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# 1 Introduction

This technical report provides the Security Event ([SEv](#)) specification of the AUTOSAR Standard.

## 1.1 Objectives

Efficient intrusion detection is heavily relying on [IDS](#) sensors monitoring sensible resources and providing high-quality information to the Vehicle Security Operation Center ([VSOC](#)). AUTOSAR implements a set of [IDS](#) sensors as part of the AUTOSAR software specification, where the respective [SEv](#) specification can be found in the corresponding SWS documents. This document collects these AUTOSAR-specified [SEvs](#) and provides an overview on all [SEvs](#) that are defined in AUTOSAR, including their specification.

The [SEv](#) specification in this document is provided in the form of generated tables. The source of the generated tables is the document [FO\\_MOD\\_GeneralDefinitions \[1\]](#), which can be used as a machine-readable version of the [SEv](#) specification in the [VSOC](#).

Please note that this document does not contain the trigger condition under which the [SEv](#) is raised by the AUTOSAR stack. The trigger condition can be found in the SWS document of the module that raises the respective [SEv](#).

## 1.2 Document structure

This document is structured as follows:

- Chapter 4 contains a list of all [SEvs](#) defined by AUTOSAR in a tabular form. The list contains [SEv](#) ID, Name, Description and AUTOSAR module that raises the [SEv](#), but no context data.
- Chapter 5 contains detailed [SEv](#) specification including the [SEvs](#) context data. The chapter contains only [SEvs](#) for which context data is specified.

## 2 Definition of terms and acronyms

### 2.1 Acronyms and abbreviations

Abbreviation / Acronym:	Description:
IDS	Intrusion Detection System
SEv	Security Event
VSOC	Vehicle Security Operation Center

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

### 3 Related Documentation

- [1] Standardized M1 Models used for the Definition of AUTOSAR  
AUTOSAR\_FO\_MOD\_GeneralDefinitions

## 4 Security Event specification

<i>ID</i>	<i>Owner</i>	<i>Name</i>	<i>Description</i>
1	KeyM	SEV_CERT_ROOT_INST_REQ	Attempt to install a root certificate.
2	KeyM	SEV_CERT_ROOT_UPD_REQ	Attempt to update an existing root certificate.
3	KeyM	SEV_CERT_INTERMEDIATE_INST_REQ	Attempt to install an intermediate certificate.
4	KeyM	SEV_CERT_INTERMEDIATE_UPD_REQ	Attempt to update an intermediate certificate.
5	KeyM	SEV_CERT_VERIF_FAILED	A request to verify a certificate against a certificate chain was not successful.
46	IdsM	SEV_IDS_M_NO_EVENT_BUFFER_AVAILABLE	A SEv cannot be handled because there are no more event buffers available to process the event.
47	IdsM	SEV_IDS_M_NO_CONTEXT_DATA_BUFFER_AVAILABLE	The context data of an incoming event cannot be stored because there are no more context data buffers available.
48	IdsM	SEV_IDS_M_TRAFFIC_LIMITATION_EXCEEDED	The current traffic exceeds a configured traffic limitation.
49	IdsM	SEV_IDS_M_COMMUNICATION_ERROR	An error occurred when sending a QSEv via PDU.
87	IdsM	SEV_IDS_M_NO_QUALIFIED_EVENT_BUFFER_AVAILABLE	A security event raised when a QSEv has to be dropped due to insufficient QSEv buffers available.
46	AIDSM	SEV_IDS_M_NO_EVENT_BUFFER_AVAILABLE	A SEv cannot be handled because there are no more event buffers available to process the event.
47	AIDSM	SEV_IDS_M_NO_CONTEXT_DATA_BUFFER AVAILABLE	The context data of an incoming event cannot be stored because there are no more context data buffers available.
48	AIDSM	SEV_IDS_M_TRAFFIC_LIMITATION_EXCEEDED	The current traffic exceeds a configured traffic limitation.
49	AIDSM	SEV_IDS_M_COMMUNICATION_ERROR	An error occurred when sending a QSEv via PDU.
87	AIDSM	SEV_IDS_M_NO_QUALIFIED_EVENT_BUFFER AVAILABLE	A security event raised when a QSEv has to be dropped due to insufficient QSEv buffers available.
89	Com	SEV_COM_RX_SIGNAL_VALUE_UNEXPECTED	Signal or group signal is received with unexpected value.
15	Ethlf	SEV_ETH_DROP_UNKNOWN_ETHERTYPE	An ethernet datagram was dropped due the Ethertype is not known.
16	Ethlf	SEV_ETH_DROP_VLAN_DOUBLE_TAG	An ethernet datagram was dropped due to double VLAN tag.
17	Ethlf	SEV_ETH_DROP_INV_VLAN	An ethernet datagram was dropped due to an invalid CrtlIdx/VLAN.
18	Ethlf	SEV_ETH_DROP_MAC_COLLISION	Ethernet datagram was dropped because local MAC was same as source MAC in an incoming frame.
19	CANIF	SEV_CAN_TX_ERROR_DETECTED	A transmission related error was detected. Depending on the context data this could indicate suspicious CAN activity.
20	CANIF	SEV_CAN_RX_ERROR_DETECTED	A reception related error was detected. Depending on the context data this could indicate suspicious CAN activity.
21	CANIF	SEV_CAN_ERRORSTATE_PASSIVE	The CAN controller transitioned to state passive.
22	CANIF	SEV_CAN_ERRORSTATE_BUSOFF	The CAN controller transitioned to state busoff.





<b>ID</b>	<b>Owner</b>	<b>Name</b>	<b>Description</b>
6	SoAd	SEV_DROP_PDU_RX_UDP	SoAd dropped a PDU. The PDU violates stack configuration and was received via a UDP socket.
7	SoAd	SEV_DROP_MSG_RX_UDP_LENGTH	SoAd dropped a message. The message contains at least one PDU which violates stack configuration and was received via a UDP socket. The violation relates to the length of the PDUs compared to the overall length of the message.
8	SoAd	SEV_DROP_MSG_RX_UDP_SOCKET	SoAd received a UDP message which violates stack configuration and was dropped. No suitable socket connection matching to configuration was found.
9	SoAd	SEV_REJECTED_TCP_CONNECTION	SoAd rejected a TCP connection. The connection request violates stack configuration.
50	SoAd	SEV_DROP_PDU_RX_TCP	SoAd dropped a PDU. The PDU violates stack configuration and was received via a TCP socket.
10	Tcplp	SEV_ARP_IP_ADDR_CONFLICT	Received local IP address in ARP reply for different MAC.
11	Tcplp	SEV_TCP_DROP_INV_PORT	Dropped TCP packet because of invalid destination TCP-Port.
12	Tcplp	SEV_UDP_DROP_INV_PORT	Dropped UDP packet because of invalid destination UDP-Port.
13	Tcplp	SEV_IPV4_DROP_INV_ADDR	Dropped datagram because of invalid IPV4 address.
14	Tcplp	SEV_IPV6_DROP_INV_ADDR	Dropped datagram because of invalid IPV6 address.
90	Tcplp	SEV_TLS_ERROR	An alert message (warning or fatal) was detected (either received or generated) by TLS.
91	Tcplp	SEV_TLS_CONNECTION_ESTABLISHED	A TLS connection was successfully established.
92	Tcplp	SEV_TLS_CONNECTION_CLOSED	A TLS connection was closed normally.
44	SecOC	SEV_SECOC_MAC_VERIFICATION_FAILED	MAC verification of a received PDU failed.
45	SecOC	SEV_SECOC_FRESHNESS_NOT_AVAILABLE	Failed to get freshness value from FvM.
51	CP_SWS_Fw	SEV_FW_PACKET_BLOCKED_IPV4_MISMATCH	A network packet was blocked due to a rule mismatch on IPv4 layer.
52	CP_SWS_Fw	SEV_FW_PACKET_BLOCKED_IPV6_MISMATCH	A network packet was blocked due to a rule mismatch on IPv6 layer.
53	CP_SWS_Fw	SEV_FW_PACKET_BLOCKED_ICMP_MISMATCH	A network packet was blocked due to a rule mismatch within the ICMP protocol.
54	CP_SWS_Fw	SEV_FW_PACKET_BLOCKED_TCP_MISMATCH	A network packet was blocked due to a rule mismatch on TCP layer.
55	CP_SWS_Fw	SEV_FW_PACKET_BLOCKED_UDP_MISMATCH	A network packet was blocked due to a rule mismatch on UDP layer.
56	CP_SWS_Fw	SEV_FW_PACKET_BLOCKED_SOMEIP_MISMATCH	A network packet was blocked due to a rule mismatch in the SOME/IP protocol.
57	CP_SWS_Fw	SEV_FW_PACKET_BLOCKED_SOMEIPSD_MISMATCH	A network packet was blocked due to a rule mismatch in the SOME/IP SD protocol.
58	CP_SWS_Fw	SEV_FW_PACKET_BLOCKED_DDS_MISMATCH	A network packet was blocked due to a rule mismatch in the DDS-RTPS protocol.
59	CP_SWS_Fw	SEV_FW_PACKET_BLOCKED_DOIP_MISMATCH	A network packet was blocked due to a rule mismatch in the DoIP protocol.







