

## **DF Scout: Getting Started Tutorial**

## 1 Introduction

This document should be a short tutorial for installation of DF Scout software. Further it should describe the most important user actions.

## 2 Tablet Galaxy Tab S3 and its functions

This chapter explains the buttons of the Galaxy Tab S3:

- On/Off Button:
  - o The tablet is powered on/off by keeping this button pressed for some seconds.
- Volume Up/Down Buttons:
  - o Usually these buttons are used for increasing/decreasing the audio volume of the tablet.
  - o In the actual version of DF Scout they do not have any function.
- Back Button:
  - o This button is used to go back to the last perspective without closing an open window.
- Home Button:
  - o This button is used to go back to the Home screen without closing an open window.
- Menu Button:
  - o This button shows all open windows/applications and allows closing them by clicking the crossed square of each window.

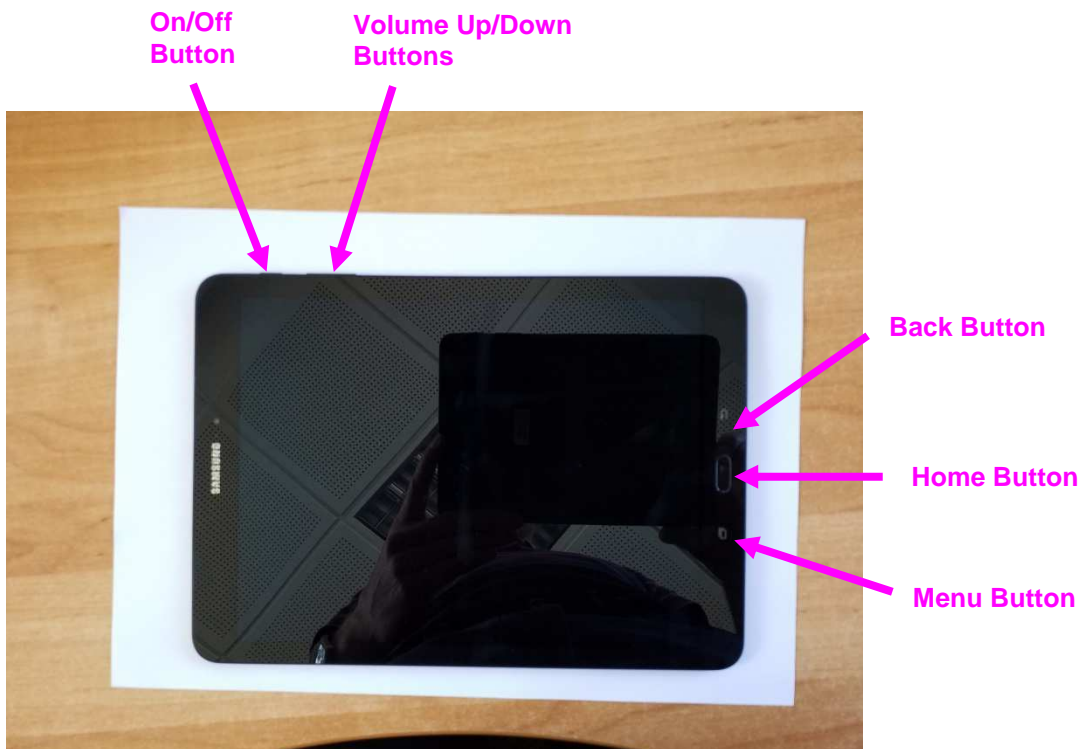


Figure 1: Tablet Galaxy Tab S3

## 3 Installation

For the installation it is necessary to copy the .apk file and the map files first to an USB stick. After connecting the USB stick to the tablet, the .apk file can be opened on the USB stick and the map files have to be copied to the internal memory of the tablet.

### 3.1 Copying application and map files to an USB stick

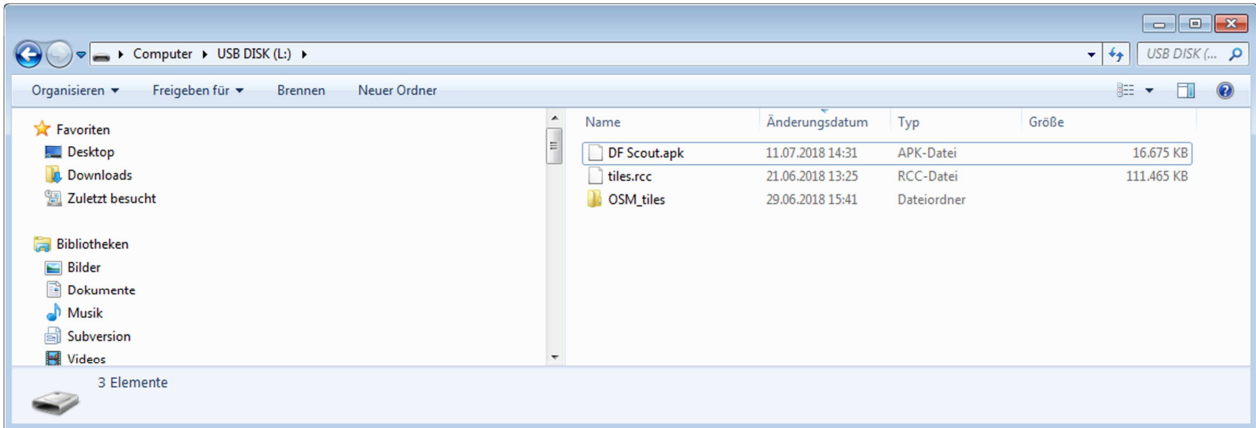


Figure 2: Map files and application on USB stick

### 3.2 Starting tablet

The tablet is started by pressing the On/Off Button for some seconds.

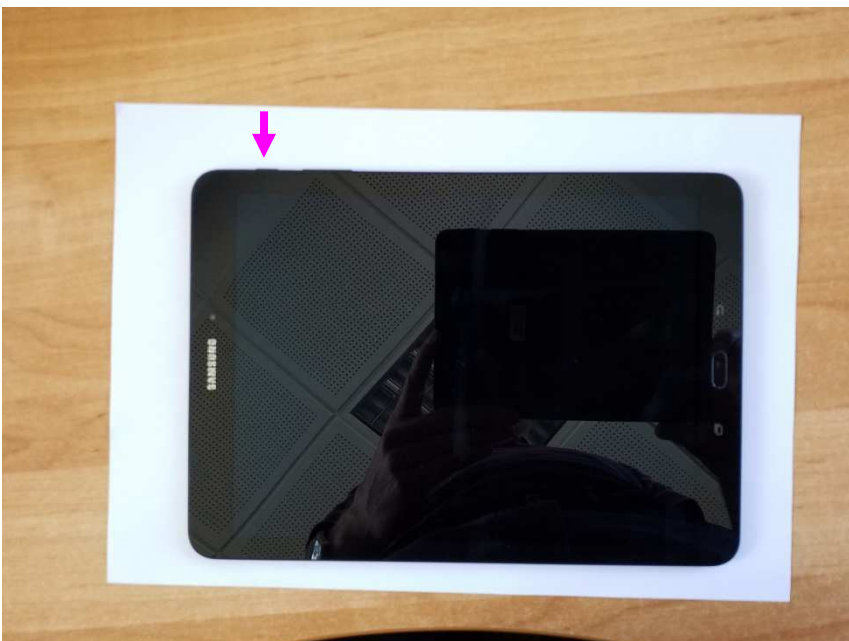


Figure 3: Starting the tablet

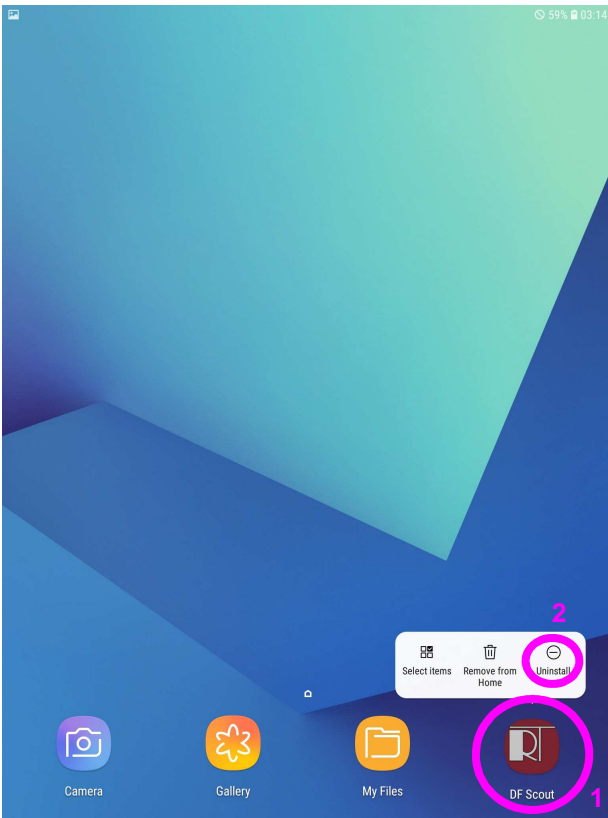
After starting the tablet the so called “Home Screen” is shown. Whenever the user presses the “Home Button”, this screen will be opened.



**Figure 4: Tablet successfully started (Home Screen)**

### **3.3 Uninstalling old application**

If there is already an older version of DF Scout installed, it should be uninstalled first. This is done by keeping the DF Scout icon on the Home screen pressed for some seconds. Then a menu should open, which allows the option “Uninstall”. After selecting “Uninstall” the application will be uninstalled and the related maps will be deleted from the internal memory of the tablet.



**Figure 5: Uninstalling old application**

### **3.4 Installation from USB stick**

The USB stick needs a Type C adaptor for connection. After connecting the USB stick to the tablet, the .apk file should be executed by clicking (Figure 9). During the installation process the user will be asked for allowing some permission, e. g. for brightness setting (Figure 22). Also after first starting the application there may come some messages regarding permissions.

The user should give any permission he is asked for during installation process or during first start-up.

If the user gave already permissions during an earlier installation, they won't appear again.

### 3.4.1 Installation of application

The USB stick needs a "Type C" adaptor in order to connect to the tablet.



**Figure 6: Connect USB stick to tablet**

After connecting the USB stick, the user can browse to the stick by clicking "My Files".

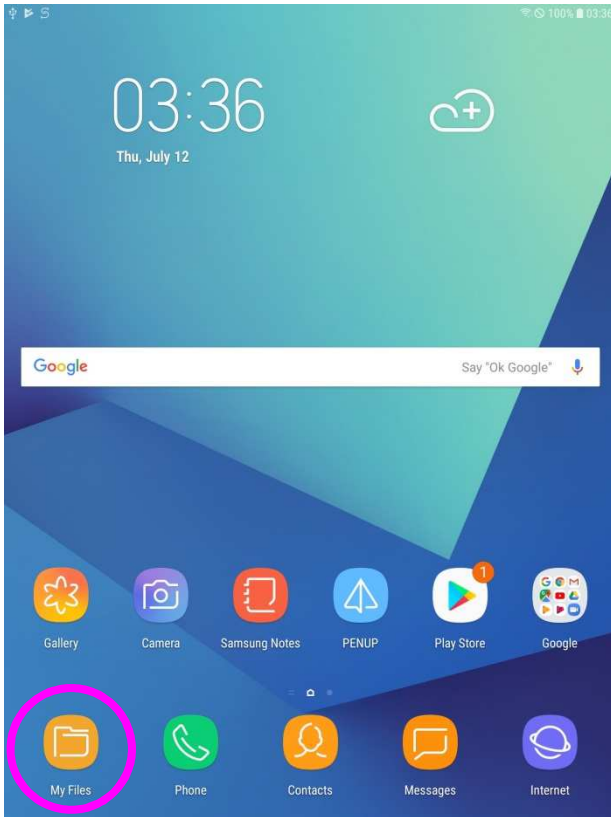


Figure 7: Open File Browser "My Files"

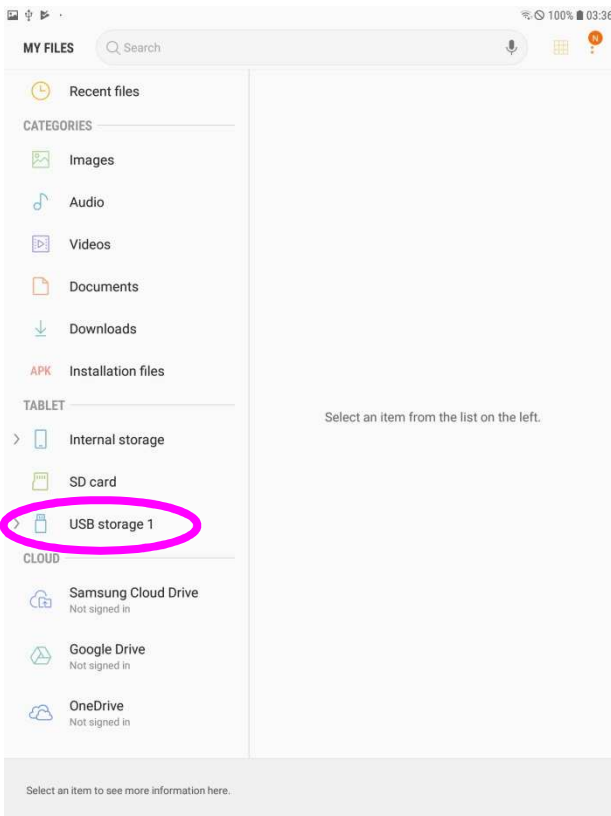
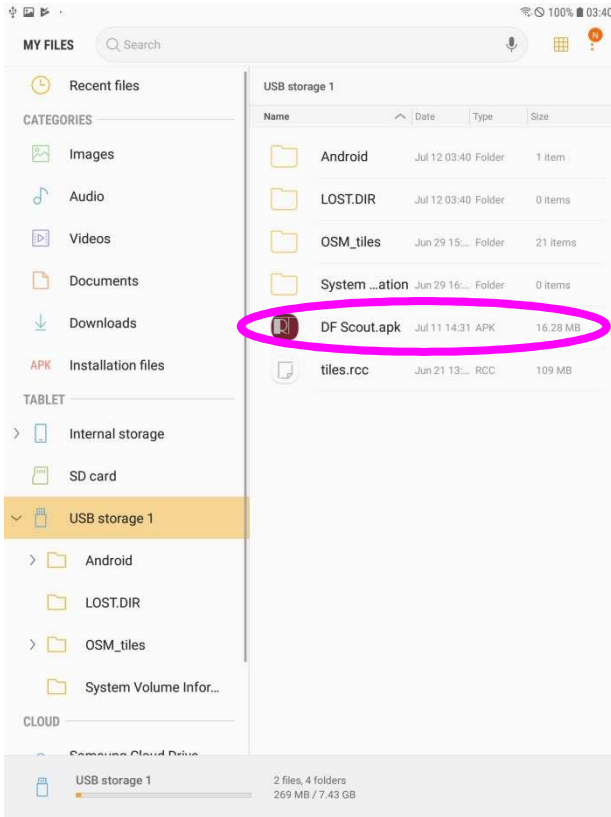


