Research & Vehicle Technology
"Infotainment Systems Product Development"

Feature – Adjustable Speed Limiter Device

Infotainment Subsystem Part Specific Specification (SPSS)

Version 1.0
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Version Date: May 4, 2020

FORD CONFIDENTIAL

Revision History

Date	Version	Notes	
May 4, 2020	1.0	Initial Release	

Table of Contents

1   Architectural Design

1.1   ASLD-CLD-REQ-386865/A-ASLD Server

The Adjustable Speed Limiter Device(ASLD) Server is responsible for the tasks listed below

- Receive command from the ASLD Client to Enable or Disable Intelligent Speed Assist(ISA).
- ASLD Server as a feature master/controller sends the status of ISA to ESAC Client.

1.2   ASLD-CLD-REQ-386866/A-ASLD Client

The Adjustable Speed Limit Device(ASLD) Client is responsible for the tasks listed below:

- Receive command from the user display to Enable or Disable Intelligent Speed Assist.
- Request ASLD Server to Enable or Disable the Manual or ISA mode.
- Receive the status of ISA mode from ASLD Server and update the user display.
- Support Diagnostics configuration to Enable or Disable the Intelligent Speed Assist configuration through Vehicle End of Line (EOL).

1.3   Physical Mapping of Classes

The table below shows an example of how the logical classes that make up the Evasive Steering Assist Control feature may be mapped into physical modules. This mapping example is specific to the FNV2 architecture and does not necessarily carryover to other carlines or vehicle architectures.

Logical Class	Physical Module (ECU)
ASLD Server	ECM,PCM
ASLD Client	SYNC 4.2 CCPU

1.4   Logical Signal Mapping

The CAN signals mentioned throughout this document shall refer to the CAN signal's logical name. The logical names shall be mapped to their actual CAN signal names. Please use the table below to perform the mapping. The InfoCAN database file is the master file for the actual CAN signal names.

Logical Name	CAN Signal Name
Vehicle_Ignition_St	Ignition_Status
Intelligent_Speed_Assist_St	SIMde_D_Stat
Vehicle_Life_Cycle_St	LifeCycMde_D_Actl
Intelligent_Speed_Assist_Rq	SIMde_D_Rq
Intelligent_Speed_Offset_Rq	IsaOffst_D_Rq

Table: Logical name/CAN signal mapping

1.5   ASLD-IIR-REQ-386867/A-Adjustable Speed Limit Device Client_Rx

1.5.1   MD-REQ-386868/A-Intelligent_Speed_Assist_St

Message Type: Status

This signal is used to indicate whether ISA can be activated or not.

Name	Literals	Value	Description
Type	-	-	Current ISA Status

	Null	0x0	
	AutoMode	0x1	
	ManualMode	0x2	
	IsaNotConfigured	0x3	

1.5.2   MD-REQ-386869/A-Vehicle_Life_Cycle_St

Message Type: Status

The signal is used to indicate the stages of vehicle lifecycle beginning with production (Factory), to storage (Transport), to customer delivery and use (Normal).

Name	Literals	Value	Description
Type	-	-	The stages of vehicle Lifecycle
	NORMAL	0x0	
	FACTORY	0x1	
	Not used	0x2	
	TRANSPORT	0x3	
	Not used	0x4	
	Not used	0x5	
	Not used	0x6	
	Not used	0x7	
	Not used	0x8	
	Not used	0x9	
	Not used	0xA	
	Not used	0xB	
	Not used	0xC	
	Not used	0xD	
	Not used	0xE	
	Not used	0xF	

1.5.3   MD-REQ-386520/A-Vehicle_Ignition_St

Message Type: Status

This signal is used to indicate the processed value for current Ignition state.

Name	Literals	Value	Description
Type	-	-	Current Vehicle Ignition Status
	Unknown	0x0	
	Off	0x1	
	Accessory	0x2	
	Run	0x4	
	Start	0x8	
	Invalid	0xF	

1.6   ASLD-IIR-REQ-386870/A-Adjustable Speed Limit Device Client_Tx

1.6.1 MD-REQ-386871/A-Intelligent_Speed_Assist_Rq

Message Type: Request

The signal is used to request to Turn on/off the Intelligent Speed Assist (ISA)

Name	Literals	Value	Description
Type	-	-	Request to Turn ON/OFF ISA
	Null	0x0	
	AutoMode	0x1	
	ManualMode	0x2	
	IsaNotConfigured	0x3	

1.6.2 MD-REQ-386876/A-Intelligent_Speed_Offset_Rq

Message Type: Request

The signal is used to indicate the driver requested change of ISA offset.

