Research & Vehicle Technology
"Product Development"

Feature –
Customer Connectivity Settings Client

APIM Infotainment
Subsystem Part Specific Specification (SPSS)

Version 1.1
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Revision History

Date	Version	Notes	
September 27, 2021	**1.0**	**Initial Release**	
January 13, 2022	**1.1**	**Updated Release**	
	CCOIv2-TBL-953495/B-Abbreviations		pchudall: Added HUN
	CCOIv2-BD-REQ-440139/B-Customer Connectivity Settings		pchudall: added authorization components to boundary diagram
	953501/B-Use Cases		pchudall: added Req-472837
	CCOIv2-UC-REQ-472837/A-Authorization process		pchudall: new Requirement
	CCOIv2-UC-REQ-440141/B-User Prompt to get Driver's Consent		pchudall: revision obsolete due to new REQ-472837
	953502/B-Requirements		pchudall: added requirements
	CCOIv2-REQ-440143/B-User Prompt Handling as per PTE and UFM		pchudall: removed REQ-440145
	CCOIv2-TBL-957310/B-Diagnostic Parameters		pchudall: updated HMI IDs in HMI specification
	CCOIv2-REQ-472839/A-User Prompt Handling promptType Initial Prompt for Authorization		pchudall: New Requirement
	CCOIv2-REQ-440144/B-User Prompt Handling promptType Initial Prompt for User Consent Prompt		pchudall: added hun or overlay as differnt type
	CCOIv2-REQ-472838/A-Authorization Instruction Screen		pchudall: New Requirement added
	CCOIv2-REQ-440148/B-Events Impacting User Prompts		pchudall: new REQ-470857 added
	CCOIv2-REQ-472840/A-Effects of Driver Confirming Authorization Prompt		pchudall: new requirement for new authorization flow
	CCOIv2-REQ-440149/B-Effects of Driver Selecting Yes on User Consent Prompt		pchudall: added authorization specific behavior
	CCOIv2-REQ-472841/A-Effects of Driver Declines Authorization Prompt		pchudall: new requirement for new authorization flow
	CCOIv2-REQ-440150/B-Effects of Driver Selecting No on User Consent Prompt		pchudall: updating HMI referencies
	CCOIv2-REQ-440151/B-Effects of Driver Selecting Later on Authorization or User Consent Prompt		pchudall: rewriting req more generic
	CCOIv2-REQ-470857/A-Effects of Driver Selecting Later on Hun		pchudall: rewriting req more generic
	CCOIv2-REQ-470858/A-Show initial privacy settings prompt		pchudall: initial requirement
	CCOIv2-REQ-470859/A-Display dynamic privacy settings		pchudall: initial requirement
	CCOIv2-REQ-470860/A-Default slider position in initial privacy settings prompt		pchudall: initial requirement
	CCOIv2-REQ-470861/A-Display dynamic text		pchudall: initial requirement
	CCOIv2-REQ-472844/A-InfoText for entities in privacy settigns prompt		pchudall: initial requirement
	CCOIv2-REQ-470862/A-Effect of Allow All		pchudall: initial requirement
	CCOIv2-REQ-470863/A-Effects of selecting Next		pchudall: initial requirement
	CCOIv2-REQ-470864/A-Effects of selecting Skip		pchudall: initial requirement
	CCOIv2-REQ-470865/A-Re-prompt of privacy settings menu		pchudall: initial requirement

	CCOIv2-REQ-472846/A-Persistence of privacy settings menu over ignition cycle	pchudall: initial requirement
	CCOIv2-REQ-440154/B-Effect of Master Reset	pchudall: minor improvement of wording
	CCOIv2-REQ-442857/B-Error handling for CCS settings embedded in Android menu	pchudall: Show local update popup when selecting entity
	CCOIv2-REQ-442858/B-Synchronization for CCS settings embedded in Android menu	pchudall: change behavior to grey out logic.
	CCOIv2-UC-REQ-443297/B-check entity settings	pchudall: more generic, updated behavior for CCS settigns embeded in andoid menu
	CCOIv2-REQ-443298/B-Building Connectivity Settings menu	pchudall: added sub-requirements
	CCOIv2-REQ-443317/B-CCS Settings under Network and Internet	pchudall: Updated reference
	CCOIv2-REQ-443318/B-CCS Settings in Privacy Settings Menu under Privacy section	pchudall: Updated menu structure
	CCOIv2-REQ-443321/B-CCS Settings in Privacy Settings menu under Features Settings	pchudall: changed menu structure
	CCOIv2-REQ-472847/A-CCS Settings in Privacy Settings menu under Analytics Sharing	pchudall: Initial req
	CCOIv2-REQ-443319/B-CCS Settings under Location	pchudall: Updated reference
	CCOIv2-REQ-443320/B-CCS Settings under Location Features Settings	pchudall: Uodated references and popup ID
	CCOIv2-REQ-472842/A-CCS Settings under Privacy settings menu in Wizard	pchudall: Initial req
	CCOIv2-REQ-443359/B-Global location settings switch	pchudall: Initial req
	CCOIv2-REQ-443337/B-menuPolicies	pchudall: added REQ-472845
	CCOIv2-REQ-443338/B-showInMenu	pchudall: additional menus
	CCOIv2-REQ-472845/A-defaultPosition	pchudall: New Requirement
	CCOIv2-REQ-328953/C-initalPrompt	pchudall: New REQ-472848 added
	CCOIv2-REQ-472848/A-userPromptSize	pchudall: Initial Requirement
	CCOIv2-REQ-328962/C-menu	pchudall: added sub-requirement
	CCOIv2-REQ-472843/A-infoText_dropDown	pchudall: new requirement
	CCOIv2-UC-REQ-296180/D-show data sharing reminder icon	pchudall: added "icon" to distiguish clearly between icon and popup

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1 Terms and Definitions

Term	Definition
Active Policy Table	For FNV2 vehicles the same as LastKnownGood Policy Table. In FB4 there was a difference between active and last known good policy file, as an active policy file would additionally take the language and display size into account, which was discontinued in FNV, see REQ-296316 from previous specifications for details.
Backend	Cloud module communicating with the vehicle
CCSOffBoardPolicyClient	The ARMR/APCA cloud component that communicates with the vehicle, which hosts the CCS entity settings, PTE, SCF, and UFM files and user prompt logic on the cloud.
Connected Feature	Any feature/application/service which utilizes the connection to any offboard environment including Ford Backend and 3rd party services
Data Element	Atomic unit of data managed by customer opt-in.
Factory	The place where the vehicle is produced and configured. Also referred to as plant
Feature	*Functions* working as a distributed system to provide meaningful functionality to users.
Function	*Functions* are logical entities exchanging and processing data elements.
- *On-Board* Function	*Function* deployed onto a specific *vehicle module*.
- *Off-Board* Function	*Function* deployed onto a specific off-board system, i.e. hardware not part of the vehicle product.
HMI System	*In-Vehicle System* providing Human Machine Interface (HMI) for viewing and controlling connectivity settings. Assumption on FNV2 system: SYNC4 is only available HMI system.
In-Vehicle System	Consists of the portion of the CCS System running on vehicle modules and vehicle communication systems.
– *CCSOnBoardPolicyServer*	Portion of the CCS In-Vehicle System running on the Enhanced Central Gateway Vehicle Module.
– *CCSOnBoardPolicyClient*	Portion of the CCS In-Vehicle System running on the SYNC Vehicle Module.
– *CCSOnBoardPolicyModemClient*	Portion of the CCS In-Vehicle System running on the TCU Vehicle Module.
LastKnownGood Policy Files	See REQ-296327
Opt-In Status	State of a *policy governed entity*, whether it is allowed for transmission or if it is not allowed for transmission of a particular category of data.
Policy Enforcer	CCS component applying the PolicyEnforcerControlList received from CCS OnBoardPolicyServer
Policy-Governed Entity	*Data Element, Function, Feature, or Meta* which is managed by customer opt-in.

Term	Definition
Portal	An interface via which changes to *Opt-In Status* can be made. Examples would be: – The HMI System – An App
Pre-Seeded Policy Files	Default Policy Files, which are pre-installed with the CCS Server Software. Those files are permanently stored.
User	Human being interacting with the HMI system.
– *Driver*	User who is driving the vehicle. May or may not be a registered user.
– *Registered User*	User has registered a personal account with Ford.
– *Authorized User*	Registered user who authorized association with a vehicle through the vehicle's HMI system.
– *ARMR Admin*	A user with admin privileges for the CCS ARMR backend to upload new CCS policy files to the CCSOffBoardPolicyClient.
– *Developer*	A user who is developing the in-vehicle software.
– *Tester*	A user who is testing the vehicle system.
– *Application engineer*	A user who is testing the vehicle system and understand root causes of failures.
Vehicle Communication Systems	Vehicle Communication Systems are used to exchange data in between vehicle modules. Typical examples are CAN-bus and automotive Ethernet.
Vehicle Module	Piece of hardware capable of running software programs, i.e. processing, transmitting and storing of data, being part of the vehicle product.
Android Application	Applications are modular software components, with a dedicated user HMI. Applications life cycle is controlled by the OS and they can be installed and deinstalled individually.
Android Services	System services are preinstalled software component, which provide APIs to the applications. They abstract the underlaying hardware interfaces. There are standard android services or dedicated Ford services.

Table 1 – Glossary

Abbreviation	Meaning
ALM	Application Lifecycle Manager, framework to securely install, launch, stop, upgrade, and uninstall applications on the ECG
ARMR	Applink Remote Management and Reporting
CCOI	Connectivity Customer Opt-In
CCS	Customer Connectivity Settings (used synonymously with CCOI)
CFM	Customer Friendly Messages (policy table file)
ECG	Enhanced Central Gateway
FCI	Ford Cloud Interface. A component on the ECG and TCU that sends the FTCP messages to the cloud.
FOTA	Firmware Over the Air Update, same MMOTA
FTCP	Ford Telematics Communication Protocol
GUI	Graphical User Interface – the display to show information to the driver in the vehicle
HMI	Human Machine Interface
IVSU	In Vehicle Software Update
MMOTA	Multi-module Over the Air Update, same as FOTA
NGSDN	Next Generation Service Delivery Network
OGC	Office of General Council
PII	Personally Identifiable Information
PTE	Policy Table Extension (policy table file)
RPC	Remote Procedure Call
SCF	Service Config File (policy table file)
SDN	Service Delivery Network
SOA	Service Oriented Architecture and is used to reference the onboard Ethernet communication
TCU	Telematics Control Unit
UFM	User Friendly Messages (policy table file, used synonymously with CFM)
VIM	Vehicle Information Manager – VIM transforms vehicle CAN data received from traditional CAN network of ECUs (upstream) to rich information called primitives for consumption by services/features resident on ECUs connected to advanced Ethernet domain. Likewise, VIM generates CAN signals from primitives to command CAN network of ECUs (downstream)
VSCS	Vehicle Specific Configuration Specification, containing CCS default Config Parameter values which may depend on region, vehicle type, etc.
HUN	Heads Up Notification – see HMI requirement X22h_UI_Basic_Flow for more information

Table 2 – Abbreviations

2 User Requirements

2.1 Use Cases

The User Requirements section is meant as an overview over various use cases that can be achieved through the interaction of configuration parameters and the functional definition. The list of use cases in this section is not exhaustive and may change if the configuration (such as policy files) are changed.

2.1.1 CCOIv2-UC-REQ-440138/A-Driver Starts a Non-connected or eCall only Vehicle

Actors	Driver, Vehicle
Pre-conditions	• Vehicle has an ECG and a Headunit • Vehicle does not have a TCU (non-connected markets) or does have a TCU (eCall only markets) (REQ-377208) • Headunit is configured not to show CCS menu • Vehicle is not provisioned (and remains un-provisioned) (REQ-296877). Note: some eCall only vehicles may be provisioned. • UserPromptMaxCycles is set to zero in PTE file (REQ-438278, REQ-362884) • ECG is configured not to support any privacy settings or connected features by setting all bPallow DIDs for CCS meta (REQ-371619) and feature settings (REQ-371620) to off (REQ-296877). For exceptions see “List of Exception Use Cases” below. • The mobile app is configured not to show the modem authorization option for VINs that do not have a TCU
Scenario Description	1. Driver adds the VIN of the vehicle to the mobile app 2. Driver starts the vehicle 3. Driver navigates to any CCS settings through the icon bar 4. Driver navigates to any CCS settings through the main menu
Post-conditions	1. In the mobile app the driver does not see the option to activate the vehicle 2. In the vehicle the driver does not see a reminder pop-up (REQ-296181) 3. In the vehicle the driver does not see a data sharing icon (REQ-296180) 4. In the vehicle the driver does not see any CCS menu entry in the following sections: • Network and internet, • Privacy and Data sharing, • Location, • CCS feature settings, • CCS location feature settings 5. In the vehicle the driver does not see any ccs menu entry when navigating over the icon bar to the settings
List of Exception Use Cases	E1: 3a) Vehicle is equipped with a cluster .1 Skip step 3 to 6 from the Post-conditions E2: If the vehicle is equipped with embedded navigation the following pre-conditions apply: The following configurations need to be enabled: • Capability bPAllow for the EmbeddedNavigation entity (ID 60, ID 1) bPAllow_FEATURE60_EmbeddedNavigation is enabled (REQ-371619) • Subscription bSAllow for the EmbeddedNavigation entity (ID 60, ID 1) bSAllow_FEATURE60_EmbeddedNavigation is enabled (REQ-371619) Additionally, the following configurations may be enabled depending on vehicle’s capability: • Capability bPAllow for the TowingNavigationentity (ID 58, ID 1) bPAllow_FEATURE58_TowingNavigation is enabled (REQ-371619)

	• Subscription bSAllow for the TowingNavigationentity (ID 58, ID 1) bSAllow_FEATURE58_TowingNavigation is enabled (REQ-371619)
Interfaces	None

2.1.2 CCOIv2-UC-REQ-326207/C-Authorize Fleet Telematics

Actors	Fleet Owner, Vehicle, Fleet Owner's Portal
Pre-conditions	-
Scenario Description	• Fleet Owner subscribes the vehicle's VIN for Fleet Telematics in the Fleet Owner's portal • Includes CCOIv2-UC-REQ-355202-Configure Entity bSAllow for entity Fleet (ID 2, Type 1) • Continue with use case REQ-355207 Authorization Status Change
Post-conditions	The following Privacy Settings are hidden from drivers: • Vehicle Connectivity • Share Vehicle Data • Share Vehicle Location • Share Driving Data The following, additional Privacy Settings are shown to drivers: • Fleet Telematics
List of Exception Use Cases	-
Interfaces	-

2.1.3 CCOIv2-UC-REQ-355963/B-De-authorize Fleet Telematics

Actors	Fleet Owner
Pre-conditions	-
Scenario Description	1. Fleet Owner un-subscribes the vehicle's VIN for Fleet Telematics in the Fleet Owner's portal • Includes CCOIv2-UC-REQ-355202-Configure Entity bSAllow for entity Fleet (ID 2, Type 1) 2. Continue with use case REQ-355207 Authorization Status Change
Post-conditions	The following Privacy Settings are shown to drivers • Vehicle Connectivity • Share Vehicle Data • Share Vehicle Location • Share Driving Data The following Privacy Settings are hidden from drivers • Fleet Telematics
List of Exception Use Cases	-
Interfaces	

2.1.4 CCOIv2-UC-REQ-386210/B-Fleet Privacy Services Enrollment

Actors	Fleet Owner, Vehicle, Fleet Owner's Portal
Pre-conditions	Vehicle is enrolled for fleet telematics (UC-REQ-326207)
Scenario Description	1. Fleet Owner subscribes the vehicle's VIN for Fleet Privacy Services in the Fleet Owner's portal a) Includes UC-REQ-355202-Configure Entity bSAllow for entity FleetPrivacyServices (ID 42, Type 1) b) Includes UC-REQ-355216-Prompt User to Get Driver's Consent where the backend sends an information prompt with message code 2000 2. Driver turns ignition on 3. Driver sees information pop-up informing the driver that the driver is granted permission to change the privacy settings 4. Driver clicks close on the information pop-up 5. Driver navigates to the Connected Vehicle Feature Settings 6. Driver disables Share Driving Data 7. Driver disables Share Location Data 8. Driver disables Share Vehicle Data
Post-conditions	5. Vehicle Connectivity and Fleet Telematics are hidden from the driver 6. Share Driving Data is disabled 7. Share Location Data is disabled 8. Share Vehicle Data is disabled
List of Exception Use Cases	-
Interfaces	-

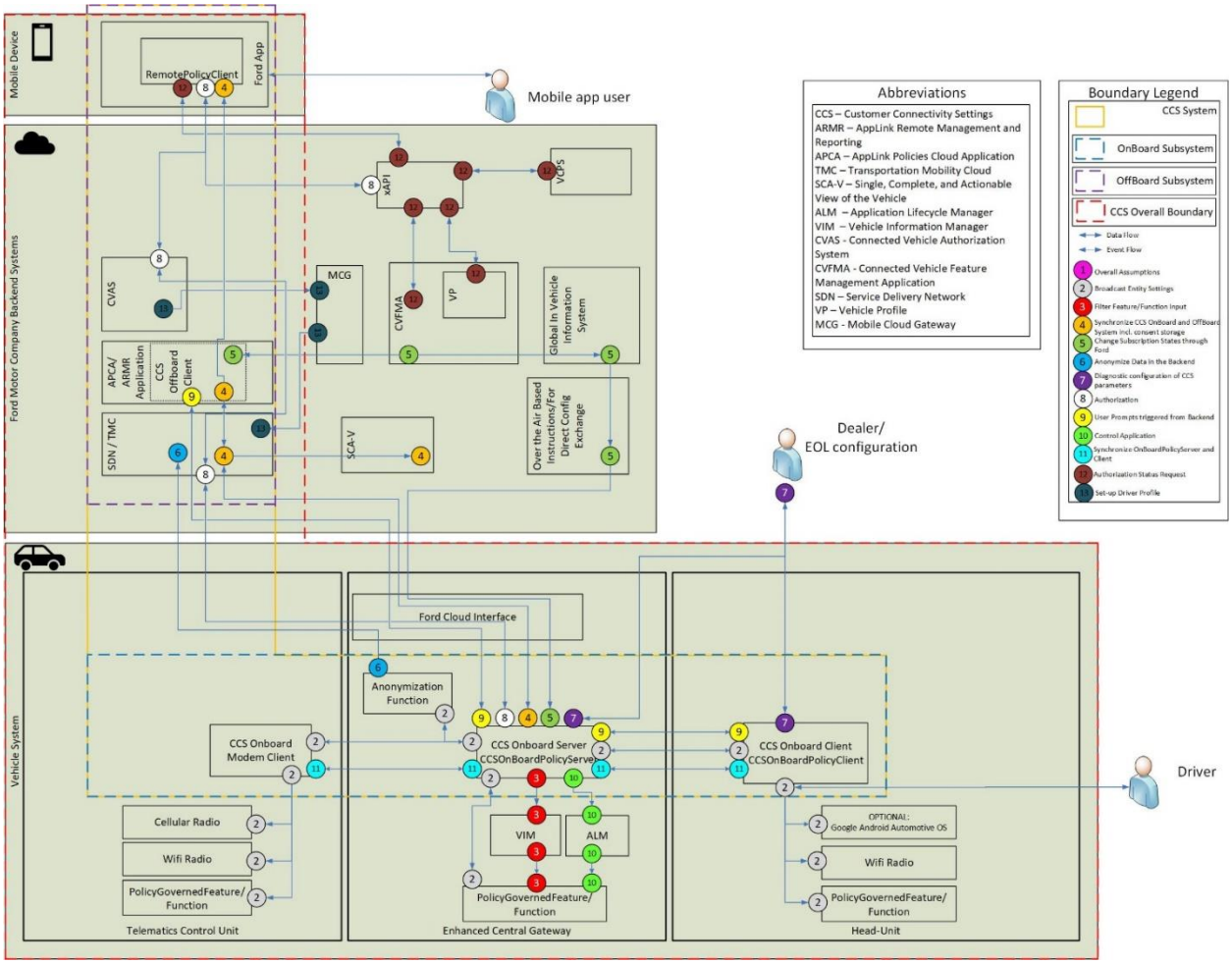
2.1.5 CCOIv2-UC-REQ-386211/A-Fleet Privacy Services Un-enrollment

Actors	Fleet Owner, Vehicle, Fleet Owner's Portal
Pre-conditions	Vehicle is enrolled for fleet telematics (UC-REQ-326207) Vehicle is enrolled for fleet privacy services (UC-REQ-355963)
Scenario Description	1. Fleet Owner un-subscribes the vehicle's VIN for Fleet Privacy Services in the Fleet Owner's portal • Includes UC-REQ-355216-Prompt User to Get Driver's Consent where the backend sends an information prompt with message code 8 • Includes UC-REQ-355202-Configure Entity bSAllow for entity FleetPrivacyServices (ID 42, Type 1) 2. Driver turns ignition on 3. Driver sees information pop-up informing the driver that the driver is no longer granted the permission to change the privacy settings and all privacy settings are enabled 4. Driver clicks close on the information pop-up 5. Driver navigates to the Connected Vehicle Feature Settings
Post-conditions	Same as UC-REQ-326207-Authorize Fleet Telematics
List of Exception Use Cases	-
Interfaces	-

3 Architectural Design

3.1 Boundary Diagram

3.1.1 CCOIv2-BD-REQ-440139/B-Customer Connectivity Settings



3.2 Interface Requirements

3.2.1 SOA Interface

3.2.1.1 CCOIv2-REQ-362874/C-ECG SOA Proto File

Name	Description
SpcmCcsmEntitySettingsUpdateInd	Protobuf used to publish CCS entity settings to all interested parties
SpcmCcsmEntitySettingsUpdateResp	Protobuf used by CCS client(s) to respond to CCS entity settings update indication
SpcmCcsmWhitelistUpdateInd	Protobuf used to publish CCS whitelist to all interested parties
SpcmCcsmEntitySettingsReadReq	Protobuf used to read CCS entity settings
SpcmCcsmEntitySettingsReadResp	Protobuf used to respond to CCS entity settings read request
SpcmCcsmSynchronizationSessionReq	Protobuf used to request a synchronization session between OnBoardHMISystemPolicyClient and the OnBoardPolicyServer.
SpcmCcsmSynchronizationSessionResp	Protobuf used to update the policy files and entity settings on CCOIOnBoardHMISystemPolicyClient
SpcmCcsmOnBoardPolicyServerStateInd	Protobuf used to inform the CCOIOnBoardHMISystemPolicyClient about the state of the CCOIOnBoardPolicyServer
SpcmCcsmEntityStatus	Message structure holder of individual entity setting and its Allow bits
SpcmCcsmWhitelist	Message structure holder of whitelisted items
SpcmCcsmWhitelistType	Enumeration of different whitelist types
SpcmCcsmWhitelistUpdateResp	Protobuf used by CCS policy enforcers to respond to CCS whitelist indication

For message details see ECG SOA Proto File.

3.2.1.2 CCOIv2-REQ-362875/A-SYNC SOA Proto File

Name	Description
SpcmCcsmSettingsUpdateInd	Protobuf used to request activation or deactivation of policy governed entities
SpcmCcsmSynchronizationSummaryReportInd	Protobuf used to respond to and at the same time end a synchronization session with a report of the result.
SpcmCcsmUserPromptReq	Protobuf used to request the HMI to display a user prompt
SpcmCcsmUserPromptResp	Protobuf used to provide the response to a prompt request.
SpcmCcsmOnBoardHMISystemPolicyClientStateInd	Protobuf used to inform the CCOIOnBoardPolicyServer about the state of the CCOIOnBoardHMISystemPolicyClient
SpcmCcsmEntityUserAllowStatus	Message structure holder of an entity's UAllow bit change request for SettingsUpdate_Rq
SpcmCcsmClientCommandType	Enumeration of different CCSM client commands

For message details see SYNC SOA Proto File.

3.2.1.3 CCOIv2-REQ-362876/B-FNV SOA Proto File

Name	Description
UTCDateTime	Message structure for capturing UTCDateTime (not from CAN signals). This message structure is used by both Cloud and Vehicle for capturing real timestamp. Cloud shall populate this from System time and vehicle shall populate this from carrier cellular network.
PolicyGovernedCCSFile	Policy Governed CCS File binary for storage in the ECU(ECG/TCU)
PolicyGovernedCCSFileMetaData	Policy Governed CCS File binary for storage in the ECU(ECG/TCU)
Entity	Message structure for Meta/Feature
EntityTypeENUM	Entity Type
CCSDataSynchronizationStateEnum	CCS Data Sychronization States

For message details see FNV SOA Proto File.

3.2.1.3.1 CCOIv2-REQ-372144/A-Meta Data: Hash Value Format

The “fingerprintSHA256” hash value in PolicyGovernedCCSFileMetaData is transferred in hexadecimal format.

3.2.2 Diagnostics Interface

3.2.2.1 Method 2

3.2.2.1.1 CCOIv2-REQ-371613/A-Diagnostic Parameter for Country Code

The table below lists parameters for the CCSOnBoardPolicyClient that are accessible via diagnostics, the supplier, or by Ford via DET, EOL or OTA. The list of CCOI configurable parameters shall be identified in the CCOI Subsystem Specification Diagnostic Specification (Part 2).

CCOI Configurable Parameters or Diagnostics Values
First Letter of Country Code – ASCII
Second Letter of Country Code – ASCII

Table 3 – Diagnostic Parameters

3.2.2.1.2 CCOIv2-REQ-371614/A-Diagnostic Parameter for Vehicle Brand

The table below lists parameters for the CCSOnBoardPolicyClient that are accessible via diagnostics, the supplier, or by Ford via DET, EOL or OTA. The list of CCOI configurable parameters shall be identified in the CCOI Subsystem Specification Diagnostic Specification (Part 2).

CCOI Configurable Parameters or Diagnostics Values
Brand

Table 4 – Diagnostic Parameters

3.2.2.1.3 CCOIv2-REQ-371615/A-Diagnostic Parameter for Backup Start Passcode

The table below lists parameters for the CCSOnBoardPolicyClient that are accessible via diagnostics, the supplier, or by Ford via DET, EOL or OTA. The list of CCOI configurable parameters shall be identified in the CCOI Subsystem Specification Diagnostic Specification (Part 2).

CCOI Configurable Parameters or Diagnostics Values
Backup Start Passcode (aka LBI)

Table 5 – Diagnostic Parameters

3.2.2.1.4 CCOIv2-REQ-371616/A-Diagnostic Parameter to Show/Hide CCS Menu

The table below lists parameters for the CCSOnBoardPolicyClient that are accessible via diagnostics, the supplier, or by Ford via DET, EOL or OTA. The list of CCOI configurable parameters shall be identified in the CCOI Subsystem Specification Diagnostic Specification (Part 2).

CCOI Configurable Parameters or Diagnostics Values
Customer Connectivity Setting

Note: this setting does not disable CCS but it hides any CCS menu entry. For more information see the HMI specification requirement.

Table 6 – Diagnostic Parameters

3.2.3 Engineering Tool

3.2.3.1 CCOIv2-REQ-442817/A-Parameter to disabel Data Sharing Notification

The table below lists the set of parameters that shall be changeable by supplier or Ford via internal developer tools. As this parameter is not supposed to be readable via conventional diagnostic tools like DET, it will not be listed in the Diagnostic Specification (Part2). The parameters shall be persistent over ignition cycle.

