

S32K3 SAF Quick Start Guide

MARCH 2022



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WHAT IS SAF (SAFETY SOFTWARE FRAMEWORK)

Premium safety software product provided by NXP ([s32-safety-software-framework-saf](https://www.nxp.com/products/s32-safety-software-framework-saf))

Software modules providing safety functions:

- Device HW self test
- Operation mode selection
- Safety checks / tests
- Device recovery

Compatible solution across NXP S32 processors

Quality: Automotive grade production quality

Safety: ISO 26262 Functional Safety compliance (up to ASIL-D)

S32 Safety Software Framework (SAF)

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Overview & Features
Supported Devices
Target Applications
SAF Software Offering

Overview

The S32 Safety Software Framework (SAF) contains software components to establish the safety foundation for customers safety applications compliant with the ISO 26262 functional safety standard.

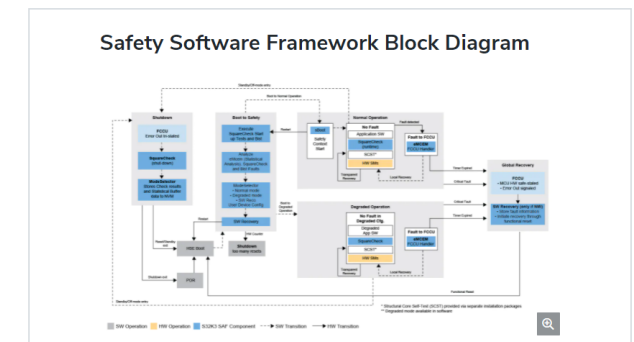
SAF offers complete coverage of software safety mechanisms within the MCU in the S32 device safety manual. SAF is developed as Safety Element out of Context (SEooC) and allows the integration up to ASIL D.

More

Features

- ISO 26262 Functional Safety compliant
- SAF Software modules provided:
 - Built-in Self-Test (BIST) manager covering both logic BIST (LBIST) and memory BIST (MBIST)
 - Extended microcontroller error manager (eMCEM)
 - Mode selector
 - Safety boot (sBoot)

PRODUCT BRIEF



S32K3 SAF DELIVERABLES

Standalone installer (exe)	Source code, User manuals, SAF demo application
S32 Design Studio installer (update site zip)	Source code, User manuals, SAF demo application
Quality Package (zip)	Quality documentation (Quality Matrix, Traceability Matrix, Test Specification, Summary Test / Test / Code Coverage / Compiler Warning / His / Misra / Profile / Ram Size / Size / VSMD Reports, APIs Equivalence class analysis)
Safety Package (zip)	Safety documentation (SAF Safety Manual, Safety Analysis FMEA, Fault Coverage Estimation)
Software Content Register (txt)	Specifies licenses used by the product
Release Notes (txt)	Information on the content of the release
LKOD (xlsx)	List of Known Defects (published every week)

S32K3 SAF DOWNLOAD

Available from [nxp.com](https://www.nxp.com) under:

MY NXP->**Software Licensing and Support**->**S32K3 Premium Software**->**S32K3 - Safety Software Framework**:

