

AN15114

UCODE X memory configuration setup for TSC Auto ID Printers with BarTender

Rev. 1.0 — 24 July 2026

Application note

Document information

Information	Content
Keywords	UCODE X, memory configuration, TSC Auto ID Printers, BarTender
Abstract	This document explains how to setup UCODE X memory configuration on TSC Auto ID Printers with BarTender.



1 TSC PGL (TSC Auto ID Language) commands for UCODE X 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/Ull size and available user memory.

Table 1. UCODE 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.

TSC PGL command:

PGL has a specific command line to change memory configuration for UCODE X. The command is as follows:

RFWTAG;16;7;TID

16;H;*XXXX*

STOP

Where RFWTAG represents initiating a write command in Hexadecimal format at word 7 in the TID location of the chip where XXXX represents the equivalent hex decimal input needed for the desired memory configuration

Table 2. UCODE memory configuration (2)

EPC	User memory	Access Password disabled	Kill Password disabled	User memory disabled	PGL corresponding command
128 bits	0 bits	0	0	1	16;H;*0001*
160 bits	0 bits	0	1	1	16;H;*0003*
208 bits	0 bits	1	1	1	16;H;*0007*
96 bits	32 bits	0	0	0	16;H;*0000*
128 bits	32 bits	0	1	0	16;H;*0002*
176 bits	32 bits	1	1	0	16;H;*0006*

2 How to change UCODE X memory configuration through BarTender software

This chapter provides a detailed, step-by-step procedure on how to change UCODE X configuration through TSC Auto ID printer using BarTender software

1. First, ensure that the firmware is up to date, as older versions do not support writing to the TID memory. To check the firmware version, use the Info option and verify the Program File value. For example, when using the T800 printer software, firmware versions P301798 and P301821 support this functionality. If an older version is installed, download and install the latest firmware from the TSC Download Center.
2. Open BarTender software, set the respective label dimensions, and click "Print".