CCOI Configurable Parameters	**States**
DisableDataSharingNotification	True (default state when SW is flashed) False

Table 7 – Diagnostic Parameters

3.2.3.2 CCOIv2-REQ-436477/A-Interface to extract CCS data

CCSOnBoardPolicyClient shall provide an interface for developers and testers to extract the artefacts listed below:

- Local CCS setings of all entites (entityType, entityID, UAllow, PAllow, Sallow and FPAllow, BAllow, consentSequenceID, Timestamp)
- Currently synchronized UFM and PTE file

4 Functional Definition

4.1 CCOIv2-FUN-REQ-440140/A-User Prompt and Modem activation (Client)

4.1.1 Use Cases

4.1.1.1 CCOIv2-UC-REQ-472837/A-Authorization process

Actors	Driver, CCSOnBoardPolicyClient
Pre-conditions	Ignition is ON
Scenario Description	1. Driver starts the setup wizard 2. Authorization instruction screen shows up 3. Driver sends authorization request via FordPass 4. Authorization popup is displayed on HMI 5. User accepts the Authorization prompt 6. Privacy settings menu shows up 7. Driver confirms privacy settings 8. Continue with setup wizard
Post-conditions	-
List of Exception Use Cases	E1: 1b) If authorization is already pending continue with step 4. E2: 2b) If the vehicle is already authorized continue with step 8. E3: 3b) If driver skips the instruction screen continue with step 8. E4: 4b) If driver denies authorization continue with step 8. E5: 5b) If the driver has already finished the privacy settings screen but did not finish the complete wizard yet continue with step 8.
Interfaces	GUI, SOA, FCI

4.1.1.2 CCOIv2-UC-REQ-440141/B-User Prompt to get Driver's Consent

Actors	CCSOffBoardPolicyClient, Driver, CCSOnBoardPolicyClient, CCSOnBoardPolicyServer
Pre-conditions	Ignition is OFF
Scenario Description	1. CCSOffBoardPolicyClient sends User Prompt Command to CCSOnBoardPolicyServer 2. CCSOnBoardPolicyServer sends User Prompt Command Response to CCSOffBoardPolicyClient 3. Driver turns ignition ON 4. CCSOnBoardPolicyServer triggers the user prompt on the CCSOnBoardPolicyClient 5. CCSOnBoardPolicyClient shows user prompt on vehicle 6. Driver confirms the user prompt 7. CCSOnBoardPolicyClient informs the CCSOnBoardPolicyServer about the driver's choice 8. CCSOnBoardPolicyServer informs the CCSOffBoardPolicyClient about the driver's choice with a correlated user prompt alert
Post-conditions	-
List of Exception Use Cases	E1: 1b) CCSOffBoardPolicyClient sends User Authorization Command to CCSOnBoardPolicyServer .1 instead of step 2 CCSOnBoardPolicyServer sends User Authorization Command Response to CCSOffBoardPolicyClient .2 proceed with step 3. E2: 1c) A trigger condition at the CCSOnBoardPolicyServer is met (REQ-362658) for an onboard-triggered user prompt .1 proceed with step 3 .2 skip step 8. of the Scenario Description E3: 3a) Ignition is already ON .1 skip step 3. and proceed with step 4. E4: 5a) The head unit shows higher prioritized pop-ups .1 CCSOnBoardPolicyClient shows the user prompt after the higher prioritized pop-ups .2 proceed with step 6 E5: 6a) Driver chooses "Ask me Later" or turns ignition off without making a choice .1 proceed with step 7. of the Scenario Description .2 After step 7. go back to step 3. to retry E6: 6b) Driver declines the user prompt .1 proceed with step 7. of the Scenario Description E7: 6c) The prompt type is "information" or "error" .1 The driver closes the pop-up .2 continue with step 7. of the Scenario Description E8: 7a) If user prompt is not a vehicle activation prompt skip step 7.
Interfaces	GUI, SOA, FCI

4.1.2 Requirements

4.1.2.1 CCOIv2-REQ-440142/A-Fail User Prompt when screenID or promptType Unknown

When the CCSOnBoardPolicyClient receives a SpcmCcsmUserPromptReq for which the

- the messageCode corresponding to the received “screenId” does not exist in the UFM file (REQ-328949-messageCode (User Friendly Messages))

OR

- the text for that “screenId” and “promptType” combination does not exist (REQ-328953-initalPrompt, REQ-328975-error, REQ-329020-information), OR is empty, OR is NULL in the UFM file (REQ-328983-Missing content strategy)

the CCSOnBoardPolicyClient shall send a correlated SpcmCcsmUserPromptResp to the CCSOnBoardPolicyServer as “SPCM_CCSM_PROMPT_RESULT_FAILED”.

4.1.2.2 CCOIv2-REQ-440143/B-User Prompt Handling as per PTE and UFM

When the CCSOnBoardPolicyClient receives a SpcmCcsmUserPromptReq
AND
the requirement REQ-362705-Fail User Prompt when screenID or promptType Unknown is not met
AND
requirements from HMI specification are met
the CCSOnBoardPolicyClient shall show a user prompt to the Driver as follows:

4.1.2.2.1 CCOIv2-REQ-442837/A-Mapping of CCS HMI pop-up ID and Android HMI specification

The CCS HMI IDs are mapped to the HMI IDs defined in the AOS HMI specification (ref: X31j.AOS_CCS) as described in the below table:

CCS HMI ID	Element	AOS HMI specification reference
E1	Location Sharing Notification	E1
23	Data Sharing Pop-Up	E2
36	Information Messages	E3
28	Local Update	E4
27	Error Messages	E5
E6	Connectivity Disabled Pop-Up	E6
10	User Consent Prompt	E7
24	User Consent Prompt – Yes	E8
16	User Consent Prompt – No	E9
5	Confirmation	E10
34	Connected Vehicles Features	D5
A1	Network and internet	A1
D1	Privacy and Data Sharing	D1
D2	Location	D2
D6	Location Feature Settings	D6
E11	Loading	E11
B1	Authorization Prompt (Initial Prompt)	B1
B2	Privacy Settings Authorization	B2
B3	User Consent PopUp – No Authorization	B3
B4	Authorization Instruction Screen	B4

Table 8 – Diagnostic Parameters

4.1.2.2.2 CCOIv2-REQ-472839/A-User Prompt Handling promptType Initial Prompt for Authorization

If promptType is set to “SPCM_CCSM_PROMPT_TYPE_INITIAL_PROMPT” and the messageCode is 3 (authorization), the CCSOnBoardPolicyClient shall trigger a user prompt with message content from the UFM file. Depending on the “userPromptSize” parameter in the initialPrompt section of the UFM the CCSOnboardPolicyClient shall trigger the following prompt type:

- userPromptSize = hun: CCSOnbaordPolicyClient shall trigger HMI pop-up ID B1 as a HUN. The HUN is defined as a sticky HUN with a 2 minute timeout and the CCSOnBoardPolicyClient shall archive the prompt
- userPromptSize = overlay: CCSOnboardPolicyClient shall trigger HMI pop-up ID B1 as an overlay.

4.1.2.2.3 CCOIv2-REQ-440144/B-User Prompt Handling promptType Initial Prompt for User Consent Prompt

If promptType is set to “SPCM_CCSM_PROMPT_TYPE_INITIAL_PROMPT”, and the messageCode is not 3, the CCSOnBoardPolicyClient shall trigger a user prompt with message content from the UFM file. Depending on the “userPromptSize” parameter in the initialPrompt section of the UFM the CCSOnboardPolicyClient shall trigger the following prompt type:

- userPromptSize = hun: CCSOnbaordPolicyClient shall trigger HMI pop-up ID 10 as a HUN. The HUN is defined as a sticky HUN with a 2 minute timeout and the CCSOnBoardPolicyCleint shall archive the prompt
- userPromptSize = overlay: CCSOnboardPolicyClient shall trigger HMI pop-up ID 10 as an overlay.

4.1.2.2.4 CCOIv2-REQ-440146/A-User Prompt Handling promptType Error

If promptType is set to “SPCM_CCSM_PROMPT_TYPE_ERROR”, CCSOnBoardPolicyClient shall trigger a user prompt with HMI pop-up ID 27 and message content from the CFM file (REQ-328949-messageCode (User Friendly Messages), REQ-328975-error).

4.1.2.2.5 CCOIv2-REQ-440147/A-User Prompt Handling promptType Information

If promptType is set to “SPCM_CCSM_PROMPT_TYPE_INFORMATION”, CCSOnBoardPolicyClient shall trigger a user prompt with HMI pop-up ID 36 and message content from the CFM file (REQ-328949-messageCode (User Friendly Messages), REQ-329020-information).

4.1.2.3 CCOIv2-REQ-472838/A-Authorization Instruction Screen

If the driver starts the Setup Wizard and the vehicle not authorized, the CCSOnBoardPolicyClient shall trigger the Authorization Instruction Screen (HMI ID B4)**.**

4.1.2.4 CCOIv2-REQ-440148/B-Events Impacting User Prompts

4.1.2.4.1 CCOIv2-REQ-472840/A-Effects of Driver Confirming Authorization Prompt

If the user selects “Allow” on the authorization Prompt (HMI ID B1), the CCSOnBoardPolicyClient shall at the same time:

- close the prompt and send the user’s choice via SpcmCcsmUserPromptResp to the CCSOnBoardPolicyServer with promptResult = “SPCM_CCSM_PROMPT_RESULT_SELECT_YES”
- Transition to Synchronization State “OnBoardUpatePending”.
- Trigger loading screen (HMI ID E11) and proceed with REQ-470859 Show initial privacy settings prompt.

4.1.2.4.2 CCOIv2-REQ-440149/B-Effects of Driver Selecting Yes on User Consent Prompt

If the user selects “Yes” on the user prompt (HMI E7), on the User Consent Prompt, the CCSOnBoardPolicyClient shall at the same time:

- close the prompt and send the user’s choice via SpcmCcsmUserPromptResp to the CCSOnBoardPolicyServer with promptResult = “SPCM_CCSM_PROMPT_RESULT_SELECT_YES”
- trigger a user prompt with HMI pop-up ID 24 and message content from the CFM file (REQ-328949-messageCode (User Friendly Messages), REQ-328960-button1ConfirmationText) if applicable (REQ-328983-Missing content strategy).
- transition to Synchronization State “OnBoardUpdatePending”.

4.1.2.4.3 CCOIv2-REQ-472841/A-Effects of Driver Declines Authorization Prompt

If the user selects “Deny” on the Authorization Prompt (HMI ID B1), the CCSOnBoardPolicyClient shall close the pop-up.

If there is text available for a confirmation prompt (REQ-328983-Missing content strategy) the CCSOnBoardPolicyClient shall trigger a user prompt with HMI pop-up ID B3 and message content from the CFM file (REQ-328949-messageCode (User Friendly Messages), REQ-328961-button2ConfirmationText).

- If the driver clicks “Deny” on the confirmation prompt, the CCSOnBoardPolicyClient shall
  - send the user’s choice via SpcmCcsmUserPromptResp to the CCSOnBoardPolicyServer with promptResult = “SPCM_CCSM_PROMPT_RESULT_SELECT_NO”.
  - transition to Synchronization State “OnBoardUpdatePending”.
- If the driver clicks “Back” on the confirmation prompt, the CCSOnBoardPolicyClient shall go back to pop-up with HMI ID B1.

If there is no text available for a confirmation prompt (REQ-328983-Missing content strategy) the CCSOnBoardPolicyClient sends the user’s choice via SpcmCcsmUserPromptResp to the CCSOnBoardPolicyServer with promptResult = “SPCM_CCSM_PROMPT_RESULT_SELECT_NO” and transitions to Synchronization State “OnBoardUpdatePending”.

4.1.2.4.4 CCOIv2-REQ-440150/B-Effects of Driver Selecting No on User Consent Prompt

If the user selects “No” on the User Consent Prompt (HMI ID E7), the CCSOnBoardPolicyClient shall close the pop-up.

If there is text available for a confirmation prompt (REQ-328983-Missing content strategy) the CCSOnBoardPolicyClient shall trigger a user prompt with HMI pop-up ID 16 and message content from the CFM file (REQ-328949-messageCode (User Friendly Messages), REQ-328961-button2ConfirmationText).

- If on the driver clicks “ok” on the confirmation prompt, the CCSOnBoardPolicyClient shall
  - send the user’s choice via SpcmCcsmUserPromptResp to the CCSOnBoardPolicyServer with promptResult = “SPCM_CCSM_PROMPT_RESULT_SELECT_NO”.
  - transition to Synchronization State “OnBoardUpdatePending”.
- If the driver clicks “cancel” on the confirmation prompt, the CCSOnBoardPolicyClient shall go back to pop-up with HMI ID 10

If there is no text available for a confirmation prompt (REQ-328983-Missing content strategy) the CCSOnBoardPolicyClient sends the user’s choice via SpcmCcsmUserPromptResp to the CCSOnBoardPolicyServer with promptResult = “SPCM_CCSM_PROMPT_RESULT_SELECT_NO” and transitions to Synchronization State “OnBoardUpdatePending”.

4.1.2.4.5 CCOIv2-REQ-440151/B-Effects of Driver Selecting Later on Authorization or User Consent Prompt

If the user chooses to be reminded again (e.g. “Later”, “Remind Later”) on the Authorization Prompt (HMI ID B1) or User Consent Prompt (HIM ID 10), the CCSOnBoardPolicyClient server shall close the pop-up and send the user’s choice via SpcmCcsmUserPromptResp to the CCSOnBoardPolicyServer with promptResult = “SPCM_CCSM_PROMPT_RESULT_SELECT_ASKMELATER”.

4.1.2.4.6 CCOIv2-REQ-470857/A-Effects of Driver Selecting Later on Hun

If the user chooses to be reminded again (“Later”, “Remind me”) and the initialPrompt is displayed as a Hun, the OnBoardPolicyClient shall close the HUN and move it back to the notification center. The CCS OnboardPolicyClient shall not send a SpcmCcsmUserPromptResp back to the OnBoardPolicyServer.

4.1.2.4.7 CCOIv2-REQ-440152/A-Effects of Driver Selecting Close

If the user selects “closed” on the user prompt, the CCSOnBoardPolicyClient server shall close the prompt and send the user’s choice via SpcmCcsmUserPromptResp to the CCSOnBoardPolicyServer with promptResult = “SPCM_CCSM_PROMPT_RESULT_DISPLAYED”.

4.1.2.4.8 CCOIv2-REQ-440153/A-Effects of Driver turning Ignition Off without Making Choice

If the user turns of ignition without making a choice, the CCSOnBoardPolicyClient server shall close the pop-up.

4.1.2.5 CCOIv2-REQ-470858/A-Show initial privacy settings prompt

The CCSOnBoardPolicyClient shall monitor the authorization bAllow state (entity Type: 0, ID 3). In case the authorization state changes from off to on and the synchronization state is synchronized the CCSOnBoardPolicyClient shall trigger the

Privacy Settings prompt B2 (ref HMI spec B2) as defined in the following requirements and change synchronization state to OnBoardUpdatePending state.

4.1.2.5.1 CCOIv2-REQ-470859/A-Display dynamic privacy settings

The initial privacy settings menu screen does contain a section for a list of entities. The CCSOnBoardPolicyClient shall inject the entities dynamically based on the menuPolicies as defined in the PTE (ref. REQ-472842). The appearance shall be set as specified in REQ-296876.

4.1.2.5.2 CCOIv2-REQ-470860/A-Default slider position in initial privacy settings prompt

The CCSOnboardPolicyClient shall set the slider position of each entity as defined in menuPolicy section of the PTE file (ref. REQ-472845). The defaultPosition can have three options:

- "On": set default slider state to enabled
- "Off": set default slider state to disabled
- "Current": set default slider state to current bUAllow state

4.1.2.5.3 CCOIv2-REQ-470861/A-Display dynamic text

The privacy settings menu prompt does contain a section for a text. The CCSOnBoardPolicyClient shall show the text as defined in the UFM under initialSettingsPrompt for the given message Code in the menuPolicies in the PTE.

4.1.2.5.4 CCOIv2-REQ-472844/A-InfoText for entities in privacy settigns prompt

The CCSOnBoardPolicyClient shall dynamically inject the information text under each entity as defined in menu section in the UFM definition (ref. REQ-472843). The info text can be expanded or collapsed.

4.1.2.5.5 CCOIv2-REQ-470862/A-Effect of Allow All

If the driver selects "Allow All" the CCSOnboardPolicyClient shall send a SpcmCcsmSettingsUpdateInd to CCSOnBoardPolicyServer and set the uAllow of all entities to on.

4.1.2.5.6 CCOIv2-REQ-470863/A-Effects of selecting Next

If the driver selects "Continue" the CCSOnBoardPolicyClient shall send a SpcmCcsmSettingsUpdateInd to the CCSOnboardPolicyServer to set the bUAllow states of the entities as selected by the driver.

4.1.2.5.7 CCOIv2-REQ-470864/A-Effects of selecting Skip

If the driver selects "Skip" the CCSOnBoardPolicyClient shall close the privacy settings prompt B2.

If there is text available for a confirmation prompt (REQ-328983-Missing content strategy) the CCSOnBoardPolicyClient shall trigger a user prompt with HMI pop-up ID 5 and message content from the CFM file (REQ-328949-messageCode (User Friendly Messages), REQ-328961-button2ConfirmationText).

- If the driver clicks "Continue" on the confirmation prompt, the CCSOnBoardPolicyClient shall enter the "Synchronized" state without sending a SpcmCcsmSettingsUpdateInd.
- If the driver clicks "Cancel" on the confirmation prompt, the CCSOnBoardPolicyClient shall go back to the privacy settings prompt (HMI ID B2).

If there is no text available for a confirmation prompt (REQ-328983-Missing content strategy) the CCSOnBoardPolicyClient shall enter the "Synchronized" state without sending a SpcmCcsmSettingsUpdateInd.

4.1.2.5.8 CCOIv2-REQ-470865/A-Re-prompt of privacy settings menu

The CCSOnBoardPolicyClient shall ensure that the driver confirmed the privacy settings prompt actively by using the "Next" button.
In case the privacy settings prompt closes without the driver selecting "Next", "Allow All" or "Skip" (e.g. ignition cycle, selecting back-button) the CCSOnBoardPolicyClient shall show the privacy settings prompt the next time the wizard starts.

4.1.2.5.9 CCOIv2-REQ-472846/A-Persistence of privacy settings menu over ignition cycle

The CCSOnBoardPolicyClient shall persist the privacy settings menu re-prompt logic over ignition cycle. Only a change of the authorization status to un-authorized shall reset the re-prompt logic.

4.1.2.6 CCOIv2-REQ-440154/B-Effect of Master Reset

If the Driver performs a reset (Master Reset Brand, Connect Reset, or ClearUserSettingsCommand), the CCSOnBoardPolicyClient shall close all pending user prompts and send a SpcmCcsmUserPromptResp with promptResult = “SPCM_CCSM_PROMPT_RESULT_SELECT_NO”.

Note: as long as the CCSOnBoardPolicyClient is not informed about a ClearUserSettingsCommand it is a known limitation that a prompt may still be displayed to a driver after transmission of the ClearUserSettingsCommand has already failed by the CCSOnBoardPolicyServer.

4.1.2.7 CCOIv2-REQ-440155/A-Effect of PTE or UFM Update

If the CCSOnBoardPolicyClient receives a new UFM file, the CCSOnBoardPolicyClient shall re-check for “REQ-362705-Fail User Prompt when screenID or promptType Unknown”. If the user prompt passes the check with the new UFM file, then update the text in the user prompt. If the user prompt fails the check with the new UFM file, then proceed as outlined in REQ-362705.

4.1.2.8 CCOIv2-REQ-440156/A-Effect of Data Storage Error

If the CCSOnBoardPolicyClient transitions to the state “DataStorageError”, the CCSOnBoardPolicyClient shall close all user prompts and shall not send a SpcmCcsmUserPromptResp to the CCSOnBoardPolicyServer.

Rationale: if the Client is in Data Storage it cannot be guaranteed that a response reaches the Server. Therefore, the Server has already canceled all user prompts and informed the backend and the Client just needs to close all pop-ups.

4.1.2.9 CCOIv2-REQ-440157/A-Performance Requirements

4.1.2.9.1 CCOIv2-REQ-440158/A-Time to Display User Prompts

4.1.2.9.1.1 CCOIv2-REQ-440159/A-Time to Display User Prompts: Happy Path

If the CCSOnBoardPolicyClient receives a SpcmCcsmUserPromptReq AND no higher priority pop-up is shown (see HMI requirements) the CCSOnBoardPolicyClient shall show a user prompt within 1 second of receiving the trigger for a user prompt.

4.1.2.9.1.2 CCOIv2-REQ-440160/A-Time to Display User Prompts: Higher Priority Pop-ups Present

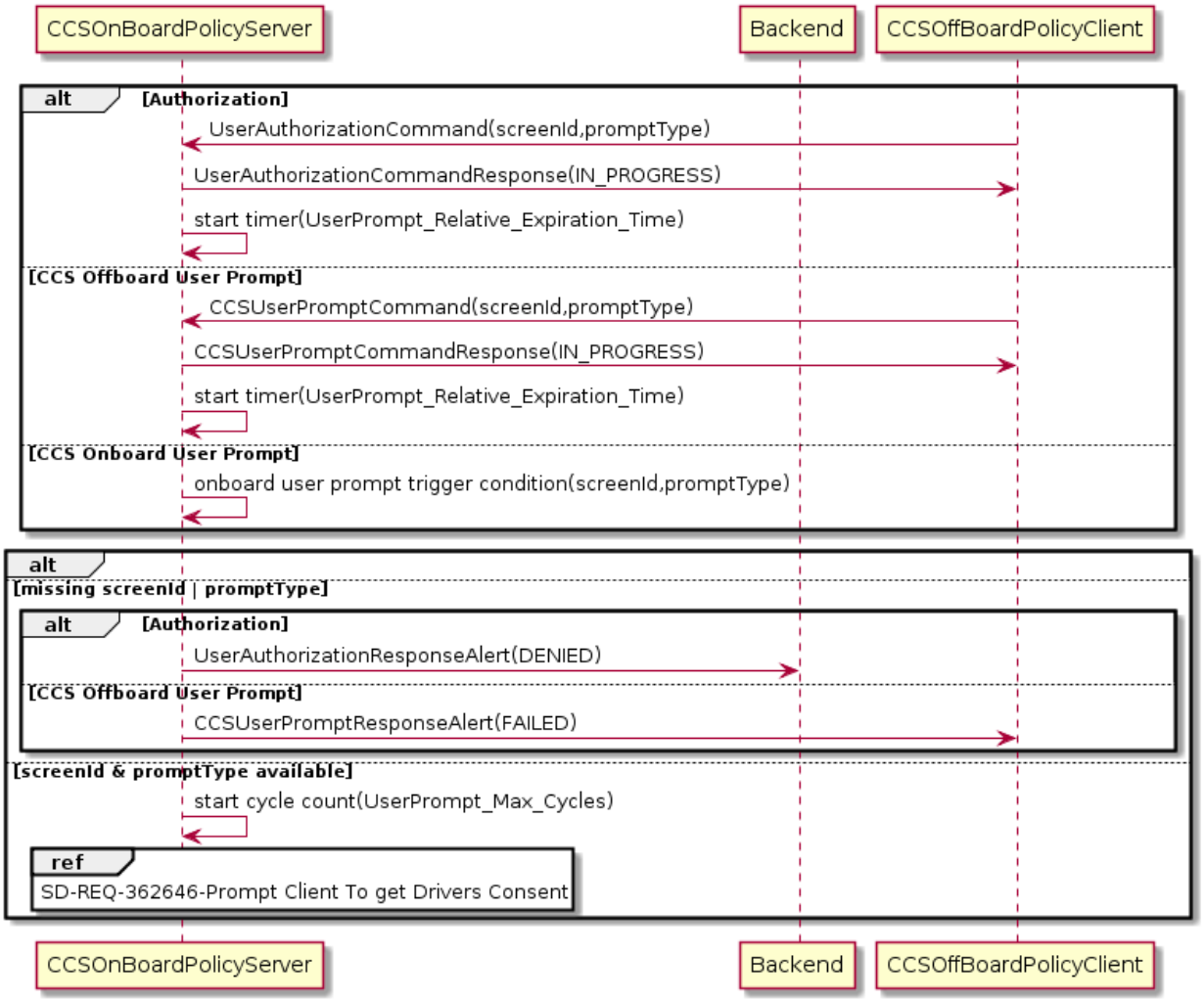
If the CCSOnBoardPolicyClient receives a SpcmCcsmUserPromptReq AND higher priority pop-ups are shown (see HMI requirements) the CCSOnBoardPolicyClient shall show a user prompt within 1 second after all higher priority pop-ups were closed.

4.1.2.9.2 CCOIv2-REQ-440162/A-Maximum Length of Variable-Text

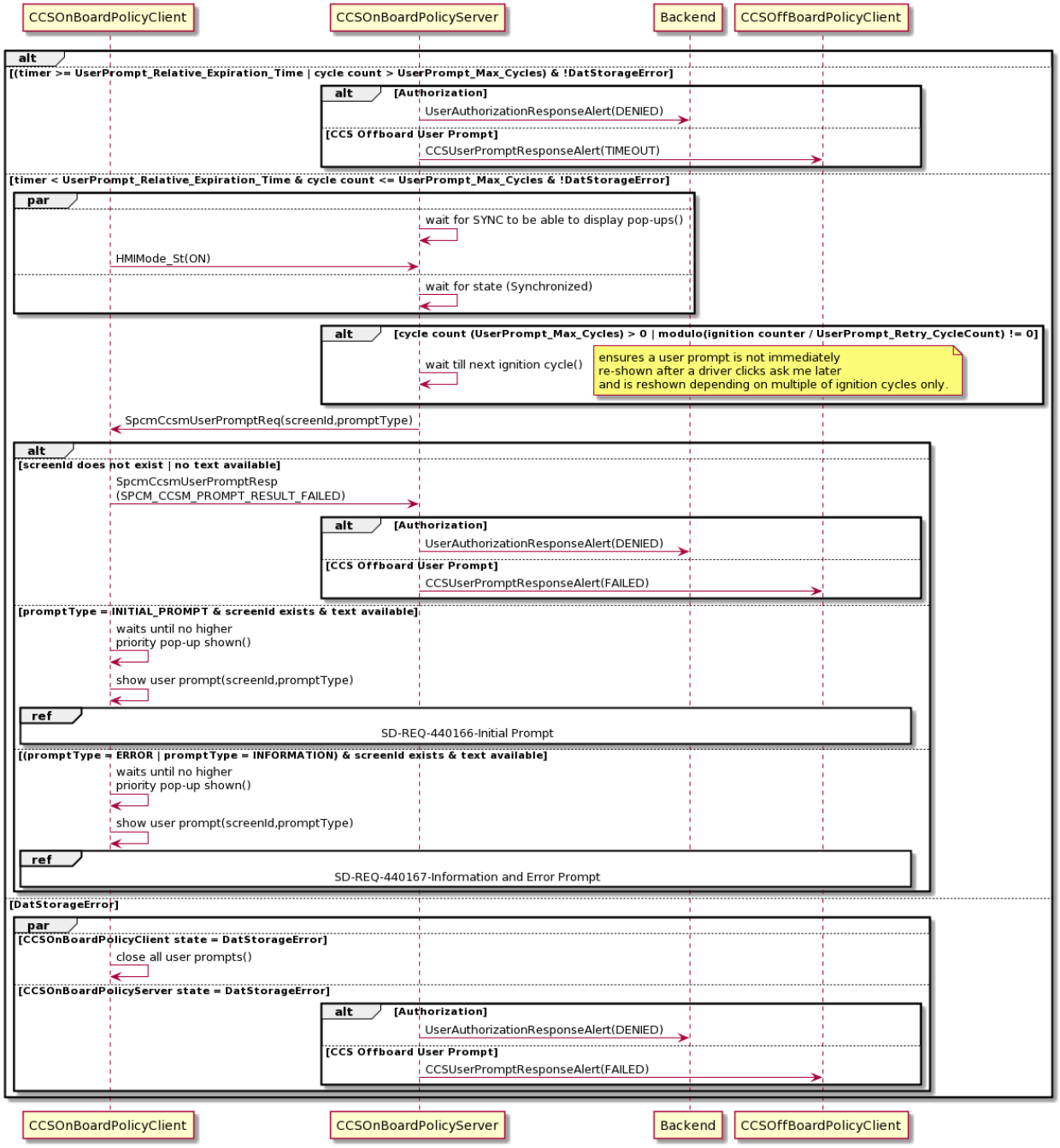
The CCSOnBoardPolicyClient shall not restrict the maximum length of variable-text.

