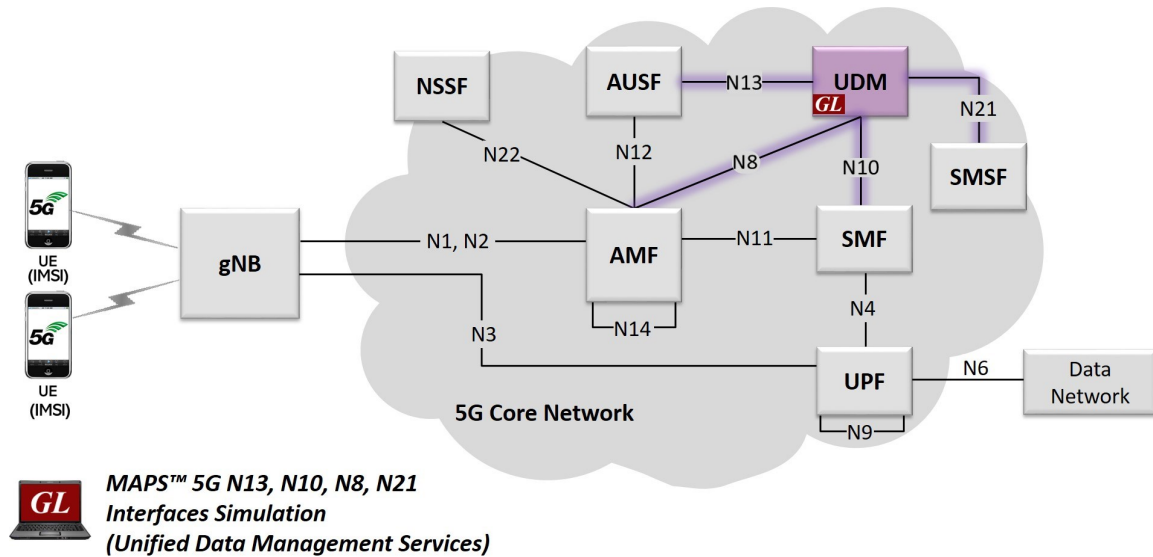


# MAPS™ 5G N13, N8, N10, N21 Interfaces Emulator

(Unified Data Management Services)



## Overview

5G System as a Service Based Architecture, includes a set of Network Functions (NFs) providing services as defined in 3GPP TS 23.501.

The service-based interfaces use HTTP/2 protocol with JavaScript Object Notation (JSON) as the application layer serialization protocol.

GL's MAPS™ simulating UDM within the 5G Core offers services to the AMF, SMF, AUSF, and SMSF via the Nudm service-based interfaces N8, N10, N13, N21. The figure represents the service-based interfaces, with focus on the UDM.

The UDM offers the following services via the Nudm interface:

- Nudm\_SubscriberDataManagement Service
- Nudm\_UEContextManagement Service
- Nudm\_UEAuthentication Service
- Nudm\_EventExposure Service
- Nudm\_ParameterProvision Service

Besides simulating network functions, the tester also supports error tracking, regression testing, conformance testing, load testing/call generation. It can run pre-defined test scenarios against 5G interface test objects in a controlled & deterministic manner.

MAPS™ 5G UDM emulator supports powerful utilities like Message Editor, Script Editor, and Profile Editor which allow new scenarios to be created or existing scenarios to be modified using messages and parameters.

For more information, please visit [MAPS™ 5GC Network emulator](https://www.gl.com) webpage..



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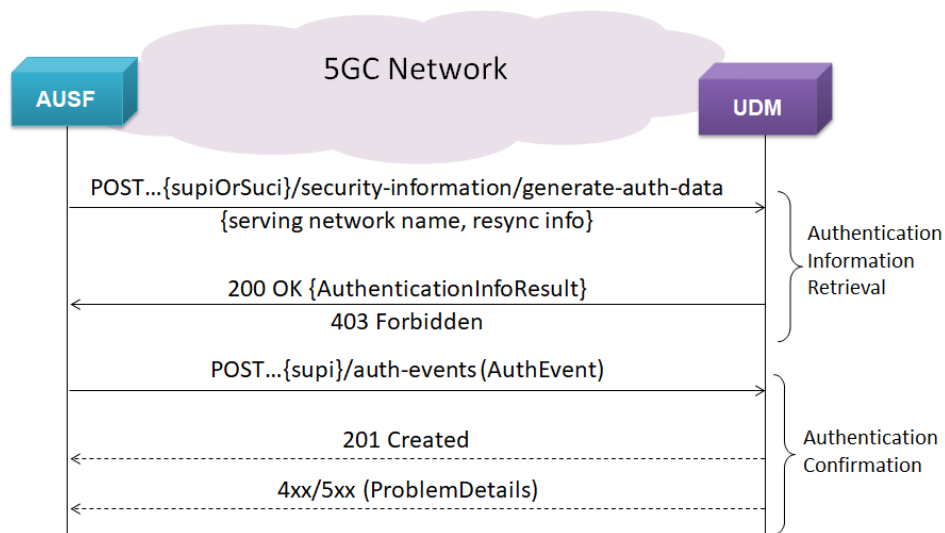
## Main Features

