EB tresos® AutoCore Generic 8

IP Stack documentation

release notes update for the Sd module

product release 8.8.7

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1. Overview

This document provides you with the release notes to accompany an update to the `Sd` module. Refer to the changelog [Section 2.1, "Change log"](#) for details of changes made for this update.

Release notes details

- ► EB tresos AutoCore release version: 8.8.7
- ► EB tresos Studio release version: 29.2.1
- ► AUTOSAR R4.2 Rev 1
- ► Build number: B592234

2. Sd module release notes

- ► AUTOSAR R4.2 Rev 1
- ► AUTOSAR SWS document version: 4.2.1
- ► Module version: 1.4.18.B592234
- ► Supplier: Elektrobit Automotive GmbH

2.1. Change log

This chapter lists the changes between different versions.

Module version 1.4.18

2022-12-16

- ► ASCSD-933 Fixed known issue: Client service will not go online if a second offer is received while connection is not established.
- ► Implemented additional check for SoConMode before first FIND entry is sent.
- ► Implemented additional check for UDP/DTLS connections to be up and running before resubscribing to a server.
- ► ASCSD-936 Fixed known issue: Messages that contain at least one FINDSERVICE ENTRY are not sent after TTL expiry.

Module version 1.4.17

2022-11-04

- ► ASCSD-902 Fixed known issue: SD Client may not be able to answer to offers from Server
- ► Implemented to open client socket connection only when service is requested and offer is received.

Module version 1.4.16

2022-09-16

- ► Internal module improvement. This module version update does not affect module functionality.

Module version 1.4.15

2022-09-13

► ASCSD-862 Fixed known issue: Sd module might get stuck in infinite loop when receiving a particularly crafted message.

► Improved optimization of RAM consumption of Sd for large values of SdMaximumRemoteNodes.

Module version 1.4.14

2022-06-10

► ASCSD-860 Fixed known issue: Wrong error messages are shown if a PDU/socket route references a connection bundle.

Module version 1.4.13

2022-04-01

► Internal module improvement. This module version update does not affect module functionality.

Module version 1.4.12

2022-02-18

► ASCSD-819 Fixed known issue: If functionality Server Service Not Available Call-back is enabled, TCP endpoint IP Address is not sent back correctly.

► Added optimization of RAM consumption of Sd for large values of SdMaximumRemoteNodes.

Module version 1.4.11

2021-10-08

► Internal module improvement. This module version update does not affect module functionality.

Module version 1.4.10

2021-08-30

► Added implementation API to provide Instance ID and IP address to an external SWC.

Module version 1.4.9

2021-06-25

▶ Added implementation of DEM error to indicate when a server service is no longer available.

▶ Added implementation of a callback to indicate when a malformed Service Discovery message is received.

▶ Added implementation of a callback to indicate when a Subscribe Nack entry is received.

Module version 1.4.8

2021-03-05

▶ Implemented Post-build binary (loadable or relocatable) support

▶ Implemented Post-build configuration manager support

▶ Implemented Retry for EventGroup subscription for OFFERs with TTL infinite

▶ Implemented extended SD subscription retry for cyclic offers

▶ Implemented SdVersionDrivenFindBehavior flag to handle the acceptance and sending of FIND entries

▶ Implemented Blacklisted Minor Versions of a Client Service

Module version 1.4.7

2020-10-23

▶ ASCSD-716 Fixed known issue: The client service UDP unicast end-point is not sent in the subscribe event group response for multicast only consumed event groups.

Module version 1.4.6

2020-06-19

▶ Added SD ConnectionReady functionality to avoid a SD message to be sent before COM stack is ready to process it.

▶ Added support for DEM error reporting.

Module version 1.4.5

2020-02-21

▶ Post-build selectable support for ServerServiceAutoAvailable, ServerServiceID, ServerServiceInstanceID, ServerServiceMajorVersion and ServerServiceMinorVersion.

Module version 1.4.4

2019-11-06

► ASCSD-635 Fixed known issue: An incoming FIND may not cause the transmission of an OFFER even if the service is provided from the ECU.