4.1.3 Sequence Diagrams

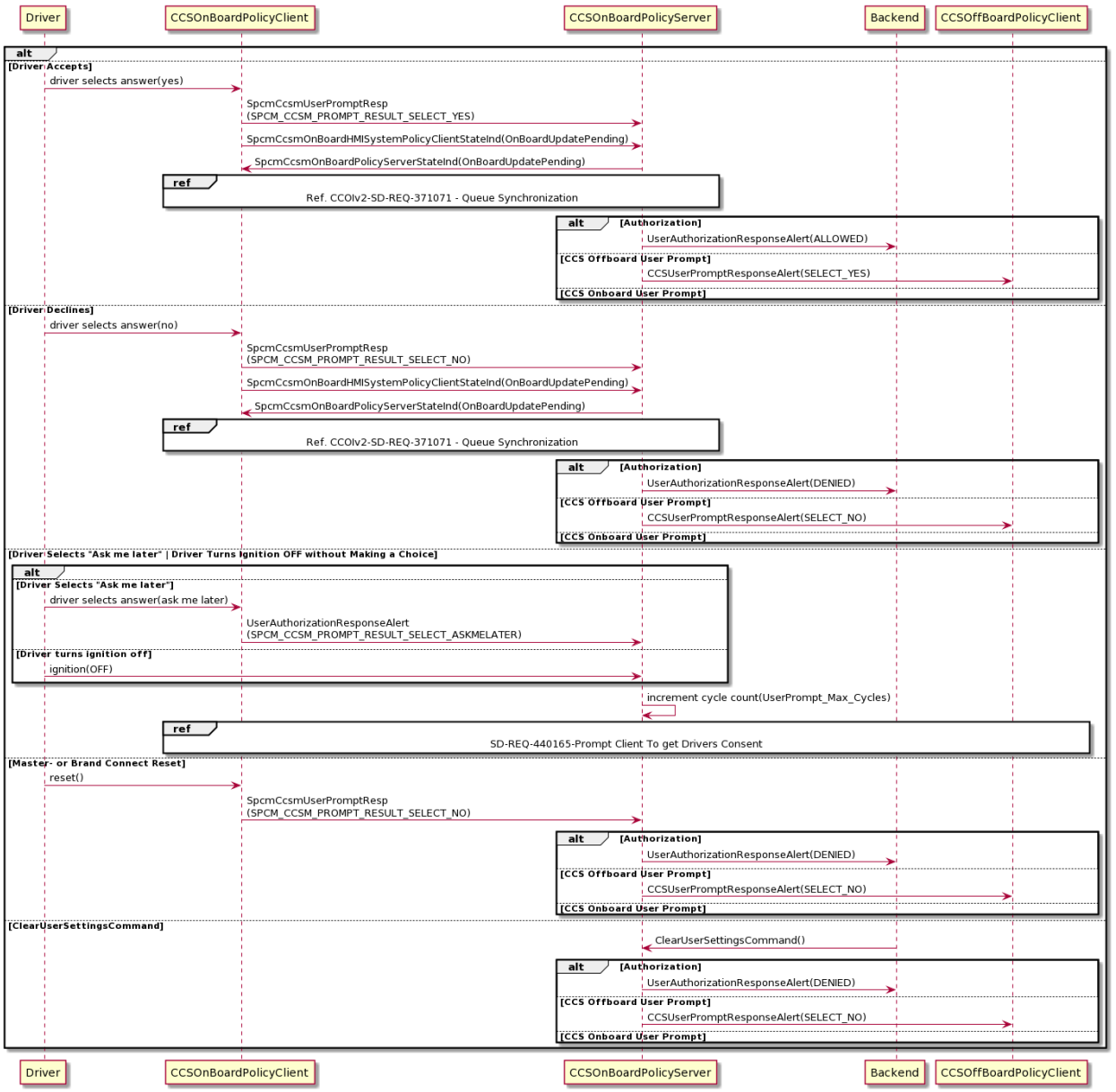
4.1.3.1 CCOIv2-SD-REQ-440164/A-Prompt Server To get Drivers Consent



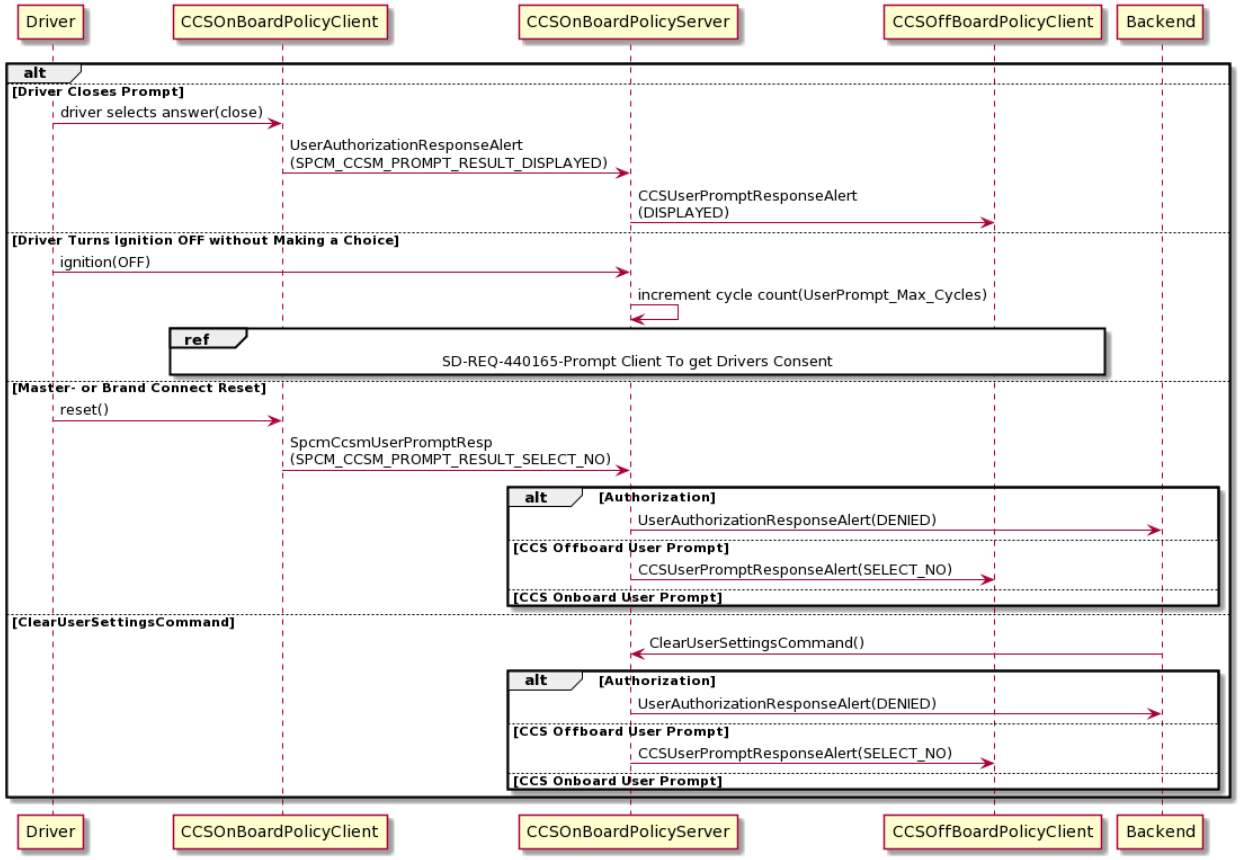
4.1.3.2 CCOIv2-SD-REQ-440165/A-Prompt Client To get Drivers Consent



4.1.3.3 CCOIv2-SD-REQ-440166/A-Initial Prompt



4.1.3.4 CCOIv2-SD-REQ-440167/A-Information and Error Prompt



4.2 CCOIv2-FUN-REQ-440168/A-Error and local update prompt handling

4.2.1 Requirements

4.2.1.1 CCOIv2-REQ-440169/A-Error Pop-Up "Feature Unavailable"

If the following conditions are met

CCSOnboardPolicyClient is in state DataStorageError
AND
(the driver is in the Connected Vehicle Features menu (HMI ID 34) or Location Feature Settings menu (HMI ID D3)
OR
the driver is attempting to enter the Connected Vehicle Features menu or Location Feature Settings menu)

the CCSOnboardPolicyClient shall display the Error Messages with HMI pop-up ID 27 and populate its content with message code 9.

If the driver selects Close on the Error Message, the CCSOnboardPolicyClient shows the previous menu.

4.2.1.2 CCOIv2-REQ-440170/A-Local Update Pop-Up

If the following conditions are met

(CCSOnboardPolicyClient is not in state DataStorageError and is not in state Synchronized)
AND
(the driver is in the Connected Vehicle Features menu (HMI ID 34) or Location Feature Settings menu (HMI ID D3)
OR
the driver is attempting to enter the Connected Vehicle Features menu or Location Feature Settings menu)

the CCSOnboardPolicyClient shall display the Local Update Pop-Up with HMI pop-up ID 28.

If the driver selects Close on the Local Update Pop-Up the CCSOnboardPolicyClient shows the previous menu.

4.2.1.3 CCOIv2-REQ-442857/B-Error handling for CCS settings embedded in Android menu

If the following conditions are met

CCSOnBoardPolicyClient is in state DataStorageError
AND
(the driver is in Network and internet (HMI ID A1), Privacy and Data Sharing (HMI ID D1) OR Location (HMI ID D2) settings menu)

the CCSOnBoardPolicyClient shall grey out the entity. In case the customer selects the entity the CCSOnBoardPolicyClient shall display the Error prompt (HMI ID 27) with messageCode 9.

If the driver selects Close on the Error Pop-Up the CCSOnboardPolicyClient remains in embedded Android menu.

4.2.1.4 CCOIv2-REQ-442858/B-Synchronization for CCS settings embedded in Android menu

If the following conditions are met

CCSOnBoardPolicyClient is not in state DataStorageError and is not in state Synchronized
AND
the driver is in Network and internet (HMI ID A1), Privacy and Data Sharing (HMI ID D1) or Location (HMI ID D2) settings menu

the CCSOnBoardPolicyClient shall grey out the CCS settings. In case the customer selects a CCS entity the CCSOnboardPolicyClient shall display the Local Update Pop-up ID 28.

If the driver selects Close on the Local Update Pop-Up the CCSOnboardPolicyClient remains in embedded Android menu.

4.2.1.5 CCOIv2-REQ-440171/A-Performance Requirements

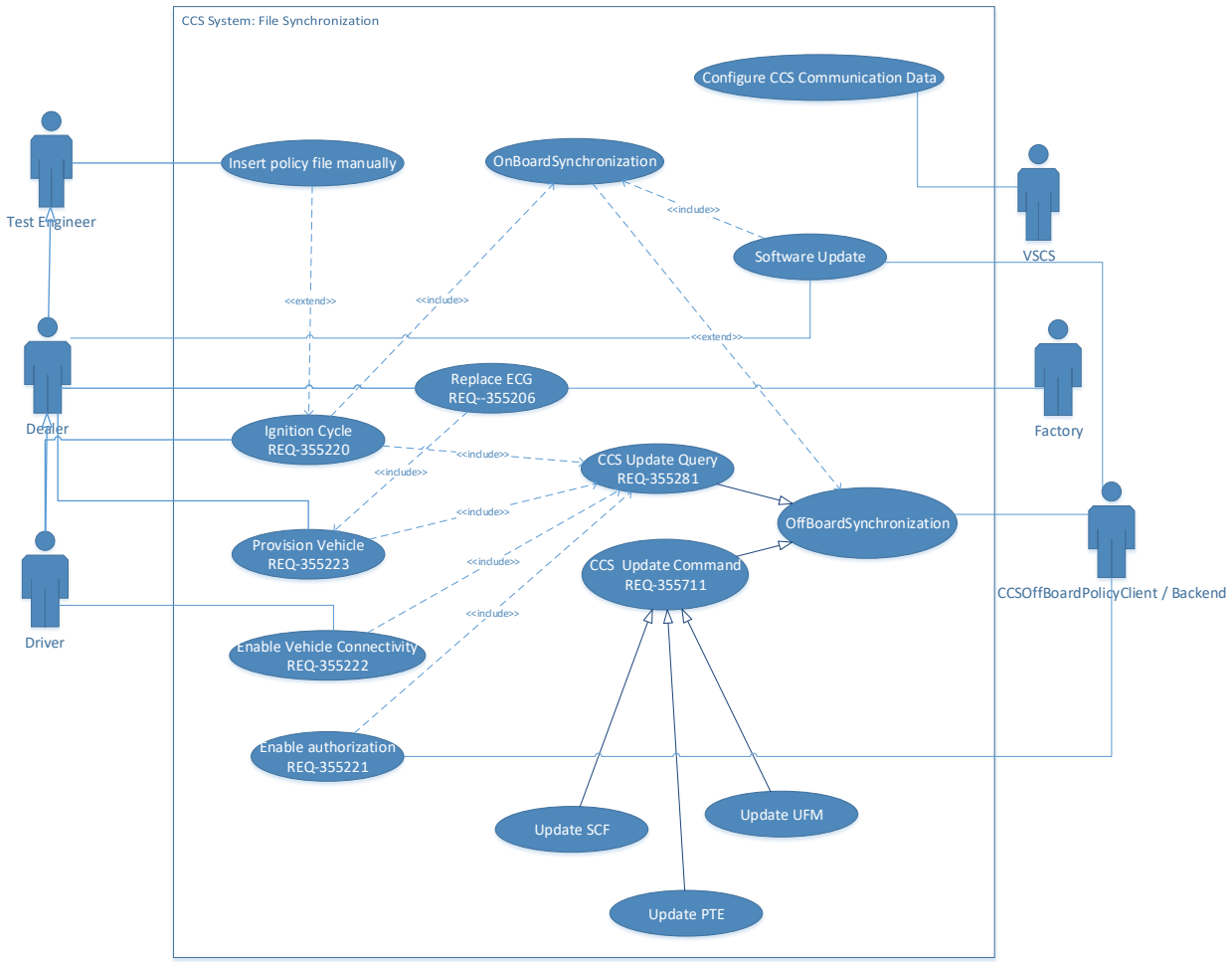
4.2.1.5.1 CCOIv2-REQ-440172/A-Deadline to Inform Server about Setting Changes

Once a driver changes an entity setting by clicking the entity setting (REQ-296881-Switching entites on/off no consent prompt required per PTE) and confirming the prompt if applicable (REQ-296879-Entity toggle switch changed to "on", REQ-296880-Entity toggle switch changed to "off") the CCSOnBoardPolicyClient shall show the local update pop-up REQ-440172-Local Update Pop-Up within 250 ms of the change unless the CCSOnBoardPolicyServer already confirmed the updated settings via SpcmCcsmEntitySettingsUpdateInd.

4.3 CCOIv2-REQ-440173/A-OnBoardSynchronization (Client)

4.3.1 Use Cases

4.3.1.1 CCOIv2-UCD-REQ-371112/A-Update Policy Files



4.3.1.2 CCOIv2-UC-REQ-357523/B-Turn ignition on

Actors	Driver, CCS OnBoardPolicyServer, CCS OnBoardPolicyClient
Pre-conditions	Ignition Off, CCS OnBoardPolicyClient is turned off, CCS System is in state “Invalid”
Scenario Description	1. Driver turns on ignition 2. CCS OnBoardPolicyServer and CCS OnBoardPolicyClient start up 3. CCS OnBoardPolicyServer holds an update of PTE, CFM or SCF file or Entity Settings 4. CCS System transitions through OnboardDistributedStateMachine to state “Synchronizing” 5. CCS Server transmits new policy files and/or Entity Settings to CCS Client successfully 6. CCS Server and Client enter Synchronization state “Synchronized”
Post-conditions	Latest policy files and Entity Settings synchronized between CCS Server and CCS Client
List of Exception Use Cases	E1: 3a) CCS Server has no update of policy files compared to the meta data received via SynchronizationSession_Rq .1 CCS System transitions through OnboardDistributedStateMachine to “Synchronized” without policy file transfer

Interfaces	

4.3.1.3 CCOIv2-UC-REQ-362282/B-Policy File or Entity Settings received from OffBoardPolicyClient

Actors	CCS OffBoardPolicyClient, CCS OnBoardPolicyServer, CCS OnBoardPolicyClient
Pre-conditions	CCS OnBoardPolicyServer and CCS OnBoardPolicyClient are running, CCS System is in state "Synchronized"
Scenario Description	1. CCS OnBoardPolicyServer receives a PTE, CFM or SCF file or Entity Settings via OffBoardSynchronization 2. CCS OnBoardPolicyServer completes Consistency Check successfully 3. CCS System transitions to "synchronizing" 4. CCS Server transmits new policy files and/or Entity Settings to CCS Client successfully 5. CCS Server and Client enter Synchronization state "Synchronized"
Post-conditions	Policy files and Entity Settings synchronized between CCS Server and CCS Client
List of Exception Use Cases	E1: 2a) Consistency Check was not successful .1 CCS Server does not initiate an OnBoardSynchronization E2: 4a) Transmission failed .1 CCS Server applies OnBoardSynchronization retry strategy
Interfaces	

4.3.1.4 CCOIv2-UC-REQ-357522/A-Revert to Default Policy File

Actors	Test Engineer, CCS OnBoardPolicyServer
Pre-conditions	CCS OnBoardPolicyServer and CCS OnBoardPolicyClient are running, CCS System synchronized with Custom Policy File for testing
Scenario Description	1. Test Engineer reverts to default Policy File on CCS OnBoardPolicyServer with development tool 2. CCS OnBoardPolicyServer initiates Synchronization with default policy file
Post-conditions	CCS System synchronized with default Policy File
List of Exception Use Cases	
Interfaces	

4.3.1.5 CCOIv2-UC-REQ-357525/C-Software Update

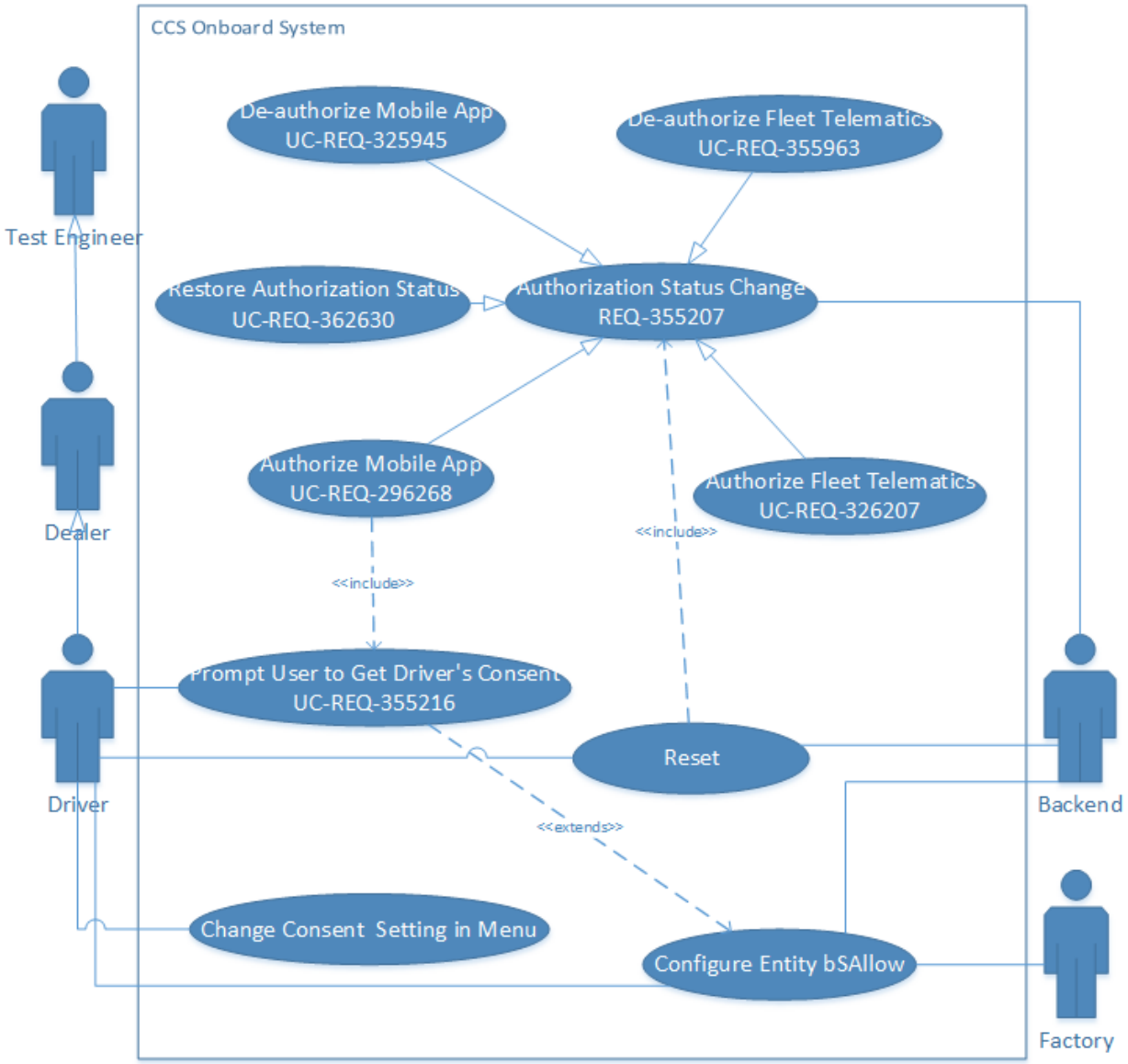
Actors	Dealer, Backend, CCS OnBoardPolicyServer
Pre-conditions	CCS OnBoardPolicyServer and CCS OnBoardPolicyClient are running, CCS System synchronized
Scenario Description	1. Dealer or Backend initiates module software update 2. CCS System remains in its current Synchronization state 3. Software update completes. Only with next Ignition Cylce, the Software Update becomes effective. 4. With the Start Up Synchronizations Process of next Ignition Cylce, CCS System transitions through OnboardDistributedStateMachine to state "Synchronizing" 5. CCS Server transmits new policy files and Entity Settings to CCS Client successfully

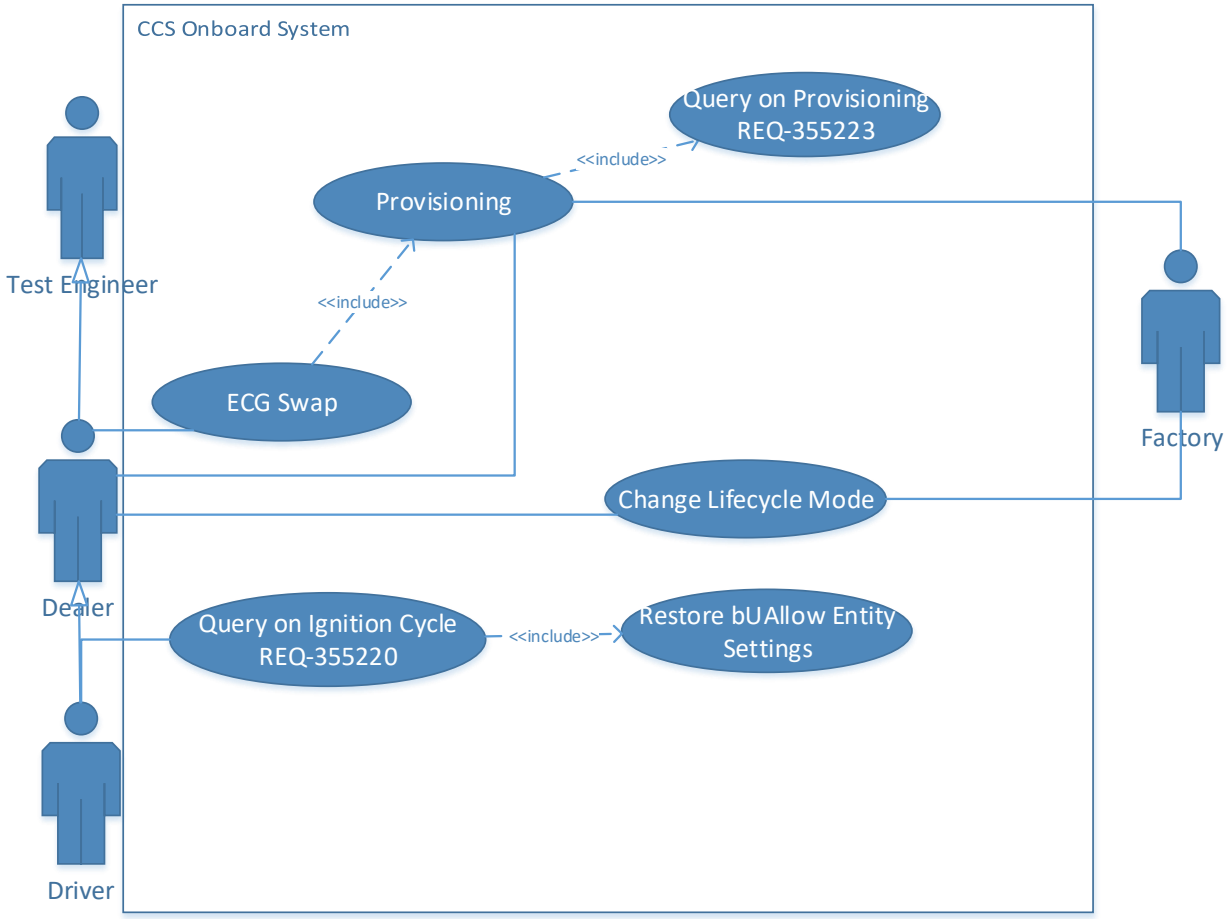
	6. CCS Server and Client enter Synchronization state “Synchronized”
Post-conditions	Latest policy files and Entity Settings synchronized between CCS Server and CCS Client
List of Exception Use Cases	5a. CCS Server has no update of policy files compared to the meta data received via SynchronizationSession_Rq .1 CCS System transitions through OnboardDistributedStateMachine to “Synchronized” without policy file transfer
Interfaces	

