VOCOM II

WLAN
Instructions

VOCOM II Tough

88894000
Please make sure the VOCOM II is connected to the computer via USB.

Open the VOCOM II Configuration Application. *Located under the START menu.* The VOCOM II should display as a device listed to the left.

Under the Information\(^1\) tab. Click on the Edit\(^2\) button in the Menu bar. In the Configuration page, click on the Pair\(^3\) button. *NOTE:* Pairing is a prerequisite for WLAN usage.

In the Pairing dialog, the client’s computer name (Client Name) will display in the Info bar. Click on the Pair\(^4\) button to save. *NOTE:* The current paired computer is always displayed in the Info bar in the Client ID field.

Click the Connection\(^5\) tab in the Menu bar. The WLAN Configuration page will be shown. *NOTE:* Two WLAN configuration Modes available.
The **WLAN Infrastructure Mode** is normally used in a workshop environment where there is already an existing infrastructure network. Reference pg. 8-12

The **WLAN Direct mode** is used when the laptop needs to be directly connected to a VOCOM II device via WLAN, e.g. when using it in the field without the existence of an infrastructure network. Reference pg. 5-7

After configuring the VOCOM II WLAN configurations, save and reboot the device.

Connect the VOCOM II to the vehicle. Unplug the VOCOM II interface cable from the computer's USB port. **NOTE:** The battery symbol indicator should shine green. The WLAN indicator should shine blue. The WLAN signal strength indicators should be lit.

Login to Tech Tool, activate the VOCOM II (WLAN) adapter found under Settings.
CONTINUE FOR DETAILED WLAN CONFIGURATION INFORMATION
WLAN-Direct Mode

NOTE Before using the VOCOM II device in WLAN-Direct mode, make sure that it is paired with your PC.

WLAN-Direct is the default VOCOM II WLAN mode. WLAN-Direct mode only supports operation in 2.4 GHz band. The default WLAN-Direct settings are as follows:

<table>
<thead>
<tr>
<th>WLAN mode / connection</th>
<th>Access Point</th>
</tr>
</thead>
<tbody>
<tr>
<td>Network name / SSID</td>
<td>Vocom2T_[serial number]</td>
</tr>
<tr>
<td></td>
<td>Example: Vocom2T_7100133</td>
</tr>
<tr>
<td>Broadcast SSID</td>
<td>Yes</td>
</tr>
<tr>
<td>Password</td>
<td>v2t[serial number]</td>
</tr>
<tr>
<td></td>
<td>Example: v2t7100133</td>
</tr>
<tr>
<td>Encryption</td>
<td>WPA + WPA2</td>
</tr>
<tr>
<td>Channel</td>
<td>3</td>
</tr>
<tr>
<td>IPv4 address</td>
<td>192.168.51.1/24</td>
</tr>
<tr>
<td>Activate DHCP server</td>
<td>Yes</td>
</tr>
<tr>
<td>IPv4 address range</td>
<td>192.168.51.101 - 192.168.51.149</td>
</tr>
</tbody>
</table>

Tab. 6–3: WLAN-Direct default settings

Fig. 6–11 shows the WLAN-Direct configuration page with default settings.
Fig. 6–11: WLAN-Direct configuration page

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Connection Type panel</td>
</tr>
<tr>
<td>2</td>
<td>Save button</td>
</tr>
<tr>
<td>3</td>
<td>Connection tab</td>
</tr>
<tr>
<td>4</td>
<td>Reboot button</td>
</tr>
</tbody>
</table>
To change the WLAN-Direct configuration, perform the following steps:

**NOTE** When changing the IPv4 settings, make sure that the following conditions are met:

- IPv4 Address and Netmask are consistent.
- If Activate DHCP Server is enabled, the DHCP IPv4 address range must belong to the same network as the chosen IPv4 address.

1. Click **Connection** from the **Menu** bar.
2. Select **WLAN-Direct** in the Connection Type panel.
3. Change the VOCOM II Access Point settings according to your needs.
4. Click **Save**.
5. Click **Reboot**.

