

Cisco Aci Cli Commands

cisco aci cli commands are essential tools for network administrators managing Cisco Application Centric Infrastructure (ACI) environments. These commands facilitate configuration, troubleshooting, and monitoring of ACI fabric components, enabling efficient management of data center networks. Mastery of ACI CLI commands empowers administrators to perform tasks such as fabric setup, tenant configuration, policy management, and fault analysis with precision and speed. In this comprehensive guide, we will explore the most important Cisco ACI CLI commands, their functions, and best practices for effective network management. Whether you are new to Cisco ACI or seeking to deepen your understanding, this article will serve as a valuable resource.

Understanding Cisco ACI CLI Environment

Before delving into specific commands, it's crucial to understand the CLI environment in Cisco ACI. Unlike traditional networking devices, Cisco ACI primarily uses a combination of GUI and REST API for management. However, CLI access is available through the APIC (Application Policy Infrastructure Controller) and leaf/ spine switches, providing powerful tools for troubleshooting and advanced configuration. CLI commands are executed via SSH or console connection to the APIC or leaf/spine switches. The CLI interface is structured into different modes, such as: - apic (Global administrator mode) - apic(config) (Configuration mode) - apic show (Display commands) - apic troubleshooting (Troubleshooting commands) Understanding these modes helps in executing the correct commands efficiently.

Common Cisco ACI CLI Commands and Their Functions

This section covers vital CLI commands categorized based on their primary functions: configuration, monitoring, troubleshooting, and maintenance.

1. Basic CLI Navigation and System Information

1. **show version:** Displays system hardware, software version, and uptime.
2. **show environment:** Checks hardware status, including power supplies, temperature, and fans.
3. **show system resources:** Provides CPU, memory, and other resource utilization details.

2. Managing Fabric Components

1. **show fabric nodes:** Lists all nodes (spines, leaves) in the fabric with status information.
2. **show topology:** Visualizes the fabric topology, showing connections between nodes.
3. **show fabric fault:** Displays current faults or issues within the fabric.

3. Tenant and Policy Configuration Commands

1. **show tenants**: Lists all tenants configured in the fabric.
2. **show vrf**: Displays Virtual Routing and Forwarding instances.
3. **show bridge domains**: Shows bridge domain configurations.
4. **show application-profile**: Lists application profiles and associated policies.

4. Monitoring Fabric Health and Faults

1. **show fault**: Provides detailed information on current faults and alerts.
2. **show health**: Summarizes health scores of different fabric components.
3. **show endpoint**: Displays endpoint (device) information and their location within the fabric.

5. Troubleshooting Commands

1. **ping**: Tests network connectivity between fabric components.
2. **tracert**: Traces the path packets take across the network.
3. **show logs**: Retrieves system logs for troubleshooting.
4. **show tech-support**: Generates comprehensive diagnostic data for support analysis.

6. Fabric Management and Configuration Commands

1. **config t**: Enters configuration mode for making changes.
2. **fabric node** : Manages specific fabric nodes.
3. **system controller config**: Configures system controller settings.

Using Cisco ACI CLI Commands Effectively

To optimize the use of CLI commands, consider the following best practices:

1. **Regular Monitoring**: Use *show* commands frequently to monitor system health and performance.
2. **Fault Management**: Promptly investigate faults using *show fault* and *show health* commands.
3. **Configuration Backups**: Before making significant changes, back up current configurations with CLI commands or via the GUI.
4. **Leverage Troubleshooting Commands**: Use *ping*, *tracert*, and *logs* to identify network issues efficiently.
5. **Automation and Scripting**: For repetitive tasks, automate CLI commands using scripting tools like Python or Ansible.

Advanced Cisco ACI CLI Commands

For experienced administrators, several advanced CLI commands enable deeper control and customization:

1. Managing Policies and Contracts

1. **show contracts:** Displays all contracts in the fabric.
2. **show policy-group:** Lists policy groups and their configurations.

2. Fabric Maintenance and Upgrades

1. **software upgrade:** Initiates fabric software upgrades.
2. **show upgrade-status:** Checks the current status of ongoing upgrades.