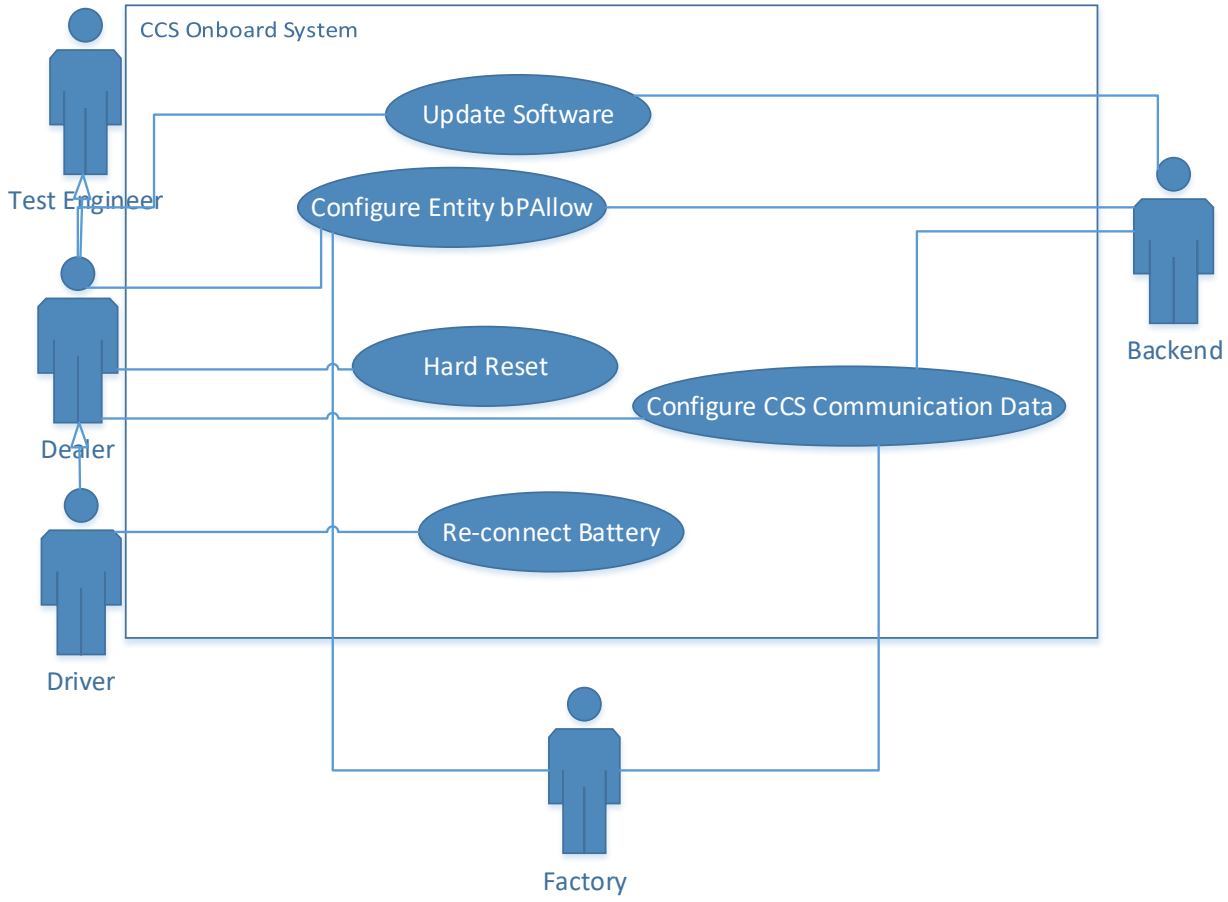
4.3.1.6 CCOIv2-UC-REQ-362320/B-Subscription Change while OnBoardSynchronization

Actors	Backend, CCS OnBoardPolicyServer, CCS OnBoardPolicyClient
Pre-conditions	CCS OnBoardPolicyServer and CCS OnBoardPolicyClient are running, CCS System synchronized
Scenario Description	1. During an OnBoardSynchronization (a), the CCS OnBoardPolicyServer receives another trigger for OnBoardSynchronization (b) 2. The ongoing OnBoardSynchronization (a) completes 3. The received OnBoardSynchronization (b) starts
Post-conditions	All updates have been synchronized
List of Exception Use Cases	
Interfaces	

4.3.1.7 CCOIv2-UCD-REQ-361932/B-Update Entity Settings




CCS Onboard System
Query on Provisioning
REQ-355223
<<include>>
Provisioning
Test Engineer
<<include>>
ECG Swap
Factory
Change Lifecycle Mode
Dealer
Query on Ignition Cycle
REQ-355220
<<include>>
Restore bUAllow Entity
Settings
Driver


CCS Onboard System
Update Software
Configure Entity bPAllow
Hard Reset
Configure CCS Communication Data
Re-connect Battery
Test Engineer
Dealer
Driver
Backend
Factory

4.3.1.8 CCOIv2-UC-REQ-442897/A-Change Consent Setting Features or Location Features settings

Actors	Driver, Dealer, Test Engineer, CCSOffBoardPolicyClient, CCSOnBoardPolicyServer
Pre-conditions	CCSServerEntitySettingsStatus is in status EntitiesReady
Scenario Description	1. Driver, Dealer, or Test Engineer navigates to the CCS Feature or CCS Location Features menu 2. Driver, Dealer, or Test Engineer clicks on a toggle switch to change the consent for a CCS entity 3. Driver, Dealer, or Test Engineer accepts the confirmation prompt 4. CCSOnboardPolicyClient requests a settings update for this entity with the CCSOnboardPolicyServer 5. CCSOnBoardPolicyServer peforms an onbord synchronization
Post-conditions	-
List of Exception Use Cases	E1: 1a) Menu is not accessible to do Local Update Pop-Up or Feature Unavailable pop-up E2: 2a) Changing consent not possible when switch is not changeable (REQ-296876) .1 skip the rest of the steps E3: 3a) Driver, Dealer, or Test Engineer declines the confirmation prompt or turns ignition OFF without accepting the prompt .1 skip the rest of the steps E4: 3a) There is no confirmation prompt for this entity defined in REQ-328983-Missing content strategy .1 skip step 3
Interfaces	

4.3.1.9 CCOIv2-UC-REQ-442898/A-Change Consent Setting in Android embedded Menu

Actors	Driver, Dealer, Test Engineer, CCSOffBoardPolicyClient, CCSOnBoardPolicyServer
Pre-conditions	CCSServerEntitySettingsStatus is in status EntitiesReady
Scenario Description	1. Driver, Dealer, or Test Engineer navigates to the Android Network and internet, Privacy and Data Sharing or Location menu 2. Driver, Dealer, or Test Engineer clicks on a toggle switch to change the consent for a CCS entity (Connectivity, Vehicle Data, Driving Characteristics, Location, Analytics…) 3. Driver, Dealer, or Test Engineer accepts the confirmation prompt 4. CCSOnboardPolicyClient requests a settings update for this entity with the CCSOnboardPolicyServer 5. CCSOnBoardPolicyServer peforms an onbord synchronization
Post-conditions	-
List of Exception Use Cases	E1: 1a) CCSOnBoardPolicyServer or CCSOnboardPolicyClient are not synchronized .1 show “waiting” animation .2 skip the rest of the steps E2: 2a) Changing consent not possible when switch is not changeable (REQ-296876) .1 skip the rest of the steps E3: 3a) Driver, Dealer, or Test Engineer declines the confirmation prompt or turns ignition OFF without accepting the prompt .1 skip the rest of the steps E4: 3a) There is no confirmation prompt for this entity defined in REQ-328983-Missing content strategy .1 skip step 3
Interfaces	

4.3.1.10 CCOIv2-UC-REQ-355186/A-Configure CCS Communication Data

Actors	Backend, VSCS, Dealer, Test Engineer
Pre-conditions	-
Scenario Description	1. Backend, VSCS, Dealer or a Test Engineer writes the method 2 parameters for the CCS Communication Data
Post-conditions	The next time the CCSOnboardPolicyServer starts a entity setting update synchronization with the CCSOnboardPolicyClient the CCSOnboardPolicyServer applies the newly added CCS Communication Data from step 1
List of Exception Use Cases	-
Interfaces	

4.3.1.11 CCOIv2-UC-REQ-355202/C-Configure Entity bSAllow

Actors	Test Engineer, VSCS, Backend, Driver, CCSOnBoardPolicyServer
Pre-conditions	-
Scenario Description	1. Backend, VSCS, or Test Engineer change the subscription (bSAllow) bit for one or many entities in the vehicle configuration 2. CCSOnboardPolicyServer changes the entity subscription bit according to step 1 on the CCSOnboardPolicyServer 3. CCSOnBoardPolicyServer performs an onboard synchronization 4. CCSOnBoardPolicyServer sends out a notification to backend
Post-conditions	-
List of Exception Use Cases	E2: 2a) If the apply mode is delayed, change the subscription bit on next ignition on per Ford Telematics Communication Protocol Specification.
Interfaces	

4.3.1.12 CCOIv2-UC-REQ-355203/C-Configure Entity bPAllow

Actors	Test Engineer, Dealer, VSCS, CCSOffBoardPolicyClient, Driver, CCSOnBoardPolicyServer
Pre-conditions	-
Scenario Description	1. CCSOffBoardPolicyClient, VSCS, Dealer or Test Engineer change the vehicle capability (bPAllow) bit for one or many entities in the vehicle configuration 2. CCSOnboardPolicyServer changes the entity capability bit according to step 1 on the CCSOnboardPolicyServer 3. CCSOnBoardPolicyServer performs an onboard synchronization 4. CCSOnBoardPolicyServer sends out a notification to backend
Post-conditions	-
List of Exception Use Cases	E1: 2a) If the apply mode is delayed, change the capability bit on next ignition on per Ford Telematics Communication Protocol Specification.
Interfaces	

4.3.1.13 CCOIv2-UC-REQ-355208/C-Reset

Actors	Backend, Driver, Dealer, Test Engineer, CCSOnboardPolicyServer, CCSOnboardPolicyClient
Pre-conditions	-
Scenario Description	1. Driver, Dealer, or Test Engineer performs a master reset or brand connect reset 2. CCSOnboardPolicyServer resets the entities to their default values 3. CCSOnBoardPolicyServer performs an onboard synchronziation
Post-conditions	-
List of Exception Use Cases	E1: 1b) Backend sends a Clear User Settings Command .1 proceed with step 2 of the Scenario Description E2: 4a) The vehicle was authorized before the master reset (bAllow for entity “Authorized” ID 3, Type 0 is enabled) and not subscribed for Fleet Telematics (bAllow for entity “Fleet” ID 2, Type 1 is disabled) .1 Continue with REQ-355207 Authorization Status Change (CCS OnBoardPolicyServer)
Interfaces	

4.3.1.14 CCOIv2-UC-REQ-438286/A-Reset when Connectivity off

Actors	Driver, Vehicle, Cloud
Pre-conditions	Vehicle is authorized/enrolled to mobile app Vehicle is configured to disconnect from network by default after master reset
Scenario Description	1. Driver performs reset on vehicle 2. Vehicle sets privacy settings to the default values, except for cellular/Wi-Fi connection 3. Vehicle tries to inform cloud about new privacy settings 4. Vehicle delivers information about new privacy settings to cloud 5. Vehicles tries to inform cloud about reset event 6. Vehicle delivers reset event to cloud 7. Cloud removes vehicle from all mobile app accounts 8. Cloud sends an authorization/enrollment status change command to the vehicle to set the status to not authorized/enrolled to a mobile app 9. Vehicle disconnects from the cellular/Wi-Fi network
Post-conditions	Vehicle is not authorized/enrolled to mobile app
List of Exception Use Cases	**E1: Vehicles enrolled for Fleet Telematics** Same as main scenario with the following exceptions: 3. Vehicle's status will remain authorized/enrolled 8. Cloud does not send an authorization status change even to the vehicle
Interfaces	-

4.3.1.15 CCOIv2-UC-REQ-355201/B-Provisioning

Actors	Dealer, Test Engineer, Factory, CCSOnboardPolicyServer, CCSOnboardPolicyClient
Pre-conditions	Vehicle is in un-provisioned state
Scenario Description	1. Dealer, Test Engineer, or Factory puts the vehicle in provisioned state 2. CCSOnboardPolicyServer sets the default CCS entity settings 3. CCSOnBoardPolicyServer performs an onboard synchronization 4. Continue with use case REQ-355223 Query on Provisioning (CCS OnBoardPolicyServer)
Post-conditions	-
List of Exception Use Cases	-
Interfaces	

4.3.1.16 CCOIv2-UC-REQ-355204/B-Change Lifecycle Mode

Actors	Dealer, Test Engineer, Factory, CCSOnBoardPolicyServer
Pre-conditions	-
Scenario Description	1. Dealer, Test Engineer, or Factory changes the vehicle's life cycle mode 2. CCSOnboardPolicyServer sets the default CCS entity settings 3. CCSOnBoardPolicyServer performs an onboard synchronization
Post-conditions	The vehicle uses the CCS default entity settings
List of Exception Use Cases	-
Interfaces	

4.3.1.17 CCOIv2-UC-REQ-355206/A-ECG Swap

Actors	Dealer, Test Engineer
Pre-conditions	-
Scenario Description	1. Dealer or Test Engineer inhale all method 2 parameters from old module (including bSAllow and bPAllow entity bits as well as CCS Communication Data) 2. Dealer or Test Engineer replace the ECG module with a another ECG module 3. Dealer or Test Engineer exhale all method 2 parameters to new module (including bSAllow and bPAllow entity bits as well as CCS Communication Data) 4. Continue with use case REQ-355201 Provisioning
Post-conditions	-
List of Exception Use Cases	E1: 1a) Inhale not possible .1 the Dealer or Test Engineer does a reconstruction of the method 2 parameters from the end of line configuration and subscription parameters in the backend .2 continue with step 2. of the Scenario Description .3 the Dealer or Test Engineer uses the reconstructed method 2 parameters from above for step 3. of the Scenario Description .4 continue with step 4. of the Scenario Description
Interfaces	

4.3.1.18 CCOIv2-UC-REQ-355212/B-Restore bUAllow Entity Settings

Actors	CCSOnBoardPolicyServer, CCSOnboardPolicyClient, CCSOffBoardPolicyClient
Pre-conditions	1. CCSOnBoardPolicyServer received valid setting update in REQ-355220 Query on Ignition Cycle
Scenario Description	1. CCSOnBoardPolicyServer changes bUAllow entity settings 2. CCSOnBoardPolicyServer performs an onboard synchronization
Post-conditions	CCSOnBoardPolicyServer has restored the settings form the CCSOffBoardPolicyClient.
List of Exception Use Cases	
Interfaces	

4.3.1.19 CCOIv2-UC-REQ-355205/A-Hard Reset

Actors	Dealer, Test Engineer
Pre-conditions	-
Scenario Description	1. Dealer or Test Engineer perform a diagnostic hard reset
Post-conditions	CCS entity settings remain the same
List of Exception Use Cases	-
Interfaces	

4.3.1.20 CCOIv2-UC-REQ-362905/A-Update Software

Actors	Dealer, Test Engineer, Backend
Pre-conditions	-
Scenario Description	1. Dealer, Test Engineer, or Backend install a software update on the vehicle
Post-conditions	CCS entity settings remain the same
List of Exception Use Cases	-
Interfaces	

4.3.1.21 CCOIv2-UC-REQ-355215/A-Re-connect Battery

Actors	Dealer, Test Engineer, Driver
Pre-conditions	-
Scenario Description	1. Dealer, Test Engineer, or Driver disconnects the vehicle's battery 2. Dealer, Test Engineer, or Driver reconnects the vehicle's battery
Post-conditions	CCS entity settings remain the same
List of Exception Use Cases	-
Interfaces	

4.3.2 Requirements (Client)

4.3.2.1 CCOIv2-REQ-354018/A-OnBoardHMISystemPolicyClient Synchronization State Transitions

For running the distributed state machine, the OnBoardPolicyServer and the OnBoardPolicyClient may lead each other into entering a new state.

Each endpoint may signal this new state, and the onboard system state is assumed to be entered, once both endpoints signal this state. The table below depicts the combinations that may occur. Upon an “entered state(…)” operation in the sequence diagrams, it is assumed that the operation waits until the other end has acknowledged this state, or a configurable timeout occurred.

OnBoardPolicyClient_St In State	Trigger and Guard	OnBoardPolicyClient_St Transitions to and Transmits New State
Invalid	OnBoardPolicyClient is (re-)started and ignition is ON	Waiting
Waiting	OnBoardPolicyClient initialized, Consistency Check performed (REQ-362371) AND OnBoardPolicyServer_St == SynchronizationNeeded	SynchronizationNeeded
Waiting	OnBoardPolicyServer_St == DataStorageError	DataStorageError
SynchronizationNeeded	OnBoardPolicyServer_St == Synchronizing	Synchronizing
Synchronizing	OnBoardPolicyServer_St == Synchronized	Synchronized
Synchronizing	Hash comparison failed (REQ-358309) OR OnBoardPolicyServer_St == SynchronizationFailed	SynchronizationFailed
SynchronizationFailed	OnBoardPolicyServer_St == SynchronizationNeeded	SynchronizationNeeded
Any of {Waiting, DataStorageError, OnBoardUpdatePending, OffBoardUpdatePending, SynchronizationNeeded, Synchronizing, SynchronizationFailed, Synchronized}	OnBoardPolicyServer_St == OnBoardDistributed StateMachine Inconsistent	OnBoardDistributed StateMachine Inconsistent
OnBoardDistributed StateMachine Inconsistent OR DataStorageError	OnBoardPolicyServer_St == Waiting	Waiting
Any of {Waiting, DataStorageError, OnBoardUpdatePending, OffBoardUpdatePending, SynchronizationNeeded, Synchronizing, SynchronizationFailed, Synchronized, OnBoardDistributed StateMachine Inconsistent}	OnBoardPolicyServer_St == Unrecoverable SynchronizationError	UnrecoverableSynchronizationError

OnBoardPolicyClient_St In State	Trigger and Guard	OnBoardPolicyClient_St Transitions to and Transmits New State
Synchronized	Driver changes an Entity Setting in menu OR Driver selects “YES” or “NO” in initialPrompt	OnBoardUpdatePending
OnBoardUpdatePending	Driver declines Consent Prompt in menu	Synchronized
OnBoardUpdatePending	OnBoardPolicyServer_St == SynchronizationNeeded	SynchronizationNeeded
Synchronized	OnBoardPolicyServer_St == OffBoardUpdatePending	OffBoardUpdatePending
OffBoardUpdatePending	OnBoardPolicyServer_St == SynchronizationNeeded	SynchronizationNeeded
Any of {DataStorageError, OnBoardUpdatePending, OffBoardUpdatePending, SynchronizationNeeded, Synchronizing, SynchronizationFailed, Synchronized, OnBoardDistributed StateMachine Inconsistent}	OnBoardPolicyServer_St == Invalid OR OnBoardPolicyServer_St signal missing	Waiting
Any state	OnBoardPolicyClient shutting down	Invalid

Table 9 – State Transition Table

4.3.2.1.1 CCOIv2-REQ-362524/C-Invalid to Waiting

CCS OnBoardPolicyClient shall transition from Invalid into the Waiting state every time the implementing part starts up and ignition is turned on.

4.3.2.1.2 CCOIv2-REQ-362525/B-Any to Invalid

If the driver turns off ignition CCS OnBoardPolicyClient shall transition from any state to state „Invalid“.

4.3.2.1.3 CCOIv2-REQ-359108/B-Client Hash Check in State Synchronizing

Once CCS OnBoardPolicyClient receives SpcmCcsmSynchronizationSessionResp in state “Synchronizing” and new policy files are contained, CCS OnBoardPolicyClient shall decompress, calculate the hash for any of the received policy files:

4.3.2.1.3.1 CCOIv2-REQ-358309/A-Hash Value mismatch

If any of the calculated hash values does not match to the received hash values, CCS OnBoardPolicyClient shall transition to state „SynchronizationFailed“.

4.3.2.1.3.2 CCOIv2-REQ-358466/B-Hash Value match

If all calculated hash values match to the received hash values, CCS OnBoardPolicyClient shall:

- Store the received policy files including meta data in the persistent storage
- Send a SpcmCcsmSynchronizationSummaryReportInd, with Meta Data of the files as stored in the persistent storage, to CCS OnBoardPolicyServer.

4.3.2.1.3.3 CCOIv2-REQ-371111/A-No Hash Comparison Needed

If no new policy files are contained in SpcmCcsmSynchronizationSessionResp, no hash calculation is required and CCS OnBoardPolicyClient shall send a SpcmCcsmSynchronizationSummaryReportInd, with Meta Data of the files as previously stored in the persistent storage, to CCS OnBoardPolicyServer.

4.3.2.2 CCOIv2-REQ-377210/B-CCSOnBoardPolicyClient Synchronization Heartbeat Signal

The CCSOnBoardPolicyClient shall periodically publish a heartbeat signal (SpcmCcsmOnBoardHMISystemPolicyClientStateInd) with the current synchronization state and the information whether the HMI is ready to process and display userPrompts.

4.3.2.3 CCOIv2-REQ-359109/B-SynchronizationSessionRequest

Once the OnBoardDistributedStateMachine reached state „SynchronizationNeeded“, CCS OnBoardPolicyClient shall send the meta data of the PTE and CFM policy files stored in the persistent storage to CCS OnBoardPolicyServer via SpcmCcsmSynchronizationSessionReq.

4.3.2.4 CCOIv2-REQ-362526/A-Application of synchronized Policy Files

OnBoardPolicyClient shall only parse new PTE or CFM policy files, after CCS OnBoardPolicyClient entered state „Synchronized“.

4.3.2.5 CCOIv2-REQ-362811/B-Driver Changes a Setting in Menu

If a driver attempts to change a setting in the CCS menu, the CCSOnBoardPolicyClient shall transition to the state OnBoardUpdatePending.

4.3.2.5.1 CCOIv2-REQ-296879/F-Entity toggle switch changed to "on"

If the driver toggles an entity switch from off to on and the driver has accepted the consent prompt (HMI pop-up ID 5), if applicable (see REQ-328983-Missing content strategy) the CCSOnboardPolicyClient shall send a SpcmCcsmSettingsUpdateInd to the CCSOnboardPolicyServer to set the bUAllow bit of the corresponding entity to True.
If a driver does not accept the consent prompt (HMI pop-up ID 5), the CCSOnboardPolicyClient shall not send a SpcmCcsmSettingsUpdateInd and transition to state “synchronized”.

4.3.2.5.2 CCOIv2-REQ-296880/F-Entity toggle switch changed to "off"

If the driver toggles an entity switch from on to off and the driver has accepted the consent prompt (HMI pop-up ID 5), if applicable (see REQ-328983-Missing content strategy) the CCSOnboardPolicyClient shall send a SpcmCcsmSettingsUpdateInd to the CCSOnboardPolicyServer to set the bUAllow bit of the corresponding entity to False.
If a driver does not accept the consent prompt (HMI pop-up ID 5), the CCSOnboardPolicyClient shall not send a SpcmCcsmSettingsUpdateInd and transition to state “synchronized”.

4.3.2.5.3 CCOIv2-REQ-296881/B-Switching entites on/off no consent prompt required per PTE

If the driver toggles an entity switch from off to on (on to off) and the corresponding consent prompt messageCode is empty or “NULL” (see REQ-328983-Missing content strategy) the CCSOnboardPolicyClient shall send a SpcmCcsmSettingsUpdateInd to the CCSOnboardPolicyServer to set the bUAllow bit of the corresponding entity to True (False).

4.3.2.6 CCOIv2-REQ-362641/A-Store Server Entity Settings on Client: Server updated A CCS Entity

When the CCSOnBoardPolicyClient receives the SpcmCcsmEntitySettingsUpdateInd from the CCSOnBoardPolicyServer, the CCSOnBoardPolicyClient shall store the received entity settings.

- If the CCSOnBoardPolicyClient stored the settings, the CCSOnBoardPolicyClient shall send a SpcmCcsmEntitySettingsUpdateResp to the CCSOnBoardPolicyServer as Success with ECU ID SYNC=0x7D0.
- If the CCSOnBoardPolicyClient was not able to store the settings, the CCSOnBoardPolicyClient shall send a SpcmCcsmEntitySettingsUpdateResp to the CCSOnBoardPolicyServer as Failure with ECU ID SYNC=0x7D0.

Rationale: All CCS clients should store the CCS settings locally to be able to answer setting read requests from applications on the client’s module.

4.3.2.7 CCOIv2-REQ-362817/A-Inform Features about Entity Setting Changes

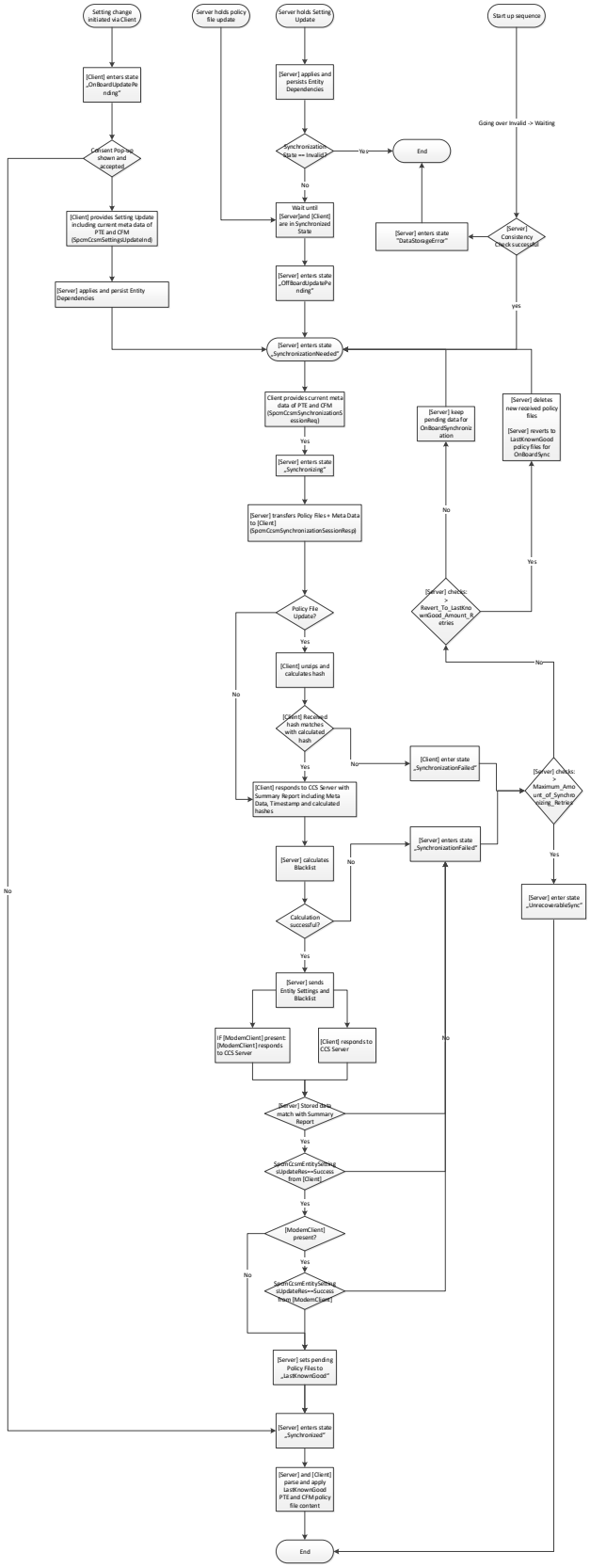
If the CCSOnBoardPolicyClient receives CCS entity setting changes from the CCSOnBoardPolicyServer (REQ-362640-Store Server Entity Settings on Client: Client Starts-up, REQ-362641-Store Server Entity Settings on Client: Server updated A CCS Entity) the CCSOnBoardPolicyClient shall inform CCSOnBoardPolicyClient features about the updated entity setting changes.

4.3.2.8 CCOIv2-REQ-362818/A-Provide Entity Settings Information on Request

If the CCSOnBoardPolicyClient receives a read request to read CCS entity settings from a CCSOnBoardPolicyClient feature the CCSOnBoardPolicyClient shall respond with the corresponding CCS entity settings.

