Research & Vehicle Technology
"Product Development"

Feature – Customer Connectivity Settings Server

ECG Infotainment
Subsystem Part Specific Specification (SPSS)

Version 1.3
UNCONTROLLED COPY IF PRINTED

Version Date: September 5, 2019

FORD CONFIDENTIAL

Revision History

Date	Version	Notes	
June 22, 2018	**1.0**	**Initial Release**	**OBSOLETE due to release of v1.0.1**
June 27, 2018	**1.0.1**	**Corrected Initial Release**	**ASIMUKHI: THIS RELEASE CONTAINS CORRECTIONS AND MAKES THE RELEASE V1.0 OBSOLETE.**
	CCOIv2-FUN-REQ-318490/C-Change entity setting		kfent1: added paragraph for sequence diagrams which got lost in last release.
	CCOIv2-REQ-313180/B-Default on Lifecycle mode change		bhamach3: Correction - default states are defined in entity Rules instead of configuration
	CCOIv2-REQ-296372/B-Diagnostics Parameters for Distributed State Machine		bhamach3: config parameters/DTCs from previous feature bundles removed
	CCOIv2-TBL-504779/B-Diagnostics Parameters		bhamach3: config parameters from previous feature bundles removed
June 22, 2018	**1.1**	**Updated Release**	
	IIR-REQ-313614/B-Customer Connectivity Settings API		kfent1: removed MD-REQ-313617
	MD-REQ-313623/B-EntityStatus		kfent1: new Data Element API
	MD-REQ-328277/A-MetaSettings		kfent1: new Data Element API
	MD-REQ-328083/A-AuthorizationStatus		kfent1: new MD for Authorization Status. See new Section CCOIv2-FUN-REQ-324870/A-Authorization for Info.
	CCOIv2-REQ-315470/B-Connectivity Customer Settings Menu		bhamach3: REQ-315476 removed
	CCOIv2-REQ-315478/B-Entry into Settings Menu		kfent1: new REQ
	CCOIv2-REQ-315481/B-Modem Activation and Authorization		bhamach3: REQ-318818 descoped
	CCOIv2-REQ-318209/B-Modem Activation		bhamach3: clarification - any meta entity default opt-in state configurable
	CCOIv2-REQ-318817/B-Modem Activation - not enabled per default		bhamach3: clarification - pop-up effect removed - defined in policy files
	CCOIv2-REQ-318211/B-User Authorization		bhamach3: clarification - authorization dependencies removed - defined in policy files
	STR-506065/C-Functional Definition		kfent1: added CCOIv2-FUN-REQ-324120/A-CCSManager synchronization
	CCOIv2-FUN-REQ-324120/A-CCSManager synchronization		kfent1: new FUN CCOIv2-FUN-REQ-324120/A-CCSManager synchronization
	CCOIv2-REQ-324471/A-Synchronization States		kfent1: new Req
	CCOIv2-REQ-324472/A-Synchronized State		kfent1: new Req
	CCOIv2-REQ-324473/A-Synchronizing State		kfent1: new Req
	CCOIv2-REQ-328714/A-Error State		kfent1: new Req
	CCOIv2-REQ-328715/A-Readability of Synchronization State		kfent1: new Req
	CCOIv2-STM-REQ-324474/A-CCS Manager StateMachine		kfent1: new Req
	CCOIv2-FUN-REQ-324870/A-Authorization		bhamach3: Authorization section added
	CCOIv2-UC-REQ-296268/C-Avenue B full authorization		bhamach3: clarification - authorizaton depends on authorization FTCP command
	CCOIv2-UC-REQ-325945/A-De-authorization via Reset		bhamach3: new authorization use case

