

# Release Notes

TCP/IP stack for S32K148

Document Number: RN\_TCPIP\_STACK\_S32K148  
Rev. 4.0



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# 1 Revision History

**Table 1-0. Revision History**

<b>Revision</b>	<b>Date</b>	<b>Author</b>	<b>Description</b>
1.0	June 13, 2017	Cezar Ionescu	EAR 0.8.0 version
1.1	December 4, 2017	Cezar Ionescu	BETA 0.9.0 version
1.2	January 25, 2018	Radu Lazarescu	RTM 1.0.0 version
1.5	June 29, 2018	Linh To Hoang	S32 SDK for S32K14x – RTM 2.0.0
1.7	August 31, 2018	Robin Putman	S32 SDK for S32K1xx – BETA 2.9.0
2.0	February 28, 2019	Tu Nguyen Anh	S32 SDK for S32K1xx – RTM 3.0.0
3.0	March 29, 2019	Vlad Furtuna	S32 SDK for S32K1xx – RTM – SR 3.0.1
4.0	June 30, 2020	Tai Bui Van	S32 SDK for S32K1xx – RTM 4.0.0

*Table 1-0 Revision History*

## 2 Acronyms and definitions

**Table 2-0. Acronyms and Definitions**

Term	Definition
LWIP	Lightweight IP
EAR	Early Access Release
RTM	Release To Manufacturer
TCP/IP	Transmission Control Protocol/Internet Protocol
FreeRTOS	Free Real Time Operating System

*Table 2-0 Acronyms and Definitions.*

## 3 Introduction

TCP/IP stack represents a software library that implements the TCP/IP protocol stack

This TCP/IP stack release is intended to be used as integrated with S32 SDK drivers and (optionally) FreeRTOS in a non-AUTOSAR based environment.

Note: S32 SDK drivers and FreeRTOS are both integrated into S32 SDK package.

All software included in this package has RTM quality level in terms of feature, testing and quality documentation, accordingly to NXP software release criteria

## 4 New in this release

- Support configuration of TCPIP via S32CT tool in S32 Design Studio.

## 5 Package contents

The TCP/IP stack package is delivered as source code and consists of:

- LWIP stack, from open-source community: <http://savannah.nongnu.org/projects/lwip/>
- wolfSSL library, from open-source community: <https://www.wolfssl.com>
- Integrated into S32 SDK for S32K148:

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- S32 SDK for ARM Architecture integration layer
- Demo application showing how TCPIP stack is used with S32 SDK for ARM Architecture drivers and FreeRTOS
- Generate TCPIP configuration (lwipcfg.h, lwipopts.h, lwippools.h) via S32CT tool from S32 Design Studio.

## 6 Supported hardware and compatible software

### 6.1 Hardware

- CPUs
  - S32K148\_144 revisions 1.0, mask-set 0N20V
  - Reference manual: S32K1xx\_RM\_Rev12.1, 2/2020
- Boards
  - S32K148EVB-Q144/Q176 PCB RevX2 SCH RevC

### 6.2 Software

- Compilers:
  - GCC Compiler for ARM v. 6.3.1 20170509 (revision g7fea41d)
- IDE:
  - S32 Design Studio v3.3
- OS
  - FreeRTOS v10.2.1 (released on 05-June-2020)

### 6.3 Supported OS

Device	Baremetal	FreeRTOS
S32K148	Yes	Yes

## 7 Known issues and limitations

1. Compiler warning in apps/socket\_examples/socket\_examples.c: In function 'sockex\_nonblocking\_connect' at function lwip\_select note: expected 'struct fd\_set \*' but argument is of type 'struct \_types\_fd\_set \*' for the 2<sup>nd</sup>, 3<sup>rd</sup>, and 4<sup>th</sup> argument of method. This warning is generated only by gcc compiler and it's a known issue of the LWIP stack.
2. Tested only with gcc newlib library support
3. With GCC Compiler for ARM 6.3.1 20170509 (Revision g7fea41d), in order to compile and build successfully WOLFSSL in tcpip (enable SSL\_ECHO app), users should implement \_\_locale\_ctype\_ptr in C source file. For example, users can define in main.c:  

```
const char *__locale_ctype_ptr(void)
{ return 0; }
```
4. Test "test\_http\_handshake" and "test\_http\_url" will be skipped if it is performed by a Windows machine

## 8 Licensing

- TCP/IP stack is being licensed together with S32 SDK under the same license model. Please refer to S32 SDK licensing documents for details.
- wolfSSL (formerly known as CyaSSL) and wolfCrypt are either licensed for use under the GPLv2 or a standard commercial license. More information can be found on the wolfSSL website at [www.wolfssl.com](http://www.wolfssl.com).

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