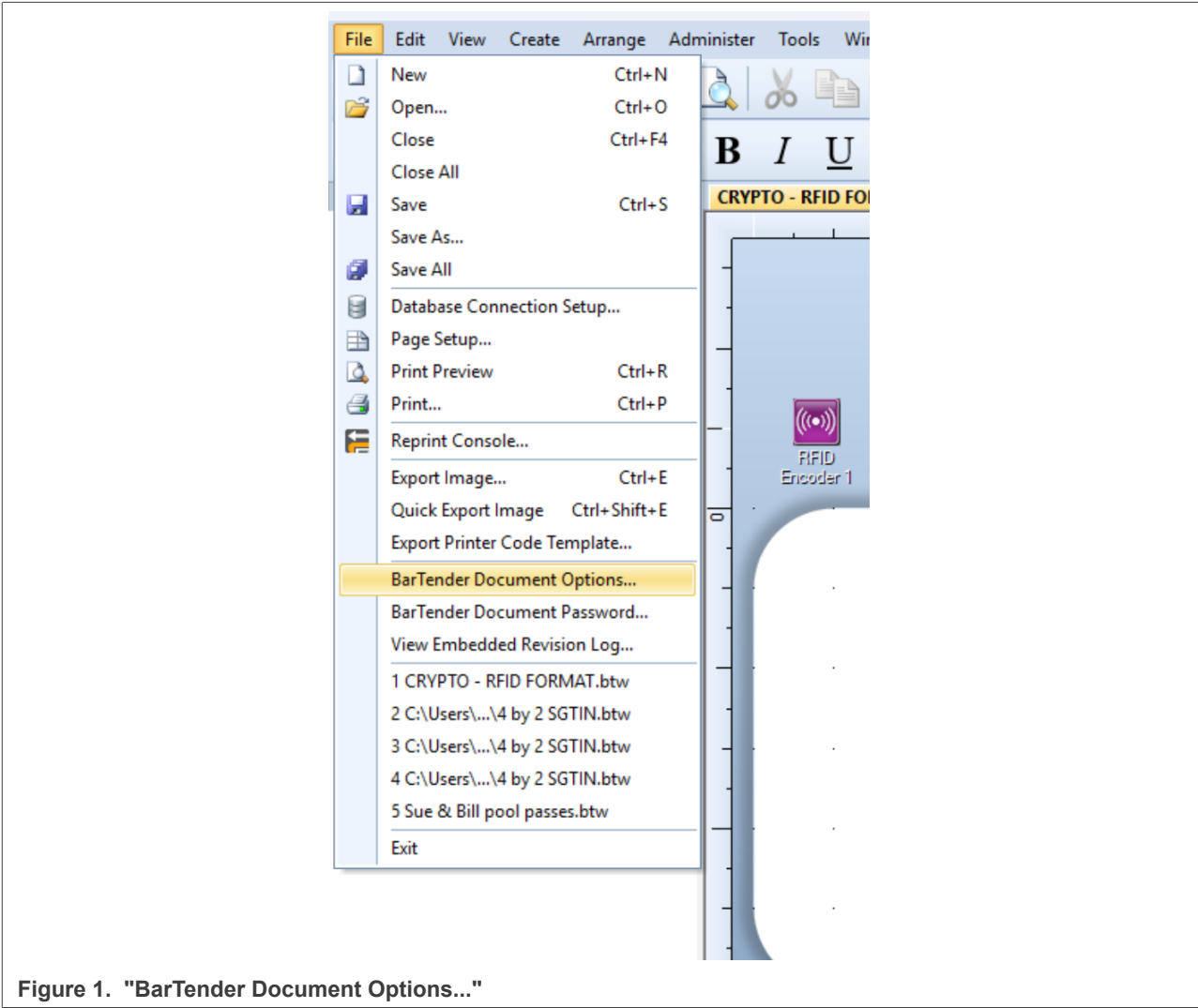


Figure 1. "BarTender Document Options..."

- 2. In the tab "Actions", click "Search and Replace..."