<b>ID</b>	<b>Owner</b>	<b>Name</b>	<b>Description</b>
60	CP_SWS_Fw	SEV_FW_PACKET_BLOCKED_GENERIC_MISMATCH	A network packet was blocked due to a rule mismatch on generic inspection level.
61	CP_SWS_Fw	SEV_FW_PACKET_BLOCKED_TCP_MAXCONNECTIONS	A network packet was blocked due to the maximal number of open TCP connections was reached.
62	CP_SWS_Fw	SEV_FW_PACKET_BLOCKED_TCP_TIMEOUT	A network packet was blocked due to TCP timeout.
63	CP_SWS_Fw	SEV_FW_PACKET_BLOCKED_TCP_STATETRANSITION	A network packet was blocked due to an invalid TCP state transition.
64	CP_SWS_Fw	SEV_FW_PACKET_BLOCKED_RATELIMIT	A network packet was blocked due to the rate limit was reached.
77	CP_SWS_Fw	SEV_FW_PACKET_BLOCKED_DATAINKLAYER_MISMATCH	A network packet was blocked due to a rule mismatch on data link layer.
83	CP_SWS_Fw	SEV_FW_PACKET_BLOCKED_BY_PERSTREAMFILTERING	A network packet was blocked due to per-stream filtering in the switch.
51	AP_SWS_Fw	SEV_FW_PACKET_BLOCKED_IPV4_MISMATCH	A network packet was blocked due to a rule mismatch on IPv4 layer.
52	AP_SWS_Fw	SEV_FW_PACKET_BLOCKED_IPV6_MISMATCH	A network packet was blocked due to a rule mismatch on IPv6 layer.
53	AP_SWS_Fw	SEV_FW_PACKET_BLOCKED_ICMP_MISMATCH	A network packet was blocked due to a rule mismatch within the ICMP protocol.
54	AP_SWS_Fw	SEV_FW_PACKET_BLOCKED_TCP_MISMATCH	A network packet was blocked due to a rule mismatch on TCP layer.
55	AP_SWS_Fw	SEV_FW_PACKET_BLOCKED_UDP_MISMATCH	A network packet was blocked due to a rule mismatch on UDP layer.
56	AP_SWS_Fw	SEV_FW_PACKET_BLOCKED_SOMEIP_MISMATCH	A network packet was blocked due to a rule mismatch in the SOME/IP protocol.
57	AP_SWS_Fw	SEV_FW_PACKET_BLOCKED_SOMEIPSD_MISMATCH	A network packet was blocked due to a rule mismatch in the SOME/IP SD protocol.
58	AP_SWS_Fw	SEV_FW_PACKET_BLOCKED_DDS_MISMATCH	A network packet was blocked due to a rule mismatch in the DDS-RTPS protocol.
59	AP_SWS_Fw	SEV_FW_PACKET_BLOCKED_DOIP_MISMATCH	A network packet was blocked due to a rule mismatch in the DoIP protocol.
60	AP_SWS_Fw	SEV_FW_PACKET_BLOCKED_GENERIC_MISMATCH	A network packet was blocked due to a rule mismatch on generic inspection level.
61	AP_SWS_Fw	SEV_FW_PACKET_BLOCKED_TCP_MAXCONNECTIONS	A network packet was blocked due to the maximal number of open TCP connections was reached.
62	AP_SWS_Fw	SEV_FW_PACKET_BLOCKED_TCP_TIMEOUT	A network packet was blocked due to TCP timeout.
63	AP_SWS_Fw	SEV_FW_PACKET_BLOCKED_TCP_STATETRANSITION	A network packet was blocked due to an invalid TCP state transition.
64	AP_SWS_Fw	SEV_FW_PACKET_BLOCKED_RATELIMIT	A network packet was blocked due to the rate limit was reached.
77	AP_SWS_Fw	SEV_FW_PACKET_BLOCKED_DATAINKLAYER_MISMATCH	A network packet was blocked due to a rule mismatch on data link layer.
66	CanTSyn	SEV_TSYN_CAN_ICV_GENERATION_FAILED	ICV generation for a FUP message has failed.
67	CanTSyn	SEV_TSYN_CAN_ICV_VERIFICATION_FAILED	ICV verification of a FUP message has failed.
68	CanTSyn	SEV_TSYN_CAN_FRESHNESS_NOT_AVAILABLE	Failed to get freshness value from FvM.





<b>ID</b>	<b>Owner</b>	<b>Name</b>	<b>Description</b>
69	CanTSyn	SEV_TSYN_CAN_MSG_SEQUENCE_ERROR	Failed to receive correct sequence of SYNC and FUP from the TimeMaster within (CanTSyn GlobalTimeFollowUpTimeout).
70	FrTSyn	SEV_TSYN_FR_ICV_GENERATION_FAILED	ICV generation for a Sync message has failed.
71	FrTSyn	SEV_TSYN_FR_ICV_VERIFICATION_FAILED	ICV verification of a received Sync message has failed.
72	FrTSyn	SEV_TSYN_FR_FRESHNESS_NOT_AVAILABLE	Failed to get freshness value from FvM.
73	EthTSyn	SEV_TSYN_ETH_ICV_GENERATION_FAILED	ICV generation for a Follow_Up message failed.
74	EthTSyn	SEV_TSYN_ETH_ICV_VERIFICATION_FAILED	ICV verification of a received Follow_Up message failed.
75	EthTSyn	SEV_TSYN_ETH_FRESHNESS_NOT_AVAILABLE	Failed to get freshness value from FvM.
76	EthTSyn	SEV_TSYN_ETH_MSG_SEQUENCE_ERROR	Failed to receive correct sequence of SYNC and FUP from the TimeMaster within (EthTSyn GlobalTimeFollowUpTimeout).
73	TS	SEV_TSYN_ETH_ICV_GENERATION_FAILED	ICV generation for a Follow_Up message failed.
74	TS	SEV_TSYN_ETH_ICV_VERIFICATION_FAILED	ICV verification of a received Follow_Up message failed.
75	TS	SEV_TSYN_ETH_FRESHNESS_NOT_AVAILABLE	Failed to get freshness value from FvM.
76	TS	SEV_TSYN_ETH_MSG_SEQUENCE_ERROR	Failed to receive correct sequence of SYNC and FUP from the TimeMaster within (EthTSyn GlobalTimeFollowUpTimeout).
78	CP_SWS_Mka	SEV_MKA_AUTHENTICATION_FAILURE	Event triggered when the authentication during the MKA communication has failed (wrong CKN/CAK).
79	CP_SWS_Mka	SEV_MKA_TIMEOUT	Event triggered when the timeout for the MKA communication has expired.
80	CP_SWS_Mka	SEV_MKA_PORT_NOT_ENABLED	Event triggered when the indicated port for the MKA communication is not enable.
81	CP_SWS_Mka	SEV_MKA_CIPHER_SUITE_NOT_SUPPORTED	Event triggered when there is no Cipher Suite supported.
82	CP_SWS_Mka	SEV_MKA_PORT_NUMBER_CHANGE	Event triggered when during the MKA communication the port number has changed.
84	Sd	SEV_SOME_IP_ACL_CHECK_FAILED_OFFER	ACL check for a service offer failed.
85	Sd	SEV_SOME_IP_ACL_CHECK_FAILED_EVENT_SUBSCRIPTION	ACL check for a subscribe event group request failed.
86	Sd	SEV_SOME_IP_ACL_CHECK_FAILED_METHOD_REQUEST	ACL check for a method request failed.
88	Sd	SEV_SOME_IP_SD_DUPLICATE_OFFER	SD rejected Offer for a ServiceInstance which is already offered by a different endpoint and TTL still valid.
100	Dcm	SEV_UDS_SECURITY_ACCESS_NEEDED	Tester has sent a diagnostic request without meeting the server's security level requirements for that service. NRC 0x33 (securityAccess Denied) was returned.
101	Dcm	SEV_UDS_AUTHENTICATION_NEEDED	A diagnostic request was received while the required authentication to execute this service is not given. NRC 0x34 (authentication Required) was returned.