Name	Literals	Value	Description
Type	-	-	Indicates the driver requested change of ISA offset
	Zero	0x0	
	One	0x1	
	Two	0x2	
	Three	0x3	
	Four	0x4	
	Five	0x5	
	Six	0x6	
	Seven	0x7	
	Eight	0x8	
	Nine	0x9	
	Ten	0xA	
	Eleven	0xB	
	Twelve	0xC	
	Thirteen	0xD	
	Null	0xE	
	Faulty	0xF	

2   General Requirements

2.1   ASLD-REQ-386859/A-Feature Configuration

The ASLD Client shall support to have a configurable DID to enable or disable the Intelligent Speed Assist(ISA) feature.

- When the ISA is enabled through DID configuration, the user shall be presented with an option to enable or Disable the Intelligent Speed Assist(ISA) feature through ASLD Client.
- When the ISA is Disabled through DID configuration, the Intelligent Speed Assist(ISA) feature shall be disabled by the ASLD Client. And the user **shall not** have an option to view the feature and change the settings.

Refer to the Infotainment Diagnostic Specification for the details of DID.

2.2   ASLD-REQ-386860/A-Feature Availability

The ASLD Client shall allow the user to select the ISA feature through user display only when

- Vehicle Ignition status is RUN (or)
- Vehicle Ignition status is Start.

2.3   ASLD-REQ-386861/A-ASLD Client Wait Time for Response

The ASLD Client shall wait for the ASLD Server module to respond for any of the request placed by it. The wait time on the ASLD Client shall follow applicable Ford design standards and best practices (ex. 5 sec). In case of no response from the ASLD Server module the ASLD Client shall remain in the last known state.

2.4   ASLD-REQ-386862/A-ASLD Client HMI content references

The references to HMI screen layouts and other related HMI content are for reference only and not intended to depict the actual text, graphical, or layout content. Refer to the released HMI specifications for further detail on this type of content.

2.5   ASLD-REQ-386863/A-ASLD Client system Accuracy

Within 100ms of receiving the data result or signal state change from the vehicle network, the ASLD Client shall be able to update the display with appropriate status or graphics.

3   Functional Definition

3.1   ASLD-FUN-REQ-386872/A-Adjustable Speed Limitter Device Operation

3.1.1   Requirements

3.1.1.1   *ASLD-REQ-386855/A-ASLD Client Initialization*

The ASLD Client shall set below signals to default as part of system bootup and initialization.

Default values are:
- Intelligent_Speed_Assist_Rq = Null (0x0)
- Intelligent_Speed_Offset_Rq = Null (0xE)

3.1.1.2   *ASLD-REQ-387642/A-Intelligent Speed Assist status on Factory Mode*

The ASLD Client shall disable the ISA feature from the display and shall not allow the user to change the ISA mode when the status on the signal 'Vehicle_Life_Cycle_St' is set as 'Factory'.

ISA feature shall be available to the user only when the status on the signal 'Vehicle_Life_Cycle_St' **is not** 'Factory'.

3.1.1.3   *ASLD-REQ-386856/A-ASLD Client requesting ISA mode*

When the ISA feature is enabled through diagnostics DID configuration, the ASLD Client shall be able to toggle the ISA mode(i.e. between Manual or Intelligent mode) by requesting the ASLD Server on the signal 'Intelligent_Speed_Assist_Rq'.

When the ISA Feature is disabled through diagnostics DID configuration, the ASLD Client shall set the 'Intelligent_Speed_Assist_Rq' signal status to 'IsaNotConfigured'.

3.1.1.4   *ASLD-REQ-386857/A-ISA Status notified by ASLD Server*

The ASLD Server is the control master for the Intelligent Speed Assist(ISA) feature, the ASLD Client shall receive the status of the ISA from the ASLD Server on the 'Intelligent_Speed_Assist_St' signal. The ASLD Client shall update its internal state and update the user display with appropriate graphics.

Based on the status from the server the user display shall be updated as mentioned below

Intelligent_Speed_Assist_St signal status	ASLD Client Display
Null (0x0)	Manual Mode
Auto Mode (0x1)	Auto Mode
Manual Mode (0x2)	Manual Mode
ISA Not Configured (0x3)	Manual Mode

3.1.1.5   *ASLD-REQ-386858/A-ISA feature disabled through Diagnostic DID*

When the Intelligent Speed Assist(ISA) feature is disabled through diagnostics DID configuration, the ASLD Client shall ignore the status of the ISA notified from by ASLD Server on 'Intelligent_Speed_Assist_St' signal. ASLD Client **shall not** updates its internal states and the ISA feature shall remain disabled and shall set the mode to Manual in the user display.

