

NRC7292 Evaluation Kit User Guide (AT-CMD Test Tool)

Ultra-low power & Long-range Wi-Fi

**Ver 1.3.0
Feb 25, 2021**

NEWRACOM, Inc.

NRC7292 Evaluation Kit User Guide (AT-CMD Test Tool)

Ultra-low power & Long-range Wi-Fi

© 2021 NEWRACOM, Inc.

All right reserved. No part of this document may be reproduced in any form without written permission from Newracom.

Newracom reserves the right to change in its products or product specification to improve function or design at any time without notice.

Office

Newracom, Inc.

25361 Commercentre Drive, Lake Forest, CA 92630 USA

<http://www.newracom.com>

Contents

- 1 Introduction 5**
- 2 Usage 6**
 - 2.1 Serial Panel6
 - 2.2 I/O Monitor6
 - 2.3 Control Panel.....7
 - 2.4 Synchronous / Passthrough Transmission8
 - 2.5 Echo Integrity Test9
- 3 Revision History 10**

List of Figures

Figure 1.1	AT-CMD Test Tool	5
Figure 2.1	Serial Panel.....	6
Figure 2.2	I/O Monitor	6
Figure 2.3	Control Panel.....	7
Figure 2.4	Continuous AT+SSEND transmission mode	8
Figure 2.5	Echo Integrity Test Panel	9

1 Introduction

NRC7292 AT-CMD Test Tool is a GUI program that allows users to easily test out NRC7292 AT-commands in graphical manner. All testable command sets supported by the program are based on the **NRC7292 Evaluation Kit User Guide (AT-Command)** document. Although the usage of the program should be mostly self-explanatory, this manual will nevertheless serve as a supplementary document that clarifies the usage of more advanced features of the program.

