Feature Document (FD)

Cellular Schedule Remote Start

<<Item>>
(F003414)

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Document Approval			
Person	Role	Email Confirmation	Date

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1 INTRODUCTION

1.1 Document Purpose

A Feature Document (FD) document specifies **what** the feature shall do and how it shall behave from customer perspective. It should also provide reasoning and background **why** we have the feature in the vehicle.

The FD also serves as an Item Definition as defined by ISO26262 for those features, which follow the Ford Functional Safety process.

To get more information about the concept of feature, function and component level abstraction refer to the Ford RE Wiki. For details on the Ford Functional Safety (ISO26262) process refer to the Ford Functional Safety Sharepoint.

1.2 Document Scope

This Feature Document (FD) specifies the following features:

Feature ID	Feature Name	Owner	Reference
F003414	Schedule Remote Start (Program(s): All)	Audriene Bell, abell101	

Table 1: Features described in this FD

1.3 Document Audience

The FD is written by the feature owner of Audriene Bell, abell101. All Stakeholders, i.e., all people who have a valid interest in the feature should read and, if possible, review the FD. It needs to be guaranteed, that all stakeholders have access to the currently valid version of the FD.

*#**Hint:** The FD template has the IP Classification "Proprietary" by default. IP Classification "Confidential" might be required in some cases, e.g. by Ford Functional Safety.*

1.3.1 Stakeholder List

For the latest list of stakeholder of the feature and their influence refer to <Put VSEM Link here>.

*#**Hint:** Refer to **Ford RE Wiki – Stakeholder List** on how to create a stakeholder list. The stakeholder list should be stored in VSEM in the pseudo folder "General Data Artifacts" of the corresponding feature.*

1.4 Document Organization

1.4.1 Document Context

Refer to the Specification Structure page in the Ford RE Wiki to understand how the FD relates to other Ford Requirements Documents and Specifications.

1.4.2 Document Structure

The structure of this document is explained below:

Section 1 – Introduction how to use this document including responsibilities and requisite documents. Explains the terminology. Gives a clarification of the definitions, concepts and abbreviations used in the document.

Section 2 – Feature Description. States briefly the background and the purpose of the feature, feature variants and corresponding regions and markets. Also includes input requirements, assumptions and constraints.

Section 3 – Feature Context describes all external entities, which have an influence on the feature.

Section 4 – Feature Modeling. Contains Use Case, Driving Scenarios, State Charts to describe the functional behavior of the feature.

Section 5 – Safety. Lists System Behaviors and Safety Goals of the feature.

Section 6 – Feature Requirements. Lists functional and non-functional requirements of the feature.

Section 7 – Architecture. Shows the coarse architecture, which the feature requirements are deployed to. Describes the elements and the boundary of the feature as well as the decomposition and distribution of associated functions.

Section 8 – List of Open Concerns

Section 9 – Document Change History including a list of new or modified requirements. The requirements in this document are tagged, and this section contains different types of tables listing all, new, or changed requirements by their title and page no.

Section 10 – Appendix

*#**Hint:** All sections are mandatory, unless explicitly marked by the tag "#Classification" as "optional" or as applicable e.g. to certain domains like "Functional Safety".*

1.5 Document Conventions

1.5.1 Requirements Templates

Each requirement, use case or scenario in this specification shall follow the corresponding template given in the document template *Specification_Macros.dotm* at RE Wiki - Specification Templates.

1.5.1.1 Identification of requirements

1.5.1.2 Requirements Attributes

The templates provided by *Specification_Macros.dotm* define a list of attributes for each requirement. This helps to classify the requirement. The attributes are explained at RE Wiki - Requirements Attributes.

1.6 References

1.6.1 Ford Documents

List here all Ford internal documents, which are directly related to the feature.

Reference	Title	Doc. ID	Document Location	Revision
SRC1	Control My Car v3 ECG SPSS v1.5			
SRC2	Control My Car Implementation Guide v1.5			
SRC3	ECG Common Functions SPSS v1.1			
SRC4	ECG-TCU Interface Power State Management ECG SPSS v1.0			
SRC5	Power Management ECG SPSS v2.0			
SRC6	Stolen Vehicle Services OnBoardClient SPSS v1.9			
SRC7	Embedded Modem Reset Server v2 SPSS v1.5			
SRC8	Body Control Module Functional Specification FS-LU5T-14B476-AAC			

Reference	Title	Doc. ID	Document Location	Revision
SRC9	Control My Car FTCP Protofile			

Table 2: Ford internal Documents

1.6.2 External Documents and Publications

The list of external documents could include books, reports and online sources.
*#**Hint:** You may refer to IEEE Citation Reference on how to format a reference.*

Reference	Document / Publication	Document Location

Table 3: External documents and publications *(not specified in SysML model)*

1.7 Glossary

*#**Hint**: Terms, concepts and abbreviations used in the document shall be defined and illustrated here. Note that changes to terms and/or concepts described in this section tend to cause major updates to this document.*
The tables below have feature specific definitions and abbreviations. For additional, non-feature specific terms please refer to the RE Glossary

See Appendix for Definitions and Abbreviations.

1.7.1 Parameters / Values

Name	Description	Range / Resolution

Table 4: Parameters / Values used in this document *(Not supported by MagicDraw report generation)*

2 FEATURE OVERVIEW

2.1 Purpose and Description of Feature

*#**Hint:** Some descriptive text to explain the purpose and functionality of the feature.*

Cellular Schedule Remote Start allows a user to schedule future remote starts for their vehicle using the Mobile App. A convenience feature, the schedule can be tailored around the user needs. A user can schedule their vehicle to start daily for the work commute without having to remember to manually send commands to start, readying their vehicle cabin temperature to drive in comfort.

VSDN/TMC shall contain the entire logic for the Schedule Remote Start and is responsible for triggering the start at the appropriate time. After triggering, the Remote Start processes exactly the same as a manual Remote Start. Please refer to Cellular Remote Start, Extend Remote Start & Cancel Remote Start documentation for further details.

Schedule Remote Start shall be available for Gas, EV, BEV and PHEV vehicles. While Remote Start is designed to achieve the user settings as fast as possible, this functionality will deplete the main battery pack for non-gas vehicles and can force the engine on (for PHEVs) if necessary. Therefore, Departure Times are introduced for non-gas vehicles. Departure Times will pre-condition the vehicle cabin while plugged in. Departure Times and Scheduled Remote Start will work together.