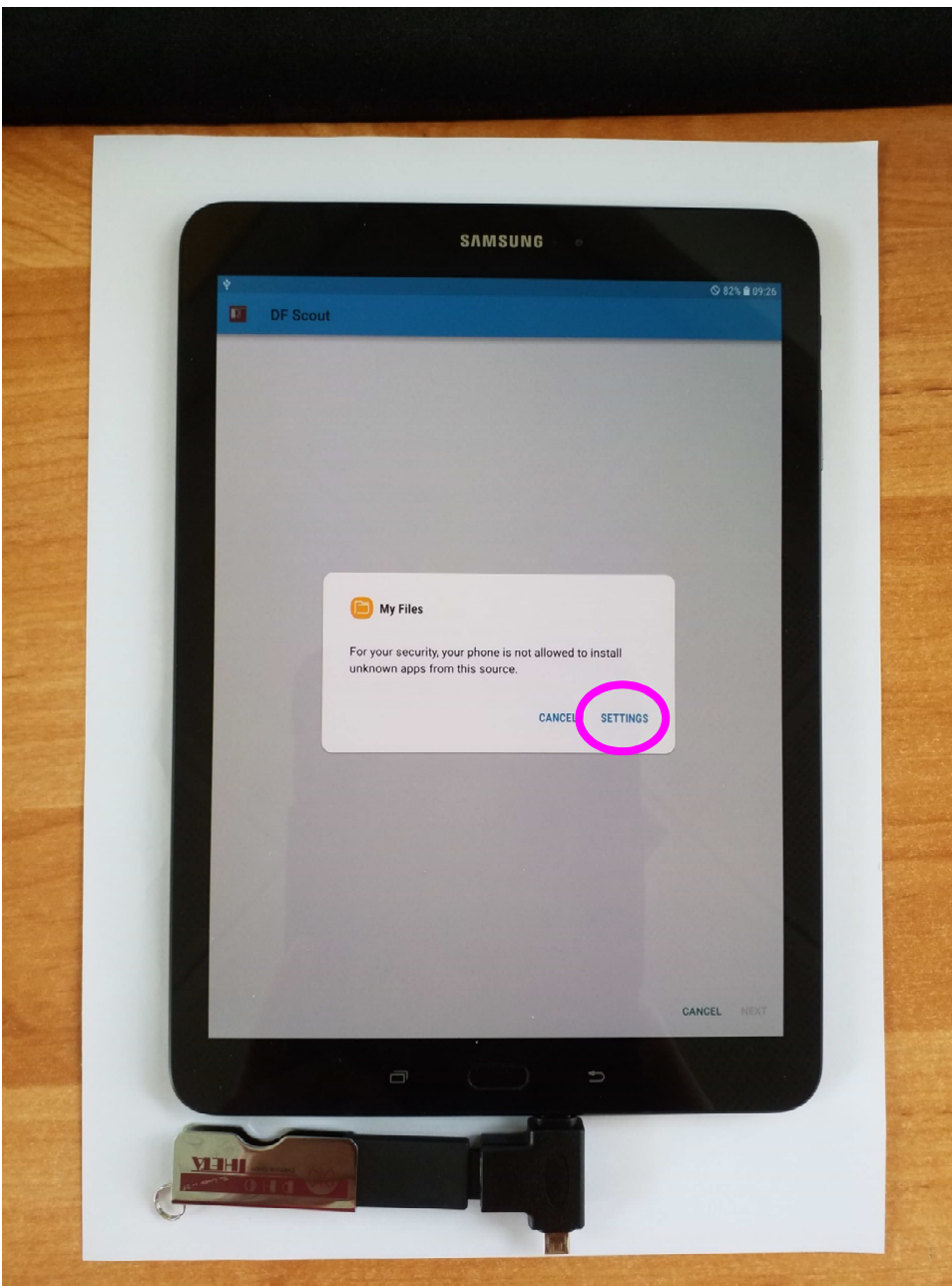
Figure 8: Open "USB storage 1"

The installation program for the application can be identified by the file extension ".apk". After clicking this file, the installation progress will start.

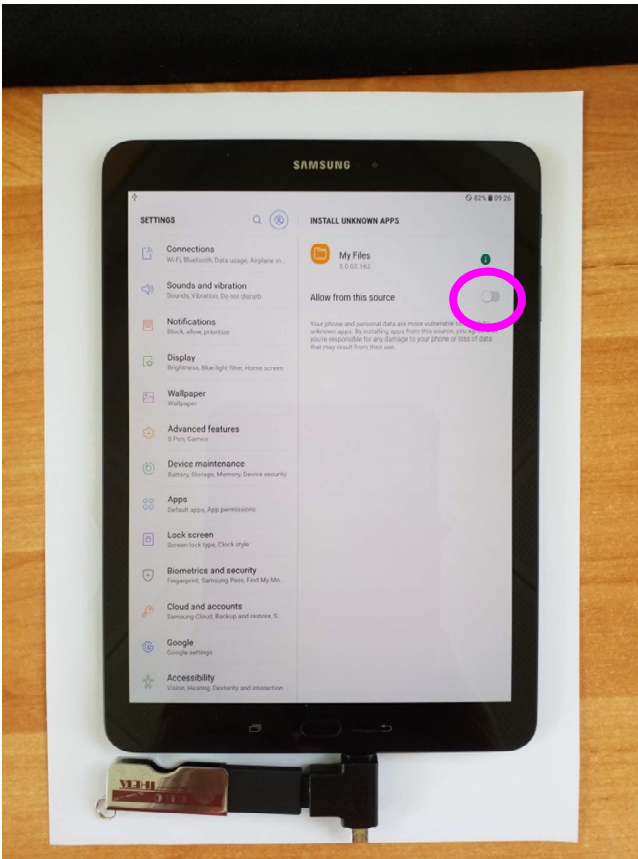


**Figure 9: Click on "DF Scout.apk"**

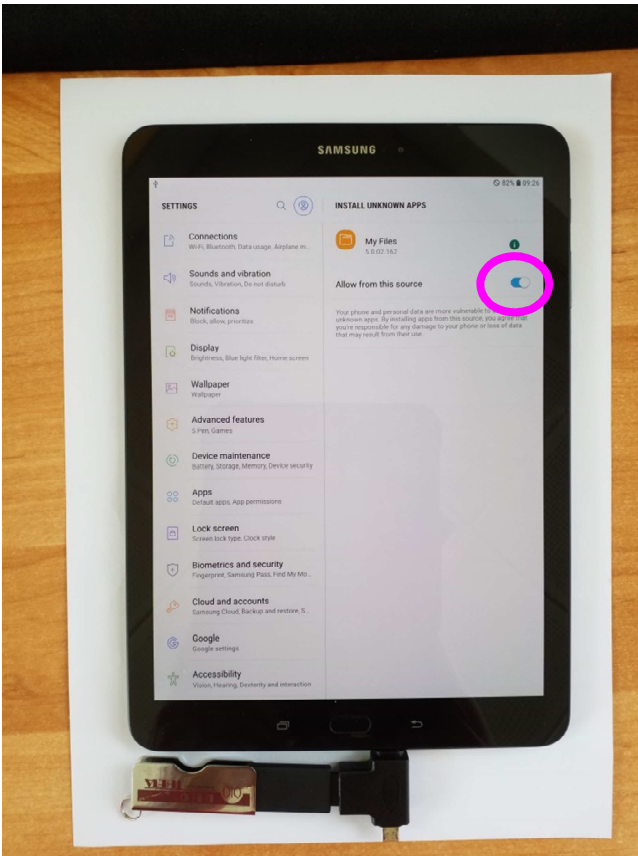




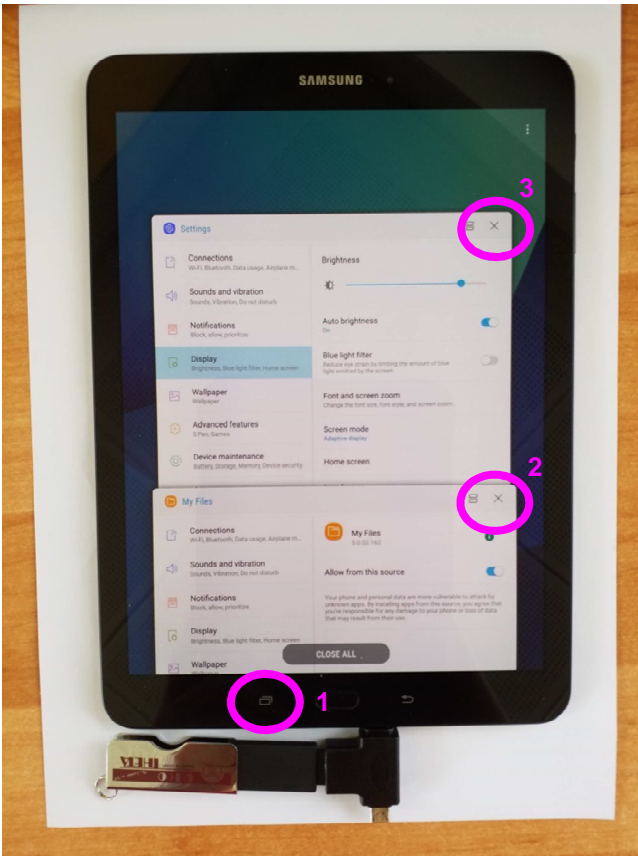
**Figure 10: Clicking on "Settings"**



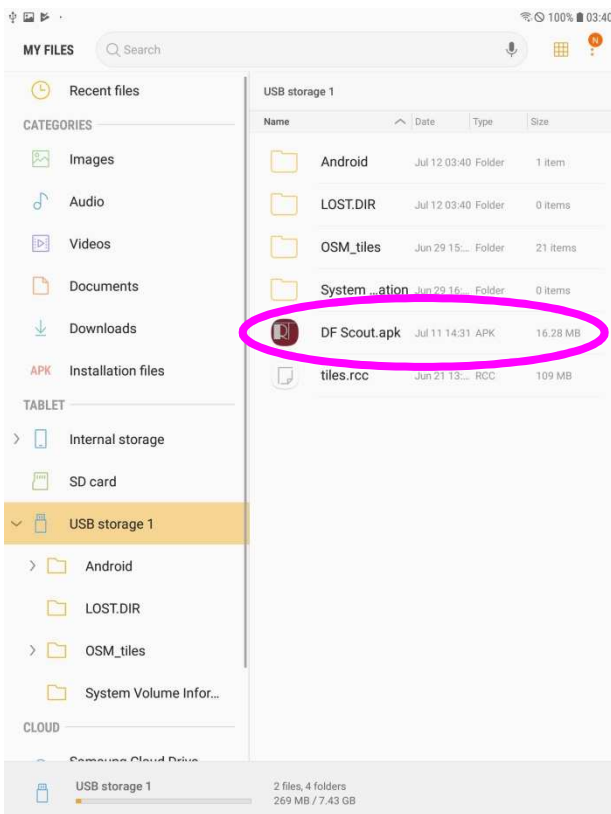
**Figure 11: Allowing installation from this source**



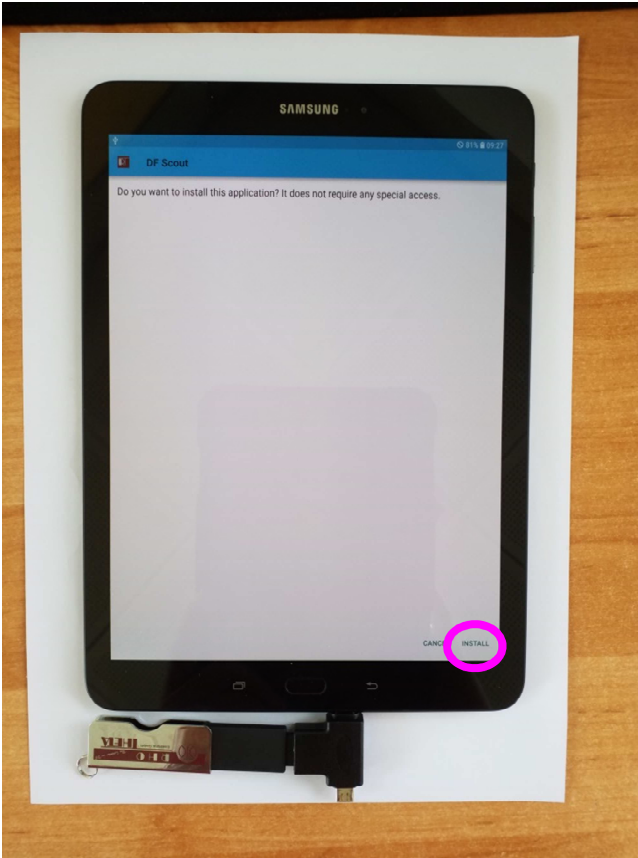
**Figure 12: Installation from this source allowed**



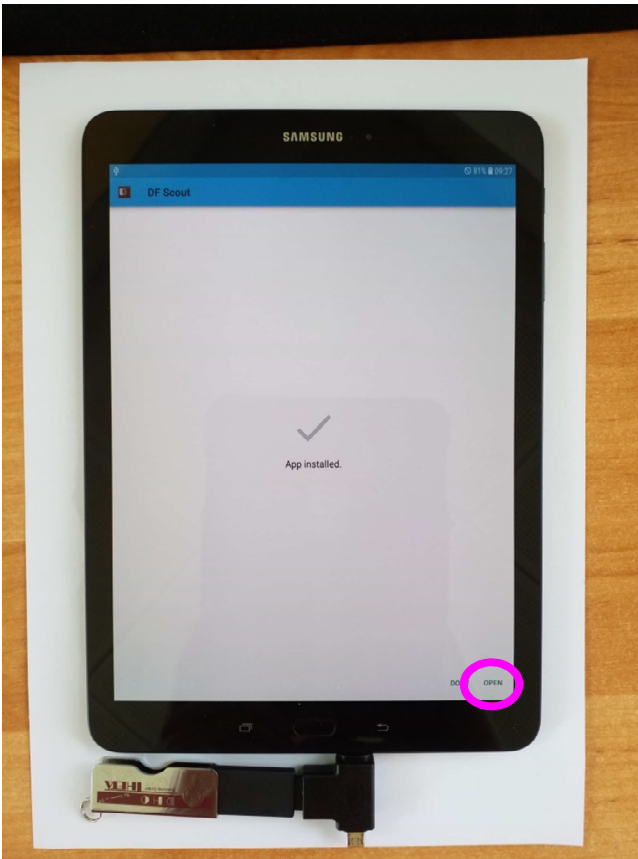
**Figure 13: Closing windows with Menu button**



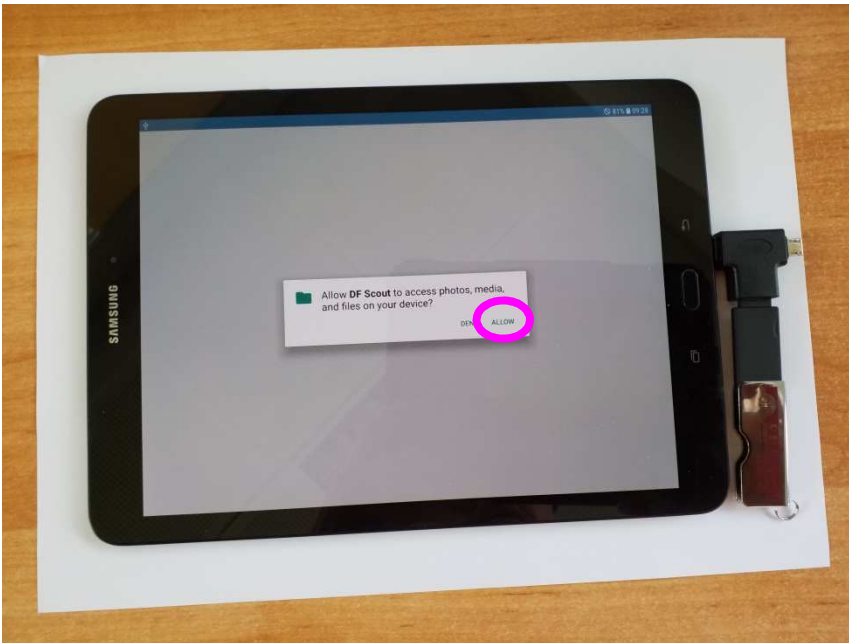
**Figure 14: Clicking again "DF Scout.apk"**



