

Nokia AAA

(Authentication, Authorization and Accounting)

As communications service providers, broadband operators, enterprises, and private network operators adopt new business models and technologies, they face increasing complexity in authenticating users, devices, and applications across diverse network environments. Supporting fixed, mobile, broadband, WiFi, and private wireless services often require integration across multiple network elements, subscriber data repositories, and operational systems.

Nokia AAA is a highly scalable, policy-driven authentication, authorization, and accounting platform that enables centralized access control across these environments. By combining flexible policy management, extensive integration capabilities, and deployment flexibility, Nokia AAA helps operators simplify operations, accelerate service introduction, reduce costs, and deliver consistent authentication and authorization services across their networks.

Key benefits

- Supports scalable growth across fixed, mobile, broadband, WiFi, private wireless, and converged network environments.
- Reduces total cost of ownership by consolidating multiple authentication, authorization, and subscriber management functions onto a single platform.
- Accelerates service introduction through configurable policy management without custom software development.
- Enables unique service offerings and business models through a highly configurable policy engine capable of supporting virtually any authentication workflow.
- Simplifies integration with network elements, OSS/BSS platforms, subscriber repositories, and partner ecosystems through extensive standards-based interfaces.
- Supports deployment across traditional, virtualized, containerized, and geo-redundant architectures, providing flexibility for evolving operational requirements.

Business outcomes

- Consolidate multiple AAA functions on a single platform.
- Accelerate service introduction through configuration rather than software customization.
- Reduce operational complexity across fixed and mobile environments.
- Enable converged subscriber management across technologies.
- Simplify ecosystem integration and partner interoperability.
- Scale subscriber growth without major architectural redesign.

Overview

Nokia AAA is a highly scalable, policy-driven authentication, authorization, and accounting platform that provides centralized access control across fixed, mobile, broadband, WiFi, private wireless, and converged network environments. The platform enables operators and enterprises to authenticate subscribers, devices, and applications while maintaining consistent policy enforcement across diverse access technologies.

Nokia AAA supports a broad range of network environments, including 5G Standalone, LTE, broadband and fiber access, WiFi, private wireless, and small cell deployments, while maintaining compatibility with legacy access technologies. Its flexible architecture enables deployment in traditional, virtualized, cloud-native, and geo-redundant environments. This allows organizations to evolve their networks without disrupting existing authentication infrastructures.

Through extensive integration capabilities, Nokia AAA can interact with subscriber data repositories, UDM/HSS platforms, LDAP directories, OSS/BSS systems, billing environments, and partner networks. Combined with the powerful PolicyFlow policy engine, these capabilities enable operators to rapidly introduce new services, support complex business requirements, and maintain consistent subscriber experience across network

domains. Existing deployments range from Tier 1 communications service providers and broadband operators to enterprises and private network environments worldwide.

Robust Policy Management Engine

Nokia AAA features a highly scalable policy management engine powered by the flexible and powerful PolicyFlow scripting language. PolicyFlow enables operators to define authentication, authorization, and accounting policies in a protocol-agnostic manner across RADIUS, Diameter, and other supported interfaces.

Using PolicyFlow, operators can make granular policy decisions at the attribute level based on request attributes, subscriber profiles, session information, external data sources, or custom business logic. This flexibility enables rapid introduction of new services, faster adaptation to evolving business requirements, and support for complex authentication and authorization workflows without costly software customization or extended-release cycles.

Simultaneous Support for Multiple Access Technologies

Nokia AAA enables a single authentication and policy platform to support fixed, mobile, broadband, fiber, WiFi, private wireless, roaming, and converged service environments simultaneously. By eliminating the need for multiple AAA platforms across technologies and domains, operators can simplify network operations, reduce infrastructure costs, and deliver consistent subscriber experiences across their entire access network.

The platform supports the growing convergence of wireless and wireline services while maintaining the flexibility required to support unique deployment models, subscriber populations, and business objectives.

Private Wireless and Enterprise Network Support

Nokia AAA supports authentication, authorization, and policy enforcement for private wireless, industrial, enterprise, and campus network

deployments. The platform enables secure onboarding and management of users, devices, and applications while maintaining centralized policy control across diverse access environments.

By leveraging the same proven AAA infrastructure used by leading communications service providers, enterprises can simplify identity management, improve operational efficiency, and maintain consistent security policies throughout their networks.

Network Integration Capabilities

Nokia AAA is designed for seamless integration within multi-vendor network environments. Through PolicyFlow, extensible protocol dictionaries, and standards-based interfaces, the platform supports virtually any RADIUS or Diameter client, subscriber repository, OSS/BSS platform, billing system, or partner network.

Comprehensive proxy, interworking, and protocol translation capabilities simplify interoperability, while flexible integration options help operators centralize subscriber information, automate operational workflows, and accelerate service introduction.

Enterprise Directory and Identity Services

Nokia AAA supports centralized subscriber and identity data management through integrated LDAP directory services and standards-based access to external LDAP and SQL repositories. These capabilities allow operators to maintain a unified view of subscriber information while supporting diverse deployment and integration requirements.

The platform can leverage directory services for subscriber authentication, service authorization, device identity management, profile storage, and policy evaluation. Through integration with subscriber databases, HSS/UDM platforms, OSS/BSS systems, and enterprise identity infrastructures, Nokia AAA provides a flexible foundation for centralized subscriber management across fixed, mobile, and private network environments.

Session Data Management

Nokia AAA includes a high-performance in-memory session repository that maintains detailed information about active subscriber sessions. This real-time session visibility supports operational troubleshooting, service assurance, policy enforcement, and customer care activities.

