GTSYS

Quick Reference Guide

DR-U-USB (USA) / **DR-E-USB** (European)
First Edition (June 2011)

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Document History

Author	Version	
M.A.	Pre 0.1	Initial Version
C.R.	Pre 0.2	Picture and program description Installer chapter
M.A.	Pre 0.3	Disclaimer
C.R.	Pre 0.4	Driver download
M.A.	Release 1.0	First Edition (June 2011)

1 Getting Acquainted

Congratulations on purchasing a GTSYS Desktop RFID Reader. The reader can be delivered for 860 – 960 MHz (subject to regulatory region). The supported protocols are EPC Class1Gen2 / ISO18000-6C.

It has been verified to work with tags from:

- Alien
- Avery Dennison
- Impinj
- Mikoh
- RSI/Sirit
- TI
- UPM Raflatac

The read range is up to 150 cm, depending on the tag used and power setting.

ⓘ Use this guide for more information on setting up your RFID Reader and learning how it works.

Next Chapter: Installing the DR-X-USB

Install the APTool software and drivers. The software program can be copied from the CD to your PC.

2 Installing the DR-X-USB

2.1 Installation pre-requirements

- PC with a minimum Pentium 4 class CPU
- Microsoft ® Windows Vista or Windows 7
- 100 MB available hard drive space
- USB 2.0

2.2 Software installation

For the reader to work properly, install the programs on your computer **before** you connect your DR-X-USB to your computer.

1. Insert the accompanying CD into the CD tray of your computer.
2. Start the **APTool.msi** program from the CD and follow the instructions in the installation wizard.
3. Plug in the supplied USB cable with the reader in any available USB 2.0 port of your computer.
4. After you have installed the accompanying software on your computer and inserted the USB cable of the reader, Windows informs you about a new device and starts installing the device drivers. If Windows cannot find a driver and returns with an error, please see page 12 – USB Driver installation before proceed.

PC (running Windows Vista/7)

RFID Reader

Next chapter: 3Start APTool

3 Start APTool

GTSYS provides a testtool: *APTool.* It is available from the Start menu after the installation process has sucessfully finished. The path to the program is: **Start -> Program -> APTool**

APTool discovers the DR-X-USB reader automatically. The system is ready to Read/Write RFID tags or set the reader into FCC approval modi.

