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# 1 Introduction

This technical report provides information about the Features of the AUTOSAR Standard. An AUTOSAR Feature is a characteristic of the AUTOSAR Standard to satisfy a user objective. This document represents information of the AUTOSAR Features and its Branches of each Feature, presented in a graph (AUTOSAR Feature Graph or in short: Feature Graph) similar to a tree. The Feature Graph release in R24-11 is preliminary and will be developed further in the upcoming release

## 1.1 Objectives

As a goal, the sum of all AUTOSAR Features shall cover the whole AUTOSAR Standard. That means vice versa, everything in the AUTOSAR Standard shall be covered by an AUTOSAR Feature.

## 1.2 Scope

The AUTOSAR Features cover a wide range of functionalities, from hardware abstraction and communication to safety, security, and system diagnostics, ensuring that automotive software is interoperable, reliable and future-proof.

## 1.3 Motivation (UseCase)

In terms of use cases this means for example:

As a user of the AUTOSAR Standard, I want to select a consistent subset of AUTOSAR documents based on short and expressive terms. As an AUTOSAR developer (document owner), I want to analyze dependencies to other documents, and I also want to describe dependencies of my own document to other documents. As a product manager, I want to discuss and plan implementations based on standardized Features. As a concept owner, I want to identify the integrated Features and the respective documents in the Standard.

Example for Feature Branch:

Communication >Network Technology >CAN >(CAN 2.0 , CAN FD, CAN XL)

as a recommended pattern: If the user decide to select CAN, they automatically would get the Standard documents for CAN 2.0 and CAN FD. Optionally they can select the CAN XL which automatically selects Ethernet. Considering the resource consumption of the CAN XL-Feature and resulting additional costs of a product it makes sense to decide, if the CAN XL-Feature is required or not. Hardware extensions must be



foreseen as well. It does not make sense to select that Feature for a single ECU. Also, the respective communication partners should have selected that Feature as well.

It is helpful for a user to select this function under a single term and not to select several SWS elements, which always carries a high risk of forgetting or overlooking something.

## 2 Definition of terms and acronyms

The glossary below includes acronyms and abbreviations relevant to the Feature Graph that are not included in the AUTOSAR glossary[1].

### 2.1 Acronyms and abbreviations

Abbreviation / Acronym:	Description:
ADAS	Advanced Driving Assistance Systems
AIF	Application InterFace
AP	see [1] AUTOSAR Glossary
API	see [1] AUTOSAR Glossary
ARP	see [1] AUTOSAR Glossary
ARTI	see [1] AUTOSAR Glossary
BASE-T	Ethernet standard for local area networks with twisted pair cabling
CAN	see [1] AUTOSAR Glossary
CAN FD	Controller Area Network Flexible Data-Rate
CAN NM	Controller Area Network Network Management
CAN TP	Controller Area Network Transport Protocol
CAN XL	Controller Area Network longer data frames and higher data rates
CP	see [1] AUTOSAR Glossary
CRC	see [1] AUTOSAR Glossary
CXPI	Clock Extension Peripheral Interface
DDS	see [1] AUTOSAR Glossary
DHCP	see [1] AUTOSAR Glossary
DoIP	see [1] AUTOSAR Glossary
DTC	see [1] AUTOSAR Glossary
E2E	see [1] AUTOSAR Glossary
E2EXF	End-to-End Extension Framework
ECU	see [1] AUTOSAR Glossary
EEPROM	see [1] AUTOSAR Glossary
ETH	Ethernet
FC	see [1] AUTOSAR Glossary
FO	see [1] AUTOSAR Glossary
Hardware Support IO (Input Output)	Hardware Support Input Output
HMI	Human Machine Interface
I2C	Inter-Integrated Circuit
IAM	Identity and Access Management
ICMP	see [1] AUTOSAR Glossary
IDS	Intrusion Detection System
IOC	Inter-Operating System Communication
IP	see [1] AUTOSAR Glossary
IP V4	Internet Protocol version 4
IP V6	Internet Protocol version 6
IPDU	Interaction Layer Protocol Data Unit





IPSec	Internet Protocol Security
LIN	see [1] AUTOSAR Glossary
MACsec	Media Access Control Security
MMU	see [1] AUTOSAR Glossary
MPU	see [1] AUTOSAR Glossary
NDP	Neighbor Discovery Protocol
NVM	non-volatile memory
NVRAM	see [1] AUTOSAR Glossary
OBD	see [1] AUTOSAR Glossary
OBDII	On-Board Diagnostics II
PDU	see [1] AUTOSAR Glossary
SCREIAM	Service Communication Registration, Interaction, and Application Management
SecOC	Secure Onboard Communication
SHM	see [1] AUTOSAR Glossary
SOME/IP	see [1] AUTOSAR Glossary
SOVD	Service Oriented Vehicle Diagnostics
SPI	see [1] AUTOSAR Glossary
TCP	see [1] AUTOSAR Glossary
TLS	see [1] AUTOSAR Glossary
TP	Transport Protocol
TSN	see [1] AUTOSAR Glossary
TT CAN	Time Triggered Controller Area Network
UDP	see [1] AUTOSAR Glossary
UDS	see [1] AUTOSAR Glossary
V2X	see [1] AUTOSAR Glossary
VISS	see [1] AUTOSAR Glossary
VMCI	Vehicle Motion Control Interface
VSS	Vehicle Signal Specification
WETH	Wake-Up-Ethernet
XCP	see [1] AUTOSAR Glossary

**Table 2.1: Acronyms and abbreviations used in the scope of this Document**

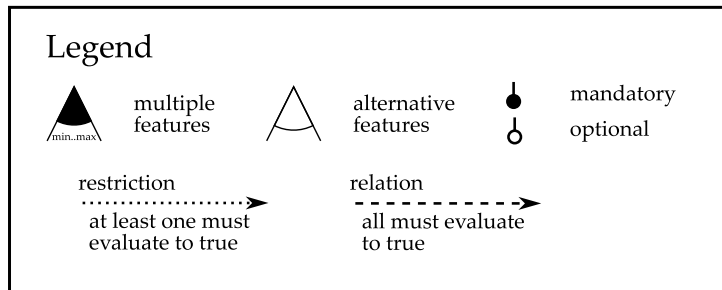
### 3 Related Documentation

- [1] Glossary  
AUTOSAR\_FO\_TR\_Glossary
- [2] AUTOSAR Feature Model  
AUTOSAR\_FO\_MOD\_Features
- [3] AUTOSAR Feature Model Exchange Format  
AUTOSAR\_FO\_TPS\_FeatureModelExchangeFormat

## 4 Features

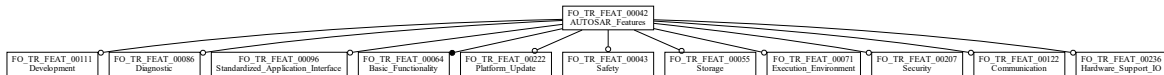
This chapter describes the AUTOSAR Features and its Branches, presented in a Feature Graph. The complete Feature Graph is published separately in the Feature Model documentation [2]. The Feature Graph complies to the AUTOSAR Feature Model Exchange Format [3].

To read the figures in this document properly, please see the legend below:



**Figure 4.1: Legend for Feature Graph figures**

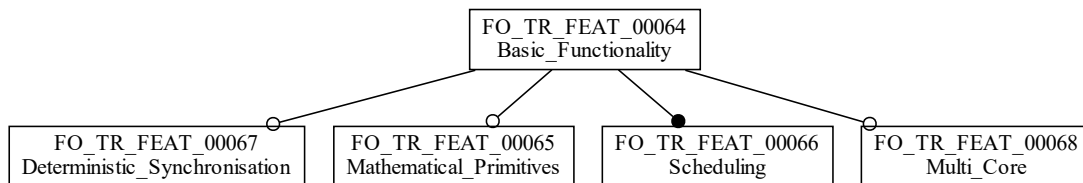
The following chapters present the AUTOSAR Features level by level, starting with root level 1. The Features are ordered alphabetically. Each Feature begins with its name, a graphical representation of its children, followed by a table of the Feature’s attributes.



**Figure 4.2: AR\_Features**

### 4.1 Level 1

#### 4.1.1 [FO\_TR\_FEAT\_00064] Basic\_Functionality

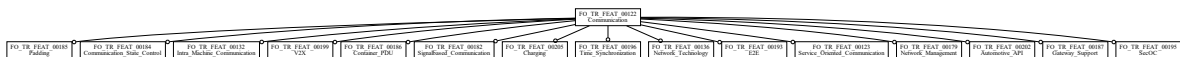


**Figure 4.3: Feature FO\_TR\_FEAT\_00064**

<b>Short Name:</b>	FO_TR_FEAT_00064
<b>Long Name:</b>	Basic_Functionality
<b>Obligation:</b>	Mandatory
<b>Description:</b>	The Basic Functionality represents the essential services and capabilities as a foundation for developing and operating automotive software applications. Furthermore initialization and shutdown at runtime. (Eg. ara::core::Initialize() and ::Deinitialize() )
<b>Parent Feature:</b>	[FO_TR_FEAT_00042] AUTOSAR_Features
<b>Sub Features:</b>	<ul style="list-style-type: none"> <li>[FO_TR_FEAT_00065] Mathematical_Primitives</li> <li>[FO_TR_FEAT_00066] Scheduling</li> <li>[FO_TR_FEAT_00067] Deterministic_Synchronisation</li> <li>[FO_TR_FEAT_00068] Multi_Core</li> </ul>

**Table 4.1: Details FO\_TR\_FEAT\_00064**

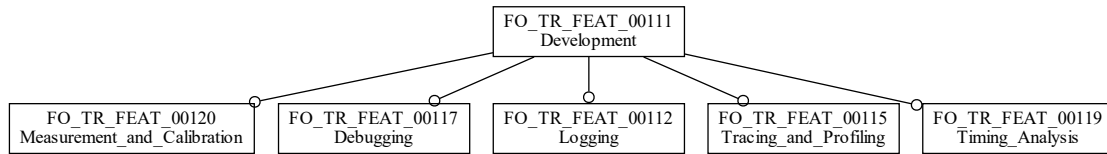
#### 4.1.2 [FO\_TR\_FEAT\_00122] Communication


**Figure 4.4: Feature FO\_TR\_FEAT\_00122**

<b>Short Name:</b>	FO_TR_FEAT_00122
<b>Long Name:</b>	Communication
<b>Obligation:</b>	Optional
<b>Description:</b>	This Feature describes mechanisms and protocols that enable data exchange between different software components, Electronic Control Units (ECUs), and external systems within an automotive environment.
<b>Parent Feature:</b>	[FO_TR_FEAT_00042] AUTOSAR_Features
<b>Sub Features:</b>	<ul style="list-style-type: none"> <li>[FO_TR_FEAT_00123] Service_Oriented_Communication</li> <li>[FO_TR_FEAT_00132] Intra_Machine_Communication</li> <li>[FO_TR_FEAT_00136] Network_Technology</li> <li>[FO_TR_FEAT_00179] Network_Management</li> <li>[FO_TR_FEAT_00182] Signalbased_Communication</li> <li>[FO_TR_FEAT_00184] Communication_State_Control</li> <li>[FO_TR_FEAT_00185] Padding</li> <li>[FO_TR_FEAT_00186] Container_PDU</li> <li>[FO_TR_FEAT_00187] Gateway_Support</li> <li>[FO_TR_FEAT_00193] E2E</li> <li>[FO_TR_FEAT_00195] SecOC</li> <li>[FO_TR_FEAT_00196] Time_Synchronization</li> <li>[FO_TR_FEAT_00199] V2X</li> <li>[FO_TR_FEAT_00202] Automotive_API</li> <li>[FO_TR_FEAT_00205] Charging</li> </ul>

**Table 4.2: Details FO\_TR\_FEAT\_00122**

### 4.1.3 [FO\_TR\_FEAT\_00111] Development

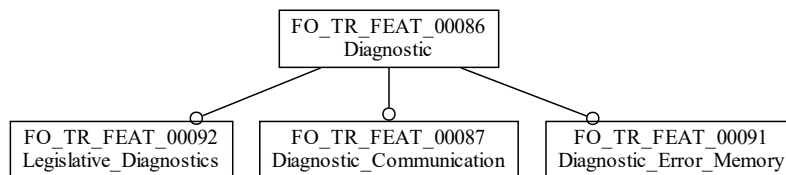


**Figure 4.5: Feature FO\_TR\_FEAT\_00111**

<b>Short Name:</b>	FO_TR_FEAT_00111
<b>Long Name:</b>	Development
<b>Obligation:</b>	Optional
<b>Description:</b>	This Feature facilitates and enhances the software development process for automotive systems.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00042] AUTOSAR_Features</a>
<b>Sub Features:</b>	<ul style="list-style-type: none"> <li>• <a href="#">[FO_TR_FEAT_00112] Logging</a></li> <li>• <a href="#">[FO_TR_FEAT_00115] Tracing_and_Profiling</a></li> <li>• <a href="#">[FO_TR_FEAT_00117] Debugging</a></li> <li>• <a href="#">[FO_TR_FEAT_00119] Timing_Analysis</a></li> <li>• <a href="#">[FO_TR_FEAT_00120] Measurement_and_Calibration</a></li> </ul>

**Table 4.3: Details FO\_TR\_FEAT\_00111**

### 4.1.4 [FO\_TR\_FEAT\_00086] Diagnostic



**Figure 4.6: Feature FO\_TR\_FEAT\_00086**

<b>Short Name:</b>	FO_TR_FEAT_00086
<b>Long Name:</b>	Diagnostic
<b>Obligation:</b>	Optional
<b>Description:</b>	This Feature ensures that diagnostic information is consistently represented, that it allows for effective maintenance and troubleshooting, and that it complies with legislative requirements.

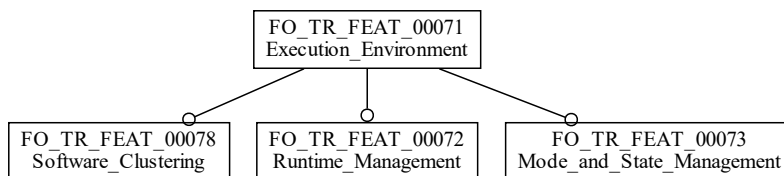




<b>Applies to:</b>	AP, CP
<b>Parent Feature:</b>	[FO_TR_FEAT_00042] AUTOSAR_Features
<b>Sub Features:</b>	<ul style="list-style-type: none"> <li>• [FO_TR_FEAT_00087] Diagnostic_Communication</li> <li>• [FO_TR_FEAT_00091] Diagnostic_Error_Memory</li> <li>• [FO_TR_FEAT_00092] Legislative_Diagnostics</li> </ul>

**Table 4.4: Details FO\_TR\_FEAT\_00086**

#### 4.1.5 [FO\_TR\_FEAT\_00071] Execution\_Environment



**Figure 4.7: Feature FO\_TR\_FEAT\_00071**

<b>Short Name:</b>	FO_TR_FEAT_00071
<b>Long Name:</b>	Execution_Environment
<b>Obligation:</b>	Optional
<b>Description:</b>	The Execution Environment describes the underlying infrastructure and support mechanisms that enable the execution of automotive software components on Electronic Control Units (ECUs).
<b>Parent Feature:</b>	[FO_TR_FEAT_00042] AUTOSAR_Features
<b>Sub Features:</b>	<ul style="list-style-type: none"> <li>• [FO_TR_FEAT_00072] Runtime_Management</li> <li>• [FO_TR_FEAT_00073] Mode_and_State_Management</li> <li>• [FO_TR_FEAT_00078] Software_Clustering</li> </ul>

**Table 4.5: Details FO\_TR\_FEAT\_00071**

#### 4.1.6 [FO\_TR\_FEAT\_00236] Hardware\_Support\_IO

<b>Short Name:</b>	FO_TR_FEAT_00236
<b>Long Name:</b>	Hardware_Support_IO
<b>Obligation:</b>	Optional
<b>Description:</b>	The Hardware Support IO (Input Output) in AUTOSAR refers to the Feature that facilitates interaction between the software applications and the vehicle's hardware components.



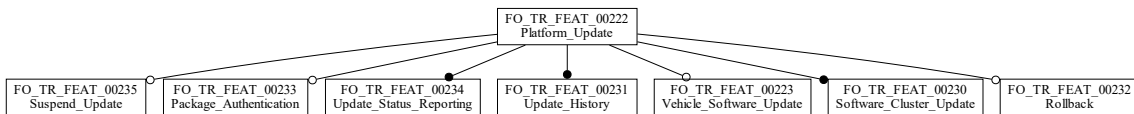




<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00042] AUTOSAR_Features</a>
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**Table 4.6: Details FO\_TR\_FEAT\_00236**

#### 4.1.7 [FO\_TR\_FEAT\_00222] Platform\_Update

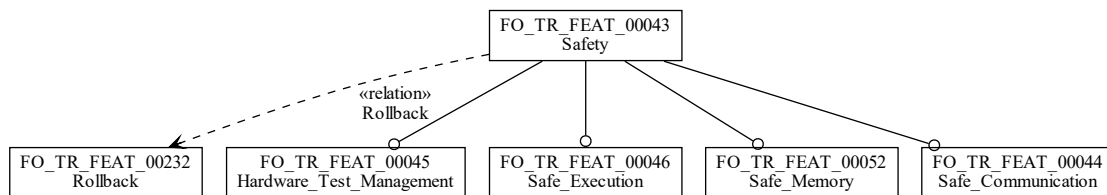


**Figure 4.8: Feature FO\_TR\_FEAT\_00222**

<b>Short Name:</b>	FO_TR_FEAT_00222
<b>Long Name:</b>	Platform_Update
<b>Obligation:</b>	Optional
<b>Description:</b>	The Platform Update in AUTOSAR ensures that vehicle software remains up-to-date and functional through a managed process of updates
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00042] AUTOSAR_Features</a>
<b>Sub Features:</b>	<ul style="list-style-type: none"> <li>• <a href="#">[FO_TR_FEAT_00223] Vehicle_Software_Update</a></li> <li>• <a href="#">[FO_TR_FEAT_00230] Software_Cluster_Update</a></li> <li>• <a href="#">[FO_TR_FEAT_00231] Update_History</a></li> <li>• <a href="#">[FO_TR_FEAT_00232] Rollback</a></li> <li>• <a href="#">[FO_TR_FEAT_00233] Package_Authentication</a></li> <li>• <a href="#">[FO_TR_FEAT_00234] Update_Status_Reporting</a></li> <li>• <a href="#">[FO_TR_FEAT_00235] Suspend_Update</a></li> </ul>

**Table 4.7: Details FO\_TR\_FEAT\_00222**

#### 4.1.8 [FO\_TR\_FEAT\_00043] Safety

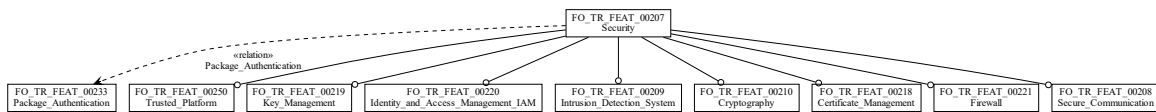


**Figure 4.9: Feature FO\_TR\_FEAT\_00043**

<b>Short Name:</b>	FO_TR_FEAT_00043
<b>Long Name:</b>	Safety
<b>Obligation:</b>	Optional
<b>Description:</b>	Safety according to ISO26262. The underlying structure follows annex D of ISO26262-6:2018.
<b>Applies to:</b>	FO
<b>Relations:</b>	[FO_TR_FEAT_00232] Rollback
<b>Parent Feature:</b>	[FO_TR_FEAT_00042] AUTOSAR_Features
<b>Sub Features:</b>	<ul style="list-style-type: none"> <li>[FO_TR_FEAT_00044] Safe_Communication</li> <li>[FO_TR_FEAT_00045] Hardware_Test_Management</li> <li>[FO_TR_FEAT_00046] Safe_Execution</li> <li>[FO_TR_FEAT_00052] Safe_Memory</li> </ul>

**Table 4.8: Details FO\_TR\_FEAT\_00043**

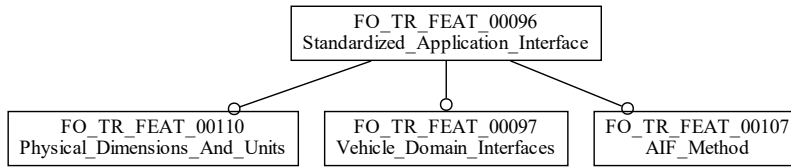
#### 4.1.9 [FO\_TR\_FEAT\_00207] Security


