

ETAS RTA-VRTE Starter Kit v3.x.x



AWS Network Setup
HowTo

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RTA-VRTE Starter Kit V3.x.x AWS Network Setup HowTo R01 EN - 05.2024

PRIVACY STATEMENT

Please note that personal data is processed when using this product. As the controller, the purchaser undertakes to ensure the legal conformity of these processing activities in accordance with Art. 4 No. 7 of the General Data Protection Regulation (GDPR). As the manufacturer, ETAS GmbH is not liable for any mishandling of this data.

Data categories

When using the ETAS License Manager in combination with user-based licenses, particularly the following personal data and or data categories that can be traced back to a specific individual are recorded for the purposes of license management:

- User data: UserID
- Communication Data: IP address

Data and Storage Locations

- For user-based licenses managed on the FNP license server within the customer's network:
 - Data: User data (UserID), Communication data (IP address)
 - Storage Location: FNP license server log files on the customer network
- For host-based licenses provided as FNE machine-based licenses:
 - Data: Activation data (Activation ID)
 - Storage Location: FNE trusted storage and C:\ProgramData\ETAS\FlexNet\fne\license\ts

Technical and Organizational Measures

- Personal data or data that can be traced back to a specific individual in generated files can be deleted by tools in the operating system.
- It is recommended that the IT department adopts appropriate technical and organizational measures. Such measures may include, but are not limited to, classical theft protection and access protection to hardware and software.
- Additional security measures should be considered to safeguard data, such as implementing data encryption, establishing data recovery processes, and ensuring proper decommissioning of software and hardware to securely erase all sensitive data.

Contents

1	Introduction	5
	1.1 Safety Notice	5
	1.2 Definitions and Abbreviations	5
	1.3 Conventions	6
	1.4 Acknowledgements	7
2	Howto Create 2nd Network Interface	9
	2.1 Introduction	9
	2.2 Prerequisites	9
	2.3 Summary	9
	2.4 Create Secondary Network Interface	9
	2.5 Request a valid license	12
	2.6 Attach Secondary Network Interface	12
	2.7 Import the new License into Starter Kit	13
3	Contact Information	15
	3.1 Technical Support	15
	3.2 ETAS Local Sales and Support Offices	15
	3.3 ETAS Headquarters	15
	Bibliography	16

1 Introduction

The RTA-VRTE Starter Kit is available as an Amazon Machine Image (AMI) in AWS Marketplace [1]. To operate on AWS, a valid license is required (it is mandatory to procure a valid license, either perpetual or subscription). To obtain a valid license, a fixed MAC Address must be provided to ETAS, requiring the binding of a second network interface to the instance. The following document outlines the steps to achieve this.

1.1 Safety Notice

RTA-VRTE Starter Kit and the RTA-VRTE SDK may only be used in accordance with the *ETAS Safety Advice* — a copy of which is included with RTA-VRTE Starter Kit.

There are three points of interface between the Adaptive Application and RTA-VRTE:

- Configuration
- API usage
- Call-back functions

The user is responsible for the configuration of RTA-VRTE, for the software use of APIs, and for implementing call-back functions. In all cases the user must ensure that it conforms to the RTA-VRTE and ISOLAR-VRTE usage rules and the configuration rules.

The RTA-VRTE configuration must be verified to ensure it meets the requirements. The ISOLAR-VRTE tooling includes comprehensive constraint checking based on AUTOSAR specifications to detect and prevent deployment of erroneous configurations to the ECU. Should such configurations be deployed – whether through malicious modification of generated configurations or through errors in the tooling – then RTA-VRTE includes run-time mechanisms (including, but not limited to, CRC checks on data, sanity checking of configuration, etc.) to provide an additional layer of protection against misuse. However, there is still a possibility that a configuration is valid with respect to AUTOSAR but yet does not fulfill the design requirements. As such configurations are not erroneous from an AUTOSAR perspective they cannot be reasonably detected by ISOLAR-VRTE or by RTA-VRTE at run-time.

1.2 Definitions and Abbreviations

Adaptive Application

Executable software (and associated data) deployed to an Adaptive Machine. An Adaptive Application communicates with the Adaptive Platform to access services provided by the Platform.

Adaptive Platform

AUTOSAR for dynamic ECUs. The Adaptive Platform is characterized by flexible software configuration and communication, supporting soft real-time systems with high resource availability.