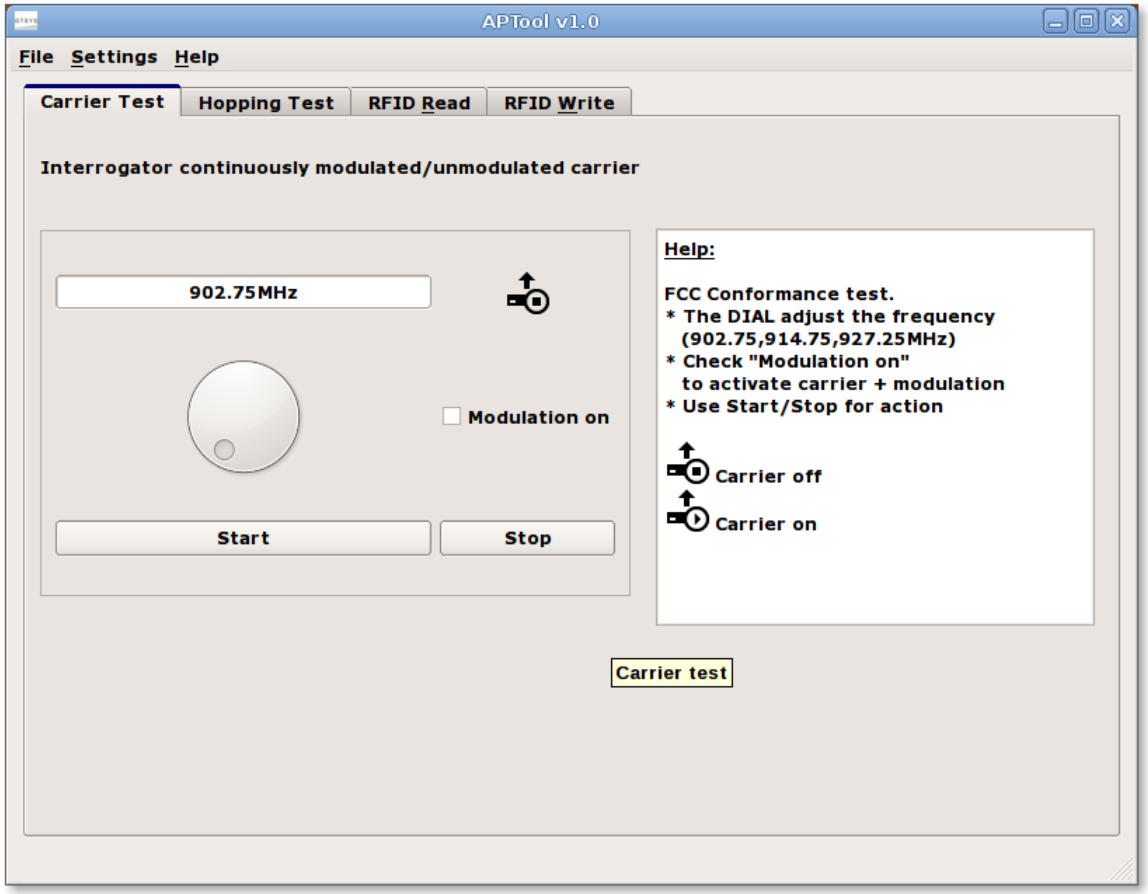
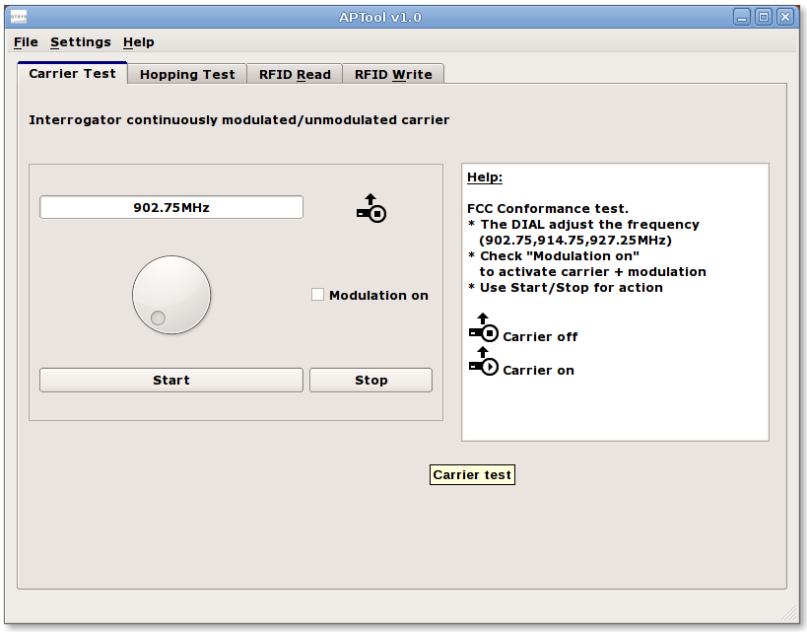


Illustration 1: APTool Start-up Screen (FCC Approval Version)

3.1 FCC Approval Carrier test



The APTool allow you to test the frequency spectrum on the following frequencies:

- (a) 902.75 Mhz
- (b) 914.75 Mhz
- (c) 927.25 Mhz

with or without a modulated carrier.

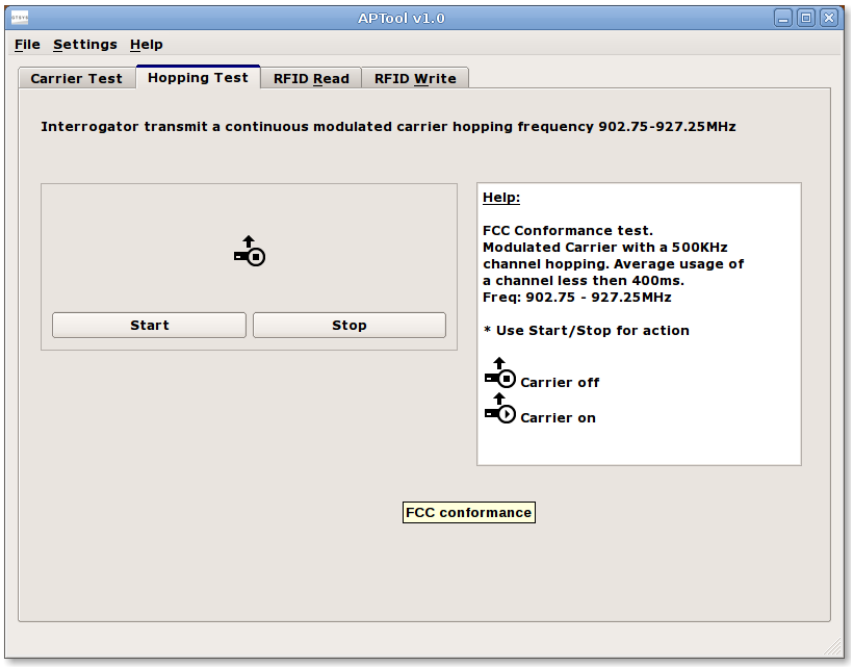
To proceed with the carrier test:

