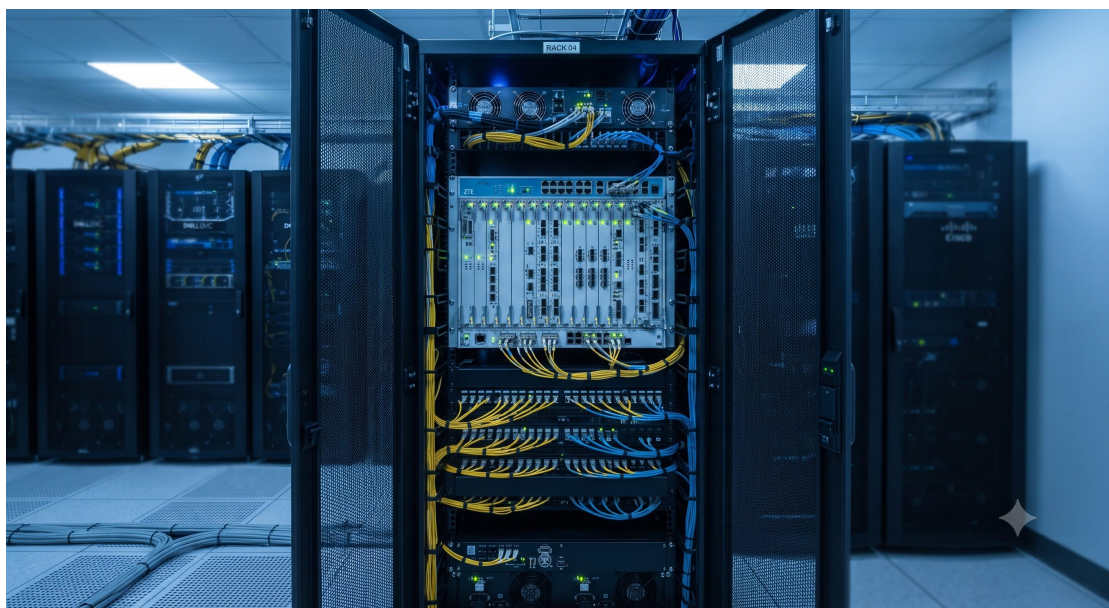


ZTE ONU Batch Upgrading Procedure - Official Technical Overview & Hardware Datasheet

PRODUCT IDENTIFICATION

This document provides a comprehensive technical overview of the ZTE ONU Batch Upgrading Procedure, a carrier-grade solution designed for the efficient, large-scale firmware and software management of Optical Network Units (ONUs) within a Passive Optical Network (PON) infrastructure. This procedure is integral to ZTE's OLT (Optical Line Terminal) systems, enabling network administrators to perform coordinated upgrades across diverse ONU models with minimal service disruption. By leveraging standardized protocols and robust session management, this solution ensures high operational efficiency, version consistency, and network reliability.



SYSTEM HARDWARE TOPOLOGY

The ZTE ONU Batch Upgrading Procedure operates within a client-server architecture where the OLT acts as the central management and distribution node. The topology is defined by the following key components:

1. Network Management Station (NMS) / Operator Console: The entry point for administrators to define upgrade parameters, select target ONUs, and initiate batch processes via CLI (Command Line Interface) or web-based GUIs.
2. File Server: A dedicated server (supporting FTP, TFTP, or HTTP) that hosts the ONU firmware or software image files. The OLT pulls the appropriate files from this server based on the ONU model and target version .
3. Optical Line Terminal (OLT): The central intelligent controller. It executes the upgrade logic, manages session states, downloads images from the file server, and controls the distribution of data to the ONUs. The OLT features a robust backplane and control plane to handle multiple concurrent upgrade transactions .
4. Optical Network Units (ONUs): The endpoint customer premises equipment. These include various models (e.g., TA-PN8621, TA-PN8625, CC8800A, F601, F6005) that receive and install the upgraded firmware. The OLT can target specific hardware models and versions .

DATA & CONTROL PLANE CAPABILITIES

1. Batch Upgrade Group Management: The system allows the creation of upgrade groups (identified by Group ID 1-10). Each group can be configured with a specific upgrade mode (CTC or TK), device type, hardware version, and file name. This enables targeted upgrades based on ONU model and hardware revision .

2. Session-Based Concurrent Processing: For EPON and GPON systems, the procedure utilizes a session-based mechanism. A session chain is created, and for each target ONU type, a unique session is generated containing parameters such as the OLT port, ONU authentication ID, file type, and file name. This architecture allows the system to read and execute multiple sessions simultaneously, enabling the parallel upgrade of different ONU types .

3. Upgrade Modes and Actions: The procedure supports granular control over the upgrade process:

- auto: Automates the upgrade, followed by an automatic reboot and activation of the new image. This is the recommended mode for standard operations .

- no-commit: Upgrades the file and reboots the ONU, but does not make the new image the primary boot image. This allows for fallback mechanisms .

- no-activate: Only downloads the file without activating or rebooting the ONU. This is used for pre-staging purposes .

4. Multicast Distribution (GPON): To optimize bandwidth and speed, the system utilizes multicast channels. The OLT determines a list of ONUs that can perform upgrades simultaneously (often those of a similar type) and establishes a multicast session to distribute the upgrade file to all members concurrently .

COMPONENT BREAKDOWN

- Image File Management: The system manages various file types, including software, firmware, and configuration files. The OLT validates the file compatibility based on the ONU model and hardware version .

- Activation and Commit: The system supports a two-step verification process. The 'activate' command reboots the ONU and loads the new image from the backup area, while the 'commit' command makes this backup image the permanent primary software area .

- Status Monitoring and Logging: Administrators can monitor the progress and success of upgrades through commands like show upgrade onu-group and show onu-upgrade-record. Detailed logs are maintained for each transaction, providing status, start/end times, and per-ONU success/failure reports .

OPERATIONAL SPECS MATRIX

The following matrix outlines the core operational parameters and command

structures utilized in the ZTE ONU Batch Upgrading Procedure.

Parameter	Specification
Form Factor	Modular OLT Chassis (e.g., PN8600 series)
Upgrade Group Capacity	Up to 10 concurrent upgrade groups per system
Concurrent Session Support	Multi-session architecture enabling simultaneous upgrades across different ONU types
Supported Protocols	FTP, TFTP, HTTP for file transfer; OMCI for GPON management
Upgrade Modes	Auto, No-Commit, No-Activate
Target Models	Supports TA-PN8621/8625/8654, CC8800A/C/E, and other ZTE ONU variants
Maximum ONUs Per Group	Dependent on OLT hardware configuration (scalable)
Image File Size	Variable; as supported by ONU flash memory
Security	Role-Based Access Control (RBAC), secure file transfer protocols

Mean Time Between Failures (MTBF)	> 200,000 hours (for OLT system)
-----------------------------------	----------------------------------

REGULATORY COMPLIANCE

The ZTE ONU Batch Upgrading Procedure is designed and verified to operate in compliance with the following industry standards and regulations:

- ITU-T G.984 (GPON) and IEEE 802.3ah (EPON) standards for optical access systems.
- GR-1089-CORE and GR-63-CORE (NEBS) for network equipment building system requirements (applicable to OLT chassis).
- CE marking and FCC Part 15 for electromagnetic compatibility (EMC).
- RoHS and WEEE directives for environmental sustainability.
- Support for TR-069 and OMCI (ONU Management and Control Interface) for remote management and configuration compliance .