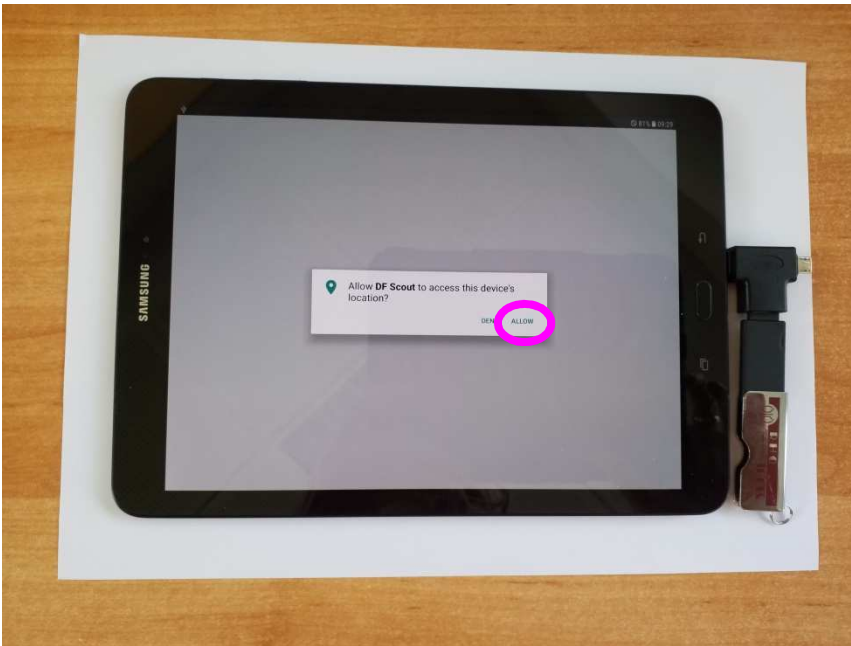
**Figure 15: Confirming installation by clicking “INSTALL”**



**Figure 16: Clicking “OPEN” after successful installation**



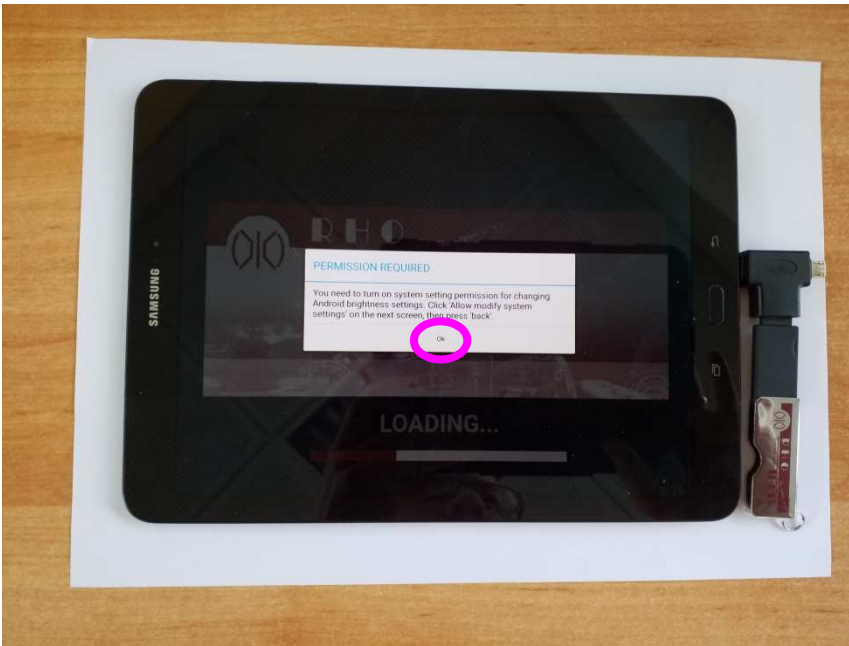
**Figure 17: Allowing access to photos, media and files**



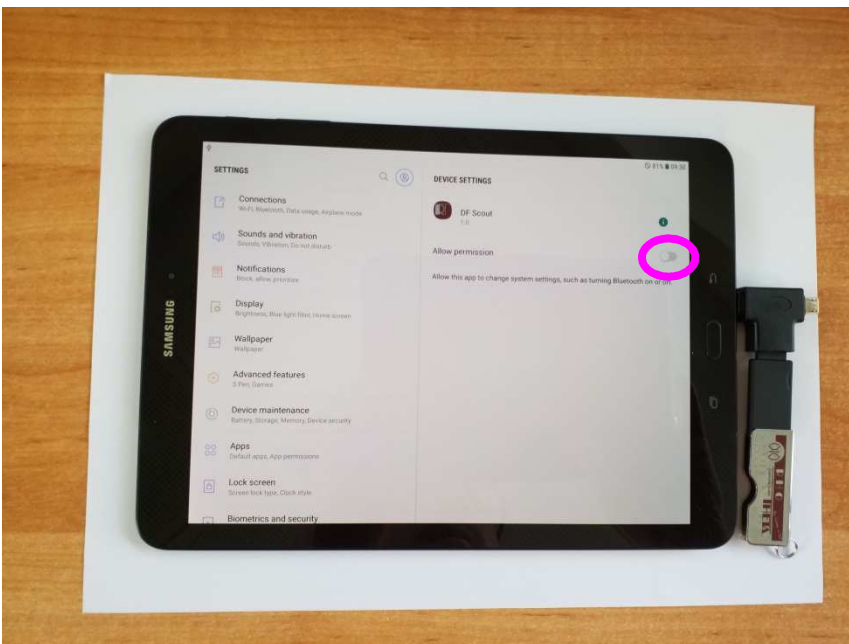
**Figure 18: Allowing access to device's location**



**Figure 19: Allowing the use of Google's location service**

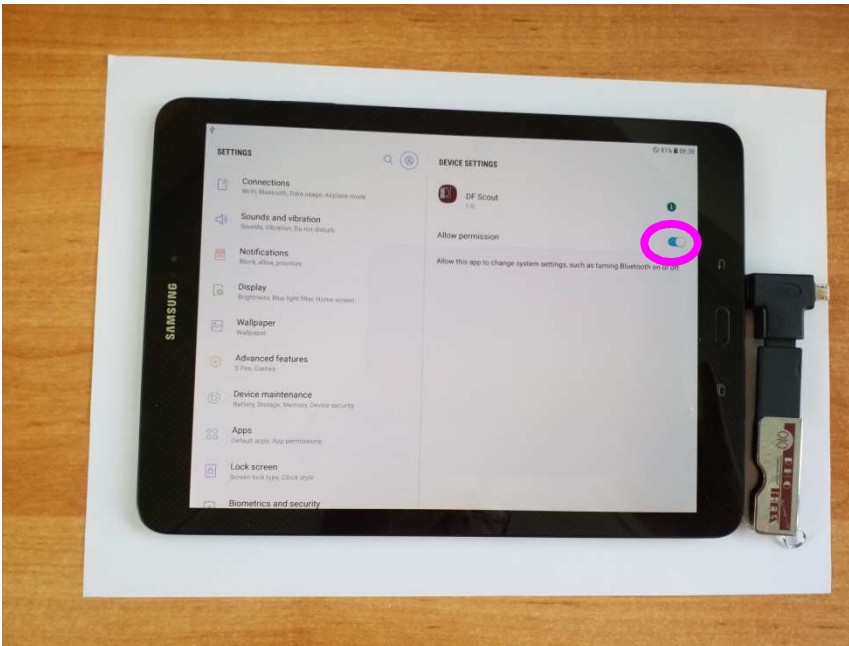


**Figure 20: Permission for modifying brightness settings required**

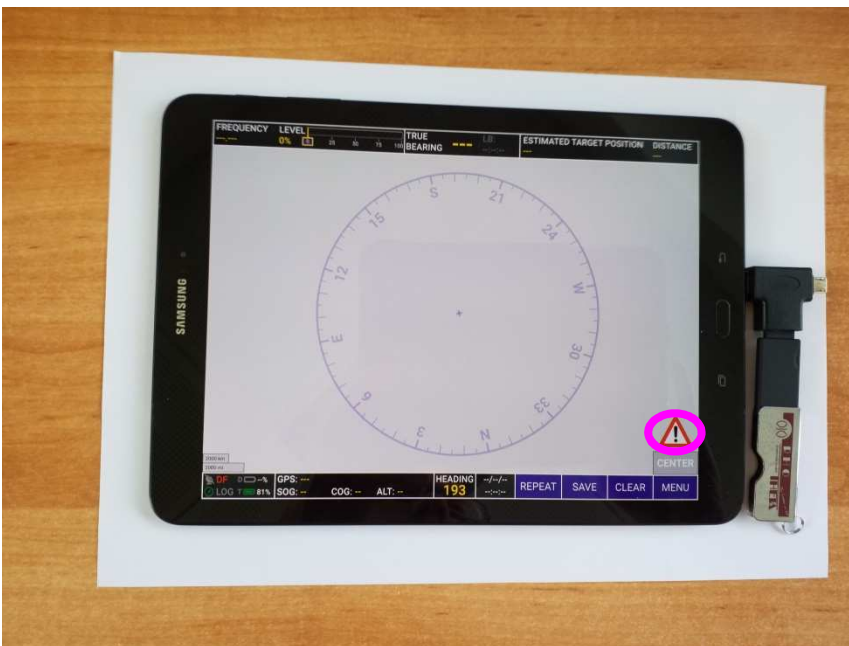


**Figure 21: Allowing permission for brightness settings**





**Figure 22: Permission for brightness settings allowed**



**Figure 23: Application successfully started without WiFi and Maps**

After closing the application, the icon of the application is found in a screen below the Home screen. This screen can be opened by sliding the Home screen from the bottom to the top.



Figure 24: Opening app menu by sliding from the bottom to the top



Figure 25: DF Scout successfully installed (screen below Home screen)

The icon can be moved to the Home screen. This is done by keeping the icon pressed for some seconds and moving it to the top of the screen.



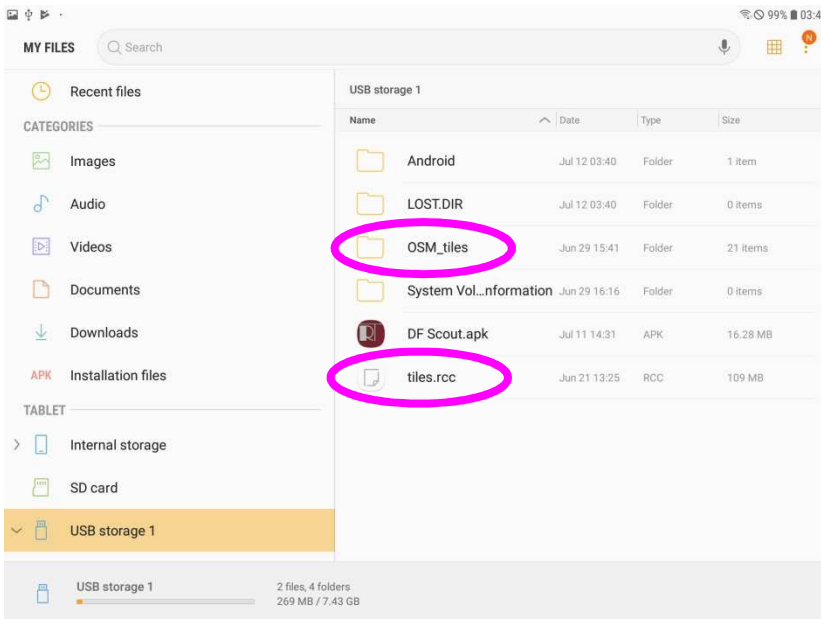
**Figure 26: Icon moved to the Home screen**

### 3.4.2 Installation of maps

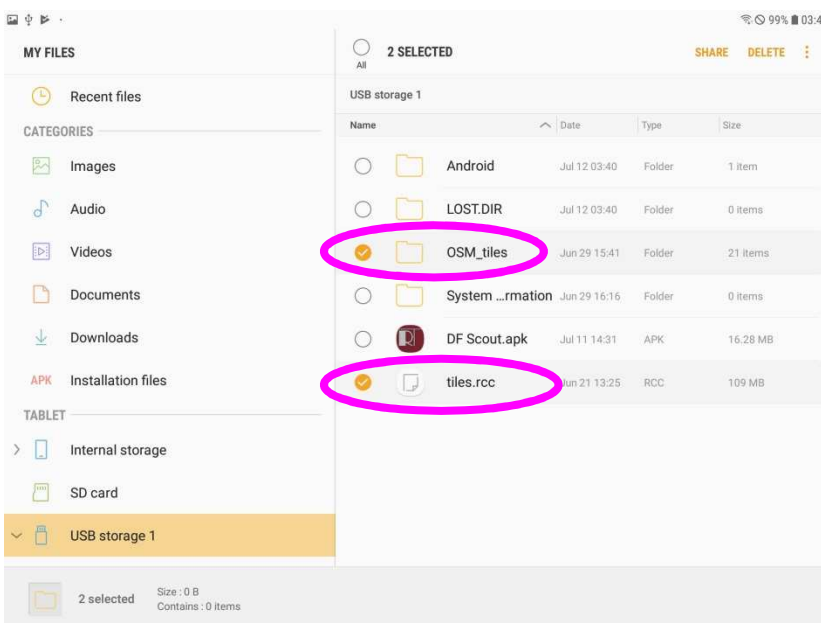
The maps can only be installed after the application was successfully installed.  
After successful application the following folder is generated on the tablet:

“Internal storage/Android/data/com.rhoteta.rt400/files”

The folder “OSM\_tiles” and the file “tiles.rcc” have to be copied from the USB stick to that folder.