**Figure 4.10: Feature FO\_TR\_FEAT\_00207**

<b>Short Name:</b>	FO_TR_FEAT_00207
<b>Long Name:</b>	Security
<b>Obligation:</b>	Optional
<b>Description:</b>	The Security Feature encompasses various mechanisms and protocols designed to protect the ECU's sensible resources (e.g. cryptographic keys), the vehicle's network and its communication from unauthorized access.
<b>Relations:</b>	[FO_TR_FEAT_00233] Package_Authentication
<b>Parent Feature:</b>	[FO_TR_FEAT_00042] AUTOSAR_Features
<b>Sub Features:</b>	<ul style="list-style-type: none"> <li>[FO_TR_FEAT_00208] Secure_Communication</li> <li>[FO_TR_FEAT_00209] Intrusion_Detection_System</li> <li>[FO_TR_FEAT_00210] Cryptography</li> <li>[FO_TR_FEAT_00218] Certificate_Management</li> <li>[FO_TR_FEAT_00219] Key_Management</li> <li>[FO_TR_FEAT_00220] Identity_and_Access_Management_IAM</li> <li>[FO_TR_FEAT_00221] Firewall</li> <li>[FO_TR_FEAT_00250] Trusted_Platform</li> </ul>

**Table 4.9: Details FO\_TR\_FEAT\_00207**

**4.1.10 [FO\_TR\_FEAT\_00096] Standardized\_Application\_Interface**

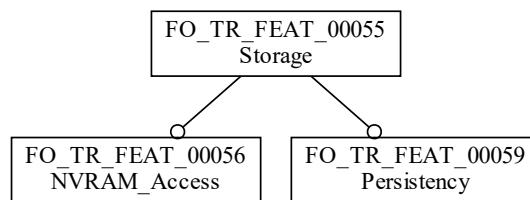


**Figure 4.11: Feature FO\_TR\_FEAT\_00096**

<b>Short Name:</b>	FO_TR_FEAT_00096
<b>Long Name:</b>	Standardized_Application_Interface
<b>Obligation:</b>	Optional
<b>Description:</b>	This Feature contains definitions for commonly agreed interface definitions to ensure interoperability between applications.
<b>Applies to:</b>	AP, CP
<b>Parent Feature:</b>	[FO_TR_FEAT_00042] AUTOSAR_Features
<b>Sub Features:</b>	<ul style="list-style-type: none"> <li>• [FO_TR_FEAT_00097] Vehicle_Domain_Interfaces</li> <li>• [FO_TR_FEAT_00107] AIF_Method</li> <li>• [FO_TR_FEAT_00110] Physical_Dimensions_And_Units</li> </ul>

**Table 4.10: Details FO\_TR\_FEAT\_00096**

**4.1.11 [FO\_TR\_FEAT\_00055] Storage**



**Figure 4.12: Feature FO\_TR\_FEAT\_00055**

<b>Short Name:</b>	FO_TR_FEAT_00055
<b>Long Name:</b>	Storage
<b>Obligation:</b>	Optional



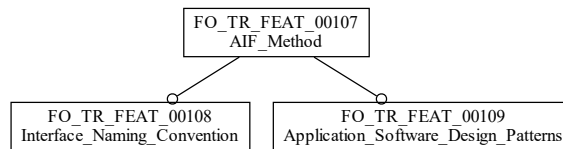


<b>Description:</b>	The Feature Storage ensures the reliable and efficient management of data within automotive systems, which allows preservation of critical information even in the event of power loss.
<b>Parent Feature:</b>	[FO_TR_FEAT_00042] AUTOSAR_Features
<b>Sub Features:</b>	<ul style="list-style-type: none"> <li>[FO_TR_FEAT_00056] NVRAM_Access</li> <li>[FO_TR_FEAT_00059] Persistency</li> </ul>

**Table 4.11: Details FO\_TR\_FEAT\_00055**

## 4.2 Level 2

### 4.2.1 [FO\_TR\_FEAT\_00107] AIF\_Method

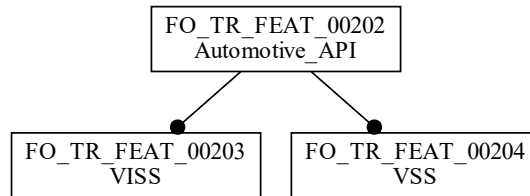


**Figure 4.13: Feature FO\_TR\_FEAT\_00107**

<b>Short Name:</b>	FO_TR_FEAT_00107
<b>Long Name:</b>	AIF_Method
<b>Obligation:</b>	Optional
<b>Description:</b>	This Feature describes a collection of methods for Interfaces between software applications and components within an automotive system.
<b>Applies to:</b>	AP, CP
<b>Parent Feature:</b>	[FO_TR_FEAT_00096] Standardized_Application_Interface
<b>Sub Features:</b>	<ul style="list-style-type: none"> <li>[FO_TR_FEAT_00108] Interface_Naming_Convention</li> <li>[FO_TR_FEAT_00109] Application_Software_Design_Patterns</li> </ul>

**Table 4.12: Details FO\_TR\_FEAT\_00107**

#### 4.2.2 [FO\_TR\_FEAT\_00202] Automotive\_API



**Figure 4.14: Feature FO\_TR\_FEAT\_00202**

<b>Short Name:</b>	FO_TR_FEAT_00202
<b>Long Name:</b>	Automotive_API
<b>Obligation:</b>	Optional
<b>Description:</b>	The Automotive API (Application Programming Interface) refers to standardized application programming interfaces that enable the development of automotive software applications.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00122] Communication</a>
<b>Sub Features:</b>	<ul style="list-style-type: none"> <li>• <a href="#">[FO_TR_FEAT_00203] VISS</a></li> <li>• <a href="#">[FO_TR_FEAT_00204] VSS</a></li> </ul>

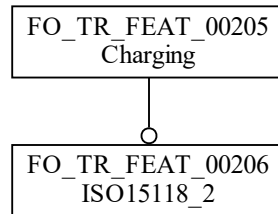
**Table 4.13: Details FO\_TR\_FEAT\_00202**

#### 4.2.3 [FO\_TR\_FEAT\_00218] Certificate\_Management

<b>Short Name:</b>	FO_TR_FEAT_00218
<b>Long Name:</b>	Certificate_Management
<b>Obligation:</b>	Optional
<b>Description:</b>	The Certificate Management involves the processes and technologies used to manage digital certificates.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00207] Security</a>

**Table 4.14: Details FO\_TR\_FEAT\_00218**

#### 4.2.4 [FO\_TR\_FEAT\_00205] Charging



**Figure 4.15: Feature FO\_TR\_FEAT\_00205**

<b>Short Name:</b>	FO_TR_FEAT_00205
<b>Long Name:</b>	Charging
<b>Obligation:</b>	Optional
<b>Description:</b>	The Charging Feature manages the charging protocol of electric vehicles.
<b>Applies to:</b>	CP
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00122] Communication</a>
<b>Sub Features:</b>	<a href="#">[FO_TR_FEAT_00206] ISO15118_2</a>

**Table 4.15: Details FO\_TR\_FEAT\_00205**

#### 4.2.5 [FO\_TR\_FEAT\_00184] Communication\_State\_Control

<b>Short Name:</b>	FO_TR_FEAT_00184
<b>Long Name:</b>	Communication_State_Control
<b>Obligation:</b>	Optional
<b>Description:</b>	The Communication State Control refers to the mechanisms and protocols used to manage the communication states of the network and individual communication channels or protocols.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00122] Communication</a>

**Table 4.16: Details FO\_TR\_FEAT\_00184**

#### 4.2.6 [FO\_TR\_FEAT\_00186] Container\_PDU

<b>Short Name:</b>	FO_TR_FEAT_00186
<b>Long Name:</b>	Container_PDU
<b>Obligation:</b>	Optional

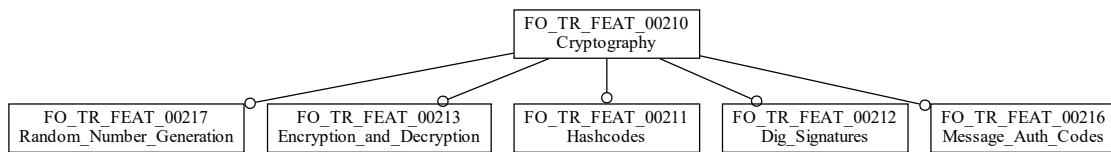




<b>Description:</b>	The Container PDU (Protocol Data Unit) refers to a data structure used to encapsulate multiple individual PDUs into a single container for transmission.
<b>Parent Feature:</b>	[FO_TR_FEAT_00122] Communication

**Table 4.17: Details FO\_TR\_FEAT\_00186**

### 4.2.7 [FO\_TR\_FEAT\_00210] Cryptography

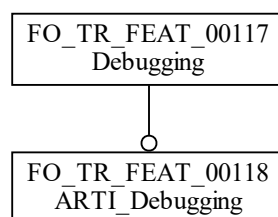


**Figure 4.16: Feature FO\_TR\_FEAT\_00210**

<b>Short Name:</b>	FO_TR_FEAT_00210
<b>Long Name:</b>	Cryptography
<b>Obligation:</b>	Optional
<b>Description:</b>	The Cryptography in AUTOSAR refers to the techniques and methods used to secure data communication and storage.
<b>Parent Feature:</b>	[FO_TR_FEAT_00207] Security
<b>Sub Features:</b>	<ul style="list-style-type: none"> <li>• [FO_TR_FEAT_00211] Hashcodes</li> <li>• [FO_TR_FEAT_00212] Dig_Signatures</li> <li>• [FO_TR_FEAT_00213] Encryption_and_Decryption</li> <li>• [FO_TR_FEAT_00216] Message_Auth_Codes</li> <li>• [FO_TR_FEAT_00217] Random_Number_Generation</li> </ul>

**Table 4.18: Details FO\_TR\_FEAT\_00210**

### 4.2.8 [FO\_TR\_FEAT\_00117] Debugging



**Figure 4.17: Feature FO\_TR\_FEAT\_00117**

<b>Short Name:</b>	FO_TR_FEAT_00117
<b>Long Name:</b>	Debugging
<b>Obligation:</b>	Optional
<b>Description:</b>	The Debugging in the AUTOSAR context refers to the process of identifying, analyzing, and resolving defects or issues within automotive software systems.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00111] Development</a>
<b>Sub Features:</b>	<a href="#">[FO_TR_FEAT_00118] ARTI_Debugging</a>

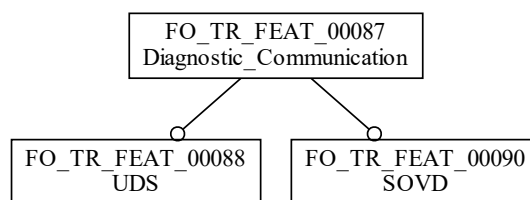
**Table 4.19: Details FO\_TR\_FEAT\_00117**

#### 4.2.9 [FO\_TR\_FEAT\_00067] Deterministic\_Synchronisation

<b>Short Name:</b>	FO_TR_FEAT_00067
<b>Long Name:</b>	Deterministic_Synchronisation
<b>Obligation:</b>	Optional
<b>Description:</b>	This Feature contains the coordination and timing control mechanisms to ensure predictable and reliable operation of concurrent tasks and communication in automotive systems.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00064] Basic_Functionality</a>

**Table 4.20: Details FO\_TR\_FEAT\_00067**

#### 4.2.10 [FO\_TR\_FEAT\_00087] Diagnostic\_Communication



**Figure 4.18: Feature FO\_TR\_FEAT\_00087**



<b>Short Name:</b>	FO_TR_FEAT_00087
<b>Long Name:</b>	Diagnostic_Communication
<b>Obligation:</b>	Optional
<b>Description:</b>	The Diagnostic_Communication describes the communication between Diagnostics clients and servers according ISO-14229.
<b>Applies to:</b>	CP, AP
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00086] Diagnostic</a>
<b>Sub Features:</b>	<ul style="list-style-type: none"> <li>• <a href="#">[FO_TR_FEAT_00088] UDS</a></li> <li>• <a href="#">[FO_TR_FEAT_00090] SOVD</a></li> </ul>

**Table 4.21: Details FO\_TR\_FEAT\_00087**

#### 4.2.11 [FO\_TR\_FEAT\_00091] Diagnostic\_Error\_Memory

<b>Short Name:</b>	FO_TR_FEAT_00091
<b>Long Name:</b>	Diagnostic_Error_Memory
<b>Obligation:</b>	Optional
<b>Description:</b>	This Feature ensures that fault information is recorded accurately and that it can be accessed for diagnostics and repairs by managing the storage and retrieval of Diagnostic Trouble Codes (DTCs) and error information within the vehicle's ECUs.
<b>Applies to:</b>	CP, AP
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00086] Diagnostic</a>

**Table 4.22: Details FO\_TR\_FEAT\_00091**

#### 4.2.12 [FO\_TR\_FEAT\_00193] E2E

<b>Short Name:</b>	FO_TR_FEAT_00193
<b>Long Name:</b>	E2E
<b>Obligation:</b>	Optional
<b>Description:</b>	The E2E (End-to-End) Protection is a set of mechanisms and protocols designed to detect communication faults in intra vehicle communication and to return the results of the checks.
<b>Restrictions:</b>	<ul style="list-style-type: none"> <li>• <a href="#">[FO_TR_FEAT_00182] Signalbased_Communication</a></li> <li>• <a href="#">[FO_TR_FEAT_00127] SOME_IP</a></li> <li>• <a href="#">[FO_TR_FEAT_00124] DDS</a></li> </ul>
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00122] Communication</a>

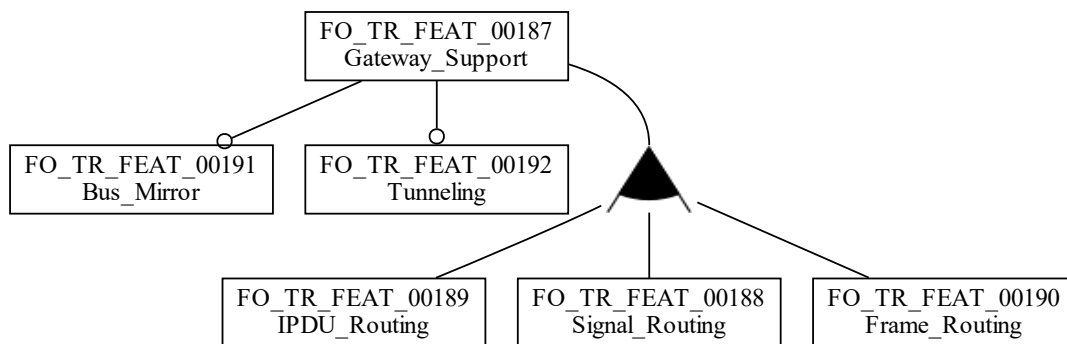
**Table 4.23: Details FO\_TR\_FEAT\_00193**

#### 4.2.13 [FO\_TR\_FEAT\_00221] Firewall

<b>Short Name:</b>	FO_TR_FEAT_00221
<b>Long Name:</b>	Firewall
<b>Obligation:</b>	Optional
<b>Description:</b>	The Firewall is a security system that monitors and controls incoming and outgoing network traffic based on predetermined security rules.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00207] Security</a>

**Table 4.24: Details FO\_TR\_FEAT\_00221**

#### 4.2.14 [FO\_TR\_FEAT\_00187] Gateway\_Support



**Figure 4.19: Feature FO\_TR\_FEAT\_00187**

<b>Short Name:</b>	FO_TR_FEAT_00187
<b>Long Name:</b>	Gateway_Support
<b>Obligation:</b>	Optional
<b>Description:</b>	The Gateway Support describes the functionalities to facilitate routing and transfer of data between different communication networks or protocols within a vehicle.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00122] Communication</a>
<b>Sub Features:</b>	<ul style="list-style-type: none"> <li>• <a href="#">[FO_TR_FEAT_00188] Signal_Routing</a></li> <li>• <a href="#">[FO_TR_FEAT_00189] IPDU_Routing</a></li> <li>• <a href="#">[FO_TR_FEAT_00190] Frame_Routing</a></li> <li>• <a href="#">[FO_TR_FEAT_00191] Bus_Mirror</a></li> <li>• <a href="#">[FO_TR_FEAT_00192] Tunneling</a></li> </ul>

**Table 4.25: Details FO\_TR\_FEAT\_00187**

#### 4.2.15 [FO\_TR\_FEAT\_00045] Hardware\_Test\_Management

<b>Short Name:</b>	FO_TR_FEAT_00045
<b>Long Name:</b>	Hardware_Test_Management
<b>Obligation:</b>	Optional
<b>Description:</b>	This Feature represents a built-in test at startup or cyclically.
<b>Applies to:</b>	CP
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00043]</a> Safety

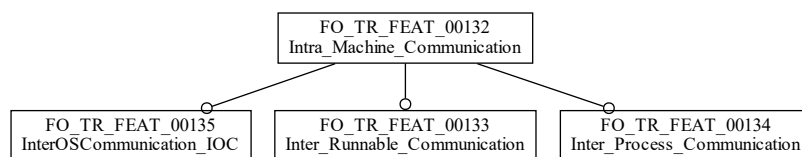
**Table 4.26: Details FO\_TR\_FEAT\_00045**

#### 4.2.16 [FO\_TR\_FEAT\_00220] Identity\_and\_Access\_Management\_IAM

<b>Short Name:</b>	FO_TR_FEAT_00220
<b>Long Name:</b>	Identity_and_Access_Management_IAM
<b>Obligation:</b>	Optional
<b>Description:</b>	The Identity and Access Management (IAM) focuses on identifying and controlling who has access to the vehicle's network and ECU's resources.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00207]</a> Security

**Table 4.27: Details FO\_TR\_FEAT\_00220**

#### 4.2.17 [FO\_TR\_FEAT\_00132] Intra\_Machine\_Communication



**Figure 4.20: Feature FO\_TR\_FEAT\_00132**

<b>Short Name:</b>	FO_TR_FEAT_00132
<b>Long Name:</b>	Intra_Machine_Communication
<b>Obligation:</b>	Optional
<b>Description:</b>	This Feature describes the data exchange mechanisms and protocols within a single vehicle's electronic system
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00122]</a> Communication





<b>Sub Features:</b>	<ul style="list-style-type: none"> <li>• [FO_TR_FEAT_00133] Inter_Runnable_Communication</li> <li>• [FO_TR_FEAT_00134] Inter_Process_Communication</li> <li>• [FO_TR_FEAT_00135] InterOSCommunication_IOC</li> </ul>
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**Table 4.28: Details FO\_TR\_FEAT\_00132**

**4.2.18 [FO\_TR\_FEAT\_00209] Intrusion\_Detection\_System**

<b>Short Name:</b>	FO_TR_FEAT_00209
<b>Long Name:</b>	Intrusion_Detection_System
<b>Obligation:</b>	Optional
<b>Description:</b>	The Intrusion Detection System (IDS) monitors the vehicle's network and ECU's resources for suspicious activities and potential security breaches.
<b>Parent Feature:</b>	[FO_TR_FEAT_00207] Security

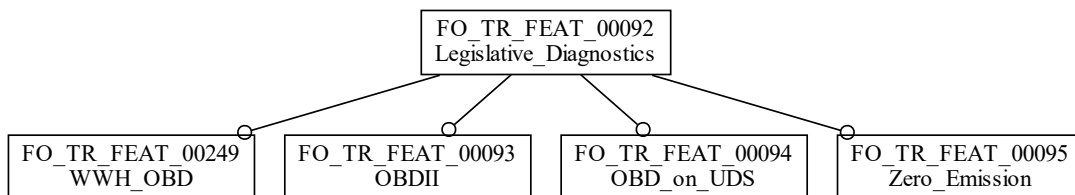
**Table 4.29: Details FO\_TR\_FEAT\_00209**

**4.2.19 [FO\_TR\_FEAT\_00219] Key\_Management**

<b>Short Name:</b>	FO_TR_FEAT_00219
<b>Long Name:</b>	Key_Management
<b>Obligation:</b>	Optional
<b>Description:</b>	The Key Management encompasses the methods and processes for handling cryptographic keys throughout their lifecycle.
<b>Parent Feature:</b>	[FO_TR_FEAT_00207] Security

**Table 4.30: Details FO\_TR\_FEAT\_00219**

**4.2.20 [FO\_TR\_FEAT\_00092] Legislative\_Diagnostics**

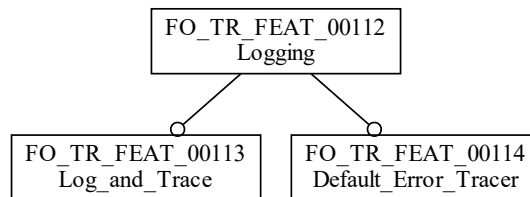


**Figure 4.21: Feature FO\_TR\_FEAT\_00092**

<b>Short Name:</b>	FO_TR_FEAT_00092
<b>Long Name:</b>	Legislative_Diagnostics
<b>Obligation:</b>	Optional
<b>Description:</b>	This Feature describes the standardized diagnostic protocols and procedures mandated by regulatory authorities to ensure that vehicles comply with environmental and safety regulations.
<b>Applies to:</b>	CP, AP
<b>Parent Feature:</b>	[FO_TR_FEAT_00086] <a href="#">Diagnostic</a>
<b>Sub Features:</b>	<ul style="list-style-type: none"> <li>• [FO_TR_FEAT_00093] <a href="#">OBDII</a></li> <li>• [FO_TR_FEAT_00094] <a href="#">OBD_on_UDS</a></li> <li>• [FO_TR_FEAT_00249] <a href="#">WWH_OBD</a></li> <li>• [FO_TR_FEAT_00095] <a href="#">Zero_Emission</a></li> </ul>