<b>ID</b>	<b>Owner</b>	<b>Name</b>	<b>Description</b>
102	Dcm	SEV_UDS_SECURITY_ACCESS_SUCCESSFUL	Successful unlocked the ECU (via Security Access SID 0x27)
103	Dcm	SEV_UDS_SECURITY_ACCESS_FAILED	Unlocking of the ECU (via Security Access SID 0x27) failed
104	Dcm	SEV_UDS_AUTHENTICATION_SUCCESSFUL	Successfully authenticated (via Authentication SID 0x29)
105	Dcm	SEV_UDS_AUTHENTICATION_FAILED	Authentication (via Authentication SID 0x29) failed
106	Dcm	SEV_UDS_WRITE_DATA_SUCCESSFUL	Diagnostic data identifier has been written by SID 0x2E WriteDataByIdentifier
107	Dcm	SEV_UDS_WRITE_DATA_FAILED	Change of Diagnostic data identifier has been requested by SID 0x2E WriteDataByIdentifier, but failed
108	Dcm	SEV_UDS_WRITE_MEMORY_SUCCESSFUL	Data has been written into memory by SID 0x3D WriteMemoryByAddress
109	Dcm	SEV_UDS_WRITE_MEMORY_FAILED	Writing of Data into memory has been requested by SID 0x3D WriteMemoryByAddress, but failed
110	Dcm	SEV_UDS_REQUEST_UP_DOWNLOAD_SUCCESSFUL	An upload / download sequence has been requested successfully with SID 0x34 or SID 0x35
111	Dcm	SEV_UDS_REQUEST_UP_DOWNLOAD_FAILED	An upload / download sequence has been requested with SID 0x34 or SID 0x35, but failed
112	Dcm	SEV_UDS_REQUEST_FILE_TRANSFER_SUCCESSFUL	A file transfer sequence has been requested successfully with SID 0x38.
113	Dcm	SEV_UDS_REQUEST_FILE_TRANSFER_FAILED	A file transfer sequence has been requested with SID 0x38, but failed
114	Dcm	SEV_UDS_COMMUNICATION_CONTROL_SUCCESSFUL	The control of a communication has been requested by service SID 0x28 Communication Control successfully.
115	Dcm	SEV_UDS_COMMUNICATION_CONTROL_FAILED	The control of a communication has been requested by service SID 0x28 Communication Control, but failed.
116	Dcm	SEV_UDS_CLEAR_DTC_SUCCESSFUL	DTC information has been cleared by SID 0x14 ClearDiagnosticInformation.
117	Dcm	SEV_UDS_CLEAR_DTC_FAILED	Clearing DTC information has been requested by SID 0x14 ClearDiagnosticInformation, but failed.
118	Dcm	SEV_UDS_CONTROL_DTC_SETTING_SUCCESSFUL	The control of a DTC setting has been requested by service SID 0x85 ControlDTCSetting successfully.
119	Dcm	SEV_UDS_CONTROL_DTC_SETTING_FAILED	Control of DTC setting has been requested by service SID 0x85 ControlDTCSetting, but failed.
120	Dcm	SEV_UDS_ECU_RESET_SUCCESSFUL	ECU has been reset by SID 0x11 ECUReset.
121	Dcm	SEV_UDS_ECU_RESET_FAILED	ECU Reset has been requested by SID 0x11 ECUReset, but failed.
122	Dcm	SEV_UDS_ROUTINE_CONTROL_SUCCESSFUL	The control of a routine has been requested by service SID 0x31 RoutineControl successfully.
123	Dcm	SEV_UDS_ROUTINE_CONTROL_FAILED	The control of a routine has been requested by service SID 0x31 RoutineControl, but failed.
124	Dcm	SEV_UDS_IO_CONTROL_SUCCESSFUL	IOControl operation has been requested by service SID 0x2F InputOutputControlByIdentifier successfully.





<b>ID</b>	<b>Owner</b>	<b>Name</b>	<b>Description</b>
125	Dcm	SEV_UDS_IO_CONTROL_FAILED	IOControl operation has been requested by service SID 0x2F InputOutputControlBy Identifier, but failed.
100	DM	SEV_UDS_SECURITY_ACCESS_NEEDED	Tester has sent a diagnostic request without meeting the server's security level requirements for that service. NRC 0x33 (securityAccess Denied) was returned.
101	DM	SEV_UDS_AUTHENTICATION_NEEDED	A diagnostic request was received while the required authentication to execute this service is not given. NRC 0x34 (authentication Required) was returned.
102	DM	SEV_UDS_SECURITY_ACCESS_SUCCESSFUL	Successful unlocked the ECU (via Security Access SID 0x27)
103	DM	SEV_UDS_SECURITY_ACCESS_FAILED	Unlocking of the ECU (via Security Access SID 0x27) failed
104	DM	SEV_UDS_AUTHENTICATION_SUCCESSFUL	Successfully authenticated (via Authentication SID 0x29)
105	DM	SEV_UDS_AUTHENTICATION_FAILED	Authentication (via Authentication SID 0x29) failed
106	DM	SEV_UDS_WRITE_DATA_SUCCESSFUL	Diagnostic data identifier has been written by SID 0x2E WriteDataByIdentifier
107	DM	SEV_UDS_WRITE_DATA_FAILED	Change of Diagnostic data identifier has been requested by SID 0x2E WriteDataByIdentifier, but failed
110	DM	SEV_UDS_REQUEST_UP_DOWNLOAD_SUCCESSFUL	An upload / download sequence has been requested successfully with SID 0x34 or SID 0x35
111	DM	SEV_UDS_REQUEST_UP_DOWNLOAD_FAILED	An upload / download sequence has been requested with SID 0x34 or SID 0x35, but failed
112	DM	SEV_UDS_REQUEST_FILE_TRANSFER_SUCCESSFUL	A file transfer sequence has been requested successfully with SID 0x38.
113	DM	SEV_UDS_REQUEST_FILE_TRANSFER_FAILED	A file transfer sequence has been requested with SID 0x38, but failed
114	DM	SEV_UDS_COMMUNICATION_CONTROL_SUCCESSFUL	The control of a communication has been requested by service SID 0x28 Communication Control successfully.
115	DM	SEV_UDS_COMMUNICATION_CONTROL_FAILED	The control of a communication has been requested by service SID 0x28 Communication Control, but failed.
116	DM	SEV_UDS_CLEAR_DTC_SUCCESSFUL	DTC information has been cleared by SID 0x14 ClearDiagnosticInformation.
117	DM	SEV_UDS_CLEAR_DTC_FAILED	Clearing DTC information has been requested by SID 0x14 ClearDiagnosticInformation, but failed.
118	DM	SEV_UDS_CONTROL_DTC_SETTING_SUCCESSFUL	The control of a DTC setting has been requested by service SID 0x85 Control DTCSetting successfully.
119	DM	SEV_UDS_CONTROL_DTC_SETTING_FAILED	Control of DTC setting has been requested by service SID 0x85 ControlDTCSetting, but failed.
120	DM	SEV_UDS_ECU_RESET_SUCCESSFUL	ECU has been reset by SID 0x11 ECUReset.
121	DM	SEV_UDS_ECU_RESET_FAILED	ECU Reset has been requested by SID 0x11 ECUReset, but failed.
122	DM	SEV_UDS_ROUTINE_CONTROL_SUCCESSFUL	The control of a routine has been requested by service SID 0x31 RoutineControl successfully.



△

<i>ID</i>	<i>Owner</i>	<i>Name</i>	<i>Description</i>
123	DM	SEV_UDS_ROUTINE_CONTROL_FAILED	The control of a routine has been requested by service SID 0x31 RoutineControl, but failed.
93	UCM	SEV_SW_UPDATE_FAILED	A SW update operation was requested, but it was not successful.
94	UCM	SEV_SW_UPDATE_SUCCESS	A SW update operation was executed successfully.
65	PHM	SEV_ACCESSVIOLATION_PHM_CHECKPOINT	Access violation with respect to reporting of checkpoint.

