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## MikroTik CCR2004-16G-2S+PC

# MikroTik CCR2004-16G-2S+PC Ethernet Router Instruction Manual

Model: CCR2004-16G-2S+PC

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## 1. PRODUCT OVERVIEW

The MikroTik CCR2004-16G-2S+PC is a powerful Cloud Core Router designed for high-performance networking environments. It features an Annapurna Labs Alpine v2 CPU with 4x ARMv8-A Cortex-A57 cores, providing robust processing capabilities for complex network tasks. This router is equipped with 16 Gigabit Ethernet ports and two 10G SFP+ cages, offering extensive connectivity options for various applications, from home labs to office networks.



**Image 1.1:** Front view of the MikroTik CCR2004-16G-2S+PC Ethernet Router, showcasing its 16 Gigabit Ethernet ports and two 10G SFP+ cages.

## Key Features:

- **High-Performance CPU:** Annapurna Labs Alpine v2 with 4x ARMv8-A Cortex-A57 cores.
- **Extensive Connectivity:** 16x Gigabit Ethernet ports for versatile network connections.
- **High-Speed Uplinks:** 2x 10G SFP+ cages for fiber optic or high-speed copper connections.
- **Compact Design:** Suitable for various installation environments, including desktop or rackmount setups.
- **RouterOS:** Powered by MikroTik's advanced RouterOS for comprehensive network management and configuration.

## Product Videos:

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**Video 1.1:** A brief product overview of the MikroTik CCR2004-16G-2S+PC router, highlighting its key features and connectivity options.

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**Video 1.2:** A detailed look at the MikroTik CCR2004-16G-2S+PC, showcasing its design, ports, and internal components, emphasizing its suitability for various network setups.

## 2. SETUP GUIDE

### 2.1 Unboxing and Initial Inspection

Carefully remove the router and all accessories from the packaging. Inspect the device for any signs of damage. The package should contain the CCR2004-16G-2S+PC router, a power cable, and a quick start guide.

### 2.2 Connecting the Device

1. **Power Connection:** Connect the provided power cable to the router's power input and then to a suitable power outlet. The power LED indicator should illuminate.
2. **Ethernet Connection:** Connect an Ethernet cable from your computer to any of the Gigabit Ethernet ports (e.g., Ether1) on the router.
3. **Internet Connection:** Connect your internet service provider's (ISP) modem or main network line to one of the Gigabit Ethernet ports or a 10G SFP+ cage, depending on your network configuration.
4. **SFP+ Module Installation (Optional):** If using SFP+ modules, carefully insert them into the 10G SFP+ cages until they click into place. Then, connect the appropriate fiber optic or copper cables to the modules.

### 2.3 Initial Configuration Access

The MikroTik CCR2004-16G-2S+PC can be configured via a web browser (WebFig) or a dedicated utility (WinBox). For initial setup, it is recommended to use WinBox or access the default IP address via a web browser.

- **Default IP Address:** 192.168.88.1
- **Default Username:** admin
- **Default Password:** (No password by default for new devices)

Open your web browser and navigate to <http://192.168.88.1> or use the WinBox utility to connect to the router's MAC address if IP connectivity is not yet established.

## 3. OPERATING INSTRUCTIONS

### 3.1 RouterOS Basics

The CCR2004-16G-2S+PC runs MikroTik's RouterOS, a highly versatile operating system for routers. It offers extensive features for routing, firewall, VPN, QoS, and more.

- **WebFig:** A web-based graphical user interface (GUI) accessible via your browser.
- **WinBox:** A small Windows utility that provides a GUI for RouterOS configuration.
- **CLI (Command Line Interface):** Accessible via Telnet, SSH, or the console port for advanced users.

### 3.2 Basic Network Configuration

1. **Set a Strong Password:** Immediately change the default 'admin' user password for security.
2. **Configure WAN Interface:** Set up the internet-facing port with appropriate IP settings (DHCP client, static IP, or PPPoE) as provided by your ISP.
3. **Configure LAN Interface:** Assign an IP address to your local network interface and enable a DHCP server to automatically assign IP addresses to connected devices.
4. **Firewall Setup:** Configure basic firewall rules to protect your network from unauthorized access.
5. **Firmware Update:** Regularly check for and install the latest RouterOS firmware to ensure optimal performance and security.