CCOIv2-UC-REQ-326207/A-backend driven authorization	bhamach3: new authorization use case
CCOIv2-REQ-324934/A-Authorization status change triggers	kfent1: new REQ for Authorization
CCOIv2-REQ-324884/A-Authorization status change	kfent1: new REQ for Authorization
CCOIv2-REQ-325856/A-Authorization enabled	kfent1: new Req
CCOIv2-REQ-325858/A-Authorization disabled	kfent1: new Req
CCOIv2-REQ-328716/A-Publish Authorization State	bhamach3: new requirement
CCOIv2-SD-REQ-325943/A-Receiving Authorization change	kfent1: new authorization SD (seperated out of the Avenue B prompt SD)c
CCOIv2-FUN-REQ-318485/B-User Prompt and Modem activation	kfent1: added "Sequence Diagrams" paragraph, added REQ-321293, REQ-321294, REQ-321295
504763/B-Use Cases	bhamach3: Requirement REQ-313034 removed
CCOIv2-UC-REQ-296268/C-Avenue B full authorization	bhamach3: clarification - authorizaton depends on authorization FTCP command
556167/B-Requirements	bhamach3: Requirement REQ-296291 removed.
CCOIv2-REQ-313015/B-User Prompt Triggers	bhamach3: Acknowledgment prompt item removed
CCOIv2-REQ-296273/B-Upload of UserPrompt_Rsp	bhamach3: Clarification of configurable expiration
CCOIv2-REQ-318318/B-Retries of OnBoard triggered UserPrompt_Rq	bhamach3: clarification added
CCOIv2-REQ-318586/B-No FTCP alert on expiration of OnBoardPolicyServer triggered prompt	bhamach3: Rephrased only
CCOIv2-REQ-296274/B-Retry Persistence of User Prompt	kfent1: new Req
CCOIv2-REQ-296275/B-Effect of Master Reset on pending prompt requests	bhamach3: reset scenarios clarified
CCOIv2-REQ-306742/B-Triggering Avenue A prompt	bhamach3: Conditions for Ave A clarified
CCOIv2-REQ-318320/B-UserPrompt_Rq Handling promptType 0x01	bhamach3: HMI reference corrected
CCOIv2-REQ-318322/B-UserPrompt_Rq Handling promptType 0x03	bhamach3: HMI reference updated
CCOIv2-REQ-296289/C-initialPrompt UserPrompt_Rsp	kfent1: new Req
CCOIv2-REQ-296292/C-Effects of accepting a UserPrompt	bhamach3: Clarification - Requirement reference added.
CCOIv2-REQ-296290/C-Queue Prompts to be Shown	bhamach3: Clarified - synchronization state dependency removed
CCOIv2-SD-REQ-321293/A-Offboard triggerd User Prompt	kfent1: new SD
CCOIv2-SD-REQ-321294/A-Avenue A partial activation	kfent1: new SD
CCOIv2-SD-REQ-321295/A-Avenue B full authorization	kfent1: updated diagram to show split authorization and Avenue B prompt
CCOIv2-FUN-REQ-317862/B-Error and local update prompt handling	bhamach3: Clarification - Client reference removed in req. name
555154/B-Requirements	REQ-318325 removed
CCOIv2-REQ-317863/B-Error Pop-Up "Feature Unavailable"	kfent1: updated Req

CCOIv2-REQ-317866/B-Local Update Pop-Up	bhamach3: Clarification - Synchronization state clarified
CCOIv2-REQ-317868/B-General Pop-Up Priority	bhamach3: Acknowledgment reference removed
CCOIv2-UC-REQ-318886/B-CCSManager triggers OffBoardSynchronization	kfent1: aligned naming to meet CCSManager
CCOIv2-REQ-296327/B-Maintenance of LastKnownGood Data	bhamach3: Clarification - requirement reference corrected
CCOIv2-CLD-REQ-296336/B-ServerOffBoardSyncHandling	kfent1: removed REQ-296360; 296358; 296359
CCOIv2-STM-REQ-296345/B-FTCP Query Function	kfent1: removed state transition
CCOIv2-REQ-296347/B-OffBoard Synchronization FTCP Periodic Query Inhibition During Ignition Cycle	bhamach3: REQ reference updated
CCOIv2-REQ-296348/B-OffBoard Synchronization FTCP Query Retry Configurable Interval	bhamach3: REQ reference updated
CCOIv2-REQ-296349/B-OffBoard Synchronization FTCP Query Trigger Configurable Timeout	bhamach3: REQ reference updated
CCOIv2-REQ-296338/B-OffBoard Synchronization FTCP Update	bhamach3: entityRules reference removed; REQ-318487 removed
CCOIv2-REQ-318484/B-entity settings check for completeness	bhamach3: entityRules reference removed
CCOIv2-REQ-296356/B-Check consentSequenceId for Updates via FTCP	bhamach3: Clarification - check in commands and query responses
CCOIv2-REQ-296357/B-Update OnBoard consentSequenceId for Updates via FTCP	bhamach3: Clarification - Requirement reference updated.
492446/B-Sequence Diagrams	kfent1: added REQ-321883, REQ-321884
CCOIv2-SD-REQ-321883/A-OffBoardPolicyClient triggers OffBoardSynchronization	kfent1: new SD
CCOIv2-SD-REQ-321884/A-CCSManager triggers OffBoardSynchronization	kfent1: new SD
CCOIv2-FUN-REQ-318490/C-Change entity setting	kfent1: added paragraph for sequence diagrams which got lost in last release.
556170/B-Requirements	bhamach3: REQ-328368 added, REQ-313180 removed
CCOIv2-REQ-296401/B-ConsentSequenceId and Provisioning	kfent1: updated REQ
CCOIv2-REQ-313179/B-Default Opt-in entity values	bhamach3: Clarification of opt-in parameter, REQ-318334 removed
CCOIv2-REQ-318338/B-Default on Reset	bhamach3: Clarification of Reset scenarios
CCOIv2-REQ-318374/B-Default on Lifecycle Mode change	kfent1: Clarification of Default Lifecycle
CCOIv2-REQ-318335/B-Region dependent default values	bhamache3: entityRules dependency removed
CCOIv2-REQ-328368/A-Subscription and Policy entity values	kfent1: new REQ
CCOIv2-REQ-296415/B-Effects of Reset	kfent1: updated Effects
CCOIv2-REQ-296879/B-Entity toggle switch changed to "on"	bhamach3: Clarification of references
CCOIv2-REQ-296880/B-Entity toggle switch changed to "off"	bhamach3: Clarification of references

