

# RouterBOARD 91x series

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## Quick Setup Guide and Warranty Information

RB91x is a RouterBOARD with a built-in 802.11n wireless device and one Ethernet port. Several models are available with 5GHz or 2GHz wireless.

### First use

- Connect antenna cables to the built in Wi-Fi connectors
- Device accepts 8-30V with a passive PoE powered Ethernet cable or with a power connector to the Power Jack

### Powering

The board accepts power with the following modes:

- With PoE to Ether1 port. It accepts 8-30V DC input (at the board; higher voltage needed to compensate for power loss on long cables; at least 18V suggested) from non-standard (passive) Power over Ethernet injectors (no power over data lines). The board **does not** work with IEEE802.3af compliant 48V power injectors.
- Direct input to the power jack 8-30V (select models only)

### Booting process

**RouterOS is the operating system of all RouterBOARD routers. Please see detailed configuration guide here:**

<http://wiki.mikrotik.com/wiki/Category:Manual#list>

This device doesn't come fitted with a Serial Port connector, so initial connection has to be done via the Ethernet cable, using the MikroTik Winbox utility. Winbox should be used to connect to the default IP address of **192.168.88.1** with the username **admin** and **no password**.

In case you wish to boot the device from network, for example to use MikroTik Netinstall, hold the RESET button of the device when starting it until the LED light turns off, and Groove will start to look for Netinstall servers.

In case IP connection is not available, Winbox can also be used to connect to the MAC address of the device. More information here: [http://wiki.mikrotik.com/wiki/First\\_time\\_startup](http://wiki.mikrotik.com/wiki/First_time_startup)

### Extension Slots and Ports

- One Gigabit Ethernet port (With Auto MDI/X so you can use either straight or cross-over cables for connecting to other network devices). The Ethernet port accepts 8-30V DC powering from a passive PoE injector. Built-in 802.11b/g/n WiFi card (AR9342) with one or two MMCX connectors
- **Only RB912UAG-2/5HPnD:** miniPCI-e slot for either a 802.11 Wireless card, or a 3G modem (when a 3G modem is used in miniPCIe slot, USB port will become inactive. In RouterOS you can select which of the 3G modems you want to use, USB or miniPCIe). SIM slot is available for miniPCIe 3G cards.
- **Only RB912UAG-2/5HPnD:** USB 2.0 port

### Buttons and Jumpers

- RouterOS reset jumper hole (Reset2 in above image) – resets RouterOS software to defaults. Must short circuit the metallic sides of the hole (with a screwdriver, for example) and boot the device. Hold screwdriver in place until RouterOS configuration is cleared.
- Reset button (Reset1 in above image) – Holding this button during boot time will make the RouterBOARD look for Netinstall servers. Release the button after the LED light goes out.

## Operating System Support

Currently tested operating system is MikroTik RouterOS (starting from version v6.6q).

## Copyright and Warranty information

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**Hardware.** MikroTik warrants all RouterBOARD series equipment for the term of twelve (12) months from the shipping date to be free of defects in materials and workmanship under normal use and service, except in case of damage caused by mechanical, electrical or other accidental or intended damages caused by improper use or due to wind, rain, fire or other acts of nature.

To return failed units to MikroTik, you must perform the following RMA (Return Merchandise Authorization) procedure. Follow the instructions below to save time, efforts, avoid costs, and improve the speed of the RMA process.

1. If you have purchased your product from a MikroTik Reseller, please contact the Reseller company regarding all warranty and repair issues, the following instructions apply ONLY if you purchased your equipment directly from MikroTik in Latvia.
2. We do not offer repairs for products that are not covered by warranty. Exceptions can be made for RB1000 series.
3. Out-of-warranty devices and devices not covered by warranty sent to MikroTiks will be returned to the sender at sender's cost.