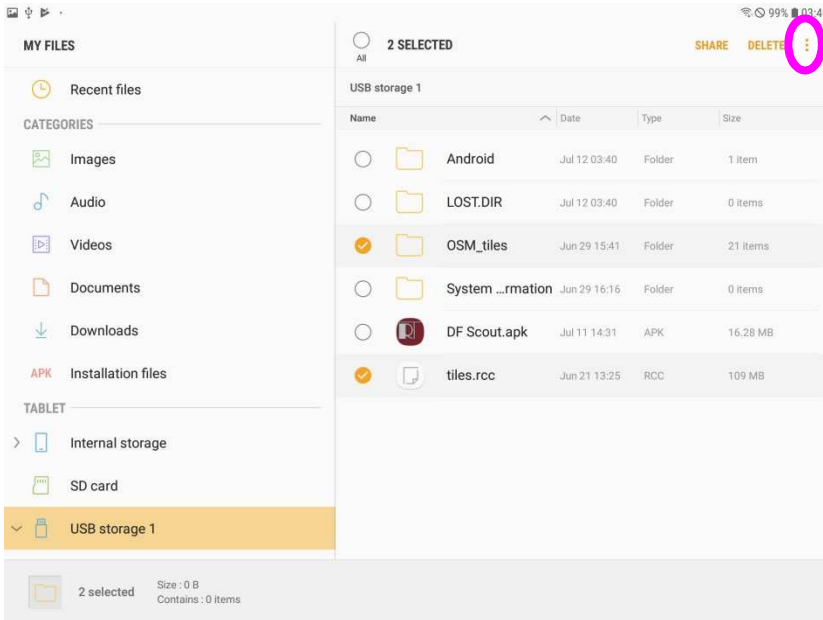


**Figure 27: Selecting Map material on USB storage by keeping positions pressed**



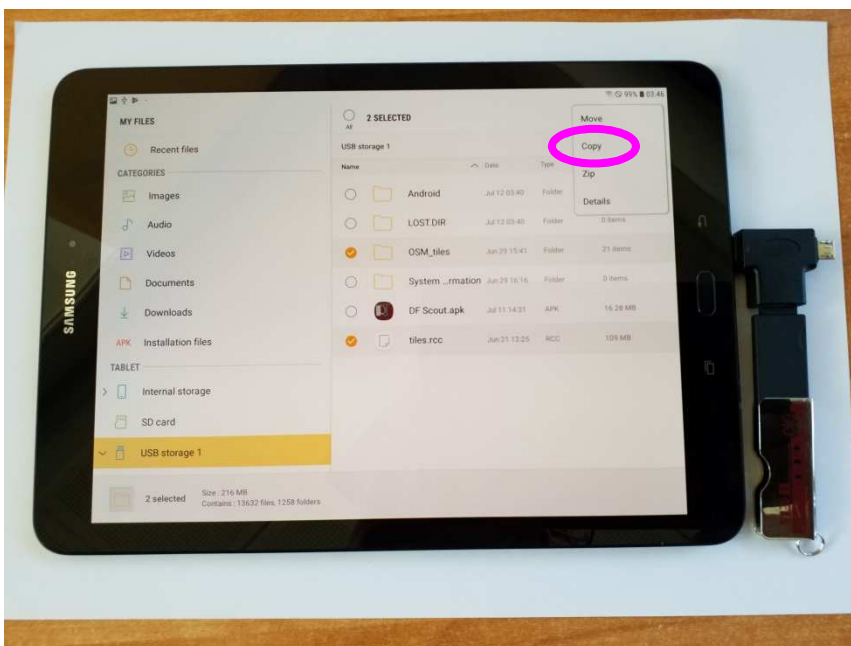
**Figure 28: Map material selected by checking the related fields**

After selecting “OSM\_tiles” and “tiles.rcc” the user should click on the symbol with three dots for opening a menu with available actions.



**Figure 29: Clicking on symbol (three dots)**

After selecting “Copy” the user can browse to the destination folder on the tablet and insert the files.



**Figure 30: Selecting “Copy” from list**

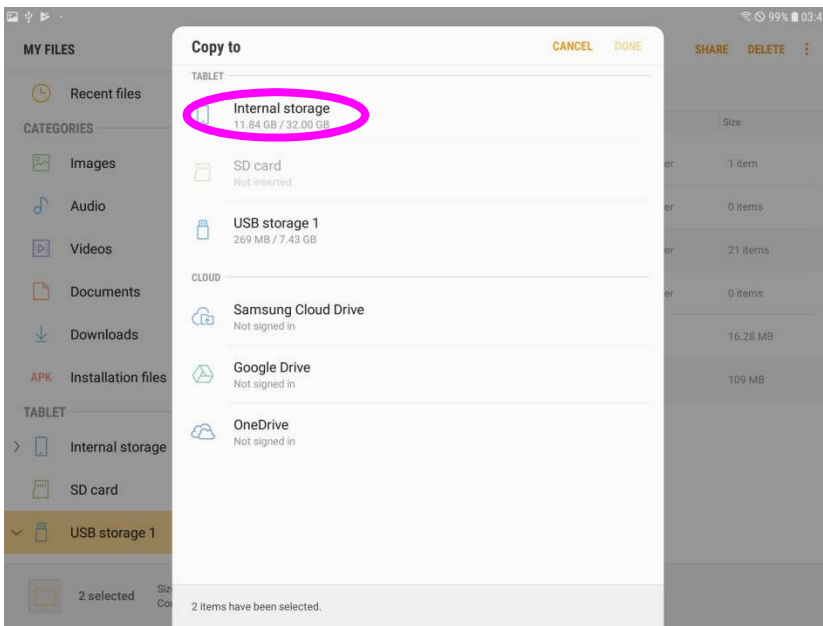


Figure 31: Browsing to Internal storage

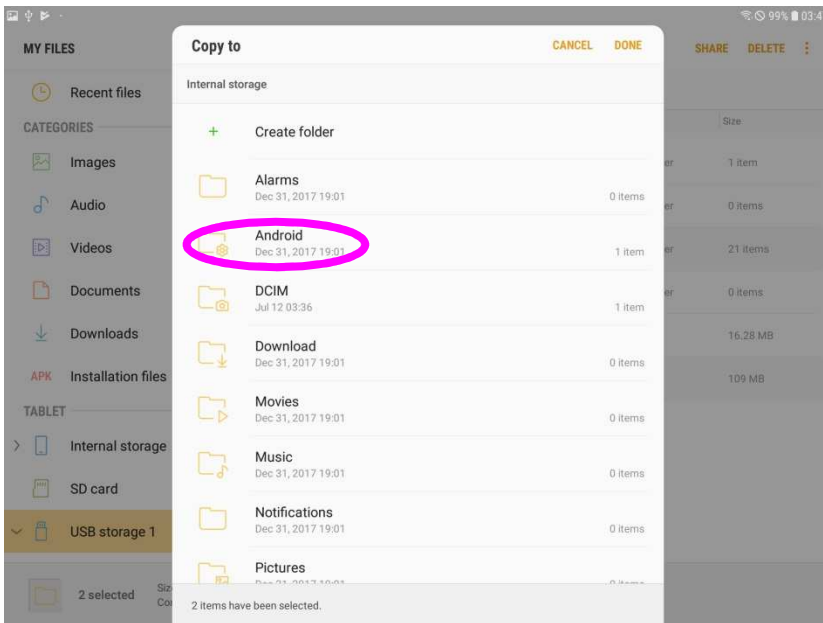


Figure 32: Browsing to "Android" folder

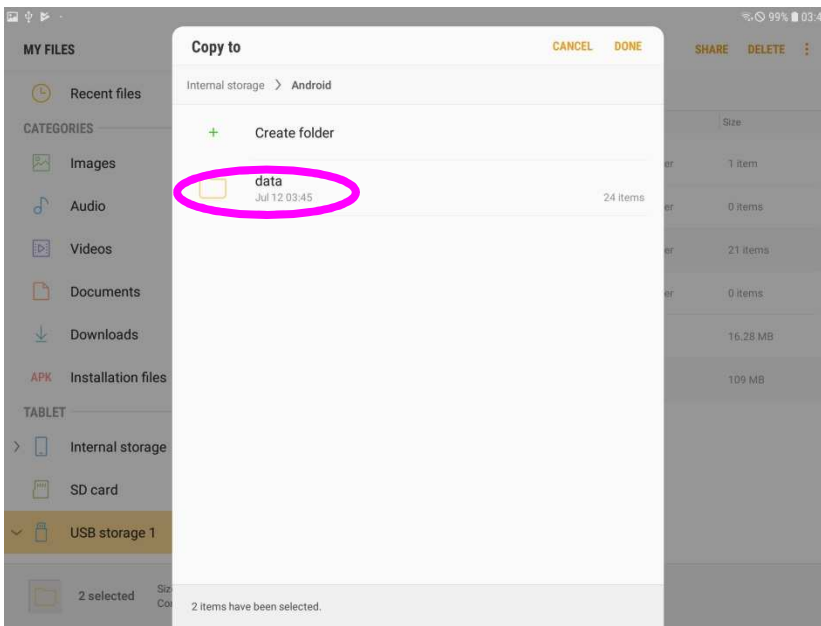


Figure 33: Browsing to "data" folder

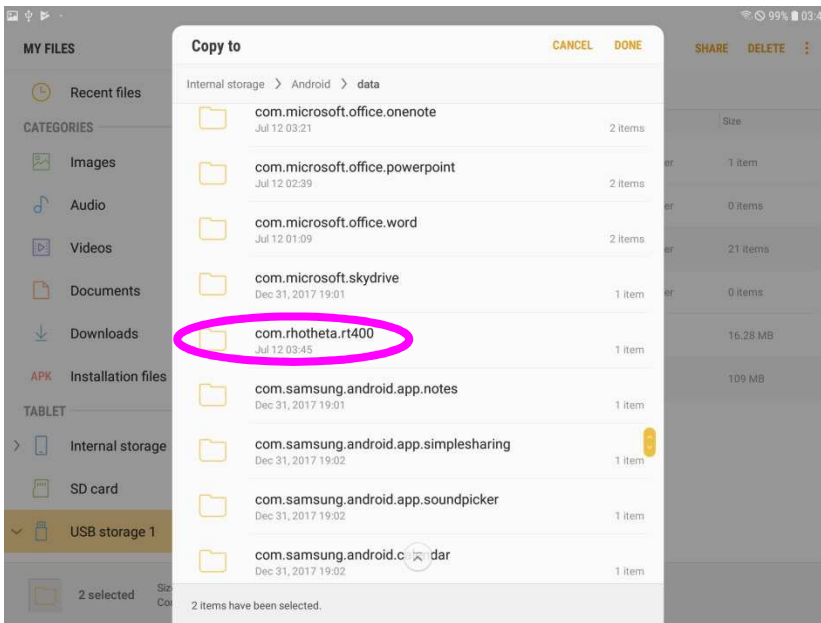


Figure 34: Browsing to folder "com.rhoteta.rt400"

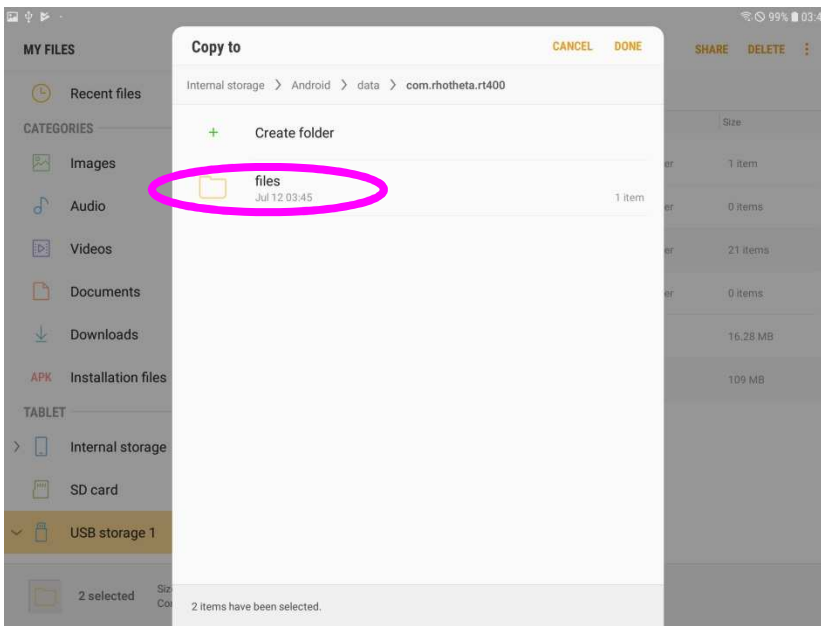


Figure 35: Browsing to folder “files”

In the destination folder the user should click “DONE” for inserting the files.

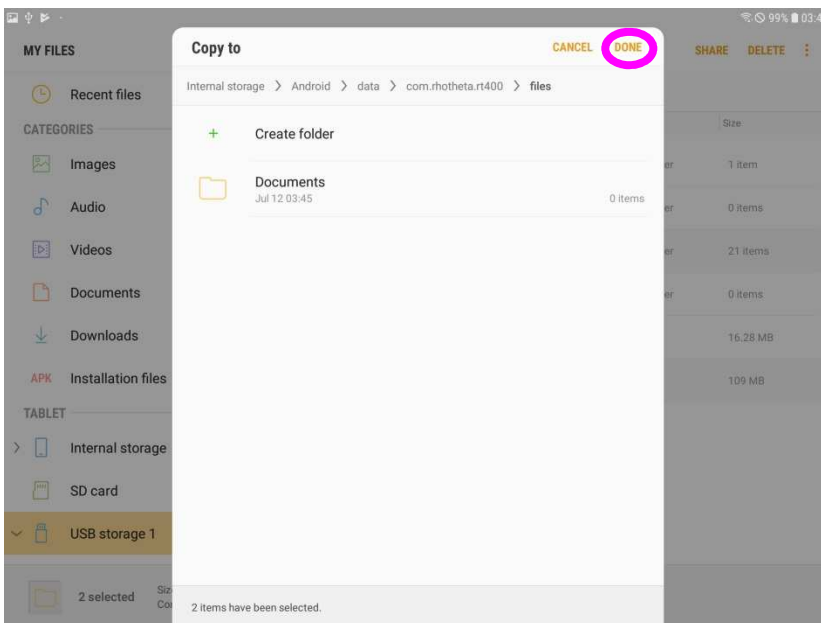
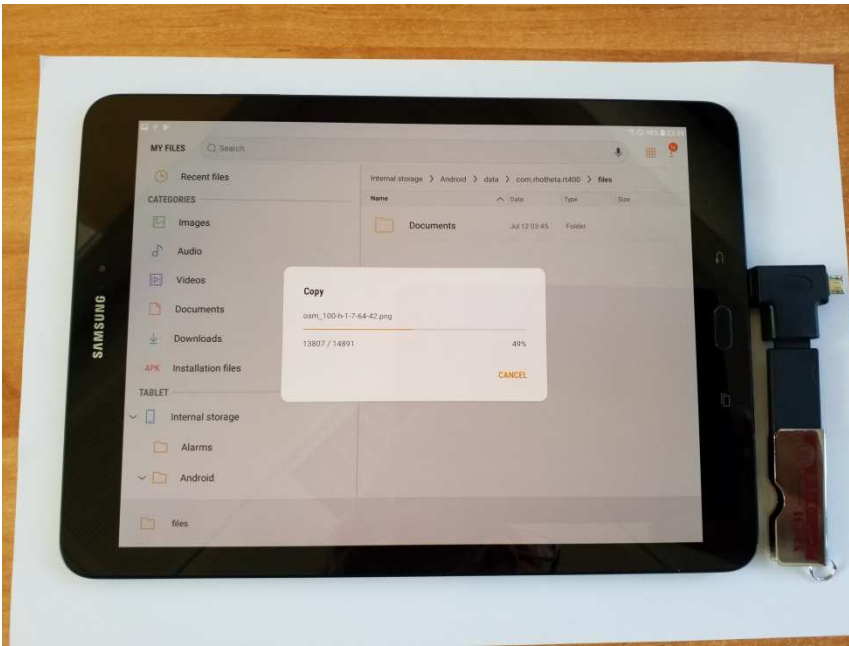
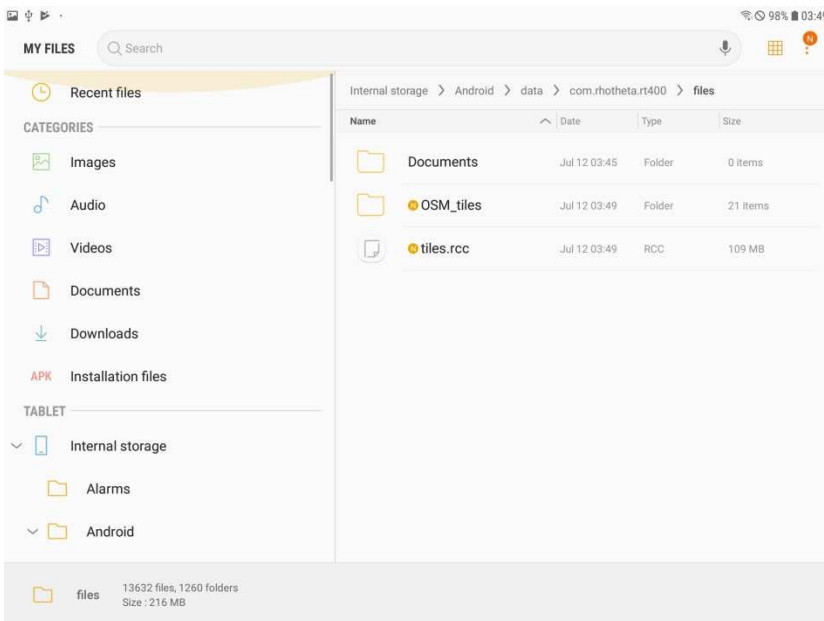


Figure 36: Inserting files by clicking “DONE”





**Figure 37: Copy in progress**



**Figure 38: Files successfully copied**

## 4 Establishing WiFi connection

The WiFi connection has to be established once before using the application. If the WiFi is activated and the corresponding hot spot, here “RT-400 SN00013” is set to “Auto reconnect”, the system will automatically reconnect with this WiFi after starting the tablet.