CCOIv2-REQ-315469/B-Entity States Update on settings change	bhamach3: clarification - data is not sent but updated for API
492618/B-Sequence Diagrams	kfent1: added sequence diagram REQ-321292
CCOIv2-SD-REQ-321292/A-Change entity setting by User	kfent1: new SD
CCOIv2-FUN-REQ-296186/B-Policy Enforcement	bhamach3: structure revision
504785/B-Static View	bhamach3: output policy enforcer reference removed.
CCOIv2-CLD-REQ-296382/B-CCSInputPolicyEnforcer	bhamach3: reference of entityRules removed.
504600/B-Use Cases	bhamach3: requirement structure update
CCOIv2-UC-REQ-296189/B-Enforce policies	bhamach3: WIR interface clarified, ign status reference removed, output policy enforcer reference removed, FCI policy enforcement UC removed, acknowledgment UC removed
CCOIv2-UC-REQ-328038/A-Feature Input PolicyEnforcement	bhamach3: requirement added
CCOIv2-UC-REQ-313323/B-Meta Input PolicyEnforcement	bhamach3: exceptions added
504786/B-Requirements	bhamach3: Exception for unprovisioned state added, feature categories removed, enforcement required for any feature
CCOIv2-REQ-326672/A-Data access control	kfent1: new Req
CCOIv2-REQ-326670/A-Meta entity enforcement	bhamach3: enforcement details added
CCOIv2-REQ-326671/A-Feature entity input enforcement	bhamach3: enforcement details added
CCOIv2-REQ-326826/A-Data categorization	bhamach3: clarification of service assignment to entities
CCOIv2-REQ-312332/B-Policy Enforcement Components	bhamach3: requirement rephrased for general use on input and output policy enforcer
CCOIv2-REQ-296383/B-Operation of PolicyEnforcer	bhamach3: requirement rephrased for general use on input and output policy enforcer
CCOIv2-REQ-296384/B-Start Up Order of PolicyEnforcer	bhamach3: output policyenforcer reference removed
CCOIv2-REQ-312335/B-Policy Enforcement disabled in Theft Mode	bhamach3: Requirement reference corrected
CCOIv2-REQ-324869/A-Policy Enforcement disabled in un-provisioned state	bhamach3: New requirement
CCOIv2-REQ-328100/A-Validation of Policy Enforcement	kfent1: new Req
CCOIv2-REQ-296876/B-Visual Feedback based on Settings and Policy Table Extension	bhamach3: switch layout definition changed
CCOIv2-UC-REQ-296260/B-Configuration Triggered Policy Table Selection	bhamach3: requirement reference added
CCOIv2-REQ-311522/B-Default Policy Tables	bhamach3: requirement reference added, entityRules reference removed
CCOIv2-REQ-296313/B-Meta Data	kfent1: no change in req. Revision created accidentally. Could not be deleted
CCOIv2-TBL-504768/B-Meta Data Description Table	bhamach3: entityRules reference removed
CCOIv2-REQ-296314/B-Policy Table Meta Data	bhamach3: Clarification - Requirement reference added.
CCOIv2-REQ-296318/B-Meta Data Generation	kfent1: added 324478 for FNV2
CCOIv2-REQ-296319/B-Platform Version	bhamach3: Clarification - Requirement reference added, entityRules reference removed

