



ZORABOTS

MULTITOOL

RELEASE 0.0.2

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1 Preface

This document has been designed to provide an overview of the functions available in the program MultiTool of ZoraBots.

Note: Currently, the multitool can only be used in combination with Zora- and Pepper-robots.

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2 Introduction

The multitool has been designed to obtain specific information from a robot or (in some cases) to configure certain options on the robots of ZoraBots.

This program can be run in two ways, specifically:

- An executable file (.**exe**) for Windows-machines
- A Java executable file (.**jar**) for all operating systems

When using the Java executable, the latest version of the Java Runtime Environment must be installed on the computer. To download the latest version, please check the following link: <http://www.oracle.com/technetwork/java/javase/downloads/jre8-downloads-2133155.html>. MAKE SURE THE 32-BIT VERSION IS INSTALLED, even if the computer is running a 64-bit version Windows or MacOS.

Warning before use: Both the robot and the computer must be connected on the same network, and the network discovery service must be enabled on the computer and main router.

For more information on the network discovery service, use the following link:

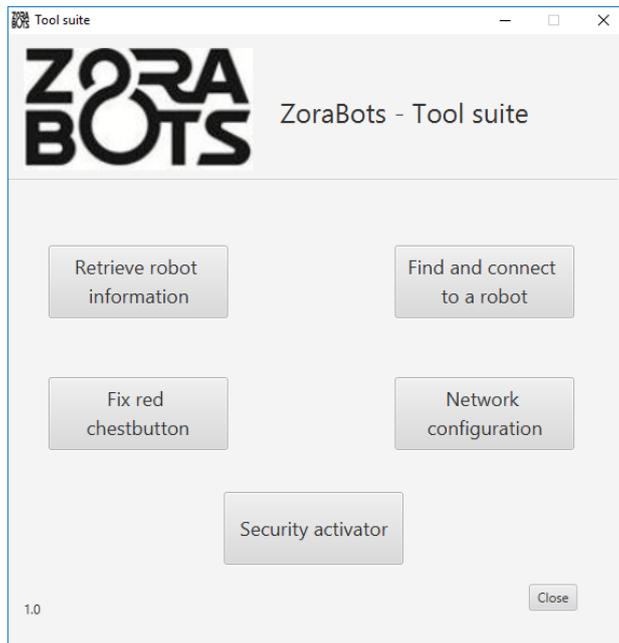
<https://technet.microsoft.com/en-us/library/cc181373.aspx>

The following compatibility of the tools is valid:

	ZORA	PEPPER
Retrieve robot information	All versions	All versions
Find and connect to a robot	All versions	Not supported
Fix red chest button	Since 0.7.53 version	Not applicable to Pepper
Network configuration	Since 0.7.4 version	Not applicable to Pepper
Security activator	Since the 0.7.51 version	Since the 0.1.3p version

2.1 Main page

When opening the program, the following screen is shown:



As shown in the picture, there are 5 different tools that can be run from the main application, specifically:

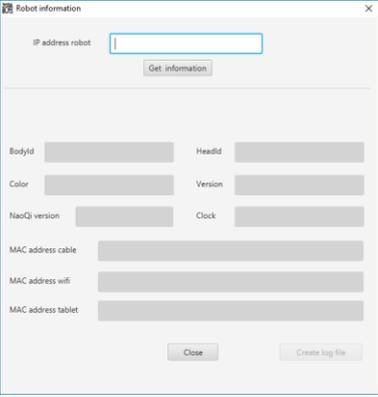
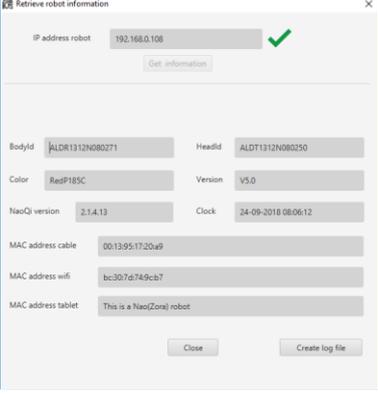
- **Retrieve robot information**
- **Find and connect to a robot**
- **Fix red chest button**
- **Network configuration**
- **Security activator**

Note: Only one of these applications can be run at a time. Once one of the applications is opened, the main screen will not respond until the current application is closed. E.g. Once the application 'Retrieve robot information' is opened, it must first be closed before the 'Network configuration'-tool can be started.