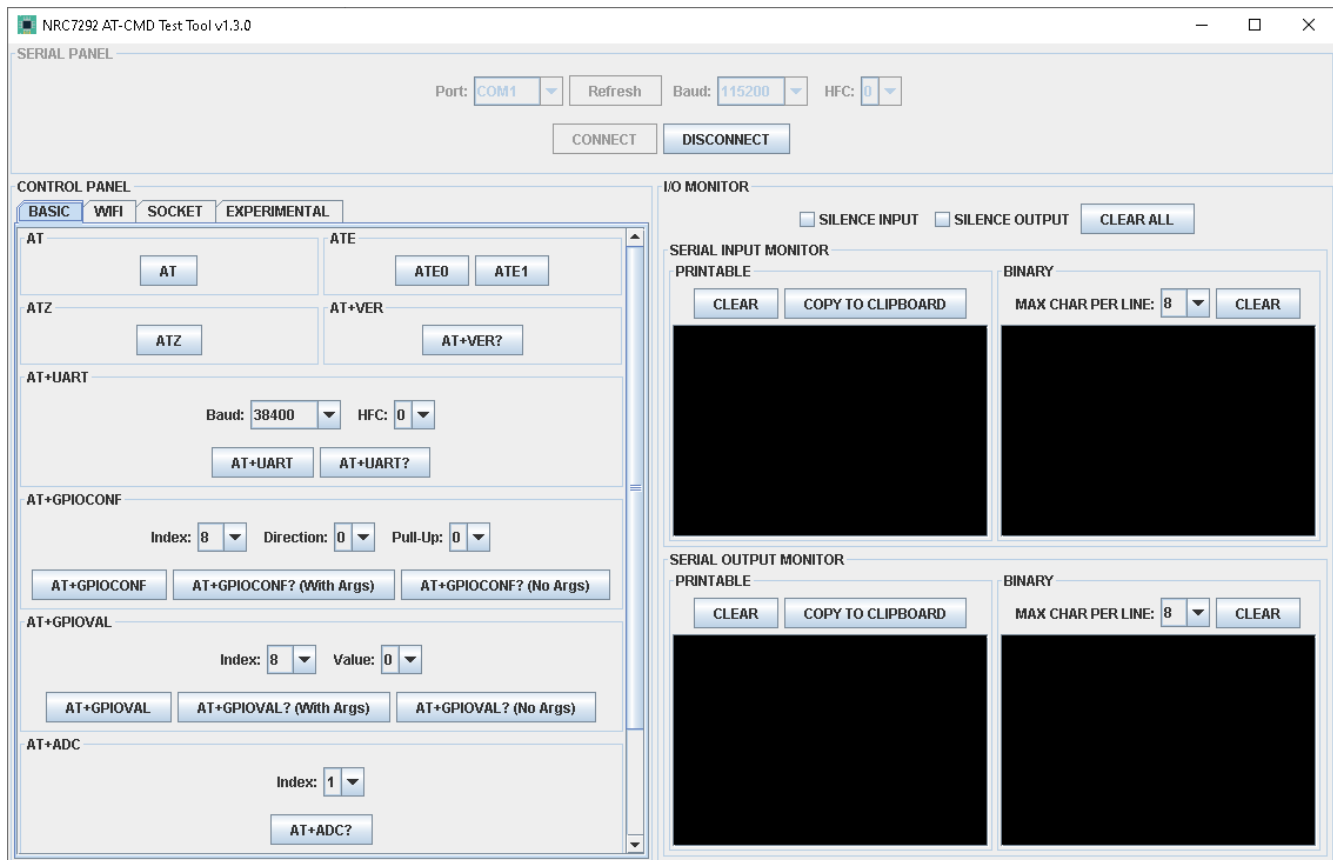


Figure 1.1 AT-CMD Test Tool

2 Usage

The program window is divided into the **Serial Panel**, **I/O Monitor** and **Control Panel**.

2.1 Serial Panel

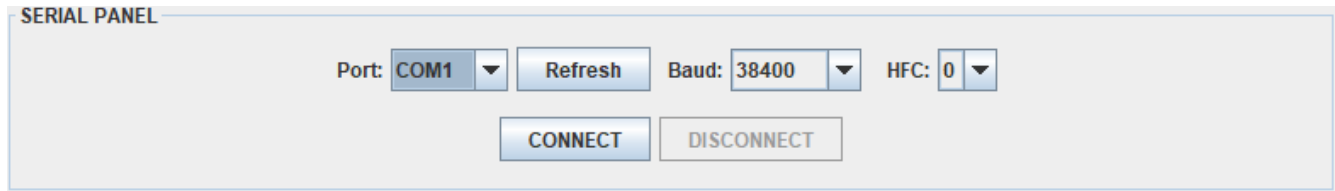


Figure 2.1 Serial Panel

The **Serial Panel** can be used to configure UART-serial parameters (serial port, baud rate, data bits, parity bits, stop bits and H/W flow control option) and connect the PC to, or disconnect it from, the NRC7292 module. The default parameter values in the program correspond to the default UART parameters used by the AT-firmware. Successful connection will enable the **Control Panel**.