ARXML

AUTOSAR eXtensible Markup Language (XML) is used to describe AUTOSAR configurations for both Classic Platform and Adaptive Platform.

AUTOSAR

AUTomotive **O**pen **S**ystem **AR**chitecture. See <http://www.autosar.org>.

Classic Platform

AUTOSAR for Functional ECUs characterized by static configuration and supporting hard real-time, safety-relevant systems with limited resources.

CMake

A software tool for automating the generation of build files (e.g. `Makefiles`) to be used by a build system (e.g. `make`).

ECU

Electronic Control Unit. RTA-VRTE Starter Kit can support use of a hypervisor that enables multiple Adaptive Platform instances to be simultaneously present on an ECU.

Host VM

The Host Virtual Machine contains the RTA-VRTE Starter Kit's build and development environment.

ISOLAR-VRTE

Integrated Solutions for Adaptive AUTOSAR. The ISOLAR family of products contains support for the creation and update of ARXML for Classic Platform and Adaptive Platform configurations.

Machine

A single instance of an AUTOSAR Platform. Each platform instance contains a separate execution environment for Adaptive Applications.

OS

Operating system.

SDK

Software Development Kit comprising the header files, libraries and associated run-time daemon processes required to build and run an application.

Target ECU

An Adaptive Platform instance used to execute user Adaptive Applications. The RTA-VRTE Starter Kit V3.x.x provides multiple virtual machines within the Host VMs each of which is an independent Target ECU. A Target ECU can use either QNX (separate license required) or Linux OS. Multiple Adaptive Applications can be deployed to each Target ECU.

1.3 Conventions

The following typographical conventions are used in this document:

OCI_CANTxMessage msg0 =	Code snippets are presented in the Courier font. The meaning and usage of each command are explained by means of comments. The comments are enclosed by the usual syntax for comments.
Choose File → Open	Menu commands are shown in boldface. Sub-menu items are separated by "→".
Click [OK]	Buttons are shown in [Square Brackets].
Press <ENTER>	Keyboard commands are shown in angled brackets.
The "Open File" dialog box is	Names of program windows, dialog boxes, fields, etc. are shown in quotation marks.
Select the file <code>setup.exe</code>	Text in drop-down lists on the screen, program code, as well as path- and file-names are shown in the Courier font.
A distribution is always a <i>one-dimensional</i> table of sample points.	General emphasis and new terms are set in italics.

Additionally, hints and warnings are highlighted in the text:

 NOTE
A hint or note highlighting pertinent information or good practice.
 CAUTION
Typically regarding a limitation within the current release or a known issue.
 WARNING
Highlighting a specific action that must be taken in a user application for correct operation.

1.4 Acknowledgements

The AUTOSAR Adaptive Platform is based on a POSIX-compliant OS. POSIX is a registered Trademark of The IEEE.

RTA-VRTE Starter Kit V3.x.x is distributed as a virtual disk image that requires VirtualBox. VirtualBox is a trademark of Oracle Corporation.

RTA-VRTE Starter Kit Host VM is built using software from Debian project. Debian is a registered trademark owned by Software in the Public Interest, Inc.

The DLT Viewer application included with RTA-VRTE Starter Kit V3.x.x is Copyright BMW AG.

RTA-VRTE Starter Kit V3.x.x includes support for QNX® Target ECUs only. QNX® is a trademark of QNX® Software Systems Ltd.

RTA-VRTE Starter Kit V3.x.x includes support for Graviton instance (connection to the remote Target ECU only). AWS Graviton is a family of 64-bit ARM-based CPUs

designed by the Amazon® Web Services specifically created to work as cloud target machine.

The Diagnostics example application included in RTA-VRTE Starter Kit includes a Python script that simulates a UDS client. Python is Copyright of Python Software Foundation.

The RTA-VRTE Starter Kit SDK is based on CMake. CMake is Copyright Kitware, Inc.