RMA Instructions are located on our webpage here: <http://rma.mikrotik.com>

This document is provided "as is" without a warranty of any kind, expressed or implied, including, but not limited to, the implied warranty of merchantability and fitness for a particular purpose. The manufacturer has made every effort to ensure the accuracy of the contents of this document, however, it is possible that it may contain technical inaccuracies, typographical or other errors. No liability is assumed for any inaccuracy found in this publication, nor for direct or indirect, incidental, consequential or other damages that may result from such an inaccuracy, including, but not limited to, loss of data or profits.

Please report any inaccuracies found to [support@mikrotik.com](mailto:support@mikrotik.com)

# Federal Communication Commission Interference Statement



**List of FCC IDs:** RB911-2Hn, RB911-2HnD: **TV7RB911-2HND**; RB911-5Hn, RB911-5HND: **TV7RB911-5HND**; RB911G-2HPnD, RB912UAG-2HPnD, RB912G-2HPnD, RB912UAG-2HPnD-OUT: **TV7RB912G-2HPND**; RB911G-5HPnD, RB912UAG-5HPnD, RB912UAG-5HPnD-OUT: **TV7RB912G-5HPND**

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 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.

**FCC Caution:** Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

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. This device and its antenna must not be co-located or operation in conjunction with any other antenna or transmitter.

## **IMPORTANT: Exposure to Radio Frequency Radiation.**

63 cm minimum distance has to be maintained between the antenna and the occupational user and 140 cm to general public. Under such configuration, the FCC radiation exposure limits set forth for an population/uncontrolled environment can be satisfied.

## **List of additional approved antennas**

- Omni Directional (fiberglass pole) WLO-2450-15 15 dBi
- Omni Directional (hor. polarization) HP, ODH 24-13 13 dBi
- Sector SA 24-90-17-WB 17 dBi
- Panel WLP-2450-20 20 dBi
- Dish DC 24-HD-PFIP 24 dBi

**Antenna Installation. WARNING:** It is installer's responsibility to ensure that when using the authorized antennas in the United States (or where FCC rules apply); only those antennas certified with the product are used. The use of any antenna other than those certified with the product is expressly forbidden in accordance to FCC rules CFR47 part 15.204. The installer should configure the output power level of antennas, according to country regulations and per antenna type. Professional installation

is required of equipment with connectors to ensure compliance with health and safety issues.



# CE Declaration of Conformity

Full Declaration of Conformity (DoC) may be obtained by visiting this web page: <http://routerboard.com/doc/>