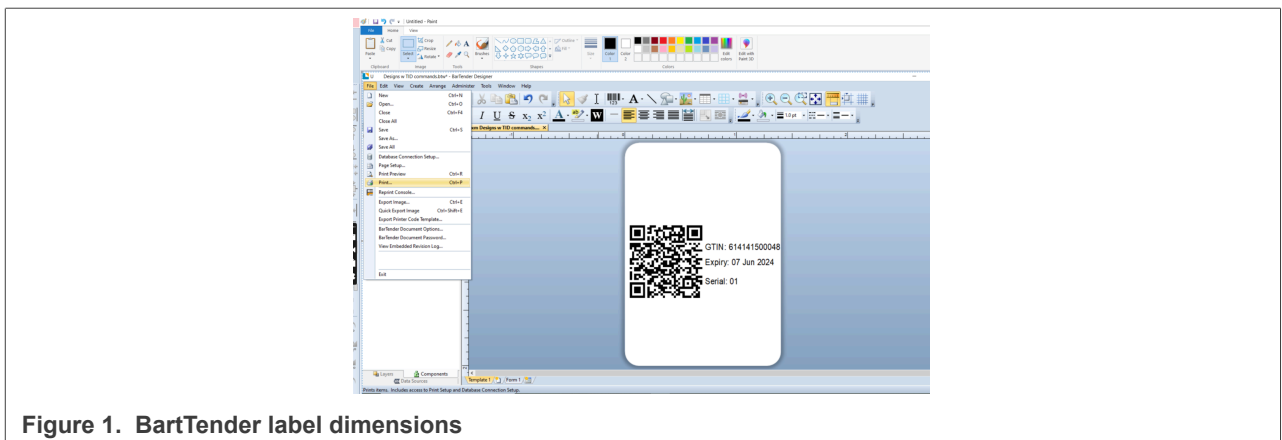


Figure 1. Bartender label dimensions

3. Click "Document Properties..."

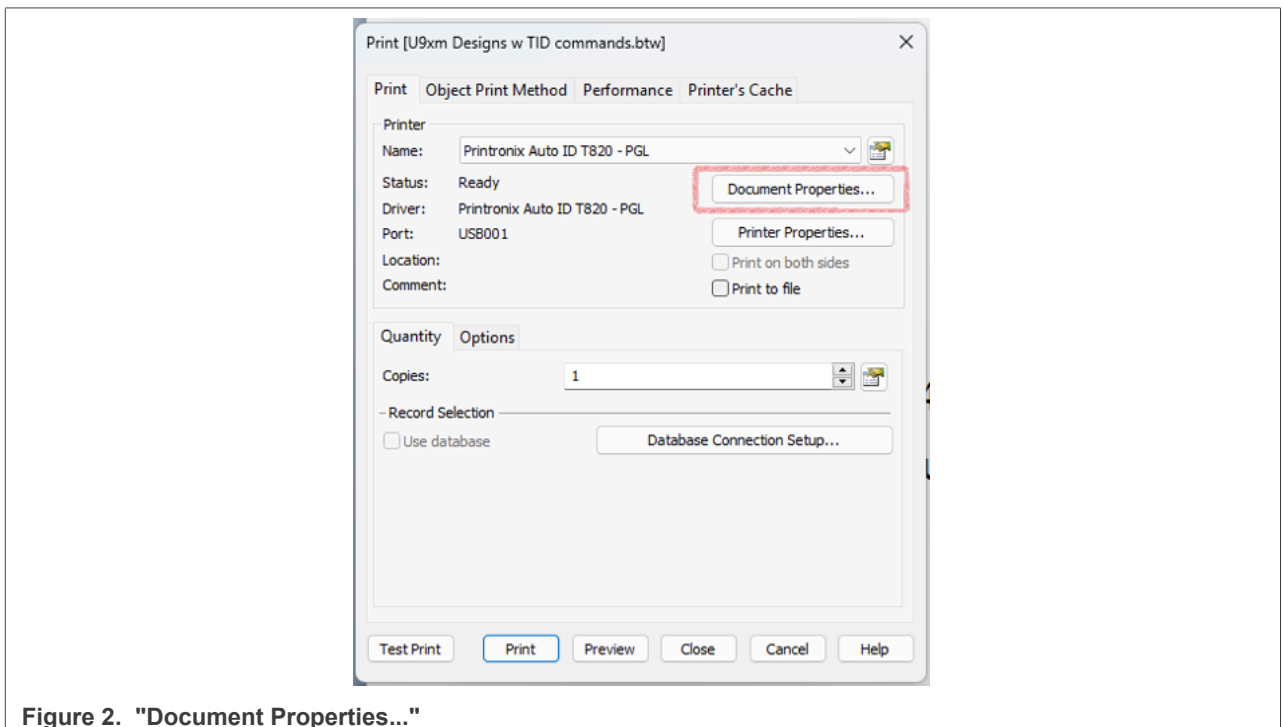


Figure 2. "Document Properties..."