**Table 4.31: Details FO\_TR\_FEAT\_00092**

#### 4.2.21 [FO\_TR\_FEAT\_00112] Logging


**Figure 4.22: Feature FO\_TR\_FEAT\_00112**

<b>Short Name:</b>	FO_TR_FEAT_00112
<b>Long Name:</b>	Logging
<b>Obligation:</b>	Optional
<b>Description:</b>	This Feature allows capturing and recording of system events and messages during operation.
<b>Parent Feature:</b>	[FO_TR_FEAT_00111] <a href="#">Development</a>
<b>Sub Features:</b>	<ul style="list-style-type: none"> <li>• [FO_TR_FEAT_00113] <a href="#">Log_and_Trace</a></li> <li>• [FO_TR_FEAT_00114] <a href="#">Default_Error_Tracer</a></li> </ul>

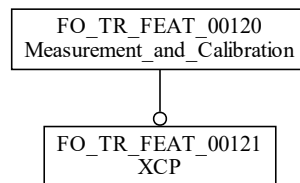
**Table 4.32: Details FO\_TR\_FEAT\_00112**

#### 4.2.22 [FO\_TR\_FEAT\_00065] Mathematical\_Primitives

<b>Short Name:</b>	FO_TR_FEAT_00065
<b>Long Name:</b>	Mathematical_Primitives
<b>Obligation:</b>	Optional
<b>Description:</b>	This Feature is basic to perform mathematical computations efficiently and accurately, e.g. libraries
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00064] Basic_Functionality</a>

**Table 4.33: Details FO\_TR\_FEAT\_00065**

#### 4.2.23 [FO\_TR\_FEAT\_00120] Measurement\_and\_Calibration

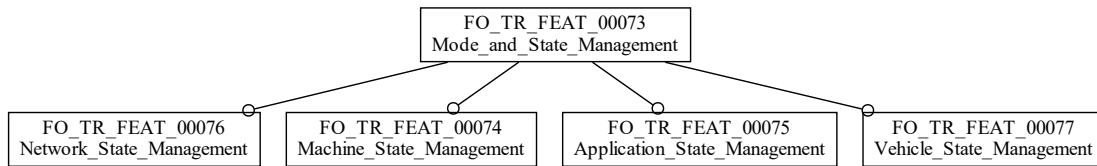


**Figure 4.23: Feature FO\_TR\_FEAT\_00120**

<b>Short Name:</b>	FO_TR_FEAT_00120
<b>Long Name:</b>	Measurement_and_Calibration
<b>Obligation:</b>	Optional
<b>Description:</b>	The Measurement and Calibration in the AUTOSAR context refer to the processes and tools used to gather data from the automotive system (measurement) and adjust parameters to optimize performance (calibration).
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00111] Development</a>
<b>Sub Features:</b>	<a href="#">[FO_TR_FEAT_00121] XCP</a>

**Table 4.34: Details FO\_TR\_FEAT\_00120**

#### 4.2.24 [FO\_TR\_FEAT\_00073] Mode\_and\_State\_Management



**Figure 4.24: Feature FO\_TR\_FEAT\_00073**

<b>Short Name:</b>	FO_TR_FEAT_00073
<b>Long Name:</b>	Mode_and_State_Management
<b>Obligation:</b>	Optional
<b>Description:</b>	This Feature describes mechanisms and services that handle the different operational modes and states of the automotive system. In AP the Mode Management is implemented, in CP the State Management.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00071] Execution_Environment</a>
<b>Sub Features:</b>	<ul style="list-style-type: none"> <li>• <a href="#">[FO_TR_FEAT_00074] Machine_State_Management</a></li> <li>• <a href="#">[FO_TR_FEAT_00075] Application_State_Management</a></li> <li>• <a href="#">[FO_TR_FEAT_00076] Network_State_Management</a></li> <li>• <a href="#">[FO_TR_FEAT_00077] Vehicle_State_Management</a></li> </ul>

**Table 4.35: Details FO\_TR\_FEAT\_00073**

#### 4.2.25 [FO\_TR\_FEAT\_00068] Multi\_Core

<b>Short Name:</b>	FO_TR_FEAT_00068
<b>Long Name:</b>	Multi_Core
<b>Obligation:</b>	Optional
<b>Description:</b>	The Feature Multi-Core describes the distribution of applications to multiple cores of a micro controller.
<b>Applies to:</b>	CP
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00064] Basic_Functionality</a>

**Table 4.36: Details FO\_TR\_FEAT\_00068**

#### 4.2.26 [FO\_TR\_FEAT\_00179] Network\_Management

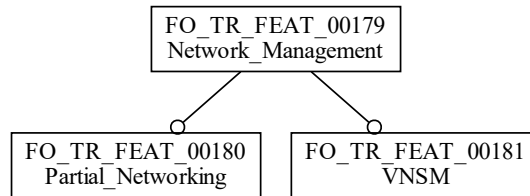


Figure 4.25: Feature FO\_TR\_FEAT\_00179

<b>Short Name:</b>	FO_TR_FEAT_00179
<b>Long Name:</b>	Network_Management
<b>Obligation:</b>	Optional
<b>Description:</b>	The Network Management describes mechanisms and protocols used to control, configure, and monitor the state and operation of the network within a vehicle.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00122] Communication</a>
<b>Sub Features:</b>	<ul style="list-style-type: none"> <li>• <a href="#">[FO_TR_FEAT_00180] Partial_Networking</a></li> <li>• <a href="#">[FO_TR_FEAT_00181] VNSM</a></li> </ul>

Table 4.37: Details FO\_TR\_FEAT\_00179

#### 4.2.27 [FO\_TR\_FEAT\_00136] Network\_Technology

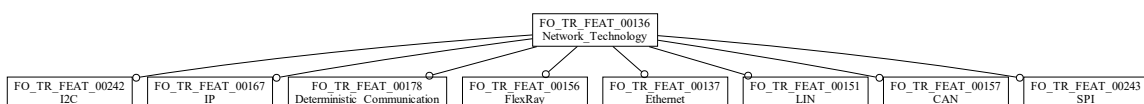


Figure 4.26: Feature FO\_TR\_FEAT\_00136

<b>Short Name:</b>	FO_TR_FEAT_00136
<b>Long Name:</b>	Network_Technology
<b>Obligation:</b>	Optional
<b>Description:</b>	This Feature represents communication protocols, hardware, and software infrastructure that facilitate data exchange between ECUs in automotive systems.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00122] Communication</a>



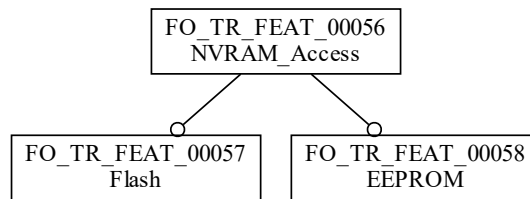




<b>Sub Features:</b>	<ul style="list-style-type: none"> <li>• [FO_TR_FEAT_00137] Ethernet</li> <li>• [FO_TR_FEAT_00151] LIN</li> <li>• [FO_TR_FEAT_00156] FlexRay</li> <li>• [FO_TR_FEAT_00157] CAN</li> <li>• [FO_TR_FEAT_00167] IP</li> <li>• [FO_TR_FEAT_00178] Deterministic_Communication</li> <li>• [FO_TR_FEAT_00242] I2C</li> <li>• [FO_TR_FEAT_00243] SPI</li> </ul>
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**Table 4.38: Details FO\_TR\_FEAT\_00136**

#### 4.2.28 [FO\_TR\_FEAT\_00056] NVRAM\_Access


**Figure 4.27: Feature FO\_TR\_FEAT\_00056**

<b>Short Name:</b>	FO_TR_FEAT_00056
<b>Long Name:</b>	NVRAM_Access
<b>Obligation:</b>	Optional
<b>Description:</b>	The NVRAM Access (non-volatile random-access memory) is used to store data which are retained across power cycles.
<b>Parent Feature:</b>	[FO_TR_FEAT_00055] Storage
<b>Sub Features:</b>	<ul style="list-style-type: none"> <li>• [FO_TR_FEAT_00057] Flash</li> <li>• [FO_TR_FEAT_00058] EEPROM</li> </ul>

**Table 4.39: Details FO\_TR\_FEAT\_00056**

#### 4.2.29 [FO\_TR\_FEAT\_00233] Package\_Authentication

<b>Short Name:</b>	FO_TR_FEAT_00233
<b>Long Name:</b>	Package_Authentication
<b>Obligation:</b>	Optional





<b>Description:</b>	The Package Authentication involves verifying the integrity and authenticity of the software update packages before they are applied.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00222]</a> Platform_Update

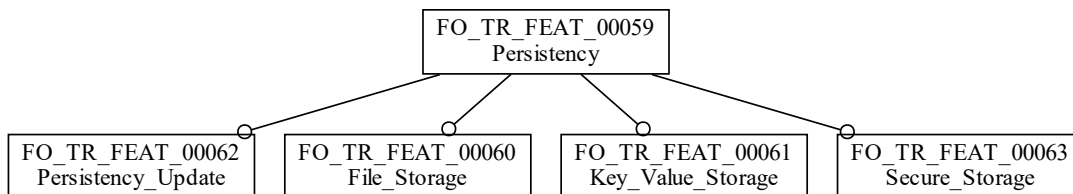
**Table 4.40: Details FO\_TR\_FEAT\_00233**

#### 4.2.30 [FO\_TR\_FEAT\_00185] Padding

<b>Short Name:</b>	FO_TR_FEAT_00185
<b>Long Name:</b>	Padding
<b>Obligation:</b>	Optional
<b>Description:</b>	The Padding refers to the practice of adding extra bits or bytes to a data packet or message to ensure it meets a required size or alignment.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00122]</a> Communication

**Table 4.41: Details FO\_TR\_FEAT\_00185**

#### 4.2.31 [FO\_TR\_FEAT\_00059] Persistency


**Figure 4.28: Feature FO\_TR\_FEAT\_00059**

<b>Short Name:</b>	FO_TR_FEAT_00059
<b>Long Name:</b>	Persistency
<b>Obligation:</b>	Optional
<b>Description:</b>	This Feature ensures that the system can resume operations seamlessly by retaining necessary information.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00055]</a> Storage
<b>Sub Features:</b>	<ul style="list-style-type: none"> <li>• <a href="#">[FO_TR_FEAT_00060]</a> File_Storage</li> <li>• <a href="#">[FO_TR_FEAT_00061]</a> Key_Value_Storage</li> <li>• <a href="#">[FO_TR_FEAT_00062]</a> Persistency_Update</li> <li>• <a href="#">[FO_TR_FEAT_00063]</a> Secure_Storage</li> </ul>

**Table 4.42: Details FO\_TR\_FEAT\_00059**

#### 4.2.32 [FO\_TR\_FEAT\_00110] Physical\_Dimensions\_And\_Units

<b>Short Name:</b>	FO_TR_FEAT_00110
<b>Long Name:</b>	Physical_Dimensions_And_Units
<b>Obligation:</b>	Optional
<b>Description:</b>	This Feature defines a collection of standardized definitions of physical dimensions and their units.
<b>Applies to:</b>	FO
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00096] Standardized_Application_Interface</a>

**Table 4.43: Details FO\_TR\_FEAT\_00110**

#### 4.2.33 [FO\_TR\_FEAT\_00232] Rollback

<b>Short Name:</b>	FO_TR_FEAT_00232
<b>Long Name:</b>	Rollback
<b>Obligation:</b>	Optional
<b>Description:</b>	The Rollback refers to the ability to revert to a previous version of the software if the latest update fails or causes issues.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00222] Platform_Update</a>

**Table 4.44: Details FO\_TR\_FEAT\_00232**

#### 4.2.34 [FO\_TR\_FEAT\_00072] Runtime\_Management

<b>Short Name:</b>	FO_TR_FEAT_00072
<b>Long Name:</b>	Runtime_Management
<b>Obligation:</b>	Optional
<b>Description:</b>	This Feature describes set of services and mechanisms that oversee the execution lifecycle of software components on the ECUs.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00071] Execution_Environment</a>

**Table 4.45: Details FO\_TR\_FEAT\_00072**

#### 4.2.35 [FO\_TR\_FEAT\_00044] Safe\_Communication

<b>Short Name:</b>	FO_TR_FEAT_00044
<b>Long Name:</b>	Safe_Communication
<b>Obligation:</b>	Optional
<b>Description:</b>	The Safe Communication enables detection of faults during information exchange.
<b>Applies to:</b>	AP, CP

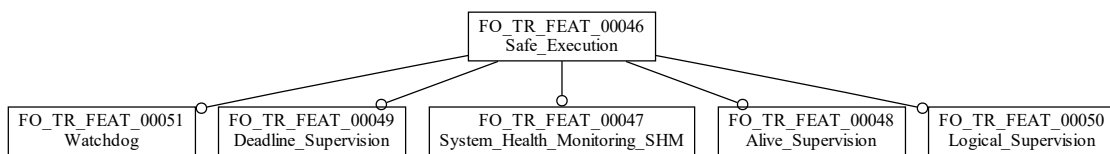




<b>Relations:</b>	[FO_TR_FEAT_00193] E2E
<b>Parent Feature:</b>	[FO_TR_FEAT_00043] Safety

**Table 4.46: Details FO\_TR\_FEAT\_00044**

### 4.2.36 [FO\_TR\_FEAT\_00046] Safe\_Execution

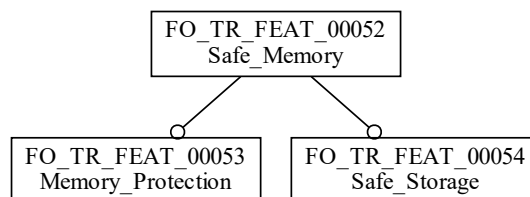


**Figure 4.29: Feature FO\_TR\_FEAT\_00046**

<b>Short Name:</b>	FO_TR_FEAT_00046
<b>Long Name:</b>	Safe_Execution
<b>Obligation:</b>	Optional
<b>Description:</b>	The Safe Execution enables the detection of faults and provides reactions.
<b>Applies to:</b>	AP, CP
<b>Parent Feature:</b>	[FO_TR_FEAT_00043] Safety
<b>Sub Features:</b>	<ul style="list-style-type: none"> <li>• [FO_TR_FEAT_00047] System_Health_Monitoring_SHM</li> <li>• [FO_TR_FEAT_00048] Alive_Supervision</li> <li>• [FO_TR_FEAT_00049] Deadline_Supervision</li> <li>• [FO_TR_FEAT_00050] Logical_Supervision</li> <li>• [FO_TR_FEAT_00051] Watchdog</li> </ul>

**Table 4.47: Details FO\_TR\_FEAT\_00046**

### 4.2.37 [FO\_TR\_FEAT\_00052] Safe\_Memory



**Figure 4.30: Feature FO\_TR\_FEAT\_00052**

<b>Short Name:</b>	FO_TR_FEAT_00052
<b>Long Name:</b>	Safe_Memory
<b>Obligation:</b>	Optional
<b>Description:</b>	The Safe Memory includes volatile and non-volatile memory.
<b>Applies to:</b>	AP, CP
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00043] Safety</a>
<b>Sub Features:</b>	<ul style="list-style-type: none"> <li>• <a href="#">[FO_TR_FEAT_00053] Memory_Protection</a></li> <li>• <a href="#">[FO_TR_FEAT_00054] Safe_Storage</a></li> </ul>

**Table 4.48: Details FO\_TR\_FEAT\_00052**

#### 4.2.38 [FO\_TR\_FEAT\_00066] Scheduling

<b>Short Name:</b>	FO_TR_FEAT_00066
<b>Long Name:</b>	Scheduling
<b>Obligation:</b>	Mandatory
<b>Description:</b>	This feature manages the execution order and timing of threads or tasks within the system. It ensures that resources like CPU time are efficiently allocated, coordinating task execution based on priority, deadlines, or specific conditions. By organizing when and how tasks are run, Scheduling ensures system responsiveness, balancing the workload to meet performance, real-time, and safety requirements.
<b>Applies to:</b>	CP
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00064] Basic_Functionality</a>

**Table 4.49: Details FO\_TR\_FEAT\_00066**

#### 4.2.39 [FO\_TR\_FEAT\_00195] SecOC

<b>Short Name:</b>	FO_TR_FEAT_00195
<b>Long Name:</b>	SecOC
<b>Obligation:</b>	Optional
<b>Description:</b>	The SecOC (Secure Onboard Communication) Feature is an AUTOSAR module designed to ensure the authenticity and integrity of communication within a vehicle's network.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00122] Communication</a>

**Table 4.50: Details FO\_TR\_FEAT\_00195**

#### 4.2.40 [FO\_TR\_FEAT\_00208] Secure\_Communication

<b>Short Name:</b>	FO_TR_FEAT_00208
<b>Long Name:</b>	Secure_Communication
<b>Obligation:</b>	Optional
<b>Description:</b>	The Secure Communication ensures that data exchanged between ECUs and other components within the vehicle is protected.
<b>Restrictions:</b>	<ul style="list-style-type: none"> <li>• [FO_TR_FEAT_00145] MACsec</li> <li>• [FO_TR_FEAT_00125] DDS_Security</li> <li>• [FO_TR_FEAT_00195] SecOC</li> <li>• [FO_TR_FEAT_00176] IPSec</li> <li>• [FO_TR_FEAT_00175] TLS</li> <li>• [FO_TR_FEAT_00221] Firewall</li> </ul>
<b>Parent Feature:</b>	[FO_TR_FEAT_00207] Security

Table 4.51: Details FO\_TR\_FEAT\_00208

#### 4.2.41 [FO\_TR\_FEAT\_00123] Service\_Oriented\_Communication

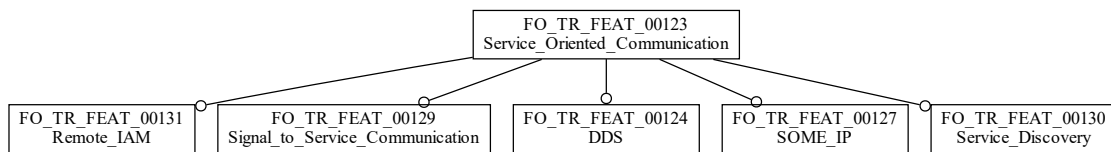


Figure 4.31: Feature FO\_TR\_FEAT\_00123

<b>Short Name:</b>	FO_TR_FEAT_00123
<b>Long Name:</b>	Service_Oriented_Communication
<b>Obligation:</b>	Optional
<b>Description:</b>	This Feature refers to a communication paradigm that focuses on the interaction between software components through well-defined services.
<b>Parent Feature:</b>	[FO_TR_FEAT_00122] Communication
<b>Sub Features:</b>	<ul style="list-style-type: none"> <li>• [FO_TR_FEAT_00124] DDS</li> <li>• [FO_TR_FEAT_00127] SOME_IP</li> <li>• [FO_TR_FEAT_00129] Signal_to_Service_Communication</li> <li>• [FO_TR_FEAT_00130] Service_Discovery</li> <li>• [FO_TR_FEAT_00131] Remote_IAM</li> </ul>

Table 4.52: Details FO\_TR\_FEAT\_00123

#### 4.2.42 [FO\_TR\_FEAT\_00182] Signalbased\_Communication

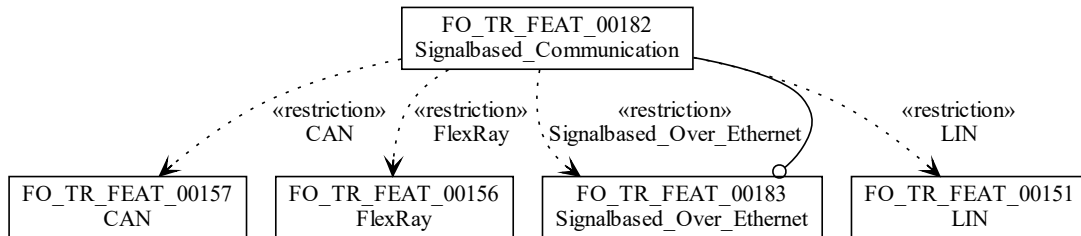


Figure 4.32: Feature FO\_TR\_FEAT\_00182

<b>Short Name:</b>	FO_TR_FEAT_00182
<b>Long Name:</b>	Signalbased_Communication
<b>Obligation:</b>	Optional
<b>Description:</b>	Signalbased Communication refers to a method of data exchange where individual signals are transmitted over the vehicle network.
<b>Restrictions:</b>	<ul style="list-style-type: none"> <li>• [FO_TR_FEAT_00157] CAN</li> <li>• [FO_TR_FEAT_00151] LIN</li> <li>• [FO_TR_FEAT_00156] FlexRay</li> <li>• [FO_TR_FEAT_00183] Signalbased_Over_Ethernet</li> </ul>
<b>Parent Feature:</b>	[FO_TR_FEAT_00122] Communication
<b>Sub Features:</b>	[FO_TR_FEAT_00183] Signalbased_Over_Ethernet