3. Fabric Security Commands

1. **show security:** Displays security configurations and alerts.
2. **show audit-log:** Reviews audit logs for security events.

Conclusion

Mastering Cisco ACI CLI commands is vital for effective management and troubleshooting of modern data center networks. From basic system checks to advanced policy management, CLI provides granular control, enabling administrators to maintain a healthy, secure, and optimized fabric. Regular use of these commands, combined with best practices, ensures high availability and performance of your Cisco ACI environment. By familiarizing yourself with these commands and integrating them into your daily network management routine, you'll enhance your ability to diagnose issues swiftly, perform configurations accurately, and maintain overall network health. Whether you're performing routine monitoring or executing complex troubleshooting, Cisco ACI CLI commands are powerful tools that, when used effectively, significantly improve operational efficiency.

Understanding Cisco ACI CLI Commands: A Comprehensive Guide In the evolving landscape of data center networking, Cisco Application Centric Infrastructure (ACI) has emerged as a transformative solution, offering automation, simplified management, and scalable architecture. While the Cisco ACI GUI provides a user-friendly interface, mastering the Cisco ACI CLI commands is crucial for network administrators seeking granular control, troubleshooting capabilities, and scripting automation. This guide aims to demystify the core CLI commands associated with Cisco ACI, providing a thorough overview for both beginners and seasoned professionals.

Introduction to Cisco ACI CLI Commands Cisco ACI's CLI commands are primarily accessed through the APIC (Application Policy Infrastructure Controller) — the centralized management platform. These commands enable administrators to perform a wide array of tasks, including configuration, monitoring, troubleshooting, and automation. Unlike traditional network devices, Cisco ACI's CLI commands are context-sensitive, often requiring knowledge of specific operational modes and objects within the ACI fabric. Accessing the Cisco ACI CLI Before diving into specific commands, understanding how to access the CLI is essential:

- SSH into the APIC: Use a terminal or SSH client to connect to the APIC's IP address.
- Login credentials: Authenticate with your administrative credentials.
- CLI prompt: Once logged in, you'll typically see a prompt similar to ``apic`` or ``apic(config)``, indicating operational or configuration modes.

Basic Structure of Cisco ACI CLI Commands Cisco ACI CLI commands follow a hierarchical structure, often resembling:

Examples:

- ``show version`` — displays system version details.
- ``config vlan 10`` — configures VLAN 10.

Understanding these patterns is key to navigating and executing commands effectively. Core Cisco ACI CLI Command Categories The CLI commands can be broadly categorized into the following areas: - System Information & Diagnostics - Configuration Management - Monitoring & Troubleshooting - Automation & Scripting

1. System Information & Diagnostics These commands help gather information about the ACI fabric and identify potential issues. Show Commands - ``show version`` Displays the APIC's current software version, build info, and system uptime. - ``show topology`` Reveals the current fabric topology, including switches, endpoints, and their relationships. - ``show health`` Provides overall health status of the fabric, highlighting any critical issues. - ``show inventory`` Lists hardware components installed within the fabric. - ``show logs`` Retrieves system logs, crucial for troubleshooting. Diagnostic Commands - ``ping`` Basic network connectivity test against other devices or endpoints. - ``traceroute`` Traces the path packets take through the network. - ``collect logs`` Exports logs for in-depth analysis.
2. Configuration Management Configuring the fabric via CLI involves creating and modifying policies, tenants, bridge domains, and more. Tenant Configuration - ``tenant`` Creates or enters configuration mode for a specific tenant. - ``config tenant`` Enter configuration mode for that tenant to modify policies. Application Profiles & Endpoint Groups - ``ap`` Defines an application profile within a tenant. - ``epg`` Creates or configures Endpoint Groups within an application profile. Bridge Domains & Subnets - ``bd`` Creates a bridge domain, which segments Layer 2 traffic. - ``subnet`` Associates a subnet with a bridge domain for IP reachability. Policy Configuration - ``policy-group`` Defines a policy group, used for grouping policies. - ``contract`` Creates contracts to control communication between EPGs.
3. Monitoring & Troubleshooting Effective troubleshooting relies heavily on CLI commands that give insight into current states and traffic. Monitoring Commands - ``show endpoint`` Displays connected endpoints, their MAC addresses, IPs, and policies. - ``show fabric node`` Lists fabric nodes, including switches and their status. - ``show contract`` Displays existing contracts and their associations. - ``show interface`` Summarizes interface statuses and traffic counters. Troubleshooting Commands - ``ping`` Tests reachability of endpoints or devices. - ``show fault`` Lists current faults and alerts in the fabric. - ``show log`` Retrieves logs for specific components or events.
4. Automation & Scripting For automation, Cisco ACI supports command-line scripting via the REST API and CLI batch commands. - ``script run`` Executes predefined scripts for automating repetitive tasks. - Using Python and Postman: Integrate via REST API for advanced automation.