**Table 4.1: Security Events**

## 5 Context data specification

### 5.1 Communication SEVs

#### 5.1.1 TLS

##### [SWS\_Tcplp\_00394]

<i>SEV Name</i>	<i>SEV_TLS_ERROR</i>	
<i>ID</i>	90	
<i>Description</i>	An alert message (warning or fatal) was detected (either received or generated) by TLS.	
<i>Context Data Version</i>	1	
<i>Context Data</i>	<i>Data Type</i>	<i>Allowed Values</i>
ReasonForFailure	uint8	Alert message as described in the the Alert Protocol in - RFC5246 for TLS Version 1.2 - RFC8446 for TLS Version 1.3
TLSVersion	uint16	Version as defined in RFC5246, RFC8446 - 0x0303 for TLS Version 1.2 - 0x0304 for TLS Version 1.3
SourceIpAddress	uint8 [16]	All IPv6 addresses and IPv4 addresses shall be encoded as specified in RFC 4291 Section 2.5.5.2
SourcePort	uint16	
DestinationIpAddress	uint8 [16]	All IPv6 addresses and IPv4 addresses shall be encoded as specified in RFC 4291 Section 2.5.5.2
DestinationPort	uint16	

##### [SWS\_Tcplp\_00395]

<i>SEV Name</i>	<i>SEV_TLS_CONNECTION_ESTABLISHED</i>	
<i>ID</i>	91	
<i>Description</i>	A TLS connection was successfully established.	
<i>Context Data Version</i>	1	
<i>Context Data</i>	<i>Data Type</i>	<i>Allowed Values</i>
TLSVersion	uint16	Version as defined in RFC5246, RFC8446 - 0x0303 for TLS Version 1.2 - 0x0304 for TLS Version 1.3
SourceIpAddress	uint8 [16]	All IPv6 addresses and IPv4 addresses shall be encoded as specified in RFC 4291 Section 2.5.5.2
SourcePort	uint16	
DestinationIpAddress	uint8 [16]	All IPv6 addresses and IPv4 addresses shall be encoded as specified in RFC 4291 Section 2.5.5.2
DestinationPort	uint16	

##### [SWS\_Tcplp\_00396]

<b>SEV Name</b>	<b>SEV_TLS_CONNECTION_CLOSED</b>	
<b>ID</b>	92	
<b>Description</b>	A TLS connection was closed normally.	
<b>Context Data Version</b>	1	
<b>Context Data</b>	<b>Data Type</b>	<b>Allowed Values</b>
ReasonForClosure	uint8	close_notify(0) user_canceled(90)
TLSVersion	uint16	Version as defined in RFC5246, RFC8446 - 0x0303 for TLS Version 1.2 - 0x0304 for TLS Version 1.3
SourceIpAddress	uint8 [16]	All IPv6 addresses and IPv4 addresses shall be encoded as specified in RFC 4291 Section 2.5.5.2
SourcePort	uint16	
DestinationIpAddress	uint8 [16]	All IPv6 addresses and IPv4 addresses shall be encoded as specified in RFC 4291 Section 2.5.5.2
DestinationPort	uint16	

### 5.1.2 MACsec

#### [CP\_SWS\_Mka\_00309]

<b>SEV Name</b>	<b>SEV_MKA_AUTHENTICATION_FAILURE</b>	
<b>ID</b>	78	
<b>Description</b>	Event triggered when the authentication during the MKA communication has failed (wrong CKN/CAK).	
<b>Context Data Version</b>	1	
<b>Context Data</b>	<b>Data Type</b>	<b>Allowed Values</b>
PortId	uint8 [2]	
CKN	uint8 [32]	
MACAddressOfPeer	uint8 [6]	

#### [CP\_SWS\_Mka\_00310]

<b>SEV Name</b>	<b>SEV_MKA_TIMEOUT</b>	
<b>ID</b>	79	
<b>Description</b>	Event triggered when the timeout for the MKA communication has expired.	
<b>Context Data Version</b>	1	
<b>Context Data</b>	<b>Data Type</b>	<b>Allowed Values</b>
PortId	uint8 [2]	
CKN	uint8 [32]	
MACAddressOfPeer	uint8 [6]	

#### [CP\_SWS\_Mka\_00311]

<b>SEV Name</b>	<b>SEV_MKA_PORT_NOT_ENABLED</b>	
<b>ID</b>	80	
<b>Description</b>	Event triggered when the indicated port for the MKA communication is not enable.	
<b>Context Data Version</b>	1	
<b>Context Data</b>	<b>Data Type</b>	<b>Allowed Values</b>
PortId	uint8 [2]	
CKN	uint8 [32]	
MACAdressOfPeer	uint8 [6]	

### [CP\_SWS\_Mka\_00312]

<b>SEV Name</b>	<b>SEV_MKA_CIPHER_SUITE_NOT_SUPPORTED</b>	
<b>ID</b>	81	
<b>Description</b>	Event triggered when there is no Cipher Suite supported.	
<b>Context Data Version</b>	1	
<b>Context Data</b>	<b>Data Type</b>	<b>Allowed Values</b>
PortId	uint8 [2]	
CKN	uint8 [32]	
MACAdressOfPeer	uint8 [6]	

### [CP\_SWS\_Mka\_00313]

<b>SEV Name</b>	<b>SEV_MKA_PORT_NUMBER_CHANGE</b>	
<b>ID</b>	82	
<b>Description</b>	Event triggered when during the MKA communication the port number has changed.	
<b>Context Data Version</b>	1	
<b>Context Data</b>	<b>Data Type</b>	<b>Allowed Values</b>
PortId	uint8 [2]	
CKN	uint8 [32]	
MACAdressOfPeer	uint8 [6]	

## 5.1.3 SecOC

### [SWS\_SecOC\_92000]

<b>SEV Name</b>	<b>SEV_SECOC_MAC_VERIFICATION_FAILED</b>	
<b>ID</b>	44	
<b>Description</b>	MAC verification of a received PDU failed.	
<b>Context Data Version</b>	1	
<b>Context Data</b>	<b>Data Type</b>	<b>Allowed Values</b>
DataId	uint16	



## 5.1.4 Firewall

### [CP\_SWS\_Fw\_60001, AP\_SWS\_Fw\_60001]

<b>SEV Name</b>	<b>SEV_FW_PACKET_BLOCKED_DATA_LINK_LAYER_MISMATCH</b>	
<b>ID</b>	77	
<b>Description</b>	A network packet was blocked due to a rule mismatch on data link layer.	
<b>Context Data Version</b>	1	
<b>Context Data</b>	<b>Data Type</b>	<b>Allowed Values</b>
FirewallRuleId	uint16	
CompleteEthernetHeader	uint8 [30]	

### [CP\_SWS\_Fw\_60020, AP\_SWS\_Fw\_60020]

<b>SEV Name</b>	<b>SEV_FW_PACKET_BLOCKED_IPV4_MISMATCH</b>	
<b>ID</b>	51	
<b>Description</b>	A network packet was blocked due to a rule mismatch on IPv4 layer.	
<b>Context Data Version</b>	1	
<b>Context Data</b>	<b>Data Type</b>	<b>Allowed Values</b>
FirewallRuleId	uint16	
CompleteIPv4Header	uint8 [24]	

### [CP\_SWS\_Fw\_60021, AP\_SWS\_Fw\_60021]

<b>SEV Name</b>	<b>SEV_FW_PACKET_BLOCKED_IPV6_MISMATCH</b>	
<b>ID</b>	52	
<b>Description</b>	A network packet was blocked due to a rule mismatch on IPv6 layer.	
<b>Context Data Version</b>	1	
<b>Context Data</b>	<b>Data Type</b>	<b>Allowed Values</b>
FirewallRuleId	uint16	
CompleteIPv4Header	uint8 [40]	

### [CP\_SWS\_Fw\_60022, AP\_SWS\_Fw\_60022]

<b>SEV Name</b>	<b>SEV_FW_PACKET_BLOCKED_ICMP_MISMATCH</b>	
<b>ID</b>	53	
<b>Description</b>	A network packet was blocked due to a rule mismatch within the ICMP protocol.	
<b>Context Data Version</b>	1	
<b>Context Data</b>	<b>Data Type</b>	<b>Allowed Values</b>
FirewallRuleId	uint16	
CompleteICMPHeader	uint8 [8]	

### [CP\_SWS\_Fw\_60023, AP\_SWS\_Fw\_60023]

<b>SEV Name</b>	<b>SEV_FW_PACKET_BLOCKED_TCP_MISMATCH</b>	
<b>ID</b>	54	
<b>Description</b>	A network packet was blocked due to a rule mismatch on TCP layer.	
<b>Context Data Version</b>	1	
<b>Context Data</b>	<b>Data Type</b>	<b>Allowed Values</b>
FirewallRuleId	uint16	
CompleteTCPHeader	uint8 [24]	