- Simulates Unified Data Management (UDM) network function
- offers services to the AMF, SMF, AUSF, and SMSF via the Nudm service-based interfaces N8, N10, N13, N21
- Supports various service based services such as UE Authentication, Subscriber Data Management, UE Context Management, and SMS Management Subscription Data.
- Supports scripted call generation and automated call reception.
- Supports customization of call flow and message templates using Script & Message Editor.
- Ready-to-use scripts for quick testing
- Automation, Remote access, and Schedulers to run tests 24/7

## N13 Interface Services Simulation

MAPS™ N13 simulates services between AUSF and UDM network functions. Supported procedures are:

- Authentication Information Retrieval and Confirmation via Nudm service based interface.
- SoR (Steering of Roaming) Protection and UPU (UE Parameters Update) Protection services via Nausf service based interface.

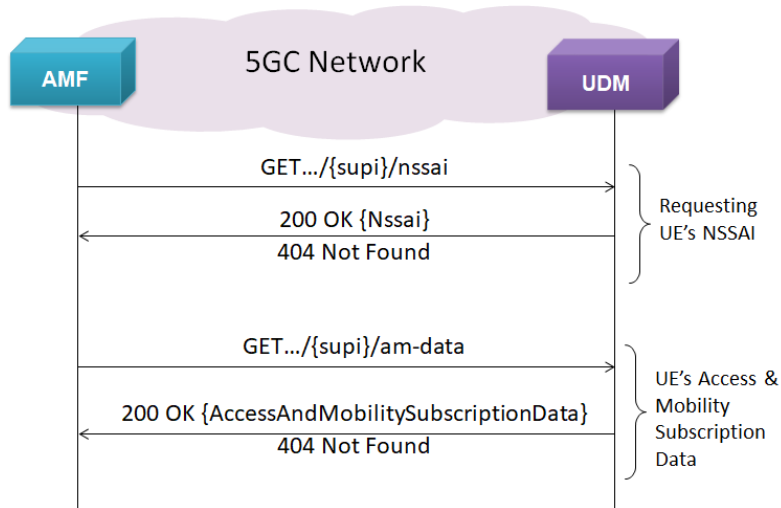


## N8 Interface Services Simulation

MAPS™ N8 simulates services between AMF and UDM network functions.

Supported procedures are:

- UE Context\_Management:
  - AMF Registration/Modification/ Deregistration for 3GPP access, and for Non-3GPP access
- Subscriber Data Management:
  - Get UE Subscription data (Access and Mobility Subscription data, SMF Selection Subscription data, UE context in SMF data and LCS mobile origination),
  - Subscribe/Unsubscribe Subscriber Data Update Notification,
  - Purge of Subscriber Data in AMF

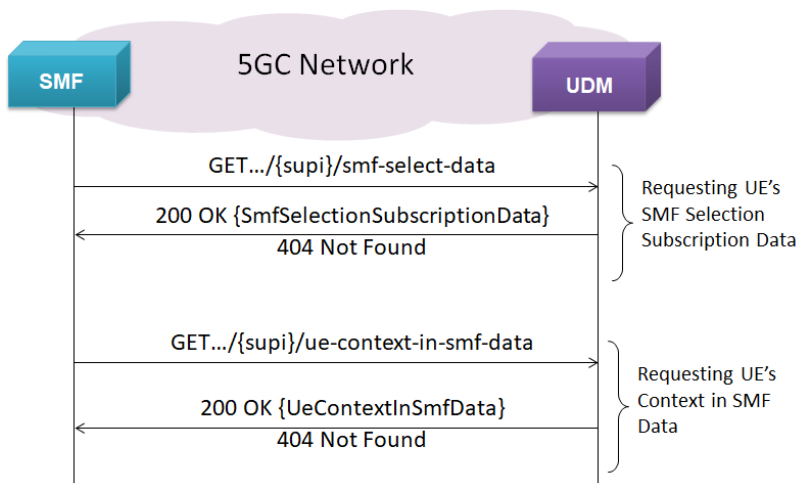


## N10 Interface Services Simulation

MAPS™ N10 simulates services between SMF and UDM network functions.