3.1.2   Use Cases

3.1.2.1   ASLD-UC-REQ-386873/A-Intelligent Speed Assist Toggled by User

Actors	ASLD User
Pre-conditions	1. ISA feature is enabled through Diagnostic DID configuration in ASLD Client. 2. Vehicle Ignition status is RUN or Start.
Scenario Description	1. User toggles the vehicle mode between Manual or Intelligent Speed Assist through User Display.
Post-conditions	1. The state of the ISA feature toggles in the user display and the current status is shown in the display.
List of Exception Use Cases	1. No Response from the ASLD Server for the request from the ASLD Client.
Interfaces	ASLD Server, ASLD Client

3.1.2.2   ASLD-UC-REQ-386874/A-Intelligent Speed Assist is not Operational by User

Actors	ASLD User
Pre-conditions	1. ISA feature is Disabled through Diagnostic DID configuration in ASLD Client. 2. Vehicle Ignition status is RUN or Start.
Scenario Description	1. User tries to toggle the vehicle mode through User Display.
Post-conditions	1. Intelligent Speed Assist feature shall not be in operational through user display. 2. The status of the ISA feature shall be Turned Off.
List of Exception Use Cases	
Interfaces	ASLD Server, ASLD Client

3.1.2.3   ASLD-UC-REQ-387643/A-Intelligent Speed Assist disabled in Factory Mode

Actors	ASLD User
Pre-conditions	1. Vehicle_Life_Cycle_St status reports Factory Mode.
Scenario Description	1. Vehicle Ignition status is RUN or Start.
Post-conditions	1. Intelligent Speed Assist feature shall not be in operational through user display.
List of Exception Use Cases	
Interfaces	ASLD Server, ASLD Client