2 Howto Create 2nd Network Interface

2.1 Introduction

Achieving a RTA-VRTE Starter Kit on AWS requires the configuration of a secondary network interface on your AWS EC2 instance. This step is crucial for obtaining a valid MAC address, which is subsequently used to acquire the necessary RTA-VRTE Starter Kit license. Each license is intricately tied to the unique MAC address associated with your EC2 instance. The significance of this link lies in the necessity to share the obtained MAC address with ETAS. This sharing process enables ETAS to generate a corresponding license file, which, in turn, needs to be incorporated into the AWS product through the license manager application. This procedure ensures that a valid software license is installed in the designated EC2 instance, thus enabling the product to operate effectively.

2.2 Prerequisites

To utilize RTA-VRTE Starter Kit effectively, the second network interface must be bound to the instance. It is essential to have the necessary privileges for creating ENIs (Elastic Network Interfaces) within the AWS account.

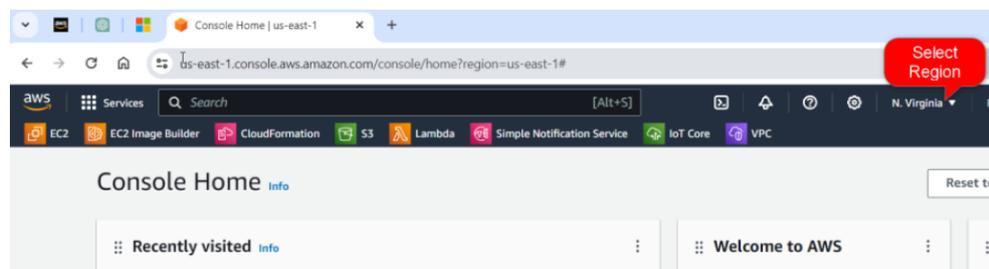
With the granted privileges, the capability to create Elastic Network Interfaces (ENIs) within the Amazon Web Services (AWS) account is enabled. An Elastic Network Interface, or ENI, is a pivotal component in the AWS ecosystem, serving as a virtual network interface for instances within a Virtual Private Cloud (VPC).

2.3 Summary

This guide demonstrates the process of creating a new network device (refer to Chapter 2.4) to be utilized as a secondary network interface. Subsequently, it outlines the steps to attach this device to an EC2 machine (refer to Chapter 2.6), retrieve its MAC address, and employ it for obtaining the License file from ETAS (refer to Chapter 2.5). The acquired license file will then be seamlessly imported into RTA-VRTE Starter Kit through the ETAS License Manager (refer to Chapter 2.7).

2.4 Create Secondary Network Interface

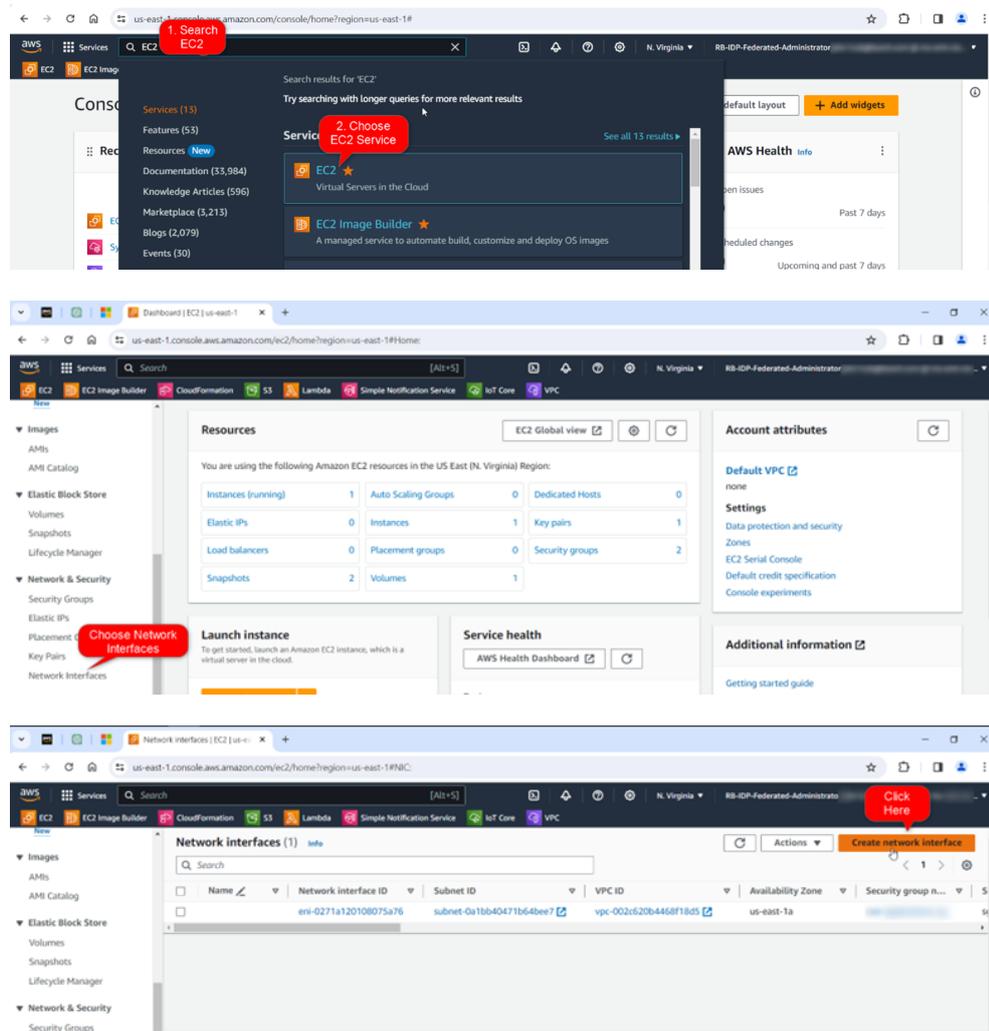
Navigate to AWS Management Console, choose appropriate region.