Session data can be leveraged to enforce concurrent session limits, apply dynamic policy decisions, modify subscriber service profiles, and improve operational awareness across the network. Customer support organizations can access session information to accelerate problem resolution and improve subscriber experience.

Compliance with Industry Standards

Nokia AAA is built on industry-standard protocols and interfaces, enabling seamless interoperability within multi-vendor network environments. The platform provides comprehensive support for RADIUS, Diameter, TACACS+, LDAP, and commonly deployed Extensible Authentication Protocol (EAP) methods used for subscriber and device authentication.

The solution adheres to relevant industry standards and specifications from organizations including IETF, 3GPP, and ITU, helping operators simplify integration efforts while protecting existing infrastructure investments.

Cloud-Native Deployment Flexibility

Nokia AAA supports deployment across traditional, virtualized, containerized, and geo-redundant environments, providing operators with flexibility to align deployments to their operational and transformation strategies.

The platform can scale horizontally and vertically to meet changing capacity requirements while maintaining high availability and service resilience. Support for cloud-native deployment models enables operators to modernize network infrastructure, improve operational efficiency, and simplify lifecycle management without sacrificing performance or reliability.

Platform features

Unified Authentication Platform

- Single platform supporting fixed, mobile, broadband, WiFi, cable, and enterprise access authentication.

Integrated Subscriber Data Access

- Native integration with LDAP, SQL, UDM/HSS, OSS/BSS, and external subscriber repositories.

Enterprise Directory Services

- Supports centralized subscriber and identity management through integrated LDAP capabilities or external directory integration.

Protocol Mediation and Interworking

- Supports RADIUS, Diameter, TACACS+, LDAP, and web service interfaces, including protocol translation.

Cloud-Native Deployment

- Supports deployment on bare metal, virtual machines, and containerized environments with geo-redundancy and horizontal scalability.

Features

Nokia AAA is built on a modular architecture that delivers flexibility, performance, scalability, and high availability across fixed, mobile, broadband, WiFi, private wireless, and converged network environments.

Policy and Service Flexibility

- PolicyFlow scripting engine enables highly configurable authentication, authorization, and accounting workflows.
- Policy decisions can leverage subscriber profiles, session data, external data sources, and custom business rules.
- Supports rapid introduction of new services without custom software development.
- Extensible protocol dictionaries simplify adaptation to unique network and business requirements.

- Fully configurable accounting record formats support operational and billing system integration.

Integration and Subscriber Data Management

- Extensive integration options through LDAP, SQL, SOAP/XML services, SNMP, and secure file transfer mechanisms.
- Centralized subscriber management through integration with LDAP directories, UDM/HSS platforms, HLR repositories, and external subscriber databases.
- Standards-based integration with OSS/BSS, customer care, billing, and partner network environments.
- Full RADIUS and Diameter proxy capabilities, including protocol translation and interworking support.
- Flexible data source selection and failover logic for improved resiliency and operational continuity.

Deployment Flexibility and Availability

- Supports deployment on physical servers, virtual machines, and containerized environments.
- Multiple architecture options support centralized, distributed, geo-redundant, and high-availability deployments.
- Hardware-independent deployment model provides operational flexibility across diverse infrastructure environments.
- Local and geographic redundancy options improve service availability and resilience.

Performance and Scalability

- Fully multithreaded architecture optimized for modern multi-core processor environments.
- Intelligent transaction processing maximizes throughput while minimizing duplicate processing.
- Server monitoring, performance statistics, Syslog, and SNMP support simplify operational management.

- Architecture scales horizontally and vertically to support networks ranging from small deployments to the largest service provider environments.
- Designed to support virtually unlimited subscriber growth through scalable deployment architectures.

Platform Support

- Deployable on industry-standard Intel-based server platforms.
- Supports enterprise Linux and virtualized deployment environments.
- Container-ready architecture supports cloud-native deployment models.
- IPv4 and IPv6 dual-stack support.

Technical specifications

Standards and Protocol Support

- RADIUS
- Diameter
- TACACS+
- LDAP
- Extensive EAP method support
- IPv4 / IPv6 dual stack
- IETF standards compliance
- 3GPP and 3GPP2 compliance
- ITU standards support
- TIA/EIA standards support
- TISPAN standards support

Network Integration

- RADIUS client and proxy support
- Diameter client and proxy support
- Diameter-RADIUS protocol translation
- TACACS+ integration

- LDAP directory integration
- SQL repository integration
- HSS / UDM integration
- MAP Gateway support
- SIGTRAN support
- HTTP/HTTPS and XML interfaces
- SOAP interfaces

Subscriber Data and Identity Integration

- External LDAP directory support
- Integrated LDAP directory services
- SQL-based subscriber repositories
- HLR integration
- HSS / UDM integration
- Centralized subscriber profile management

OSS/BSS and Business Systems Integration

- REST and Web Services interfaces
- SOAP interfaces
- Secure File Transfer (SFTP)
- SNMP
- Enterprise MIB support
- Customer Care integration
- Billing system integration
- OSS/BSS integration

Deployment Options

- Bare metal deployment
- Virtual machine deployment
- Containerized deployment
- High-availability configurations
- Geographic redundancy
- Hardware-independent deployment options



Learn more

For more information about Nokia AAA, please visit:

www.nokia.com/networks/core-networks/authentication-authorization-and-accounting/#learn-more

About Nokia

Nokia is a global leader in connectivity for the AI era. With expertise across fixed, mobile, and transport networks, powered by the innovation of Nokia Bell Labs, we're advancing connectivity to secure a brighter world.

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