3.1.3 White Box View
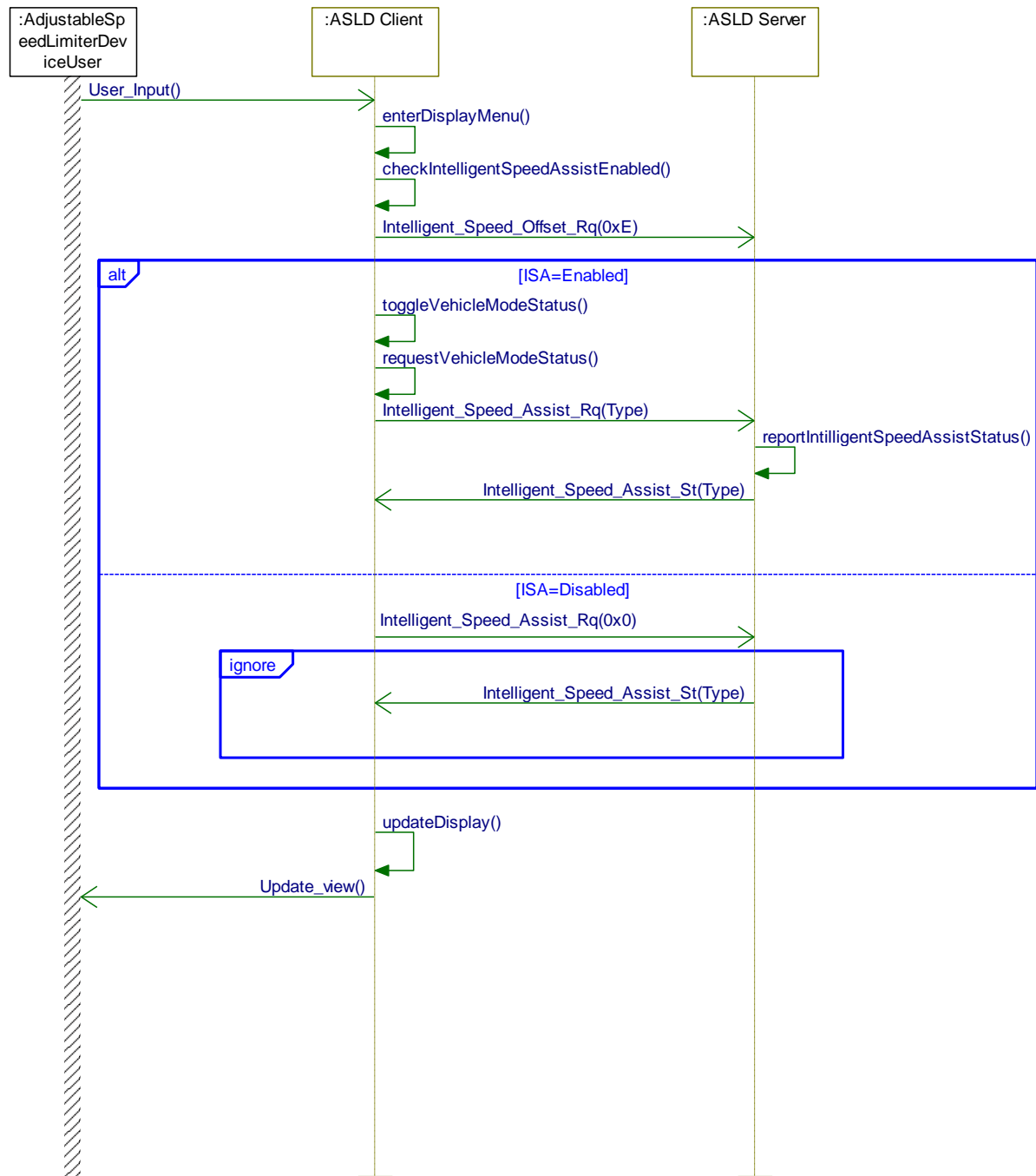
3.1.3.1 Activity Diagrams

3.1.3.1.1 ASLD-ACT-REQ-386854/A-IntelligentSpeedAssist_Toggling_AD
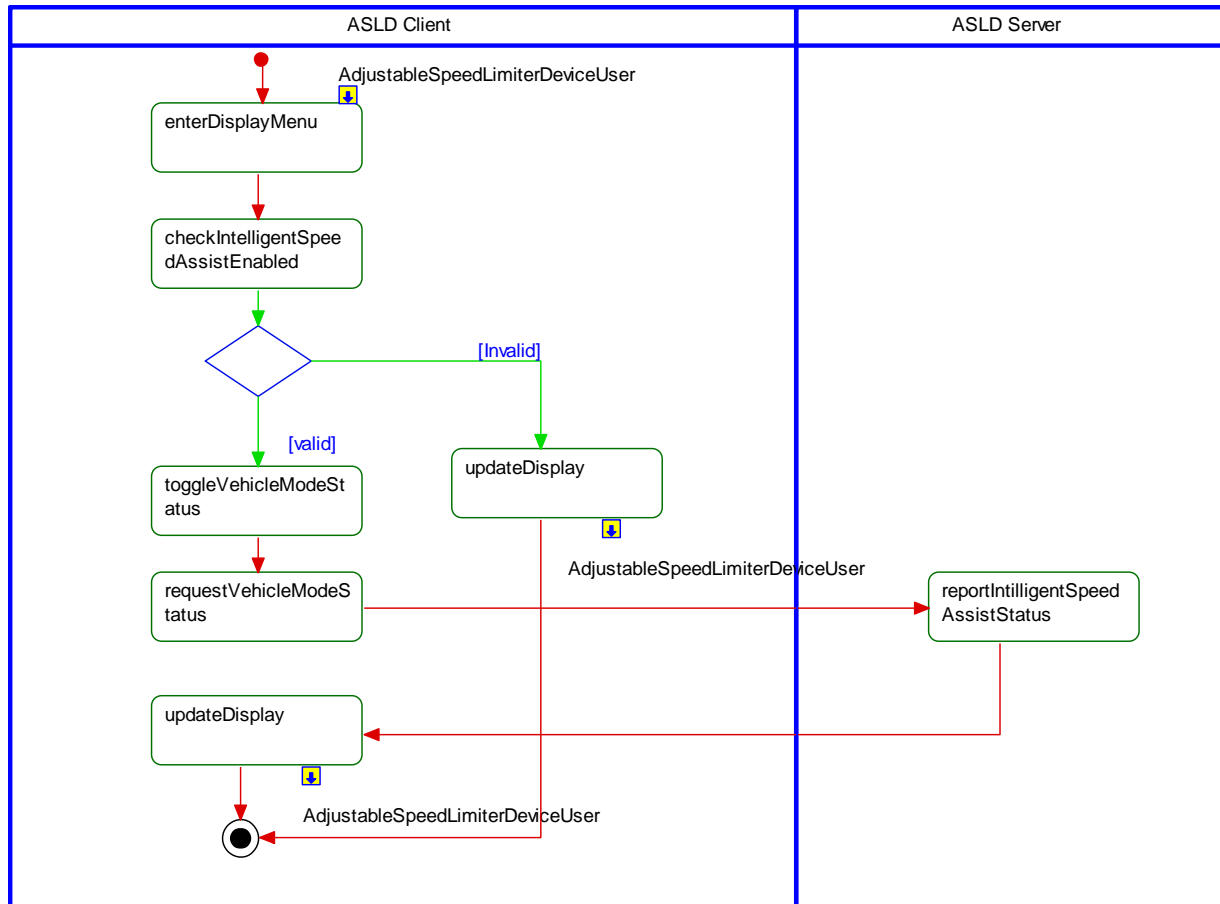
3.1.3.2 Sequence Diagrams

3.1.3.2.1 ASLD-SD-REQ-386875/A-IntelligentSpeedAssist Toggling_SD

4 Appendix: Reference Documents

Reference #	Document Title
1	Adjustable Speed Limiter Device (with Optional Intelligent Speed Assistance) - FNV2_v1.0
2	Infotainment Diagnostics Specification
3	
4	
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