Module version 1.4.3

2019-10-11

► Checks for SD configuration requirements have been implemented.

Module version 1.4.2

2019-06-14

► Internal module improvement. This module version update does not affect module functionality.

Module version 1.4.1

2019-03-06

► ASCSD-625 Fixed known issue: SD calls SoAd_GetSoConMode with a wrong SoConId.

► Added release of unused SocketConnections.

Module version 1.4.0

2019-02-15

► ASCSD-574 Fixed known issue: A subscribe may not be sent from the client even if the service was offered.

► Added Event Subscription via TCP/IP and reception of multiple Server-EventGroups via one multicast SoAd-SocketConnection.

Module version 1.3.19

2018-10-26

► ASCSD-538 Fixed known issue: In case of reset of remote connection the local state flags of all server services were not correctly reset.

► Added TCP datapath support on server side: eventgroup handlers support.

► Added TCP datapath support on client side: methods support.

► Added TCP datapath support on client side: consumed eventgroups support.

Module version 1.3.18

2018-06-22

► Improved performance by adding a binary search algorithm to look for a match along the list of services.

► ASCSD-509 Fixed known issue: Multicast IP option of ClientService SubscribeAck cannot be activated.

► ASCSD-515 Fixed known issue: Reset caused by out of bound access of array Sd_ServerServiceStates[].

Module version 1.3.17

2018-02-16

► Added support for multicast only eventgroups on the server side.

► Added support for multicast only consumed eventgroups on client side.

Module version 1.3.16

2018-01-19

► Added multicast socketconnectiongroup on client side (Seamless service relocation - multiple senders).

► ASCSD-435 Fixed known issue: Possible index out of bounds exception if a server without UDP ref receives an valid EventrgroupID

Module version 1.3.15

2017-12-15

► Added Seamless service relocation - unicast socket connection group on client side

Module version 1.3.14

2017-09-22

► Added IPv6 support.

Module version 1.3.13

2017-07-28

► Improved performance for code generator.

Module version 1.3.12

2017-06-30

► Improved configuration check for SdEventHandler.

Module version 1.3.11

2017-03-03

► ASCSD-373 Fixed known issue: Sd fails to compile if no ServerService is configured

► ASCSD-367 Fixed known issue: Sd wrongly detects a remote node reboot if two consecutive frames with same session ID are received. Updated Release notes for implementation of Sd according to Rfc 76513.

► Add support for handling OfferService entry when consecutive StopOfferService entry is received before next call of Sd_Mainfunction.

Module version 1.3.10

2017-01-05

► Internal module improvement. This module version update does not affect module functionality

Module version 1.3.9

2016-11-04

► Add support for usage of SoAdRoutingGroup with Unicast and Multicast Routing in SdConsumedEvent-GroupUdpActivationRef

► ASCSD-340 Fixed known issue: Sd uses wrong ModuleId 616 instead of 171

Module version 1.3.8

2016-08-05

► Added support for combining as much entries as possible into one SD message.

Module version 1.3.7

2016-07-01

▶ Added support for the reuse of SoAdPduRoute for unicast and multicast datapath. Therefore the multicast SoAdPduRoute shall reference a SoAdSocketConnectionGroup.

Module version 1.3.6

2016-05-25

▶ Added support for unicast flag handling.

▶ Added support for race condition prevention in ClientService datapath as proposed in Rfc 73062.

▶ Implement transmission of SubscribeEventgroupNack entry if the received SubscribeEventgroup entry does not match to a configured service.

Module version 1.3.5

2016-03-04

▶ Added support for Debug & Trace with custom header file configurable via parameter `BaseDbgHeader-File`

▶ ASCSD-259 Fixed known issue: Invalid memory access for socket connection states

▶ Added support for configuration options containing the hostname and the capability records of the services. Service matching algorithm is based on string comparison.