- Select the tab 'Carrier Test'
- Use the round dial to select the frequency to (a) , (b) or (c).
- Select 'Modulation on' for a modulated carrier.
- Set the power to 22dbm (see page 9 - 5.1To set the power level)
- Click the 'Start' button to make the DR-U-USB running in the test mode.
  The carrier indication Icon change from 'Carrier off' to 'Carrier on'
- Click the 'Stop' to stop the test.
  The carrier indication Icon change from 'Carrier on' to 'Carrier off'

IMPORTANT NOTICE

After you finished the test, close the program and restart the DR-U-USB by unplug the desktop reader from the USB port and connect it back to the USB port after 10 sec.
(there is a know issue with the firmware to be fixed with the next release)

3.2 FCC Approval Frequency Hopping



The APTool allows you test the frequency hopping behavour of the DR-U-USB required for FCC. In this mode the DR-U-USB change the frequency every >400ms in a range from 902.75 to 927.25Mhz (channel bandwidth 500Khz) for 50 channels

To proceed with the frequency hopping test:

- Select the tab 'Hopping Test'
- Set the power to 22dbm (see page 9 - 5.1To set the power level)
- Click the 'Start' button to make the DR-U-USB run the test mode.
  The carrier indication Icon change from 'Carrier off' to 'Carrier on'
- Click the 'Stop' to stop the test.
  The carrier indication Icon change from 'Carrier on' to 'Carrier off'

IMPORTANT NOTICE

After you finished the test, close the program and restart the DR-U-USB by unplug the desktop reader from the USB port and connect it back to the USB port after 10 sec.
(there is a know issue with the firmware to be fixed with the next release)

3.3 Reading Tags

The APTool allows you to read information from a RFID tag.

To proceed with reading:

- Put a RFID tag onto the reader.
- In APTool select the "RFID Read" tab.
- Set the reading option (see below)
- Click the "Read" button to read selected informations from the RFID tag.

Read options:

- Read EPC (default)
- Read TID (optional)
- Read Bank 3 (optional)
  in Text or Hex view