Search EC2 service using Search bar and Click on EC2

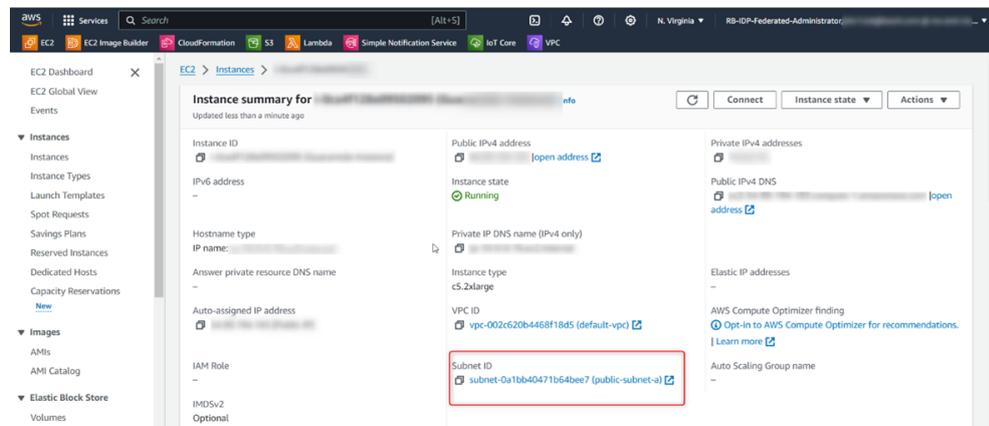
Click on **Network Interfaces** on the left panel under the parent category **Network and Security**