### [CP\_SWS\_Fw\_60024, AP\_SWS\_Fw\_60024]

<b>SEV Name</b>	<b>SEV_FW_PACKET_BLOCKED_UDP_MISMATCH</b>	
<b>ID</b>	55	
<b>Description</b>	A network packet was blocked due to a rule mismatch on UDP layer.	
<b>Context Data Version</b>	1	
<b>Context Data</b>	<b>Data Type</b>	<b>Allowed Values</b>
FirewallRuleId	uint16	
CompleteUDPHeader	uint8 [8]	

### [CP\_SWS\_Fw\_60025, AP\_SWS\_Fw\_60025]

<b>SEV Name</b>	<b>SEV_FW_PACKET_BLOCKED_SOMEIP_MISMATCH</b>	
<b>ID</b>	56	
<b>Description</b>	A network packet was blocked due to a rule mismatch in the SOME/IP protocol.	
<b>Context Data Version</b>	1	
<b>Context Data</b>	<b>Data Type</b>	<b>Allowed Values</b>
FirewallRuleId	uint16	
CompleteSOMEIPHeader	uint8 [16]	

### [CP\_SWS\_Fw\_60026, AP\_SWS\_Fw\_60026]

<b>SEV Name</b>	<b>SEV_FW_PACKET_BLOCKED_SOMEIPSD_MISMATCH</b>	
<b>ID</b>	57	
<b>Description</b>	A network packet was blocked due to a rule mismatch in the SOME/IP SD protocol.	
<b>Context Data Version</b>	1	
<b>Context Data</b>	<b>Data Type</b>	<b>Allowed Values</b>
FirewallRuleId	uint16	
CompleteSOMEIPSDHeader	uint8 [20]	

### [CP\_SWS\_Fw\_60027, AP\_SWS\_Fw\_60027]

<b>SEV Name</b>	<b>SEV_FW_PACKET_BLOCKED_DDS_MISMATCH</b>	
<b>ID</b>	58	
<b>Description</b>	A network packet was blocked due to a rule mismatch in the DDS-RTPS protocol.	
<b>Context Data Version</b>	1	
<b>Context Data</b>	<b>Data Type</b>	<b>Allowed Values</b>
FirewallRuleId	uint16	
CompleteDDSHeader	uint8 [48]	

**[CP\_SWS\_Fw\_60028, AP\_SWS\_Fw\_60028]**

<b>SEV Name</b>	<b>SEV_FW_PACKET_BLOCKED_DOIP_MISMATCH</b>	
<b>ID</b>	59	
<b>Description</b>	A network packet was blocked due to a rule mismatch in the DoIP protocol.	
<b>Context Data Version</b>	1	
<b>Context Data</b>	<b>Data Type</b>	<b>Allowed Values</b>
FirewallRuleId	uint16	
CompleteDOIPHeader	uint8 [4]	

**[CP\_SWS\_Fw\_60029, AP\_SWS\_Fw\_60029]**

<b>SEV Name</b>	<b>SEV_FW_PACKET_BLOCKED_GENERIC_MISMATCH</b>	
<b>ID</b>	60	
<b>Description</b>	A network packet was blocked due to a rule mismatch on generic inspection level.	
<b>Context Data Version</b>	1	
<b>Context Data</b>	<b>Data Type</b>	<b>Allowed Values</b>
FirewallRuleId	uint16	

**[CP\_SWS\_Fw\_60002, AP\_SWS\_Fw\_60002]**

<b>SEV Name</b>	<b>SEV_FW_PACKET_BLOCKED_TCP_MAXCONNECTIONS</b>	
<b>ID</b>	61	
<b>Description</b>	A network packet was blocked due to the maximal number of open TCP connections was reached.	
<b>Context Data Version</b>	1	
<b>Context Data</b>	<b>Data Type</b>	<b>Allowed Values</b>
FirewallRuleId	uint16	
CompleteTCPHeader	uint8 [24]	

**[CP\_SWS\_Fw\_60030, AP\_SWS\_Fw\_60030]**

<b>SEV Name</b>	<b>SEV_FW_PACKET_BLOCKED_TCP_TIMEOUT</b>	
<b>ID</b>	62	
<b>Description</b>	A network packet was blocked due to TCP timeout.	
<b>Context Data Version</b>	1	
<b>Context Data</b>	<b>Data Type</b>	<b>Allowed Values</b>
FirewallRuleId	uint16	
CompleteTCPHeader	uint8 [24]	

**[CP\_SWS\_Fw\_60031, AP\_SWS\_Fw\_60031]**

<b>SEV Name</b>	<b>SEV_FW_PACKET_BLOCKED_TCP_STATETRANSITION</b>	
<b>ID</b>	63	
<b>Description</b>	A network packet was blocked due to an invalid TCP state transition.	
<b>Context Data Version</b>	1	





<b>SEV Name</b>	<b>SEV_FW_PACKET_BLOCKED_TCP_STATETRANSITION</b>	
<b>Context Data</b>	<b>Data Type</b>	<b>Allowed Values</b>
FirewallRuleId	uint16	

### [CP\_SWS\_Fw\_60003, AP\_SWS\_Fw\_60003]

<b>SEV Name</b>	<b>SEV_FW_PACKET_BLOCKED_RATELIMIT</b>	
<b>ID</b>	64	
<b>Description</b>	A network packet was blocked due to the rate limit was reached.	
<b>Context Data Version</b>	1	
<b>Context Data</b>	<b>Data Type</b>	<b>Allowed Values</b>
FirewallRuleId	uint16	
MAC_Address	uint8 [6]	

### [CP\_SWS\_Fw\_60032]

<b>SEV Name</b>	<b>SEV_FW_PACKET_BLOCKED_BY_PERSTREAMFILTERING</b>	
<b>ID</b>	83	
<b>Description</b>	A network packet was blocked due to per-stream filtering in the switch.	
<b>Context Data Version</b>	1	
<b>Context Data</b>	<b>Data Type</b>	<b>Allowed Values</b>
BucketId	uint8	
CountValue	uint32	

## 5.1.5 CAN

### [SWS\_CANIF\_92000]

<b>SEV Name</b>	<b>SEV_CAN_TX_ERROR_DETECTED</b>	
<b>ID</b>	19	
<b>Description</b>	A transmission related error was detected. Depending on the context data this could indicate suspicious CAN activity.	
<b>Context Data Version</b>	1	
<b>Context Data</b>	<b>Data Type</b>	<b>Allowed Values</b>
ControllerId	uint8	
CanError	uint8	CAN_ERROR_BIT_MONITORING1 (0x01) CAN_ERROR_BIT_MONITORING0 (0x02) CAN_ERROR_BIT (0x03) CAN_ERROR_CHECK_ACK_FAILED (0x04) CAN_ERROR_ACK_DELIMITER (0x05) CAN_ERROR_ARBITRATION_LOST (0x06) CAN_ERROR_OVERLOAD (0x07)

### [SWS\_CANIF\_92001]

<b>SEV Name</b>	<b>SEV_CAN_RX_ERROR_DETECTED</b>	
<b>ID</b>	20	
<b>Description</b>	A reception related error was detected. Depending on the context data this could indicate suspicious CAN activity.	
<b>Context Data Version</b>	1	
<b>Context Data</b>	<b>Data Type</b>	<b>Allowed Values</b>
ControllerId	uint8	
CanError	uint8	CAN_ERROR_CHECK_FORM_FAILED (0x08) CAN_ERROR_CHECK_STUFFING_FAILED (0x09) CAN_ERROR_CHECK_CRC_FAILED (0x0A) CAN_ERROR_BUS_LOOK (0x0B)

### [SWS\_CANIF\_92002]

<b>SEV Name</b>	<b>SEV_CAN_ERRORSTATE_PASSIVE</b>	
<b>ID</b>	21	
<b>Description</b>	The CAN controller transitioned to state passive.	
<b>Context Data Version</b>	1	
<b>Context Data</b>	<b>Data Type</b>	<b>Allowed Values</b>
ControllerId	uint8	
ErrorCounterThreshold	uint8	TxErrorCounter > 127 AND RxErrorCounter > 127 (0x00) TxErrorCounter > 127 AND RxErrorCounter < 127 (0x01) RxErrorCounter > 127 AND TxErrorCounter < 127 (0x02)

### [SWS\_CANIF\_92003]

<b>SEV Name</b>	<b>SEV_CAN_ERRORSTATE_BUSOFF</b>	
<b>ID</b>	22	
<b>Description</b>	The CAN controller transitioned to state busoff.	
<b>Context Data Version</b>	1	
<b>Context Data</b>	<b>Data Type</b>	<b>Allowed Values</b>
ControllerId	uint8	