3 Retrieve robot information

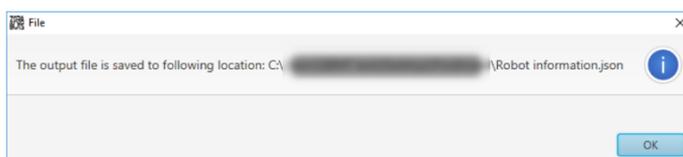
This application is used to collect the information of a Zora- or Pepper-robot and storing it on the local hard drive.

- **Using the tool**

<p>Step 1 – Open the tool</p>	
<p>Step 2 – Enter the IP-address of the robot</p>	<p>To retrieve the information, enter the IP address of the robot in the required field. To find the IP-address, the chest-button of the Zora- or Pepper-robot can be pressed or (in case of Zora), the application 'Find and connect to a robot' can also be used.</p>
<p>Step 3 – Click the button 'Get Information' and save the information to the local drive</p> <p>Once the information has been filled in, the information can be stored in a file (JSON-formatted) on the local hard drive. By clicking the button 'Create Log File', an explorer-window will ask in what folder the file should be stored.</p>	

Note: The filename will always be 'Robot Information.json', so make sure the folder does not already contain this file, **otherwise it will be overwritten.**

Once a correct folder has been selected, the following information is shown:



Note: If the entered IP-address is invalid, the following error message is shown:

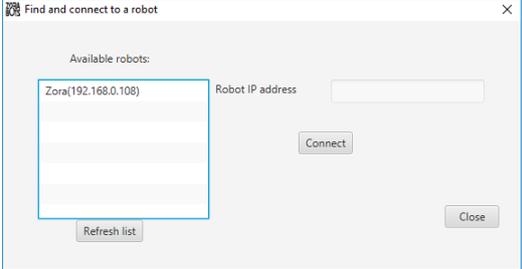


Note: If the information of the NaoQi is not correctly filled in (i.e. ';' or '0.0.0'), restart the program and try again.

4 Find and connect to a robot

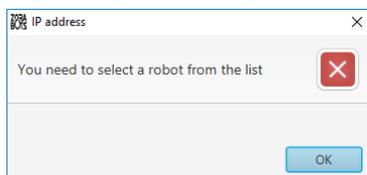
This application is used to **retrieve the IP-address of a Zora**. At the moment of writing, the Pepper-robots are not compatible with this version of the tool.

Note: Before use, the robot must be fully booted, and **Google Chrome** must be installed on the computer.

<p>Step 1 – Open the tool</p> <p>By opening the tool, the list of found robots will be shown once the detection has been completed.</p> <p>Note: If a spinning wheel is shown, it indicates that the tool is still scanning the network for robots.</p> <p>Note: If the robot is not shown in the list, the button 'Refresh list' can be used to scan the network for robots again.</p>	
<p>Step 2 – Double-click on the robot in the list</p>	<p>By double-clicking a robot in the list, the IP address of the robot will be filled in.</p> 
<p>Step 3 – Click the button 'Connect'</p>	<p>This will open the ZoraBots Control-page for the robot in a new tab in Google Chrome.</p>

Notes:

- If the IP-address has not been filled in, the following error message will be shown:



- If Google Chrome has not been installed, the connect-button will not do anything.
- If Google Chrome is not active, ONLY the ZoraBots Control-page will be shown. The default start-pages will not be shown.