10 | Howto Create 2nd Network Interface



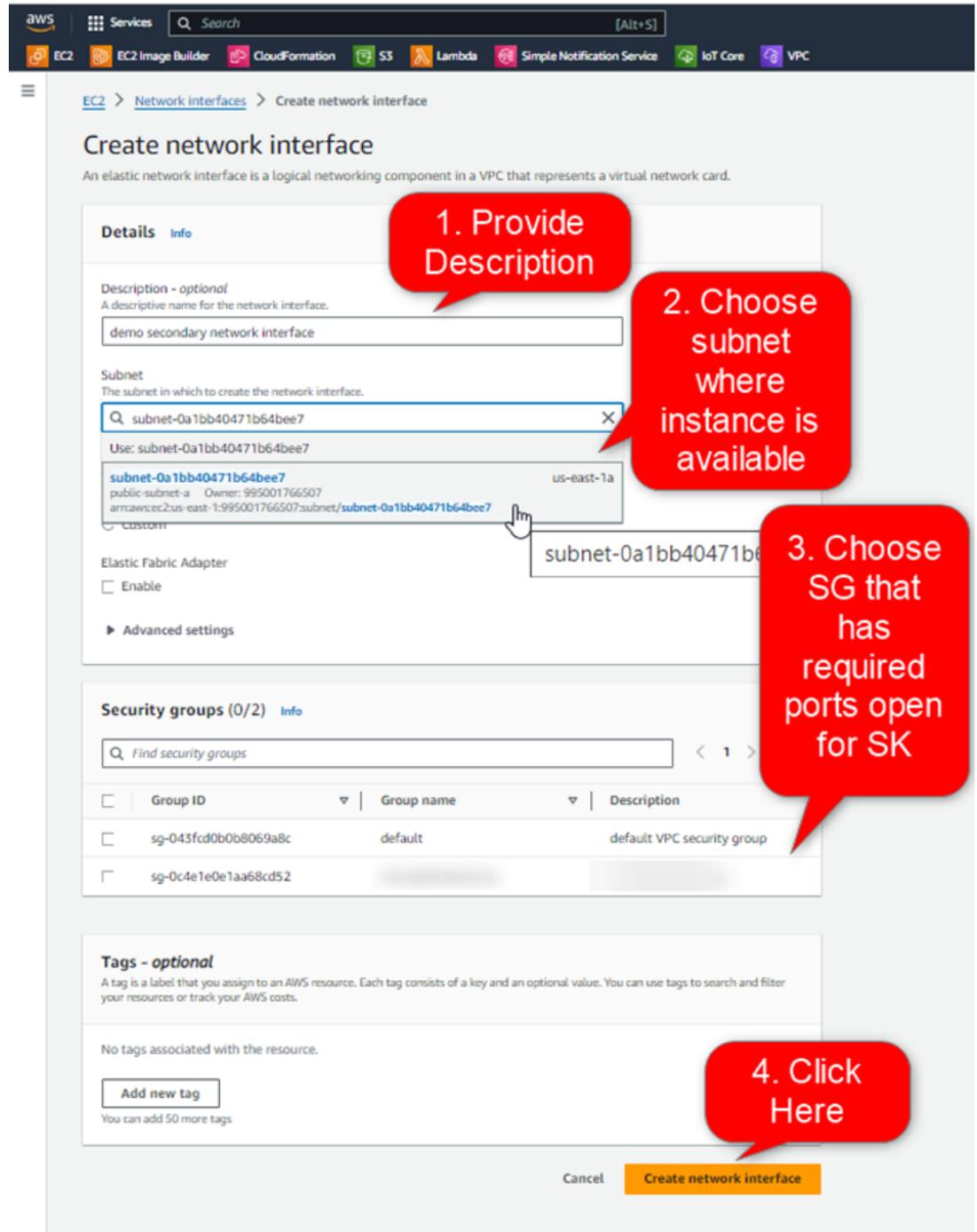
Click on **Create network interface** button

Select the subnet where the EC2 instance is deployed. If necessary, provide a description; refer to the images to identify the subnet (**EC2**→**Instances**→**Copy subnet**).



Both public and private subnets are available options. It is advisable to opt for a private subnet, as the network adapter will be solely required for the license at a later stage.

Leave other values unchanged and click on **Create network interface** (orange button).



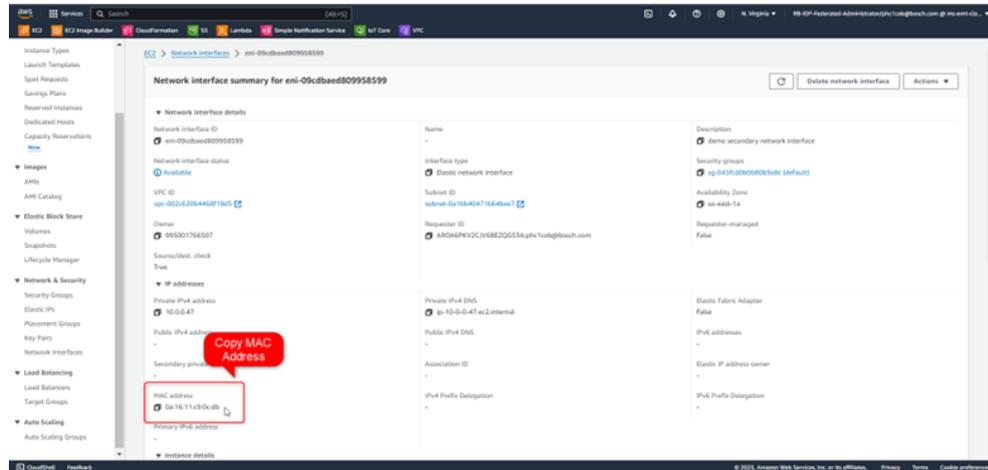
Check if the Network Interface was created successfully.