CCOIv2-REQ-296320/B-Major Version	bhamach3: Clarification - Requirement reference added.
CCOIv2-REQ-296321/B-Minor Version	bhamach3: Clarification - Requirement reference added.
CCOIv2-REQ-324478/A-Behaviour on FNV2 architecture	bhamach3: Clarification added for FNV2 meta data generation.
CCOIv2-REQ-296316/B-Active Policy Table Set	bhamach3: entityRules reference removed
CCOIv2-REQ-312330/B-Policy Table Query	bhamach3: Clarification - Requirement reference added.
CCOIv2-REQ-296317/B-Missing Policy Table	bhamach3: Clarification - Requirement reference added.
CCOIv2-FUN-REQ-292436/B-Policy Table Definition	bhamach3: Policy Table parameters updated
CCOIv2-REQ-296414/B-Policy Tables	bhamach3: entityRules reference removed, new parameters are part of the PTE file; Feature Manifest logic added
CCOIv2-REQ-328986/A-Policy File compression	bhamach3: compression split from general Policy Table requirement
CCOIv2-REQ-328987/A-Merge Policy Table Extension and Feature Manifest	bhamach3: new requirement
CCOIv2-REQ-296305/B-Configuration and Preload	bhamach3: entityRules reference removed
REQ-328988/A-Manual Policy Upload	kfent1: new Req
CCOIv2-REQ-296368/B-User Friendly Messages variables	bhamach3: references added
584657/A-General explanations	kfent1: new REQ
CCOIv2-REQ-318822/B-unique identifier	kfent1: new REQ
CCOIv2-REQ-318823/B-regions	kfent1: new REQ
CCOIv2-REQ-328989/A-entityBitSetting	kfent1: new REQ
CCOIv2-REQ-329000/A-entity bit states	kfent1: new REQ
CCOIv2-REQ-329002/A-action	kfent1: new REQ
CCOIv2-REQ-329003/A-header (feature manifest)	kfent1: new REQ
584671/A-CCSEntityDefinitions	kfent1: new REQ
CCOIv2-REQ-329004/A-DefaultEntitySettingPolicies	kfent1: new REQ
CCOIv2-REQ-329005/A-DefaultEntityLifecycleModeSettings	kfent1: new REQ
CCOIv2-REQ-329006/A-Default settings trigger dependency logic	kfent1: new REQ
CCOIv2-REQ-329007/A-dependencies	kfent1: new REQ
584672/A-CCSFeaturePolicies	kfent1: new REQ
CCOIv2-REQ-329017/A-infoText_subscribed_locked	kfent1: new REQ
CCOIv2-REQ-329018/A-infoText_unsubscribed_unlocked	kfnet1: new REQ
CCOIv2-REQ-328968/A-menuConsentPrompt	kfent1: new REQ
CCOIv2-REQ-328971/A-Special confirmation prompts for Vehicle Connectivity Entity	kfent1: added REQ-Section for Vehicle Connectivity off transitions
CCOIv2-REQ-328972/A-confirmation_off_plusIVSU	kfent1: transferred functional logic from HMI Specification to SPSS REQ supporting CR688
CCOIv2-REQ-328973/A-confirmation_off_plusLBI	kfent1: New REQ supporting CR668 PAAK/LBI
CCOIv2-REQ-328974/A-confirmation_off_plusLBI_IVSU	kfent1: new REQ supporting LBI and IVSU at the same time
CCOIv2-REQ-329020/A-information	kfent1: new REQ
CCOIv2-REQ-329133/A-textBody	kfent1: new REQ
CCOIv2-REQ-329135/A-pop-up headers (CFM)	kfent1: new REQ