![Diagram](image)

Fig. 6–12: Changing the WLAN-Direct configuration

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Connection Type panel</td>
<td>5</td>
<td>IPv4 Address Range</td>
</tr>
<tr>
<td>2</td>
<td>Network Name (SSID)</td>
<td>6</td>
<td>Save button</td>
</tr>
<tr>
<td>3</td>
<td>Password</td>
<td>7</td>
<td>Reboot button</td>
</tr>
<tr>
<td>4</td>
<td>IPv4 Address</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
WLAN Infrastructure Mode

Fig. 6 – 13  WLAN Infrastructure Mode description

1  PC in LAN using VOCOM II
2  PC in LAN not using VOCOM II
3  (Local Area Network) LAN
4  Enterprise Wi-Fi router in the LAN
5  Vehicle connected to VOCOM II
6  Vehicle cable
7  VOCOM II connected to Enterprise Wi-Fi Router
8  VOCOM II

In VOCOM II Config Application’s WLAN Configuration page select **WLAN-Infrastructure** in the **Connection Type** panel.

**NOTE**  Selecting **Use my computer's WLAN configuration** pre-sets the network SSID, authentication type, encryption method, IP address settings and country from the active network setting of the wireless NIC of the client.

1  Enter the name of your WLAN network (i.e. the SSID of the existing network) into the Network Name / SSID field of the WLAN Infrastructure Configuration panel.

2  From Encryption and Authentication menus select a combination of Encryption-methods and WLAN-Authentication methods which is supported by your network.

3  Click **Save**.

4  Click **Reboot**.

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The default setting is WPA+WPA2 / WPA-PSK for password based authentication and encryption, which is normally used for small “personal” wireless networks. This WLAN Infrastructure Mode is commonly called “WPA-Personal”.

Other available/configurable authentication/encryption methods for WLAN Infrastructure Mode are EAP-TLS and EAP-PEAP, providing certificate based authentication through central servers, which is normally the case for larger company networks. These infrastructure modes are commonly called “WPA Enterprise”.

### Network Settings for WPA-PSK

For WPA-Personal mode the following network parameter have to be set.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Network name / SSID</td>
<td>The name (SSID) of the network</td>
</tr>
</tbody>
</table>
Encryption  Should be set to WPA + WPA2
Authentication Must be set to WPA-PSK
Password The network password (pre-shared key)

Tab. 6-1 WPA-Personal mode parameters.

NOTE The WPA-PSK password length must be ≥ 8.

**Network Settings for EAP-TLS / EAP-PEAP**

For WPA-Enterprise mode the following network parameter have to be set.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Network name / SSID</td>
<td>The name (SSID) of the network</td>
</tr>
<tr>
<td>Encryption</td>
<td>Should be set to WPA + WPA2</td>
</tr>
<tr>
<td>Authentication</td>
<td>Must be set to either EAP-TLS or EAP-PEAP. If necessary, ask your network administrator which authentication type is supported by your network</td>
</tr>
<tr>
<td>Certificate file</td>
<td>Encrypted client certificate in PKCS12 format</td>
</tr>
<tr>
<td>Certificate password</td>
<td>Password for decrypting the client certificate, if certificate password is required</td>
</tr>
<tr>
<td>User name</td>
<td>User / identity for which the certificate has been issued</td>
</tr>
</tbody>
</table>

Tab. 6-2 WPA-Enterprise mode parameters.

NOTE For EAP-TLS configuration, the Password field of the Network Settings page must be empty.

In order to upload and install the selected client certificate on the VOCOM II (which needs this certificate for later authentication on the network’s Radius server), click Certificate/Install button.

After successful upload and installation of a certificate on the VOCOM II, the currently installed client certificate will be listed in the Network Settings panel.
**Fig. 6-15:** WLAN-Infrastructure EAP-TLS configuration

1. Connection tab  
2. WLAN Configuration panel  
3. Authentication  
4. Certificate / Install button  
5. User Name  
6. Save button  
7. Reboot button
Fig. 6-16: WLAN-Infrastructure EAP-PEAP configuration

1. Connection tab
2. WLAN Configuration panel
3. Authentication
4. Certificate / Install button
5. User Name
6. Password
7. Save button
8. Reboot button
Country settings
The use of radio channels for 2.4 GHz and 5 GHz is regulated and differs among countries with respect to the set of allowed radio channels and maximum transmission power.

