**Research Paper 1: Routing Information Protocol (RIP) - Cisco Documentation**

**Abstract**

This paper explores the Routing Information Protocol (RIP), focusing on its purpose, configuration, and troubleshooting as detailed in Cisco's support documentation. It aims to provide a comprehensive understanding of RIP for network professionals.

**Introduction**

RIP is a widely-used distance-vector routing protocol that facilitates routing within local and wide area networks. Developed for simplicity and ease of implementation, RIP uses hop count as the primary metric for routing decisions.

**Overview of RIP**

RIP operates using the Bellman-Ford algorithm, periodically broadcasting routing table updates to neighboring routers. The maximum hop count for RIP is 15, making it suitable for smaller networks.

**Configuration**

Configuring RIP on Cisco routers involves several key steps:

* **Enable RIP**: Use the router rip command to enable RIP.
* **Specify Network**: Use the network command to specify the networks that will use RIP.
* **Set Version**: Configure RIP version (RIP v1 or v2) using the version command.

**Troubleshooting**

Common troubleshooting steps for RIP include:

* **Verifying Configuration**: Ensure that RIP is correctly configured on all routers.
* **Checking Network Connectivity**: Use ping and traceroute to verify connectivity.
* **Debugging**: Use debug ip rip to view RIP packets in real-time.

**Command Reference**

Key commands for managing and troubleshooting RIP include:

* show ip rip database: Displays the contents of the RIP database.
* clear ip rip: Clears the RIP routing table and triggers a new update.

**Conclusion**

RIP remains a fundamental protocol in networking, particularly for small to medium-sized networks. Understanding its configuration and troubleshooting steps is essential for network administrators.

**References**

* Cisco Support Documentation on RIP: [Cisco](https://www.cisco.com/c/en/us/support/docs/ip/routing-information-protocol-rip/13788-3.html)