Product Information

Automotive SW - S32K3 - Safety Software Framework

Select a version. To access older versions, click on the " Previous " tab

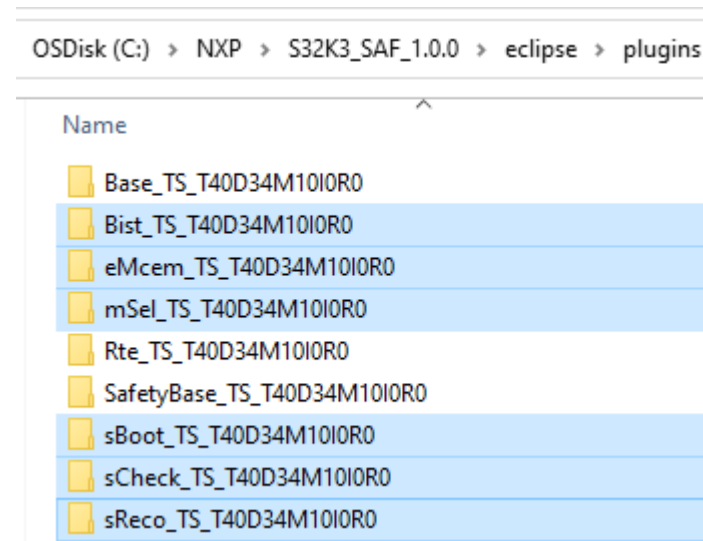
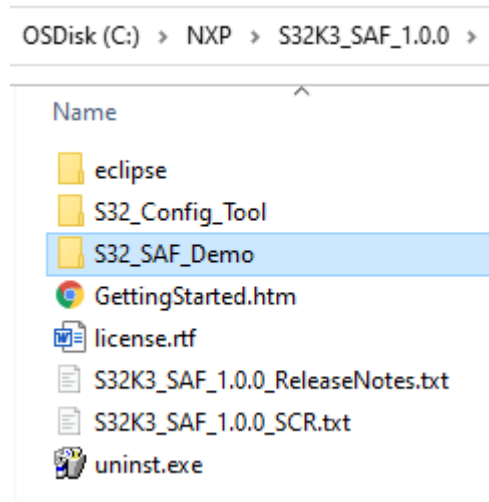
Version	Description	
Current		
Previous		
	S32K3 SAF 'List Of Known Defects' weekly report	Download Log
1.0.0	S32K3 Safety Software Framework version 1.0.0 This is the S32K3 Safety Software Framework (S32K3 SAF) version 1.0.0 software for S32K3 device family. It provides fault detection and reaction components establishing the safety foundation for customer safety applications. Maturity levels: RTM for S32K3	Download Log

- Standalone installer (exe)
- S32 Design Studio installer (update site zip)
- Quality Package, Safety Package, Software Content Register, Release Notes
- List of Known Defects

+	File Description	File Size	File Name
+	Installer	7.9 MB	S32K3_SAF_1.0.0_DS_updatesite.zip
+	Installer	11.1 MB	S32K3_SAF_1.0.0_D2111.exe
+	Quality Pack	7.8 MB	S32K3_SAF_1.0.0_QualityPack.zip
+	Release Notes	16.8 KB	S32K3_SAF_1.0.0_ReleaseNotes.txt
+	Safety Pack	539.5 KB	S32K3_SAF_1.0.0_SafetyPack.zip
+	Software Contents Register	1.3 KB	S32K3_SAF_1.0.0_DS_updatesite_SCR.txt
+	Software Contents Register	1.8 KB	S32K3_SAF_1.0.0_SCR.txt

S32K3 STANDALONE INSTALLATION

SAF is installed in `c:\NXP\S32K3_SAF_1.0.0`:



- SAF modules
 - Bist** Built in self test
 - eMcem** Extended microcontroller error manager
 - mSel** Mode selector
 - sBoot** Safe boot
 - sCheck** Square check, check the checkers component
 - sReco** Software recovery
- Check the release notes for information about the release

BUILD AND RUN SAF DEMO

SAF demo available showing usage of all modules:

- mSel mode selection
- sCheck startup/runtime/shutdown tests
- eMcem fault handling
- sBoot checks
- mSel/sReco shutdown

Build from command line by command:

launch.bat

Debug on board using debugger scripts in

c:\NXP\S32K3_SAF_1.0.0\S32_SAF_Demo\config\S32K3XX

DOCUMENTATION TO START WITH

- SAF **release notes** ([S32K3_SAF_1.0.0_ReleaseNotes.txt](#))
- SAF modules **user manuals** (doc folder in each module folder, for example [S32K3_SAF_SCHECK_UM.pdf](#))
- SAF **safety manual** (available from SAF Safety package zip, [S32K3_SAF_Safety_Manual.pdf](#))
- SAF **demo user manual** ([S32K3_SAF_IA_UM.pdf](#))
- ISO26262 Functional Safety standard (available from ISO)

SAF PREMIUM SOFTWARE

- SAF is a **premium software** so license fee has to be paid
- To **get access** to software/price information contact NXP sales/marketing ([NXP support](#))
- Any more questions? Ask on [NXP support](#)



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