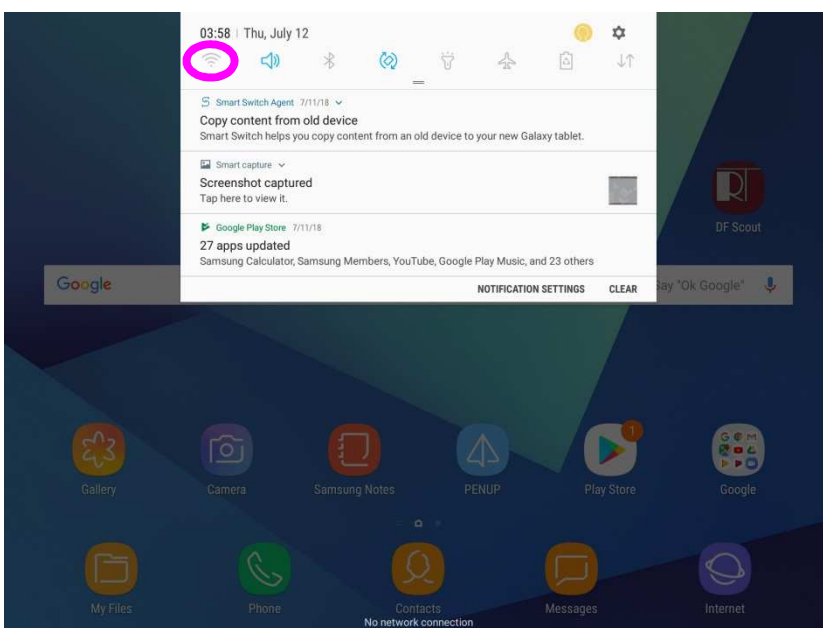
**Important: There should be only one WiFi hot spot set to “Auto reconnect”!**

The menu for WiFi and other settings can be opened by sliding down from the top of the screen.



**Figure 39: Opening settings by sliding down**

After opening the menu by sliding down, the user should keep the WiFi symbol pressed until a new menu opens.



**Figure 40: Opening Settings Menu for WiFi (keeping symbol pressed)**

In this menu the user can see if the WiFi is turned on (blue) or turned off (grey).

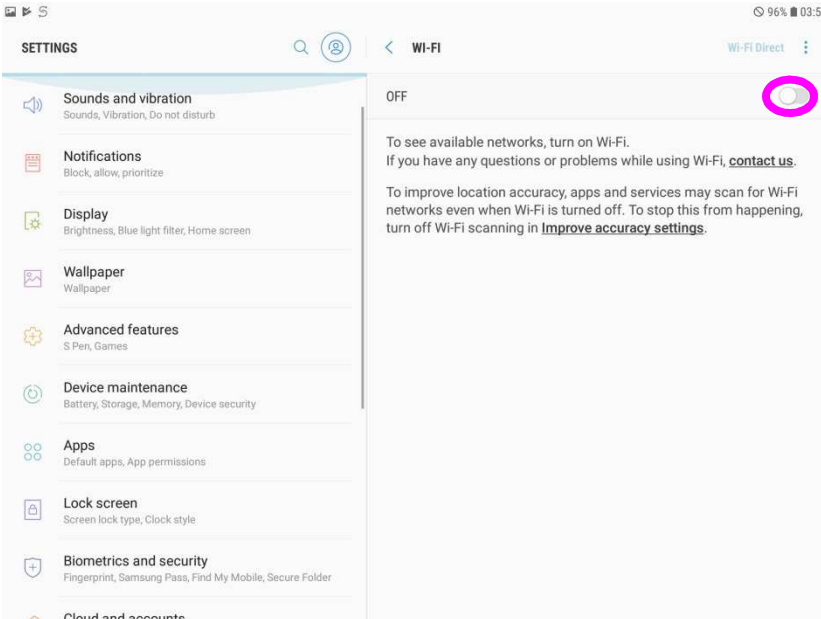


Figure 41: Switching on WiFi

After activating WiFi the user can see the WiFi networks. If the Antenna Unit is already activated, the user will see the SSID, here: "RT-400 SN00013". In order to get connected to the Antenna Unit, the user should click the SSID ("RT-400 SN00013").

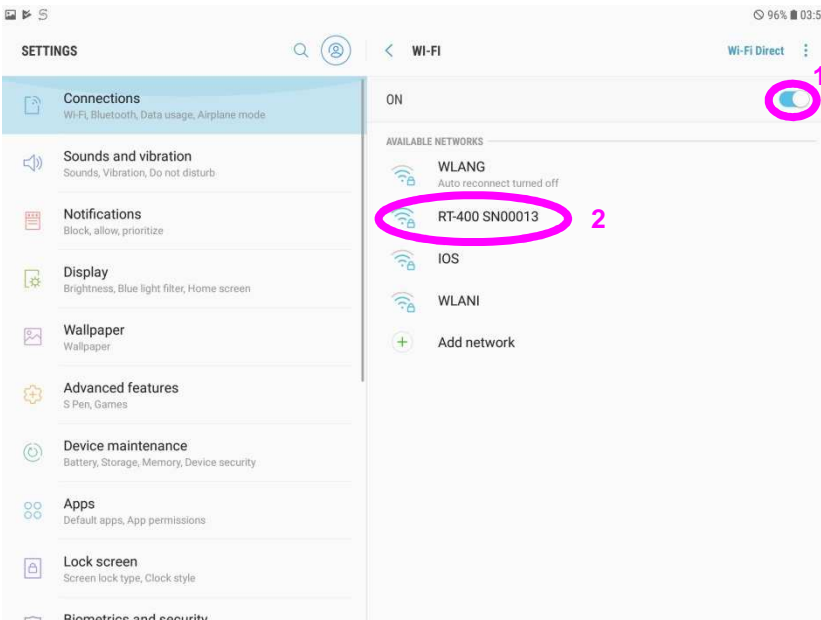


Figure 42: WiFi is turned on

If any Android Info or advertising message appears, it should be skipped.

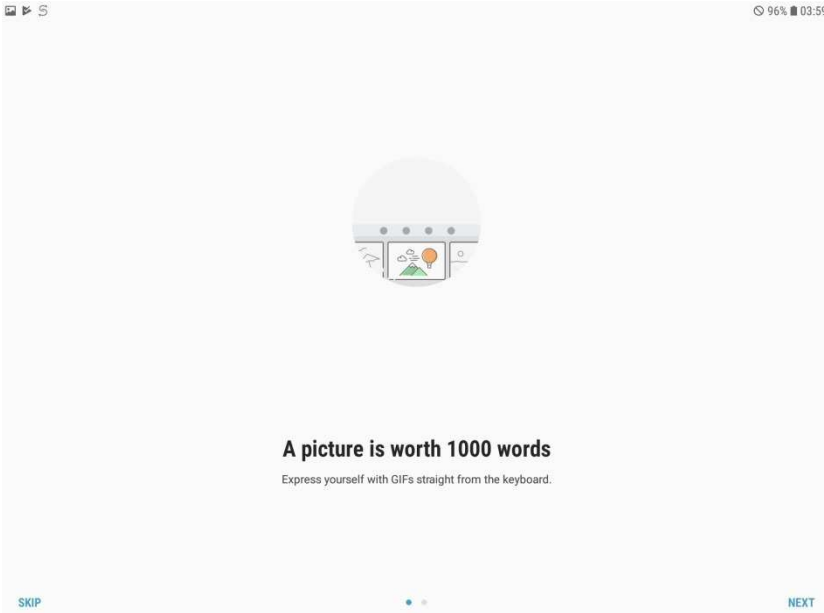


Figure 43: Android Info messages should be skipped (if they appear)

After clicking the SSID, a menu dialog appears. The user should check the option “Auto reconnect” and input the password which is written on the Antenna Unit, here “rhotheta123”.

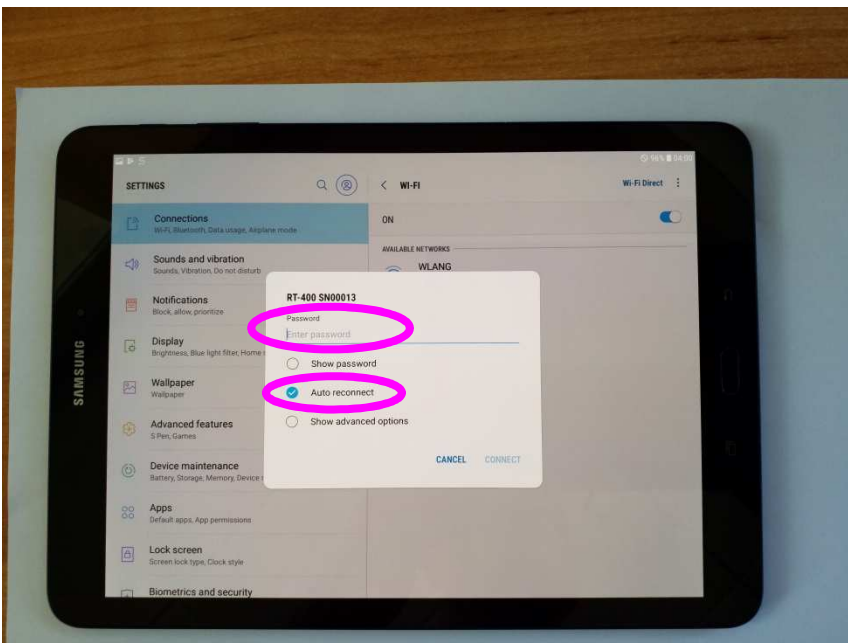
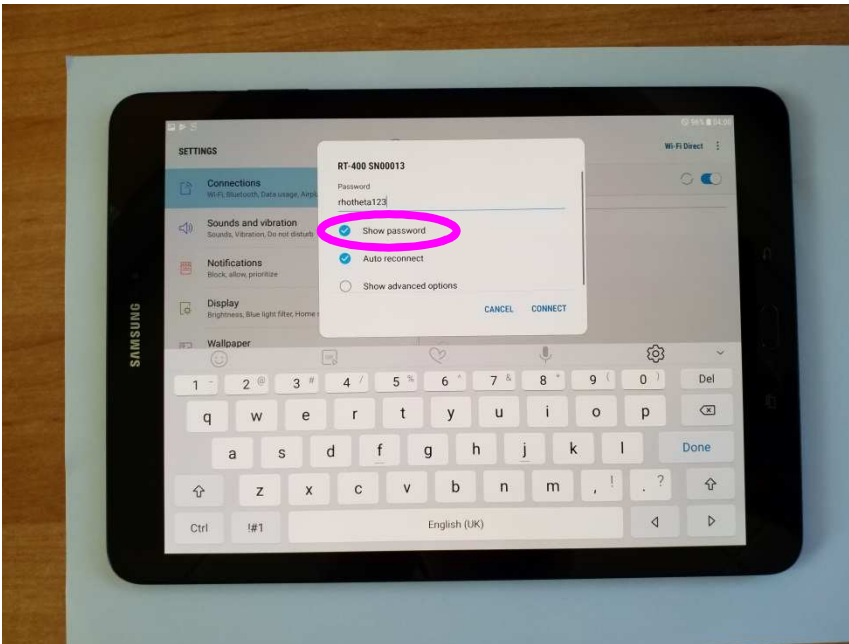


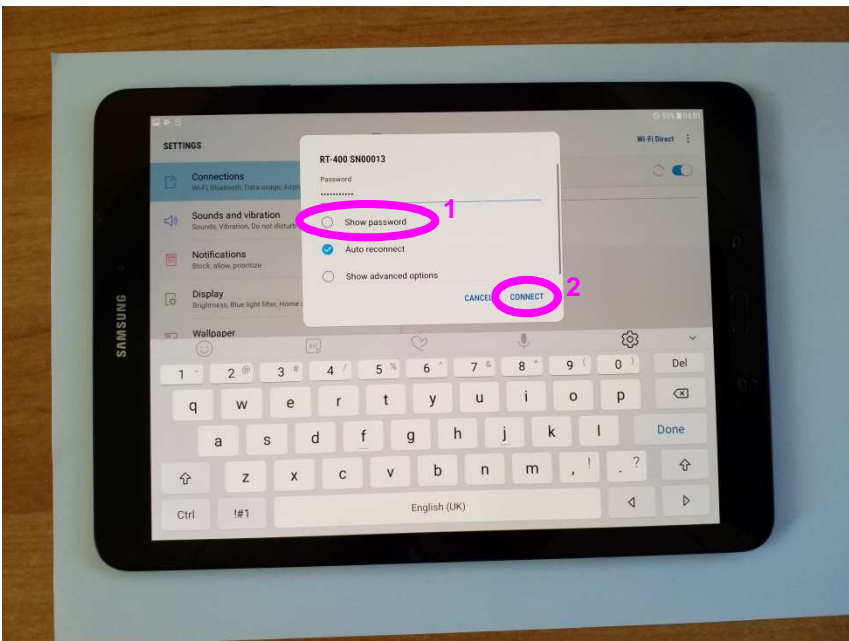
Figure 44: Setting “Auto reconnect” and input WiFi password

By checking “Show password” the user can verify his input.



**Figure 44: Showing the WiFi password for verifying**

If the user wants to hide the password, he can uncheck the option “Show password”. After clicking “CONNECT” the system will connect to the Antenna Unit with the SSID “RT-400 SN00013”.



**Figure 46: Hiding the WiFi password and clicking “CONNECT”**

After successful connection, the SSID gets blue.