## 5.1.6 Signal-based communication

### [SWS\_Com\_00903]

<b>SEV Name</b>	<b>SEV_COM_RX_SIGNAL_VALUE_UNEXPECTED</b>	
<b>ID</b>	89	
<b>Description</b>	Signal or group signal is received with unexpected value.	
<b>Context Data Version</b>	1	
<b>Context Data</b>	<b>Data Type</b>	<b>Allowed Values</b>
ComHandleId	uint16	

### 5.1.7 Time Synchronization

#### [SWS\_CanTSyn\_92000]

<b>SEV Name</b>	<b>SEV_TSYN_CAN_ICV_GENERATION_FAILED</b>	
<b>ID</b>	66	
<b>Description</b>	ICV generation for a FUP message has failed.	
<b>Context Data Version</b>	1	
<b>Context Data</b>	<b>Data Type</b>	<b>Allowed Values</b>
GlobalTimeDomainId	uint8	

#### [SWS\_CanTSyn\_92001]

<b>SEV Name</b>	<b>SEV_TSYN_CAN_ICV_VERIFICATION_FAILED</b>	
<b>ID</b>	67	
<b>Description</b>	ICV verification of a FUP message has failed.	
<b>Context Data Version</b>	1	
<b>Context Data</b>	<b>Data Type</b>	<b>Allowed Values</b>
GlobalTimeDomainId	uint8	

#### [SWS\_CanTSyn\_92002]

<b>SEV Name</b>	<b>SEV_TSYN_CAN_FRESHNESS_NOT_AVAILABLE</b>	
<b>ID</b>	68	
<b>Description</b>	Failed to get freshness value from FvM.	
<b>Context Data Version</b>	1	
<b>Context Data</b>	<b>Data Type</b>	<b>Allowed Values</b>
GlobalTimeDomainId	uint8	

#### [SWS\_CanTSyn\_92003]

<b>SEV Name</b>	<b>SEV_TSYN_CAN_MSG_SEQUENCE_ERROR</b>	
<b>ID</b>	69	
<b>Description</b>	Failed to receive correct sequence of SYNC and FUP from the TimeMaster within (CanTSyn GlobalTimeFollowUpTimeout).	
<b>Context Data Version</b>	1	
<b>Context Data</b>	<b>Data Type</b>	<b>Allowed Values</b>
GlobalTimeDomainId	uint8	

#### [SWS\_EthTSyn\_92000, SWS\_TS\_14214]

<b>SEV Name</b>	<b>SEV_TSYN_ETH_ICV_GENERATION_FAILED</b>	
<b>ID</b>	73	
<b>Description</b>	ICV generation for a Follow_Up message failed.	
<b>Context Data Version</b>	1	
<b>Context Data</b>	<b>Data Type</b>	<b>Allowed Values</b>
GlobalTimeDomainId	uint8	

**[SWS\_EthTSyn\_92001, SWS\_TS\_14215]**

<b>SEV Name</b>	<b>SEV_TSYN_ETH_ICV_VERIFICATION_FAILED</b>	
<b>ID</b>	74	
<b>Description</b>	ICV verification of a received Follow_Up message failed.	
<b>Context Data Version</b>	1	
<b>Context Data</b>	<b>Data Type</b>	<b>Allowed Values</b>
GlobalTimeDomainId	uint8	

**[SWS\_EthTSyn\_92002, SWS\_TS\_14216]**

<b>SEV Name</b>	<b>SEV_TSYN_ETH_FRESHNESS_NOT_AVAILABLE</b>	
<b>ID</b>	75	
<b>Description</b>	Failed to get freshness value from FvM.	
<b>Context Data Version</b>	1	
<b>Context Data</b>	<b>Data Type</b>	<b>Allowed Values</b>
GlobalTimeDomainId	uint8	

**[SWS\_EthTSyn\_92003, SWS\_TS\_14217]**

<b>SEV Name</b>	<b>SEV_TSYN_ETH_MSG_SEQUENCE_ERROR</b>	
<b>ID</b>	76	
<b>Description</b>	Failed to receive correct sequence of SYNC and FUP from the TimeMaster within (EthTSyn GlobalTimeFollowUpTimeout).	
<b>Context Data Version</b>	1	
<b>Context Data</b>	<b>Data Type</b>	<b>Allowed Values</b>
GlobalTimeDomainId	uint8	

**[SWS\_FrTSyn\_92000]**

<b>SEV Name</b>	<b>SEV_TSYN_FR_ICV_GENERATION_FAILED</b>	
<b>ID</b>	70	
<b>Description</b>	ICV generation for a Sync message has failed.	
<b>Context Data Version</b>	1	
<b>Context Data</b>	<b>Data Type</b>	<b>Allowed Values</b>
GlobalTimeDomainId	uint8	

**[SWS\_FrTSyn\_92001]**

<b>SEV Name</b>	<b>SEV_TSYN_FR_ICV_VERIFICATION_FAILED</b>	
<b>ID</b>	71	
<b>Description</b>	ICV verification of a received Sync message has failed.	
<b>Context Data Version</b>	1	
<b>Context Data</b>	<b>Data Type</b>	<b>Allowed Values</b>
GlobalTimeDomainId	uint8	

**[SWS\_FrTSyn\_92002]**

<b>SEV Name</b>	<b>SEV_TSYN_FR_FRESHNESS_NOT_AVAILABLE</b>	
<b>ID</b>	72	
<b>Description</b>	Failed to get freshness value from FvM.	
<b>Context Data Version</b>	1	
<b>Context Data</b>	<b>Data Type</b>	<b>Allowed Values</b>
GlobalTimeDomainId	uint8	

## 5.2 Cryptography SEVs

### 5.2.1 Certificates

#### [SWS\_KeyM\_00303]

<b>SEV Name</b>	<b>SEV_CERT_ROOT_INST_REQ</b>	
<b>ID</b>	1	
<b>Description</b>	Attempt to install a root certificate.	
<b>Context Data Version</b>	1	
<b>Context Data</b>	<b>Data Type</b>	<b>Allowed Values</b>
Result	uint8	Operation failed Operation succeeded
HashedID8ofCertificate	uint8 [8]	
certificateIssuerName	uint8 [32, encoding UTF-8]	

#### [SWS\_KeyM\_00304]

<b>SEV Name</b>	<b>SEV_CERT_ROOT_UPD_REQ</b>	
<b>ID</b>	2	
<b>Description</b>	Attempt to update an existing root certificate.	
<b>Context Data Version</b>	1	
<b>Context Data</b>	<b>Data Type</b>	<b>Allowed Values</b>
Result	uint8	Operation failed Operation succeeded
HashedID8ofCertificate	uint8 [8]	
certificateIssuerName	uint8 [32, encoding UTF-8]	

#### [SWS\_KeyM\_00305]

<b>SEV Name</b>	<b>SEV_CERT_INTERMEDIATE_INST_REQ</b>	
<b>ID</b>	3	
<b>Description</b>	Attempt to install an intermediate certificate.	
<b>Context Data Version</b>	1	
<b>Context Data</b>	<b>Data Type</b>	<b>Allowed Values</b>
Result	uint8	Operation failed Operation succeeded







<i>SEV Name</i>	<i>SEV_CERT_INTERMEDIATE_INST_REQ</i>	
HashedID8ofCertificate	uint8 [8]	
certificateIssuerName	uint8 [32, encoding UTF-8]	

### [SWS\_KeyM\_00306]

<i>SEV Name</i>	<i>SEV_CERT_INTERMEDIATE_UPD_REQ</i>	
<i>ID</i>	4	
<i>Description</i>	Attempt to update an intermediate certificate.	
<i>Context Data Version</i>	1	
<i>Context Data</i>	<i>Data Type</i>	<i>Allowed Values</i>
Result	uint8	Operation failed Operation succeeded
HashedID8ofCertificate	uint8 [8]	
certificateIssuerName	uint8 [32, encoding UTF-8]	

### [SWS\_KeyM\_00307]

<i>SEV Name</i>	<i>SEV_CERT_VERIF_FAILED</i>	
<i>ID</i>	5	
<i>Description</i>	A request to verify a certificate against a certificate chain was not successful.	
<i>Context Data Version</i>	1	
<i>Context Data</i>	<i>Data Type</i>	<i>Allowed Values</i>
Result	uint8	E_NOT_OK (0x00) KEYM_E_BUSY (0x01) KEYM_E_PARAMETER_MISMATCH (0x05) KEYM_E_KEY_CERT_EMPTY (0x0A) KEYM_E_CERT_INVALID_CHAIN_OF_TRUST (0x0B)
HashedID8ofCertificate	uint8 [8]	
certificateIssuerName	uint8 [32, encoding UTF-8]	