The user will be able to opt-in to using Schedule Remote Start when the vehicle is not plugged in and Departure Times when plugged in. This will ensure that the two systems are not simultaneously activated. The Remote Start duration time will be used an offset for a Schedule Remote Start event. This will make Departure Times and Schedule Remote Start operation in a similar fashion. This offset is present only in non-gas vehicles and not offered in the base Schedule Remote Start.

The purpose of this Feature Document is to explain the functionality of the Cellular Schedule Remote Start feature and provide a series of requirements needed to achieve this functionality.

2.2 Feature Variants

*#**Hint:** Definitions for different variants of the feature (if applicable). Give each variant a descriptive name by which it can be referenced further on in the document. If no variant exists, state "No Feature Variants".*
The Variant Description should give a short informative text which describes the variants of the feature.

Variant Name	Variant Description	Remarks
FNV2	8 Networks: MS CAN (BCM), HS CAN (PCM, Body), FD CAN (ADAS), ETHERNET – UNTRUSTED (SYNC, TCU), ETHERNET – TRUSTED (IPC), LIN, DIAG1 (OBDII), DIAG2 (OBDII)	

Table 5: Feature Variants

2.2.1 Regions & Markets

*#**Hint:** Description of purpose and functionality of the feature. If there is no variant, give feature name in first column.*

Market / Region / Variant Name	North America	South America	Europe	Middle East/Africa	Asia / Pacific	China
FNV2	Mandatory	Optional	Optional	Optional	Optional	Optional

Table 6: Regions & Markets

2.3 Input Requirements

*#**Hint:** List all input requirements, which are relevant for the feature. Typically, attribute requirements, legal requirements as well as national and international standards have to be considered.*

2.3.1 Legal Requirements

No Legal Requirements specified.

2.3.2 Trustmark Requirements

No Trustmark Requirements specified.

2.3.3 Industry Standards

- : ISO 26262
    - The system should be developed according to Ford's implementation of Functional Safety.

2.4 Lessons Learned

*#**Hint:** Additional information and lessons learned from previous development or related features. A typical source for Lessons Learned is the FMA Quality History.*
*#**Functional Safety:** In context of Functional Safety Lessons Learned and similar information will be used to check the completeness of the Functional Safety Goals and assumptions in the Hazard Analysis and Risk Assessment (HARA).*
*#**Link:** Ford Functional Safety Sharepoint*

2.5 Assumptions

*#**Classification**: Optional*
*#**Hint:** A list of known assumptions concerning the effects of the feature's behavior on other features or elements (i.e., dependencies) as well as assumptions on the behavior expected by the feature (e.g. known limitations). During the course of the feature development most of those assumptions are typically either converted into actual requirements or discarded at some point – such that this chapter remains mostly empty. For assumptions, which are relevant for the Functional Safety process refer to chapter 6.2 "Safety Assumptions"*

SRS_Assump_1 Valid FordPass Account

The user has installed and created a valid login account for the FORD/LINCOLN owner mobile app

Purpose

SRS_Assump_2 Provisioned VIN

The user has registered an eligible vehicle VIN (defined as a VIN which is known to have an ECG installed and has sent a provisioning message to the VSDN / TMC)

Purpose

SRS_Assump_3 Authorization

The user has completed the authorization process for the eligible vehicle VIN

Purpose

SRS_Assump_4 Shared Access

Shared access allows multiple users to create an account for a vehicle

Purpose

SRS_Assump_5 ECG Swap

Swapping the ECG shall not affect vehicle remote controls

Purpose

SRS_Assump_6 Vehicle Plugged In

Schedule Remote Start shall only be triggered in non-gasoline vehicles when the vehicle is unplugged

Purpose

3 FEATURE CONTEXT

3.1 Feature Context Diagram

*#**Hint:** High level diagram of feature interactions with the environment, people or other feature or other external entities.*
*#**Link:** RE Wiki - Context Diagram*