2.5 Request a valid license

How to request and purchase an ETAS RTA-VRTE Starter Kit and ISOLAR-VRTE license using the MAC address created above for the 2nd network interface.

Click on created new network interface and locate MAC address under IP addresses tab

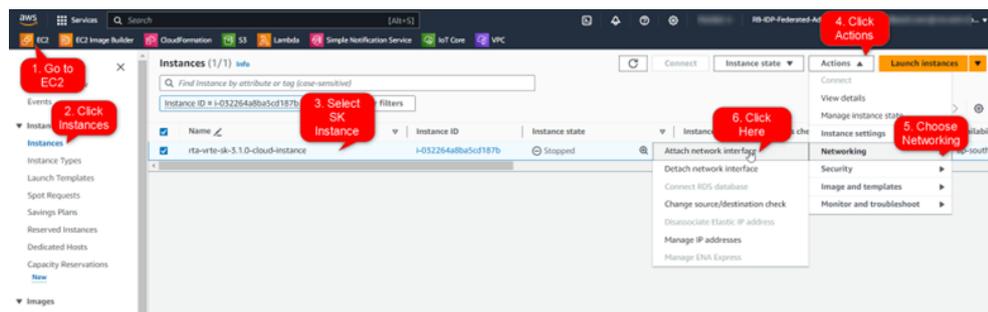


Please reach out to ETAS (refer to Section 3) to inquire about pricing for both perpetual and 9-month subscription licenses for the products RTA-VRTE Starter Kit and ISOLAR-VRTE. The MAC address of your second network interface created above is part of the mandatory information for licensing activation.

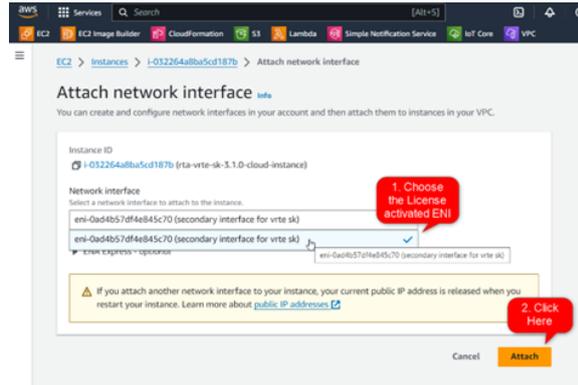
2.6 Attach Secondary Network Interface

The secondary network interface created must be used in the RTA-VRTE Starter Kit. To do that is necessary to attach it into the EC2 machine.

Locate the RTA-VRTE Starter Kit instance, **Actions**→**Networking**→**Attach network interface**.



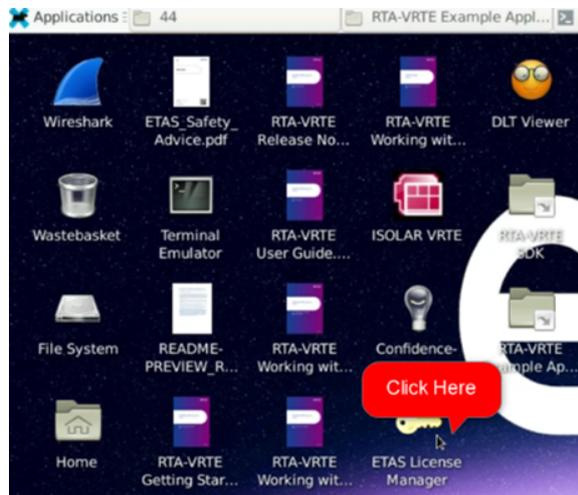
Attach the created network interface to the RTA-VRTE Starter Kit instance.



2.7 Import the new License into Starter Kit

At this stage the ETAS License Manager will be used to import the license file (License_<mac_address>.lic) obtained in the previous step.