## 5.3 Diagnostic SEvs

### 5.3.1 UDS

#### [SWS\_Dcm\_01703, SWS\_DM\_02016]

<i>SEV Name</i>	<i>SEV_UDS_SECURITY_ACCESS_NEEDED</i>	
<i>ID</i>	100	
<i>Description</i>	Tester has sent a diagnostic request without meeting the server's security level requirements for that service. NRC 0x33 (securityAccessDenied) was returned.	
<i>Context Data Version</i>	1	
<i>Context Data</i>	<i>Data Type</i>	<i>Allowed Values</i>
SID	uint8	





<i>SEV Name</i>	<i>SEV_UDS_SECURITY_ACCESS_NEEDED</i>	
Subfunction	uint8	255: is filled in case the service is without Subfunction
DataIdentifier	uint16	65535: is filled in case the service is without DID
RoutineIdentifier	uint16	65535: is filled in case the service is without RID
ClientSourceAddress	uint16	

### [SWS\_Dcm\_01705, SWS\_DM\_02018]

<i>SEV Name</i>	<i>SEV_UDS_AUTHENTICATION_NEEDED</i>	
<i>ID</i>	101	
<i>Description</i>	A diagnostic request was received while the required authentication to execute this service is not given. NRC 0x34 (authenticationRequired) was returned.	
<i>Context Data Version</i>	1	
<i>Context Data</i>	<i>Data Type</i>	<i>Allowed Values</i>
SID	uint8	
Subfunction	uint8	255: is filled in case the service is without Subfunction
DataIdentifier	uint16	65535: is filled in case the service is without DID
RoutineIdentifier	uint16	65535: is filled in case the service is without RID
ClientSourceAddress	uint16	

### [SWS\_Dcm\_01707, SWS\_DM\_02020]

<i>SEV Name</i>	<i>SEV_UDS_SECURITY_ACCESS_SUCCESSFUL</i>	
<i>ID</i>	102	
<i>Description</i>	Successful unlocked the ECU (via Security Access SID 0x27)	
<i>Context Data Version</i>	1	
<i>Context Data</i>	<i>Data Type</i>	<i>Allowed Values</i>
Subfunction	uint8	
ClientSourceAddress	uint16	

### [SWS\_Dcm\_01709, SWS\_DM\_02022]

<i>SEV Name</i>	<i>SEV_UDS_SECURITY_ACCESS_FAILED</i>	
<i>ID</i>	103	
<i>Description</i>	Unlocking of the ECU (via Security Access SID 0x27) failed	
<i>Context Data Version</i>	1	
<i>Context Data</i>	<i>Data Type</i>	<i>Allowed Values</i>
Subfunction	uint8	
ClientSourceAddress	uint16	
NegativeResponseCode	uint8	

### [SWS\_Dcm\_01711, SWS\_DM\_02024]

<b>SEV Name</b>	<b>SEV_UDS_AUTHENTICATION_SUCCESSFUL</b>	
<b>ID</b>	104	
<b>Description</b>	Successfully authenticated (via Authentication SID 0x29)	
<b>Context Data Version</b>	1	
<b>Context Data</b>	<b>Data Type</b>	<b>Allowed Values</b>
Subfunction	uint8	
ClientSourceAddress	uint16	

**[SWS\_Dcm\_01713, SWS\_DM\_02026]**

<b>SEV Name</b>	<b>SEV_UDS_AUTHENTICATION_FAILED</b>	
<b>ID</b>	105	
<b>Description</b>	Authentication (via Authentication SID 0x29) failed	
<b>Context Data Version</b>	1	
<b>Context Data</b>	<b>Data Type</b>	<b>Allowed Values</b>
Subfunction	uint8	
ClientSourceAddress	uint16	
NegativeResponseCode	uint8	

**[SWS\_Dcm\_01715, SWS\_DM\_02028]**

<b>SEV Name</b>	<b>SEV_UDS_WRITE_DATA_SUCCESSFUL</b>	
<b>ID</b>	106	
<b>Description</b>	Diagnostic data identifier has been written by SID 0x2E WriteDataByIdentifier	
<b>Context Data Version</b>	1	
<b>Context Data</b>	<b>Data Type</b>	<b>Allowed Values</b>
DID	uint16	
ClientSourceAddress	uint16	

**[SWS\_Dcm\_01717, SWS\_DM\_02030]**

<b>SEV Name</b>	<b>SEV_UDS_WRITE_DATA_FAILED</b>	
<b>ID</b>	107	
<b>Description</b>	Change of Diagnostic data identifier has been requested by SID 0x2E WriteDataByIdentifier, but failed	
<b>Context Data Version</b>	1	
<b>Context Data</b>	<b>Data Type</b>	<b>Allowed Values</b>
DID	uint16	
ClientSourceAddress	uint16	
NegativeResponseCode	uint8	

**[SWS\_Dcm\_01719, SWS\_DM\_02032]**

<b>SEV Name</b>	<b>SEV_UDS_REQUEST_UP_DOWNLOAD_SUCCESSFUL</b>	
<b>ID</b>	110	
<b>Description</b>	An upload / download sequence has been requested successfully with SID 0x34 or SID 0x35	
<b>Context Data Version</b>	1	
<b>Context Data</b>	<b>Data Type</b>	<b>Allowed Values</b>
SID	uint8	
MemoryAddress	uint32	
MemorySize	uint32	
ClientSourceAddress	uint16	

**[SWS\_Dcm\_01721, SWS\_DM\_02034]**

<b>SEV Name</b>	<b>SEV_UDS_REQUEST_UP_DOWNLOAD_FAILED</b>	
<b>ID</b>	111	
<b>Description</b>	An upload / download sequence has been requested with SID 0x34 or SID 0x35, but failed	
<b>Context Data Version</b>	1	
<b>Context Data</b>	<b>Data Type</b>	<b>Allowed Values</b>
SID	uint8	
MemoryAddress	uint32	
MemorySize	uint32	
ClientSourceAddress	uint16	
NegativeResponseCode	uint8	

**[SWS\_Dcm\_01723, SWS\_DM\_02036]**

<b>SEV Name</b>	<b>SEV_UDS_REQUEST_FILE_TRANSFER_SUCCESSFUL</b>	
<b>ID</b>	112	
<b>Description</b>	A file transfer sequence has been requested successfully with SID 0x38.	
<b>Context Data Version</b>	1	
<b>Context Data</b>	<b>Data Type</b>	<b>Allowed Values</b>
ModeOfOperation	uint8	AddFile (0x01) DeleteFile (0x02) ReplaceFile (0x03) ReadFile (0x04) ReadDir (0x05) ResumeFile (0x06)
FilePathAndName	uint8 [50]	Each byte of this parameter is encoded in ASCII format.
ClientSourceAddress	uint16	

**[SWS\_Dcm\_01725, SWS\_DM\_02038]**

<b>SEV Name</b>	<b>SEV_UDS_REQUEST_FILE_TRANSFER_FAILED</b>	
<b>ID</b>	113	
<b>Description</b>	A file transfer sequence has been requested with SID 0x38, but failed	
<b>Context Data Version</b>	1	
<b>Context Data</b>	<b>Data Type</b>	<b>Allowed Values</b>





<b>SEV Name</b>	<b>SEV_UDS_REQUEST_FILE_TRANSFER_FAILED</b>	
ModeOfOperation	uint8	AddFile (0x01) DeleteFile (0x02) ReplaceFile (0x03) ReadFile (0x04) ReadDir (0x05) ResumeFile (0x06)
FilePathAndName	uint8 [50]	Each byte of this parameter is encoded in ASCII format.
ClientSourceAddress	uint16	
NegativeResponseCode	uint8	

**[SWS\_Dcm\_01727, SWS\_DM\_02040]**

<b>SEV Name</b>	<b>SEV_UDS_COMMUNICATION_CONTROL_SUCCESSFUL</b>	
<b>ID</b>	114	
<b>Description</b>	The control of a communication has been requested by service SID 0x28 Communication Control successfully.	
<b>Context Data Version</b>	1	
<b>Context Data</b>	<b>Data Type</b>	<b>Allowed Values</b>
Subfunction	uint8	
ClientSourceAddress	uint16	