4. Click "Advanced Options..."

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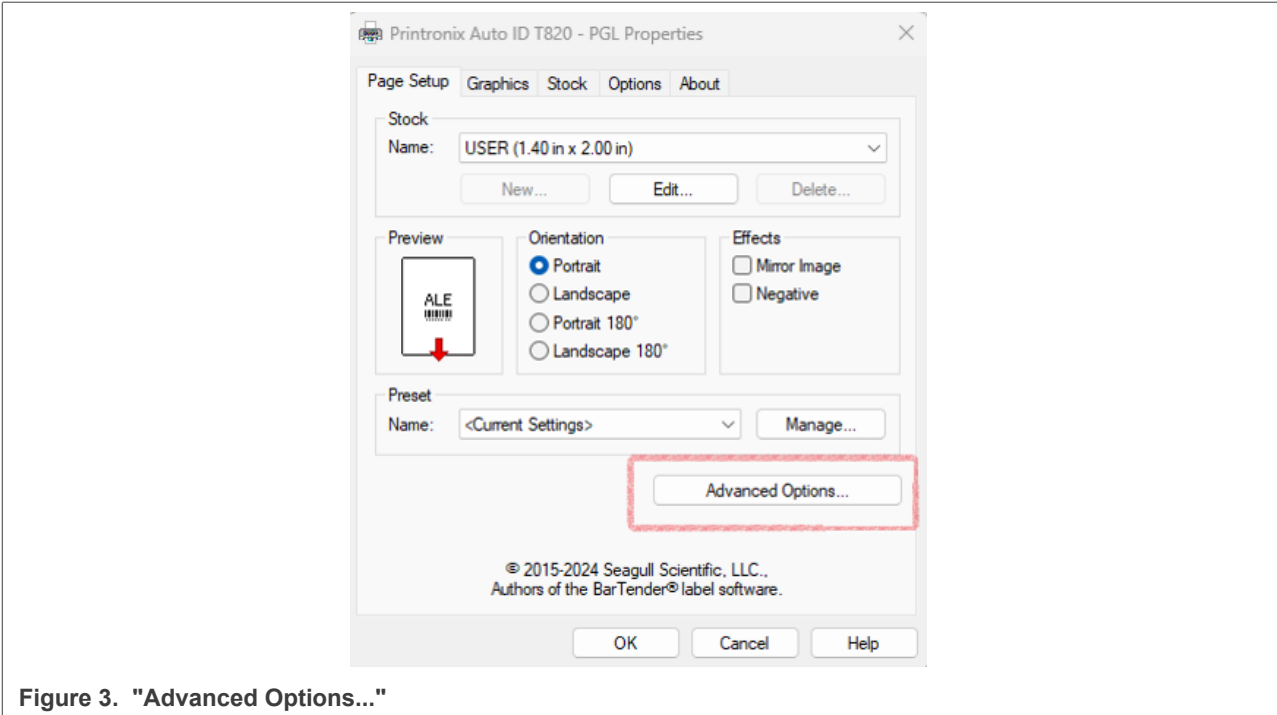


Figure 3. "Advanced Options..."

5. Go to the "User Commands" tab. Under "Start of Label", enter the RFWTAG command which is used for writing into the tag. Since the user is writing into the TID to change the UCODE X configuration at word 7h, the whole command is:
- RFWTAG;16;7;TID**
16;H;*0003*
STOP
- User can copy/paste this command in the "Start of Label" field, where *0003* represents the configuration number users are applying to the UCODE X chip.

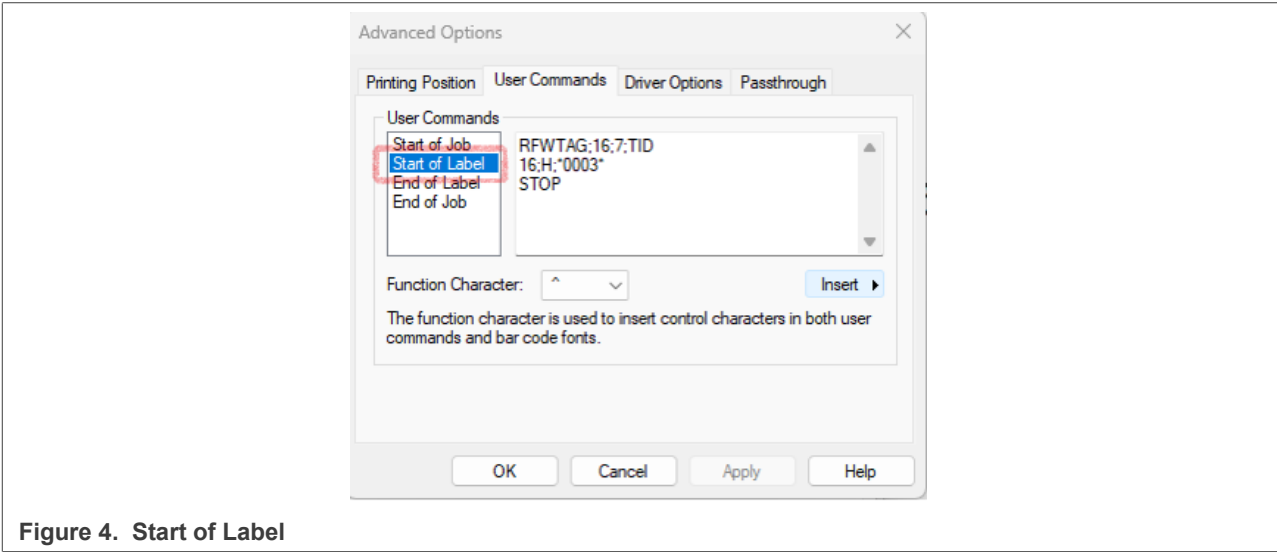


Figure 4. Start of Label

6. 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.