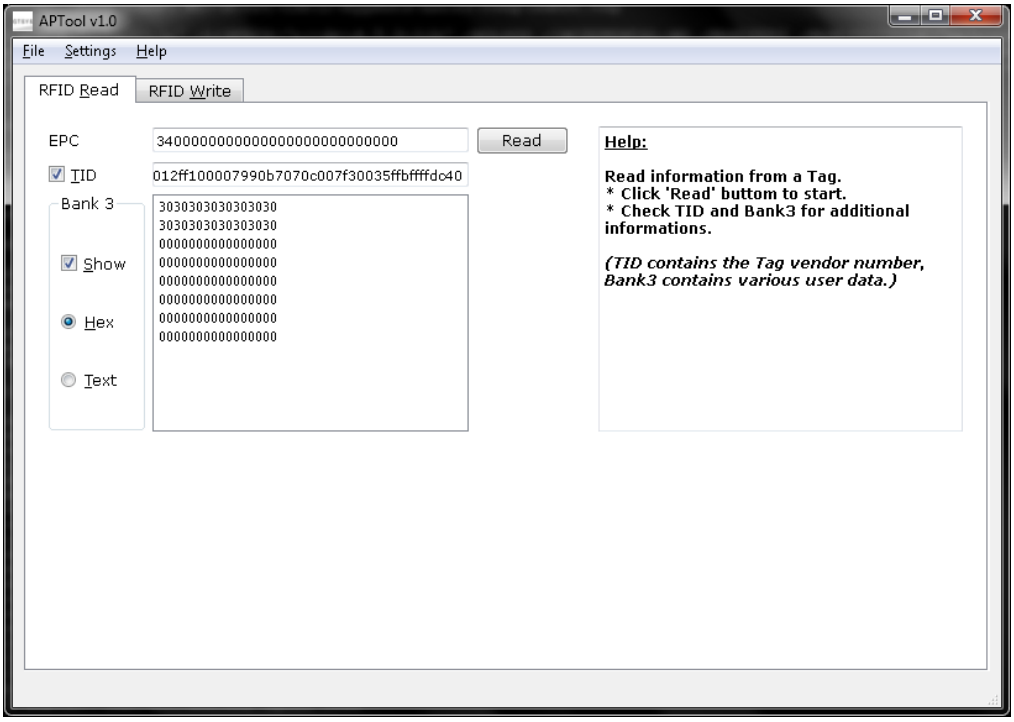


Illustration 2: RFID Read tab

- Problem cannot read TID or Bank3
  - The RFID tag may be password protected.
    Please refer to page 8 – Set Password Dialogue
  - RFID tag may be out of read range – reposition the tag.

3.4 Writing Tags

The APTool allows you to write information to the Bank3 user memory of a RFID tag.

To proceed with writing onto the tag:

- Put a RFID tag onto the reader
- Read the tag (see Reading Tags)
- Select the "RFID Write" tab and write information in the input line
- Click the "Write" button

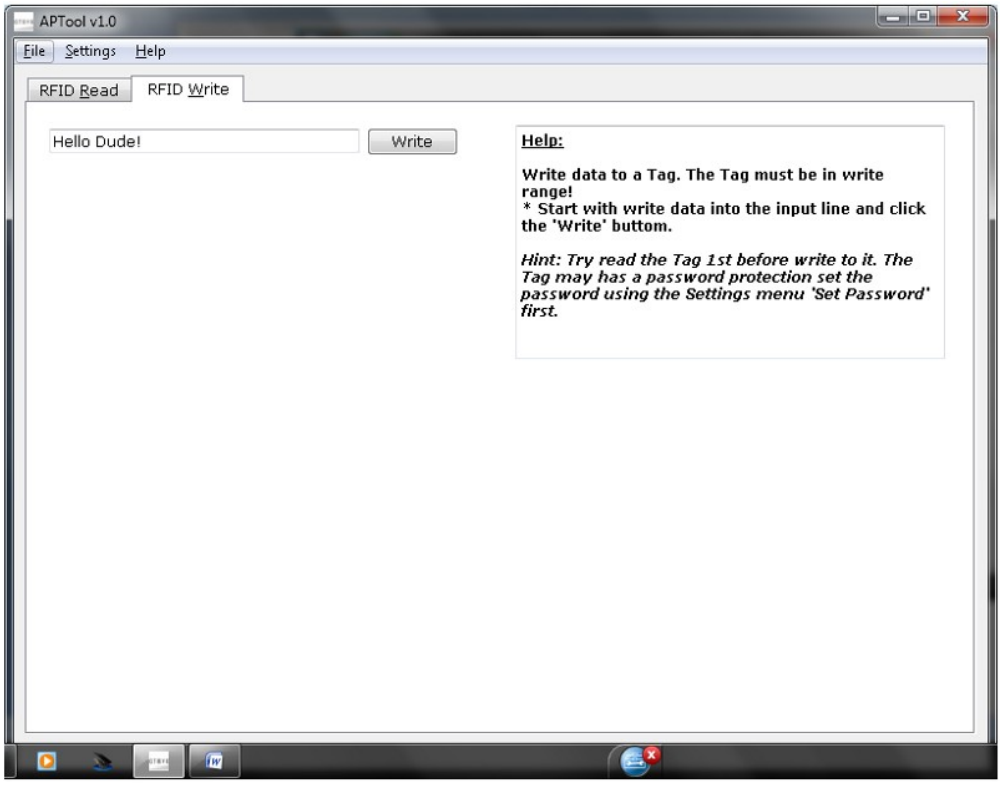


Illustration 3: RFID Write Tab

ⓘ The RFID tag might be password protected.

