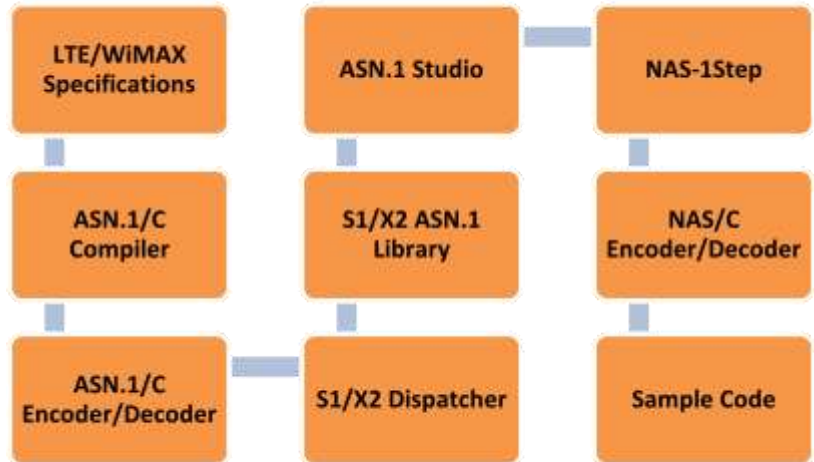




## 4G Is Here.

### Are You Ready?

The **OSS Nokalva 4G-Ready Tools** is a complete, easy to use 4G ASN.1 and NAS productivity kit, tailored to meet the needs of LTE & WiMAX developers. The 4G-Ready Tools are currently available on Windows and Linux. Other platforms are available on request.



### Get All You Need

Get all you need to support 4G ASN.1 and NAS development, all in one place, and all from a company whose commitment to quality and service you know you can rely on.

**WITH SUPPORT FOR LTE REL 8, 9, & 10**

COMPONENT	FEATURES
LTE/WiMAX ASN.1 Specifications	LTE Rel 8 (8.7.0), 9 (9.4.0), and 10 (10.2.0) S1, X2, RRC, as well as IEEE 802.16m ASN.1 specifications
ASN.1/C Compiler	Powerful ASN.1:2008 capable compiler
ASN.1/C Encoders/Decoders	Industry-proven, reliable ASN.1 runtime libraries capable of unparalleled encoding/decoding speed
ASN.1 Encoding/Decoding Samples	Sample code showing how to encode/decode 3GPP LTE S1, X2 and RRC, as well as IEEE 802.16m data using the OSS ASN.1 runtime
ASN.1 Studio™	ASN.1 IDE that further simplifies the 4G development. Includes custom projects and sample messages for 3GPP LTE S1, X2 and RRC, as well as IEEE 802.16m
S1/X2 ASN.1 Library	Shields S1/X2 developers from low-level ASN.1 data structures manipulation
S1/X2 Dispatcher	Manages low-level SCTP communication, synchronous and asynchronous S1/X2 calls, matches S1/X2 requests and responses on the server side, handles S1/X2 timeouts
S1/X2 API Samples	Sample code showing how to create messages using the S1/X2 ASN.1 Library API, as well as how to send synchronous/asynchronous messages using the S1/X2 Dispatcher API
NAS-1Step	Visual application that allows you to create, view and edit NAS messages
NAS/C Encoder/Decoder Library	A library capable of converting a (binary) NAS message
Documentation	API and Getting Started user manuals
Technical Support	24 hours a day, 7 days a week

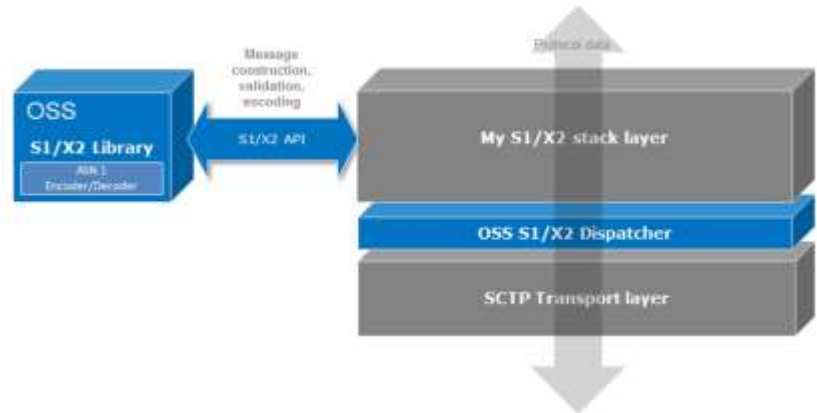
# 4G-Ready Tools - NAS & S1/X2 Productivity Support

The **OSS Nokalva 4G-Ready** toolkit goes beyond support for low-level ASN.1 development. The kit includes several components designed to ease your implementation of 3GPP LTE **S1** and **X2** protocols for eNodeBs and MMEs, as well as **NAS** protocols for UEs and eNodeBs.

**NAS-1Step** is a useful visual tool for anyone working with the NAS protocol, from system designers to application developers to testers. It can be used for a range of activities including displaying a NAS message in a collapsible tree-view, editing a NAS message, creating a set of NAS messages for testing purposes, and so on, and allows one to work simultaneously with messages belonging to multiple versions of the NAS protocol (multiple 3GPP releases).

**The NAS/C Encoder/Decoder Library** facilitates the creation of applications that implement the NAS protocol by taking care of all the unique NAS message serialization aspects such as required and optional information elements, bit-level format of each type of information element, bit order, half-octet order, and so on. A developer using this encoder/decoder will handle a set of C structures generated by OSS' ASN.1/C compiler and will make simple calls to encode and decode functions as well as auxiliary API functions as needed.

Current users of OSS' ASN.1/C Tools will feel at home with the OSS NAS encoder/decoder API because both the API functions and the C structures are very similar to those used with protocols specified in ASN.1.



The **S1/X2 ASN.1 Library** is a wrapper around the ASN.1 encoder/decoder, which automates common tasks associated with protocol messaging. The Library reduces your development effort by providing a set of functions that address S1 and X2 data interpretation and construction tasks, thereby shielding S1/X2 developers from low-level ASN.1 data structure manipulation.

The **S1/X2 Dispatcher** shields you from managing low-level SCTP communication. The OSS Dispatcher handles synchronous and asynchronous S1/X2 calls, matches S1/X2 requests and responses on the server side and takes care of timeouts as specified in the S1/X2 standard documents.

By using our proven OSS ASN.1 encoders/decoders, and continuing OSS' long tradition of developing software highly optimized for embedded systems, the S1/X2 ASN.1 Library and Dispatcher make it possible to deploy LTE stacks on different types of platforms, from resource constrained eNodeBs to high performance MMEs.

**Request your Free Trial of the  
4G-Ready Tools Today**

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