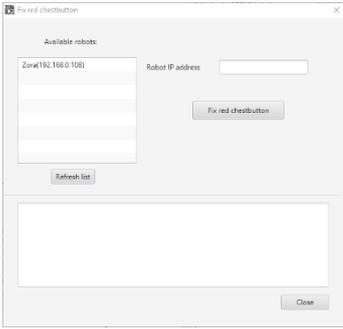
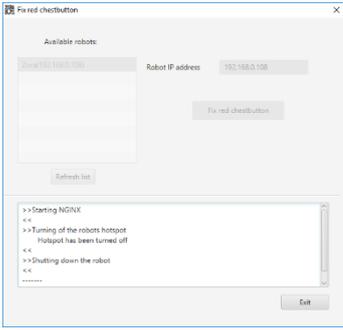
5 Fix red chestbutton (V5 Nao-robots only)

This application has been designed to fix a bug that only sporadically appears on certain Zora-robots based on the Nao V5 robot. This program **will disable the hotspot**, so the robot can be fully booted.

Of course, after the robot has been fully booted, the hotspot can be re-enabled from the Zora-Control.

Note: For this program to work, Zora needs to be connected by cable to the network the computer is connected to.

- Using the program

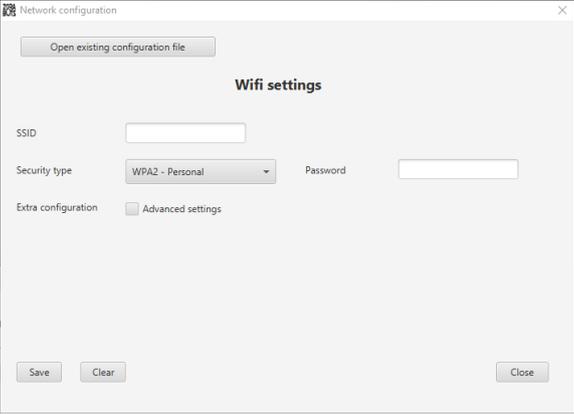
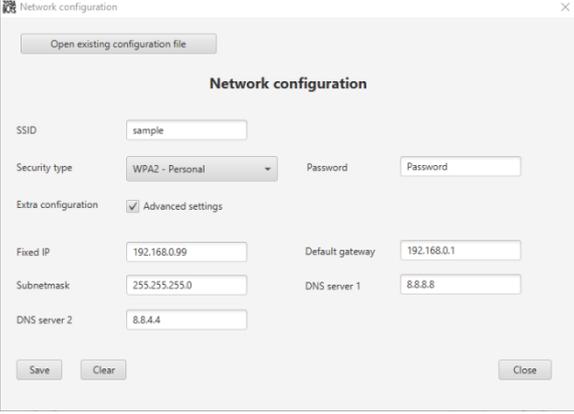
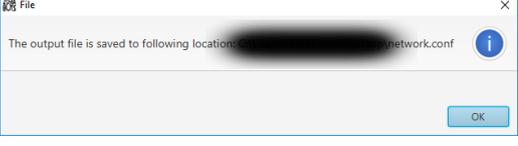
<p>Step 1 – Open the program</p> <p>Note: If a spinning wheel is shown, it indicates that the tool is still scanning the network for robots.</p> <p>Note: If the robot is not shown in the list, the button 'Refresh list' can be used to scan the network for robots again.</p>	 <p>As seen in the image, a list of the Zora-robots connected to the network is shown in the top left half of the application.</p>
<p>Step 2 – Double-click the robot or fill in the network address manually</p>	<p>For Zora to receive an IP-address, it must be connected by cable to a network. By double-clicking the robot in the list, the IP address will be filled in properly in the required text-box.</p> <p>Of course, the IP-address can also be entered manually in the required field.</p>
<p>Step 3 – Click the button 'Fix red button'</p>	<p>Once the IP-address has been filled in, the button 'Fix red chestbutton' can be pressed to apply the fix on the robot.</p>  <p>Note: This will shut the robot down. Users must manually reboot the robot once the fix has been applied.</p>

Note: If the IP address has not been filled in correctly, error messages will be shown, and the button 'Exit' will be replaced by a button 'retry'. By pressing this button, the selection of the robots will be reset, and the IP address can be filled in again.

6 Network configuration

This tool has been designed to generate the required configuration file for a wireless network. This file needs to be copied to a USB-stick (with a single, FAT-32-formatted partition) and then inserted into the back of Zora's head. Once the USB-stick has been inserted, a QR-code can be shown to have Zora implement the configuration file.