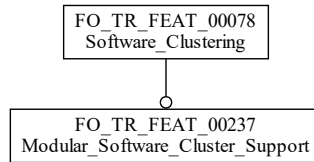
Table 4.53: Details FO\_TR\_FEAT\_00182

#### 4.2.43 [FO\_TR\_FEAT\_00230] Software\_Cluster\_Update

<b>Short Name:</b>	FO_TR_FEAT_00230
<b>Long Name:</b>	Software_Cluster_Update
<b>Obligation:</b>	Mandatory
<b>Description:</b>	The Software Cluster Update involves updating specific groups of software components or clusters within a vehicle's systems.
<b>Relations:</b>	[FO_TR_FEAT_00062] Persistency_Update
<b>Parent Feature:</b>	[FO_TR_FEAT_00222] Platform_Update

Table 4.54: Details FO\_TR\_FEAT\_00230

**4.2.44 [FO\_TR\_FEAT\_00078] Software\_Clustering**



**Figure 4.33: Feature FO\_TR\_FEAT\_00078**

<b>Short Name:</b>	FO_TR_FEAT_00078
<b>Long Name:</b>	Software_Clustering
<b>Obligation:</b>	Optional
<b>Description:</b>	The Software Clustering describes the organization and grouping of software components based on their functionality, dependencies, and communication needs.
<b>Parent Feature:</b>	[FO_TR_FEAT_00071] Execution_Environment
<b>Sub Features:</b>	[FO_TR_FEAT_00237] Modular_Software_Cluster_Support

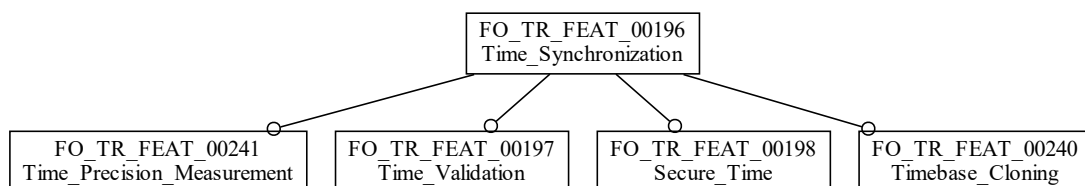
**Table 4.55: Details FO\_TR\_FEAT\_00078**

**4.2.45 [FO\_TR\_FEAT\_00235] Suspend\_Update**

<b>Short Name:</b>	FO_TR_FEAT_00235
<b>Long Name:</b>	Suspend_Update
<b>Obligation:</b>	Optional
<b>Description:</b>	This Feature allows to suspend and resume updates of the vehicle software or software-platform.
<b>Parent Feature:</b>	[FO_TR_FEAT_00222] Platform_Update

**Table 4.56: Details FO\_TR\_FEAT\_00235**

**4.2.46 [FO\_TR\_FEAT\_00196] Time\_Synchronization**



**Figure 4.34: Feature FO\_TR\_FEAT\_00196**



<b>Short Name:</b>	FO_TR_FEAT_00196
<b>Long Name:</b>	Time_Synchronization
<b>Obligation:</b>	Optional
<b>Description:</b>	The Time Synchronization ensures that all ECUs in the vehicle have a consistent and accurate sense of time.
<b>Parent Feature:</b>	[FO_TR_FEAT_00122] Communication
<b>Sub Features:</b>	<ul style="list-style-type: none"> <li>• [FO_TR_FEAT_00197] Time_Validation</li> <li>• [FO_TR_FEAT_00198] Secure_Time</li> <li>• [FO_TR_FEAT_00241] Time_Precision_Measurement</li> <li>• [FO_TR_FEAT_00240] Timebase_Cloning</li> </ul>

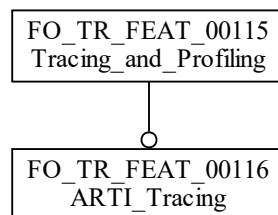
**Table 4.57: Details FO\_TR\_FEAT\_00196**

#### 4.2.47 [FO\_TR\_FEAT\_00119] Timing\_Analysis

<b>Short Name:</b>	FO_TR_FEAT_00119
<b>Long Name:</b>	Timing_Analysis
<b>Obligation:</b>	Optional
<b>Description:</b>	This Feature analyzes the timing behavior of software components to ensure real-time performance requirements.
<b>Parent Feature:</b>	[FO_TR_FEAT_00111] Development

**Table 4.58: Details FO\_TR\_FEAT\_00119**

#### 4.2.48 [FO\_TR\_FEAT\_00115] Tracing\_and\_Profiling



**Figure 4.35: Feature FO\_TR\_FEAT\_00115**

<b>Short Name:</b>	FO_TR_FEAT_00115
<b>Long Name:</b>	Tracing_and_Profiling
<b>Obligation:</b>	Optional





<b>Description:</b>	This Feature is a set of techniques and tools used to monitor, record, and analyze the execution behavior of software components.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00111]</a> <i>Development</i>
<b>Sub Features:</b>	<a href="#">[FO_TR_FEAT_00116]</a> <i>ARTI_Tracing</i>

**Table 4.59: Details FO\_TR\_FEAT\_00115**

#### 4.2.49 [FO\_TR\_FEAT\_00250] Trusted\_Platform

<b>Short Name:</b>	FO_TR_FEAT_00250
<b>Long Name:</b>	Trusted_Platform
<b>Obligation:</b>	Optional
<b>Description:</b>	This feature ensures the authenticity and integrity of executed code and configurations within the system. By implementing robust verification mechanisms, it safeguards against unauthorized modifications and ensures that only validated software components are executed. This feature establishes a secure execution environment and enables compliance with security standards.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00207]</a> <i>Security</i>

**Table 4.60: Details FO\_TR\_FEAT\_00250**

#### 4.2.50 [FO\_TR\_FEAT\_00231] Update\_History

<b>Short Name:</b>	FO_TR_FEAT_00231
<b>Long Name:</b>	Update_History
<b>Obligation:</b>	Mandatory
<b>Description:</b>	The Update History involves tracking and recording details about past software updates.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00222]</a> <i>Platform_Update</i>

**Table 4.61: Details FO\_TR\_FEAT\_00231**

#### 4.2.51 [FO\_TR\_FEAT\_00234] Update\_Status\_Reporting

<b>Short Name:</b>	FO_TR_FEAT_00234
<b>Long Name:</b>	Update_Status_Reporting
<b>Obligation:</b>	Mandatory
<b>Description:</b>	The Update Status Reporting involves communicating the current status and progress of the software update process.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00222]</a> <i>Platform_Update</i>

**Table 4.62: Details FO\_TR\_FEAT\_00234**

#### 4.2.52 [FO\_TR\_FEAT\_00199] V2X

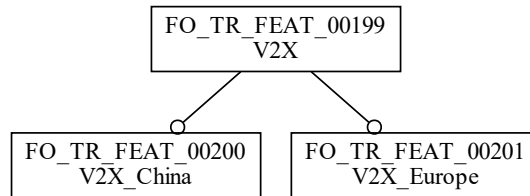


Figure 4.36: Feature FO\_TR\_FEAT\_00199

<b>Short Name:</b>	FO_TR_FEAT_00199
<b>Long Name:</b>	V2X
<b>Obligation:</b>	Optional
<b>Description:</b>	The V2X (Vehicle-to-Everything) communication refers to the exchange of information between a vehicle and various entities in its environment.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00122] Communication</a>
<b>Sub Features:</b>	<ul style="list-style-type: none"> <li>• <a href="#">[FO_TR_FEAT_00200] V2X_China</a></li> <li>• <a href="#">[FO_TR_FEAT_00201] V2X_Europe</a></li> </ul>

Table 4.63: Details FO\_TR\_FEAT\_00199

#### 4.2.53 [FO\_TR\_FEAT\_00097] Vehicle\_Domain\_Interfaces

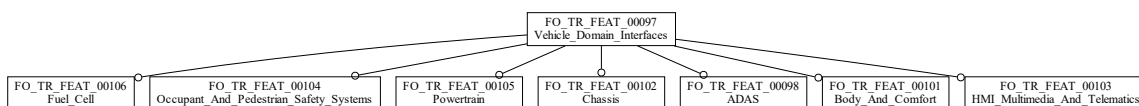


Figure 4.37: Feature FO\_TR\_FEAT\_00097

<b>Short Name:</b>	FO_TR_FEAT_00097
<b>Long Name:</b>	Vehicle_Domain_Interfaces
<b>Obligation:</b>	Optional
<b>Description:</b>	This Feature facilitates communication and integration between various vehicle domains to ensure interoperability and consistency across different ECUs and software components, enabling seamless interaction and data exchange.
<b>Applies to:</b>	AP, CP
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00096] Standardized_Application_Interface</a>

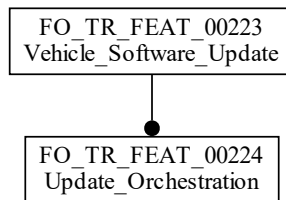




<b>Sub Features:</b>	<ul style="list-style-type: none"> <li>• [FO_TR_FEAT_00098] ADAS</li> <li>• [FO_TR_FEAT_00101] Body_And_Comfort</li> <li>• [FO_TR_FEAT_00102] Chassis</li> <li>• [FO_TR_FEAT_00103] HMI_Multimedia_And_Telematics</li> <li>• [FO_TR_FEAT_00104] Occupant_And_Pedestrian_Safety_Systems</li> <li>• [FO_TR_FEAT_00105] Powertrain</li> <li>• [FO_TR_FEAT_00106] Fuel_Cell</li> </ul>
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**Table 4.64: Details FO\_TR\_FEAT\_00097**

#### 4.2.54 [FO\_TR\_FEAT\_00223] Vehicle\_Software\_Update



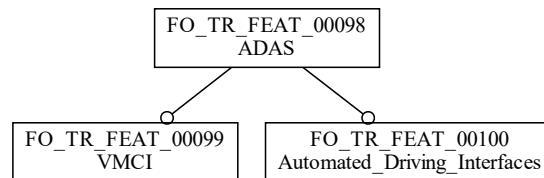
**Figure 4.38: Feature FO\_TR\_FEAT\_00223**

<b>Short Name:</b>	FO_TR_FEAT_00223
<b>Long Name:</b>	Vehicle_Software_Update
<b>Obligation:</b>	Optional
<b>Description:</b>	The Vehicle Software Update refers to the capability to update the software components of the vehicle's electronic systems.
<b>Parent Feature:</b>	[FO_TR_FEAT_00222] Platform_Update
<b>Sub Features:</b>	[FO_TR_FEAT_00224] Update_Orchestration

**Table 4.65: Details FO\_TR\_FEAT\_00223**

### 4.3 Level 3

#### 4.3.1 [FO\_TR\_FEAT\_00098] ADAS



**Figure 4.39: Feature FO\_TR\_FEAT\_00098**

<b>Short Name:</b>	FO_TR_FEAT_00098
<b>Long Name:</b>	ADAS
<b>Obligation:</b>	Optional
<b>Description:</b>	The ADAS (Advanced Driving Assistance Systems) utilize data from sensors, cameras, and other sources to assist the driver in making informed decisions, reduce human error, and enhance overall vehicle control.
<b>Applies to:</b>	AP, CP
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00097] Vehicle_Domain_Interfaces</a>
<b>Sub Features:</b>	<ul style="list-style-type: none"> <li>• <a href="#">[FO_TR_FEAT_00099] VMCI</a></li> <li>• <a href="#">[FO_TR_FEAT_00100] Automated_Driving_Interfaces</a></li> </ul>

**Table 4.66: Details FO\_TR\_FEAT\_00098**

#### 4.3.2 [FO\_TR\_FEAT\_00048] Alive\_Supervision

<b>Short Name:</b>	FO_TR_FEAT_00048
<b>Long Name:</b>	Alive_Supervision
<b>Obligation:</b>	Optional
<b>Description:</b>	This Feature ensures the continuous and correct operation of software tasks and functions within ECU. It helps to detect and handle failures promptly.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00046] Safe_Execution</a>

**Table 4.67: Details FO\_TR\_FEAT\_00048**

### 4.3.3 [FO\_TR\_FEAT\_00109] Application\_Software\_Design\_Patterns

<b>Short Name:</b>	FO_TR_FEAT_00109
<b>Long Name:</b>	Application_Software_Design_Patterns
<b>Obligation:</b>	Optional
<b>Description:</b>	This Feature describes standardized, reusable solutions to common software design challenges encountered in automotive software development. It represents an abstraction pattern for solutions.
<b>Applies to:</b>	CP
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00107]</a> AIF_Method

**Table 4.68: Details FO\_TR\_FEAT\_00109**

### 4.3.4 [FO\_TR\_FEAT\_00075] Application\_State\_Management

<b>Short Name:</b>	FO_TR_FEAT_00075
<b>Long Name:</b>	Application_State_Management
<b>Obligation:</b>	Optional
<b>Description:</b>	This Feature refers to the control and coordination of the different operational states of software applications within an ECU. It contains tasks like managing transitions between states such as initialization, active operation, standby, and shutdown.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00073]</a> Mode_and_State_Management

**Table 4.69: Details FO\_TR\_FEAT\_00075**

### 4.3.5 [FO\_TR\_FEAT\_00118] ARTI\_Debugging

<b>Short Name:</b>	FO_TR_FEAT_00118
<b>Long Name:</b>	ARTI_Debugging
<b>Obligation:</b>	Optional
<b>Description:</b>	The ARTI Debugging (AUTOSAR Runtime Interface Debugging) refers to a set of standardized interfaces and tools within the AUTOSAR framework.
<b>Applies to:</b>	CP
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00117]</a> Debugging

**Table 4.70: Details FO\_TR\_FEAT\_00118**

#### 4.3.6 [FO\_TR\_FEAT\_00116] ARTI\_Tracing

<b>Short Name:</b>	FO_TR_FEAT_00116
<b>Long Name:</b>	ARTI_Tracing
<b>Obligation:</b>	Optional
<b>Description:</b>	The ARTI Tracing (AUTOSAR Runtime Interface Tracing) refers to a standardized method for capturing and analyzing the execution behavior of software components.
<b>Applies to:</b>	AP, CP
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00115] Tracing_and_Profiling</a>

**Table 4.71: Details FO\_TR\_FEAT\_00116**

#### 4.3.7 [FO\_TR\_FEAT\_00101] Body\_And\_Comfort

<b>Short Name:</b>	FO_TR_FEAT_00101
<b>Long Name:</b>	Body_And_Comfort
<b>Obligation:</b>	Optional
<b>Description:</b>	This Feature describes interface definitions for body and comfort control software managing vehicle body functions and comfort Features, such as lighting, climate control, and door systems.
<b>Applies to:</b>	CP
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00097] Vehicle_Domain_Interfaces</a>

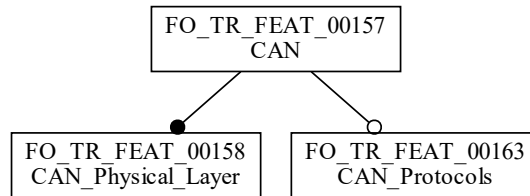
**Table 4.72: Details FO\_TR\_FEAT\_00101**

#### 4.3.8 [FO\_TR\_FEAT\_00191] Bus\_Mirror

<b>Short Name:</b>	FO_TR_FEAT_00191
<b>Long Name:</b>	Bus_Mirror
<b>Obligation:</b>	Optional
<b>Description:</b>	The Bus Mirror is a Feature that allows the replication of messages from one network bus to another.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00187] Gateway_Support</a>

**Table 4.73: Details FO\_TR\_FEAT\_00191**

### 4.3.9 [FO\_TR\_FEAT\_00157] CAN



**Figure 4.40: Feature FO\_TR\_FEAT\_00157**

<b>Short Name:</b>	FO_TR_FEAT_00157
<b>Long Name:</b>	CAN
<b>Obligation:</b>	Optional
<b>Description:</b>	The CAN (Controller Area Network) describes the communication of microcontrollers and devices with each other without a host computer. This Feature has to be according ISO 11898 and other external specifications.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00136] Network_Technology</a>
<b>Sub Features:</b>	<ul style="list-style-type: none"> <li>• <a href="#">[FO_TR_FEAT_00158] CAN_Physical_Layer</a></li> <li>• <a href="#">[FO_TR_FEAT_00163] CAN_Protocols</a></li> </ul>

**Table 4.74: Details FO\_TR\_FEAT\_00157**

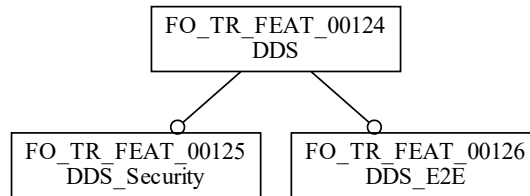
### 4.3.10 [FO\_TR\_FEAT\_00102] Chassis

<b>Short Name:</b>	FO_TR_FEAT_00102
<b>Long Name:</b>	Chassis
<b>Obligation:</b>	Optional
<b>Description:</b>	This Feature is a collection of interface definitions related to chassis domain, including suspension, braking, and stability control.
<b>Applies to:</b>	CP
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00097] Vehicle_Domain_Interfaces</a>

**Table 4.75: Details FO\_TR\_FEAT\_00102**



#### 4.3.11 [FO\_TR\_FEAT\_00124] DDS



**Figure 4.41: Feature FO\_TR\_FEAT\_00124**

<b>Short Name:</b>	FO_TR_FEAT_00124
<b>Long Name:</b>	DDS
<b>Obligation:</b>	Optional
<b>Description:</b>	The DDS (Data Distribution Service) is a middleware protocol and API standard for data-centric communication.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00123] Service_Oriented_Communication</a>
<b>Sub Features:</b>	<ul style="list-style-type: none"> <li>• <a href="#">[FO_TR_FEAT_00125] DDS_Security</a></li> <li>• <a href="#">[FO_TR_FEAT_00126] DDS_E2E</a></li> </ul>

**Table 4.76: Details FO\_TR\_FEAT\_00124**

#### 4.3.12 [FO\_TR\_FEAT\_00049] Deadline\_Supervision

<b>Short Name:</b>	FO_TR_FEAT_00049
<b>Long Name:</b>	Deadline_Supervision
<b>Obligation:</b>	Optional
<b>Description:</b>	This Feature checks if the execution time between two Checkpoints is within minimum/maximum time limit for real time performance.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00046] Safe_Execution</a>

**Table 4.77: Details FO\_TR\_FEAT\_00049**

#### 4.3.13 [FO\_TR\_FEAT\_00114] Default\_Error\_Tracer

<b>Short Name:</b>	FO_TR_FEAT_00114
<b>Long Name:</b>	Default_Error_Tracer
<b>Obligation:</b>	Optional
<b>Description:</b>	This Feature standardized mechanism for tracking and recording errors that occur during the software's execution.