2.2 I/O Monitor

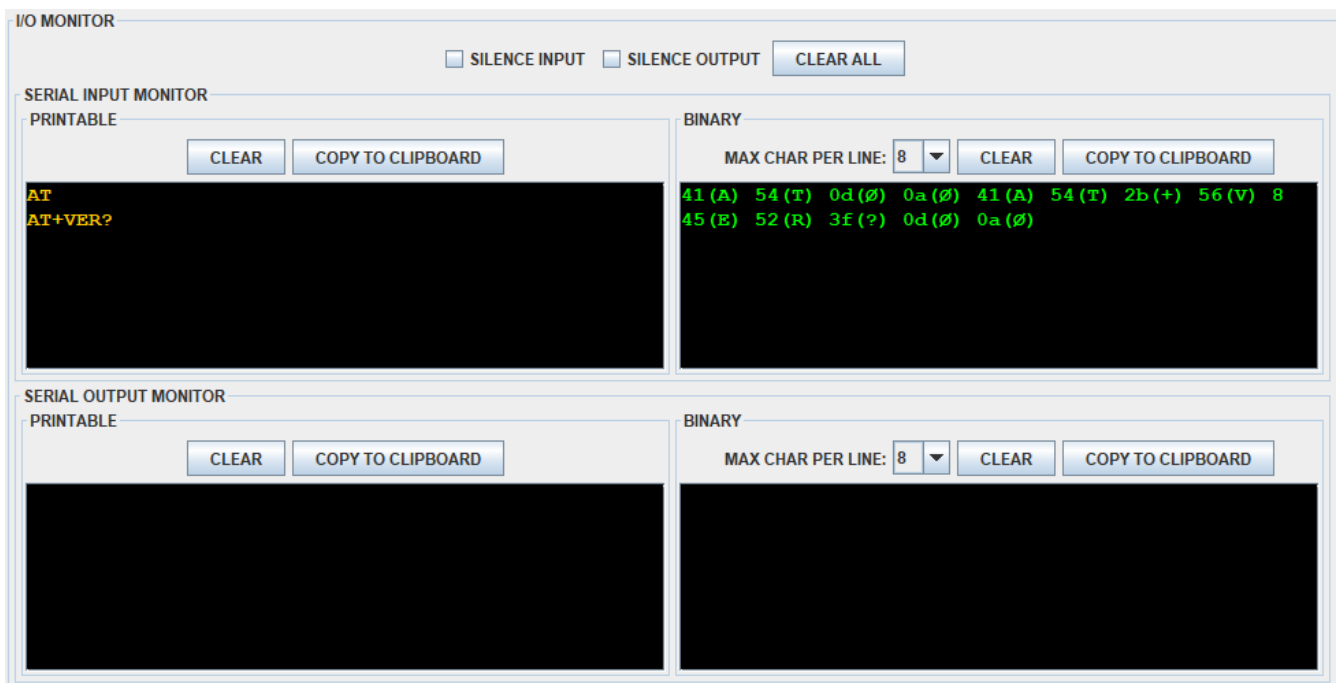


Figure 2.2 I/O Monitor

The **I/O MONITOR** can be used to monitor the input/output serial byte-streams between the PC and the NRC7292 module. Each of the two byte-streams is separately examined as both printable characters (0x9 (TAB), 0x10 (LF), 0x20~0x7E) and raw bytes (0x00~0xFF) simultaneously.

2.3 Control Panel

The screenshot displays the 'CONTROL PANEL' window with the 'BASIC' tab selected. The interface is organized into several sections for testing different AT-commands:

- AT**: A text input field with an 'AT' button below it.
- ATE**: Two buttons labeled 'ATE0' and 'ATE1'.
- ATZ**: A text input field with an 'ATZ' button below it.
- AT+VER**: A button labeled 'AT+VER?'.
- AT+UART**: A section containing 'Baud' (38400) and 'HFC' (0) dropdown menus, and buttons for 'AT+UART' and 'AT+UART?'.
- AT+GPIOCONF**: A section with 'Index' (8), 'Direction' (0), and 'Pull-Up' (0) dropdown menus, and buttons for 'AT+GPIOCONF', 'AT+GPIOCONF? (With Args)', and 'AT+GPIOCONF? (No Args)'.
- AT+GPIOVAL**: A section with 'Index' (0) and 'Value' (0) dropdown menus, and buttons for 'AT+GPIOVAL', 'AT+GPIOVAL? (With Args)', and 'AT+GPIOVAL? (No Args)'.
- AT+ADC**: A section with an 'Index' (1) dropdown menu and an 'AT+ADC?' button.
- CUSTOM COMMAND**: A section with two radio buttons: 'PRINTABLE' (selected) and 'BINARY'. The 'PRINTABLE' section has a text input field containing 'AT'. The 'BINARY' section has a text input field containing '41 54'. Below these are three buttons: 'SEND (Without CRLF)', 'SEND (With CRLF)', and 'SEND CRLF'.