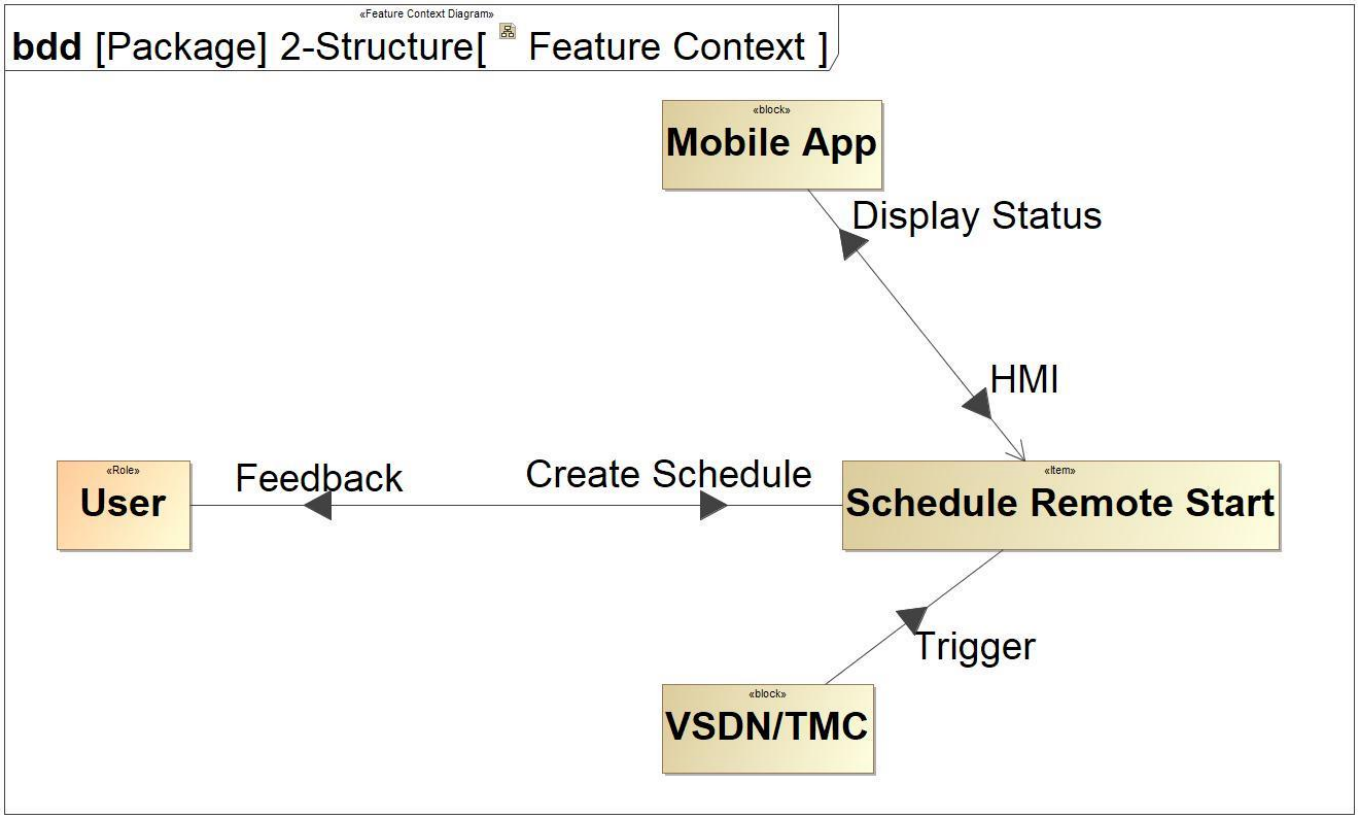

Figure 1: Feature Context

3.2 List of Influences

ID	External Entity	Influence Description
Create Schedule	User To Schedule Remote Start	User creates schedule to trigger feature functionality
Display Status	Schedule Remote Start To Mobile App	Display status of request
Feedback	Schedule Remote Start To User	User receives status feedback on the Mobile App
HMI	Mobile App To Schedule Remote Start	User interface
Trigger	VSDN/TMC To Schedule Remote Start	Trigger the remote start at scheduled time

Table 7: List of Influences

4 FEATURE MODELING

4.1 Operation Modes and States

*#**Classification:** Optional (Mandatory for Functional Safety)*
*#**Link:** RE Wiki – State Charts*
*#**Hint:** State Charts are a popular means to express feature behavior in terms of states and modes. An advantage of this state machine like approach is that consistency can be easily verified.*

4.2 Use Cases

*#**Classification:** Optional*
*#**Link:** RE Wiki – Use Cases*

4.2.1 Use Case Diagram

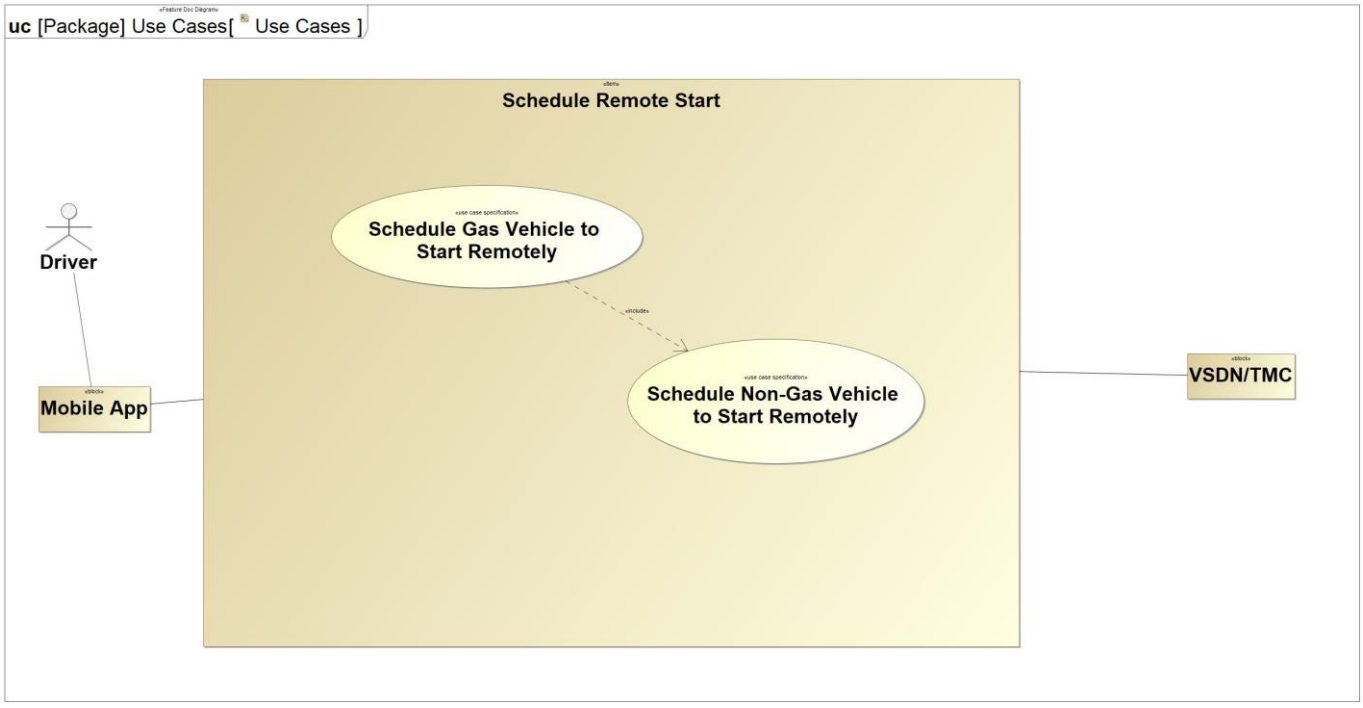

Figure 2: Use Cases

4.2.2 Actors

4.2.3 Use Case Descriptions

*#**Classification:** Optional*

UC_SRS_1 Schedule Gas Vehicle to Start Remotely

Actors		User, VSDN/TMC
Subject		Schedule Remote Start
Preconditions	PreC1	User is registered and logged in to the Mobile App
	PreC2	Vehicle has a gasoline engine
	PreC3	Vehicle is unplugged
Triggers	T1	VSDN/TMC triggers the remote start at the user specified time