<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00112] Logging</a>
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**Table 4.78: Details FO\_TR\_FEAT\_00114**

#### 4.3.14 [FO\_TR\_FEAT\_00178] Deterministic\_Communication

<b>Short Name:</b>	FO_TR_FEAT_00178
<b>Long Name:</b>	Deterministic_Communication
<b>Obligation:</b>	Optional
<b>Description:</b>	The Deterministic Communication refers to the ability to guarantee that data is transmitted within a predictable and bounded timeframe.
<b>Restrictions:</b>	<a href="#">[FO_TR_FEAT_00156] FlexRay</a>
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00136] Network_Technology</a>

**Table 4.79: Details FO\_TR\_FEAT\_00178**

#### 4.3.15 [FO\_TR\_FEAT\_00212] Dig\_Signatures

<b>Short Name:</b>	FO_TR_FEAT_00212
<b>Long Name:</b>	Dig_Signatures
<b>Obligation:</b>	Optional
<b>Description:</b>	The Digital Signatures are cryptographic techniques used to validate the authenticity and integrity of a message or document.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00210] Cryptography</a>

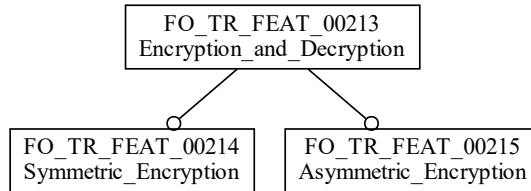
**Table 4.80: Details FO\_TR\_FEAT\_00212**

#### 4.3.16 [FO\_TR\_FEAT\_00058] EEPROM

<b>Short Name:</b>	FO_TR_FEAT_00058
<b>Long Name:</b>	EEPROM
<b>Obligation:</b>	Optional
<b>Description:</b>	The EEPROM (Electrically Erasable Programmable Read-Only Memory) is a type of non-volatile memory, which retains stored data even when the power is turned off, ideal for data where persistence is crucial.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00056] NVRAM_Access</a>

**Table 4.81: Details FO\_TR\_FEAT\_00058**

**4.3.17 [FO\_TR\_FEAT\_00213] Encryption\_and\_Decryption**

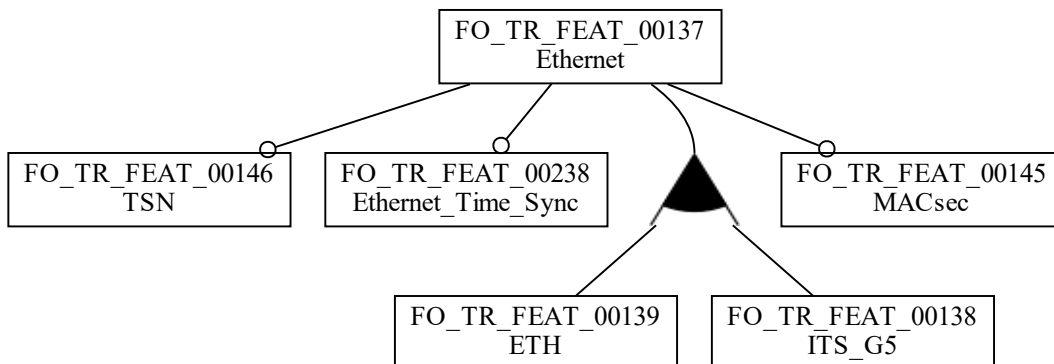


**Figure 4.42: Feature FO\_TR\_FEAT\_00213**

<b>Short Name:</b>	FO_TR_FEAT_00213
<b>Long Name:</b>	Encryption_and_Decryption
<b>Obligation:</b>	Optional
<b>Description:</b>	The "Encryption and Decryption" are processes used to convert plaintext data into an encrypted data (unreadable format) and decrypt data (readable format).
<b>Parent Feature:</b>	[FO_TR_FEAT_00210] <a href="#">Cryptography</a>
<b>Sub Features:</b>	<ul style="list-style-type: none"> <li>• [FO_TR_FEAT_00214] <a href="#">Symmetric_Encryption</a></li> <li>• [FO_TR_FEAT_00215] <a href="#">Asymmetric_Encryption</a></li> </ul>

**Table 4.82: Details FO\_TR\_FEAT\_00213**

**4.3.18 [FO\_TR\_FEAT\_00137] Ethernet**



**Figure 4.43: Feature FO\_TR\_FEAT\_00137**

<b>Short Name:</b>	FO_TR_FEAT_00137
<b>Long Name:</b>	Ethernet
<b>Obligation:</b>	Optional
<b>Description:</b>	This Feature describes a high-speed, standardized communication protocol used for data exchange within the vehicle network.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00136] Network_Technology</a>
<b>Sub Features:</b>	<ul style="list-style-type: none"> <li>• <a href="#">[FO_TR_FEAT_00138] ITS_G5</a></li> <li>• <a href="#">[FO_TR_FEAT_00139] ETH</a></li> <li>• <a href="#">[FO_TR_FEAT_00145] MACsec</a></li> <li>• <a href="#">[FO_TR_FEAT_00146] TSN</a></li> <li>• <a href="#">[FO_TR_FEAT_00238] Ethernet_Time_Sync</a></li> </ul>

**Table 4.83: Details FO\_TR\_FEAT\_00137**

#### 4.3.19 [FO\_TR\_FEAT\_00060] File\_Storage

<b>Short Name:</b>	FO_TR_FEAT_00060
<b>Long Name:</b>	File_Storage
<b>Obligation:</b>	Optional
<b>Description:</b>	The File Storage is storing data in a file-based format on non-volatile memory to ensure that important information is preserved across power cycles.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00059] Persistency</a>

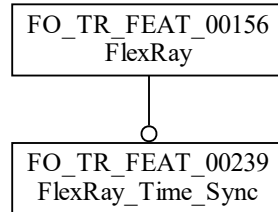
**Table 4.84: Details FO\_TR\_FEAT\_00060**

#### 4.3.20 [FO\_TR\_FEAT\_00057] Flash

<b>Short Name:</b>	FO_TR_FEAT_00057
<b>Long Name:</b>	Flash
<b>Obligation:</b>	Optional
<b>Description:</b>	This Feature is used as a type of non-volatile storage to store data that must be retained even when the power is turned off.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00056] NVRAM_Access</a>

**Table 4.85: Details FO\_TR\_FEAT\_00057**

#### 4.3.21 [FO\_TR\_FEAT\_00156] FlexRay



**Figure 4.44: Feature FO\_TR\_FEAT\_00156**

<b>Short Name:</b>	FO_TR_FEAT_00156
<b>Long Name:</b>	FlexRay
<b>Obligation:</b>	Optional
<b>Description:</b>	The FlexRay is a high-speed, deterministic, and fault-tolerant automotive network protocol designed for advanced control systems.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00136] Network_Technology</a>
<b>Sub Features:</b>	<a href="#">[FO_TR_FEAT_00239] FlexRay_Time_Sync</a>

**Table 4.86: Details FO\_TR\_FEAT\_00156**

#### 4.3.22 [FO\_TR\_FEAT\_00190] Frame\_Routing

<b>Short Name:</b>	FO_TR_FEAT_00190
<b>Long Name:</b>	Frame_Routing
<b>Obligation:</b>	Multiple
<b>Description:</b>	The Frame Routing describes the routing of entire frames between different communication networks, where a frame is a structured data packet used in networking protocols.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00187] Gateway_Support</a>

**Table 4.87: Details FO\_TR\_FEAT\_00190**

#### 4.3.23 [FO\_TR\_FEAT\_00106] Fuel\_Cell

<b>Short Name:</b>	FO_TR_FEAT_00106
<b>Long Name:</b>	Fuel_Cell
<b>Obligation:</b>	Optional





<b>Description:</b>	This Feature describes the interface definitions according the integration and control of the fuel cell systems.
<b>Applies to:</b>	CP
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00097] Vehicle_Domain_Interfaces</a>

**Table 4.88: Details FO\_TR\_FEAT\_00106**

#### 4.3.24 [FO\_TR\_FEAT\_00211] Hashcodes

<b>Short Name:</b>	FO_TR_FEAT_00211
<b>Long Name:</b>	Hashcodes
<b>Obligation:</b>	Optional
<b>Description:</b>	The Hashcodes are fixed-size numerical values derived from input data of arbitrary size through a hash function.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00210] Cryptography</a>

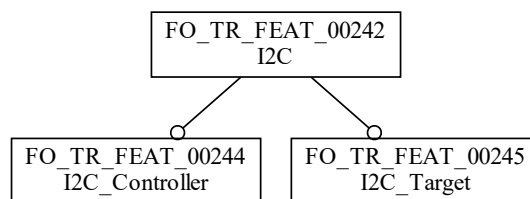
**Table 4.89: Details FO\_TR\_FEAT\_00211**

#### 4.3.25 [FO\_TR\_FEAT\_00103] HMI\_Multimedia\_And\_Telematics

<b>Short Name:</b>	FO_TR_FEAT_00103
<b>Long Name:</b>	HMI_Multimedia_And_Telematics
<b>Obligation:</b>	Optional
<b>Description:</b>	This Feature describes interface definitions related to the user and device Interfaces as in multimedia systems, telematics services, enhancing user experience and connectivity.
<b>Applies to:</b>	CP
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00097] Vehicle_Domain_Interfaces</a>

**Table 4.90: Details FO\_TR\_FEAT\_00103**

#### 4.3.26 [FO\_TR\_FEAT\_00242] I2C



**Figure 4.45: Feature FO\_TR\_FEAT\_00242**

<b>Short Name:</b>	FO_TR_FEAT_00242
<b>Long Name:</b>	I2C
<b>Obligation:</b>	Optional
<b>Description:</b>	I2C (Inter-Integrated Circuit) is a synchronous, multi-controller/multi-target, single-ended, serial communication bus for attaching lower-speed peripheral integrated circuits (ICs) to processors and microcontrollers in short-distance, intra-board communication.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00136] Network_Technology</a>
<b>Sub Features:</b>	<ul style="list-style-type: none"> <li>• <a href="#">[FO_TR_FEAT_00244] I2C_Controller</a></li> <li>• <a href="#">[FO_TR_FEAT_00245] I2C_Target</a></li> </ul>

**Table 4.91: Details FO\_TR\_FEAT\_00242**

#### 4.3.27 [FO\_TR\_FEAT\_00134] Inter\_Process\_Communication

<b>Short Name:</b>	FO_TR_FEAT_00134
<b>Long Name:</b>	Inter_Process_Communication
<b>Obligation:</b>	Optional
<b>Description:</b>	This Feature describes mechanisms that enable data exchange between different processes running on the same ECU. Processes are independent execution units with their own memory space.
<b>Relations:</b>	<a href="#">[FO_TR_FEAT_00071] Execution_Environment</a>
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00132] Intra_Machine_Communication</a>

**Table 4.92: Details FO\_TR\_FEAT\_00134**

#### 4.3.28 [FO\_TR\_FEAT\_00133] Inter\_Runnable\_Communication

<b>Short Name:</b>	FO_TR_FEAT_00133
<b>Long Name:</b>	Inter_Runnable_Communication
<b>Obligation:</b>	Optional
<b>Description:</b>	This Feature describes data exchange between different runnables within the same ECU. Runnables are the smallest schedulable units of code within an AUTOSAR software component.
<b>Relations:</b>	<a href="#">[FO_TR_FEAT_00071] Execution_Environment</a>
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00132] Intra_Machine_Communication</a>

**Table 4.93: Details FO\_TR\_FEAT\_00133**

#### 4.3.29 [FO\_TR\_FEAT\_00108] Interface\_Naming\_Convention

<b>Short Name:</b>	FO_TR_FEAT_00108
<b>Long Name:</b>	Interface_Naming_Convention
<b>Obligation:</b>	Optional
<b>Description:</b>	The Interface Naming Convention is a standardation for naming the interfaces between software components and modules to achieve consisten, descriptive and easily understandable naming.
<b>Applies to:</b>	FO
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00107] AIF_Method</a>

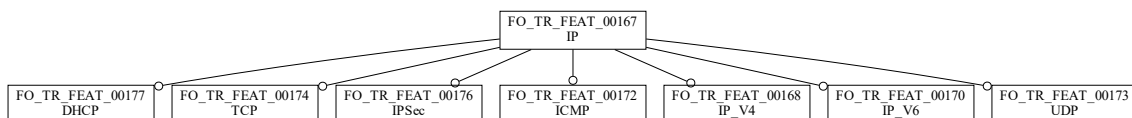
**Table 4.94: Details FO\_TR\_FEAT\_00108**

#### 4.3.30 [FO\_TR\_FEAT\_00135] InterOSCommunication\_IOC

<b>Short Name:</b>	FO_TR_FEAT_00135
<b>Long Name:</b>	InterOSCommunication_IOC
<b>Obligation:</b>	Optional
<b>Description:</b>	The IOC (Inter-Operating System Communication) enables the communication between different operating systems within the same ECU.
<b>Relations:</b>	<a href="#">[FO_TR_FEAT_00068] Multi_Core</a>
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00132] Intra_Machine_Communication</a>

**Table 4.95: Details FO\_TR\_FEAT\_00135**

#### 4.3.31 [FO\_TR\_FEAT\_00167] IP



**Figure 4.46: Feature FO\_TR\_FEAT\_00167**

<b>Short Name:</b>	FO_TR_FEAT_00167
<b>Long Name:</b>	IP
<b>Obligation:</b>	Optional
<b>Description:</b>	The IP (Internet Protocol) in the AUTOSAR context refers to the suite of communication protocols.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00136] Network_Technology</a>







<b>Sub Features:</b>	<ul style="list-style-type: none"> <li>• <a href="#">[FO_TR_FEAT_00168]</a> IP_V4</li> <li>• <a href="#">[FO_TR_FEAT_00170]</a> IP_V6</li> <li>• <a href="#">[FO_TR_FEAT_00172]</a> ICMP</li> <li>• <a href="#">[FO_TR_FEAT_00173]</a> UDP</li> <li>• <a href="#">[FO_TR_FEAT_00174]</a> TCP</li> <li>• <a href="#">[FO_TR_FEAT_00176]</a> IPSec</li> <li>• <a href="#">[FO_TR_FEAT_00177]</a> DHCP</li> </ul>
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**Table 4.96: Details FO\_TR\_FEAT\_00167**

#### 4.3.32 [FO\_TR\_FEAT\_00189] IPDU\_Routing

<b>Short Name:</b>	FO_TR_FEAT_00189
<b>Long Name:</b>	IPDU_Routing
<b>Obligation:</b>	Multiple
<b>Description:</b>	The IPDU Routing (Interaction Layer Protocol Data Unit Routing) involves routing of entire PDUs between networks. PDUs are larger data.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00187]</a> Gateway_Support

**Table 4.97: Details FO\_TR\_FEAT\_00189**

#### 4.3.33 [FO\_TR\_FEAT\_00206] ISO15118\_2

<b>Short Name:</b>	FO_TR_FEAT_00206
<b>Long Name:</b>	ISO15118_2
<b>Obligation:</b>	Optional
<b>Description:</b>	The Charging protocol for the European market, focusing on conductive charging.
<b>Applies to:</b>	CP
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00205]</a> Charging

**Table 4.98: Details FO\_TR\_FEAT\_00206**

#### 4.3.34 [FO\_TR\_FEAT\_00061] Key\_Value\_Storage

<b>Short Name:</b>	FO_TR_FEAT_00061
<b>Long Name:</b>	Key_Value_Storage
<b>Obligation:</b>	Optional
<b>Description:</b>	This Feature is a unique identifier associated with a specific piece of data (the value). This approach is simpler and often faster than file-based storage.

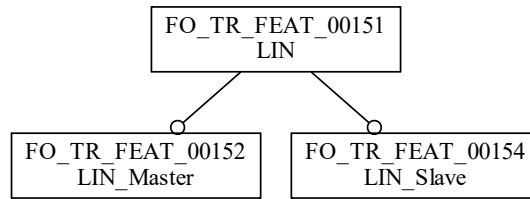




<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00059] Persistency</a>
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**Table 4.99: Details FO\_TR\_FEAT\_00061**

### 4.3.35 [FO\_TR\_FEAT\_00151] LIN



**Figure 4.47: Feature FO\_TR\_FEAT\_00151**

<b>Short Name:</b>	FO_TR_FEAT_00151
<b>Long Name:</b>	LIN
<b>Obligation:</b>	Optional
<b>Description:</b>	The LIN (Local Interconnect Network) is a low-cost, low-speed communication protocol used in automotive networks for ECU and sensors communication..
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00136] Network_Technology</a>
<b>Sub Features:</b>	<ul style="list-style-type: none"> <li>• <a href="#">[FO_TR_FEAT_00152] LIN_Master</a></li> <li>• <a href="#">[FO_TR_FEAT_00154] LIN_Slave</a></li> </ul>

**Table 4.100: Details FO\_TR\_FEAT\_00151**

### 4.3.36 [FO\_TR\_FEAT\_00113] Log\_and\_Trace

<b>Short Name:</b>	FO_TR_FEAT_00113
<b>Long Name:</b>	Log_and_Trace
<b>Obligation:</b>	Optional
<b>Description:</b>	This Feature nables comprehensive tracking of software execution and performance, facilitating in-depth analysis and optimization.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00112] Logging</a>

**Table 4.101: Details FO\_TR\_FEAT\_00113**

#### 4.3.37 [FO\_TR\_FEAT\_00050] Logical\_Supervision

<b>Short Name:</b>	FO_TR_FEAT_00050
<b>Long Name:</b>	Logical_Supervision
<b>Obligation:</b>	Optional
<b>Description:</b>	This Feature checks if the software (Supervised Entity or set of Supervised Entities) is executed in the sequence defined by the developed code.
<b>Parent Feature:</b>	[FO_TR_FEAT_00046] <a href="#">Safe_Execution</a>

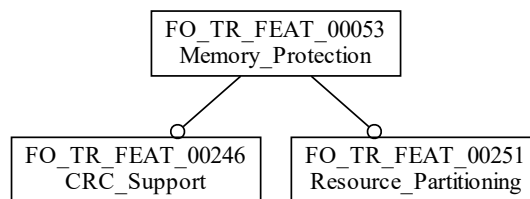
**Table 4.102: Details FO\_TR\_FEAT\_00050**

#### 4.3.38 [FO\_TR\_FEAT\_00074] Machine\_State\_Management

<b>Short Name:</b>	FO_TR_FEAT_00074
<b>Long Name:</b>	Machine_State_Management
<b>Obligation:</b>	Optional
<b>Description:</b>	This Feature refers to the mechanisms and services responsible for handling the various operational states of an ECU or the entire system, defining states, handling transitions, monitoring and reporting states, enforcing state-specific behaviors, and managing errors, it ensures system stability, reliability, adaptability and efficiency.
<b>Parent Feature:</b>	[FO_TR_FEAT_00073] <a href="#">Mode_and_State_Management</a>

**Table 4.103: Details FO\_TR\_FEAT\_00074**

#### 4.3.39 [FO\_TR\_FEAT\_00053] Memory\_Protection



**Figure 4.48: Feature FO\_TR\_FEAT\_00053**

<b>Short Name:</b>	FO_TR_FEAT_00053
<b>Long Name:</b>	Memory_Protection
<b>Obligation:</b>	Optional





<b>Description:</b>	This Feature ensures that the main memory used by various software components is managed that way that it preserves system integrity and prevents unintended access or accidental corruption. Examples are Means like CRC, MMU, MPU or redundant storage.
<b>Applies to:</b>	AP, CP
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00052] Safe_Memory</a>
<b>Sub Features:</b>	<ul style="list-style-type: none"> <li>• <a href="#">[FO_TR_FEAT_00246] CRC_Support</a></li> <li>• <a href="#">[FO_TR_FEAT_00251] Resource_Partitioning</a></li> </ul>

**Table 4.104: Details FO\_TR\_FEAT\_00053**

#### 4.3.40 [FO\_TR\_FEAT\_00216] Message\_Auth\_Codes

<b>Short Name:</b>	FO_TR_FEAT_00216
<b>Long Name:</b>	Message_Auth_Codes
<b>Obligation:</b>	Optional
<b>Description:</b>	The Message Authentication Codes are cryptographic tools used to verify the authenticity and integrity of data.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00210] Cryptography</a>

**Table 4.105: Details FO\_TR\_FEAT\_00216**

#### 4.3.41 [FO\_TR\_FEAT\_00237] Modular\_Software\_Cluster\_Support

<b>Short Name:</b>	FO_TR_FEAT_00237
<b>Long Name:</b>	Modular_Software_Cluster_Support
<b>Obligation:</b>	Optional
<b>Description:</b>	The Modular Software Cluster Support enables the effective management and integration of software organized into modular clusters. (CP Flex)
<b>Applies to:</b>	CP
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00078] Software_Clustering</a>

**Table 4.106: Details FO\_TR\_FEAT\_00237**

#### 4.3.42 [FO\_TR\_FEAT\_00076] Network\_State\_Management

<b>Short Name:</b>	FO_TR_FEAT_00076
<b>Long Name:</b>	Network_State_Management
<b>Obligation:</b>	Optional





<b>Description:</b>	This Feature refers to the mechanisms and services that handle the various states and transitions of the in-vehicle communication network. Jobs like managing the network's operational states such as normal operation, sleep, and wake-up, as well as handling error states and recovery processes are part of it.
<b>Relations:</b>	<a href="#">[FO_TR_FEAT_00075]</a> <a href="#">Application_State_Management</a>
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00073]</a> <a href="#">Mode_and_State_Management</a>

**Table 4.107: Details FO\_TR\_FEAT\_00076**

#### 4.3.43 [FO\_TR\_FEAT\_00094] OBD\_on\_UDS

<b>Short Name:</b>	FO_TR_FEAT_00094
<b>Long Name:</b>	OBD_on_UDS
<b>Obligation:</b>	Optional
<b>Description:</b>	The OBD-on-UDS (On-Board Diagnostics on Unified Diagnostic Services) is a diagnostic protocol that integrates traditional OBD-II with the more advanced UDS protocol, allowing for more detailed vehicle diagnostics and fault detection.
<b>Applies to:</b>	CP, AP
<b>Restrictions:</b>	<a href="#">[FO_TR_FEAT_00088]</a> <a href="#">UDS</a>
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00092]</a> <a href="#">Legislative_Diagnostics</a>