[EN] English	Hereby, MIKROTĪKLS SIA declares that this ROUTERBOARD is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.
[BG] Bulgarian	С настоящето, MIKROTĪKLS SIA декларира, че ROUTERBOARD е в съответствие със съществените изисквания и другите приложими разпоредби на Директива 1999/5/EC.
[CZ] Czech	MIKROTĪKLS SIA tímto prohlašuje, že ROUTERBOARD splňuje základní požadavky a všechna příslušná ustanovení Směrnice 1999/5/ES.
[DK] Danish	Undertegnede MIKROTĪKLS SIA erklærer herved, at følgende udstyr ROUTERBOARD overholder de væsentlige krav og øvrige relevante krav i direktiv 1999/5/EF.
[DE] German	Hiermit erklärt MIKROTĪKLS SIA dass sich das Gerät ROUTERBOARD in Übereinstimmung mit den grundlegenden Anforderungen und den übrigen einschlägigen Bestimmungen der Richtlinie 1999/5/EG befindet.
[EE] Estonian	Käesolevaga kinnitab MIKROTĪKLS SIA seadme ROUTERBOARD vastavust direktiivi 1999/5/EÜ põhinõuetele ja nimetatud direktiivist tulenevatele teistele asjakohastele sätetele.
[GR] Greek	ΜΕ ΤΗΝ ΠΑΡΟΥΣΑ Ο ΚΑΤΑΣΚΕΥΑΣΤΗΣ ΜΙΚΡΟΤΙΚΛΣ SIA ΔΗΛΩΝΕΙ ΟΤΙ ROUTERBOARD ΣΥΜΜΟΡΦΩΝΕΤΑΙ ΠΡΟΣ ΤΙΣ ΟΥΣΙΩΔΕΙΣ ΑΠΑΙΤΗΣΕΙΣ ΚΑΙ ΤΙΣ ΛΟΙΠΕΣ ΣΧΕΤΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΤΗΣ ΟΔΗΓΙΑΣ 1999/5/ΕΚ
[ES] Spanish	Por la presente, MIKROTĪKLS SIA declara que este ROUTERBOARD cumple con los requisitos esenciales y otras exigencias relevantes de la Directiva 1999/5/EC.
[IT] Italian	Con la presente MIKROTĪKLS SIA dichiara che questo ROUTERBOARD è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 1999/5/CE.
[LV] Latvian	Ar šo MIKROTĪKLS SIA deklarē, ka ROUTERBOARD atbilst Direktīvas 1999/5/EK būtiskajām prasībām un citiem ar to saistītajiem noteikumiem.
[LT] Lithuanian	Šiuo MIKROTĪKLS SIA deklaruoją, kad šis ROUTERBOARD atitinka esminius reikalavimus ir kitas 1999/5/EB Direktyvos nuostatas
[HU] Hungarian	A MIKROTĪKLS SIA ezzennel kijelenti, hogy a ROUTERBOARD típusú berendezés teljesíti az alapvető követelményeket és más 1999/5/EK irányelvben meghatározott vonatkozó rendelkezéseket.
[NL] Dutch	Hierbij verklaart MIKROTĪKLS SIA dat het toestel I ROUTERBOARD in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 1999/5/EG.
[PL] Polish	Niniejszym MIKROTĪKLS SIA deklaruje że ROUTERBOARD jest zgodny z zasadniczymi wymaganiami i innymi właściwymi postanowieniami Dyrektywy 1999/5/EC.
[PT] Portuguese	Eu, MIKROTĪKLS SIA declaro que o ROUTERBOARD cumpre os requisitos essenciais e outras provisões relevantes da Directiva 1999/5/EC.
[RO] Romanian	Prin prezenta, MIKROTĪKLS SIA declară că aparatul ROUTERBOARD este în conformitate cu cerințele esențiale și cu alte prevederi pertinente ale Directivei 1999/5/CE..
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[SI] Slovenian	MIKROTĪKLS SIA izjavlja, da je ta ROUTERBOARD v skladu z bistvenimi zahtevami in drugimi relevantnimi določili direktive 1999/5/ES.
[FI] Finnish	MIKROTĪKLS SIA vakuuttaa täten että ROUTERBOARD tyyppinen laite on direktiivin 1999/5/EY oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen.
[SE] Swedish	Härmed intygar MIKROTĪKLS SIA att denna RouterBOARD är i överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 1999/5/EG.
[NO] Norwegian	MIKROTĪKLS SIA Erklærer herved at ROUTERBOARD er i samsvar med de grunnleggende krav og øvrige relevante krav i direktiv 1999/5/EF.

**EN. Instruction manual:** Connect the power adapter to turn on the device. Open 192.168.88.1 in your web browser, to configure it. More information on <http://wiki.mikrotik.com>

**BG. Инструкции:** Свържете адаптера на захранване, за да включите устройството. Отворете 192.168.88.1 в уеб браузър, за да настроите продукта. Повече информация в <http://wiki.mikrotik.com>

**CZ. Návod k použití:** Připojte napájecí adaptér k zapnutí přístroje. Otevřete 192.168.88.1 ve webovém prohlížeči pro konfiguraci produktu. Více informací najdete v <http://wiki.mikrotik.com>

**DK. Instruktionsbog:** Tilslut strømadapteren for at tænde for enheden. Åbn 192.168.88.1 i en webbrowser til at konfigurere produktet. Mere information i <http://wiki.mikrotik.com>

**FR. Mode d'emploi:** Connectez l'adaptateur d'alimentation pour allumer l'appareil. Ouvrez 192.168.88.1 dans un navigateur Web pour configurer le produit. Plus d'informations dans <http://wiki.mikrotik.com>

**DE. Bedienungsanleitung:** Verbinden Sie das Netzteil, um das Gerät einzuschalten. Öffnen Sie 192.168.88.1 in einem Web-Browser, um das Produkt zu konfigurieren. Weitere Informationen im <http://wiki.mikrotik.com>