Main Flow Description		Vehicle is remotely started at the scheduled time
Main Flow	M1	User selects the option to schedule a remote start on the Mobile App
	M2	Users selects the following: a. Days of the week b. Time c. Recurring or Non-Recurring
	M3	User saves the scheduled start
	M4	At the user chosen time, VSDN/TMC triggers the scheduled start
	M5	The user waits for visual confirmation on the Mobile App
Alternative Flow Steps	A1	User has turned off CCS setting Vehicle Connectivity through Sync
	A2	User has turned off CCS setting Vehicle Data through Sync
	A3	Cloud Command Processing Service determines vehicle User has turned Cloud connectivity, or Ford Cloud Control OFF through SYNC via CCS settings o Vehicle Connectivity Off (Remote Start feature disabled)
	A4	Cloud Command Processing Service determines vehicle User has turned Vehicle Data, or Ford Cloud Control OFF through SYNC via CCS settings Vehicle Data Off (Remote Start feature disabled)
Exceptional Flow Steps	E1	VSDN / TMC is unable to send the request to the vehicle because the vehicle is in deep sleep mode
	E2	VSDN / TMC determines that that the vehicle has not been put into motive mode after the previous Schedule Remote Start and rejects the request

UC_SRS_2 Schedule Non-Gas Vehicle to Start Remotely

Actors		User, VSDN/TMC
Subject		Schedule Remote Start
Preconditions	PreC1	Vehicle has a non-gasoline engine
	PreC2	Vehicle in unplugged
Triggers	T1	VSDN/TMC triggers the remote start at the user specified time
Main Flow Description		Vehicle is remotely started at the scheduled time
Main Flow	M1	Users selects the following: a. Days of the week b. Time c. Recurring or Non-Recurring
	M2	Users selects the following: a. Days of the week b. Time c. Recurring or Non-Recurring
	M3	The user waits for visual confirmation on the mobile app
Alternative Flow Steps	A1	User has turned off CCS setting Vehicle Connectivity through Sync
	A2	User has turned off CCS setting Vehicle Data through Sync
	A3	Cloud Command Processing Service determines vehicle User has turned Cloud connectivity, or Ford Cloud Control OFF through SYNC via CCS settings o Vehicle Connectivity Off (Remote Start feature disabled)
	A4	Cloud Command Processing Service determines vehicle User has turned Vehicle Data, or Ford Cloud Control OFF through SYNC via CCS settings Vehicle Data Off (Remote Start feature disabled)
Exceptional Flow Steps	E1	VSDN / TMC is unable to send the request to the vehicle because the vehicle is in deep sleep mode
	E2	VSDN / TMC determines that that the vehicle has not been put into motive mode after the previous Schedule Remote Start and rejects the request

4.3 Driving and Operation Scenarios

*#**Classification:** Optional (Mandatory for Functional Safety)*
*#**Functional Safety:** Driving and operating scenarios which impact the functionality of the feature can be used to check, if the situation analysis in the HARA is complete*
*#**Link:** RE Wiki – Driving Scenarios*

4.4 Decision Tables

*#**Classification:** Optional*
*#**Link:** RE Wiki – Decision Tables.*
*#**Hint:** Use decision table, if behavior is not state based (in that case prefer state chart from ch. 4.1) and based purely on current inputs.*

Not supported by MagicDraw report generation.

5 FEATURE REQUIREMENTS

*#**Functional Safety:** In general, safety requirements are not listed here. However, it is possible that later in the development process, a non-safety requirement becomes a safety requirement. In such a case it may remain on this list.*
*#**Link:** RE Wiki – How to write good requirements.*

5.1 Functional Requirements

R_F_SRS_01 Schedule Remote Start Options

The user shall have the ability to create, repeat, delete and edit Scheduled Remote Starts in the mobile application. In addition, the user shall be able to create two kinds of Remote Start Schedules, recurring and non-recurring

Requirement ID: R_F_SRS_01

Rationale					
Acceptance Criteria					
Notes					
Source				**Owner**	
Source Req.				**V&V Method**	
Type		**Priority**		**Status**	In-Progress

Req. Template Version 6.0 End of Requirement

R_F_SRS_02 Recurring Schedule

The user shall be able to create a recurring Scheduled Remote Start.

Requirement ID: R_F_SRS_02

Rationale					
Acceptance Criteria					
Notes					
Source				**Owner**	
Source Req.				**V&V Method**	
Type		**Priority**		**Status**	In-Progress

Req. Template Version 6.0 End of Requirement

R_F_SRS_03 Motive Mode

When the vehicle is in motive mode, the ignition is turned on a periodic alert is sent to VSDN / TMC from the vehicle. If a subsequent Scheduled Remote Start is requested without motive mode previously enabled, the request will not be serviced

Requirement ID: R_F_SRS_03

Rationale					
Acceptance Criteria					
Notes					
Source				**Owner**	
Source Req.				**V&V Method**	
Type		**Priority**		**Status**	In-Progress

Req. Template Version 6.0 End of Requirement

R_F_SRS_04 Duration Timer

When a Scheduled Remote Start request is successful, the duration timer is displayed on the mobile app. The option to increase the engine on time is also displayed on the mobile app. When the time is increased, the timer value should also increase to reflect the change

Requirement ID: R_F_SRS_04

Rationale	

Acceptance Criteria					
Notes					
Source				**Owner**	
Source Req.				**V&V Method**	
Type		**Priority**		**Status**	In-Progress

Req. Template Version 6.0 End of Requirement

R_F_SRS_05 EU Availability

CR 230: Schedule Remote Start shall not be available for EU countries.

Requirement ID: R_F_SRS_05

Rationale					
Acceptance Criteria					
Notes					
Source				**Owner**	
Source Req.				**V&V Method**	
Type		**Priority**		**Status**	In-Progress

Req. Template Version 6.0 End of Requirement

R_F_SRS_06 Time Increments

Schedule Remote Start can only be scheduled in five whole minute increments

Requirement ID: R_F_SRS_06

Rationale					
Acceptance Criteria					
Notes					
Source				**Owner**	
Source Req.				**V&V Method**	
Type		**Priority**		**Status**	In-Progress

Req. Template Version 6.0 End of Requirement

R_F_SRS_07 Shared Schedules

Scheduled remote starts shall be tied to the vehicle, so if more than one user is authorized they all share the same schedule

Requirement ID: R_F_SRS_07

Rationale					
Acceptance Criteria					
Notes					
Source				**Owner**	
Source Req.				**V&V Method**	
Type		**Priority**		**Status**	In-Progress

Req. Template Version 6.0 End of Requirement

R_F_SRS_08 Subsequent Starts

When the schedule is de-activated, subsequent remote starts will not occur for that schedule