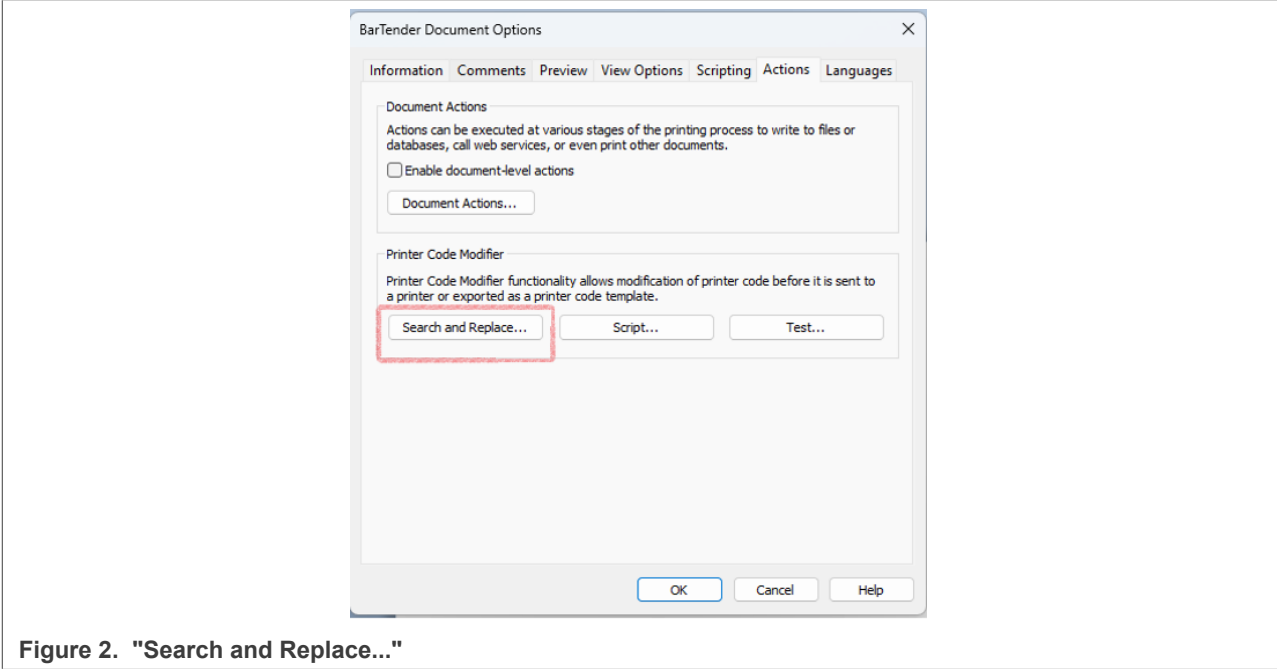


Figure 2. "Search and Replace..."

- 3. First, set "Action" to "Search and Insert Before". In the field "Search for:" enter the command line that is defining the user's PC word and EPC length, in the example below it is "`^RFW,H,1,2,1^FD1400^FS`". In the field "Insert", change the command line according to the desired configuration (see to [Table 2](#)), in the example below it is 0000 (in hex decimal), so "`^RFW,H,7,2,2^FD0003^FS`".
Note: The printer will automatically change the user's PC word depending on the EPC length the user wants to encode. The command line value will be different as shown in the example below, "`^RFW,H,1,2,1^FD1400^FS`".

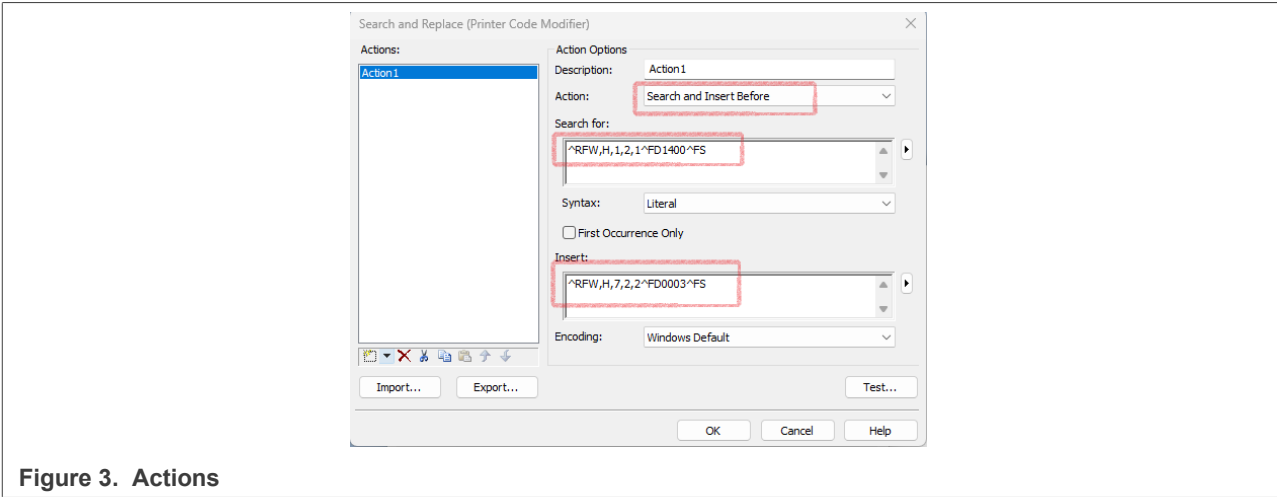


Figure 3. Actions

- 4. Click "OK". To confirm the setup changes, users can use any RFID reader and read the TID of the printed tags (word 7h). The tags will be encoded according to the desired configuration.
- 5. Users can also verify the setup using the "Print to file" option of the printer to see if the commands were executed correctly.