**Table 4.108: Details FO\_TR\_FEAT\_00094**

#### 4.3.44 [FO\_TR\_FEAT\_00093] OBDII

<b>Short Name:</b>	FO_TR_FEAT_00093
<b>Long Name:</b>	OBDII
<b>Obligation:</b>	Optional
<b>Description:</b>	The OBDII (On-Board Diagnostics II) describes a global standard for monitoring and reporting the performance of emission control systems.
<b>Applies to:</b>	CP, AP
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00092]</a> <a href="#">Legislative_Diagnostics</a>

**Table 4.109: Details FO\_TR\_FEAT\_00093**

#### 4.3.45 [FO\_TR\_FEAT\_00104] Occupant\_And\_Pedestrian\_Safety\_Systems

<b>Short Name:</b>	FO_TR_FEAT_00104
<b>Long Name:</b>	Occupant_And_Pedestrian_Safety_Systems
<b>Obligation:</b>	Optional





<b>Description:</b>	This Feature describes interface definitions related to the safety of individuals like airbags, seatbelts, and collision detection.
<b>Applies to:</b>	CP
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00097] Vehicle_Domain_Interfaces</a>

**Table 4.110: Details FO\_TR\_FEAT\_00104**

#### 4.3.46 [FO\_TR\_FEAT\_00180] Partial\_Networking

<b>Short Name:</b>	FO_TR_FEAT_00180
<b>Long Name:</b>	Partial_Networking
<b>Obligation:</b>	Optional
<b>Description:</b>	The Partial Networking Feature activates parts of the network as needed, allowing inactive sections to remain in low-power states.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00179] Network_Management</a>

**Table 4.111: Details FO\_TR\_FEAT\_00180**

#### 4.3.47 [FO\_TR\_FEAT\_00062] Persistency\_Update

<b>Short Name:</b>	FO_TR_FEAT_00062
<b>Long Name:</b>	Persistency_Update
<b>Obligation:</b>	Optional
<b>Description:</b>	This Feature describes the update of persistent data stored in non-volatile memory (NVM) within automotive systems.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00059] Persistency</a>

**Table 4.112: Details FO\_TR\_FEAT\_00062**

#### 4.3.48 [FO\_TR\_FEAT\_00105] Powertrain

<b>Short Name:</b>	FO_TR_FEAT_00105
<b>Long Name:</b>	Powertrain
<b>Obligation:</b>	Optional
<b>Description:</b>	This Feature describes the interface definitions related to propulsion functions like engine, transmission, and hybrid/electric drive components.
<b>Applies to:</b>	CP
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00097] Vehicle_Domain_Interfaces</a>

**Table 4.113: Details FO\_TR\_FEAT\_00105**

#### 4.3.49 [FO\_TR\_FEAT\_00217] Random\_Number\_Generation

<b>Short Name:</b>	FO_TR_FEAT_00217
<b>Long Name:</b>	Random_Number_Generation
<b>Obligation:</b>	Optional
<b>Description:</b>	The Random Number Generation provides unpredictable and high-quality numbers crucial for various cryptographic operations.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00210]</a> <a href="#">Cryptography</a>

**Table 4.114: Details FO\_TR\_FEAT\_00217**

#### 4.3.50 [FO\_TR\_FEAT\_00131] Remote\_IAM

<b>Short Name:</b>	FO_TR_FEAT_00131
<b>Long Name:</b>	Remote_IAM
<b>Obligation:</b>	Optional
<b>Description:</b>	The Remote IAM provides access control on inter-ECU service communication based on whitelists.
<b>Relations:</b>	<a href="#">[FO_TR_FEAT_00220]</a> <a href="#">Identity_and_Access_Management_IAM</a>
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00123]</a> <a href="#">Service_Oriented_Communication</a>

**Table 4.115: Details FO\_TR\_FEAT\_00131**

#### 4.3.51 [FO\_TR\_FEAT\_00054] Safe\_Storage

<b>Short Name:</b>	FO_TR_FEAT_00054
<b>Long Name:</b>	Safe_Storage
<b>Obligation:</b>	Optional
<b>Description:</b>	This Feature ensures that data stored in non-volatile memory (NVM) is reliably preserved and protected against corruption and data loss.
<b>Applies to:</b>	FO
<b>Relations:</b>	<ul style="list-style-type: none"> <li>• <a href="#">[FO_TR_FEAT_00059]</a> <a href="#">Persistency</a></li> <li>• <a href="#">[FO_TR_FEAT_00056]</a> <a href="#">NVRAM_Access</a></li> </ul>
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00052]</a> <a href="#">Safe_Memory</a>

**Table 4.116: Details FO\_TR\_FEAT\_00054**

#### 4.3.52 [FO\_TR\_FEAT\_00063] Secure\_Storage

<b>Short Name:</b>	FO_TR_FEAT_00063
<b>Long Name:</b>	Secure_Storage
<b>Obligation:</b>	Optional
<b>Description:</b>	This Feature represents methods and mechanisms for securely storing data in non-volatile memory (NVM) within automotive systems.
<b>Relations:</b>	<ul style="list-style-type: none"> <li>• <a href="#">[FO_TR_FEAT_00216] Message_Auth_Codes</a></li> <li>• <a href="#">[FO_TR_FEAT_00214] Symmetric_Encryption</a></li> </ul>
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00059] Persistency</a>

**Table 4.117: Details FO\_TR\_FEAT\_00063**

#### 4.3.53 [FO\_TR\_FEAT\_00198] Secure\_Time

<b>Short Name:</b>	FO_TR_FEAT_00198
<b>Long Name:</b>	Secure_Time
<b>Obligation:</b>	Optional
<b>Description:</b>	The Secure Time Feature involves protecting the integrity and authenticity of time information.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00196] Time_Synchronization</a>

**Table 4.118: Details FO\_TR\_FEAT\_00198**

#### 4.3.54 [FO\_TR\_FEAT\_00130] Service\_Discovery

<b>Short Name:</b>	FO_TR_FEAT_00130
<b>Long Name:</b>	Service_Discovery
<b>Obligation:</b>	Optional
<b>Description:</b>	This Feature describes mechanisms for discovering available services within the network.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00123] Service_Oriented_Communication</a>

**Table 4.119: Details FO\_TR\_FEAT\_00130**

#### 4.3.55 [FO\_TR\_FEAT\_00188] Signal\_Routing

<b>Short Name:</b>	FO_TR_FEAT_00188
<b>Long Name:</b>	Signal_Routing
<b>Obligation:</b>	Multiple







<b>Description:</b>	The Signal Routing describes the process of transferring individual signals from one communication network to another.
<b>Parent Feature:</b>	[FO_TR_FEAT_00187] Gateway_Support

**Table 4.120: Details FO\_TR\_FEAT\_00188**

**4.3.56 [FO\_TR\_FEAT\_00129] Signal\_to\_Service\_Communication**

<b>Short Name:</b>	FO_TR_FEAT_00129
<b>Long Name:</b>	Signal_to_Service_Communication
<b>Obligation:</b>	Optional
<b>Description:</b>	This Feature translates traditional signal-based communication into a service-oriented model.
<b>Parent Feature:</b>	[FO_TR_FEAT_00123] Service_Oriented_Communication

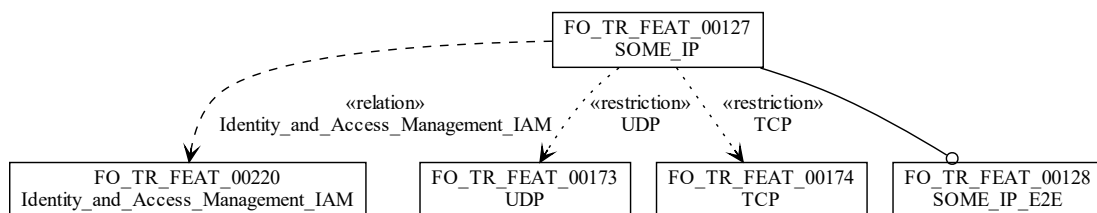
**Table 4.121: Details FO\_TR\_FEAT\_00129**

**4.3.57 [FO\_TR\_FEAT\_00183] Signalbased\_Over\_Ethernet**

<b>Short Name:</b>	FO_TR_FEAT_00183
<b>Long Name:</b>	Signalbased_Over_Ethernet
<b>Obligation:</b>	Optional
<b>Description:</b>	The Signalbased Over Ethernet refers to communication data over Ethernet networks with high bandwidth and scalability of Ethernet.
<b>Relations:</b>	<ul style="list-style-type: none"> <li>[FO_TR_FEAT_00137] Ethernet</li> <li>[FO_TR_FEAT_00186] Container_PDU</li> </ul>
<b>Parent Feature:</b>	[FO_TR_FEAT_00182] Signalbased_Communication

**Table 4.122: Details FO\_TR\_FEAT\_00183**

**4.3.58 [FO\_TR\_FEAT\_00127] SOME\_IP**



**Figure 4.49: Feature FO\_TR\_FEAT\_00127**

<b>Short Name:</b>	FO_TR_FEAT_00127
<b>Long Name:</b>	SOME_IP
<b>Obligation:</b>	Optional
<b>Description:</b>	The SOME/IP (Scalable service-Oriented MiddlewarE over IP) is a communication protocol designed for service-oriented communication over IP networks.
<b>Restrictions:</b>	<ul style="list-style-type: none"> <li>• <a href="#">[FO_TR_FEAT_00173]</a> UDP</li> <li>• <a href="#">[FO_TR_FEAT_00174]</a> TCP</li> </ul>
<b>Relations:</b>	<a href="#">[FO_TR_FEAT_00220]</a> Identity_and_Access_Management_IAM
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00123]</a> Service_Oriented_Communication
<b>Sub Features:</b>	<a href="#">[FO_TR_FEAT_00128]</a> SOME_IP_E2E

**Table 4.123: Details FO\_TR\_FEAT\_00127**

#### 4.3.59 [FO\_TR\_FEAT\_00090] SOVD

<b>Short Name:</b>	FO_TR_FEAT_00090
<b>Long Name:</b>	SOVD
<b>Obligation:</b>	Optional
<b>Description:</b>	The Service Oriented Vehicle Diagnostics (SOVD) is a Diagnostics API for Software Defined Vehicle (SDV) that shall follow the APIs specifications released by ASAM.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00087]</a> Diagnostic_Communication

**Table 4.124: Details FO\_TR\_FEAT\_00090**

#### 4.3.60 [FO\_TR\_FEAT\_00243] SPI

<b>Short Name:</b>	FO_TR_FEAT_00243
<b>Long Name:</b>	SPI
<b>Obligation:</b>	Optional
<b>Description:</b>	The Serial Peripheral Interface (SPI) is a standard for synchronous serial communication for short-distance wired communication between the ECU and integrated circuits.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00136]</a> Network_Technology

**Table 4.125: Details FO\_TR\_FEAT\_00243**

#### 4.3.61 [FO\_TR\_FEAT\_00047] System\_Health\_Monitoring\_SHM

<b>Short Name:</b>	FO_TR_FEAT_00047
<b>Long Name:</b>	System_Health_Monitoring_SHM
<b>Obligation:</b>	Optional





<b>Description:</b>	The System Health Monitoring is an essential for safe execution by continuously monitoring, detecting, diagnosing, and responding of automotive systems to faults for a robust system and achieving safety standards.
<b>Relations:</b>	<a href="#">[FO_TR_FEAT_00193]</a> <a href="#">E2E</a>
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00046]</a> <a href="#">Safe_Execution</a>

**Table 4.126: Details FO\_TR\_FEAT\_00047**

#### 4.3.62 [FO\_TR\_FEAT\_00241] Time\_Precision\_Measurement

<b>Short Name:</b>	FO_TR_FEAT_00241
<b>Long Name:</b>	Time_Precision_Measurement
<b>Obligation:</b>	Optional
<b>Description:</b>	The Time_Precision_Measurement enables to verify the precision of each Local Time Base compared to the Global Time Base. It is an optional recording mechanism supported for Time Slaves and Time Gateways.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00196]</a> <a href="#">Time_Synchronization</a>

**Table 4.127: Details FO\_TR\_FEAT\_00241**

#### 4.3.63 [FO\_TR\_FEAT\_00197] Time\_Validation

<b>Short Name:</b>	FO_TR_FEAT_00197
<b>Long Name:</b>	Time_Validation
<b>Obligation:</b>	Optional
<b>Description:</b>	The Time Validation ensures that the time information used by ECUs is accurate and reliable.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00196]</a> <a href="#">Time_Synchronization</a>

**Table 4.128: Details FO\_TR\_FEAT\_00197**

#### 4.3.64 [FO\_TR\_FEAT\_00240] Timebase\_Cloning

<b>Short Name:</b>	FO_TR_FEAT_00240
<b>Long Name:</b>	Timebase_Cloning
<b>Obligation:</b>	Optional
<b>Description:</b>	The Timebase_Cloning provides means to clone a Time Base by copying its current value, User Data and rate correction to another Time Base.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00196]</a> <a href="#">Time_Synchronization</a>

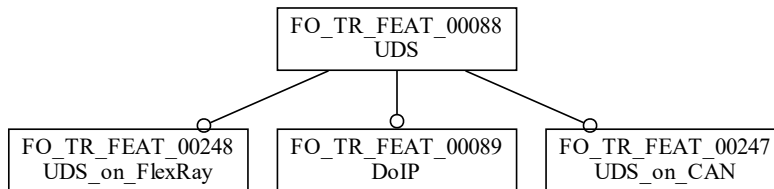
**Table 4.129: Details FO\_TR\_FEAT\_00240**

#### 4.3.65 [FO\_TR\_FEAT\_00192] Tunneling

<b>Short Name:</b>	FO_TR_FEAT_00192
<b>Long Name:</b>	Tunneling
<b>Obligation:</b>	Optional
<b>Description:</b>	The Tunneling involves encapsulating data from one network protocol within the data packets of another protocol to traverse different types of networks.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00187] Gateway_Support</a>

**Table 4.130: Details FO\_TR\_FEAT\_00192**

#### 4.3.66 [FO\_TR\_FEAT\_00088] UDS

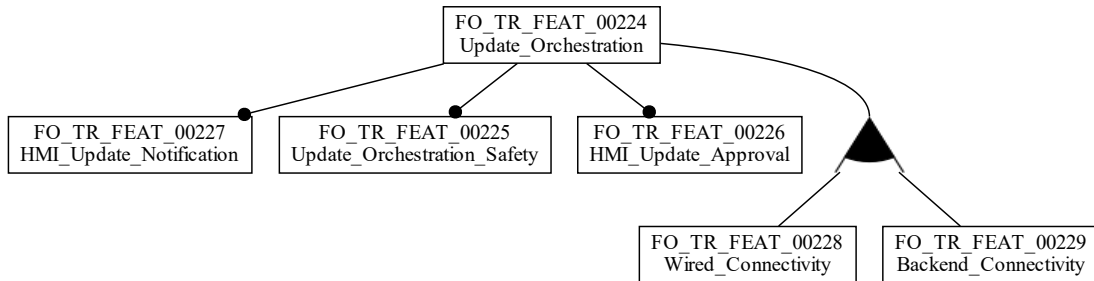


**Figure 4.50: Feature FO\_TR\_FEAT\_00088**

<b>Short Name:</b>	FO_TR_FEAT_00088
<b>Long Name:</b>	UDS
<b>Obligation:</b>	Optional
<b>Description:</b>	The Unified Diagnostic Services is a standardized protocol for diagnostic communication between ECUs and diagnostic tools. It supports reading and clearing error codes, retrieving ECU information, and performing routine tests.
<b>Applies to:</b>	CP, AP
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00087] Diagnostic_Communication</a>
<b>Sub Features:</b>	<ul style="list-style-type: none"> <li>• <a href="#">[FO_TR_FEAT_00089] DoIP</a></li> <li>• <a href="#">[FO_TR_FEAT_00247] UDS_on_CAN</a></li> <li>• <a href="#">[FO_TR_FEAT_00248] UDS_on_FlexRay</a></li> </ul>

**Table 4.131: Details FO\_TR\_FEAT\_00088**

**4.3.67 [FO\_TR\_FEAT\_00224] Update\_Orchestration**



**Figure 4.51: Feature FO\_TR\_FEAT\_00224**

<b>Short Name:</b>	FO_TR_FEAT_00224
<b>Long Name:</b>	Update_Orchestration
<b>Obligation:</b>	Mandatory
<b>Description:</b>	The Update Orchestration involves the coordination and management of the entire software update process.
<b>Parent Feature:</b>	[FO_TR_FEAT_00223] Vehicle_Software_Update
<b>Sub Features:</b>	<ul style="list-style-type: none"> <li>• [FO_TR_FEAT_00225] Update_Orchestration_Safety</li> <li>• [FO_TR_FEAT_00226] HMI_Update_Approval</li> <li>• [FO_TR_FEAT_00227] HMI_Update_Notification</li> <li>• [FO_TR_FEAT_00228] Wired_Connectivity</li> <li>• [FO_TR_FEAT_00229] Backend_Connectivity</li> </ul>

**Table 4.132: Details FO\_TR\_FEAT\_00224**

**4.3.68 [FO\_TR\_FEAT\_00200] V2X\_China**

<b>Short Name:</b>	FO_TR_FEAT_00200
<b>Long Name:</b>	V2X_China
<b>Obligation:</b>	Optional
<b>Description:</b>	The V2X_China refers to the standards, protocols, and technologies specific to V2X communication in China.
<b>Parent Feature:</b>	[FO_TR_FEAT_00199] V2X

**Table 4.133: Details FO\_TR\_FEAT\_00200**

#### 4.3.69 [FO\_TR\_FEAT\_00201] V2X\_Europe

<b>Short Name:</b>	FO_TR_FEAT_00201
<b>Long Name:</b>	V2X_Europe
<b>Obligation:</b>	Optional
<b>Description:</b>	The V2X_Europe refers to the standards, protocols, and technologies specific to V2X communication in Europe.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00199]</a> V2X

**Table 4.134: Details FO\_TR\_FEAT\_00201**

#### 4.3.70 [FO\_TR\_FEAT\_00077] Vehicle\_State\_Management

<b>Short Name:</b>	FO_TR_FEAT_00077
<b>Long Name:</b>	Vehicle_State_Management
<b>Obligation:</b>	Optional
<b>Description:</b>	This Feature involves overseeing the different operational states of the entire vehicle system, by coordinating interaction between various ECUs and subsystems. Examples can be This includes managing states such as driving, parking, diagnostics, and shutdown.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00073]</a> <a href="#">Mode_and_State_Management</a>

**Table 4.135: Details FO\_TR\_FEAT\_00077**

#### 4.3.71 [FO\_TR\_FEAT\_00203] VISS

<b>Short Name:</b>	FO_TR_FEAT_00203
<b>Long Name:</b>	VISS
<b>Obligation:</b>	Mandatory
<b>Description:</b>	The VISS (Vehicle Information Service Specification) is a standardized API that provides access to vehicle data.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00202]</a> <a href="#">Automotive_API</a>

**Table 4.136: Details FO\_TR\_FEAT\_00203**

#### 4.3.72 [FO\_TR\_FEAT\_00181] VNSM

<b>Short Name:</b>	FO_TR_FEAT_00181
<b>Long Name:</b>	VNSM
<b>Obligation:</b>	Optional





<b>Description:</b>	The VNSM (Vehicle Network State Manager) manages the overseeing the state of the entire vehicle network.
<b>Relations:</b>	<a href="#">[FO_TR_FEAT_00187]</a> <a href="#">Gateway_Support</a>
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00179]</a> <a href="#">Network_Management</a>

**Table 4.137: Details FO\_TR\_FEAT\_00181**

#### 4.3.73 [FO\_TR\_FEAT\_00204] VSS

<b>Short Name:</b>	FO_TR_FEAT_00204
<b>Long Name:</b>	VSS
<b>Obligation:</b>	Mandatory
<b>Description:</b>	The VSS (Vehicle Signal Specification) defines a standardized model for representing vehicle signals and data.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00202]</a> <a href="#">Automotive_API</a>

**Table 4.138: Details FO\_TR\_FEAT\_00204**

#### 4.3.74 [FO\_TR\_FEAT\_00051] Watchdog

<b>Short Name:</b>	FO_TR_FEAT_00051
<b>Long Name:</b>	Watchdog
<b>Obligation:</b>	Optional
<b>Description:</b>	The Watchdog Feature is to detect and respond to system failures or malfunctions, ensuring that the system can recover from errors and maintain safe operation.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00046]</a> <a href="#">Safe_Execution</a>