Requirement ID: R_F_SRS_08

Rationale					
Acceptance Criteria					
Notes					
Source				**Owner**	
Source Req.				**V&V Method**	
Type		**Priority**		**Status**	In-Progress

Req. Template Version 6.0 End of Requirement

R_F_SRS_09 Automatic Shutdown

When the vehicle has been successfully remote started due to a Scheduled Remote Start all authorized users will receive notification. Once automatic shutdown has occurred, the system will send a notification to inform all authorized users when automatic shutdown has occurred

Requirement ID: R_F_SRS_09

Rationale					
Acceptance Criteria					
Notes					
Source				**Owner**	
Source Req.				**V&V Method**	
Type		**Priority**		**Status**	In-Progress

Req. Template Version 6.0 End of Requirement

R_F_SRS_010 Processing Vehicle Start

Once the Scheduled Start is triggered by the VSDN/TMC, the process to remotely start the vehicle is the same as with manual remote starts

Requirement ID: R_F_SRS_010

Rationale					
Acceptance Criteria					
Notes					
Source				**Owner**	
Source Req.				**V&V Method**	
Type		**Priority**		**Status**	In-Progress

Req. Template Version 6.0 End of Requirement

R_F_SRS_011 Motive Mode Active

When motive mode is active, the vehicle cannot be remotely started

Requirement ID: R_F_SRS_011

Rationale					
Acceptance Criteria					
Notes					
Source				**Owner**	
Source Req.				**V&V Method**	
Type		**Priority**		**Status**	In-Progress

Req. Template Version 6.0 End of Requirement

R_F_SRS_012 Trigger Remote Start

The logic for Schedule Remote Start shall exist solely in the VSDN/TMC and shall be triggered by the VSDN/TMC

Requirement ID: R_F_SRS_012

Rationale					
Acceptance Criteria					
Notes					
Source				**Owner**	
Source Req.				**V&V Method**	
Type		**Priority**		**Status**	In-Progress

Req. Template Version 6.0 End of Requirement

R_F_SRS_013 Extend Duration Timer

While the duration timer is still active, the user shall have the option to extend the engine on time before shutoff by selecting the extend

Requirement ID: R_F_SRS_013

Rationale					
Acceptance Criteria					
Notes					
Source				**Owner**	
Source Req.				**V&V Method**	
Type		**Priority**		**Status**	In-Progress

Req. Template Version 6.0 End of Requirement

R_F_SRS_014 Configuring Time Zones

The user shall be allowed to configure any time zone and daylight savings time from the mobile app

Requirement ID: R_F_SRS_014

Rationale					
Acceptance Criteria					
Notes					
Source				**Owner**	
Source Req.				**V&V Method**	
Type		**Priority**		**Status**	In-Progress

Req. Template Version 6.0 End of Requirement

R_F_SRS_015 Countdown Timer Expiry

The Remote Start shall be canceled by allowing the duration timer to expire

Requirement ID: R_F_SRS_015

Rationale					
Acceptance Criteria					
Notes					
Source				**Owner**	
Source Req.				**V&V Method**	
Type		**Priority**		**Status**	In-Progress

Req. Template Version 6.0 End of Requirement

R_F_SRS_016 Maximum Duration Timer

The user shall be able to extend the remote start duration timer for a total of 30 minutes

Requirement ID: R_F_SRS_016

Rationale					
Acceptance Criteria					
Notes					
Source				**Owner**	
Source Req.				**V&V Method**	
Type		**Priority**		**Status**	In-Progress

Req. Template Version 6.0 End of Requirement

R_F_SRS_017 Duration Timer Settings

The duration timer shall be increased by a user-selected number of minutes. The user shall be able to set the value to 5, 10 or 15 minutes in Sync HMI

Requirement ID: R_F_SRS_017

Rationale	
Acceptance Criteria	
Notes	

Source				**Owner**	
Source Req.				**V&V Method**	
Type		**Priority**		**Status**	In-Progress

Req. Template Version 6.0 End of Requirement

R_F_SRS_018 Weekday/Weekend Schedule

The mobile app will distinguish between weekday / weekend schedules

Requirement ID: R_F_SRS_018

Rationale					
Acceptance Criteria					
Notes					
Source				**Owner**	
Source Req.				**V&V Method**	
Type		**Priority**		**Status**	In-Progress

Req. Template Version 6.0 End of Requirement

R_F_SRS_019 Storing Schedule Settings

VSDN/TMC shall store the Schedule Remote Start settings.

Requirement ID: R_F_SRS_019

Rationale					
Acceptance Criteria					
Notes					
Source				**Owner**	
Source Req.				**V&V Method**	
Type		**Priority**		**Status**	In-Progress

Req. Template Version 6.0 End of Requirement

R_F_SRS_020 Selecting Days of the Week

The mobile app shall display a weekday's legend for remote starts scheduled Monday through Friday, a weekend legend for Saturday and Sunday and an everyday legend for Monday through Sunday

Requirement ID: R_F_SRS_020

Rationale					
Acceptance Criteria					
Notes					
Source				**Owner**	
Source Req.				**V&V Method**	
Type		**Priority**		**Status**	In-Progress

Req. Template Version 6.0 End of Requirement

R_F_SRS_021 Creating Multiple Schedules

VSDN / TMC does not contain the logic to prevent a user from creating multiple schedules. However, since the vehicle must be in motive mode between each remote start, the vehicle will only process the first instance

Requirement ID: R_F_SRS_021

Rationale					
Acceptance Criteria					
Notes					
Source				**Owner**	
Source Req.				**V&V Method**	
Type		**Priority**		**Status**	In-Progress

Req. Template Version 6.0 End of Requirement

R_F_SRS_022 Maximum Number of Schedules

The maximum number of Remote Start Schedules are ten, it is configurable

Requirement ID: R_F_SRS_022

Rationale					
Acceptance Criteria					
Notes					
Source				**Owner**	
Source Req.				**V&V Method**	
Type		**Priority**		**Status**	In-Progress

Req. Template Version 6.0 End of Requirement

R_F_SRS_023 Recurring Schedule Switch On

A recurring remote start is considered active when user switches it to ON

Requirement ID: R_F_SRS_023

Rationale					
Acceptance Criteria					
Notes					
Source				**Owner**	
Source Req.				**V&V Method**	
Type		**Priority**		**Status**	In-Progress