Advanced Cisco ACI CLI Commands Beyond the basics, Cisco ACI offers advanced CLI commands for specialized tasks: Managing Fabric Policies - ``show fabric policies`` Visualizes fabric-wide policies and their configurations. - ``config fabric policy`` Modifies fabric policies affecting multiple tenants. Fabric Infrastructure Commands - ``show fabric node`` Gets detailed info about a specific switch/node. - ``show fabric path`` Displays the path of traffic flows through the fabric. Security & Access Control - ``show access control`` Displays policies related to access control lists (ACLs). - ``config access control`` Configures security policies.

Best Practices for Using Cisco ACI CLI Commands While CLI commands are powerful, some best practices can enhance efficiency and safety: - Backup configurations regularly using commands like ``show running-config`` or exporting via API. - Use descriptive naming conventions for tenants, policies, and objects. - Test commands in a lab environment before applying to production. - Leverage scripting to automate repetitive tasks and reduce human error. - Monitor logs and faults consistently to preempt issues.

Summary Mastering Cisco ACI CLI commands enables network administrators to gain detailed control over their fabric, perform in-depth troubleshooting, and automate complex tasks. From basic system information commands like ``show version`` to advanced policy configurations and troubleshooting utilities, the CLI forms an essential component of managing a Cisco ACI environment. Developing a solid understanding of these commands, coupled with best practices,

ensures a resilient, scalable, and efficient data center fabric. In conclusion, whether you're configuring a new tenant, troubleshooting a connectivity issue, or automating routine tasks, knowing your way around Cisco ACI CLI commands is vital. Regular practice and staying updated with Cisco's documentation will empower you to harness the full potential of ACI's programmable infrastructure.

Questions & Answers About cisco aci cli commands

No	Question	Answer
1	What is the command to display the current ACI fabric health status using CLI?	Use the command 'show system health' to display the overall health status of the Cisco ACI fabric.
2	How can I view the list of tenants in Cisco ACI via CLI?	Execute 'show tenant' to list all tenants configured in the ACI fabric.
3	Which command is used to check the status of a specific EPG in Cisco ACI?	Use 'show epq' followed by the EPG name or ID to view its status and details.
4	How do I verify the configuration of a specific bridge domain using CLI?	Run 'show bd' followed by the bridge domain name to see its configuration and status.
5	What command can I use to check Fabric Membership and Node details?	Execute 'show fabric node' to view information about fabric nodes and their status.
6	How can I troubleshoot an APIC controller via CLI?	Use 'show controller' or 'show version' to check controller status and software version for troubleshooting.
7	Which CLI command displays the interface status and config in Cisco ACI?	Use 'show interface' to view interface statuses, configurations, and errors.
8	How do I verify the connectivity between leaf and spine switches using CLI?	Run 'ping' commands between switches or 'show topology' for detailed connectivity information.
9	What is the command to check the fault logs in Cisco ACI CLI?	Use 'show fault' to view current fault logs and issues within the fabric.
10	How can I retrieve the current licensing information via CLI?	Execute 'show license' to display licensing details and status on the APIC.

Cisco ACI CLI, ACI command reference, Cisco Application Centric Infrastructure, ACI configuration commands, ACI troubleshooting commands, Cisco ACI fabric CLI, ACI network management, ACI CLI guide, Cisco ACI policy commands, ACI automation commands