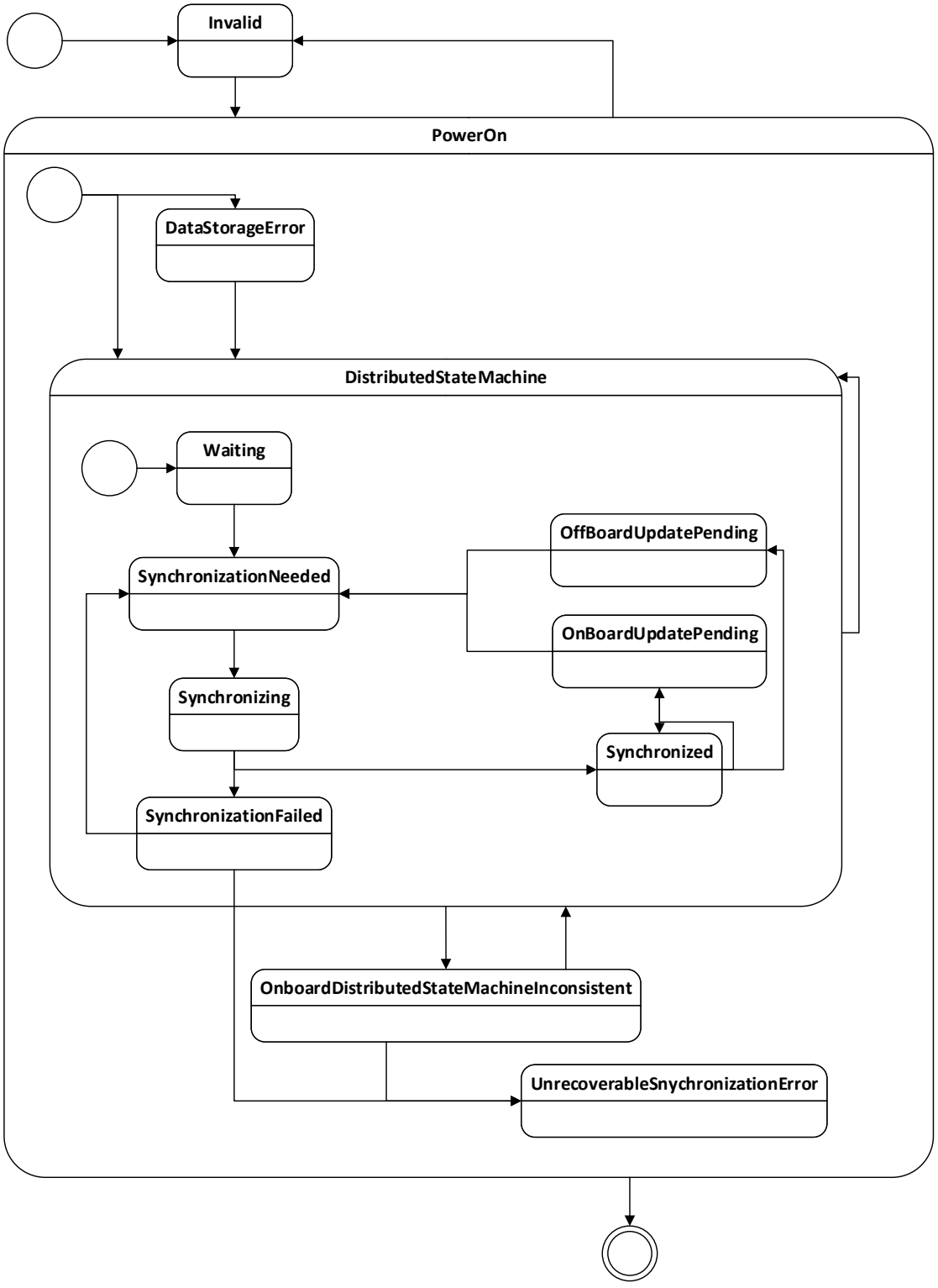
4.3.3 Activity Diagrams

4.3.3.1 CCOIv2-ACT-REQ-362528/C-OnBoardSynchronization



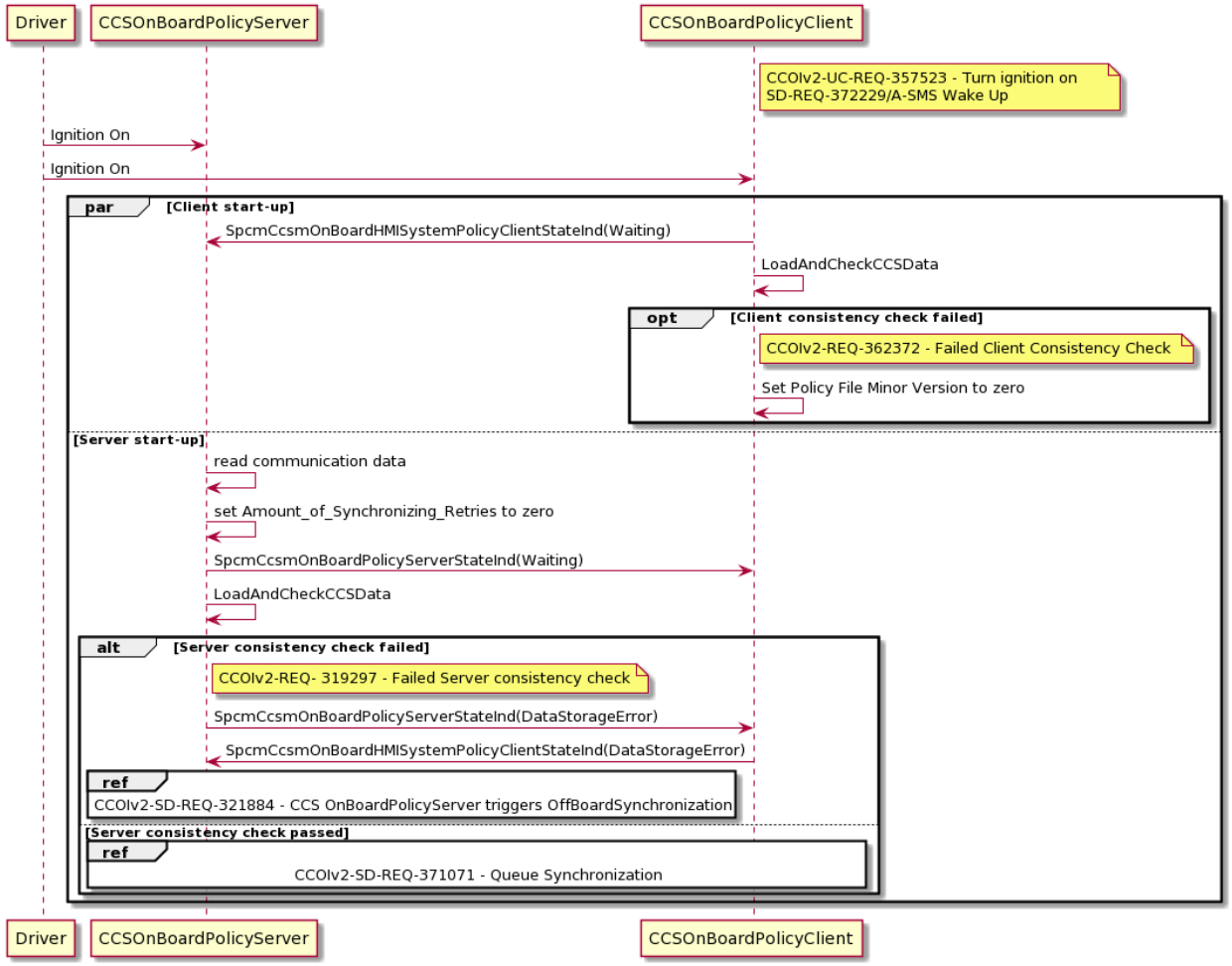
4.3.4 State Machine Diagrams

4.3.4.1 CCOIv2-STM-REQ-358305/C-OnBoardSynchronization

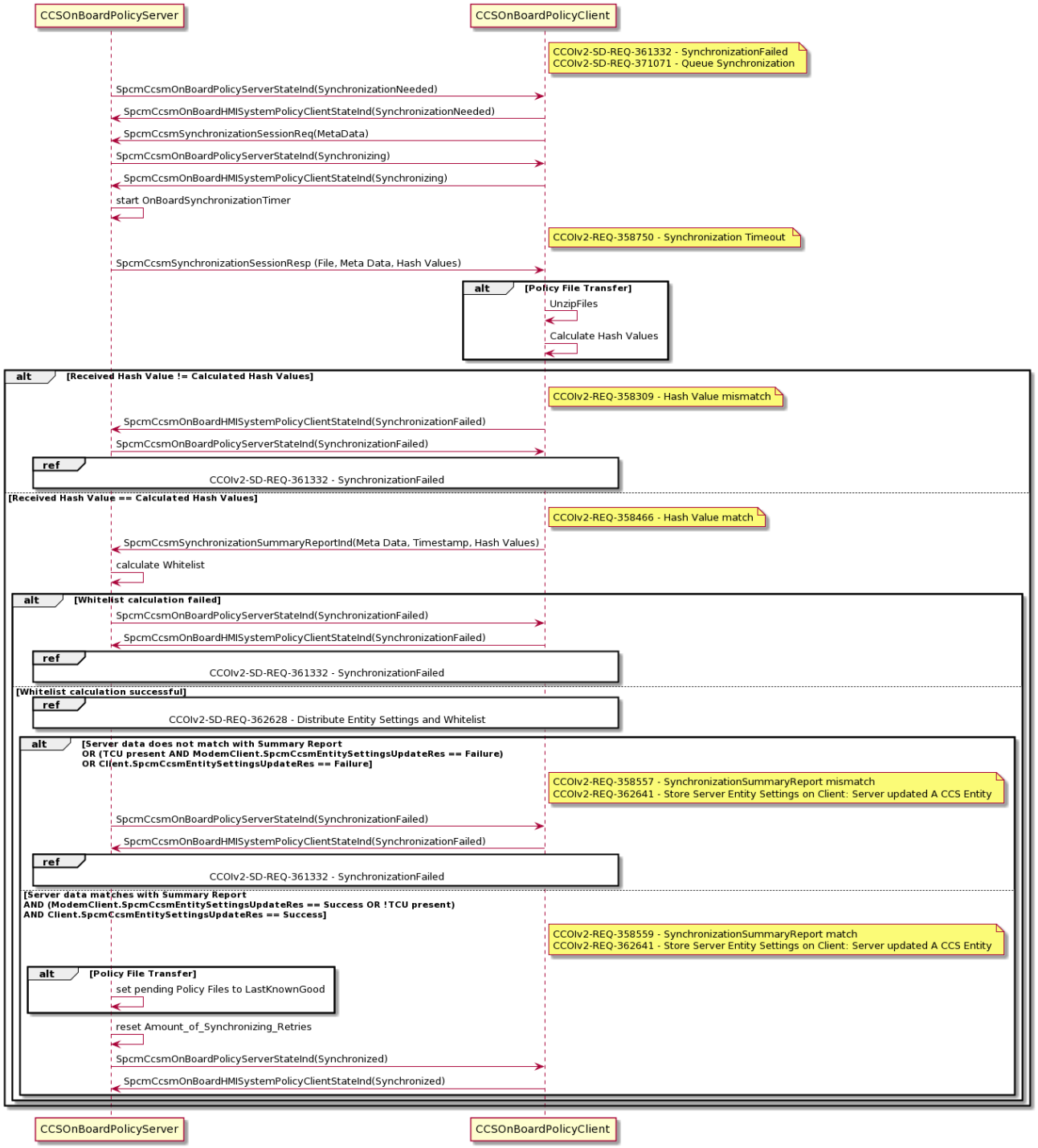


4.3.5 Sequence Diagrams

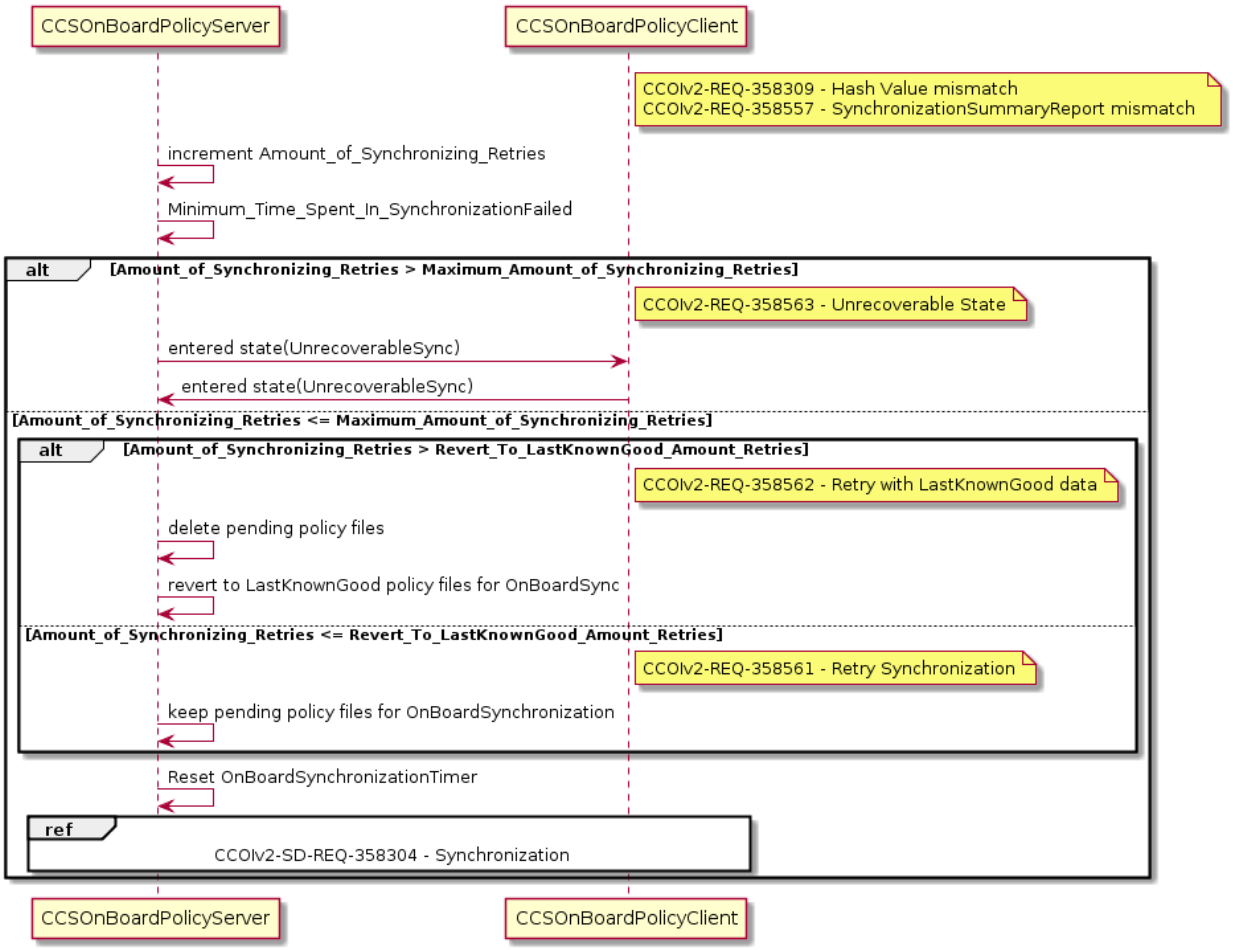
4.3.5.1 CCOIv2-SD-REQ-358303/C-Power On Sequence



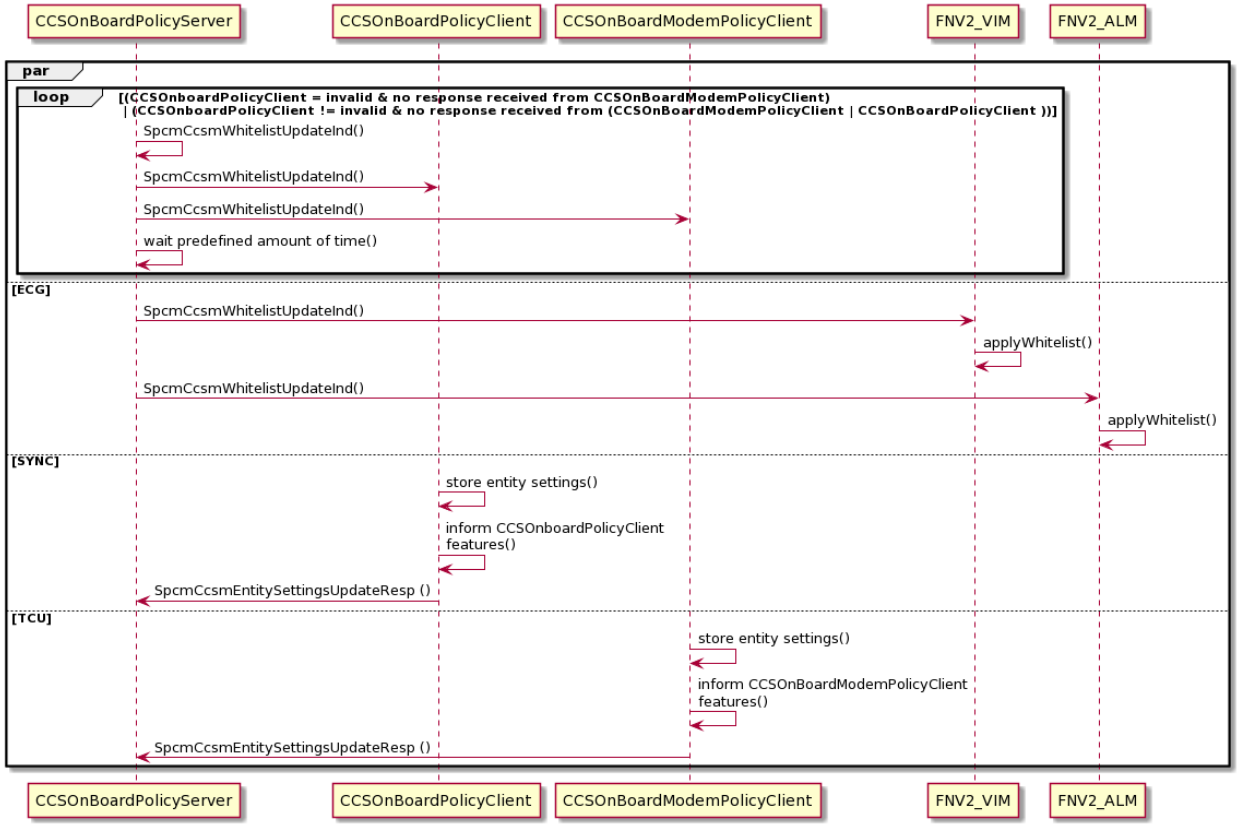
4.3.5.2 CCOIv2-SD-REQ-358304/D-Synchronization



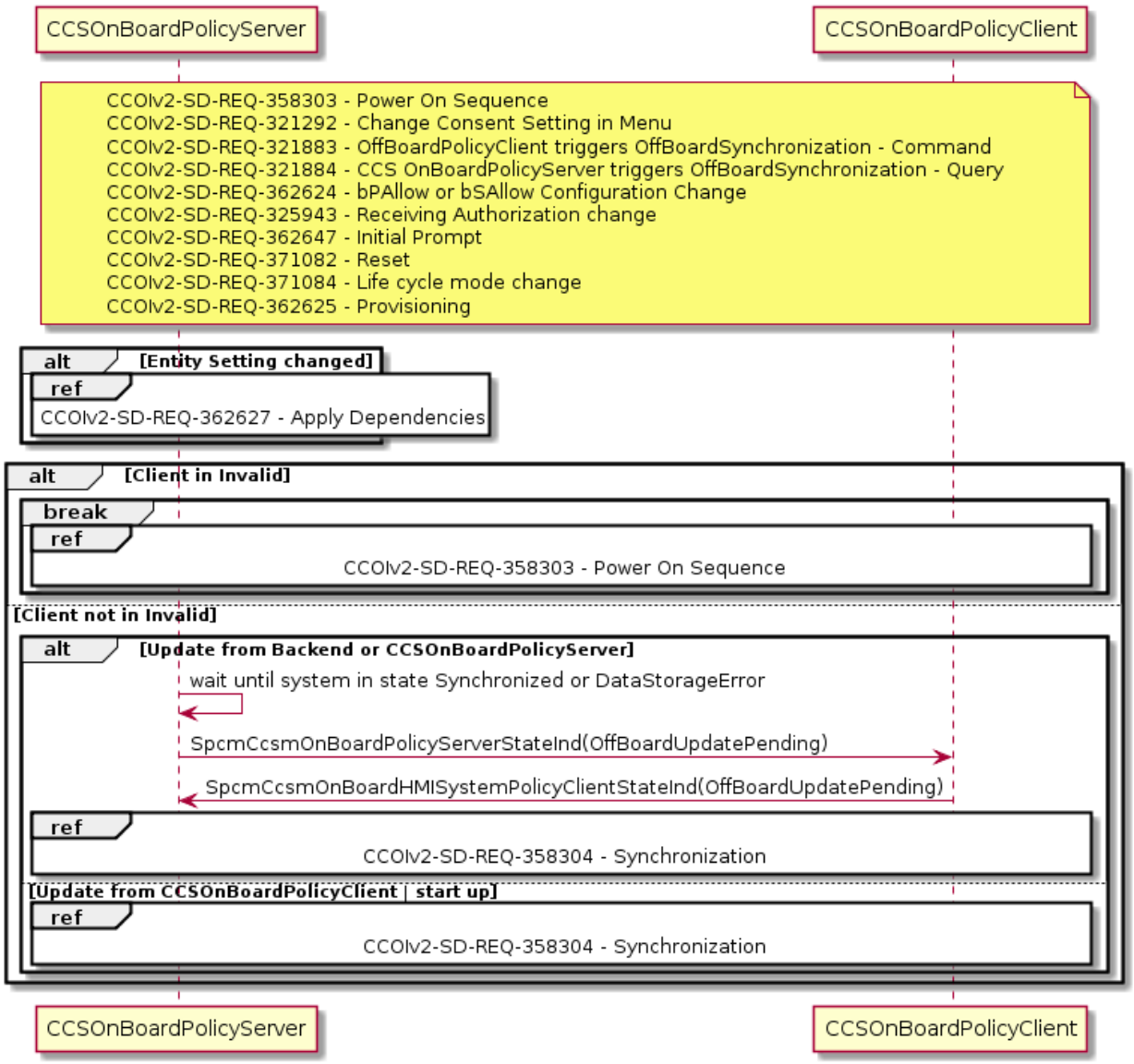
4.3.5.3 CCOIv2-SD-REQ-361332/B-SynchronizationFailed



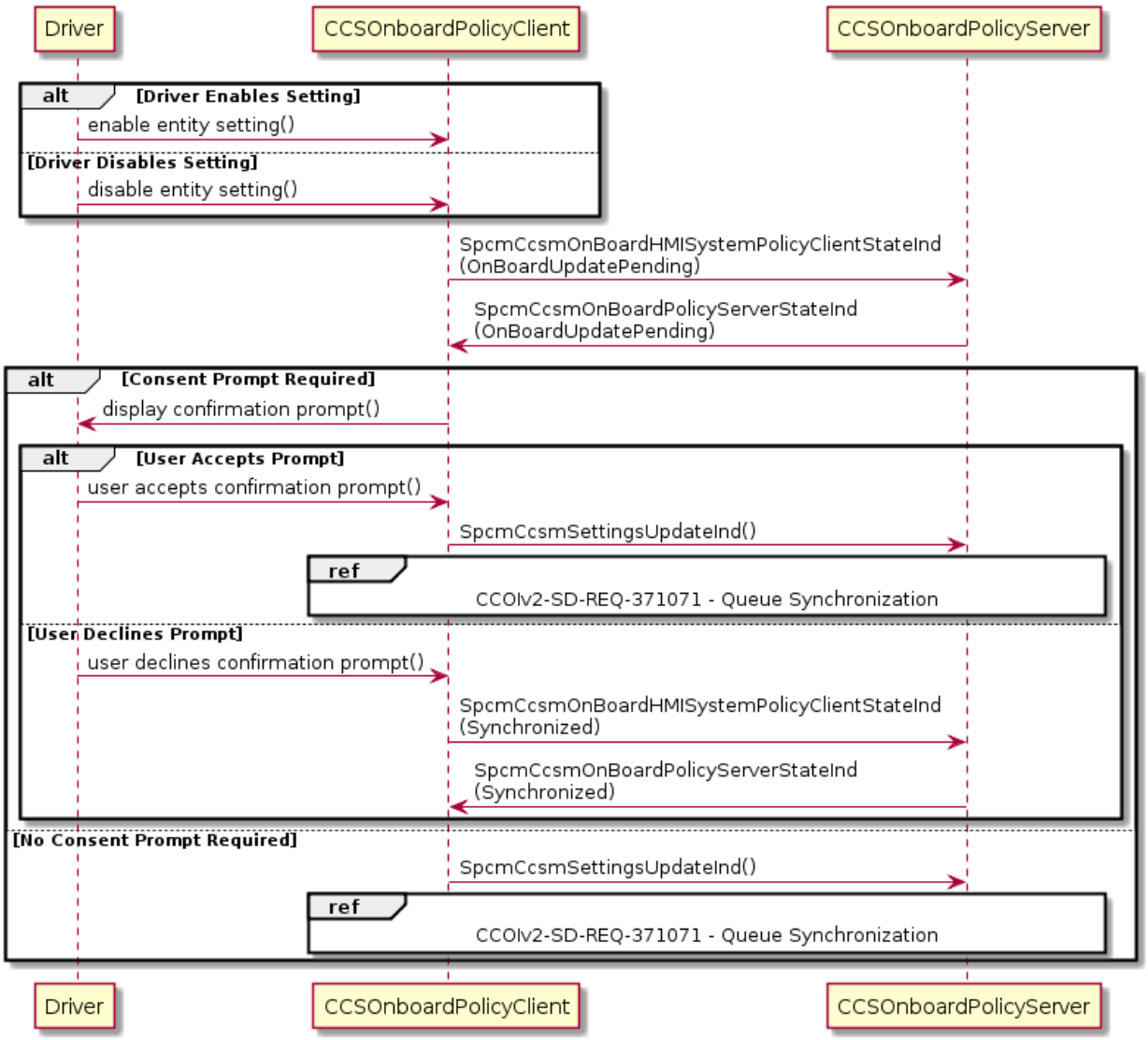
4.3.5.4 CCOIv2-SD-REQ-362628/C-Distribute Entity Settings and PolicyEnforcerControlList



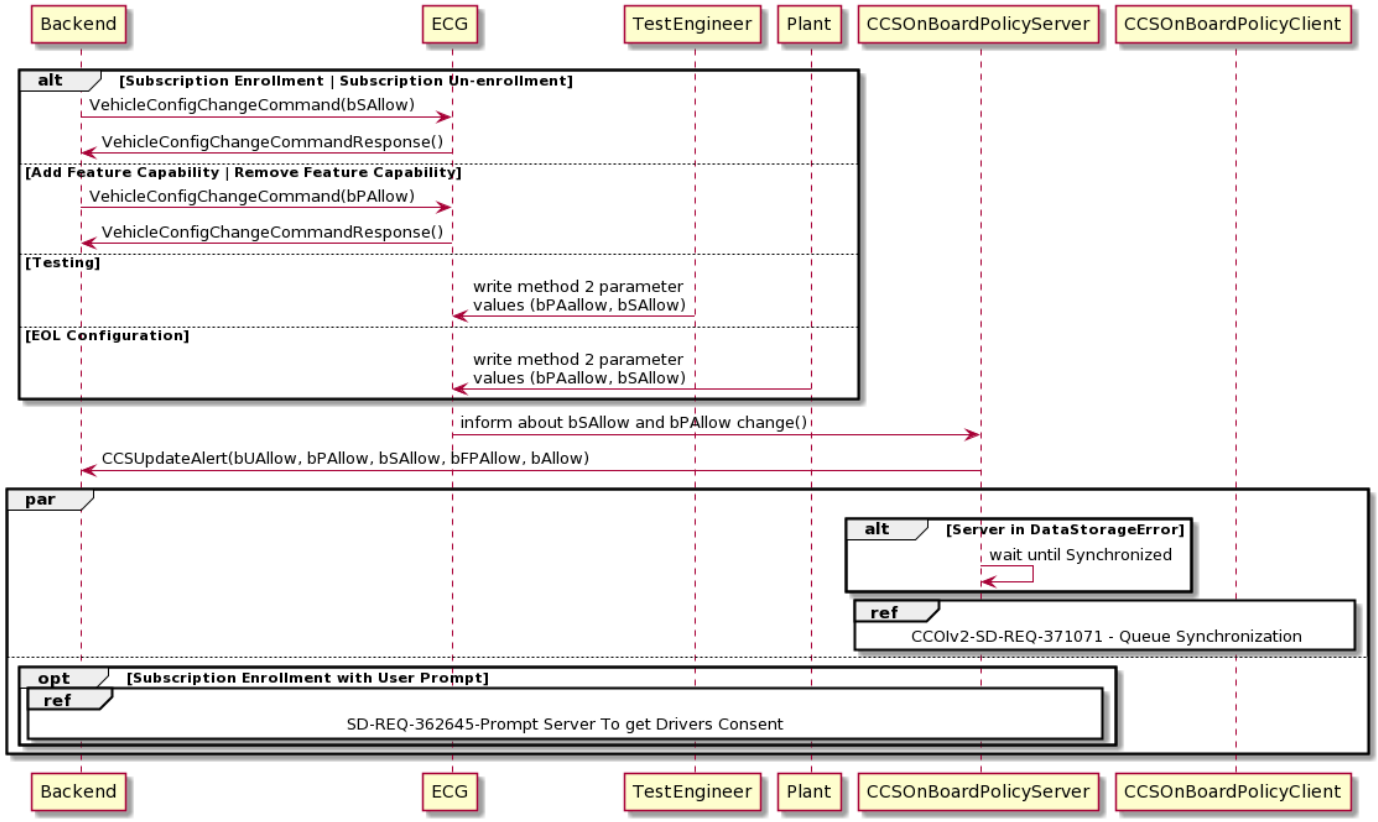
4.3.5.5 CCOIv2-SD-REQ-371071/A-Queue Synchronization