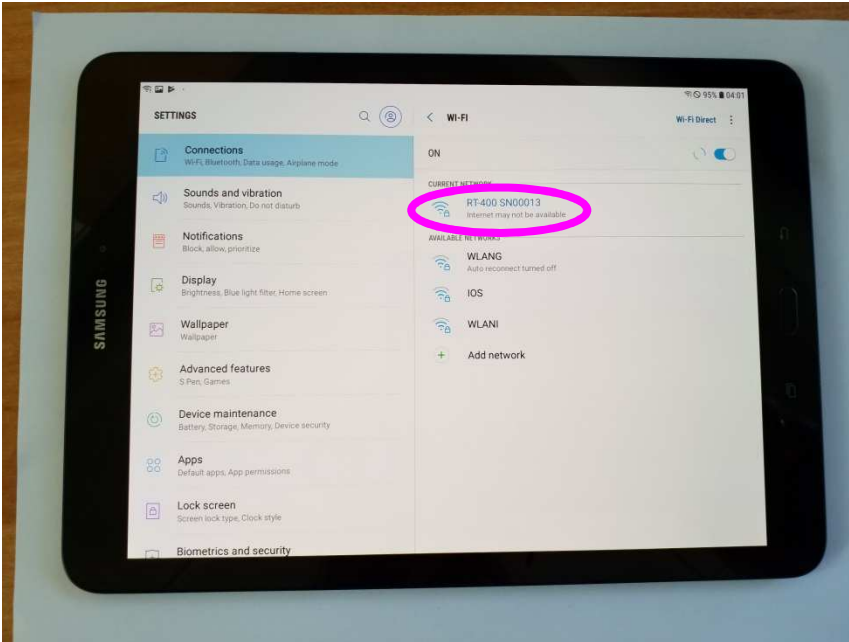


Figure 47: WiFi connected

The message "Internet may not be available" can be skipped by clicking "DISMISS", as this connection is not used for internet access.

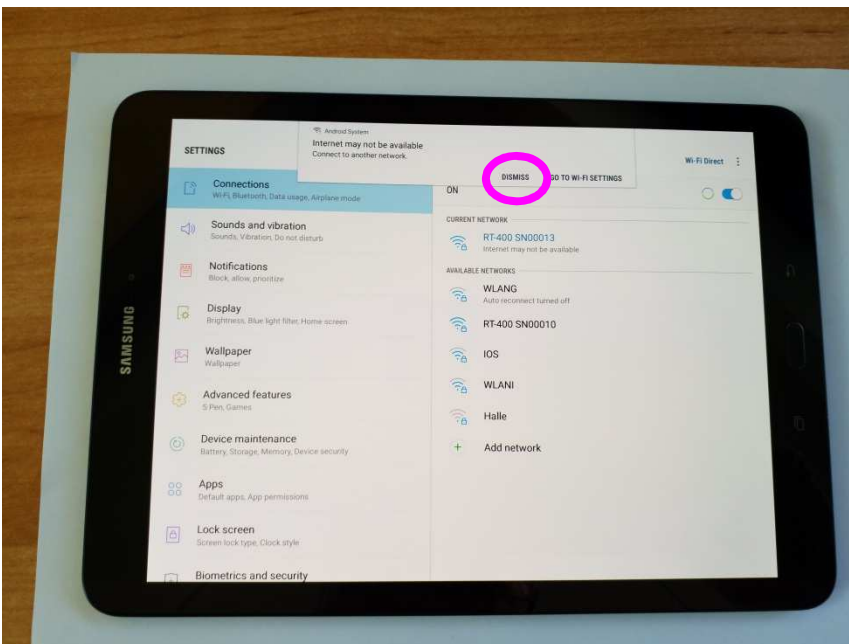


Figure 48: Message about Internet availability can be skipped by "DISMISS"

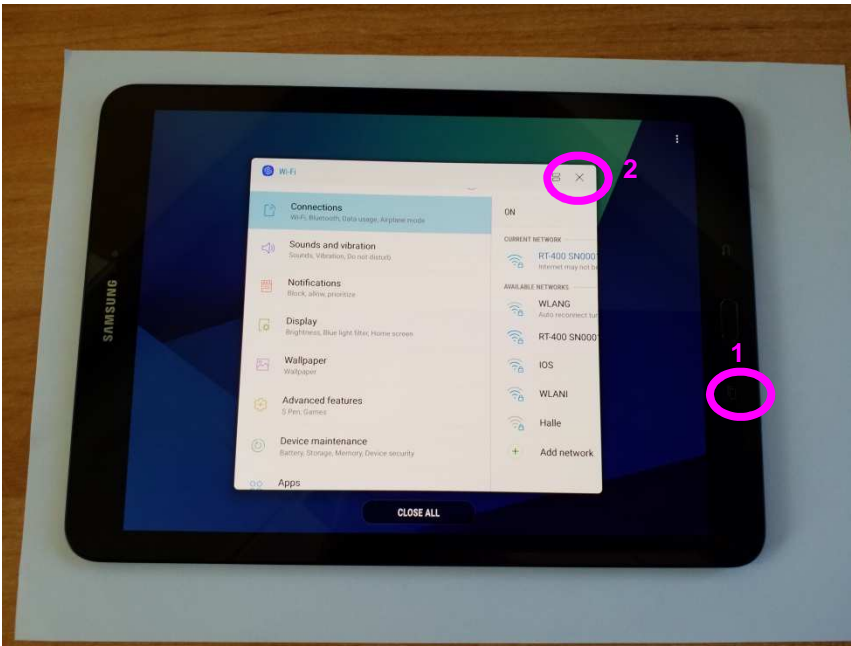


Figure 49: Closing WiFi settings with Menu button

## 5 Running application

### 5.1 Starting application

The application is started by clicking the “DF Scout” icon on the Home screen.

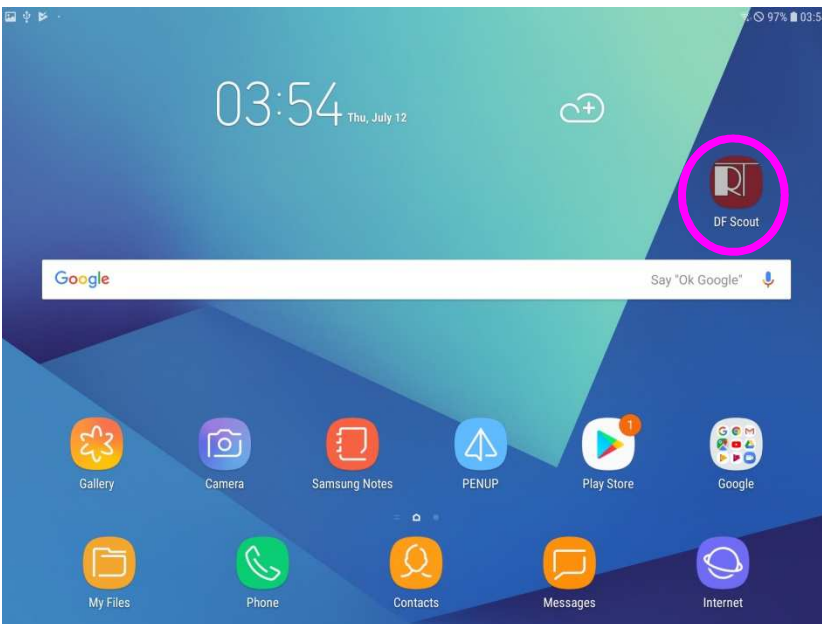


Figure 50: Starting application by clicking “DF Scout” Icon

If the WiFi connection was correctly established (with “Auto reconnect”) and the Antenna Unit is switched on, the application should start up with level and frequency indication.



Figure 51: Application successfully started (no errors or warnings)

## 5.2 Zooming the area of interest

If the maps have been correctly installed, the application will show the actual GPS position in the center of the screen. In the case that the tablet has no GPS reception, it will show the position “0° N” “0° E”. By moving two fingers apart, the user can zoom in the map.

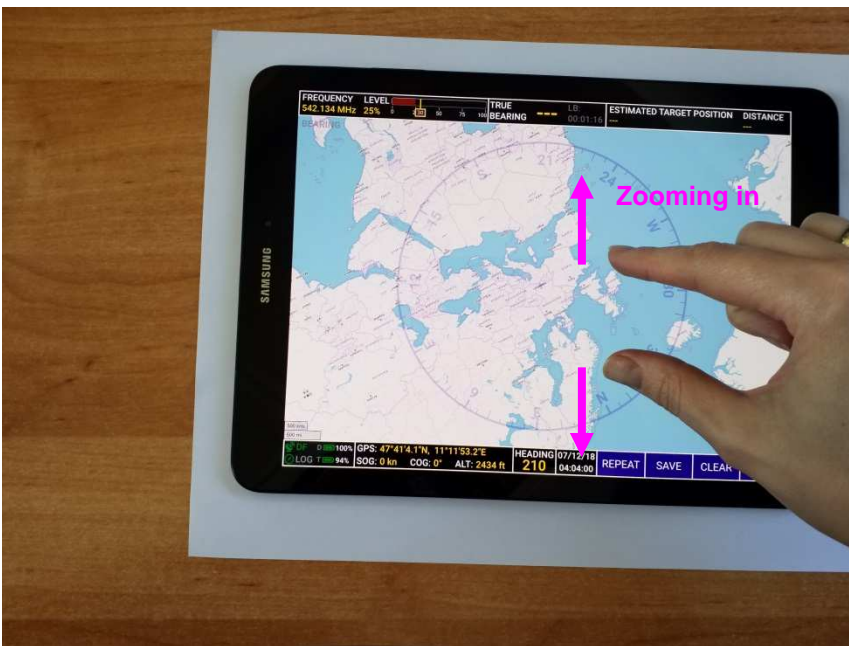


Figure 52: Zooming the map



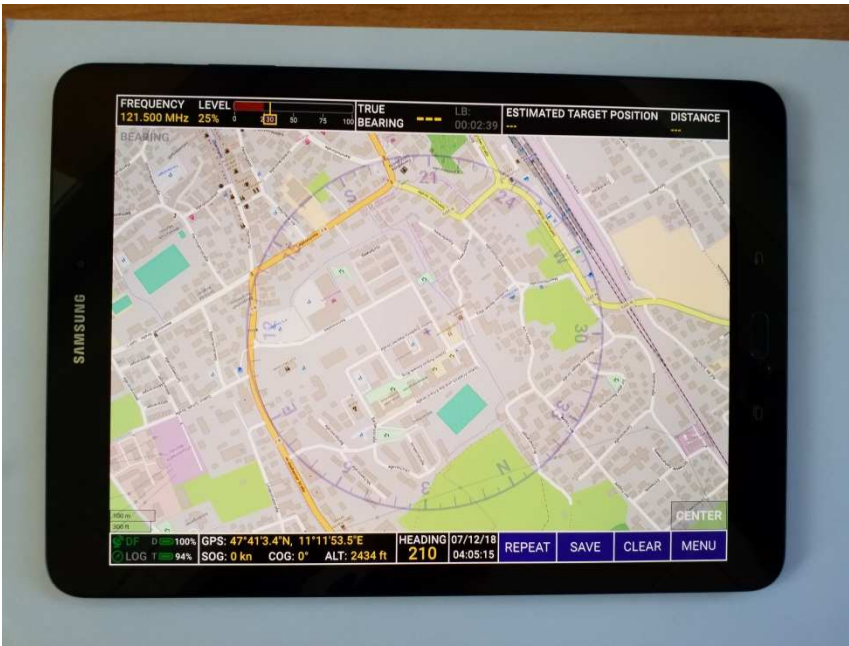


Figure 53: Close view after zooming in

## 5.3 Important operations

### 5.3.1 Setting frequency, squelch and volume

The most important user operations, like setting frequency, squelch, volume, can be made in the Technical Input Field. This field is opened by keeping the related area pressed for longer than 2s.

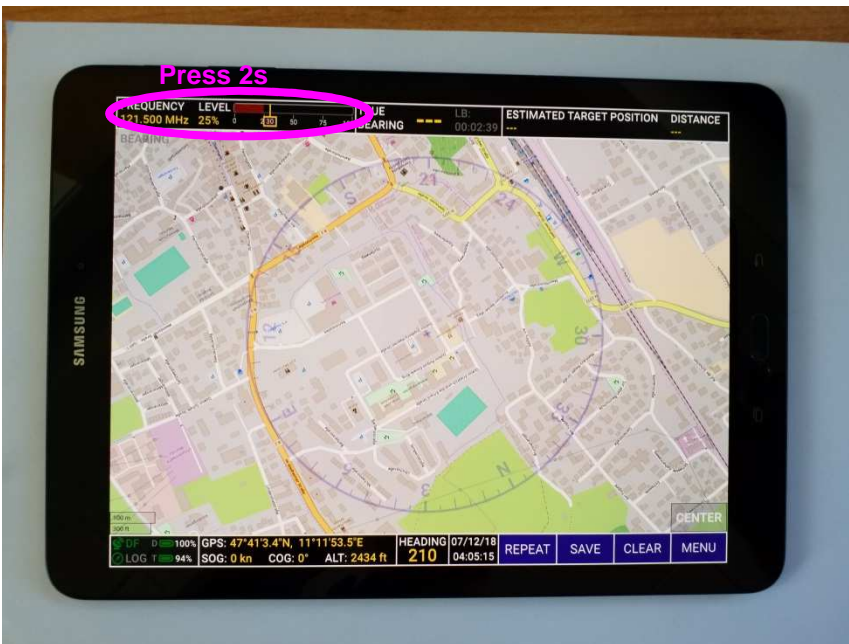


Figure 54: Opening input menu for frequency, squelch and volume

The Technical Input Field provides the following input options:

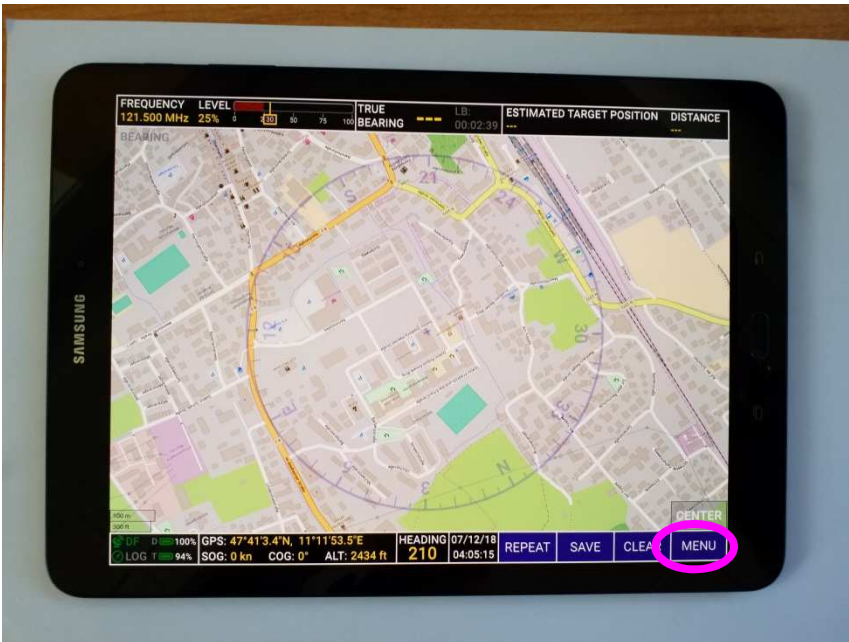
- Input of frequencies/channels:
  - o For setting a new frequency, all six digits are necessary, e. g. "121.500".
  - o The dot between "121" and "500" is made automatically.
  - o The new frequency is shown in a separate field (1).
  - o The actual frequency of the Antenna Unit is shown in the top bar (2).
- Setting squelch:
  - o The squelch can be increased/decreased with +/-.
  - o "AUTOSET SQUELCH" sets the squelch beyond the actual level by a value which can be defined in the menu.
- Setting volume:
  - o Volume can be increased/decreased with +/-.

