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Cisco AIR-CT2504-5-K9

Cisco AIR-CT2504 Wireless LAN Controller User Manual

Model: AIR-CT2504-5-K9

1. INTRODUCTION

The Cisco 2500 Series Wireless Controller is designed to provide system-wide wireless functions for small to medium-sized enterprises and branch offices. Optimized for 802.11n performance, this entry-level controller facilitates real-time communication between Cisco Aironet access points, simplifying the deployment and operation of wireless networks. As an integral component of the Cisco Unified Wireless Network, the controller enforces centralized security policies, offers Wireless Intrusion Prevention System (wIPS) capabilities, manages RF, and ensures Quality of Service (QoS) for voice and video applications. Its 802.11n performance and scalability features contribute to a low total cost of ownership and provide flexibility for network expansion.

2. PHYSICAL OVERVIEW

This section details the physical components and indicators of the Cisco AIR-CT2504 Wireless LAN Controller.

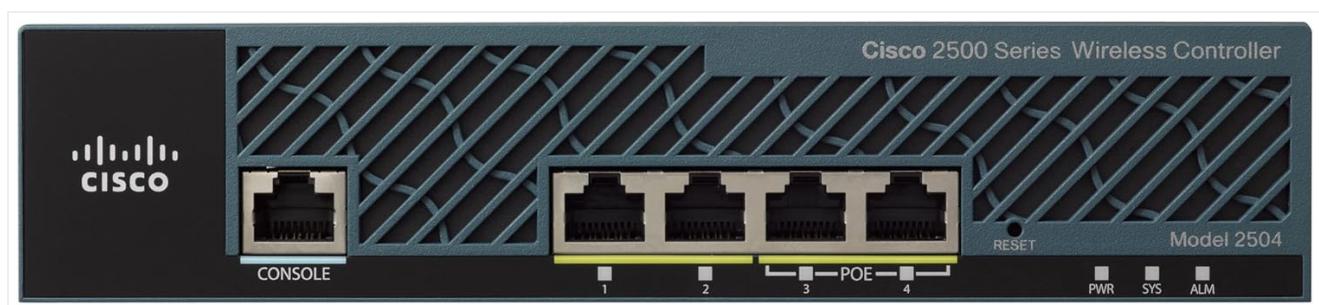


Figure 2.1: Front Panel of Cisco AIR-CT2504 Wireless LAN Controller. This image displays the front of the controller, featuring the Cisco logo on the left, followed by a CONSOLE port, four Ethernet ports (labeled 1 through 4), a RESET button, and LED indicators for Power (PWR), System (SYS), and Alarm (ALM). Ethernet ports 3 and 4 are highlighted for Power over Ethernet (PoE) capability.

Front Panel Components:

- **CONSOLE Port:** An RJ-45 serial port for local management and initial configuration using a console cable.
- **Ethernet Ports (1-4):** Four Gigabit Ethernet ports for network connectivity. Ports 3 and 4 support Power over Ethernet (PoE) for powering compatible devices.
- **RESET Button:** Used to reset the controller to factory default settings or reboot the device. Requires a pointed object to press.
- **PWR LED:** Indicates the power status of the controller.

- **SYS LED:** Indicates the system status and operational health.
- **ALM LED:** Illuminates to indicate an alarm or fault condition.

3. SETUP INSTRUCTIONS

Follow these steps for the initial setup of your Cisco AIR-CT2504 Wireless LAN Controller.

1. **Unpack the Controller:** Carefully remove the controller and all accessories from the packaging. Verify that all components are present.
2. **Mounting (Optional):** The controller can be placed on a flat surface or mounted in a rack using an appropriate rack-mount kit (sold separately). Ensure adequate ventilation around the device.
3. **Connect Power:** Connect the provided power adapter to the controller's power input and then to a suitable electrical outlet. The PWR LED should illuminate.
4. **Connect to Network:** Connect one of the Ethernet ports (e.g., Port 1) to your network switch or router using an Ethernet cable.
5. **Initial Configuration Access:**
 - **Console Access:** For initial setup, connect a console cable from your computer's serial port (or USB-to-serial adapter) to the controller's CONSOLE port. Use a terminal emulation program (e.g., PuTTY, Tera Term) with settings: 9600 baud, 8 data bits, no parity, 1 stop bit, no flow control.
 - **Web Interface Access:** Once basic network settings are configured via console, you can access the web-based management interface by entering the controller's IP address into a web browser.
6. **Run Setup Wizard:** Upon first access, the controller typically guides you through a setup wizard to configure essential network parameters, such as IP address, subnet mask, default gateway, and initial wireless network settings.

4. OPERATING INSTRUCTIONS

This section outlines the basic operational aspects of the Cisco AIR-CT2504 Wireless LAN Controller.