**[SWS\_Dcm\_01729, SWS\_DM\_02042]**

<b>SEV Name</b>	<b>SEV_UDS_COMMUNICATION_CONTROL_FAILED</b>	
<b>ID</b>	115	
<b>Description</b>	The control of a communication has been requested by service SID 0x28 Communication Control, but failed.	
<b>Context Data Version</b>	1	
<b>Context Data</b>	<b>Data Type</b>	<b>Allowed Values</b>
Subfunction	uint8	
ClientSourceAddress	uint16	
NegativeResponseCode	uint8	

**[SWS\_Dcm\_01731, SWS\_DM\_02044]**

<b>SEV Name</b>	<b>SEV_UDS_CLEAR_DTC_SUCCESSFUL</b>	
<b>ID</b>	116	
<b>Description</b>	DTC information has been cleared by SID 0x14 ClearDiagnosticInformation.	
<b>Context Data Version</b>	1	
<b>Context Data</b>	<b>Data Type</b>	<b>Allowed Values</b>
GroupOfDTC	uint8 [3]	given in the format: HighByte, MiddleByte, LowByte
MemorySelection	uint16	0x0001: PrimaryMemory 0x01XX: XX is the address of the UserDefinedMemory
ClientSourceAddress	uint16	

**[SWS\_Dcm\_01733, SWS\_DM\_02046]**

<b>SEV Name</b>	<b>SEV_UDS_CLEAR_DTC_FAILED</b>	
<b>ID</b>	117	
<b>Description</b>	Clearing DTC information has been requested by SID 0x14 ClearDiagnosticInformation, but failed.	
<b>Context Data Version</b>	1	
<b>Context Data</b>	<b>Data Type</b>	<b>Allowed Values</b>
GroupOfDTC	uint8 [3]	given in the format: HighByte, MiddleByte, LowByte
MemorySelection	uint16	0x0001: PrimaryMemory 0x01XX: XX is the address of the UserDefinedMemory
ClientSourceAddress	uint16	
NegativeResponseCode	uint8	

### [SWS\_Dcm\_01735, SWS\_DM\_02048]

<b>SEV Name</b>	<b>SEV_UDS_CONTROL_DTC_SETTING_SUCCESSFUL</b>	
<b>ID</b>	118	
<b>Description</b>	The control of a DTC setting has been requested by service SID 0x85 ControlDTCSetting successfully.	
<b>Context Data Version</b>	1	
<b>Context Data</b>	<b>Data Type</b>	<b>Allowed Values</b>
Subfunction	uint8	
ClientSourceAddress	uint16	

### [SWS\_Dcm\_01737, SWS\_DM\_02050]

<b>SEV Name</b>	<b>SEV_UDS_CONTROL_DTC_SETTING_FAILED</b>	
<b>ID</b>	119	
<b>Description</b>	Control of DTC setting has been requested by service SID 0x85 ControlDTCSetting, but failed.	
<b>Context Data Version</b>	1	
<b>Context Data</b>	<b>Data Type</b>	<b>Allowed Values</b>
Subfunction	uint8	
ClientSourceAddress	uint16	
NegativeResponseCode	uint8	

### [SWS\_Dcm\_01739, SWS\_DM\_02052]

<b>SEV Name</b>	<b>SEV_UDS_ECU_RESET_SUCCESSFUL</b>	
<b>ID</b>	120	
<b>Description</b>	ECU has been reset by SID 0x11 ECUReset.	
<b>Context Data Version</b>	1	
<b>Context Data</b>	<b>Data Type</b>	<b>Allowed Values</b>
Subfunction	uint8	
ClientSourceAddress	uint16	

### [SWS\_Dcm\_01741, SWS\_DM\_02054]

<b>SEV Name</b>	<b>SEV_UDS_ECU_RESET_FAILED</b>	
<b>ID</b>	121	
<b>Description</b>	ECU Reset has been requested by SID 0x11 ECUReset, but failed.	
<b>Context Data Version</b>	1	
<b>Context Data</b>	<b>Data Type</b>	<b>Allowed Values</b>
Subfunction	uint8	
ClientSourceAddress	uint16	
NegativeResponseCode	uint8	

### [SWS\_Dcm\_01743, SWS\_DM\_02056]

<b>SEV Name</b>	<b>SEV_UDS_ROUTINE_CONTROL_SUCCESSFUL</b>	
<b>ID</b>	122	
<b>Description</b>	The control of a routine has been requested by service SID 0x31 RoutineControl successfully.	
<b>Context Data Version</b>	1	
<b>Context Data</b>	<b>Data Type</b>	<b>Allowed Values</b>
RID	uint16	
Subfunction	uint8	
ClientSourceAddress	uint16	

### [SWS\_Dcm\_01745, SWS\_DM\_02058]

<b>SEV Name</b>	<b>SEV_UDS_ROUTINE_CONTROL_FAILED</b>	
<b>ID</b>	123	
<b>Description</b>	The control of a routine has been requested by service SID 0x31 RoutineControl, but failed.	
<b>Context Data Version</b>	1	
<b>Context Data</b>	<b>Data Type</b>	<b>Allowed Values</b>
RID	uint16	
Subfunction	uint8	
ClientSourceAddress	uint16	
NegativeResponseCode	uint8	

### [SWS\_Dcm\_01747]

<b>SEV Name</b>	<b>SEV_UDS_IO_CONTROL_SUCCESSFUL</b>	
<b>ID</b>	124	
<b>Description</b>	IOControl operation has been requested by service SID 0x2F InputOutputControlBy Identifier successfully.	
<b>Context Data Version</b>	1	
<b>Context Data</b>	<b>Data Type</b>	<b>Allowed Values</b>
DID	uint16	
inputOutputControlParameter	uint8	
ClientSourceAddress	uint16	

### [SWS\_Dcm\_01749]

<b>SEV Name</b>	<b>SEV_UDS_IO_CONTROL_FAILED</b>	
<b>ID</b>	125	
<b>Description</b>	IOControl operation has been requested by service SID 0x2F InputOutputControlBy Identifier, but failed.	
<b>Context Data Version</b>	1	
<b>Context Data</b>	<b>Data Type</b>	<b>Allowed Values</b>
DID	uint16	
inputOutputControlParameter	uint8	
ClientSourceAddress	uint16	
NegativeResponseCode	uint8	

### [SWS\_Dcm\_01751]

<b>SEV Name</b>	<b>SEV_UDS_WRITE_MEMORY_SUCCESSFUL</b>	
<b>ID</b>	108	
<b>Description</b>	Data has been written into memory by SID 0x3D WriteMemoryByAddress	
<b>Context Data Version</b>	1	
<b>Context Data</b>	<b>Data Type</b>	<b>Allowed Values</b>
MemoryAddress	uint32	
MemorySize	uint32	
ClientSourceAddress	uint16	

### [SWS\_Dcm\_01753]

<b>SEV Name</b>	<b>SEV_UDS_WRITE_MEMORY_FAILED</b>	
<b>ID</b>	109	
<b>Description</b>	Writing of Data into memory has been requested by SID 0x3D WriteMemoryByAddress, but failed	
<b>Context Data Version</b>	1	
<b>Context Data</b>	<b>Data Type</b>	<b>Allowed Values</b>
MemoryAddress	uint32	
MemorySize	uint32	
ClientSourceAddress	uint16	
NegativeResponseCode	uint8	

## 5.4 SW Update SEVs

### [SWS\_UCM\_00404]

<b>SEV Name</b>	<b>SEV_SW_UPDATE_FAILED</b>	
<b>ID</b>	93	
<b>Description</b>	A SW update operation was requested, but it was not successful.	
<b>Context Data Version</b>	1	
<b>Context Data</b>	<b>Data Type</b>	<b>Allowed Values</b>
Action	uint8	





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<b>SEV Name</b>	<b>SEV_SW_UPDATE_FAILED</b>	
ErrorCode	uint8	
Resolution	uint8	
SwName	uint16 [128, encoding UTF-8]	
ReceivedSwVersion	uint16 [32, encoding UTF-8]	

**[SWS\_UCM\_00405]**

<b>SEV Name</b>	<b>SEV_SW_UPDATE_SUCCESS</b>	
<b>ID</b>	94	
<b>Description</b>	A SW update operation was executed successfully.	
<b>Context Data Version</b>	1	
<b>Context Data</b>	<b>Data Type</b>	<b>Allowed Values</b>
Action	uint8	
SwName	uint16 [128, encoding UTF-8]	
ReceivedSwVersion	uint16 [32, encoding UTF-8]	