By leaving the dialog with "OK" (3), all settings are adopted. Leaving the dialog with the crossed square (5) does not adopt the settings. Leaving the dialog with "HOME" (4) switches to the main page (Bearing or Decode) that was previously opened. This behavior is the same for every dialog in the DF Scout.



**Figure 55: Technical Input Field**

### 5.3.2 Switching between BEARING/DECODE and further settings

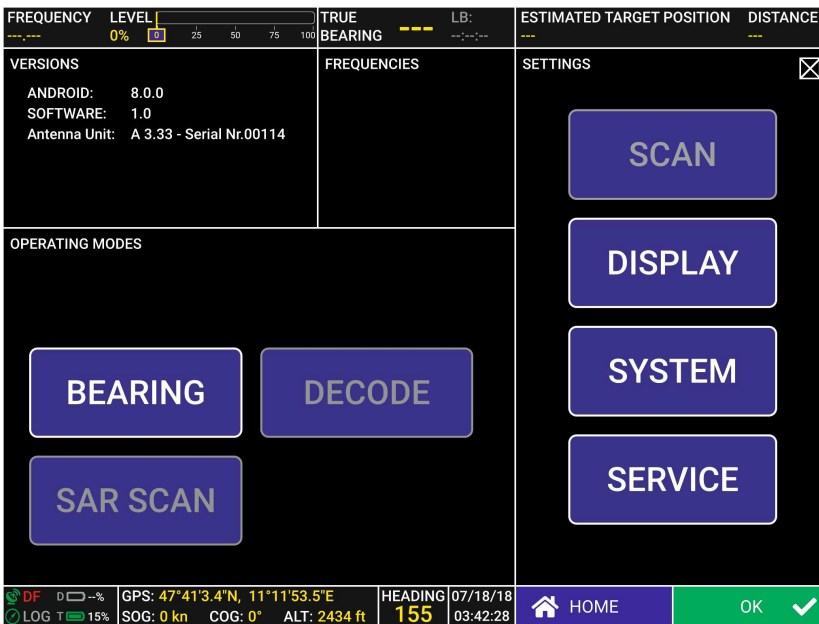


**Figure 56: Opening menu for switching to DECODE**

By clicking "MENU" a menu dialog is opened. The actual operating mode ("BEARING", "DECODE" or "SAR SCAN") is highlighted (here: BEARING). By clicking a new operating mode and confirming with "OK" the user can change to the new mode.

In the section "SETTINGS" the user can open "DISPLAY" for all display relevant settings, or "SYSTEM" for system related settings.

In "SERVICE" there are some functions for logging, exporting/importing configurations etc.



**Figure 57: Menu dialog**

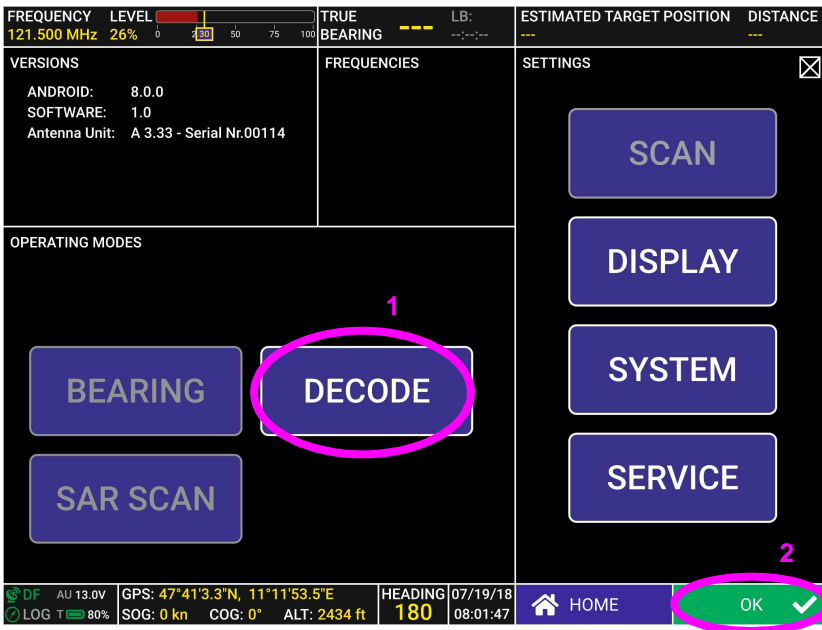


Figure 58: Switching to DECODE

### 5.3.3 Clearing an item on the map

Items on the map are cleared by marking them on the map (clicking) and confirming the related dialog with "OK". If the dialog is closed by clicking the crossed square, the item will remain on the map.

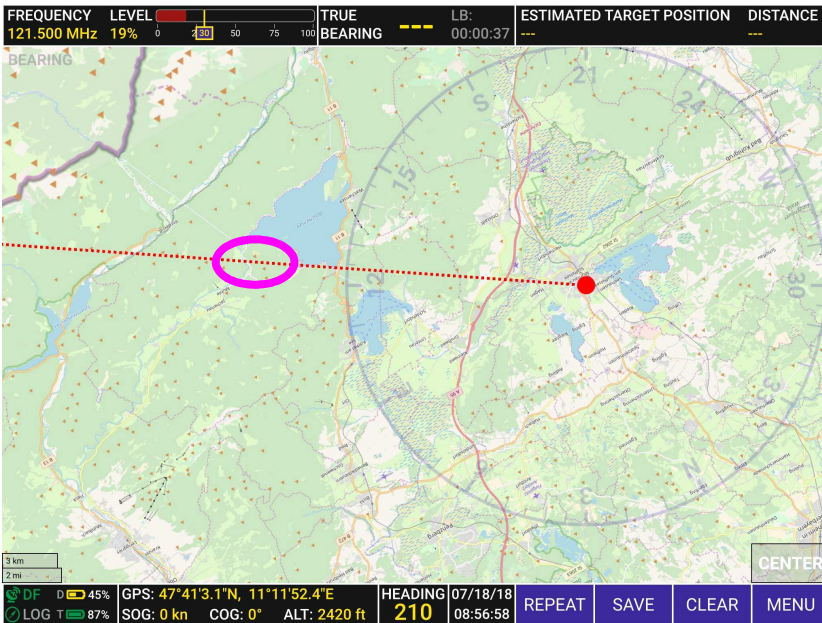


Figure 59: Selecting an item (here: old bearing line)

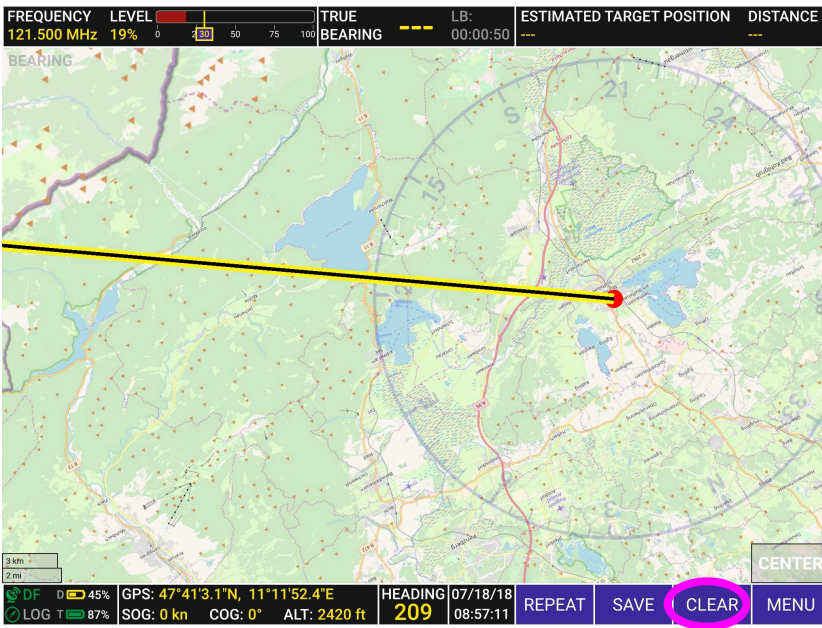


Figure 60: Clicking "CLEAR"

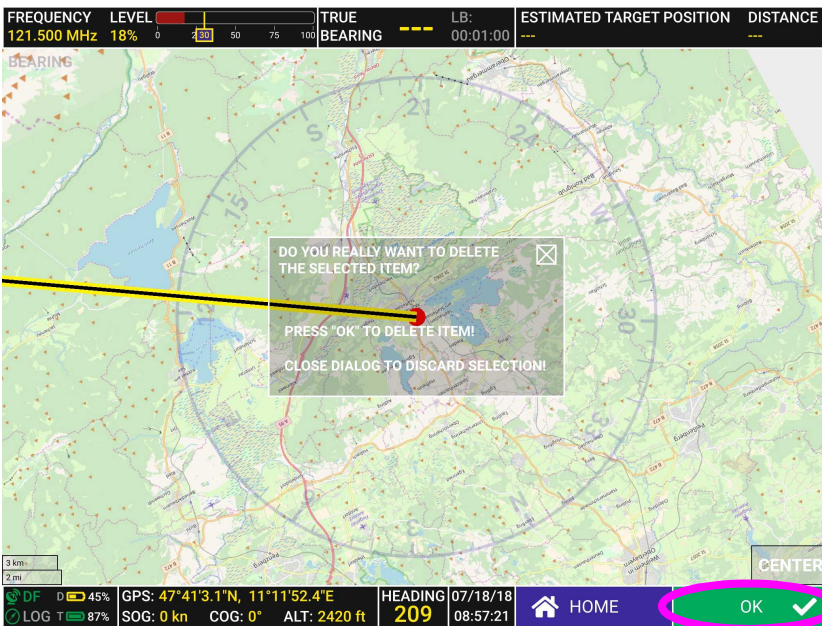


Figure 61: Clicking "OK"

## 5.4 Display settings

### 5.4.1 Setting brightness

The brightness of the display can be set in the Display settings menu. If the button “BRIGHTNESS CONTROL AUTOMATIC” is highlighted, the automatic brightness control is activated. That means the value of tablet’s light sensor is used to adapt display’s brightness. If the button is not activated, the brightness is only influenced by using the +/- buttons for increasing/decreasing the brightness. Alternatively it is possible to set the brightness with MIN/MAX to the minimum/maximum.

Any new setting must be confirmed with “OK”.

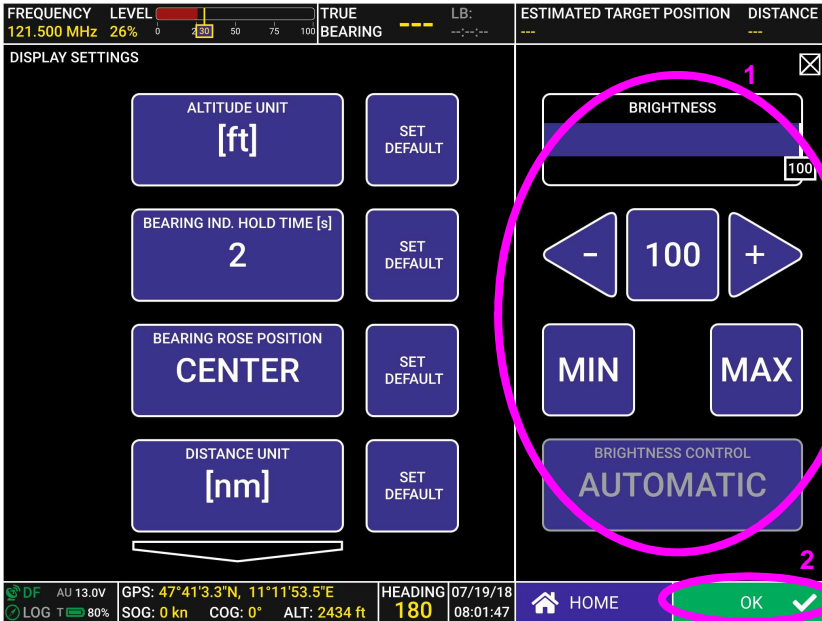


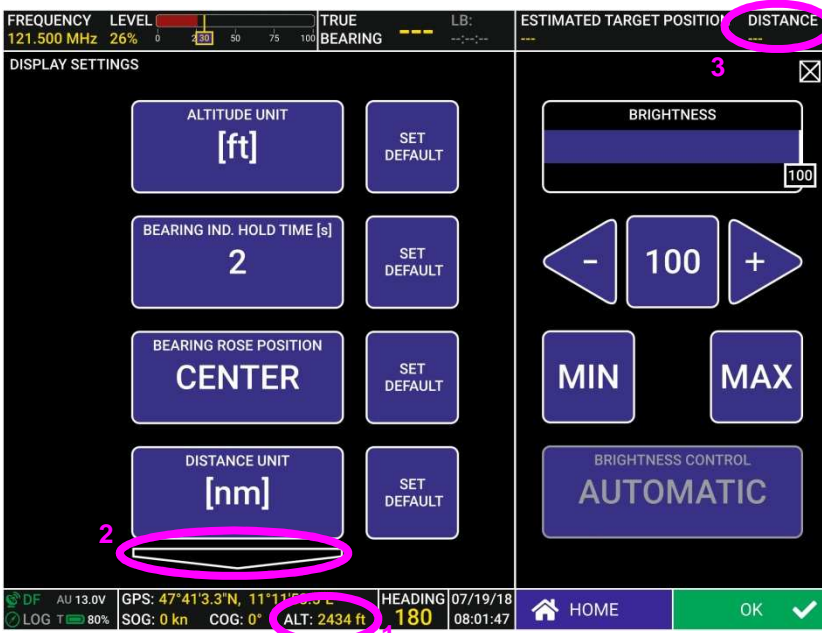
Figure 62: Setting brightness

### 5.4.2 Further display settings

On the left side of the screen, some display related settings can be modified:

- ALTITUDE UNIT:
  - o The user can set the unit for altitude indication (1).
- BEARING IND. HOLD TIME [s]:
  - o This time defines how long an old bearing should be visible on the display.
- BEARING ROSE POSITION:
  - o With this function the user can define the position of the Bearing Rose.
  - o The default value is the center of the display.
- DISTANCE UNIT:
  - o The user can set the unit for distance indication (3).

By clicking the arrow symbol (2) the user can view further settings.



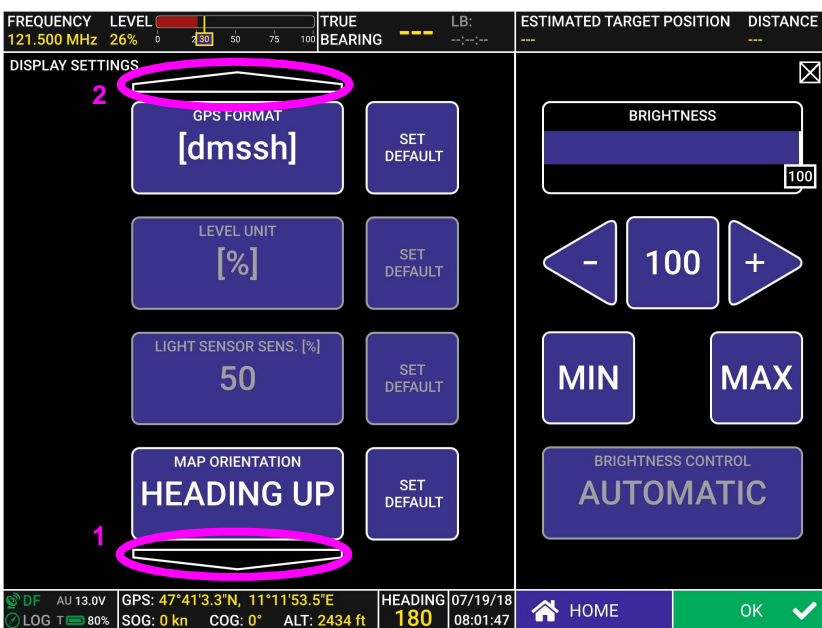
**Figure 63: Changing Display Settings 1**

On the left side of the screen the user can make the following settings:

- GPS FORMAT:
  - o By clicking this button, the user can change the GPS format.
- MAP ORIENTATION:
  - o HEADING UP:
    - The orientation of the map depends on the actual heading.
  - o NORTH UP:
    - The map is always oriented to the North. Heading is shown by an indicator on the Bearing Rose.