**NOTE** The VOCOM II factory default configuration uses a "golden set" of 2.4 GHz and 5 GHz radio channels which can be used worldwide.

The VOCOM II Config Application will automatically set the WLAN regulatory country code based on the locale settings of the client PC.
Advanced / Manual setup

The VOCOM II Config Application allows Windows users with Administrator profile to manually adjust the standard WLAN-Infrastructure configurations.

The following WLAN-Infrastructure settings can be manually adjusted:

- IPv4 and IPv6 address assignment
- WLAN roaming threshold
- Frequency band selection
- Setup of VOCOM II for Volvo Factory wireless operation

To show the manual WLAN-Infrastructure settings, perform the following steps:

1. Open the **WLAN-Infrastructure** configuration page.
2. Select **Manual configuration** in the **WLAN Configuration** panel.

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**Fig. 6–17:** WLAN-Infrastructure – manual configuration

| 1 Connection tab | 2 WLAN Configuration panel |
IPv4 and IPv6 address assignment

The VOCOM II WLAN interface configuration supports the following IPv4 and IPv6 address assignment methods.

<table>
<thead>
<tr>
<th>Assignment method</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DHCP</td>
<td>Use a dynamically assigned IP address from the network’s DHCP server.</td>
</tr>
<tr>
<td>Use IP address</td>
<td>Manually set a static IPv4 and / or IPv6 address.</td>
</tr>
<tr>
<td>APIPA</td>
<td>Obtain a unique, link-local IP address using a Zeroconf algorithm.</td>
</tr>
</tbody>
</table>

Tab. 6–4: IPv4 and IPv6 address assignment methods

To use a static IPv4 address assignment for the VOCOM II WLAN interface, perform the following steps:

1. Open the WLAN-Infrastructure configuration page.
2. Select Manual configuration in the WLAN Configuration panel.
3. Change the IPv4 and IPv6 address assignment according to your needs.
4. Click Save.
5. Click Reboot.
NOTE The Gateway field has to be either set to the IP address of the wireless network gateway, or can be left empty if the client PC is located in the same network.

NOTE Assigning a static IPv4 address is necessary if the Access Point of the wireless network does not support DHCP and there is no DHCP server behind the Access Point.

**WLAN roaming threshold**

The WLAN roaming threshold parameter defines the Signal-to-Noise ratio (SNR) in dB. This is used to set the background scanning interval for roaming.

If the SNR of the current Access Point is above the threshold (indicating a good signal), the background scanning frequency is decreased. If the SNR of the current Access Point is below the threshold (indicating a low signal), the background scanning frequency will be increased.

NOTE If an Access Point with higher signal strength is found during background scanning, VOCOM II will try to roam to the new Access Point.

NOTE You should only change the WLAN roaming threshold if you have connectivity problems due to too frequent or too slow roaming. The default threshold value of 20 dB should work well for most WLAN infrastructures.

**Frequency band selection**

The frequency band selection check boxes from WLAN-Infrastructure Advanced Network Settings allow users with Administrator profile to restrict WLAN channel scanning to either 2.4 GHz or 5 GHz channels.

By default VOCOM II performs scans for Access Points of a wireless network on both frequency bands.

NOTE Restricting the WLAN frequency band to either 2.4 GHz or 5 GHz will reduce the number of WLAN channels to be considered in background scanning.
Factory wireless Mode

The term "Factory wireless" shows the following wireless infrastructure. This configuration is used when IP multicasting is not supported in the network. Factory wireless enables to connect to wireless network using unicasting.

Fig. 6–19: Factory Wireless setting where Host Identifier is an IP address
If the host identifier is a DNS name, the factory wireless infrastructure configuration will also require the provision of the DNS server IP address.

**NOTE** If the host identifier is a DNS name, it has to be a full qualified DNS name including the DNS suffix.