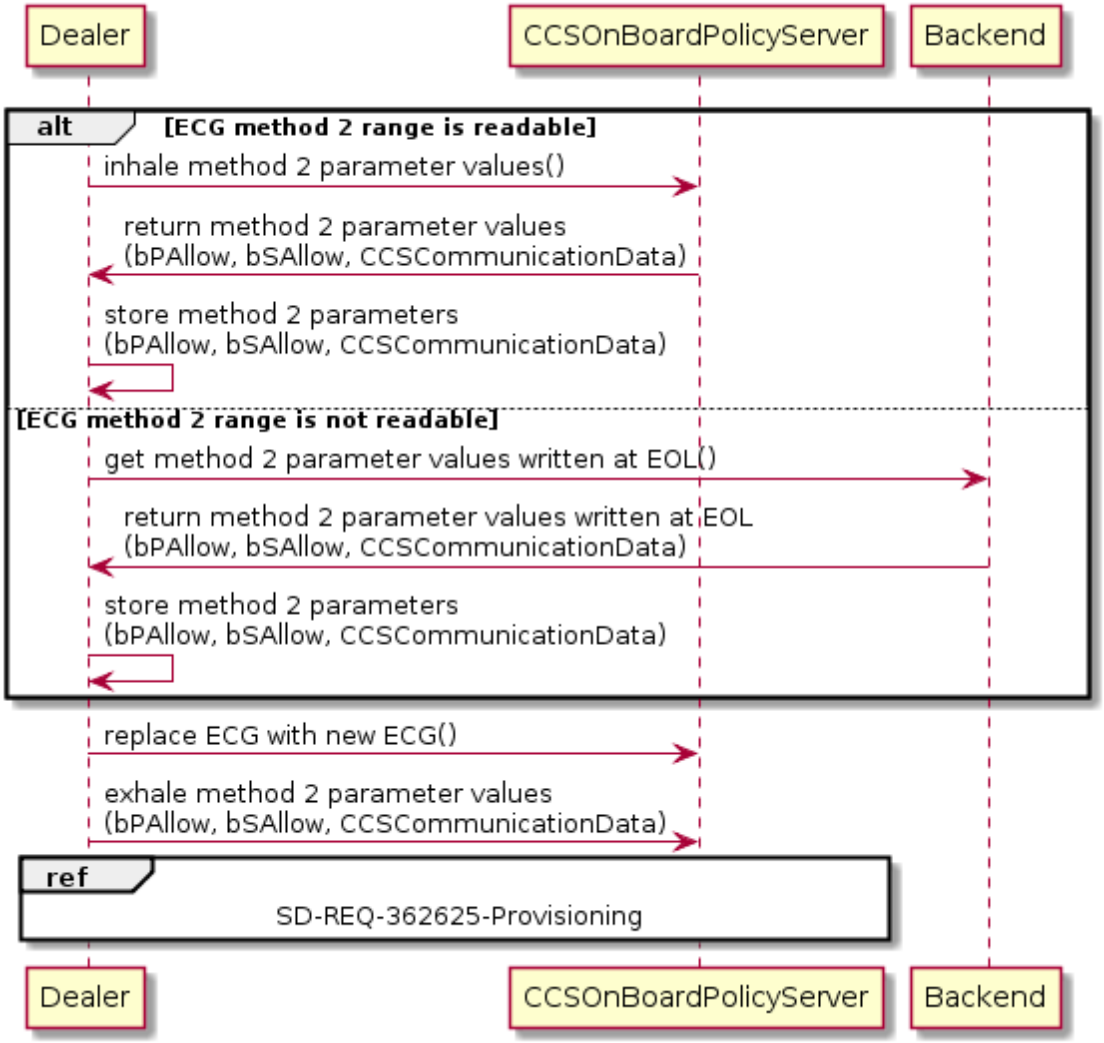
4.3.5.6 CCOIv2-SD-REQ-321292/D-Change Consent Setting in Menu



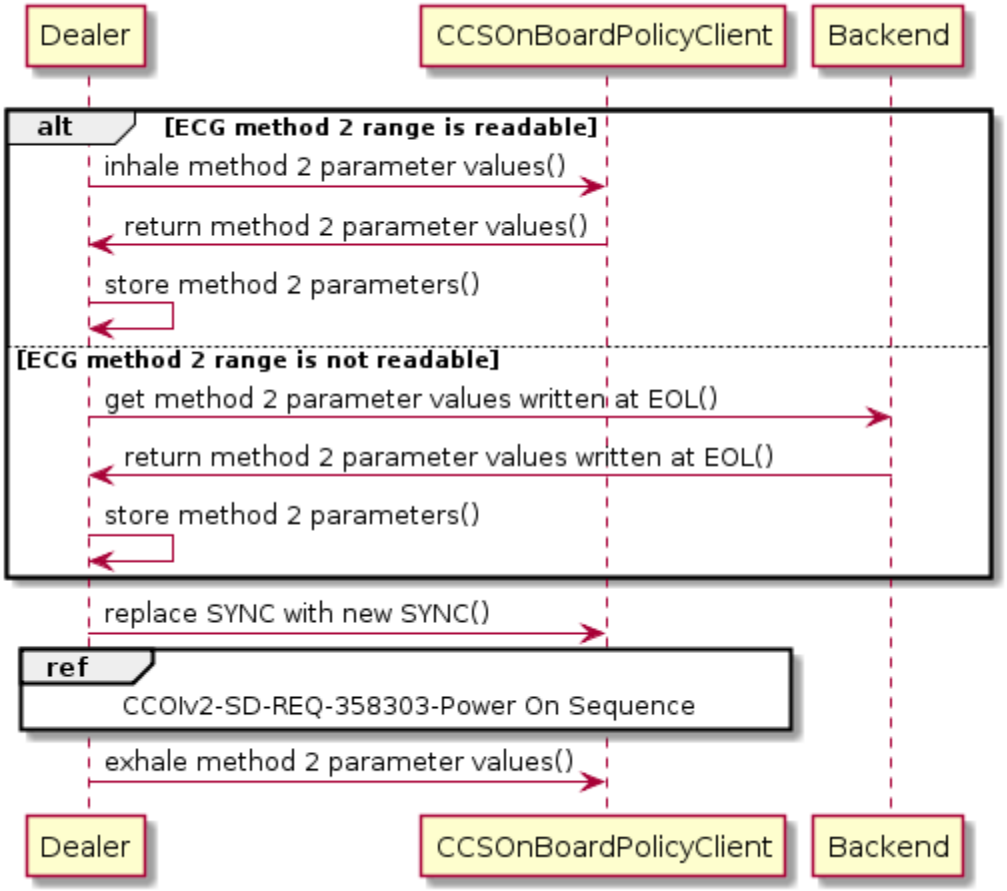
4.3.5.7 CCOIv2-SD-REQ-362624/C-bPAllow or bSAllow Configuration Change



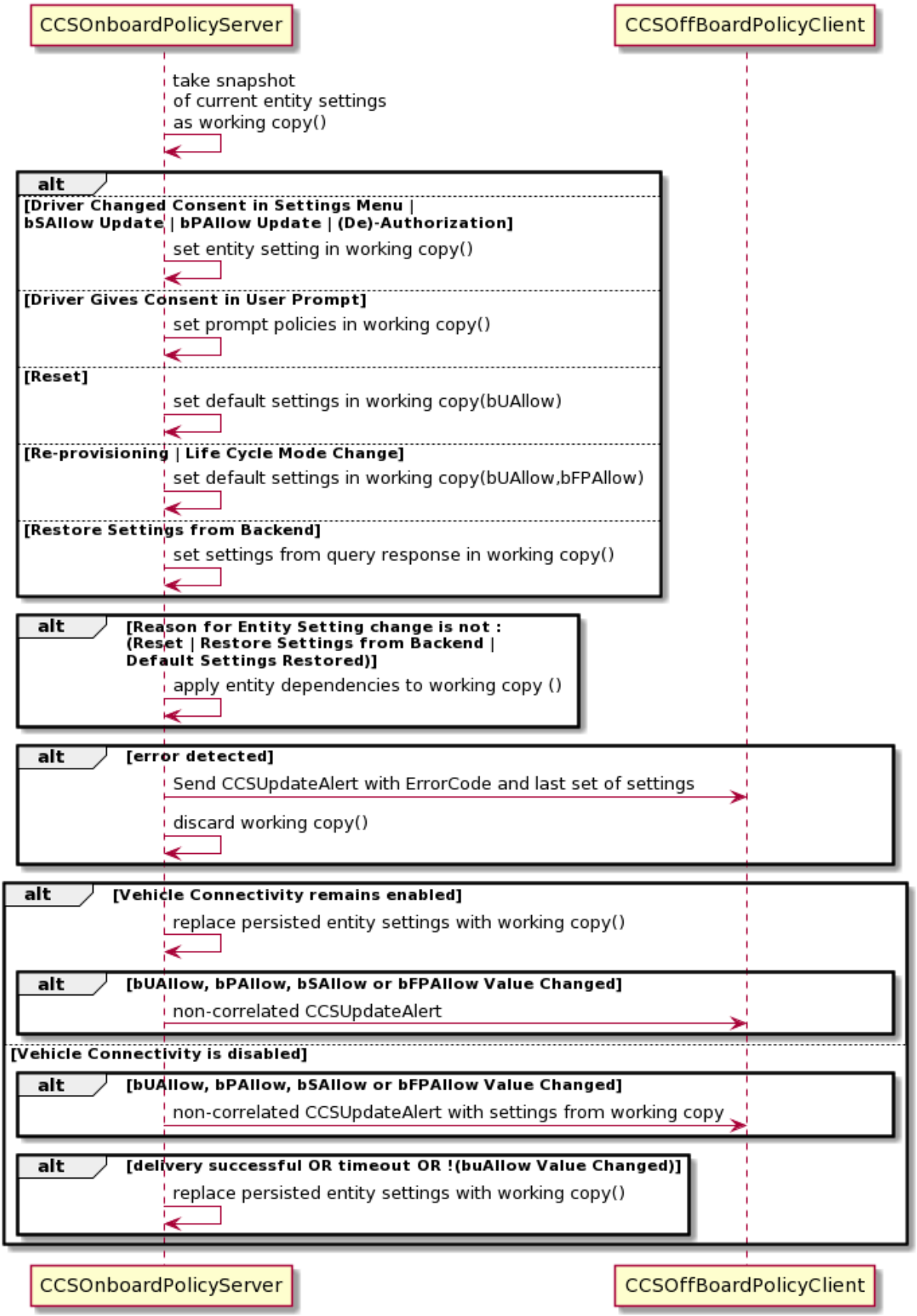
4.3.5.8 CCOIv2-SD-REQ-362626/A-ECG Swap



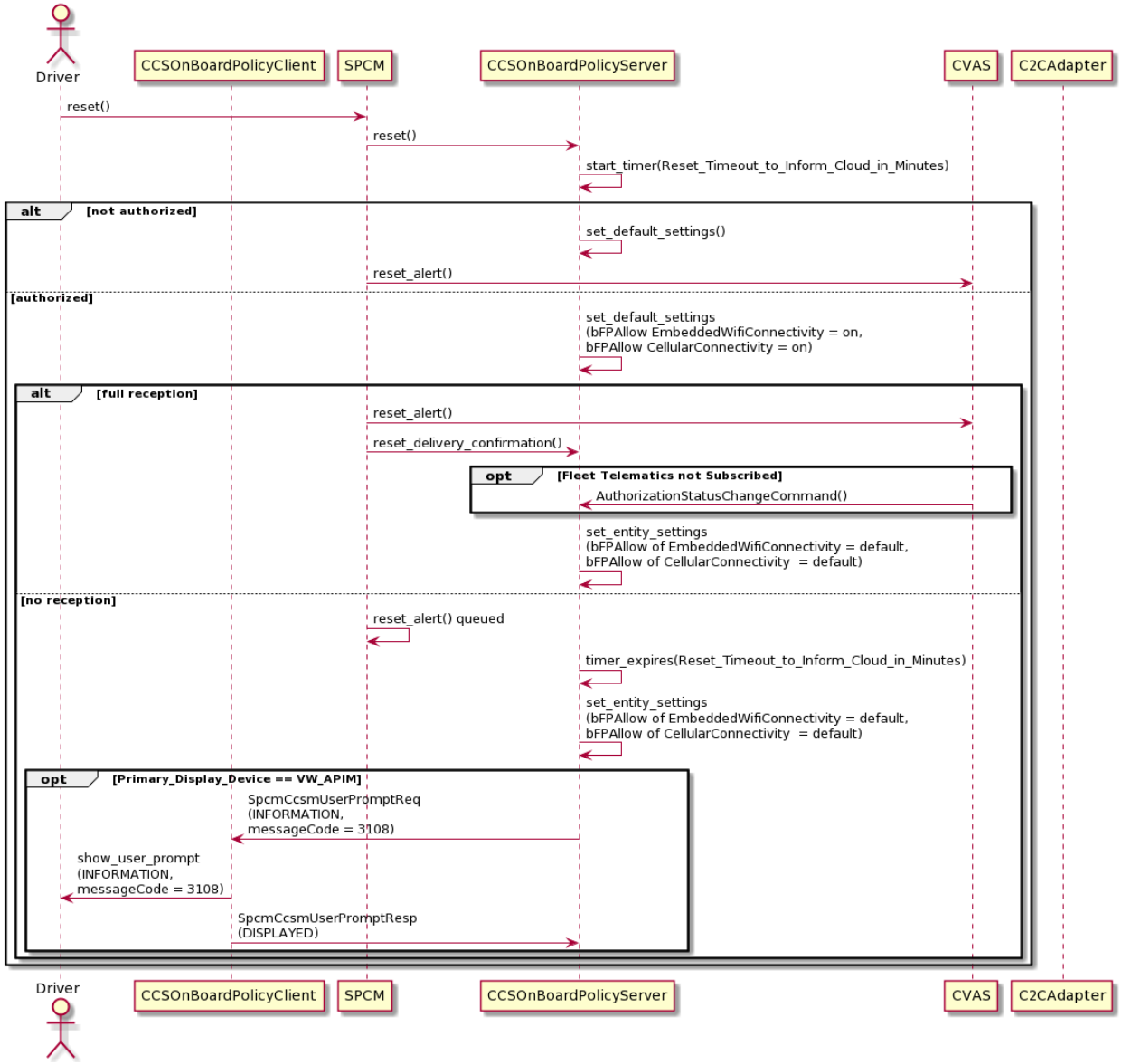
4.3.5.9 CCOIv2-SD-REQ-371654/A-SYNC Swap



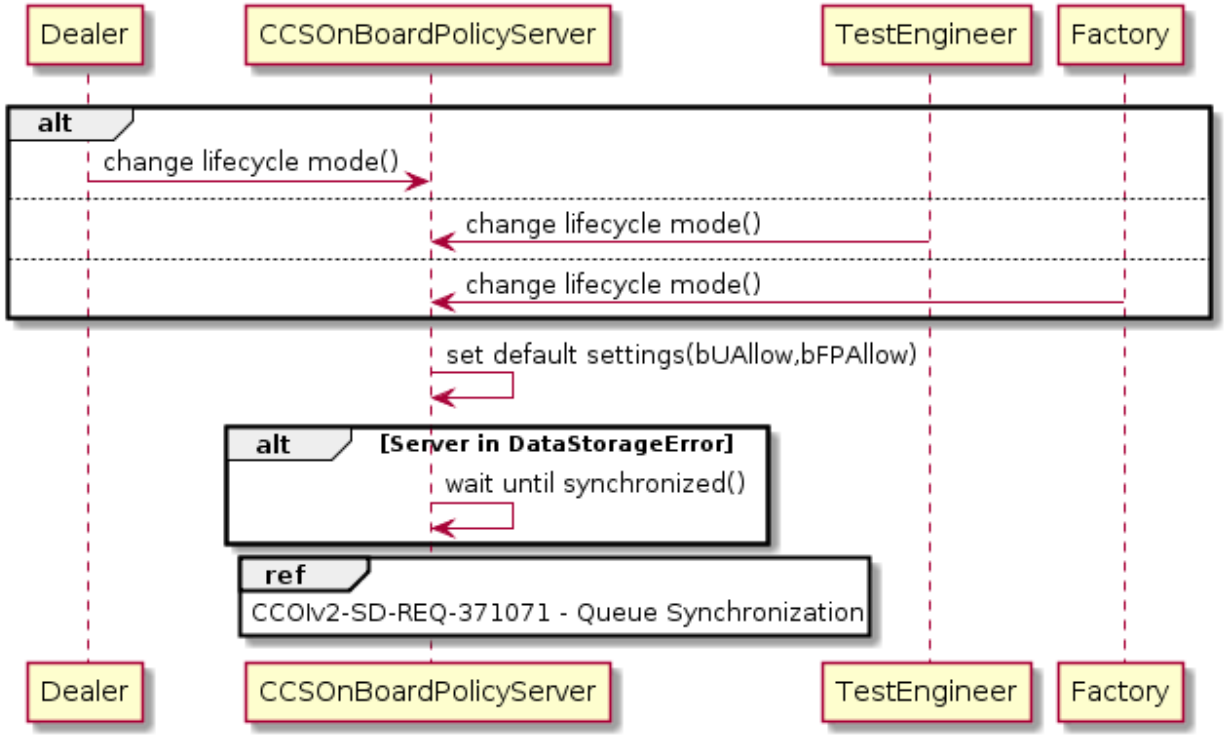
4.3.5.10 CCOIv2-SD-REQ-362627/D-Apply Dependencies



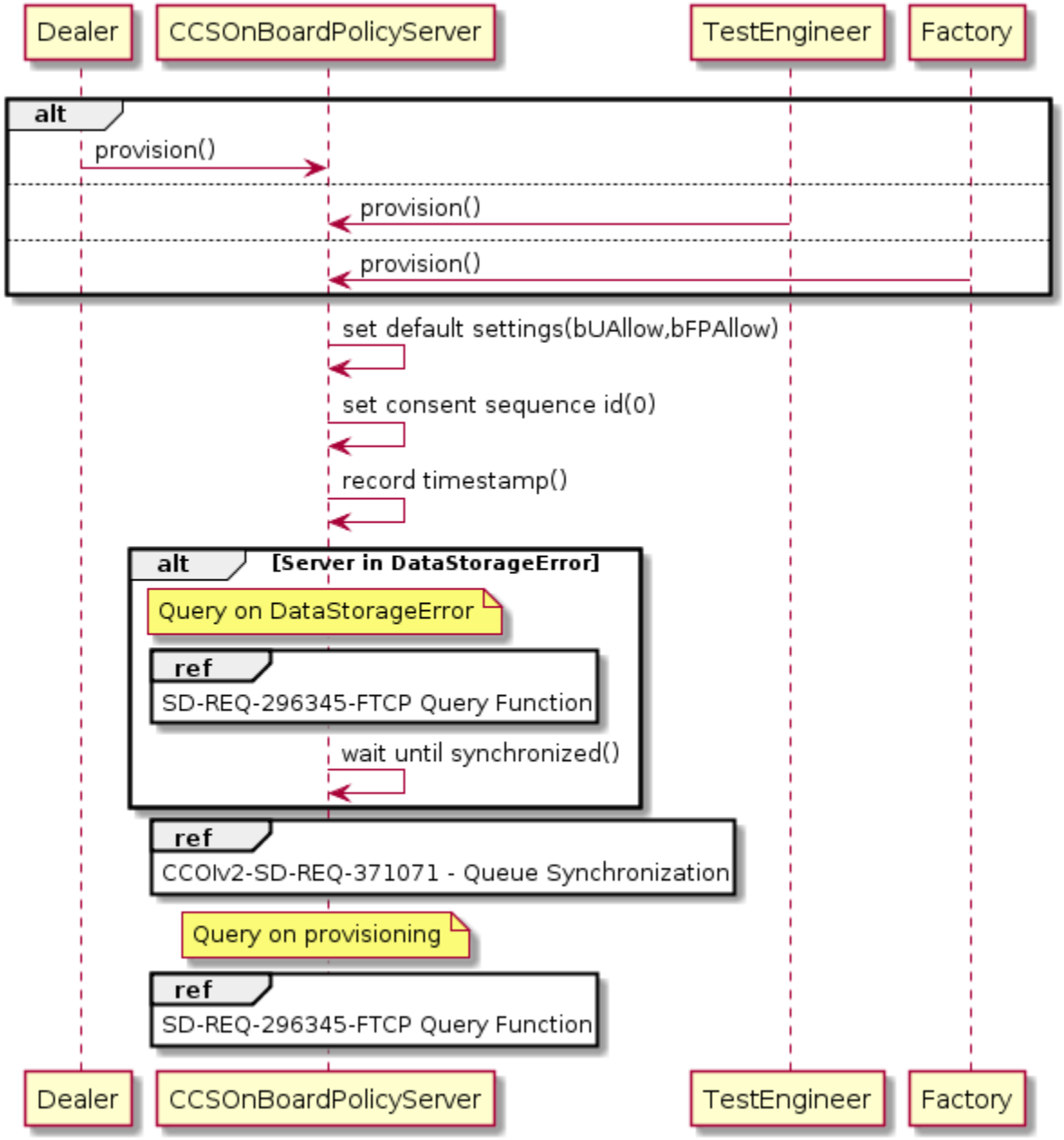
4.3.5.11 CCOIv2-SD-REQ-371082/C-Reset



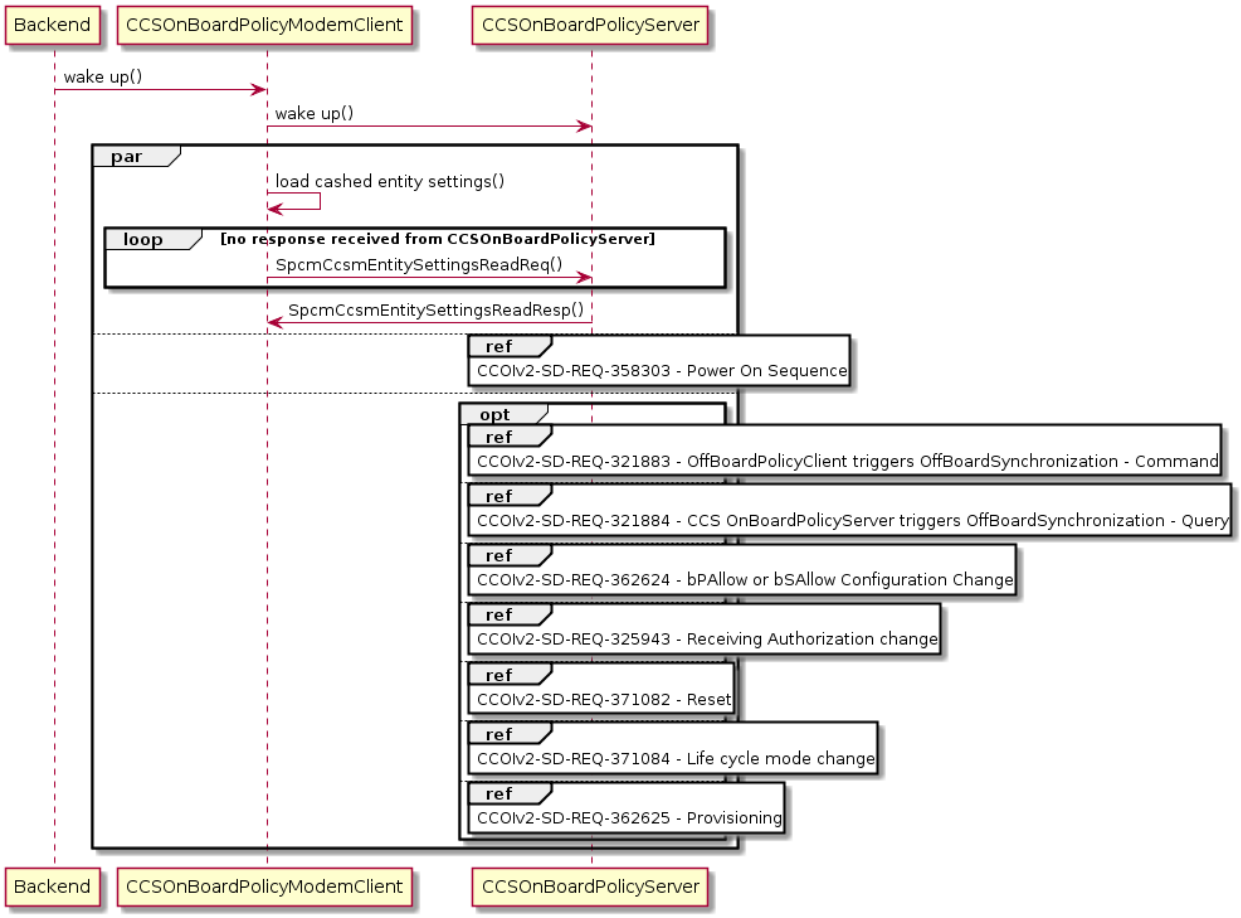
4.3.5.12 CCOIv2-SD-REQ-371084/A-Lifecycle Mode Change



4.3.5.13 CCOIv2-SD-REQ-362625/B-Provisioning



4.3.5.14 CCOIv2-SD-REQ-372229/A-SMS Wake Up



4.4 CCOIv2-FUN-REQ-440174/A-Policy Enforcement (Client)

The central purpose of CCS is to give notice and control to vehicle users regarding the data that is wirelessly transmitted off the vehicle, helping Ford's compliance with data protection requirements including the European GDPR regulations. It demands to give a user control of which data is being shared with granular control of different data categories. Any opt-in/opt-out decision the user has made via the CCS HMI is broadcasted on the vehicle system, so the settings can be applied by any connected feature. To guarantee compliance and a robust technical solution, in a second step CCS enforces the settings via the CCS Policy Enforcer.