Figure 2.3 Control Panel

Following the command categorization scheme in the **NRC7292 Evaluation Kit User Guide (AT-Command)**, the **Control Panel** is divided into four tabs: **BASIC**, **WIFI**, **SOCKET** and **EXPERIMENTAL**. Each tab contains various boxes to test out the AT-commands listed in the **NRC7292 Evaluation Kit User Guide (AT-Command)**.

2.4 Synchronous / Passthrough Transmission

The image shows a software interface for configuring AT+SEND commands. It is divided into two main sections: 'AT+SEND (Continuous random data transfer)' and 'AT+SEND (File transfer)'. Both sections have identical fields for 'Socket ID' (0), 'TCP-UDP' (TCP), 'Remote IP' (192.168.200.1), and 'Remote Port' (8888). The 'Continuous random data transfer' section includes radio buttons for 'Synchronous' (selected) and 'Passthrough', and input fields for 'Size (Bytes)' (256), 'Interval (ms)' (500), and 'Time (s)' (10). It also has radio buttons for 'Random Alphanumeric' (selected) and 'Random Raw Bytes'. The 'File transfer' section includes radio buttons for 'Synchronous' (selected) and 'Passthrough', input fields for 'Block Size (Bytes)' (1024) and 'Interval (ms)' (500), and a 'File Path' field with a 'Set' button. Both sections have 'START' and 'STOP' buttons.

AT+SEND (Continuous random data transfer)

Socket ID: 0 TCP-UDP: TCP

Remote IP: 192.168.200.1 Remote Port: 8888

☒ Synchronous ☐ Passthrough

Size (Bytes): 256 Interval (ms): 500 Time (s): 10

☒ Random Alphanumeric ☐ Random Raw Bytes

START STOP

AT+SEND (File transfer)

Socket ID: 0 TCP-UDP: TCP

Remote IP: 192.168.200.1 Remote Port: 8888

☒ Synchronous ☐ Passthrough

Block Size (Bytes): 1024 Interval (ms): 500

File Path: Set

START STOP

Figure 2.4 Continuous AT+SEND transmission mode

Continuous transmission test modes including random data transfer and file transfer support synchronous and passthrough transmission types. See the **NRC7292 Evaluation Kit User Guide (AT-Command)** for a detailed explanation of how each mode operates.

2.5 Echo Integrity Test

The screenshot shows the 'Echo Integrity Test' window. At the top, there are radio buttons for 'Synchronous' (selected) and 'Asynchronous'. Below these are three input fields: 'Socket ID' with value '0', 'Block Size (Bytes)' with value '256', and 'Interval (ms)' with value '100'. Further down are radio buttons for 'Random Alphanumeric' (selected) and 'Random Raw Bytes'. A checkbox for 'Enable File Dump' is present and unchecked. There are two sections for file paths: 'Incoming Payload Dump Path' with a text box containing '/INCOMING_PAYLOAD.txt' and a 'Set' button, and 'Outgoing Payload Dump Path' with a text box containing '/OUTGOING_PAYLOAD.txt' and a 'Set' button. At the bottom, there are two boxes for 'Received Byte Count' and 'Sent Byte Count', both showing '0'. Below these are three buttons: 'START' (highlighted in blue), 'PAUSE/UNPAUSE', and 'STOP'.

Figure 2.5 Echo Integrity Test Panel

The echo integrity test is used to perform a TRX integrity test by transmitting a random byte sequence which, upon reaching the destination, is echoed back to the source and compared against the original byte sequence for any possible mismatched bytes. The test will terminate with an error message if a mismatch is detected.

Before starting the echo integrity test on the test tool, the user must first run the echo-server Linux script in the 'experimental' subdirectory included in the program package. Executing the script will start an echo-server that runs on TCP/IP port 12345.

3 Revision History

Revision No	Date	Comments
Ver 1.0.1	9/27/2019	First version for external document release
Ver 1.1.3	1/31/2020	Updated texts and figures.
Ver 1.1.4	3/31/2020	Updated figures.
Ver 1.3.0	2/25/2021	Passthrough mode.