Req. Template Version 6.0 End of Requirement

R_F_SRS_024 Recurring Schedule Switch Off

A recurring remote start is considered inactive when user switches it to Off

Requirement ID: R_F_SRS_024

Rationale					
Acceptance Criteria					
Notes					
Source				**Owner**	
Source Req.				**V&V Method**	
Type		**Priority**		**Status**	In-Progress

Req. Template Version 6.0 End of Requirement

R_F_SRS_025 Scheduled Remote Start Failure

When the vehicle has been successfully, remote started due to a Scheduled Remote Start then all authorized user shall be notified

Requirement ID: R_F_SRS_025

Rationale					
Acceptance Criteria					
Notes					
Source				**Owner**	
Source Req.				**V&V Method**	
Type		**Priority**		**Status**	In-Progress

Req. Template Version 6.0 End of Requirement

R_F_SRS_026 Disabling All Schedule Remote Starts

When all Scheduled Remote Starts are disabled due to schedule remote start auto shutdown, all authorized users shall receive a notification

Requirement ID: R_F_SRS_026

Rationale					
Acceptance Criteria					
Notes					
Source				**Owner**	
Source Req.				**V&V Method**	
Type		**Priority**		**Status**	In-Progress

Req. Template Version 6.0 End of Requirement

R_F_SRS_027 Scheduled Remote Start Success

When the vehicle has been successfully, remote started due to a Scheduled Remote Start then all authorized user shall be notified

Requirement ID: R_F_SRS_027

Rationale					
Acceptance Criteria					
Notes					
Source				**Owner**	
Source Req.				**V&V Method**	
Type		**Priority**		**Status**	In-Progress

Req. Template Version 6.0 End of Requirement

R_F_SRS_028 Time Zone and Daylight Savings

VSDN/TMC will automatically adjust the Remote Start Schedule based on time zone changes and daylight savings time (CR421)

Requirement ID: R_F_SRS_028

Rationale					
Acceptance Criteria					
Notes					
Source				**Owner**	
Source Req.				**V&V Method**	
Type		**Priority**		**Status**	In-Progress

Req. Template Version 6.0 End of Requirement

R_F_SRS_029 EV: Schedule Remote Start

The Mobile App user will be able to create a schedule to trigger Departure Times or Schedule Remote Start depending on the plug status as follows (see EV features PRD for Departure Times description):

- Electric Vehicle is Unplugged: Schedule Remote Start is triggered
- Electric Vehicle is Plugged-in: Departure Times is triggered

Requirement ID: R_F_SRS_029

Rationale					
Acceptance Criteria					
Notes					
Source				**Owner**	
Source Req.				**V&V Method**	
Type		**Priority**		**Status**	In-Progress

Req. Template Version 6.0 End of Requirement

R_F_SRS_030 MMOTA Update

If the vehicle is in MMOTA update mode, the vehicle shall be immobilized disabling Schedule Remote Start

Requirement ID: R_F_SRS_030

Rationale	

Acceptance Criteria					
Notes					
Source				**Owner**	
Source Req.				**V&V Method**	
Type		**Priority**		**Status**	In-Progress

Req. Template Version 6.0 End of Requirement

R_F_SRS_031 LPR Power Mode

If the vehicle is LPR mode at the scheduled time, an SMS message shall be sent to the vehicle to establish a connection and process the request

Requirement ID: R_F_SRS_031

Rationale					
Acceptance Criteria					
Notes					
Source				**Owner**	
Source Req.				**V&V Method**	
Type		**Priority**		**Status**	In-Progress

Req. Template Version 6.0 End of Requirement

R_F_SRS_032 DRx Power Mode

If the vehicle is DRx mode at the scheduled time, the Scheduled Remote Start shall not be processed

Requirement ID: R_F_SRS_032

Rationale					
Acceptance Criteria					
Notes					
Source				**Owner**	
Source Req.				**V&V Method**	
Type		**Priority**		**Status**	In-Progress

Req. Template Version 6.0 End of Requirement

R_F_SRS_033 EV: Schedule Remote Start Opt-In

If User opts in for SRS while unplugged: User will be prompted with a disclaimer to agree or disagree to use SRS. The disclaimer will indicate the following:
Remote Starting the vehicle will have the below effects:
• Can deplete the Electric battery
• Can consume gas
• Temperature and duration based on in-vehicle Remote Start settings

Requirement ID: R_F_SRS_033

Rationale					
Acceptance Criteria					
Notes					
Source				**Owner**	
Source Req.				**V&V Method**	
Type		**Priority**		**Status**	In-Progress

Req. Template Version 6.0 End of Requirement

R_F_SRS_034 EV: Trigger Schedule Remote Start

If User opts in for SRS VSDN/TMC shall trigger a Remote Start command for the selected time only if vehicle is unplugged

Requirement ID: R_F_SRS_034

Rationale	

Acceptance Criteria					
Notes					
Source				**Owner**	
Source Req.				**V&V Method**	
Type		**Priority**		**Status**	In-Progress

Req. Template Version 6.0 End of Requirement

R_F_SRS_035 ECG Swap

Swapping the ECG shall not affect any existing scheduled starts

Requirement ID: R_F_SRS_035

Rationale					
Acceptance Criteria					
Notes					
Source				**Owner**	
Source Req.				**V&V Method**	
Type		**Priority**		**Status**	In-Progress

Req. Template Version 6.0 End of Requirement

R_F_SRS_037 Stolen Vehicle Services and Remote Functionality

When Stolen Vehicle Services are in progress, the SVS system will send a start inhibit to the VSDN / TMC. The user shall not be able to send any Remote Start requests on the mobile app,, the HMI shall be greyed out and a message displayed to the user explaining why. Service shall be restored once the start inhibit is removed

Requirement ID: R_F_SRS_037

Rationale					
Acceptance Criteria					
Notes					
Source				**Owner**	
Source Req.				**V&V Method**	
Type		**Priority**		**Status**	In-Progress

Req. Template Version 6.0 End of Requirement

5.1.1 Error Handling

R_F_SRS_036 Failure to Create Schedule

Mobile App should inform the user when the Remote Start Schedule failed even if the App is not open

Requirement ID: R_F_SRS_036

Rationale					
Acceptance Criteria					
Notes					
Source				**Owner**	
Source Req.				**V&V Method**	
Type		**Priority**		**Status**	In-Progress

Req. Template Version 6.0 End of Requirement

5.2 Non-Functional Requirements

*#**Hint:** Non-functional requirements specify some performance criteria in addition to the functional behavior given defined by the functional requirements. Timing (if not already included in the functional requirements), security details (e.g. how secure does an algorithm have to be) reliability (e.g. mean time between failure) or maintainability could be specified in this section.*

5.2.1 Safety

*#**Hint:** Only those safety requirements, which are not related to Functional Safety (ISO26262) should go here. For Functional Safety refer to chapter 6 "Functional Safety".*

Not supported by MagicDraw report generation.