4.4.1 Use Cases

4.4.1.1 CCOIv2-UC-REQ-440175/A-Enforce policies

Actors	CCSOnBoardPolicyServer, CCSOnBoardPolicyClient, CCSOnBoardPolicyModemClient, ALM, VIM, Feature Applications
Pre-conditions	Updated Entity Settings and PolicyEnforverControlList are distributed to all relevant parties (CCSOnBoardPolicyServer peforms an onbord synchronization)
Scenario Description	1. PolicyEnforcers apply received PolicyEnforverControlList and settings: 2. ECG enforces policies 2.1. VIM blocks application's access to information that a driver does not want to share 2.2. ALM turns applications off that are disabled by the driver 3. Sync enforces policies 3.1. Trusted Feature Applications don't send information off board that a driver does not want to share 4. TCU enforces policies 4.1. Trusted Feature Applications don't send information off board that a driver does not want to share
Post-conditions	All policy enforcers behave according to the latest driver privacy settings.
List of Exception Use Cases	E1: Some features may have exceptions from policy enforcement if there are legal grounds. See requirements section for details.
Interfaces	

4.4.2 Requirements

4.4.2.1 CCOIv2-REQ-362753/A-Connected Navigation

If the bAllow for entity ConnectedNavigationviaModem (ID 11, Type 1) is disabled

- the Connected Navigation feature application shall not share any navigation related information outside the vehicle
- the Connected Navigation feature application shall turn the connection to the navigation service provider's backend off

If the bAllow for entity ConnectedNavigationviaModem (ID 11, Type 1) is enabled

- the Connected Navigation feature application is allowed to share navigation related information with the navigation provider's backend
- the Connected Navigation feature application is allowed to turn the connection to the navigation service provider's backend on

Note: the impact of other privacy settings (e.g. location sharing or vehicle data sharing) on the enablement of the feature is handled through REQ-296883-Dependency on Policy Table Extension.

4.4.2.1.1 REQ-362948/A-Connected Navigation - Restricted Data

The Connected Navigation feature application shall limit the Connected Navigation service provider's access to information as outlined in the Connected Navigation specification.

4.4.2.2 CCOIv2-REQ-362754/B-Connected Voice (Nuance)

4.4.2.2.1 CCOIv2-REQ-362757/A-Connected Voice (Nuance) - Nuance Setting

If the bAllow for entity Nuance (ID 41, Type 1) is disabled

- the Connected Voice (Nuance) feature application shall not share voice utterances outside the vehicle
- the Connected Voice (Nuance) feature application shall turn the connection to the connected voice (Nuance) service provider's backend off

If the bAllow for entity Nuance (ID 41, Type 1) is enabled

- the Connected Voice (Nuance) feature application is allowed to share voice utterances with the connected voice (Nuance) service provider's backend
- the Connected Voice (Nuance) feature application is allowed to turn the connection to the connected voice (Nuance) service provider's backend on

4.4.2.2.2 CCOIv2-REQ-362758/A-Connected Voice (Nuance) - Location Sharing Setting

If the bAllow for entity Nuance (ID 41, Type 1) is enabled but the bAllow for entity LocationSharing (ID 4, Type 0) is disabled the Connected Voice (Nuance) feature application shall not share location information outside the vehicle such as the examples listed below.

If the bAllow for entity Nuance (ID 41, Type 1) is enabled and the bAllow for entity LocationSharing (ID 4, Type 0) is enabled the Connected Voice (Nuance) feature application is allowed to share the location information such as the examples listed below with the connected voice (Nuance) service provider's backend.

- current location
- destination information
- route information
- estimated time of arrival

4.4.2.2.3 CCOIv2-REQ-362762/A-Connected Voice (Nuance) - Contact Upload Setting

If the bAllow for entity Nuance (ID 41, Type 1) is enabled but the bAllow for entity Contacts (ID 25, Type 0) is disabled the Connected Voice (Nuance) feature application shall not share information about the paired phone contacts and devices outside the vehicle.

If the bAllow for entity Nuance (ID 41, Type 1) is enabled and the bAllow for entity Contacts (ID 25, Type 0) is enabled the Connected Voice (Nuance) feature application is allowed to share information about the paired phone contacts and devices with the connected voice (Nuance) service provider's backend.

4.4.2.2.4 CCOIv2-REQ-362764/A-Connected Voice (Nuance) - Restricted Data

The Connected Voice (Nuance) feature application shall limit the connected voice (Nuance)'s service provider's access to information as outlined in the Nuance specification.

4.4.2.3 CCOIv2-REQ-362765/A-Analytics

4.4.2.3.1 CCOIv2-REQ-362766/A-Diagnostics

If the bAllow for entity Diagnostics (ID 46, Type 1) is disabled the CCSOnBoardPolicyClient shall not collect or share diagnostic related information with the Ford backend.

If the bAllow for entity Diagnostics (ID 46, Type 1) is enabled the CCSOnBoardPolicyClient is allowed to collect and share diagnostic related information with the Ford backend.

Note 1: For the data elements that are allowed to be collected see the Analytics specification.

Note 2: the impact of other privacy settings (e.g. vehicle data sharing) on the enablement of the feature is handled through REQ-296883-Dependency on Policy Table Extension.

4.4.2.3.2 CCOIv2-REQ-362768/A-Vehicle Analytics

If the bAllow for entity Analytics (ID 45, Type 1) is disabled the CCSOnBoardPolicyClient shall not collect or share vehicle analytics related information with the Ford backend.
If the bAllow for entity Analytics (ID 45, Type 1) is enabled the CCSOnBoardPolicyClient is allowed to collect and share vehicle analytics related information with the Ford backend.

Note: For the data elements that are allowed to be collected see the Analytics specification.

4.4.2.3.3 CCOIv2-REQ-362770/A-Voice Recognition Feedback

If the bAllow for entity FEATURE72 (ID 72, Type 1) is disabled the CCSOnBoardPolicyClient shall not collect or share voice recognition feedback or failed voice command related information with the Ford backend.
If the bAllow for entity FEATURE72 (ID 72, Type 1) is enabled the CCSOnBoardPolicyClient is allowed to collect or share voice recognition feedback or failed voice command related information with the Ford backend.

Note 1: For the data elements that are allowed to be collected see the Analytics specification.

Note 2: the impact of other privacy settings (e.g. vehicle data sharing) on the enablement of the feature is handled through REQ-296883-Dependency on Policy Table Extension.

4.4.2.3.4 CCOIv2-REQ-362771/A-Media Analytics

If the bAllow for entity RadioAnalytics (ID 49, Type 1) is disabled the CCSOnBoardPolicyClient shall not collect or share media usage or radio listening analytics related information with the Ford backend.
If the bAllow for entity RadioAnalytics (ID 49, Type 1) is enabled the CCSOnBoardPolicyClient is allowed to collect or share media usage or radio listening analytics related information with the Ford backend.

Note 1: For the data elements that are allowed to be collected see the Analytics specification.

Note 2: the impact of other privacy settings (e.g. vehicle location sharing) on the enablement of the feature is handled through REQ-296883-Dependency on Policy Table Extension.

4.4.2.4 CCOIv2-REQ-362776/A-Sirius XM 360L

If the bAllow for entity SiriusXM (ID 12, Type 1) is disabled the Sirius XM feature application shall turn the connection to the Sirius XM 360L service provider's backend off.
If the bAllow for entity SiriusXM (ID 12, Type 1) is enabled the Sirius XM feature application is allowed to turn the connection to the Sirius XM 360L service provider's backend on.

Note: the impact of other privacy settings (e.g. vehicle connectivity) on the enablement of the feature is handled through REQ-296883-Dependency on Policy Table Extension.

4.4.2.4.1 REQ-362949/A-Sirius XM 360L - Restricted Data

The SiriusXM feature application shall limit the Sirius service provider's access to information as outlined in the Nuance specification.

4.4.2.5 CCOIv2-REQ-362777/A-Digital Owners Manual

If the bAllow for entity VehicleConnectivity (ID 1, Type 0) is enabled the Digital Owner's Manual feature application is allowed to stream videos from the Ford backend for the Digital Owner's Manual.

Note: If the bAllow for entity VehicleConnectivity (ID 1, Type 0) is disabled the Digital Owner's Manual is not able to stream videos from the Ford backend as connectivity is disabled.

4.4.2.6 CCOIv2-REQ-362778/A-Rocket Setup

If the bAllow for entity VehicleConnectivity (ID 1, Type 0) is enabled the Rocket Setup feature application is allowed to pre-set vehicle settings in the vehicle from the Ford backend for rocket setup.

4.4.2.7 CCOIv2-REQ-362805/A-Mobile Phone Interface Not Affected by CCS Entity Settings

The CCSOnBoardPolicyClient shall grant the following features, which may be connected via the connection of the driver's mobile devices, access to vehicle information for off board sharing independent of the CCS Entity Settings.

- Android Auto
- Apple Carplay
- Applink

Rationale: These features have their own privacy settings that are managed independent of the CCS settings. Customers are informed that these settings are not affected in the info icons for the CCS settings.

4.4.2.8 CCOIv2-REQ-443257/A-Apply CCS settings at runtime

All features, applications and services shall apply any CCS settings change at runtime.

4.4.2.9 CCOIv2-REQ-362779/A-Block All Connections for Not Listed Features

The CCSOnBoardPolicyClient shall block all off board connections for feature applications on the CCSOnBoardPolicyClient, which are not listed in REQ-362747-Policy Enforcement (Client).

4.5 CCOIv2-FUN-REQ-440176/A-CCS settings menu

4.5.1 Use Cases

4.5.1.1 CCOIv2-UC-REQ-443277/A-show CCS Feature Settings or Location Feature Settings menu

Actors	User, CCS Client
Pre-conditions	IGN On
Scenario Description	User enters CCS Feature settings or Location Feature Settings menu.
Post-conditions	The CCS menu is presented to the user based on the current entity settings and the currently active policy files.
List of Exception Use Cases	E1: 1a) CCS System is not synchronized .1 CCS menu is not accessible, error message will be shown
Interfaces	GUI

4.5.1.2 CCOIv2-UC-REQ-443278/A-show CCS settings embedded in Android settings menu

Actors	User, CCS Client
Pre-conditions	IGN On
Scenario Description	1. User enters Network and internet, Privacy and Data Sharing or Location settings
Post-conditions	The CCS menu entries is presented to the user based on the current entity settings and the currently active policy files.
List of Exception Use Cases	E1: 1a) CCS System is not synchronized .1 CCS Connectivity menu entry cannot be toggled.
Interfaces	GUI

4.5.1.3 CCOIv2-UC-REQ-443297/B-check entity settings

Actors	Driver, CCS Client
Pre-conditions	IGN On
Scenario Description	1. Driver enters CCS menu 2. An entity allow bit changes (e.g. due to a change of an entity setting by the user) 3. the menu shall be updated according to the policy file and requirements
Post-conditions	Settings menu is updated.
List of Exception Use Cases	E1: 1a) CCS System is not synchronized and driver enters CCS Feature or Location feature settings menu .1 CCS menu is not accessible, waiting animation is shown to the driver entity is not togglable. E2: 1b) CCS System is not synchronized and driver enters Android menu that contains CCS .1 CCS settings not changeable, setting is greyed out (see REQ- 442858)
Interfaces	GUI

4.5.2 Requirements

4.5.2.1 CCOIv2-REQ-443298/B-Building Connectivity Settings menu

The connectivity settings menu entries shall be dynamically displayed based on the Policy Table rules from the PTE and CFM file. Ref. REQ-292436 Policy Table Definition for applicable rulesets. The ccs menu entities are distributed over several Android menus as described in the following requirements:

4.5.2.1.1 CCOIv2-REQ-443317/B-CCS Settings under Network and Internet

The HMI shall dynamically add the CCS settings in the network and internet menu (HMI ID A1) (ref. REQ-442837) that are specified in the menuPolicies under showInConnectivitySettingsMenu (ref. REQ-443338)

4.5.2.1.2 CCOIv2-REQ-443318/B-CCS Settings in Privacy Settings Menu under Privacy section

The CCSOnBoardPolicyClient shall dynamically add the CCS settings in the CCS privacy settings menu (HMI ID D5) under the Data Sharing section that are specified in the menuPolicies under showInPrivacySettingsMenu (ref. REQ-443338).

4.5.2.1.3 CCOIv2-REQ-443321/B-CCS Settings in Privacy Settings menu under Features Settings

The CCSOnBoardPolicyClient shall dynamically add the CCS settings in the CCS privacy settings menu (HMI ID D5) under the Connected Feature Settings section that are specified in the menuPolicies under showInFeatureSettingsMenu (ref. REQ-443338).

4.5.2.1.4 CCOIv2-REQ-472847/A-CCS Settings in Privacy Settings menu under Analytics Sharing

The CCSOnBoardPolicyClient shall dynamically add the CCS settings in the CCS privacy settings menu (HMI ID D5) under the Analytics Settings section that are specified in the menuPolicies under showInAnalyticsSettingsMenu (ref. REQ-443338).

4.5.2.1.5 CCOIv2-REQ-443319/B-CCS Settings under Location

The CCSOnBoardPolicyClient shall dynamically add the CCS settings in the Location menu (HMI ID D2) that are specified in the menuPolicies under showInLocationSettingsMenu (ref. REQ-443338).

4.5.2.1.6 CCOIv2-REQ-443320/B-CCS Settings under Location Features Settings

The CCSOnBoardPolicyClient shall dynamically add the CCS settings in the Location Feature Settings menu (HMI ID D6) (ref. REQ-442837) that are specified in the menuPolicies under showInLocationFeatureSettingsMenu (ref. REQ-443338)

4.5.2.1.7 CCOIv2-REQ-472842/A-CCS Settings under Privacy settings menu in Wizard

The CCSOnBoardPolicyClient shall dynamically add the CCS settings in the privacy settings wizard menu (HMI ID B2) (ref. REQ-442837) that are specified in the menuPolicies under showInSetupWizard (ref. REQ-443338)

4.5.2.2 CCOIv2-REQ-443359/B-Global location settings switch

The Android HMI shall display a global location switch (ref: HMI ID D2). The CCSOnBoardPolicyClient shall enable the global location switch in case Ford location entity (Type:0, ID: 4) is enabled.

4.5.2.3 CCOIv2-REQ-443360/A-Global location entity

CCSOnboardPolicyClient shall send a SOA msg SpcmCcsmSettingsUpdateInd with the request to change the bUAllow of global location meta entity (Type: 0, ID: 27) to ON in case the global location switch is enabled.
CCSOnBoardPolicyClient shall change the bUAllow of global location meta entity (Type: 0, ID: 27) to OFF in case the global location switch is disabled.

4.5.2.4 CCOIv2-REQ-296192/B-Driver Restrictions SPSS dependencies

The Customer Connectivity Settings may be affected by regional Driver Restrictions Settings. Please See Driver Restrictions Settings SPSS and the HMI Specification for details.

4.5.2.5 CCOIv2-REQ-296875/A-Setting Update Reflection

When there is no ongoing HMI task to change a user setting, the settings menu shall always use the values provided during the last successful synchronization procedure by the OnBoardPolicyServer for display.

4.5.2.6 CCOIv2-REQ-296876/C-Visual Feedback based on Settings and Policy Table Extension

If an entity is shown based on PTE section logic “menuPolices”, it shall be displayed or not displayed according to the following rules:

Input			**Effect**				
bPAllow	**bFPAllow**	**bSAllow**	**Entry Visible**	**Entry Layout**	**Switch changeable**	**Switch layout**	**Switch position**
OFF	Don’t care	Don’t care	NO	n/a	n/a	n/a	n/a
ON	ON	OFF	YES	solid	NO	locked	OFF
ON	ON	ON	YES	solid	NO	locked	ON
ON	OFF	OFF	YES	solid	NO	greyed out	OFF
ON	OFF	ON	YES	solid	YES	solid	Per UAllow

If an entity is not shown based on PTE section logic “menuPolices”, it shall be invisible independent of entity bit values.

4.6 CCOIv2-FUN-REQ-362370/A-Policy Table Definition (Client)

4.6.1 Use Cases

4.6.1.1 CCOIv2-UC-REQ-296178/B-parse Policy Files

Actors	CCS OnBoardPolicyClient, CCS OnBoardPolicyServer
Pre-conditions	Policy File parsing component (CCS Server or Client) running, valid policy table set available
Scenario Description	CCS component parses policy files to provide all necessary information to show the CCS settings menu, CCS associated Pop-Up, CCS related wording (CCS OnBoardPolicyClient), or to apply EntityDefinitions or SCF content (CCS OnBoardPolicyServer)
Post-conditions	CCS related wordings and structures are available for the HMI, CCS rules are applied by CCS OnBoardPolicyServer
List of Exception Use Cases	E1: CCS Policy files do not contain valid combination of entities and available wordings.
Interfaces	GUI

4.6.2 Requirements

4.6.2.1 CCOIv2-REQ-296414/E-Policy Tables

Policy Tables define a dynamically configurable part of the CCS feature. These tables are generated on Ford Backend side based on rules defined in the ARMR backend component (CCSOffBoardPolicyClient).

There shall be a set of default policy tables stored on the CCS Server. It shall be used, as long as no updates were received via OffBoardSynchronization from the CCSOffBoardPolicyClient.

In general, there are 3 different policy files.

Customer Friendly Messages (CFM)
The “Customer Friendly Messages” file contains wording for almost any CCS related screen. There are different CFM files with content depending on screen size and language. The CCS server shall store CFM default files for any possible combination of screen size and language.
Updates of CFM can be transferred from the CCSOffBoardPolicyClient per off board synchronization process

Common Policy Table Extension (Common PTE)
The “Common Policy Table Extension” file contains an entity-dependent logic, defining the behavior of CCS, e.g. visibility of menu entries, information sharing icon logic or the effect of accepting/declining CCS activation/authorization pop-ups. These rules shall be applied by the CCS OnBoardPolicyClient.
The PTE also contains a default set of entities, their default opt-in values and their inter-dependencies on other entities. These rules shall be applied by the CCS OnBoardPolicyServer.
Updates of Common PTE can be transferred from the CCSOffBoardPolicyClient per off board synchronization process.

Service Config File (SCF)
The “Service Config File” contains the logic, which kind of information shall be assigned to a CCS Entity. It may include CAN signals, primitives or even entire applications. Based on the SCF and the actual CCS entity settings, the CCS OnBoardPolicyServer creates a whitelist of signals, primitives and applications. This information is published to, and applied by the Policy Enforcer implementing modules.

4.6.2.2 CCOIv2-REQ-443322/A-Dynamic CCS menu injection

The CCSOnboardPolicyClient should implement the dynamic menu injection as described in the UFM section.

4.6.2.3 CCOIv2-REQ-328986/B-Policy File compression

The payload data for transmission of policy files transferred via the off board synchronization process shall be LZMA decompressed by the responsible CCS component.

4.6.2.4 CCOIv2-REQ-362371/A-Persistent Storage and Hashing

CCS OnBoardPolicyClient shall store CCOI data persistently across power states. To protect against inconsistency, in Synchronization state “Waiting” the stored information shall be checked against attached hash values before using it.

4.6.2.4.1 CCOIv2-REQ-362372/A-Failed Client Consistency Check

Upon reading stored information and failing the hash based consistency check, CCS OnBoardPolicyClient shall proceed to Synchronization state “SynchronizationNeeded” and shall set the Policy Table Minor Version in SynchronizationSession_Rq to zero for the OnBoardSynchronization Process.

4.6.2.5 CCOIv2-REQ-296368/D-User Friendly Messages variables

User Friendly Messages strings may contain variables.

Variables dependent on make:
Variable name: %modemName%
Ford: Refer to CCOIv2-REQ-328981 - ford_modemName
Lincoln: Refer to CCOIv2-REQ-328982 - lincoln_modemName

Variable name: %appName%
Ford: Refer to CCOIv2-REQ-328977 - ford_app
Lincoln: Refer to CCOIv2-REQ-328978 - lincoln_app

Variable name: %vehicleMake%
Ford: Refer to CCOIv2-REQ-328979 - ford_brand
Lincoln: Refer to CCOIv2-REQ-328980 - lincoln_brand

Variables received from CCSOnBoardPolicyServer through SpcmCcsmUserPromptReq:
Variable name: %sText1% – received via SpcmCcsmUserPromptReq: variableText1
Variable name: %sText2% – received via SpcmCcsmUserPromptReq: variableText2

4.6.2.6 Policy Table Extension content definition

4.6.2.6.1 General explanations

4.6.2.6.1.1 CCOIv2-REQ-318822/C-unique identifier

A CCS entity shall be uniquely identifiable. Currently there are two unique identifiers:

1) FeatureCode
OR
2) Combination of entityType and entityID

Each entity has an optional label commentEntityName.

Rationale: There are two unique identifiers because of legacy architecture on the CCS CCSOffBoardPolicyClient. The CCSOffBoardPolicyClient will store entity changes based on the combination of entityType and entityID.
Applications shall be able to read a specific entity setting via CCS API either by referencing entity type and ID OR by referencing the FeatureCode.

4.6.2.6.1.2 CCOIv2-REQ-318821/A-EntityType

Valid entity types are

- 0 – META
- 1 – FEATURE
- 2 – FUNCTION

4.6.2.6.1.3 CCOIv2-REQ-328930/A-priority

Defines which policy takes precedence. The lower the number, the higher the priority. When conditions are met for multiple policies with conflicting effects only the highest priority (lowest numbered entry) shall apply.

If no priority is specified all applicable policies shall be applied.

4.6.2.6.1.4 CCOIv2-REQ-318823/C-regions

regions allows regional control over what policy shall apply. See REQ-328928 - regionDefinitions for the definition of regions in the PTE. If regions is “default”, that policy targets all regions, which are not assigned explicitly. The considered policy of that category subset shall be filtered to regions matching the configured region or all regions (“default”). This list is then selected based on the priority of policies in the subset, per REQ-328930 - priority.

4.6.2.6.1.5 CCOIv2-REQ-328931/A-conditions

The effects of a policy must pass an additional check if the policies conditions do not equal “null”. The conditions calls out the policy to check via the unique identifiers (ref. REQ-318822), which reference a particular Allow bit. The value to check against is given in the parameter entityBitSetting (ref. REQ-328989). Multiple conditions may be defined. For a specific policy with one or more defined conditions, all the conditions must evaluate to true, in order to execute the given effects list. Hence when multiple conditions are listed, the result is in effect a boolean AND operation of the results for each list item.

4.6.2.6.1.6 CCOIv2-REQ-328989/A-entityBitSetting

The entityBitSetting evaluates whether a specific allow bit is TRUE or FALSE.

The set of entityBitSetting states are defined in REQ-329000.

Example:

If the entityBitSetting is "bPAllow_On" then the effects shall be applied if the bPAllow for the specified entity is TRUE.

4.6.2.6.1.7 CCOIv2-REQ-329000/A-entity bit states

The entity states are:
bPAllow_On
bPAllow_Off
bFPAllow_On
bFPAllow_Off
bSAllow_On
bSAllow_Off
bUAllow_On
bUAllow_Off
bAllow_On
bAllow_Off

4.6.2.6.1.8 CCOIv2-REQ-328932/A-effects

The effects shall only be applied, if the conditions are met or there are no conditions specified. Multiple effects entries may be specified.

4.6.2.6.1.9 CCOIv2-REQ-328922/A-messageCode (Policy Table Extension)

messageCode is a reference to the CFM files and contains the wordings for the entity for example confirmation prompts, menu entries, or pop-up wordings. For an explanation of all wording parameters, refer to section “User Friendly Messages content definition”.

4.6.2.6.1.10 CCOIv2-REQ-329002/A-action

The action sets the value for a specific allow bit of the specified entity to TRUE or FALSE.
The set of action states are defined in REQ-329000:

Example:
If the action is "bPAllow_On" then the bPAllow for the specified entity shall be set to TRUE.

4.6.2.6.2 CCOIv2-REQ-329003/B-header

The header section of the PTE file consists of the parameters „PlatformVersion“, „MajorVersion“, „ARMRMinorVersion“ and „APCAMinorVersion“. These parameters are for troubleshooting only and shall not be parsed by the CCS System.

4.6.2.6.3 CCSEntityDefinitions

The section Entity Definitions contains information about the entity rules. In particular, it contains information such as default entity settings and the dependencies on other entities.

4.6.2.6.3.1 CCOIv2-REQ-329004/C-DefaultEntitySettingPolicies

The default bUAllow values and the bFPAllow values are stored in the the DefaultEntitySettingPolicies. The policy is based on a priority (REQ-328930), a region (REQ-318823).

Note: country code changes only take effect in CCS when default settings are set. Changing the country code does not cause applying the default settings. Expected behavior is that the country code will never change post the EOL configuration.

4.6.2.6.3.2 CCOIv2-REQ-329005/B-DefaultEntityLifecycleModeSettings

Defines the default values for the allow bit settings for bUAllow and bFPAllow depending on the life cycle modes (see CCOIv2-REQ-371625-Life Cycle Mode).
DefaultEntityLifecycleModeSettings is a special variant of effects (ref. REQ-328932) to set the default values for the entity bits.

The life cycle mode based entity default parameters are:
bUAllow_normal
bUAllow_factory
bUAllow_transport
bFPAllow_normal
bFPAllow_factory
bFPAllow_transport

If the value is 1, then the default value shall be set to TRUE.
If the value is 0, then the default value shall be set to FALSE.

Normal, factory, and transport reference the lifecycle mode of the vehicle.

Example:
If the DefaultEntityLifecycleModeSettings reads as ‘“bUAllow_normal”: 1’, then the default value of the bUAllow bit for specified entity shall be set to TRUE when the vehicle enters the lifecycle mode normal.

4.6.2.6.3.3 CCOIv2-REQ-329007/C-dependencies

If the trigger conditions to apply the dependencies are met (REQ-296883-Dependency on Policy Table Extension), the CCSOnboardPolicyServer shall check whether the conditions for entityBitSetting of the changed entity are met:

- If any entityBitSetting conditions for the changed entity are met the CCSOnboardPolicyServer shall apply the effects with the included action. The effects of other entities changed in line with these dependencies shall be applied as well.
- If an entityBitSetting condition is not met for the changed entity the CCSOnboardPolicyServer shall not apply the effects that correspond to this condition.

For conditions see REQ-328931
For entityBitSetting see REQ-328989
For effects see REQ-328932
For action see REQ-329002

4.6.2.6.3.4 CCOIv2-REQ-362720/A-Dependency Execution

The CCSOnboardPolicyServer shall apply the entity dependencies from REQ-329007-dependencies in order of appearance in the policy file according to the depth-first approach.

4.6.2.6.4 CCSFeaturePolicies

The section Feature Policies contains information about the HMI and effects within CCS. For example, what should happen when the user selects a certain answer possibility to a user prompt, the menu entries, and feature subscriptions.

4.6.2.6.4.1 CCOIv2-REQ-328921/C-promptPolicies

promptPolicies parameter specifies timers and intervals to define how often a popup shall be retriggered. The timers and intervals are applicable for all type of popup. (initial prompt, error prompt and information prompt)
For prompt type initialPrompt the promptPolicies parameter specifies the effects for each user‘s decision on (i.e. “Yes”, “No”). A user prompt’s text is defined by the messageCode (REQ-328949) and has a label commentMessageName.
If the CCSOnBoardPolicyServer receives the notification from the CCSOnBoardPolicyClient that the driver selected a userAction (REQ-296292-Effects of Accepting or Declining a UserPrompt) and conditions as well as region criteria are met, then the CCSOnBoardPolicyServer shall apply the corresponding effects with the included action.
For prompt type Information or Error the effects parameter is empty.

