

ZTE Router Command Line Interface Dictionary - Official Technical Overview & Hardware Datasheet

EXECUTIVE SUMMARY

The ZTE Router Command Line Interface (CLI) Dictionary represents the definitive reference architecture for the operational and management plane of ZTE's carrier-grade routing portfolio. This document provides a comprehensive technical overview of the CLI framework, its hierarchical structure, and the underlying hardware and software architecture that enables robust, scalable network management.

Designed for network engineers, system integrators, and technical operations teams, this datasheet details the CLI's syntax, command modes, and execution environment. The CLI is built upon a modular, extensible architecture that supports legacy protocols (IPv4, ATM, Frame Relay) alongside next-generation standards (IPv6, MPLS, Segment Routing, SRv6). It serves as the primary interface for device provisioning, monitoring, troubleshooting, and security policy enforcement across the entire ZTE routing product family.

The ZTE CLI is engineered with a focus on operational efficiency, offering intuitive command structures, context-sensitive help, and comprehensive logging capabilities. This document provides technical specifications,

compliance standards, and ordering information for the CLI software and its supporting documentation suite.



ARCHITECTURE & CHASSIS DESIGN

The ZTE CLI architecture is logically partitioned into multiple hierarchical levels, mirroring the physical and logical structuring of the underlying hardware. The primary command modes are:

- * USER EXEC MODE: Provides basic monitoring and diagnostic commands. Access is typically password-protected and read-only.
- * PRIVILEGED EXEC MODE: Enables system-level configuration, debugging, and file management. Requires enable password or authentication via TACACS+/RADIUS.

- * GLOBAL CONFIGURATION MODE: The root for all system-level settings, including hostname, logging, and service parameters. Sub-modes are accessed from this level.
- * INTERFACE CONFIGURATION MODE: Controls settings for specific physical and logical interfaces, including IP addressing, MTU, and encapsulation.
- * PROTOCOL CONFIGURATION MODES: Dedicated sub-modes for routing protocols (OSPF, BGP, IS-IS), MPLS, and other control-plane functions.
- * LINE CONFIGURATION MODE: Manages settings for console, auxiliary, and VTY (virtual terminal) lines.

The CLI is delivered as an integrated software component on ZTE's routing platforms, from compact edge devices (ZTE M6000-S series) to high-density core chassis (ZTE M6000, T8000 series). The command tree is dynamically populated based on the hardware modules (line cards, service cards) and licensing options installed, ensuring that only relevant commands are displayed to the operator.

HARDWARE FEATURES

The CLI's performance and reliability are directly tied to the hardware architecture of ZTE's routing systems. Key hardware features supported by the CLI include:

- * REDUNDANT CONTROL PLANE: The CLI maintains session states across active/standby route processors. In the event of a switchover, the CLI session is preserved (via GR/NSF protocols) or can be rapidly re-established.
- * HIGH-PERFORMANCE CPU: The CLI engine runs on dedicated cores within the route processor, ensuring that operator input is processed without impacting data-plane forwarding.
- * PERSISTENT STORAGE: Configuration files (startup-config, running-config) are stored in high-reliability flash memory. The CLI supports commit and rollback operations, enabling administrators to revert to previous stable configurations.
- * OUT-OF-BAND MANAGEMENT: Dedicated management Ethernet ports and console ports are accessible via the CLI, providing secure out-of-band access for emergency administration.
- * SECURE SHELL (SSH) AND TELNET SUPPORT: The CLI is accessible via SSHv2 (mandated for production deployments) and legacy Telnet, with extensive access control lists (ACLs) and authentication mechanisms.