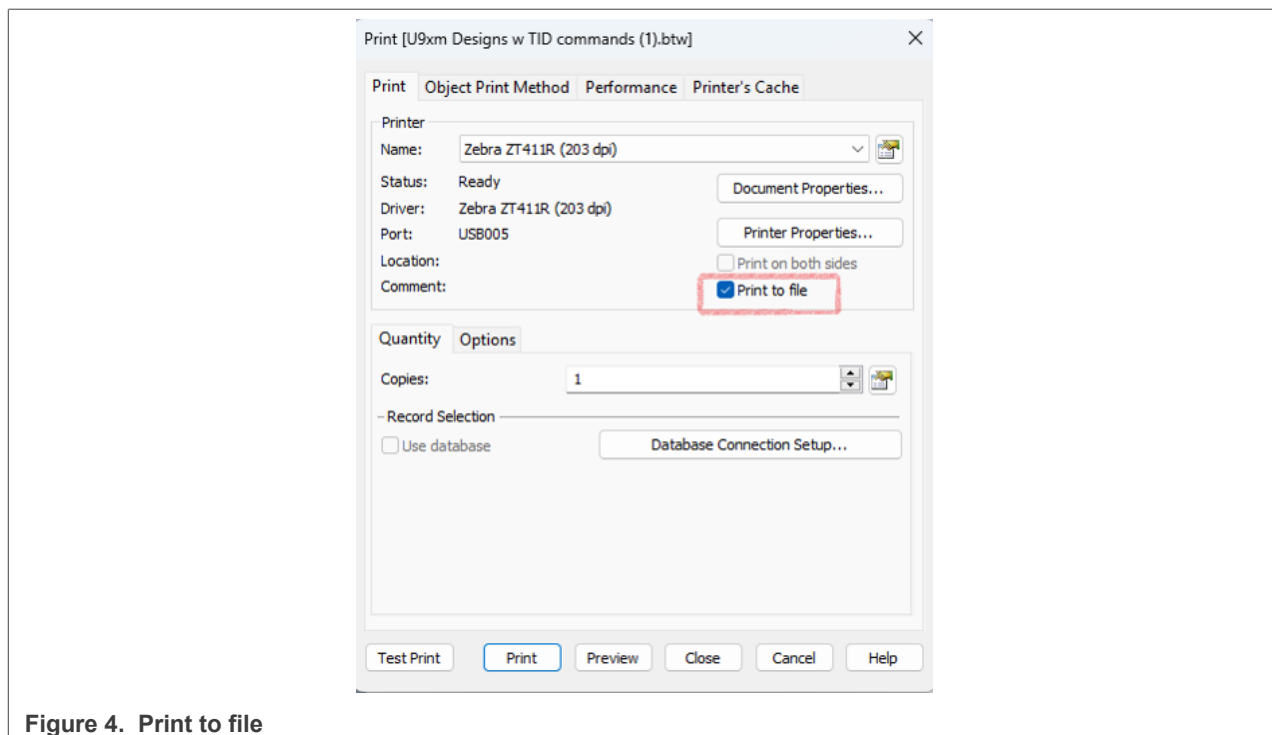


Figure 4. Print to file

- a. "Print to file" before encoding:

```

^XA
^RS,,,0,N,,,2
^RR0
^XZ
^XA
^SZ2^JMA
^MCY^PMN
^PW295
~JSN
^JZY
^LH0,0^LRN
^XZ
^XA
^FO61,35
^BQN,2,5^FDLA,12345678^FS
^FT94,162
^CI27
^A0N,8,11^FD12345678^FS
^RFW,H,1,2,1^FD1400^FS
^RFW,H,2,4,1^FD12345678^FS
^PQ1,0,1,Y

```

- b. "Print to file" after encoding

```

^XA
^RS,,,0,N,,,2
^RR0
^XZ
^XA

```

^SZ2^JMA
^MCY^PMN
^PW295
~JSN
^JZY
^LH0,0^LRN
^XZ
^XA
^FO61,35
^BQN,2,5^FDLA,12345678^FS
^FT94,162
^CI27
^A0N,8,11^FD12345678^FS
^RFW,H,7,2,2^FD0003^FS^RFW,H,1,2,1^FD1400^FS
^RFW,H,2,4,1^FD12345678^FS
^PQ1,0,1,Y
^XZ

3 Contact

For questions, reach out to: <https://community.nxp.com/>.

4 Revision history

Table 3. Revision history

Document ID	Release date	Description
AN15115 v.1.0	24 July 2026	Initial version

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