4.1. Accessing the Management Interface

The primary method for managing the controller is through its web-based graphical user interface (GUI) or command-line interface (CLI) via SSH/Telnet or console.

- **Web GUI:** Open a web browser and enter the IP address of the controller. Log in with your configured administrator credentials.
- **CLI:** Use an SSH client to connect to the controller's IP address on port 22, or connect via the console port.

4.2. Managing Access Points (APs)

The controller automatically discovers and manages Cisco Aironet Access Points. Once an AP is connected to the network and powered on, it will attempt to join the controller.

- **AP Registration:** Ensure APs are configured to find the controller (e.g., via DHCP Option 43, DNS, or broadcast).
- **AP Configuration:** From the controller's GUI, you can monitor AP status, configure AP groups, and manage individual AP settings.

4.3. Configuring Wireless Local Area Networks (WLANS)

WLANS define the wireless services broadcast by your access points.

- **Create WLANS:** Navigate to the WLANS section in the GUI to create new wireless networks (SSIDs).
- **Security Settings:** Configure security parameters such as WPA2/WPA3, 802.1X authentication, and guest access policies.

- **VLAN Mapping:** Assign WLANs to specific VLANs for network segmentation.

5. MAINTENANCE

Regular maintenance ensures optimal performance and longevity of your Cisco AIR-CT2504 Wireless LAN Controller.

- **Firmware Updates:** Periodically check the Cisco support website for the latest firmware versions. Updating the firmware can provide new features, security enhancements, and bug fixes. Follow Cisco's recommended update procedures carefully.
- **Configuration Backup:** Regularly back up your controller's configuration to an external server or local storage. This allows for quick recovery in case of a system failure or misconfiguration.
- **Environmental Conditions:** Ensure the controller operates within its specified temperature and humidity ranges. Maintain proper airflow around the device to prevent overheating.
- **Physical Cleaning:** Keep the controller free from dust and debris. Use a soft, dry cloth for external cleaning. Avoid using liquid cleaners directly on the device.
- **Monitoring:** Regularly monitor the controller's system logs, performance metrics, and connected AP status through the management interface to identify and address potential issues proactively.

6. TROUBLESHOOTING

This section provides solutions to common issues you might encounter with your Cisco AIR-CT2504 Wireless LAN Controller.

6.1. Power Issues

- **No Power:** Ensure the power cable is securely connected to both the controller and a working power outlet. Verify the power adapter is functional. Check the PWR LED status.

6.2. Network Connectivity Issues

- **Cannot Access Web Interface:** Verify the controller's IP address and ensure your computer is on the same network or has a route to the controller. Check network cable connections and switch port status. Try pinging the controller's IP address.
- **APs Not Joining Controller:** Ensure APs are powered on and connected to the network. Verify that the controller's IP address is reachable from the APs. Check DHCP Option 43 or DNS configurations if used for AP discovery. Ensure the controller has available AP licenses.

6.3. System Performance Issues

- **Slow Wireless Performance:** Check for RF interference, channel conflicts, or excessive client load. Review controller and AP logs for errors. Ensure APs are operating on optimal channels and power levels.

6.4. Resetting the Controller

- **Soft Reboot:** From the management interface, you can initiate a graceful reboot.
- **Factory Reset:** To restore factory default settings, press and hold the RESET button on the front panel for more than 10 seconds using a pointed object. This will erase all configurations. Use with caution.

7. SPECIFICATIONS

Key technical specifications for the Cisco AIR-CT2504 Wireless LAN Controller (Model: AIR-CT2504-5-K9).

Feature	Specification
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Feature	Specification
Brand	Cisco
Model	AIR-CT2504-5-K9
Manufacturer	CISCO SYSTEMS - ENTERPRISE
Operating System	RouterOS (as per product data, typically Cisco IOS/WLC OS)
Compatible Devices	Laptop (for management), Cisco Aironet Access Points
Special Features	QoS, WPS (Wireless Intrusion Prevention System)
Voltage	240 Volts (Input)
Data Transfer Rate	1 Gigabits Per Second (Ethernet ports)
Wireless Standard	802.11n (optimized for)
Frequency	60 Hz (Power)
Number of Ports	4 (Ethernet)
Connector Type	Wireless, RJ-45 Ethernet, RJ-45 Console
Product Dimensions	27.15 x 20.32 x 4.39 cm; 2 kg

8. WARRANTY AND SUPPORT

Warranty information for the Cisco AIR-CT2504 Wireless LAN Controller is typically provided with the product at the time of purchase or can be found on the official Cisco website. For detailed warranty terms and conditions, please refer to the documentation included with your device or visit the Cisco support portal.

For technical assistance, product documentation, software downloads, and further support, please visit the official Cisco Support website: [Cisco Support](#).