5.2.2 Security

No Security Requirements specified.

5.2.3 Reliability

No Reliability Requirements specified.

5.3 HMI Requirements

*#**Hint:** Requirements in this section could specify details of e.g. the icons, the GUI or the sounds.*

R_F_SRS_038 Maximum Number of Schedule Message

The mobile app will display a message that the limit of schedules has been reached when attempting to add more than ten

Requirement ID: R_F_SRS_038

Rationale					
Acceptance Criteria					
Notes					
Source				**Owner**	
Source Req.				**V&V Method**	
Type		**Priority**		**Status**	In-Progress

Req. Template Version 6.0 End of Requirement

R_F_SRS_039 Mobile App Notification – Non-recurring

The mobile app shall display a success or failure notification when the scheduled non-recurring remote start completes

Requirement ID: R_F_SRS_039

Rationale					
Acceptance Criteria					
Notes					
Source				**Owner**	
Source Req.				**V&V Method**	
Type		**Priority**		**Status**	In-Progress

Req. Template Version 6.0 End of Requirement

R_F_SRS_040 Mobile App Notification-Recurring

The mobile app shall display a success or failure notification when the scheduled recurring remote start completes

Requirement ID: R_F_SRS_040

Rationale					
Acceptance Criteria					
Notes					
Source				**Owner**	
Source Req.				**V&V Method**	
Type		**Priority**		**Status**	In-Progress

Req. Template Version 6.0 End of Requirement

R_F_SRS_041 MMOTA Update Notification

If the vehicle is in MMOTA update mode at the scheduled time, the mobile app shall display a notification to the user indicating the vehicle was not remotely started

Requirement ID: R_F_SRS_041

Rationale					
Acceptance Criteria					
Notes					
Source				**Owner**	
Source Req.				**V&V Method**	
Type		**Priority**		**Status**	In-Progress

Req. Template Version 6.0 End of Requirement

R_F_SRS_042 DRx Power Mode Notification

If the vehicle is in DRx mode at the scheduled time, the Mobile App shall display a message to the user indicating that the vehicle should be started manually before any scheduled starts are processed

Requirement ID: R_F_SRS_042

Rationale					
Acceptance Criteria					
Notes					
Source				**Owner**	
Source Req.				**V&V Method**	
Type		**Priority**		**Status**	In-Progress

Req. Template Version 6.0 End of Requirement

5.4 Other Requirements

5.4.1 Design Requirements

*#**Hint:** Requirements of a Logical Function should be typically agnostic of their SW/HW implementation. If for specific reasons the function owner needs to define explicitly design constraints on the solution, it can be done in this chapter.*

Not supported by MagicDraw report generation.

5.4.2 Manufacturing Requirements

No Manufacturing Requirements specified.

5.4.3 Service Requirements

*#**Hint:** Requirements in this section could specify, e.g. what needs to be considered, if individual ECUs are replaced or new SW is flashed to ECUs (parameter set in non-volatile memory might get inconsistent and needs also to be updated).*

No Service Requirements specified.

5.4.4 After Sales Requirements

*#**Hint:** Requirements in this section could specify, e.g. input for the Owner's Manual could be gathered.*

No After Sales Requirements specified.

5.4.5 Process Requirements

*#**Hint**: Requirements in this section are relevant for the development process of the feature, e.g. ISO26262 compliance.*

No Process Requirements specified.

6 FUNCTIONAL SAFETY

*#**Classification**: Functional Safety only*
*#**Hint:** This section is dedicated to the Ford Functional Safety (ISO26262) process. For details of this process refer*
*#**Link:** Ford Functional Safety Sharepoint*
*#**Contact:** RE Wiki Roles & Responsibilities page – Role: Application Functional Safety Engineer*

6.1 System Behaviors for HARA

*#**Classification**: Functional Safety only*
*#**Hint:** List of selected system behaviors is an input to the Hazard Analysis and Risk Assessment (HARA). There needs to be a rationale why other system behaviors / functions are not considered.*
No System Behaviors specified.

6.2 Safety Assumptions

*#**Hint:** Copy the assumptions from the document "FFSD 02 Hazard Analysis and Risk Assessment", Tab. "2 - Assumptions" with "Ref/ID", "Name", "Category", "Description", "Purpose". In this document, additionally a reference to the requirement ID is inserted.*
*#**Link:** Functional Safety Sharepoint – HARA*

No Safety Assumptions specified

6.3 Safety Goals

*#**Classification**: Functional Safety only*
*#**Hint:** The list of Functional Safety Goals is an output of the Hazard Analysis and Risk Assessment (HARA) and therefore not required during the initial creation of the Feature Document.*
*#**Link:** Functional Safety Sharepoint – HARA*

No Safety Goal specified.

6.4 Functional Safety Requirements

*#**Classification**: Functional Safety only*
*#**Hint:** The section lists the Functional Safety Requirements (FSRs) derived from*
- a Safety Goal (list in subsections 6.4.1 and following)
in this case each FSR should trace back to a safety goal in ch. 6.3
- and Assumptions (list in subsection 6.4.2).
in this case each FSR should trace back to an assumption in ch. 6.2.
*In section 6.5**Error! Reference source not found.** "ASIL Decomposition of Functional Safety Requirements" the initial FSRs from chapters 6.4.1 to 6.4.2 may be decomposed, if required.*
*#**Link:** Functional Safety Sharepoint – Functional Safety Concept*
RE Wiki - Requirements Attributes
*#**Classification**: Functional Safety only*
*#**Hint:** The section lists the Functional Safety Requirements (FSRs) derived from a Safety Goal and Assumptions.*
The following should be noted for the use of the attribute fields for FSRs
- The "Source Req" trace link field in each FSR should have a reference to
- a safety goal in ch. 6.3 "Safety Goals" or
- an assumption in ch. 6.2 "Safety Assumptions"
*#**Link:** Functional Safety Sharepoint – Functional Safety Concept*
RE Wiki - Requirements Attributes
No Safety Goal specified.