- Using the tool

<p>Step 1 – Open the tool</p>	
<p>Step 2 – Enter the correct information for the network.</p> <p>An earlier made configuration file can also be opened by using the button 'Open existing configuration file' and selecting the correct file in the explorer-window.</p>	
<p>Step 3 – Save the file</p> <p>Save the file on the local hard drive of the computer.</p>	
<p>Step 3 – Copy the file to the USB-stick.</p>	
<p>Step 4 – Plug the USB-stick into the back of Zora's head</p>	
<p>Step 5 – Show the following QR-code to Zora.</p>	

- **Robot-configuration**

Once the QR-code is shown, the robot will perform the following steps:

Step 1 – Check the QR-code	The robot will validate the QR-code and if the code is valid, it will start the network configuration process. <i>The robot will beep once.</i>
Step 2 – Check the configuration-file	The robot will then check if the configuration file is valid.
Step 3 – The robot will try to connect to the network	The robot will then attempt to connect to the network with the provided information. If the network configuration has been entered correctly, the robot will be connected to the network.
Step 4 – Ejecting the USB-stick	Once the configuration has been completed, the USB-stick may be removed from the robot.

- **Checking the configuration**

Once the QR-code has been scanned and the 'beep'-noise is heard, the robot will have used the configuration-file to connect to the network.

Press the chest button twice to have the robot say its IP address.

Connect a computer to the same network as the Zora-robot and enter the stated IP address in the address-bar of Google Chrome.

If the configuration is correct, the Zora-Control-screen will be shown.

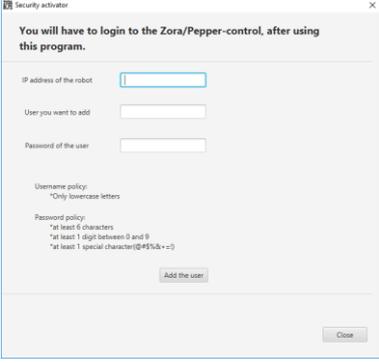
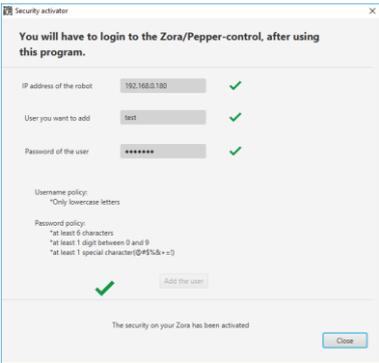
Note: If the robot is also connected with a cable, the IP address stated will only be the one used by the cabled connection. Remove the cable and press the chest button twice to have the robot state the IP address of the wifi-connection.

7 Security Activator

This tool has been designed to have a user log in on a ZoraBots-Control BEFORE connecting with the website of the robot.

Warning: It is recommended to close any open Zora-Control pages in Chrome before adding a new user to the robot.

- Using the tool

<p>Step 1 – Open the tool</p>	
<p>Step 2 – Enter the correct information for a new user</p>	
<p>Step 3 – Add the user</p>	
<p>Step 4 – Log in on Zora-Control with the new user.</p>	<p>When connecting to the robot's IP address with Google Chrome, the following message is shown:</p> 

Notes:

- At least one user must be added before the security will become active.
- If a user already exists, the password will be overwritten without warning! Make sure, therefore, to assign **unique usernames for connecting to the robot.**
- Only if all the requirements are met (see the on-screen policies) will the security be activated. Make sure that when entering password, one of the symbols displayed in the Password policy is used.

8 Troubleshooting

In this section, some fixes for commonly found errors are shown.

- On an Apple-powered device, some robots cannot be detected even though both the computer and robot are connected to the same network.
 - o Solution: Close the multi-tool completely and re-open the multitool until the robots are detected correctly.
- If the computer was connected to a different network before opening the tool, the tool needs to be closed and re-opened before some tools work correctly ('Find and connect to robot' in particular).
- Set the security on the laptop to allow for network discovery. This is usually a default-setting of home- or work-network-profiles on Windows-computers.