7. Users can also verify the setup using the "Print to file" option of the printer to see if the commands were executed correctly.

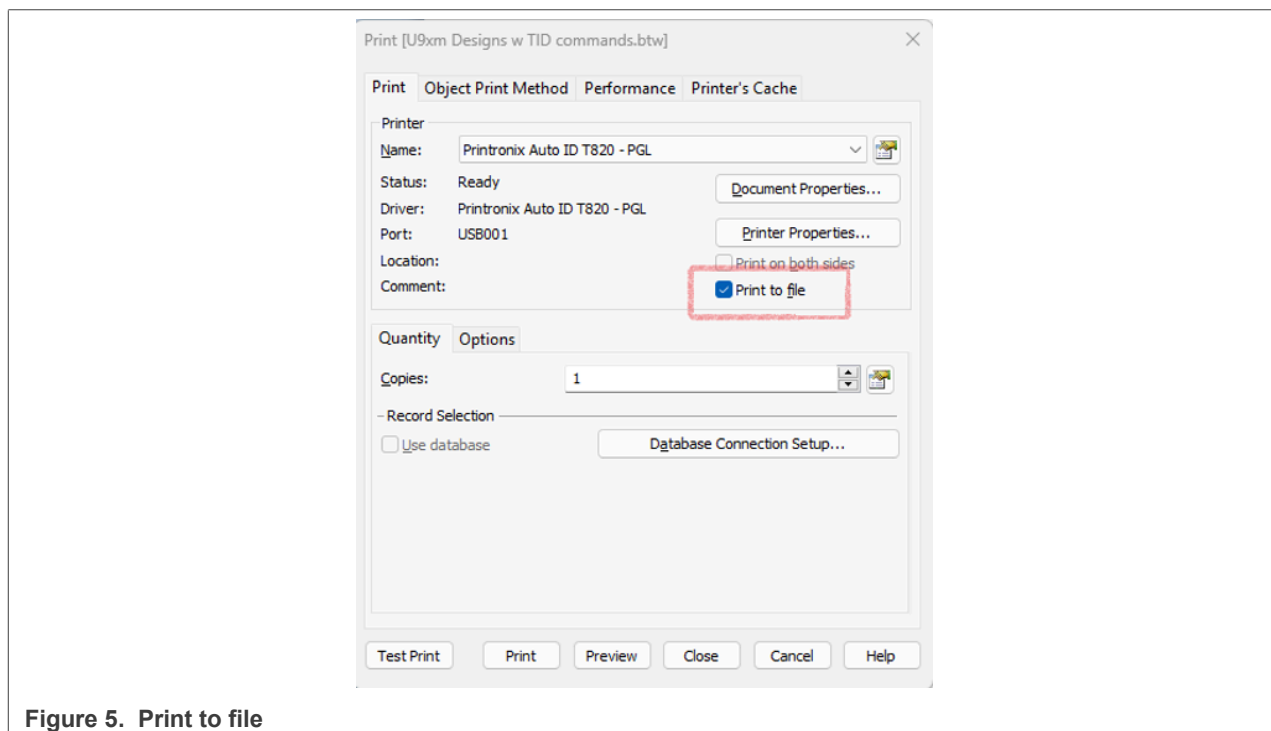


Figure 5. Print to file

8. The "Print to file" output should be as follows:
- ```
~CREATE;FORM-0;144
SCALE;DOT;203;203
RFWTAG;16;7;TID
16;H;*0003*
STOP
ISET;'UTF8'
RFWTAG;32;EPC
32;H;*1234ABCD*
STOP
FONT;FACE 92250;BOLD 0;SLANT 0
ALPHA
INV;POINT;208;138;6;6;"GTIN: 614141500048"
INV;POINT;180;138;6;6;"Expiry: 07 Jun 2024"
INV;POINT;145;138;6;6;"Serial: 01"
STOP
LOGO
124;145;LOGO-0
STOP
```

### 3 Contact

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

4 Revision history

Table 3. Revision history

| Document ID   | Release date | Description     |
|---------------|--------------|-----------------|
| AN15114 v.1.0 | 24 July 2026 | Initial version |

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