By clicking the arrow down symbol (1) the user can view further settings.

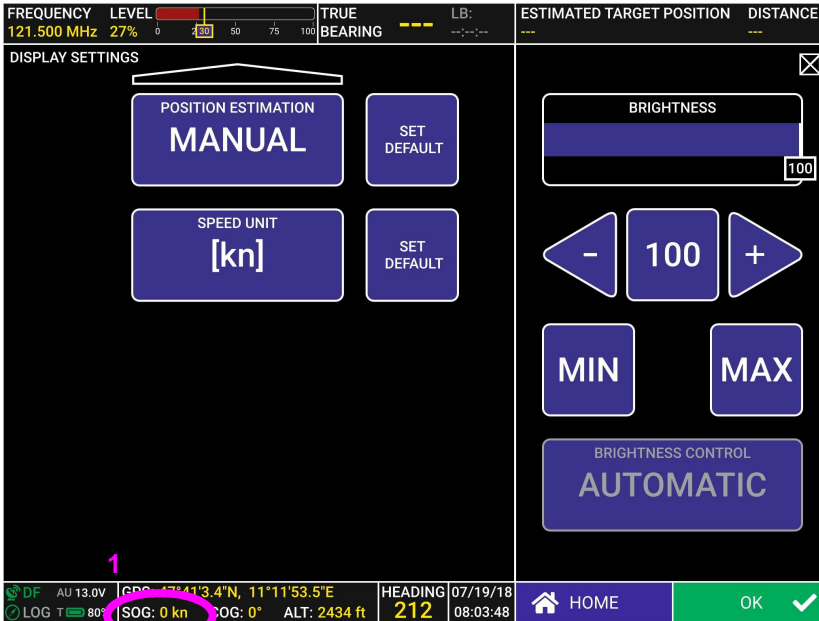
By clicking the arrow up symbol (2) the user goes back to the last settings screen.



**Figure 64: Changing Display Settings 2**

On the left side of the screen the user can make the following settings:

- POSITION ESTIMATION:
  - o MANUAL:
    - During operating mode BEARING the user can select any point on the map by double clicking. This can be used to pin an estimated target position on the map.
  - o SEMI AUTO:
    - In this mode the user can select three old crossing lines of bearing during BEARING mode and the software will estimated a target position by the enclosed triangle.
- SPEED UNIT:
  - o By clicking this button the user can select the speed unit (1).



**Figure 65: Changing Display Settings 3**



## 5.5 System settings

### 5.5.1 Heading Source, Antenna Offset and further settings

On this screen the user can make the following settings:

- ANTENNA UNIT MOUNTING:
  - o STANDARD: Standard mounting position for the antenna.
  - o UPSIDE DOWN: This setting should be chosen if the antenna is mounted upside down.
- ANTENNA OFFSET:
  - o This value determines the offset between antenna's axis and the axis of the compass.
  - o In the normal use it should be "0".
- HEADING SOURCE:
  - o TABLET: DF Scout gets its True Heading from tablet's compass.
  - o ANTENNA: DF Scout gets its True Heading from Antenna's compass.
  - o GPS: DF Scout gets its True Heading from the GPS (course over ground).  
**This setting should be selected for using the tablet inside a car!**
- FREQ. INPUT DIALOG TIME [s]:
  - o This setting defines after how many seconds the Technical Input Field for frequency input etc. is closed.

By clicking the arrow down symbol (1) the user can view further settings.

The screenshot displays the 'SYSTEM SETTINGS' screen with the following configuration:

SETTING	VALUE	ACTION
ANTENNA UNIT MOUNTING	STANDARD	SET DEFAULT
ANTENNA OFFSET [°]	0	SET DEFAULT
AU CALIBRATION	OFF	SET DEFAULT
BEARING SOURCE	10.123.45.1	SET DEFAULT
HEADING SOURCE	TABLET	SET DEFAULT
FREQ. INPUT DIALOG TIME [s]	10	SET DEFAULT
INTERCONNECTION	MASTER EXCLUSIVE	SET DEFAULT
LICENSE PASSWORD	VALID	

At the bottom of the settings grid, a pink oval highlights a downward-pointing arrow icon labeled '1', indicating that clicking it reveals further settings.

Top status bar: FREQUENCY 406.025 MHz, LEVEL 26%, TRUE BEARING 017, LB: 00:00:07, ESTIMATED TARGET POSITION ---, DISTANCE ---

Bottom status bar: DF AU 12.5V, LOG T 82%, GPS: 47°41'3.4"N, 11°11'53.5"E, SOG: 0 kn, COG: 0°, ALT: 2434 ft, HEADING 186, 07/20/18 07:46:17, HOME, OK ✓

Figure 66: System Settings 1

On this screen the user can make the following settings:

- S/N RATIO AUTOSQL [%]:
  - o This value is used for Automatic Squelch Control inside the Antenna Unit.
- VARIATION:
  - o This is only a backup value for the variation. Generally the variation should be given by the GPS.
  - o If GPS does not deliver any variation information it will be taken from this setting.

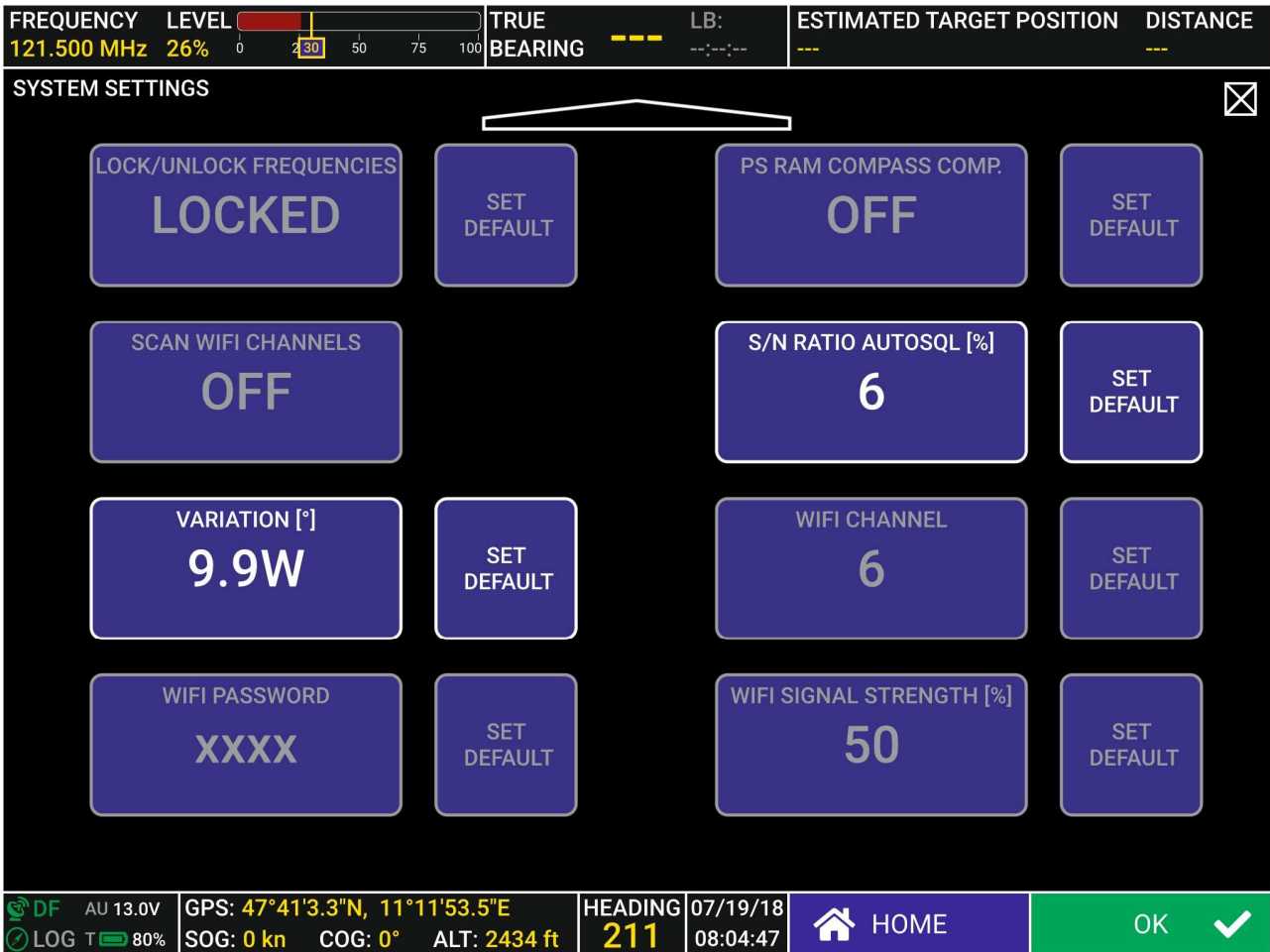


Figure 67: System Settings 2

## 5.6 Closing application

The application is closed by clicking the Menu button (1) and then the crossed square (2).

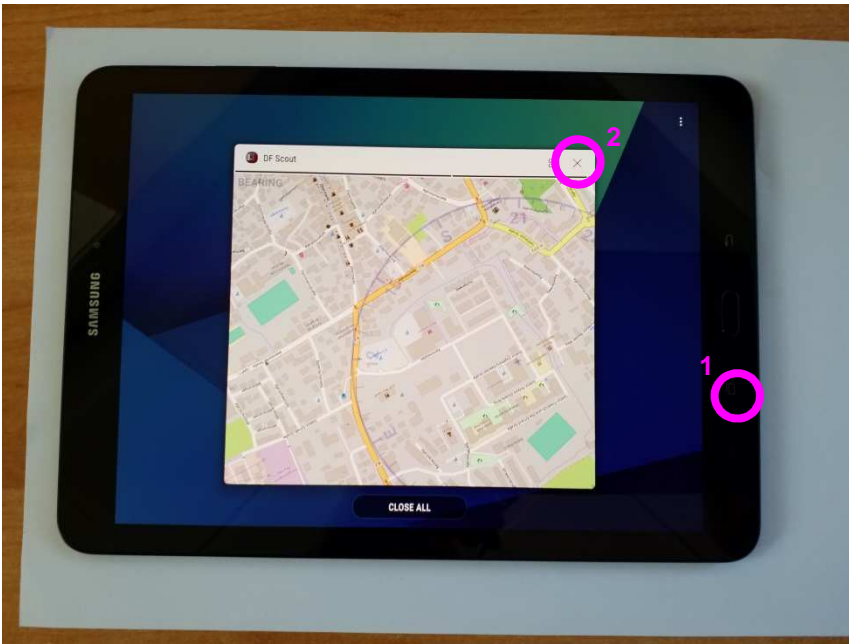


Figure 68: Closing application by Menu button

## 6 Errors and Warnings

Errors or warnings are indicated by a warning symbol in the bottom right corner. This symbol exists as long as the warning/error condition exists. By clicking this symbol a textual message appears in the middle of the display, which can be closed by clicking the crossed square.

Problems regarding power supply, WiFi connection and GPS are also indicated by symbols in the bottom right corner.

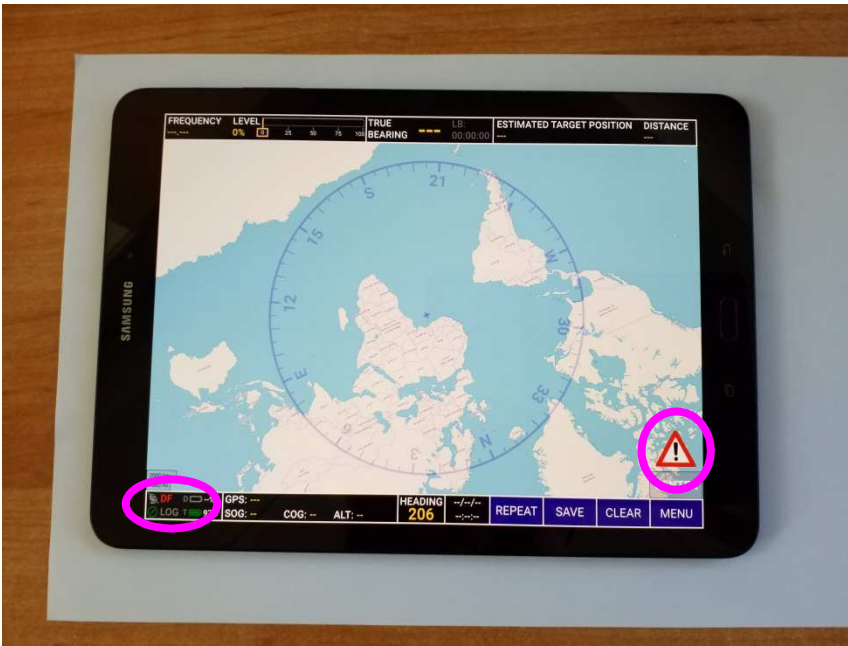


Figure 69: Application started (without WiFi)

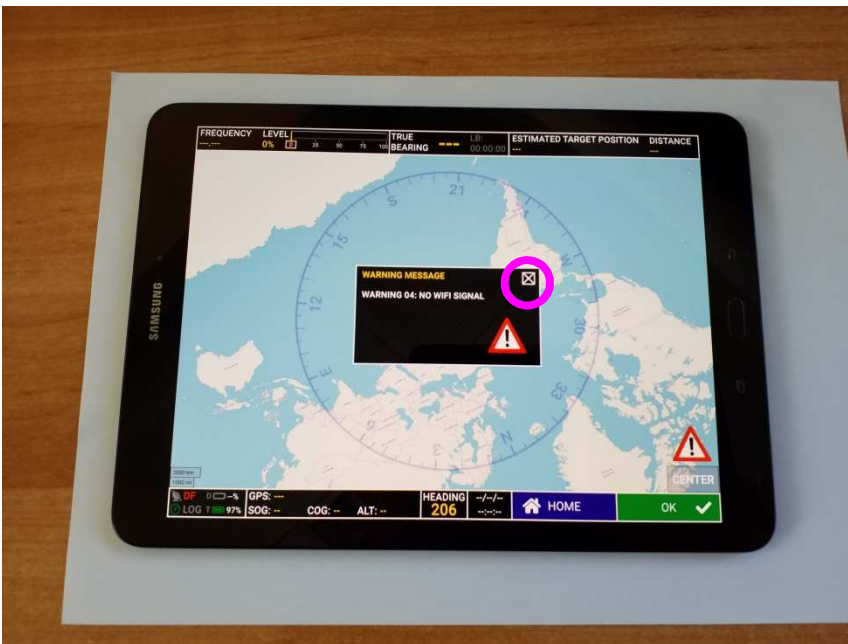


Figure 70: Warning can be closed by clicking crossed square