**Table 4.139: Details FO\_TR\_FEAT\_00051**

#### 4.3.75 [FO\_TR\_FEAT\_00249] WWH\_OBD

<b>Short Name:</b>	FO_TR_FEAT_00249
<b>Long Name:</b>	WWH_OBD
<b>Obligation:</b>	Optional
<b>Description:</b>	The WWH-OBD protocol (World-Wide Harmonized On-Board Diagnostics) standardizes global emissions diagnostics, enabling real-time monitoring and fault detection in vehicles. It ensures compliance with international emissions regulations and supports advanced diagnostic communication.
<b>Applies to:</b>	CP





<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00092] Legislative_Diagnostics</a>
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**Table 4.140: Details FO\_TR\_FEAT\_00249**

#### 4.3.76 [FO\_TR\_FEAT\_00121] XCP

<b>Short Name:</b>	FO_TR_FEAT_00121
<b>Long Name:</b>	XCP
<b>Obligation:</b>	Optional
<b>Description:</b>	The XCP (Universal Measurement and Calibration Protocol) Feature represents a protocol used for measuring and calibrating parameters within the vehicle's ECUs.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00120] Measurement_and_Calibration</a>

**Table 4.141: Details FO\_TR\_FEAT\_00121**

#### 4.3.77 [FO\_TR\_FEAT\_00095] Zero\_Emission

<b>Short Name:</b>	FO_TR_FEAT_00095
<b>Long Name:</b>	Zero_Emission
<b>Obligation:</b>	Optional
<b>Description:</b>	The Zero Emission diagnostics ensure that all critical parameters and systems of zero-emission vehicles, such as electric or hydrogen fuel cell vehicles, are monitored to comply with regulatory standards for zero emissions, supporting environmental goals and legal requirements.
<b>Restrictions:</b>	<a href="#">[FO_TR_FEAT_00088] UDS</a>
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00092] Legislative_Diagnostics</a>

**Table 4.142: Details FO\_TR\_FEAT\_00095**

### 4.4 Level 4

#### 4.4.1 [FO\_TR\_FEAT\_00215] Asymmetric\_Encryption

<b>Short Name:</b>	FO_TR_FEAT_00215
<b>Long Name:</b>	Asymmetric_Encryption
<b>Obligation:</b>	Optional
<b>Description:</b>	The Asymmetric Encryption uses a pair of keys: a public key for encryption and a private key for decryption.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00213] Encryption_and_Decryption</a>

**Table 4.143: Details FO\_TR\_FEAT\_00215**



#### 4.4.2 [FO\_TR\_FEAT\_00100] Automated\_Driving\_Interfaces

<b>Short Name:</b>	FO_TR_FEAT_00100
<b>Long Name:</b>	Automated_Driving_Interfaces
<b>Obligation:</b>	Optional
<b>Description:</b>	This Feature describes a collection of sensor interface definitions for enabling automated driving.
<b>Applies to:</b>	AP
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00098]</a> ADAS

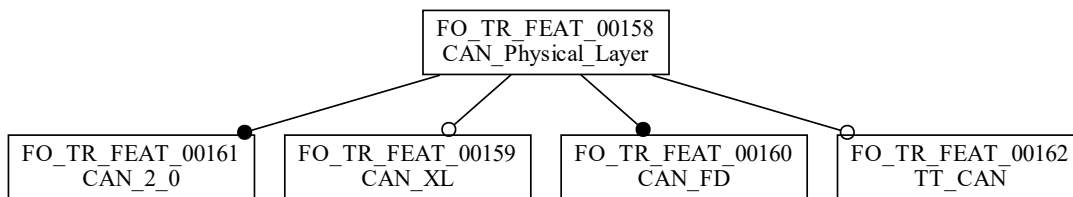
**Table 4.144: Details FO\_TR\_FEAT\_00100**

#### 4.4.3 [FO\_TR\_FEAT\_00229] Backend\_Connectivity

<b>Short Name:</b>	FO_TR_FEAT_00229
<b>Long Name:</b>	Backend_Connectivity
<b>Obligation:</b>	Multiple
<b>Description:</b>	The Backend Connectivity uses wireless communication to deliver software updates to the vehicle.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00224]</a> Update_Orchestration

**Table 4.145: Details FO\_TR\_FEAT\_00229**

#### 4.4.4 [FO\_TR\_FEAT\_00158] CAN\_Physical\_Layer



**Figure 4.52: Feature FO\_TR\_FEAT\_00158**

<b>Short Name:</b>	FO_TR_FEAT_00158
<b>Long Name:</b>	CAN_Physical_Layer
<b>Obligation:</b>	Mandatory
<b>Description:</b>	This Feature defines the hardware aspects of the CAN network, including signal levels, bit timing, connectors, and noise immunity.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00157]</a> CAN

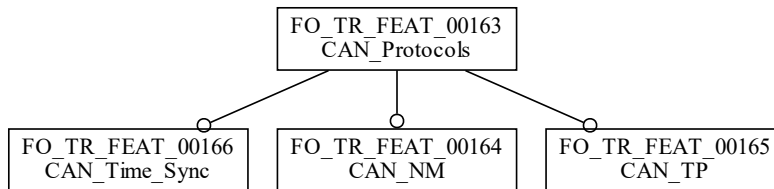




<b>Sub Features:</b>	<ul style="list-style-type: none"> <li>• [FO_TR_FEAT_00159] CAN_XL</li> <li>• [FO_TR_FEAT_00160] CAN_FD</li> <li>• [FO_TR_FEAT_00161] CAN_2_0</li> <li>• [FO_TR_FEAT_00162] TT_CAN</li> </ul>
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**Table 4.146: Details FO\_TR\_FEAT\_00158**

#### 4.4.5 [FO\_TR\_FEAT\_00163] CAN\_Protocols



**Figure 4.53: Feature FO\_TR\_FEAT\_00163**

<b>Short Name:</b>	FO_TR_FEAT_00163
<b>Long Name:</b>	CAN_Protocols
<b>Obligation:</b>	Optional
<b>Description:</b>	The CAN (Controller Area Network) protocols in AUTOSAR provide robust communication standards that describes CAN specific network layers.
<b>Parent Feature:</b>	[FO_TR_FEAT_00157] CAN
<b>Sub Features:</b>	<ul style="list-style-type: none"> <li>• [FO_TR_FEAT_00164] CAN_NM</li> <li>• [FO_TR_FEAT_00165] CAN_TP</li> <li>• [FO_TR_FEAT_00166] CAN_Time_Sync</li> </ul>

**Table 4.147: Details FO\_TR\_FEAT\_00163**

#### 4.4.6 [FO\_TR\_FEAT\_00246] CRC\_Support

<b>Short Name:</b>	FO_TR_FEAT_00246
<b>Long Name:</b>	CRC_Support
<b>Obligation:</b>	Optional
<b>Description:</b>	The Feature CRC (Cyclic Redundancy Check) enables protection of certain values by detecting alteration.
<b>Applies to:</b>	AP. CP





<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00053] Memory_Protection</a>
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**Table 4.148: Details FO\_TR\_FEAT\_00246**

#### 4.4.7 [FO\_TR\_FEAT\_00126] DDS\_E2E

<b>Short Name:</b>	FO_TR_FEAT_00126
<b>Long Name:</b>	DDS_E2E
<b>Obligation:</b>	Optional
<b>Description:</b>	The DDS E2E (End-to-End) ensures reliable and timely data delivery through end-to-end mechanisms.
<b>Relations:</b>	<a href="#">[FO_TR_FEAT_00193] E2E</a>
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00124] DDS</a>

**Table 4.149: Details FO\_TR\_FEAT\_00126**

#### 4.4.8 [FO\_TR\_FEAT\_00125] DDS\_Security

<b>Short Name:</b>	FO_TR_FEAT_00125
<b>Long Name:</b>	DDS_Security
<b>Obligation:</b>	Optional
<b>Description:</b>	This Feature provides security mechanisms for DDS communication, including authentication, encryption, and access control.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00124] DDS</a>

**Table 4.150: Details FO\_TR\_FEAT\_00125**

#### 4.4.9 [FO\_TR\_FEAT\_00177] DHCP

<b>Short Name:</b>	FO_TR_FEAT_00177
<b>Long Name:</b>	DHCP
<b>Obligation:</b>	Optional
<b>Description:</b>	The DHCP (Dynamic Host Configuration Protocol) is a network management protocol used to automate the process of configuring devices on IP networks.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00167] IP</a>

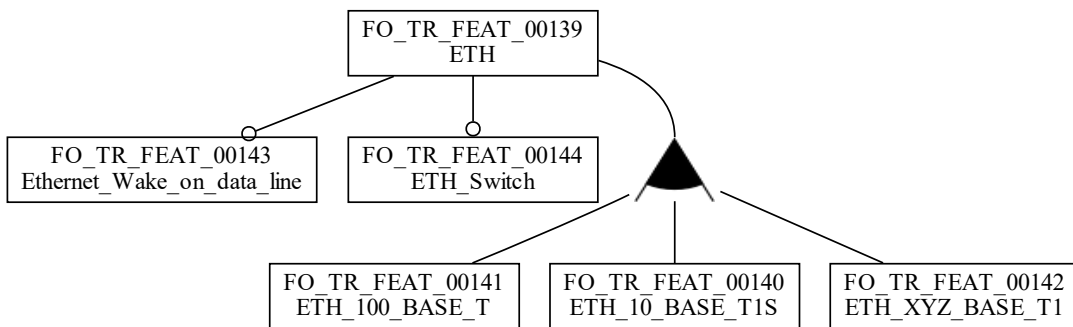
**Table 4.151: Details FO\_TR\_FEAT\_00177**

**4.4.10 [FO\_TR\_FEAT\_00089] DoIP**

<b>Short Name:</b>	FO_TR_FEAT_00089
<b>Long Name:</b>	DoIP
<b>Obligation:</b>	Optional
<b>Description:</b>	An Extension of Unified Diagnostic Services (UDS) is Diagnostics over IP (DoIP), that allows diagnostic networks, facilitating faster and more flexible diagnostics as specified in ISO-13400-2.
<b>Applies to:</b>	CP, AP
<b>Parent Feature:</b>	[FO_TR_FEAT_00088] UDS

**Table 4.152: Details FO\_TR\_FEAT\_00089**

**4.4.11 [FO\_TR\_FEAT\_00139] ETH**



**Figure 4.54: Feature FO\_TR\_FEAT\_00139**

<b>Short Name:</b>	FO_TR_FEAT_00139
<b>Long Name:</b>	ETH
<b>Obligation:</b>	Multiple
<b>Description:</b>	The ETH (Ethernet) describes the context encompasses various Ethernet technologies and functionalities tailored for automotive networks. Diagnostics over IP
<b>Parent Feature:</b>	[FO_TR_FEAT_00137] Ethernet
<b>Sub Features:</b>	<ul style="list-style-type: none"> <li>• [FO_TR_FEAT_00140] ETH_10_BASE_T1S</li> <li>• [FO_TR_FEAT_00141] ETH_100_BASE_T</li> <li>• [FO_TR_FEAT_00142] ETH_XYZ_BASE_T1</li> <li>• [FO_TR_FEAT_00143] Ethernet_Wake_on_data_line</li> <li>• [FO_TR_FEAT_00144] ETH_Switch</li> </ul>

**Table 4.153: Details FO\_TR\_FEAT\_00139**

#### 4.4.12 [FO\_TR\_FEAT\_00238] Ethernet\_Time\_Sync

<b>Short Name:</b>	FO_TR_FEAT_00238
<b>Long Name:</b>	Ethernet_Time_Sync
<b>Obligation:</b>	Optional
<b>Description:</b>	The Ethernet Time Sync realizes the Ethernet-specific time synchronization protocol.
<b>Applies to:</b>	AP, CP
<b>Relations:</b>	<a href="#">[FO_TR_FEAT_00196] Time_Synchronization</a>
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00137] Ethernet</a>

**Table 4.154: Details FO\_TR\_FEAT\_00238**

#### 4.4.13 [FO\_TR\_FEAT\_00239] FlexRay\_Time\_Sync

<b>Short Name:</b>	FO_TR_FEAT_00239
<b>Long Name:</b>	FlexRay_Time_Sync
<b>Obligation:</b>	Optional
<b>Description:</b>	The FlexRay Time Sync realizes the FlexRay-specific time synchronization protocol. An access to the synchronized time base by the SWCs requires the Synchronized Time-Base Manager (-> StbM).
<b>Applies to:</b>	CP
<b>Relations:</b>	<a href="#">[FO_TR_FEAT_00196] Time_Synchronization</a>
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00156] FlexRay</a>

**Table 4.155: Details FO\_TR\_FEAT\_00239**

#### 4.4.14 [FO\_TR\_FEAT\_00226] HMI\_Update\_Approval

<b>Short Name:</b>	FO_TR_FEAT_00226
<b>Long Name:</b>	HMI_Update_Approval
<b>Obligation:</b>	Mandatory
<b>Description:</b>	The HMI Update Approval involves obtaining user consent through the Human-Machine Interface (HMI) before proceeding with a software update.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00224] Update_Orchestration</a>

**Table 4.156: Details FO\_TR\_FEAT\_00226**

#### 4.4.15 [FO\_TR\_FEAT\_00227] HMI\_Update\_Notification

<b>Short Name:</b>	FO_TR_FEAT_00227
<b>Long Name:</b>	HMI_Update_Notification
<b>Obligation:</b>	Mandatory
<b>Description:</b>	The HMI Update Notification provides alerts and information to the user through the Human-Machine Interface (HMI) about the status and details of software updates.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00224]</a> Update_Orchestration

**Table 4.157: Details FO\_TR\_FEAT\_00227**

#### 4.4.16 [FO\_TR\_FEAT\_00244] I2C\_Controller

<b>Short Name:</b>	FO_TR_FEAT_00244
<b>Long Name:</b>	I2C_Controller
<b>Obligation:</b>	Optional
<b>Description:</b>	A device controlling other devices (Targets). Further it initiates a transfer, generates clock signals and terminates a transfer. Formerly known as "Master".
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00242]</a> I2C

**Table 4.158: Details FO\_TR\_FEAT\_00244**

#### 4.4.17 [FO\_TR\_FEAT\_00245] I2C\_Target

<b>Short Name:</b>	FO_TR_FEAT_00245
<b>Long Name:</b>	I2C_Target
<b>Obligation:</b>	Optional
<b>Description:</b>	A device being addressed by a Controller device. Formerly known as "Slave".
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00242]</a> I2C

**Table 4.159: Details FO\_TR\_FEAT\_00245**

#### 4.4.18 [FO\_TR\_FEAT\_00172] ICMP

<b>Short Name:</b>	FO_TR_FEAT_00172
<b>Long Name:</b>	ICMP
<b>Obligation:</b>	Optional
<b>Description:</b>	The ICMP (Internet Control Message Protocol) is used by network devices to send error messages and operational information indicating success or failure when communicating with another IP address.

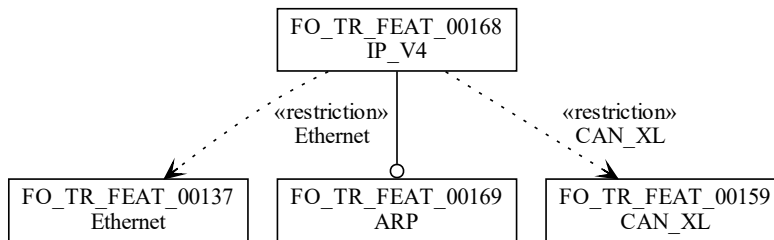




<b>Parent Feature:</b>	[FO_TR_FEAT_00167] IP
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**Table 4.160: Details FO\_TR\_FEAT\_00172**

**4.4.19 [FO\_TR\_FEAT\_00168] IP\_V4**

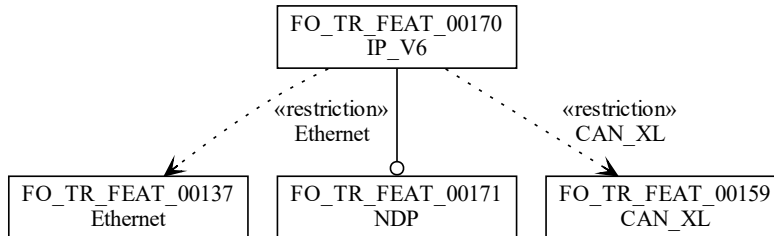


**Figure 4.55: Feature FO\_TR\_FEAT\_00168**

<b>Short Name:</b>	FO_TR_FEAT_00168
<b>Long Name:</b>	IP_V4
<b>Obligation:</b>	Optional
<b>Description:</b>	The IP_V4 (Internet Protocol version 4) Feature is the fourth version of the Internet Protocol. It is one of the core protocols of internet protokol suite, using 32-bit addresses
<b>Restrictions:</b>	<ul style="list-style-type: none"> <li>• [FO_TR_FEAT_00137] Ethernet</li> <li>• [FO_TR_FEAT_00159] CAN_XL</li> </ul>
<b>Parent Feature:</b>	[FO_TR_FEAT_00167] IP
<b>Sub Features:</b>	[FO_TR_FEAT_00169] ARP

**Table 4.161: Details FO\_TR\_FEAT\_00168**

#### 4.4.20 [FO\_TR\_FEAT\_00170] IP\_V6



**Figure 4.56: Feature FO\_TR\_FEAT\_00170**

<b>Short Name:</b>	FO_TR_FEAT_00170
<b>Long Name:</b>	IP_V6
<b>Obligation:</b>	Optional
<b>Description:</b>	The IP_V6 (Internet Protocol version 6) is the most recent version of the Internet Protocol, designed to address the limitations of IPv4, such as address exhaustion, using 128-bit addresses.
<b>Restrictions:</b>	<ul style="list-style-type: none"> <li>• [FO_TR_FEAT_00137] Ethernet</li> <li>• [FO_TR_FEAT_00159] CAN_XL</li> </ul>
<b>Parent Feature:</b>	[FO_TR_FEAT_00167] IP
<b>Sub Features:</b>	[FO_TR_FEAT_00171] NDP

**Table 4.162: Details FO\_TR\_FEAT\_00170**

#### 4.4.21 [FO\_TR\_FEAT\_00176] IPSec

<b>Short Name:</b>	FO_TR_FEAT_00176
<b>Long Name:</b>	IPSec
<b>Obligation:</b>	Optional
<b>Description:</b>	The IPSec (Internet Protocol Security) is a suite of protocols designed to ensure the security of data communications over an IP network through cryptographic security services.
<b>Restrictions:</b>	<ul style="list-style-type: none"> <li>• [FO_TR_FEAT_00168] IP_V4</li> <li>• [FO_TR_FEAT_00170] IP_V6</li> </ul>
<b>Parent Feature:</b>	[FO_TR_FEAT_00167] IP

**Table 4.163: Details FO\_TR\_FEAT\_00176**

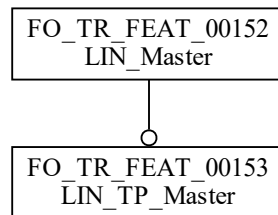


#### 4.4.22 [FO\_TR\_FEAT\_00138] ITS\_G5

<b>Short Name:</b>	FO_TR_FEAT_00138
<b>Long Name:</b>	ITS_G5
<b>Obligation:</b>	Multiple
<b>Description:</b>	This Feature represents Wake-Up and Sleep Functionality of Ethernet technology to manage the power consumption of automotive networks dynamically according IEEE 802.11p.
<b>Applies to:</b>	CP, AP
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00137] Ethernet</a>

**Table 4.164: Details FO\_TR\_FEAT\_00138**

#### 4.4.23 [FO\_TR\_FEAT\_00152] LIN\_Master

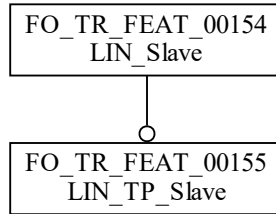


**Figure 4.57: Feature FO\_TR\_FEAT\_00152**

<b>Short Name:</b>	FO_TR_FEAT_00152
<b>Long Name:</b>	LIN_Master
<b>Obligation:</b>	Optional
<b>Description:</b>	The LIN master is the primary controller in a LIN network. It initiates communication, schedules the data frame transmissions, and ensures the network's overall synchronization.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00151] LIN</a>
<b>Sub Features:</b>	<a href="#">[FO_TR_FEAT_00153] LIN_TP_Master</a>

**Table 4.165: Details FO\_TR\_FEAT\_00152**

**4.4.24 [FO\_TR\_FEAT\_00154] LIN\_Slave**



**Figure 4.58: Feature FO\_TR\_FEAT\_00154**

<b>Short Name:</b>	FO_TR_FEAT_00154
<b>Long Name:</b>	LIN_Slave
<b>Obligation:</b>	Optional
<b>Description:</b>	The LIN slave is a secondary device on the LIN network that respond to the LIN master's requests.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00151] LIN</a>
<b>Sub Features:</b>	<a href="#">[FO_TR_FEAT_00155] LIN_TP_Slave</a>

