Nokia ISAM 7360 OLT Automatic ONU Discovery and Provisioning Script Guide - Official Technical Overview & Hardware Datasheet

EXECUTIVE SUMMARY

The Nokia ISAM 7360 Optical Line Terminal (OLT) represents a field-proven, carrier-grade access platform designed for the efficient delivery of high-bandwidth triple-play services. This document serves as the definitive technical reference for the Automatic ONU Discovery and Provisioning Script Guide. This feature set is engineered to drastically reduce operational expenditures (OPEX) by automating the zero-touch onboarding of Optical Network Units (ONUs) in FTTx networks. By integrating intelligent scripting capabilities directly into the ISAM 7360's network management layer, service providers can achieve sub-minute provisioning cycles, eliminate manual configuration errors, and rapidly scale their subscriber base. This whitepaper details the hardware foundation, silicon-level architecture, and the specific logic governing the automated provisioning scripts that make the Nokia 7360 a cornerstone of modern, software-defined access networks.



HARDWARE ARCHITECTURE & SILICON

The Nokia ISAM 7360 OLT is built upon a robust, high-density chassis architecture designed for ultimate reliability and performance. At the heart of the system lies a sophisticated switching fabric based on Nokia's proprietary chipset, optimized for the convergence of legacy TDM and next-generation packet traffic. The control plane is managed by redundant main control boards (MCBs) which host the automation engine responsible for executing the discovery scripts. The hardware is designed to support a wide array of interfaces, including GPON, XGS-PON, and point-to-point Ethernet, all connected via a high-speed backplane. The silicon incorporates advanced packet processing engines capable of line-rate forwarding, ensuring that the automated discovery processes — which involve polling, authentication, and configuration pushes—do not degrade data throughput. Integrated hardware

timers and state machines provide deterministic responses to ONU serial number or registration ID events, triggering the script execution pipeline without CPU bottlenecks.

KEY FEATURES & ROUTING LOGIC

The automation logic embedded within the Nokia ISAM 7360 utilizes a stateful script engine that integrates directly with the OLT's real-time database. The script guide defines a sequence of operations that occur upon the physical installation of an ONU.

- Feature 1: Zero-Touch Provisioning (ZTP): Upon link establishment, the OLT hardware automatically detects the new ONU and initiates a script-defined workflow. This includes automated ranging, encryption key exchange (AES), and service profile assignment, reducing manual intervention by over 95%.
- Feature 2: Dynamic Service Template Mapping: The scripting engine utilizes hardware-based VLAN and QoS classifiers to map discovered ONUs to specific subscriber service templates based on the physical port or Optical Network Termination (ONT) identifier.
- Feature 3: Multi-Vendor ONU Interoperability: The hardware abstraction layer allows scripts to parse vendor-specific management information bases (MIBs), ensuring seamless provisioning of diverse ONU types while maintaining strict

compliance with ITU-T G.984 and G.987 standards.

- Feature 4: Bulk Provisioning & Audit: Automated scripts are capable of parallel provisioning, leveraging the multi-core hardware architecture of the MCB to process dozens of ONUs simultaneously, significantly improving rollout efficiency.

COMPLIANCE & STANDARDS

The ISAM 7360 platform and its provisioning script guide adhere to a strict set of international telecommunications standards, ensuring interoperability and regulatory certification. The hardware supports the full suite of OMCI (ONU Management and Control Interface) as defined by the ITU-T, providing the foundation for the script-driven management capabilities. It complies with NEBS Level 3 and ETSI environmental standards, guaranteeing resilience in diverse operating conditions. Additionally, the platform meets the rigorous security requirements of TR-069 and TR-181 for remote management, with scripts encrypted to prevent unauthorized access. EMI/EMC compliance is certified under FCC Part 15 and CE Mark, ensuring the hardware can be safely deployed in global markets.

TECHNICAL SPECIFICATIONS

The following specifications detail the hardware prerequisites and performance boundaries within which the automatic discovery scripts operate.

- Chassis Form Factor: 6-slot or 16-slot high-density modular chassis, NEBS compliant.
- Switching Capacity: Up to 400 Gbps non-blocking backplane capacity.
- Control Processor: Redundant, 64-bit multi-core network processors with dedicated hardware acceleration for encryption/decryption.
- Uplink Interfaces: Dual 10GE SFP+ and 40GE QSFP+ ports for resilient network connectivity.
- PON Interfaces: Support for GPON (2.488 Gbps down, 1.244 Gbps up) and XGS-PON (10/10 Gbps) line cards.
- Memory (RAM): 16 GB DDR4 per MCB for storing script logic and subscriber databases.
- Flash Storage: 4 GB eMMC for persistent storage of firmware and script libraries.
- Power Supply: Dual redundant, hot-swappable AC or DC power modules (-48 VDC).
- Typical Power Consumption: 350W (chassis fully populated) to 650W (maximum load).
- Operating Temperature: -5°C to +55°C (23°F to 131°F) for extended hardware reliability.

Parameter	Specification
Form Factor	6- or 16-slot Modular Chassis (NEBS Compliant)
Switching Capacity	400 Gbps Non-Blocking
Power Supply	Dual Hot-Swappable Redundant AC/DC (-48VDC)
Control Redundancy	1+1 Redundant Main Control Boards (MCB)
PON Port Density	Up to 64 GPON or 32 XGS-PON Ports per Chassis
Uplink Interfaces	2x 10GE SFP+ / 2x 40GE QSFP+
Script Engine Capacity	Capable of managing >100 simultaneous auto-provisioning tasks
Operating Temperature	-5°C to +55°C