For userPromptMaxCycle see REQ-438278
For userPromptRetryCycleCount see REQ-438279
For userPromptRelativeExpirationTimeSeconds see REQ-438280
For userPRompExpirationMaxCount see REQ-438778
For userAction see REQ-328925
For effects see REQ-328932
For action see REQ-329002
For conditions see REQ-328931
For regions see REQ-318823

4.6.2.6.4.1.1 CCOIv2-REQ-438278/A-userPromptMaxCycles

userPromptMaxCycles parameter specifies how often the CCSOnBoardPolicyServer shall send the SpcmCcsmUserPromptReq to the CCSOnBoardPolicyClient.
Ref.: REQ-386368, REQ-438277

4.6.2.6.4.1.2 CCOIv2-REQ-438279/A-userPromptRetryCycleCount

userPromptRetryCycleCount parameter specifies the number of ignition cycles the CCSOnBoardPolicyServer shall wait to resend the SpcmCcsmUserPromptReq to the CCSOnBoardPolicyClient.
Ref.: REQ-362884

4.6.2.6.4.1.3 CCOIv2-REQ-438280/A-userPromptRelativeExpirationTimeSeconds

userPromptRelativeExpirationTimeSeconds parameter specifies the timeout in seconds of the SpcmCcsmUserPromptReq. In case the userPromptRelativeExpirationTimeSeconds is set to 0 the user prompt shall not timeout.
Ref: REQ-362660

4.6.2.6.4.1.4 CCOIv2-REQ-438778/A-userPromptExpiration

The userPromptExpiration parameter defines whether the userPromptMaxCycles parameter (ref. REQ-438278) is applicable or not. In case the userPromptExpiration paramer is set to “true” the userPromptMaxCycles parameter is applicable. In case the userPromptExpiration parameter is set to “false” the userPromptMaxCycles parameter is not applicable.

4.6.2.6.4.1.5 CCOIv2-REQ-438779/A-Fallback strategy for userPrompt parameters

In case the userPrompt parameters (REQ-438278, REQ-438279, REQ-438280, REQ-438778) are not available in the PTE policy file the CCSOnBoardPolicyServer shall use the global userPrompt parameters as described in the diagnostics interface section (ref.: REQ-362675).

4.6.2.6.4.1.6 CCOIv2-REQ-328925/C-userActions

userActions paramater specifies the decisions made by the driver:

- If the CCSOnBoardPolicyServer receives a SpcmCcsmUserPromptResp from the CCSOnBoardPolicyClient with promptResult = “SPCM_CCSM_PROMPT_RESULT_SELECT_YES” the userAction is “affirmative”.

- If the CCSOnBoardPolicyServer received a SpcmCcsmUserPromptResp from the CCSOnBoardPolicyClient with promptResult = “SPCM_CCSM_PROMPT_RESULT_SELECT_NO” the userAction is “negative”.

4.6.2.6.4.2 CCOIv2-REQ-328928/B-regionDefinitions

regionDefinitions parameters used in the menu policies to allow for regionalized policies.
The countries shall be mapped to regions (ref. REQ-318823) as defined in this section of the PTE. If the vehicle’s configured country (CCSOnBoardPolicyServer see REQ-371617-Diagnostic Parameters for Country Code, CCSOnBoardPolicyClient see REQ-371613-Diagnostic Parameter for Country Code) is not part of any defined region or there is no policy assigned to it’s region, the policies of the “default” region shall be applied.

4.6.2.6.4.3 CCOIv2-REQ-443337/B-menuPolicies

menuPolicies specifies which entities (i.e. features, functions, and meta settings) that are specified by the messageCode shall be displayed under the given conditions for the specified regions. Each menu policy has a label commentMenuPolicyName.

4.6.2.6.4.3.1 CCOIv2-REQ-443338/B-showInMenu

menuPolicies defines in which place the entities shall be displayed. There are five possibilities:

- showInConnectivitySettingsMenu (ref. REQ-443317),
- showInPrivacySettingsMenu (ref. REQ-443318),
- showInFeatureSettingsMenu (ref. REQ-443321),
- showInAnalyticsSettingsMenu (ref. REQ-472847),
- showInLocationSettingsMenu (ref. REQ-443319),
- showInLocationFeatureSettingsMenu (ref. REQ-443320),
- showInSetupWizard (ref. REQ-472842)

4.6.2.6.4.3.2 CCOIv2-REQ-328937/A-sequencenumber

sequence specifies the order in which entities should be displayed in the specific placeholder. The lower the number, the higher the position in the menu. The lowest sequence is listed as the first entity in the placeholder.
When the sequence for two or more entities is the same for a given placeholder, they shall be ordered alphabetically.

Note: A sequence may or may not be consecutive (example the sequence of several entities may be: {3,4,5,1000,1000}).

4.6.2.6.4.3.3 CCOIv2-REQ-472845/A-defaultPosition

defaultPosition shall determine in the privacy settings menu whether the slider is per default on, off or set as the current bUAllow value and can have the following values:

- on
- off
- current

4.6.2.6.4.3.4 CCOIv2-REQ-328945/A-optInSwitch

optInSwitch shall determine whether a switch is required for that entity in Connectivity Menu. If it is true, show the switch, if not do not show the switch.

4.6.2.6.4.4 CCOIv2-REQ-443357/A-iconRules

iconRules determines whether to display the sharing icon in applicable contexts, such as the status bar and to display the data sharing Pop-Up 23.
The icons and the wordings as specified by the messageCode, shall be displayed according to the pop-up’s priority under the specified conditions about the entityBitSetting.

iconRules distinguishes between two icons for location and data that can be triggered independently (see HMI specification):

- data_icon
- location_icon

4.6.2.6.4.5 CCOIv2-REQ-328948/A-featureSubscriptions

featureSubscriptions parameter contains subscriptionExpirationDate, the expiration date and time corresponding to the defined entities. Various CFM wordings may references this value via the variable name %expirationDate%; see CFM sections for more details.

4.6.2.7 User Friendly Messages content definition

4.6.2.7.1 CCOIv2-REQ-362575/A-header

The header section of the CFM file consists of the parameters „PlatformVersion“, „MajorVersion“ and „MinorVersion“. These parameters are for troubleshooting only and shall not be parsed by the CCS System.

4.6.2.7.2 CCOIv2-REQ-328949/B-messageCode (User Friendly Messages)

The message code is a unique reference which is used to determine which text is used to populate a specific screen/pop-up/prompt. It is also a link between the policy file and the customer friendly messages file (ref. REQ-328922). PopUps triggered via UserPrompt_Rq contain the “ScreenID” value which matches the message code.

4.6.2.7.3 CCOIv2-REQ-328950/A-displaySize

The text displayed shall be dependent on the display size (example: largeDisplay, smallDisplay).

4.6.2.7.4 CCOIv2-REQ-328951/A-languages

The language-country combination determines the language to be displayed. ISO 639-1 combined with ISO 3166 alpha-2 country code. Example: "en-us", "de-de".

4.6.2.7.5 CCOIv2-REQ-328952/A-promptType

There shall be 5 prompt types (initial prompt, menu, menu consent prompt, error, information) to populate the content of the screens/pop-ups/prompts. There shall be 6 additional prompt types (brand, app and modemName) that shall populate variable names in the screens/pop-ups/consent prompts/errors/information.

4.6.2.7.5.1 CCOIv2-REQ-328953/C-initalPrompt

initalPrompt shall populate the wordings for user prompt pop-ups of promptType “SPCM_CCSM_PROMPT_TYPE_INITIAL_PROMPT”, the corresponding confirmation prompts, and info books.

4.6.2.7.5.1.1 CCOIv2-REQ-329016/A-textBody

The text body of the pop-up shall be populated with this string.

4.6.2.7.5.1.2 CCOIv2-REQ-328959/B-infoText

The text body of info pop-up on initialPrompt (infoIcon) shall be populated with this string.

4.6.2.7.5.1.3 CCOIv2-REQ-328960/A-button1ConfirmationText

The text body of confirmation “affirmative” pop-up (e.g. user clicked "Yes" button in activation pop-up) shall be populated with this string.

4.6.2.7.5.1.4 CCOIv2-REQ-328961/A-button2ConfirmationText

The text body of decline “negative” pop-up (e.g. user clicked "No" button in activation pop-up) shall be populated with this string.

4.6.2.7.5.1.5 CCOIv2-REQ-472848/A-userPromptSize

The userPromptSize parameter defines what type of prompt the CCSOnBoardPolicyClient shall show when receiving initalPrompt request and can have following values:

- hun
- overlay

4.6.2.7.5.2 CCOIv2-REQ-328962/C-menu

menu shall populate the wordings for menu entries as well as the corresponding confirmation prompts, sharing pop-ups, and info books.

4.6.2.7.5.2.1 CCOIv2-REQ-328963/A-settingsMenuText

The menu entry in the respective menu section for the entity corresponding to this messageCode shall be populated with this string.

For the respective menu section see REQ-328936 - menuPolicies: showInConnectivitySettingsMenu, showInMetaSettingsMenu, and showInFeatureSettingsMenu

4.6.2.7.5.2.2 CCOIv2-REQ-328964/A-infoText_subscribed_unlocked

If bSAllow == true AND bFPAllow == false, then the text body of pop-up (infoIcon) shall be populated with this string.

4.6.2.7.5.2.3 CCOIv2-REQ-328965/A-infoText_unsubscribed_unlocked

If bSAllow == false AND bFPAllow == false, then the text body of pop-up infoIcon shall be populated with this string.

4.6.2.7.5.2.4 CCOIv2-REQ-329017/A-infoText_subscribed_locked

If bSAllow == true AND bFPAllow == true, then the text body of pop-up infoIcon shall be populated with this string.

4.6.2.7.5.2.5 CCOIv2-REQ-329018/B-infoText_unsubscribed_locked

If bSAllow == false AND bFPAllow == true, then the text body of pop-up infoIcon shall be populated with this string.

4.6.2.7.5.2.6 CCOIv2-REQ-472843/A-infoText_dropDown

The drop-down info text of an entity in the initial privacy settings prompt shall be populated with this string.

4.6.2.7.5.2.7 CCOIv2-REQ-328966/A-data_sharing_popup

The text body of the data sharing reminder pop-up shall be populated with this string.

4.6.2.7.5.3 CCOIv2-REQ-328968/A-menuConsentPrompt

menuConsentPrompt shall populate the wordings for menu consent prompts displayed to the user when enabling or disabling a CCS entity via menu.

4.6.2.7.5.3.1 CCOIv2-REQ-328969/A-textBody

If entity transition to ON requested (bUAllow == true) via menu, the text body of consent prompt Pop-Up shall be populated with this string.

4.6.2.7.5.3.2 CCOIv2-REQ-328970/A-confirmation_off

If entity transition to OFF requested (bUAllow == false) via menu, the text body of the consent prompt Pop-Up shall be populated with this string.

4.6.2.7.5.3.3 CCOIv2-REQ-328971/A-Special confirmation prompts for Vehicle Connectivity Entity

In the special case when transition to OFF requested (bUAllow == false) via menu for entity VehicleConnectivity (Id = 1, Type = 0), the following table shall determine the prompt text:

If conditions apply:		**Then populate menu consent prompt with text:**	**Requirement reference**
LBI	**IVSU**		
		confirmation_off	REQ-328970-confirmation_off
x		confirmation_off_plusLBI	REQ-328973-confirmation_off_plusLBI
	x	confirmation_off_plusIVSU	REQ-328972-confirmation_off_plusIVSU
x	x	confirmation_off_plusLBI_IVSU	REQ-328974-confirmation_off_plusLBI_IVSU

4.6.2.7.5.3.3.1 CCOIv2-REQ-328972/A-confirmation_off_plusIVSU

If the following conditions apply:
1) entity transition to OFF requested (bUAllow == false) via menu for entity VehicleConnectivity (Id = 1, Type = 0)
AND
2) an IVSU package is downloaded or currently installed

then the text body of the consent prompt Pop-Up shall be populated with the text from confirmation_off_plusIVSU.

4.6.2.7.5.3.3.2 CCOIv2-REQ-328973/B-confirmation_off_plusLBI

If the following conditions apply:

1) entity transition to OFF requested (bUAllow == false) via menu for entity VehicleConnectivity (Id = 1, Type = 0)
AND
2) PaaK Backup Starting Passcode (previously called LBI - Lincoln Backup Ignition) is enabled (see REQ-371615-Diagnostic Parameter for Backup Start Passcode)

then the text body of the consent prompt Pop-Up shall be populated with the text from confirmation_off_plusLBI.

4.6.2.7.5.3.3.3 CCOIv2-REQ-328974/B-confirmation_off_plusLBI_IVSU

If the following conditions apply:

1) entity transition to OFF requested (bUAllow == false) via menu for entity VehicleConnectivity (Id = 1, Type = 0)
AND
2) PaaK Backup Starting Passcode (previously called LBI - Lincoln Backup Ignition) is enabled (see REQ-371615-Diagnostic Parameter for Backup Start Passcode)
AND
3) an IVSU package is downloaded or currently installed

then the text body of the consent prompt Pop-Up shall be populated with the text from confirmation_off_plusLBI_IVSU.

4.6.2.7.5.4 CCOIv2-REQ-328975/B-error

error shall populate the wordings for error state pop-ups of promptType “SPCM_CCSM_PROMPT_TYPE_ERROR” to inform the user about the potential cause for an error.

4.6.2.7.5.4.1 CCOIv2-REQ-328976/A-textBody

The text body of the Error Pop-Up shall be populated with this string.

4.6.2.7.5.5 CCOIv2-REQ-329020/B-information

information shall populate the wordings for info pop-ups of promptType “SPCM_CCSM_PROMPT_TYPE_INFORMATION” to inform the user.

4.6.2.7.5.5.1 CCOIv2-REQ-329133/A-textBody

The text body of the information Pop-Up shall be populated with this string.

4.6.2.7.6 CCOIv2-REQ-328977/B-ford_app

For Ford vehicles, the textBody field contains the string, which shall be populated for the %appName% variable.

Ref. REQ-371614-Diagnostic Parameter for Vehicle Brand

4.6.2.7.7 CCOIv2-REQ-328978/B-lincoln_app

For Lincoln vehicles, the textBody field contains the string, which shall be populated for the %appName% variable.

ref. REQ-371614-Diagnostic Parameter for Vehicle Brand

4.6.2.7.8 CCOIv2-REQ-328979/B-ford_brand

For Ford vehicles, the textBody field contains the string, which shall be populated for the %vehicleMake% variable.

ref. REQ-371614-Diagnostic Parameter for Vehicle Brand

4.6.2.7.9 CCOIv2-REQ-328980/B-lincoln_brand

For Lincoln vehicles, the textBody field contains the string, which shall be populated in the %vehicleMake% variable.

ref. REQ-371614-Diagnostic Parameter for Vehicle Brand

4.6.2.7.10 CCOIv2-REQ-328981/B-ford_modemName

For Ford vehicles, the string in the textBody field shall be populated for the %modemName% variable.

ref. REQ-371614-Diagnostic Parameter for Vehicle Brand

4.6.2.7.11 CCOIv2-REQ-328982/B-lincoln_modemName

For Lincoln vehicles, the textBody field contains the string, which shall be populated in the %modemName% variable.

ref. REQ-371614-Diagnostic Parameter for Vehicle Brand

4.6.2.7.12 CCOIv2-REQ-328983/B-Missing content strategy

If a text body of a popup, prompt or infoBook (e.g. data_sharing_popup, confirmation_off) is null or empty do not show the corresponding Popup, Prompt or InfoBook.

4.6.2.7.13 CCOIv2-REQ-328984/A-Pop-Up and Info-Book text no truncation

The Pop-Up and Info-Book texts defined in the UFM shall not be truncated to fit into the assigned Pop-Ups (all languages). Therefore it is necessary to dynamically add scroll bars when the text content exceeds the defined pop-up size.

4.6.2.7.14 CCOIv2-REQ-329135/A-pop-up headers (CFM)

All pop-up and screen wordings with the exception of settingsMenuText shall have a parameter "..Header" to populate the wordings for the header of that pop-up and screen.

Examples:
textBody has the corresponding textBodyHeader
infoText has the corresponding infoTextHeader

4.7 CCOIv2-FUN-REQ-440177/A-Notification of data and location sharing

4.7.1 Use Cases

4.7.1.1 CCOIv2-UC-REQ-296180/D-show data sharing reminder icon

Actors	Driver, CCSOnBoardPolicyClient
Pre-conditions	IGN On, CCSOnBoardPolicyClient running
Scenario Description	An entity is active that per policy table requires data and/or location sharing reminder icon.
Post-conditions	The CCSOnBoardPolicyClient shows a data/location sharing reminder icon to the driver to inform about the currently shared data/location.
List of Exception Use Cases	
Interfaces	GUI

4.7.1.2 CCOIv2-UC-REQ-296181/E-show data sharing reminder Pop-Up

Linked Elements
CCOI-ACT-REQ-351857/A-User identification via paired/connected device for data sharing reminder Pop-Up

Actors	CCSOnBoardPolicyClient, Driver
Pre-conditions	IGN off and display off,
Scenario Description	1. Driver turns IGN on and display turns on. 2. CCSOnBoardPolicyClient finishes synchronization. 3. An entity, which per policy file requires showing data/location sharing reminder, is active. 4. CCSOnBoardPolicyClient checks, if the popup has already been shown to the specific driver once identified through the acknowledge device list. 5. CCSOnBoardPolicyClient shows data/location sharing Pop-Up to remind the driver that data is currently shared.
Post-conditions	If a device is paired and connected, while the data/ location sharing reminder Pop-Up is shown, the connected device will be saved as an acknowledged device that already saw the data sharing reminder.
List of Exception Use Cases	E1: If the trigger condition to show data sharing popup is met but an acknowledged device is currently connected to the vehicle then the CCSOnBoardPolicyClient shall not show the data/location sharing popup in step 5 of the scenario description.
Interfaces	GUI

4.7.2 Requirements

4.7.2.1 CCOIv2-REQ-443358/A-Enable and disable notification of data and location sharing pop-up

The CCSOnBoardPolicyClient shall provide a configurable parameter to enable or disable the data and location sharing pop-up logic. The parameter shall be accessible via engineering interface tool (EDT) (ref. REQ-442817).

4.7.2.2 CCOIv2-REQ-443377/A-Show Location Sharing Icon

The Android HMI shall show the location sharing icon in case Android triggers it OR in case CCSOnBoardPolicyClient triggers the icon controlled via CCS policy files (ref. REQ- 443387)

4.7.2.3 CCOIv2-REQ-443378/A-Data sharing reminder

There are two different data_icons for data sharing indication:

1) No sharing
2) Data sharing
3) Null: Do not show any icon

The conditions for showing data sharing reminder icons are defined in the PTE file.
See CCOIv2-REQ-443357 - iconRules for further information.
For applicable Icons see applicable HMI specification, box “Sharing Status Icon”.

4.7.2.4 CCOIv2-REQ-443397/A-Location sharing reminder

There is one location_icon for location sharing indication:

1) Location sharing
2) Null: Do not show an icon

The conditions for showing data/location sharing reminder icons are defined in the PTE file.
See REQ-443357 - iconRules for further information.
For applicable Icons see applicable HMI specification, box “Sharing Status Icon”.

4.7.2.5 CCOIv2-REQ-443398/A-Vehicle Data and Locatin icon on Data Sharing Pop-Up

The CCSOnBoardPolicyClient shall display the data_icon next to the location_icon in case the conditions are fulfilled (ref. REQ-443378, REQ-443397) on the data sharing reminder pop-up as specified in the HMI specification (HMI ID 23).

4.7.2.6 CCOIv2-REQ-362914/A-Maintaining an acknowledged device list

The CCSOnBoardPolicyClient shall maintain a list of acknowledged devices.

4.7.2.7 CCOIv2-REQ-362915/A-Definition of acknowledged devices

An acknowledged device is a device, which was connected to the IVI-System while the data/location sharing reminder was presented to the user and has been acknowledged or timed out.

4.7.2.8 CCOIv2-REQ-362916/A-Definition of devices

Devices currently in scope are devices connected via Bluetooth, Wifi or USB (e.g. Projection Mode).

4.7.2.8.1 CCOIv2-REQ-362917/A-USB devices which can get flagged as an acknowledged device

Only devices, which are stored in Projection Mode device lists (e.g. CarPlay, AndroidAuto), are capable to be flagged as an acknowledged USB device.

4.7.2.8.2 CCOIv2-REQ-362918/A-USB devices cannot get flagged as an acknowledged device

Mass storage devices (such as USB-Pendrives or harddrives) and charging only devices cannot be flagged as acknowledged devices.

4.7.2.9 CCOIv2-REQ-362919/A-Waiting for Bluetooth and USB initialization on triggering Data Location Sharing reminder

Before evaluating the connection of a device via USB, Wifi, or Bluetooth the CCSOnBoardPolicyClient shall wait until the Bluetooth, Wifi, and USB connections are initialized.

4.7.2.10 CCOIv2-REQ-362920/B-Do not save devices when screen is deactivated

If the display is deactivated, (e.g. user turned off display immediately after IGN, reverse view camera) the CCSOnBoardPolicyClient shall not save the device as an acknowledged device.

Rationale: since the pop-up will time out while the screen is off the driver cannot see the pop-up.

4.7.2.11 CCOIv2-REQ-362921/A-Do not show data/location sharing reminder if acknowledged device is connected

If an already acknowledged device is connected to IVI-System the CCSOnBoardPolicyClient shall not show the data/location sharing reminder pop-up again.

4.7.2.12 CCOIv2-REQ-362922/A-Remove acknowledged devices from list on Reset

If the driver performs a reset (master/brand connect) the CCSOnBoardPolicyClient shall remove all acknowledged devices from the list.

Hint: Clear user setting command was not mentioned since the CCSOnBoardPolicyClient is not notified about it.

4.7.2.13 CCOIv2-TMR-REQ-362923/A-CCOI_MaxBTDeviceSearchTimeout

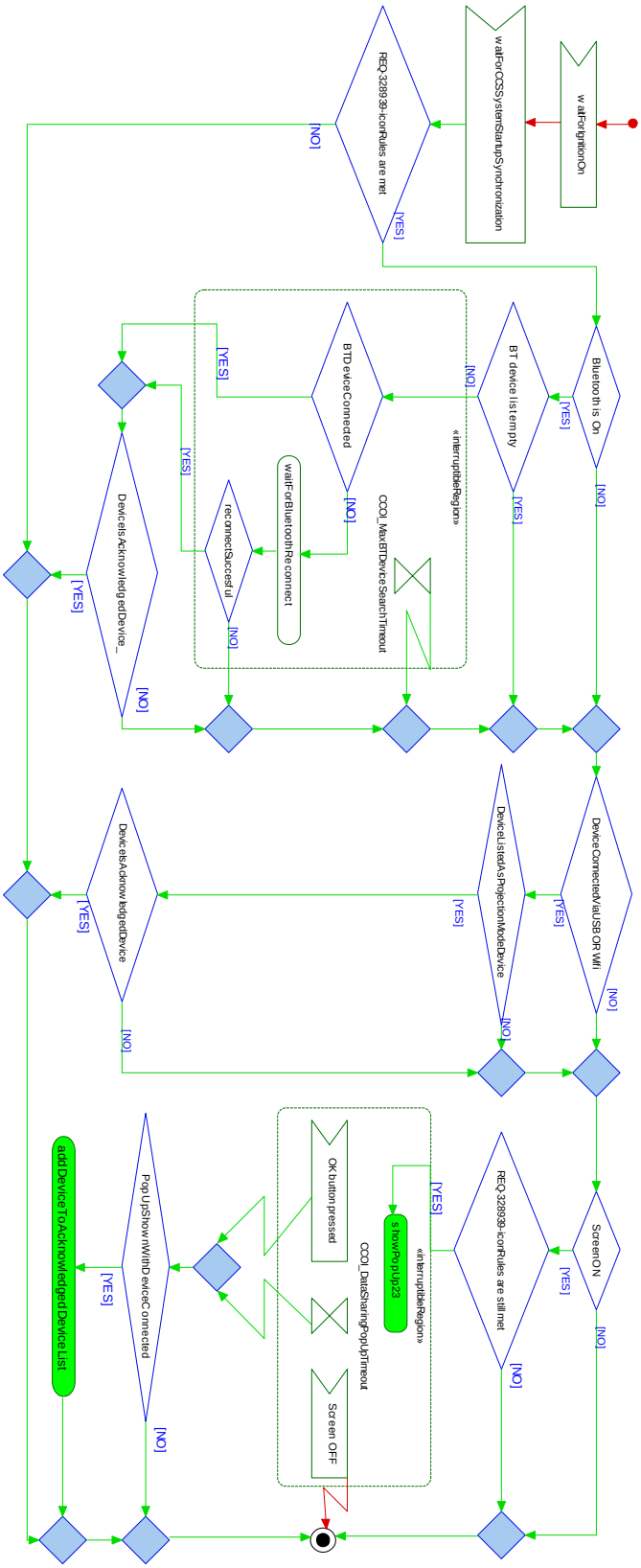
Name	Description	Units	Range	Resolution	Default
CCOI_MaxBTDeviceSearchTimeout	Maximum time to wait for a Bluetooth reconnect	sec	-	1	120

4.7.2.14 CCOIv2-TMR-REQ-362924/B-CCOI_DataSharingPopUpTimeout

Name	Description	Units	Range	Resolution	Default
CCOI_DataSharingPopUpTimeout	Please see applicable HMI specification for applicable timer.				

4.7.3 Activity Diagrams

4.7.3.1 CCOIv2-ACT-REQ-362930/A-User identification via paired/connected device for data sharing reminder Pop-Up



4.8 CCOIv2-FUN-REQ-440178/A-Network Disconnect (Client)

4.8.1 Use Cases

4.8.1.1 CCOIv2-UC-REQ-306740/D-Network Disconnect

Actors	Driver or Configuration, CCSOnBoardPolicyServer, Cloud
Pre-conditions	bAllow of entity “VehicleConnectivity” is enabled
Scenario Description	1. Driver or default settings or EOL settings disable entity “VehicleConnectivity” 2. CCSOnBoardPolicyServer informs cloud (mobile app) about network disconnect via CCSUpdateAlert
Post-conditions	The Vehicle Connectivity entity is switched off. The cellular and wifi networks are disabled except for projection mode.
List of Exception Use Cases	E1: vehicle configured for eCall and emergency call trigger conditions apply E2: vehicle configured for ERA GLONASS and emergency call trigger conditions apply E3: CCSOnBoardPolicyServer cannot inform cloud (mobile app) about network disconnect within pre-defined time due to no/bad reception. Skip step 2. of the scenario description and disconnect from the network.
Interfaces	

4.8.1.2 CCOIv2-UC-REQ-312154/D-Network Re-Connect

Actors	User or Configuration, CCSOnBoardPolicyServer, Cloud
Pre-conditions	bAllow of entity “VehicleConnectivity” is disabled, vehicle is disconnected from cloud
Scenario Description	1. Driver or default settings or EOL settings enable entity “VehicleConnectivity” 2. CCSOnBoardPolicyServer informs cloud (mobile app) about connection via CCSUpdateAlert
Post-conditions	The VehicleConnectivity entity is switched on. The cellular and wifi networks are enabled.
List of Exception Use Cases	
Interfaces	

4.8.2 Requirements (Client)

4.8.2.1 CCOIv2-REQ-386514/A-Disconnect from Wifi Networks

When the bAllow of "EmbeddedWifiConnectivity" (ID 23, Type 0) is disabled, then all Wifi capable modules shall disable Wifi (exception: projection mode should still be possible).

4.8.2.2 CCOIv2-REQ-386515/B-Reconnect to Wifi Networks

When the bAllow of "EmbeddedWifiConnectivity" (ID 23, Type 0) is enabled, then all Wifi capable modules are allowed to re-enable Wifi.

5 Appendix: Reference Documents

Reference #	Document Title
1	Policy Table Extension
2	Consumer Friendly Messages
3	X31J-AOS_CCS
4	Service Configuration File
5	ECG FINAL FNV2 GCF
6	ecg_spcm_ccsm.proto as “ECG SOA Proto File”
7	fnv_spcm_ccsm_ftcp.proto as “FNV SOA Proto File”
8	sync_spcm_ccsm.proto as “SNYC SOA Proto File”
9	FTCP CCS.proto as “CCS FTCP Proto File”
10	FTCP Authorization.proto as “Authorization FTCP Proto File”