6.4.1 Derivation of Functional Safety Requirements on Assumptions

*#**Classification**: Functional Safety only*
*#**Hint:** Derive requirements from the Assumptions (refer to section "Safety Assumptions"*

No Functional Safety Requirements tracing to Assumptions specified.

6.5 ASIL Decomposition of Functional Safety Requirements

*#**Classification:** Functional Safety Only*
*#**Hint:** For ASIL D features additional measures like a requirements decomposition might be required. Fill out the following table for each ASIL D decomposition applied in the feature. The decomposition rationale is the reason why the decomposition was performed, whereas the rationale for each requirement expresses the reason and thought behind that particular requirement and should include how the requirement is able to independently fulfill the needs of the parent requirement.*
*#**Link:** Functional Safety Sharepoint - Functional Safety Concept*

No Functional Safety Requirements with ASIL Decompositions specified.

7 ARCHITECTURE

7.1 Functional Architecture

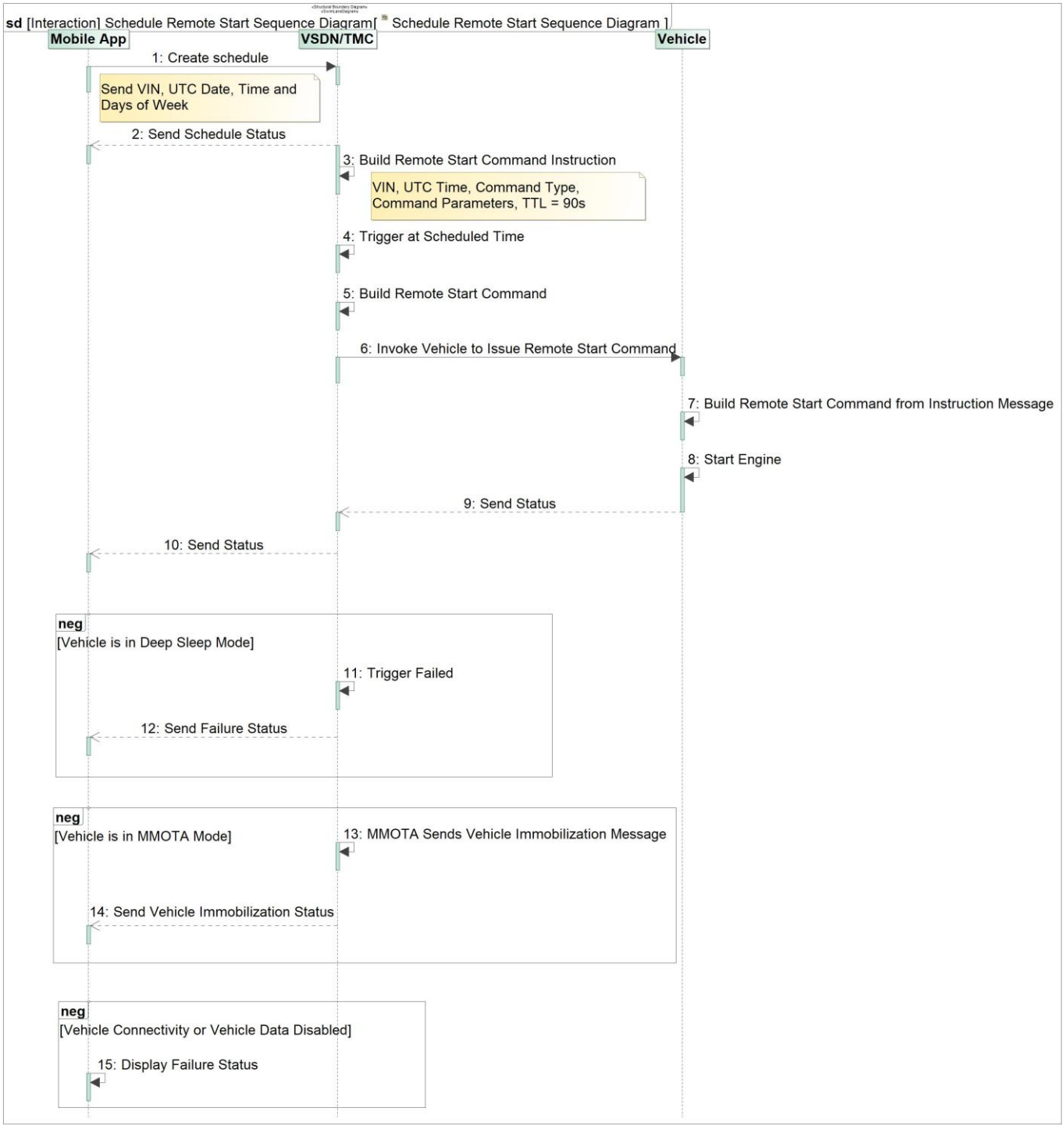

Figure 3: Schedule Remote Start Sequence Diagram

7.1.1 Logical Elements

*#**Hint:** Lists the elements of the Logical Architecture and the functions from the Functional Architecture, which are allocated to those elements.*

No Logical Elements specified.

7.1.2 Logical Interfaces

*#**Hint:** Describe the interactions of the feature with other features or elements.*

8 OPEN CONCERNS

*#**Hint:** The following list presents open concerns, which have to be discussed or clarified over the course of the on-going requirements engineering.*

ID	Concern Description	e-Tracker / Reference	Responsible	Status	Solution
1					

Table 8: Open Concerns *(Not supported by MagicDraw report generation)*

9 REVISION HISTORY

*#**Hint:** A new version number is assigned to a document with a given revision each time it is checked in to Team Center (TCSE). After release of a revision, the document cannot be edited and no new versions can be created on that revision. When updating the document after that, a new revision has to be created and new versions on that revision will be created upon checking in.*

Revision	Author	Description	Sections Affected	Release Date
1.0	Audriene Bell	- Creation of MagicDraw Feature Document	All	5/28/2020

10 APPENDIX

10.1 Definitions

10.2 Abbreviations

No acronyms specified.

Document ends here.