Module version 1.3.4

2016-02-05

Module version 1.3.3

2016-01-15

▶ ASCSD-209 Fixed known issue: Service discovery detects reboot of remote node by accident

▶ Corrected Development error value in Sd_ConsumedEventGroupSetState

▶ Added support for infinite TTL in SubscribeEventgroupAck entry

▶ Added support for reboot detection on multiple SD instances

Module version 1.3.2

2015-11-06

▶ ASCSD-168 Fixed known issue: Calling Sd_ClientServiceSetState() might result in undefined behavior

▶ ASCSD-179 Fixed known issue: Services might use wrong timer configuration values

▶ Add config parameter which defines the maximum number of remote nodes supported

▶ ASCSD-182 Fixed known issue: Sd client service socket connection might not be opened

▶ Implement support for random delays in InitialWait phase and multicast Offer response.

▶ Implement support for infinite TTL in SubscribeEventgroup and SubscribeEventgroupAck entry.

Module version 1.3.1

2015-07-13

▶ ASCSD-168 Fixed known issue: Transmission to multicast socket connections does not work

Module version 1.3.0

2015-06-19

▶ Reimplemented handling of received messages and message transmission

▶ Implemented basic support for transmission of ServerService Offer with TCP endpoint option

▶ Implemented support for seamless service relocation

Module version 1.2.5

2015-02-20

▶ ASCSD-98 Fixed known issue: Sd_ServerServiceSetState reports an incorrect error Id in case it is called with an invalid SdServerServiceHandleId

▶ ASCSD-107 Fixed known issue: Sd does not call SoAd_DisableRoute() if a server service is halted

▶ ASCSD-108 Fixed known issue: When the Sd server service is halted the associated socket connections are not closed

▶ ASCSD-112 Fixed known issue: Client Services with infinite TTL in Offer entry expires

▶ ASCSD-132 Fixed known issue: Receiving SubscribeEventgroupAck results in wrong behavior

Module version 1.2.4

2014-10-02

► ASCSD-75 Fixed known issue: Sd does not handle Endpoint Options correctly on little-endian platforms

Module version 1.2.3

2014-04-25

► ASCSD-57 Fixed known issue: Sd server ECU might not handle a restart of a Client ECU correctly

Module version 1.2.2

2013-10-11

► Internal module improvement. This module version update does not affect module functionality

Module version 1.2.1

2013-06-14

► Internal module improvement. This module version update does not affect module functionality

Module version 1.2.0

2013-04-08

► Update to AUTOSAR SWS Service Discovery 1.0.0

Module version 1.1.0

2012-10-24

► Update to AUTOSAR SWS Service Discovery 0.4.6

Module version 1.0.0

2012-07-12

► First release of EB tresos AutoCore SD module.

2.2. New features

▶ Implemented to check SoConMode before first FIND entry is sent.

▶ Implemented to open client socket connection only when service is requested and offer is received.

▶ Implemented check for UDP/DTLS connections to be up and running before resubscribing to a server.

2.3. Elektrobit-specific enhancements

This chapter lists the enhancements provided by the module.

▶ This module provides no Elektrobit-specific enhancements.

2.4. Deviations

This chapter lists the deviations of the module from the AUTOSAR standard.

▶ Limited support for Configuration Options

Description:

The `Sd` module supports only one Configuration Option per entry.

Requirements:

SWS_SD_00664, SWS_SD_00665

▶ No support for Sd Endpoint Options

Description:

The `Sd` module does not support Sd Endpoint Options.

Requirements:

SWS_SD_00670, SWS_SD_00671, SWS_SD_00672, SWS_SD_00673, SWS_SD_00674, SWS_-
SD_00675, SWS_SD_00676, SWS_SD_00677, SWS_SD_00678, SWS_SD_00679, SWS_SD_00680,
SWS_SD_00681, SWS_SD_00682, SWS_SD_00683, SWS_SD_00684, SWS_SD_00685, SWS_SD_-
00686, SWS_SD_00687

▶ No support for AUTOSAR Debugging

Description:

The `Sd` module is not instrumented for the usage with AUTOSAR Debugging.