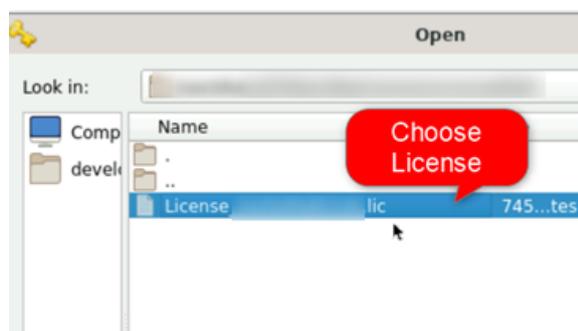
Open ETAS License Manager (located on the RTA-VRTE Starter Kit desktop folder)



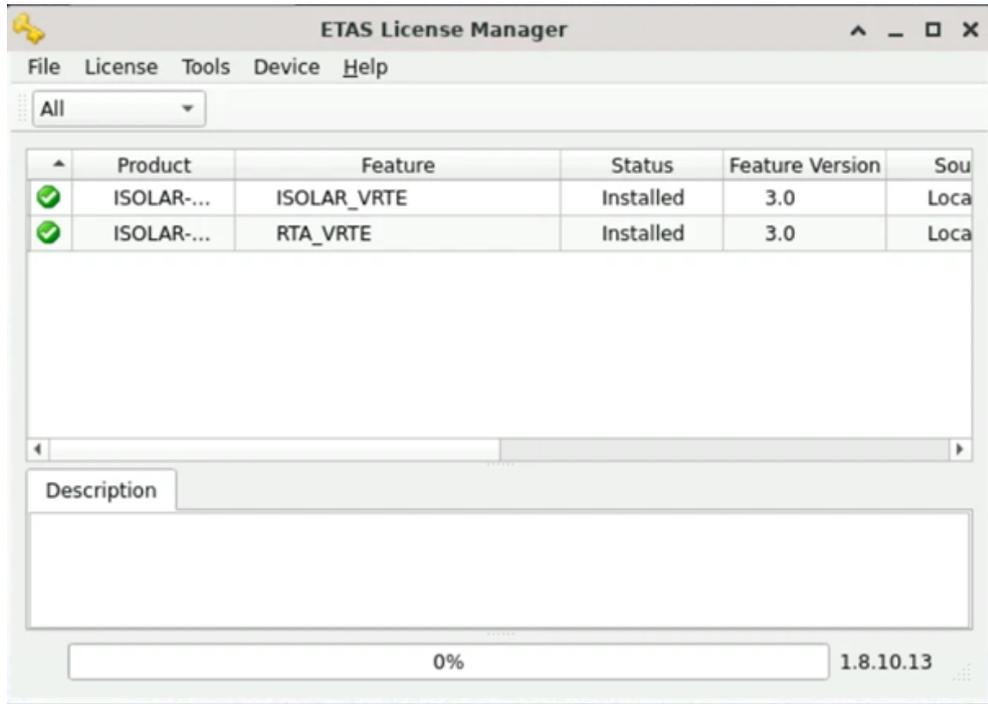
Click on **File**→**Add License**



Choose the License_<mac_address>.lic file. Click on Open and apply the license.



License should be loaded successfully in ETAS License Manager



3 Contact Information

3.1 Technical Support

Technical support is available to all RTA-VRTE Starter Kit users with a valid support contract. If the user does not have a valid support contract, please contact the regional sales office, see Section 3.2.

Please request technical support by email (rtahotline@etas.com) or raise a ticket via RTA Hotline website (<https://rtahotline.etas.com/>).

In either case, please provide to technical support the following information:

- Support contract number
- Version of the RTA-VRTE Starter Kit used
- Version of any third-party tools used, e.g. compiler, etc.
- Configuration files `.arxml`, `.hadl`, `.json`, `_flatcfg.bin` or `.cpp`
- A description of how to reproduce the error
- Error message received (if any)

3.2 ETAS Local Sales and Support Offices

For details of your local sales office as well as your local technical support team and product hotlines, take a look at the website: <https://rtahotline.etas.com/>



3.3 ETAS Headquarters

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Bibliography

- [1] ETAS. *ETAS RTA-VRTE SK official AWS marketplace*. <https://aws.amazon.com/marketplace/pp/prodview-jlqt5o2xcsi3m>. 5