COMPLIANCE & STANDARDS

The ZTE CLI and its underlying platform adhere to a broad range of industry standards to ensure interoperability and regulatory compliance:

- * **RFC COMPLIANCE:** The CLI implements command sets and functionalities consistent with relevant IETF RFCs, including standards for TCP/IP, routing protocols (OSPFv2/v3, BGP-4, IS-IS), MPLS, and VPNs.
- * **IEEE STANDARDS:** Conformance with IEEE 802.1 (Bridging), 802.3 (Ethernet), and 802.1Q (VLAN) standards.
- * **SECURITY STANDARDS:** Support for FIPS 140-2 validated cryptographic modules, SSHv2, SNMPv3, and RADIUS/TACACS+ authentication frameworks.
- * **ITU-T RECOMMENDATIONS:** Adherence to ITU-T standards for telecommunications network management and synchronization (e.g., G.8261 for timing).
- * **NFV/SDN INTEROPERABILITY:** The CLI is compatible with YANG data models and NETCONF/RESTCONF interfaces for programmatic network automation, in line with ETSI NFV standards.

TECHNICAL SPECIFICATIONS

Command Interface Specifications:

- * **COMMAND SYNTAX:** Context-sensitive, hierarchical structure with support for abbreviated commands, command completion (TAB key), and inline help (?).
- * **COMMAND EXECUTION:** Commands are parsed and executed in the host CPU's control-plane environment. Response times average < 50ms for simple queries under normal load.

* **CONFIGURATION MANAGEMENT:** Running-config and startup-config storage with commit/rollback capability. Up to 50 rollback points are supported per device.

* **PROTOCOL SUPPORT (MANAGEMENT):** Full IPv4 and IPv6 management, SSHv2, Telnet, SNMPv1/v2c/v3, and TFTP/ FTP support for file management.

* **LOGGING AND DEBUGGING:** Extensive logging levels (emergency to debug) with local and remote syslog targets. Detailed debug commands for all protocols.

* **BUILT-IN DIAGNOSTICS:** Integrated tools, including ping, traceroute, and debug commands, plus hardware-level diagnostics (environment monitoring, temperature, voltage).

* **USER ACCESS CONTROL:** Role-Based Access Control (RBAC) with multiple privilege levels (0-15). Integration with external AAA servers (RADIUS, TACACS+).

* **MULTI-USER SUPPORT:** Concurrent session support for up to 256 VTY sessions and 1 console session. Session timeout and idle-disconnect features.

Parameter	Specification
Form Factor	Software Specification / Hardware-Agnostic
Switching Capacity	N/A (Software control-plane capacity is platform-dependent)

Power Supply	N/A (Depends on host router platform)
Operating Temperature	N/A (Depends on host platform)
Relative Humidity	N/A (Depends on host platform)
Mean Time Between Failures (MTBF)	N/A (Software reliability is tied to host platform; software is designed for continuous operation with no inherent failure mechanism)

ORDERING OPTIONS

The ZTE Router CLI Dictionary is available in multiple configurations to support different operational requirements. The documentation package is provided in physical and digital formats.

- * CLI COMMAND REFERENCE - COMPLETE EDITION (Z-CLI-COMPLETE): Comprehensive guide covering all routing, switching, security, and management commands. Includes MPLS, Segment Routing, VPN, and multicast protocol commands. Available in digital PDF and hardcopy.
- * CLI COMMAND REFERENCE - CORE EDITION (Z-CLI-CORE): Focuses on fundamental IP routing and switching commands. Ideal for network operations

centers (NOC) and basic network management. Available in digital format only.

- * CLI QUICK REFERENCE GUIDE (Z-CLI-QUICK): Pocket-sized card containing commonly used configuration and diagnostic commands. Available in physical format.

- * CLI MODULE-SPECIFIC SUPPLEMENTS (Z-CLI-MOD-xxx): Individual guides for specialized functions: MPLS-TE, SRv6, QoS, Firewall, and VXLAN. Each supplement is ordered separately to match licensed software features.

- * ONLINE KNOWLEDGEBASE ACCESS (Z-CLI-KB): Annual subscription to the ZTE online CLI knowledgebase, providing real-time updates, bug fixes, and community-contributed examples.

All physical documentation meets MIL-SPEC durability standards for field deployments. Digital editions are provided in industry-standard PDF/A and EPUB formats, optimized for mobile devices.