Requirements:

SWS_SD_00112, SWS_SD_00113, SWS_SD_00114, SWS_SD_00115, SWS_SD_00116

► No support for calling `Sd_Init()` during operation

Description:

Calling `Sd_Init()` more than once will reset the internal state of the `Sd` module and will probably leave the Communication stack in an inconsistent state. This means, the following functions will not be called:

► `BswM_Sd_ClientServiceCurrentState`

► `BswM_Sd_ConsumedEventGroupCurrentState`

► `BswM_Sd_EventHandlerCurrentState`

► `SoAd_CloseSoCon`

► `SoAd_DisableRouting`

Requirements:

SWS_SD_00354

► No support for verification of topological correctness of endpoints

Description:

The `Sd` module does not check that the IP Addresses received in Endpoint options and SD Endpoint options are topological correct.

Rationale:

The `Sd` module does not check if the remote node is in the same subnet to allow the usage in routed networks.

Requirements:

SWS_SD_00688

► No support for debouncing of Socket Connection interaction

Description:

The `Sd` module does not prevent the consecutive closing and opening of a Socket Connection.

Rationale:

Closing and opening a Socket Connection is debounced in the `SoAd` module.

Requirements:

SWS_SD_00696

► Partial support for identical Consumed Eventgroups

Description:

The `Sd` module does not support the usage of identical configured Consumed Eventgroups on the Client.

Rationale:

In contrast to Unix based systems it is not necessary to subscribe multiple times to the same Consumed Eventgroup to forward the received Events to several Software Components. The `Sd` module supports Event Handler that can be subscribed by a client multiple times.

Requirements:

SWS_SD_00693

► Parameters SdSubscribeEventgroupRetryMax and SdSubscribeEventgroupRetryDelay can only be set pro Instance

Description:

The `Sd` module does not support a SdSubscribeEventgroupRetryMax and SdSubscribeEventgroupRetry-Delay for each Client Service.

Rationale:

Having to potentially maintain a different timer for each Client Service would have a huge impact on run-time. The `Sd` module optimizes the response time pro instance and subscriptions of OFFERs are packed in a single frame to avoid a burst on the network.

Requirements:

SWS_SD_00735

2.5. Limitations

This chapter lists the limitations of the module. Refer to the module references chapter *Integration notes*, subsection *Integration requirements* for requirements on integrating this module.

► Limitation on number of entries in container `SdInstance`

Description:

The `Sd` can only handle 254 Service Discovery Instances.

Rationale:

This limitation reduces code size and execution time.

► Limitation on Eventgroup-subscription for same Unicast Endpoint

Description:

All Eventgroup-subscriptions of an SdInstance that shall be transmitted to the same remote Unicast End-point must be subscribed by the same Sd client.

Rationale:

This limitation reduces memory consumption and execution time.

► Limitation on number of subscriptions to Eventhandler

Description:

The number of subscriptions to a SdEventHandler ist limited to the number of associated unicast SdSock-etConnections.

Rationale:

This limitation reduces memory consumption and execution time.

► Limitation on socket connection usage

Description:

Socket connections used within service discovery shall not be used with TP.

Rationale:

The usage of TP on socket connections may prevents the configuration of the remote address.

► Limitation on number of remote nodes

Description:

If the maximum number of remote nodes (configuration parameter SdMaximumRemoteNodes) for an Sd instance is exceeded, Sd messages from further nodes will be discarded.

► Limitation on capability record strings

Description:

The content of capability record strings is limited to a basic character set excluding quotation marks, escape sequences and trigraphs.

► Limitation on Configuration Options in SubscribeEventgroupNack entries

Description:

The Sd module does not add config options to SubscribeEventgroupNack entries for SubscribeEventgroup entries with an unknown combination of Service Id, Instance Id, Major Version and referenced Configuration Option or when the SubscribeEventgroup references errorneous options.

► Limitation on number of nodes hosting the same service instance

Description:

A service instance shall not be hosted by more than one ECU in the network at the same time.

2.6. Open-source software

SD does not use open-source software.