### 3.3 Advanced Features

Explore the vast capabilities of RouterOS for advanced network management:

- **VLANs:** Create Virtual Local Area Networks for network segmentation.
- **VPN:** Set up various VPN protocols (IPsec, OpenVPN, L2TP, PPTP) for secure remote access or site-to-site connections.
- **QoS (Quality of Service):** Prioritize network traffic for critical applications.
- **Bonding/LAGG:** Combine multiple Ethernet ports for increased bandwidth or redundancy.
- **Monitoring:** Utilize built-in tools for real-time network monitoring and logging.

## 4. MAINTENANCE

### 4.1 Regular Software Updates

Keep your RouterOS firmware and packages updated to the latest stable version. This ensures you have the latest features, bug fixes, and security patches. Updates can be performed via WinBox or WebFig.

### 4.2 Configuration Backup

Regularly back up your router's configuration. This allows for quick restoration in case of misconfiguration or hardware failure. Backups can be saved to your computer or an external storage device connected via USB.

## 4.3 Physical Inspection

Periodically inspect the router for dust accumulation, especially around ventilation areas. Ensure all cable connections are secure. For optimal performance, maintain the router in a well-ventilated area to prevent overheating.

## 4.4 Resetting to Factory Defaults

In case of severe misconfiguration or forgotten password, the router can be reset to factory defaults. Locate the reset button on the device (usually a small pinhole button). With the device powered off, press and hold the reset button, then power on the device. Continue holding the button until the USER LED starts flashing, then release. This will restore the router to its initial factory settings.

# 5. TROUBLESHOOTING

## 5.1 No Power

- Ensure the power cable is securely connected to both the router and the power outlet.
- Verify the power outlet is functional by plugging in another device.
- Check the power adapter for any visible damage.

## 5.2 No Internet Access

- Verify that your ISP service is active and the modem is working correctly.
- Check the WAN port connection on the router. Ensure the link light is active.
- Confirm that the WAN interface is correctly configured in RouterOS (IP address, gateway, DNS).
- Check firewall rules to ensure they are not blocking internet access.

## 5.3 Cannot Access Router Configuration

- Ensure your computer is directly connected to a LAN port on the router.
- Verify your computer's IP settings are set to obtain an IP address automatically (DHCP) or are within the router's default subnet (192.168.88.x).
- Try accessing the router via its MAC address using WinBox if the IP address is unknown or changed.
- If the password is forgotten, perform a factory reset (refer to Section 4.4).

## 5.4 Slow Network Performance

- Check for high CPU usage on the router via RouterOS monitoring tools.
- Ensure all network cables are in good condition and properly connected.
- Verify that your SFP+ modules and cables are compatible and functioning correctly for 10G speeds.
- Review QoS settings to ensure no unintended traffic shaping is occurring.
- Consider upgrading firmware or optimizing RouterOS configurations for your specific workload.

# 6. TECHNICAL SPECIFICATIONS

Feature	Description
Product Model	CCR2004-16G-2S+PC
Brand	MikroTik
CPU	Annapurna Labs Alpine v2, 4x ARMv8-A Cortex-A57 cores
Ethernet Ports	16x Gigabit Ethernet (10/100/1000 Mbps)
SFP+ Cages	2x 10G SFP+
RAM	4GB
Operating System	RouterOS
Dimensions	19.69 x 19.69 x 11.02 inches
Weight	3 pounds
Connectivity Technology	Ethernet
Recommended Use	Home, Office, Data Centers, ISPs

## 7. WARRANTY AND SUPPORT

### 7.1 Warranty Information

MikroTik products typically come with a limited manufacturer's warranty. Please refer to the official MikroTik website or the warranty card included in your product packaging for specific terms and conditions regarding warranty coverage, duration, and claims procedures.

### 7.2 Technical Support

For technical assistance, configuration guidance, or troubleshooting beyond this manual, please visit the official MikroTik support resources:

- **MikroTik Wiki:** [wiki.mikrotik.com](https://wiki.mikrotik.com) (Comprehensive documentation and guides)
- **MikroTik Forum:** [forum.mikrotik.com](https://forum.mikrotik.com) (Community support and discussions)
- **Official Support:** Refer to the "Support" section on the main MikroTik website for contact information and support ticket submission.

When contacting support, please have your device's model number (CCR2004-16G-2S+PC) and serial number ready.