Problem write failed!

- Reason: Power setting may be too low.
  Please refer to page 9 – Set Power Dialogue to adjust the power settings.
- Reason: Tag may be password protected.
  Please refer to page 8 – Set Password Dialogue

4 Set Password Dialogue

The EPC/Gen2 RFID tags have a feature to protect information with a password this dialogue allows you set a password while reading or writing onto a RFID tag.

Password input in hexadecimal charters (0-9,a-f) with a length of 8, the default value is 00000000

4.1 To set a password

- Select “Settings->Set Password” from the top menu bar
- Type a 8 charter hexadecimal password
- Click on “OK”

4.2 To reset the password (to default)

- Select “Settings->Set Password” from the top menu bar
- Type “00000000” into the input line
- Click on “OK”

Illustration 4: Password Dialogue

5 Set Power Dialogue

Depending on the environment and the RFID tag in use, you need to adjust the power setting of the reader's amplifier to read and write successfully.

Notice: High power values can have a negative effect to the read/write results – it is recommend to start from low (min) to high (max) power values in small steps to find the optimal setting.

5.1 To set the power level

- Select “Settings->Set Power” from the top menu bar
- Use the slide bar to set the power level
- Click on “OK”

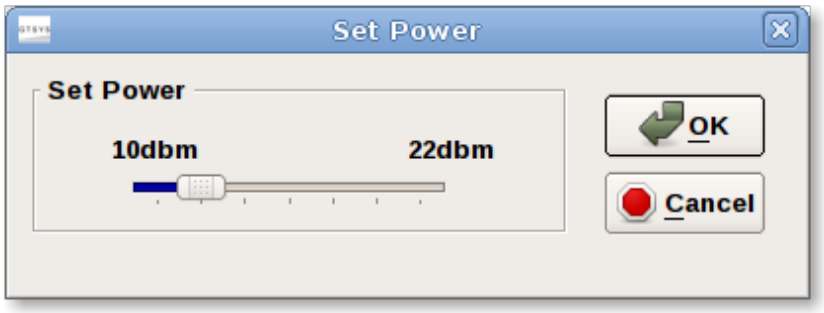


Illustration 5: Set Power Dialogue

Output power range:

Min = 10 dbm
Max = 22 dbm
Stepping = 1 dbm

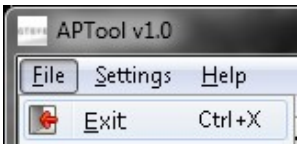
6 Menu

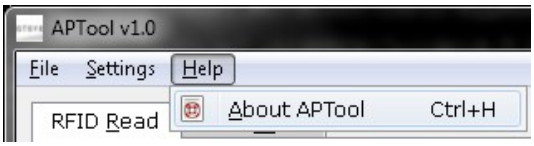
APTool menu and shortcuts.

6.1 Main menu

APTool comes with 3 menu items:

- File
  * Exit application
- Settings
  * Set Power
  * Set Password
- Help
  * About





6.2 Application short-cuts

APTool Software	Functions
Alt-F	File Menu
Alt-S	Settings Menu
Alt-H	Help / About
Alt-R	Activate Read Tab
Alt-W	Activate Write Tab
Alt-T	Set/unset TID read
Alt-S	Set/unset Bank3 read
Ctrl-X	Exit program
Ctrl-H	About
Ctrl-P	Power Dialogue
Ctrl-A	Password Dialogue

7 About

The copyright information.

Illustration 6: Copyright notice

8 USB Driver installation

Some versions of Microsoft Windows Vista/7 lack support for the USB device used in the DR-X-USB Desktop reader. Therefore you may need to install the drivers manually.

8.1 Download USB Driver

The GTSYS DR-X-USB RFID Desktop reader uses the Prolific PL2303 chip set.

The Driver for Windows Vista/7 can be download from the Prolific web page:
http://www.prolific.com.tw/
http://www.prolific.com.tw/eng/downloads.asp?id=3

Please download the latest version of the driver for your Operating System and install the driver by following the instructions with the download packet.

9 Disclaimer

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This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE: The manufacturer is not responsible for any radio or TV interference caused by unauthorized changes and modifications to this equipment. Such changes and modifications could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
-Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
-Consult the dealer or an experienced radio/TV technician for help.