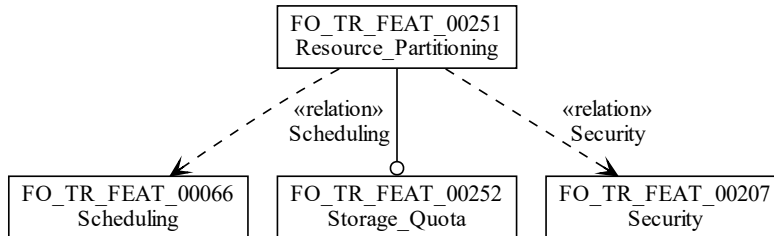
**Table 4.166: Details FO\_TR\_FEAT\_00154**

**4.4.25 [FO\_TR\_FEAT\_00145] MACsec**

<b>Short Name:</b>	FO_TR_FEAT_00145
<b>Long Name:</b>	MACsec
<b>Obligation:</b>	Optional
<b>Description:</b>	The MACsec (Media Access Control Security) is a security protocol that provides data confidentiality, integrity, and origin authenticity for Ethernet frames.
<b>Restrictions:</b>	<a href="#">[FO_TR_FEAT_00219] Key_Management</a>
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00137] Ethernet</a>

**Table 4.167: Details FO\_TR\_FEAT\_00145**

#### 4.4.26 [FO\_TR\_FEAT\_00251] Resource\_Partitioning



**Figure 4.59: Feature FO\_TR\_FEAT\_00251**

<b>Short Name:</b>	FO_TR_FEAT_00251
<b>Long Name:</b>	Resource_Partitioning
<b>Obligation:</b>	Optional
<b>Description:</b>	This feature enables the partitioning of system resources such as CPU time and RAM into distinct groups, ensuring that software components are allocated and limited to specific resource sets. By isolating resources, the feature enhances system stability and security, preventing unintended interference or resource contention between different applications. Resource Partitioning also supports safety by containing potential misbehavior, ensuring that critical tasks have the resources they need while maintaining overall system integrity.
<b>Relations:</b>	<ul style="list-style-type: none"> <li>• <a href="#">[FO_TR_FEAT_00066] Scheduling</a></li> <li>• <a href="#">[FO_TR_FEAT_00207] Security</a></li> </ul>
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00053] Memory_Protection</a>
<b>Sub Features:</b>	<a href="#">[FO_TR_FEAT_00252] Storage_Quota</a>

**Table 4.168: Details FO\_TR\_FEAT\_00251**

#### 4.4.27 [FO\_TR\_FEAT\_00128] SOME\_IP\_E2E

<b>Short Name:</b>	FO_TR_FEAT_00128
<b>Long Name:</b>	SOME_IP_E2E
<b>Obligation:</b>	Optional
<b>Description:</b>	This Feature ensures the end-to-end data delivery reliability for SOME/IP communication, managing message integrity and error handling.
<b>Relations:</b>	<a href="#">[FO_TR_FEAT_00193] E2E</a>
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00127] SOME_IP</a>

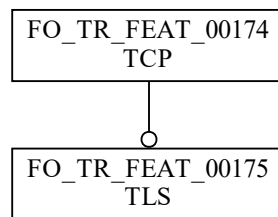
**Table 4.169: Details FO\_TR\_FEAT\_00128**

#### 4.4.28 [FO\_TR\_FEAT\_00214] Symmetric\_Encryption

<b>Short Name:</b>	FO_TR_FEAT_00214
<b>Long Name:</b>	Symmetric_Encryption
<b>Obligation:</b>	Optional
<b>Description:</b>	The Symmetric Encryption uses the same key for both encryption and decryption, especially for large amounts of data.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00213] Encryption_and_Decryption</a>

**Table 4.170: Details FO\_TR\_FEAT\_00214**

#### 4.4.29 [FO\_TR\_FEAT\_00174] TCP

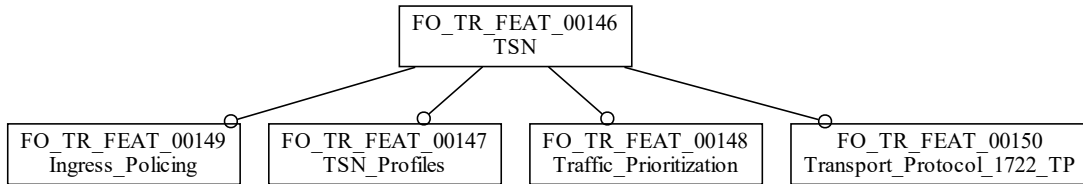


**Figure 4.60: Feature FO\_TR\_FEAT\_00174**

<b>Short Name:</b>	FO_TR_FEAT_00174
<b>Long Name:</b>	TCP
<b>Obligation:</b>	Optional
<b>Description:</b>	The TCP (Transmission Control Protocol) is a connection-oriented protocol of data between applications running on hosts communicating over an IP network.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00167] IP</a>
<b>Sub Features:</b>	<a href="#">[FO_TR_FEAT_00175] TLS</a>

**Table 4.171: Details FO\_TR\_FEAT\_00174**

**4.4.30 [FO\_TR\_FEAT\_00146] TSN**



**Figure 4.61: Feature FO\_TR\_FEAT\_00146**

<b>Short Name:</b>	FO_TR_FEAT_00146
<b>Long Name:</b>	TSN
<b>Obligation:</b>	Optional
<b>Description:</b>	The TSN (Time-Sensitive Networking) describes IEEE standards to support deterministic real-time communication.
<b>Parent Feature:</b>	[FO_TR_FEAT_00137] Ethernet
<b>Sub Features:</b>	<ul style="list-style-type: none"> <li>• [FO_TR_FEAT_00147] TSN_Profiles</li> <li>• [FO_TR_FEAT_00148] Traffic_Prioritization</li> <li>• [FO_TR_FEAT_00149] Ingress_Policing</li> <li>• [FO_TR_FEAT_00150] Transport_Protocol_1722_TP</li> </ul>

**Table 4.172: Details FO\_TR\_FEAT\_00146**

**4.4.31 [FO\_TR\_FEAT\_00173] UDP**

<b>Short Name:</b>	FO_TR_FEAT_00173
<b>Long Name:</b>	UDP
<b>Obligation:</b>	Optional
<b>Description:</b>	The UDP (User Datagram Protocol) is a connectionless protocol that provides a lightweight way to send datagrams over an IP network.
<b>Parent Feature:</b>	[FO_TR_FEAT_00167] IP

**Table 4.173: Details FO\_TR\_FEAT\_00173**

**4.4.32 [FO\_TR\_FEAT\_00247] UDS\_on\_CAN**

<b>Short Name:</b>	FO_TR_FEAT_00247
<b>Long Name:</b>	UDS_on_CAN
<b>Obligation:</b>	Optional





<b>Description:</b>	The UDSONCAN protocol facilitates Diagnostics Communication over the CAN bus, enabling advanced diagnostics, ECU reprogramming, and fault detection in automotive systems. It ensures standardized, efficient communication between diagnostic tools and vehicle ECUs according to ISO-14229-3.
<b>Applies to:</b>	CP
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00088]</a> UDS

**Table 4.174: Details FO\_TR\_FEAT\_00247**

#### 4.4.33 [FO\_TR\_FEAT\_00248] UDS\_on\_FlexRay

<b>Short Name:</b>	FO_TR_FEAT_00248
<b>Long Name:</b>	UDS_on_FlexRay
<b>Obligation:</b>	Optional
<b>Description:</b>	The UDSONFR protocol enables Unified Diagnostic Services (UDS) over the FlexRay network, supporting high-speed diagnostics, ECU reprogramming, and fault management in complex automotive systems. It ensures reliable communication in time-critical environments according to ISO-14229-4.
<b>Applies to:</b>	CP
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00088]</a> UDS

**Table 4.175: Details FO\_TR\_FEAT\_00248**

#### 4.4.34 [FO\_TR\_FEAT\_00225] Update\_Orchestration\_Safety

<b>Short Name:</b>	FO_TR_FEAT_00225
<b>Long Name:</b>	Update_Orchestration_Safety
<b>Obligation:</b>	Mandatory
<b>Description:</b>	The Update Orchestration Safety ensures that the software update process does not compromise the safety of the vehicle.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00224]</a> Update_Orchestration

**Table 4.176: Details FO\_TR\_FEAT\_00225**

#### 4.4.35 [FO\_TR\_FEAT\_00099] VMCI

<b>Short Name:</b>	FO_TR_FEAT_00099
<b>Long Name:</b>	VMCI
<b>Obligation:</b>	Optional





<b>Description:</b>	The VMCI (Vehicle Motion Control Interface) is a standardized interface for controlling and coordinating vehicle motion including managing acceleration, braking, and steering.
<b>Applies to:</b>	CP
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00098]</a> ADAS

**Table 4.177: Details FO\_TR\_FEAT\_00099**

#### 4.4.36 [FO\_TR\_FEAT\_00228] Wired\_Connectivity

<b>Short Name:</b>	FO_TR_FEAT_00228
<b>Long Name:</b>	Wired_Connectivity
<b>Obligation:</b>	Multiple
<b>Description:</b>	The Wired Connectivity describes the physical connections to transfer software updates to the vehicle. (e.g. USB, Ethernet, or dedicated diagnostic ports)
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00224]</a> Update_Orchestration

**Table 4.178: Details FO\_TR\_FEAT\_00228**

## 4.5 Level 5

### 4.5.1 [FO\_TR\_FEAT\_00169] ARP

<b>Short Name:</b>	FO_TR_FEAT_00169
<b>Long Name:</b>	ARP
<b>Obligation:</b>	Optional
<b>Description:</b>	The ARP (Address Resolution Protocol) is a protocol used to map IP addresses to the physical MAC addresses.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00168]</a> IP_V4

**Table 4.179: Details FO\_TR\_FEAT\_00169**

### 4.5.2 [FO\_TR\_FEAT\_00161] CAN\_2\_0

<b>Short Name:</b>	FO_TR_FEAT_00161
<b>Long Name:</b>	CAN_2_0
<b>Obligation:</b>	Mandatory
<b>Description:</b>	This Feature is the classical version of CAN, providing robust error detection, standard and extended frames, and efficient arbitration.





<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00158]</a> <a href="#">CAN_Physical_Layer</a>
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**Table 4.180: Details FO\_TR\_FEAT\_00161**

### 4.5.3 [FO\_TR\_FEAT\_00160] CAN\_FD

<b>Short Name:</b>	FO_TR_FEAT_00160
<b>Long Name:</b>	CAN_FD
<b>Obligation:</b>	Mandatory
<b>Description:</b>	The CAN FD is an extension of CAN protocol that enhances data transfer efficiency by allowing flexible data rates and larger data payloads within the same frame.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00158]</a> <a href="#">CAN_Physical_Layer</a>

**Table 4.181: Details FO\_TR\_FEAT\_00160**

### 4.5.4 [FO\_TR\_FEAT\_00164] CAN\_NM

<b>Short Name:</b>	FO_TR_FEAT_00164
<b>Long Name:</b>	CAN_NM
<b>Obligation:</b>	Optional
<b>Description:</b>	The CAN NM - Network Management coordinates transitions between the wake up and sleep state of the network.
<b>Relations:</b>	<a href="#">[FO_TR_FEAT_00179]</a> <a href="#">Network_Management</a>
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00163]</a> <a href="#">CAN_Protocols</a>

**Table 4.182: Details FO\_TR\_FEAT\_00164**

### 4.5.5 [FO\_TR\_FEAT\_00166] CAN\_Time\_Sync

<b>Short Name:</b>	FO_TR_FEAT_00166
<b>Long Name:</b>	CAN_Time_Sync
<b>Obligation:</b>	Optional
<b>Description:</b>	The CAN Time Sync realizes the CAN-specific time synchronization protocol. An access to the synchronized time base by the SWCs requires the Synchronized Time-Base Manager (-> StbM).
<b>Applies to:</b>	CP
<b>Relations:</b>	<a href="#">[FO_TR_FEAT_00196]</a> <a href="#">Time_Synchronization</a>
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00163]</a> <a href="#">CAN_Protocols</a>

**Table 4.183: Details FO\_TR\_FEAT\_00166**



#### 4.5.6 [FO\_TR\_FEAT\_00165] CAN\_TP

<b>Short Name:</b>	FO_TR_FEAT_00165
<b>Long Name:</b>	CAN_TP
<b>Obligation:</b>	Optional
<b>Description:</b>	The CAN TP - Transport Protocol is responsible for segmenting the data in the Tx direction, collecting data in the Rx direction and monitoring the data stream.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00163]</a> <a href="#">CAN_Protocols</a>

**Table 4.184: Details FO\_TR\_FEAT\_00165**

#### 4.5.7 [FO\_TR\_FEAT\_00159] CAN\_XL

<b>Short Name:</b>	FO_TR_FEAT_00159
<b>Long Name:</b>	CAN_XL
<b>Obligation:</b>	Optional
<b>Description:</b>	The CAN XL enhances the CAN protocol by supporting longer data frames and higher data rates while maintaining backward compatibility
<b>Relations:</b>	<a href="#">[FO_TR_FEAT_00137]</a> <a href="#">Ethernet</a>
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00158]</a> <a href="#">CAN_Physical_Layer</a>

**Table 4.185: Details FO\_TR\_FEAT\_00159**

#### 4.5.8 [FO\_TR\_FEAT\_00141] ETH\_100\_BASE\_T

<b>Short Name:</b>	FO_TR_FEAT_00141
<b>Long Name:</b>	ETH_100_BASE_T
<b>Obligation:</b>	Multiple
<b>Description:</b>	The ETH_100_BASE_T (100BASE-T) is a high-speed Ethernet network connection providing 100 Mbps over twisted pair cables.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00139]</a> <a href="#">ETH</a>

**Table 4.186: Details FO\_TR\_FEAT\_00141**

#### 4.5.9 [FO\_TR\_FEAT\_00140] ETH\_10\_BASE\_T1S

<b>Short Name:</b>	FO_TR_FEAT_00140
<b>Long Name:</b>	ETH_10_BASE_T1S
<b>Obligation:</b>	Multiple
<b>Description:</b>	ETH_10_BASE_T1S (10BASE-T1S) is a standardized Ethernet physical layer specification for automotive networks providing a 10 Mbps Ethernet connection.





<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00139]</a> ETH
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**Table 4.187: Details FO\_TR\_FEAT\_00140**

#### 4.5.10 [FO\_TR\_FEAT\_00144] ETH\_Switch

<b>Short Name:</b>	FO_TR_FEAT_00144
<b>Long Name:</b>	ETH_Switch
<b>Obligation:</b>	Optional
<b>Description:</b>	The ETH Switch (Ethernet Switch) describes the connection to multiple Ethernet devices within a vehicle, managing data traffic efficiently.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00139]</a> ETH

**Table 4.188: Details FO\_TR\_FEAT\_00144**

#### 4.5.11 [FO\_TR\_FEAT\_00142] ETH\_XYZ\_BASE\_T1

<b>Short Name:</b>	FO_TR_FEAT_00142
<b>Long Name:</b>	ETH_XYZ_BASE_T1
<b>Obligation:</b>	Multiple
<b>Description:</b>	The ETH_XYZ_BASE_T1 (Placeholder for various higher-speed Ethernet standards, such as 1000BASE-T1, 2.5GBASE-T1, etc.) higher-speed Ethernet standards designed for automotive use, offering speeds from 1 Gbps to multiple Gbps over a single twisted pair cable.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00139]</a> ETH

**Table 4.189: Details FO\_TR\_FEAT\_00142**

#### 4.5.12 [FO\_TR\_FEAT\_00143] Ethernet\_Wake\_on\_data\_line

<b>Short Name:</b>	FO_TR_FEAT_00143
<b>Long Name:</b>	Ethernet_Wake_on_data_line
<b>Obligation:</b>	Optional
<b>Description:</b>	This Feature allows the Ethernet network to wake up from a low-power state when data is detected on the line.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00139]</a> ETH

**Table 4.190: Details FO\_TR\_FEAT\_00143**

#### 4.5.13 [FO\_TR\_FEAT\_00149] Ingress\_Policing

<b>Short Name:</b>	FO_TR_FEAT_00149
<b>Long Name:</b>	Ingress_Policing
<b>Obligation:</b>	Optional
<b>Description:</b>	This Feature monitors and regulates the flow of incoming network traffic to fulfill compliance requirements.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00146]</a> TSN

**Table 4.191: Details FO\_TR\_FEAT\_00149**

#### 4.5.14 [FO\_TR\_FEAT\_00153] LIN\_TP\_Master

<b>Short Name:</b>	FO_TR_FEAT_00153
<b>Long Name:</b>	LIN_TP_Master
<b>Obligation:</b>	Optional
<b>Description:</b>	This TP (Transport Protocol)-Feature is an extension of the LIN master to handle larger data packets across multiple LIN frames.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00152]</a> LIN_Master

**Table 4.192: Details FO\_TR\_FEAT\_00153**

#### 4.5.15 [FO\_TR\_FEAT\_00155] LIN\_TP\_Slave

<b>Short Name:</b>	FO_TR_FEAT_00155
<b>Long Name:</b>	LIN_TP_Slave
<b>Obligation:</b>	Optional
<b>Description:</b>	This TP (Transport Protocol)-Feature is an extension of the LIN slave to handle larger data packets across multiple LIN frames.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00154]</a> LIN_Slave

**Table 4.193: Details FO\_TR\_FEAT\_00155**

#### 4.5.16 [FO\_TR\_FEAT\_00171] NDP

<b>Short Name:</b>	FO_TR_FEAT_00171
<b>Long Name:</b>	NDP
<b>Obligation:</b>	Optional
<b>Description:</b>	The NDP (Neighbor Discovery Protocol) is a protocol used in IPv6 to discover other devices on the network.





<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00170]</a> IP_V6
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**Table 4.194: Details FO\_TR\_FEAT\_00171**

#### 4.5.17 [FO\_TR\_FEAT\_00252] Storage\_Quota

<b>Short Name:</b>	FO_TR_FEAT_00252
<b>Long Name:</b>	Storage_Quota
<b>Obligation:</b>	Optional
<b>Description:</b>	This Features ensures that software uses storage initially allocated for it.
<b>Applies to:</b>	AP
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00251]</a> Resource_Partitioning

**Table 4.195: Details FO\_TR\_FEAT\_00252**

#### 4.5.18 [FO\_TR\_FEAT\_00175] TLS

<b>Short Name:</b>	FO_TR_FEAT_00175
<b>Long Name:</b>	TLS
<b>Obligation:</b>	Optional
<b>Description:</b>	The TLS (Transport Layer Security) is a protocol that provides privacy and data integrity between two communicating applications.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00174]</a> TCP

**Table 4.196: Details FO\_TR\_FEAT\_00175**

#### 4.5.19 [FO\_TR\_FEAT\_00148] Traffic\_Prioritization

<b>Short Name:</b>	FO_TR_FEAT_00148
<b>Long Name:</b>	Traffic_Prioritization
<b>Obligation:</b>	Optional
<b>Description:</b>	This Feature describes the assignment of different levels of priority to various types of network traffic to ensure that critical data gets transmitted with higher priority.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00146]</a> TSN

**Table 4.197: Details FO\_TR\_FEAT\_00148**

#### 4.5.20 [FO\_TR\_FEAT\_00150] Transport\_Protocol\_1722\_TP

<b>Short Name:</b>	FO_TR_FEAT_00150
<b>Long Name:</b>	Transport_Protocol_1722_TP
<b>Obligation:</b>	Optional
<b>Description:</b>	This Feature represents the requirements of the IEEE 1722 TP (Transport Protocol) for Audio/Video Bridging (AVB) over Ethernet to ensure timely and synchronized delivery of audio and video streams.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00146]</a> TSN

**Table 4.198: Details FO\_TR\_FEAT\_00150**

#### 4.5.21 [FO\_TR\_FEAT\_00147] TSN\_Profiles

<b>Short Name:</b>	FO_TR_FEAT_00147
<b>Long Name:</b>	TSN_Profiles
<b>Obligation:</b>	Optional
<b>Description:</b>	This Feature provides tools and protocols to ensure deterministic data transmission over Ethernet.
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00146]</a> TSN

**Table 4.199: Details FO\_TR\_FEAT\_00147**

#### 4.5.22 [FO\_TR\_FEAT\_00162] TT\_CAN

<b>Short Name:</b>	FO_TR_FEAT_00162
<b>Long Name:</b>	TT_CAN
<b>Obligation:</b>	Optional
<b>Description:</b>	The Time Triggered CAN is an extension of the CAN protocol that adds time-triggered communication capabilities for applications. (Old Technology)
<b>Parent Feature:</b>	<a href="#">[FO_TR_FEAT_00158]</a> <a href="#">CAN_Physical_Layer</a>

**Table 4.200: Details FO\_TR\_FEAT\_00162**