**EE. Kasutusjuhend:** Ühendage toiteadapter seadme sisselülitamiseks. Avatud 192.168.88.1 in veebilehitseja seadistena toodet. Rohkem teavet <http://wiki.mikrotik.com>

**ES. Manual de instrucciones:** Conecte el adaptador de alimentación para encender la unidad. Abra 192.168.88.1 en un navegador web para configurar el producto. Más información en <http://wiki.mikrotik.com>

**IT. Manuale di istruzioni:** Collegare l'adattatore di alimentazione per accendere l'unità. Aprire 192.168.88.1 in un browser Web per configurare il prodotto. Maggiori informazioni in <http://wiki.mikrotik.com>

**LV. Lietošanas instrukcija:** Pievienojiet Strāvas adapteri, lai ieslēgtu ierīci. Atvērt 192.168.88.1 ar interneta pārlūku, lai konfigurētu produktu. Plašāka informācija <http://wiki.mikrotik.com>

**LT. Naudojimosi instrukcija:** Prijunkite maitinimo adapterį įjunkite įrenginį. Į interneto naršyklę 192.168.88.1 Atidarykite galite konfigūruoti gaminį. Daugiau informacijos rasite <http://wiki.mikrotik.com>

**HU. Használati utasítás:** Csatlakoztassa a hálózati adaptert a készülék bekapcsolásához. Megnyitása 192.168.88.1 egy webböngészőben beállítani a terméket. Több információ <http://wiki.mikrotik.com>

**NL. Handleiding:** Sluit voedingsadapter aan op het apparaat in te schakelen. Open 192.168.88.1 in een webbrowser om het product te configureren. Meer informatie in <http://wiki.mikrotik.com>

**PL. Instrukcja obsługi:** Podłącz adapter zasilania, aby włączyć urządzenie. Otwórz 192.168.88.1 w przeglądarce internetowej, aby skonfigurować urządzenie. Więcej informacji w <http://wiki.mikrotik.com>

**PT. Manual de instruções:** Conecte o adaptador de alimentação para ligar o aparelho. Abra 192.168.88.1 em um navegador da web para configurar o produto. Mais informações em <http://wiki.mikrotik.com>

**RO. Instrucțiuni de utilizare:** Conectați adaptorul de alimentare pentru a porni aparatul. Deschide 192.168.88.1 într-un browser web pentru a configura produsul. Mai multe informații în <http://wiki.mikrotik.com>

**SK. Návod na použitie:** Pripojte napájací adaptér k zapnutiu prístroja. Otvorte 192.168.88.1 vo webovom prehliadači pre konfiguráciu produktu. Viac informácií nájdete v <http://wiki.mikrotik.com>

**SI. Navodila:** Priključite napajalnik za vklop naprave. Odprite 192.168.88.1 v spletnem brskalniku nastavit izdelek. Več informacij v <http://wiki.mikrotik.com>

**FI. Käyttöohje:** Kytke virtalähde päälle laitteen. Avaa 192.168.88.1 in selaimen määrittää tuotteen. Lisää tietoa <http://wiki.mikrotik.com>

**SE. Instruktionsmanual:** Anslut nätadaptern för att slå på enheten. Öppna 192.168.88.1 i en webbläsare för att konfigurera produkten. Mer information på <http://wiki.mikrotik.com>

**NO. Bruksanvisningen:** Koble strømadapteren for å slå på enheten. Åpne 192.168.88.1 i en nettleser for å konfigurere produktet. Mer informasjon på <http://wiki.mikrotik.com>

**GR. εγχειρίδιο οδηγιών:** Συνδέστε τον προσαρμογέα τροφοδοσίας για να ενεργοποιήσετε τη μονάδα. Ανοίξτε 192.168.88.1 σε ένα πρόγραμμα περιήγησης στο Web για να διαμορφώσετε το προϊόν. Περισσότερες πληροφορίες στο <http://wiki.mikrotik.com>