Supported procedures are:

- UE Context\_Management:
  - SMF Registration/Modification/ Deregistration for 3GPP access and Non-3GPP access
- Subscriber Data Management:
  - Get UE Subscription data (Access and Mobility Subscription data, SMF Selection Subscription data, UE context in SMF data and LCS mobile origination),
  - Subscribe/Unsubscribe Subscriber Data Update Notification,
  - Purge of Subscriber Data in AMF

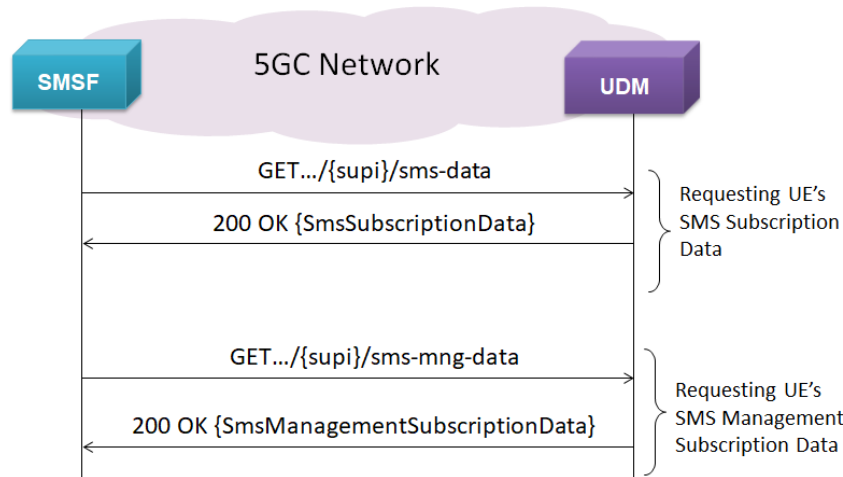


## N21 Interface Services Simulation

MAPS™ N21 simulates services between SMSF and UDM network functions.

Supported procedures are:

- UE Context\_Management:
  - SMSF Registration/Modification/ Deregistration for 3GPP access, and for Non-3GPP access
- Subscription Data Management:
  - Get UE Subscription data (Access and Mobility Subscription data, SMF Selection Subscription data, UE context in SMF data and LCS mobile origination)
  - Subscribe/Unsubscribe Subscriber Data Update Notification
  - Purge of Subscriber Data in AMF



## Supported Protocols and Specifications

JSON
HTTP   HTTP2
TCP
IP
Ethernet
REST

Supported Protocols	Standard / Specification Used
JavaScript Object Notation (JSON)	IETF RFC 8259
HTTP /1.1	3GPP TR 21.905
HTTP / 2	IETF RFC 7540
(Hypertext Transfer Protocol)	IETF RFC 7232
	IETF RFC 7234
TCP	IETF RFC 793
IPv4	IETF RFC 791 [5]
	IETF RFC 2460 [6]

## Buyer's Guide

Item No	Product Description
<a href="#">PKS506</a>	5G N12 Interface Emulation (Requires PKS502)
<a href="#">PKS502</a>	5G Service based Emulation (Pre-requisite base license for all service based (Open API) interface emulations)
<a href="#">PKS503</a>	5G N8 Interface Emulation (Requires PKS502)
<a href="#">PKS504</a>	5G N10 Interface Emulation (Requires PKS502)
<a href="#">PKS507</a>	5G N13 Interface Emulation (Requires PKS502)
<a href="#">PKS509</a>	5G N21 Interface Emulation (Requires PKS502)

Item No	Product Software
<a href="#">PKS500</a>	MAPS™ 5G N1/N2 Interface Emulator
<a href="#">PKS501</a>	MAPS™ 5G N4 Interface Emulator
<a href="#">PKS505</a>	5G N11 Interface Emulation (Requires PKS502)
<a href="#">PKS508</a>	5G N20 Interface Emulation (Requires PKS502)
<a href="#">PKS510</a>	5G N22 Interface Emulation (Requires PKS502)
<a href="#">ETH101</a>	MobileTrafficCore - GTP
<a href="#">ETH102</a>	MobileTrafficCore - Gateway

For more information, please visit [Signaling and Traffic Simulator](#) webpage.



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