	CCOI-REQ-303279/B-User identification via paired phone for data sharing reminder Pop-Up	bhamach3: clarification added
	CCOIv2-UC-REQ-312051/B-Theft Mode Activation	kfent1: updated UC
	CCOIv2-REQ-312152/B-Theft Mode Activation	bhamach3: Clarification of theft mode functionality
	CCOIv2-REQ-312150/B-Theft Mode De-Activation	bhamach3: Clarification of re-activated policy enforcer functionality
	CCOIv2-REQ-313028/B-Theft Mode value missing	bhamach3: Clarification - as output policy enforcer descoped, no backend communication controlled
	UC-REQ-306740/B-Network Disconnect	bhamach3: config parameter removed
	UC-REQ-312154/B-Network Re-Connect	bhamach3: config parameter removed
	531086/B-Requirements	bhamach3: REQ-312183 (config parameter) removed
	REQ-312693/B-Reset keeps Network Disconnect	kfent1: updated REQ
	REQ-312694/B-Reset enters Network Disconnect	bhamach3: additional communication required, if backend driven pop-ups pending
	504778/B-Diagnostics Requirements	bhamach3: Acknowledgment parameter (REQ-317029) removed
	CCOIv2-TBL-504779/C-Diagnostics Parameters	bhamach3: synchronization state added
	CCOIv2-REQ-296376/B-Diagnostics Parameters for Entity Settings	bhamach3: Clarification - cycling read-out details added, synchronization logic after writing DID removed, as DID is only meant for read-out.
	CCOIv2-TBL-504780/B-Diagnostics Parameters	bhamach3: Parameter Table revised
	CCOIv2-TBL-504782/B-Diagnostic Parameters	bhamach3: removed default parameter, as defined per diagnostic specification
	CCOIv2-REQ-296381/B-Diagnostics Parameters for User Prompt Broker	bhamach3: Clarification - cycling read-out details added
	CCOIv2-TBL-504783/B-Diagnostics Parameters	bhamach3: Clarification - parameter names updated per diagnostic spec
	STR-506066/B-Appendix: Reference Documents	bhamach3: document references updated
January 31, 2019	**1.2** **Updated Release**	
	CCOI-TBL-331447/D-Glossary	bhamach3: Clarification - Policy Enforcement / Blacklist
	CCOI-TBL-331448/E-Abbreviations	bhamach3: SCF added, FM (Feature Manifest) removed
	MD-REQ-313623/C-EntityStatus	bhamach3: parameter name correction kfent1: removed MetaSettingsPerEntity
	CCOIv2-REQ-324473/B-Synchronizing State	kfent1;: removed "active" from "active Policy Table"
	CCOIv2-FUN-REQ-324870/B-Authorization	kfent1: changed wording and removed Anonymization
	CCOIv2-UC-REQ-296268/D-Avenue B full authorization	removed pre condition of unauthorized vehicle
	CCOIv2-UC-REQ-325945/B-De-authorization	kfent1: made generic for deauthorization
	CCOIv2-UC-REQ-296268/D-Avenue B full authorization	removed pre condition of unauthorized vehicle
	CCOIv2-REQ-296272/B-UserPrompt_Rq correlationID	kfent1: added clarification of correlation ID in UserPrompt_Rsp
	CCOIv2-REQ-306742/C-Triggering Avenue A prompt	bhamach3: Clarification for Avenue A triggers added
	CCOIv2-SD-REQ-321293/B-Offboard triggerd User Prompt	kfent1: updated GetEntitySettingsAndBlacklist
	CCOIv2-SD-REQ-321294/B-Avenue A partial activation	kfent1: updated GetEntitySettingsAndBlacklist
	CCOIv2-SD-REQ-321295/B-Avenue B full authorization	kfent1: updated GetEntitySettingsAndBlacklist,made CCSUpdateAlert optional since it is not 100% sure that a entity changes (Fleet scenarios).
	CCOIv2-FUN-REQ-291418/B-Synchronize OnBoard and OffBoard System	kfent1: removed CCOIv2-REQ-296301/A-Check of Meta Data when executing FTCP Command

CCOIv2-UC-REQ-318886/C-CCSManager triggers OffBoardSynchronization	kfent1: remved change of active Policy table in Scenario Description
504766/B-Requirements	
CCOIv2-REQ-296296/B-Check of Meta Data	removed CCOIv2-REQ-296301/A-Check of Meta Data when executing FTCP Command
CCOIv2-CLD-REQ-296324/B-ServerData	bhamach3: SCF added as part of ServerData
CCOIv2-REQ-296343/B-FTCP Periodic Query Policy Governed Function	kfent1: removed CCOIv2-REQ-296352/A-OffBoard Synchronization FTCP Query Trigger Upon New Policy Table Selection
CCOIv2-STM-REQ-296345/C-FTCP Query Function	kfent1: removed the Query OFF path since it is not reachable.
CCOIv2-REQ-296338/C-OffBoard Synchronization FTCP Update	bhamach3: SCF reference added
CCOIv2-SD-REQ-321883/B-OffBoardPolicyClient triggers OffBoardSynchronization	kfent1: removed "change entities per Dependencies"
CCOIv2-SD-REQ-321884/B-CCSManager triggers OffBoardSynchronization	kfent1: removed "change entities per Dependencies"
CCOIv2-UC-REQ-291421/B-Change entity setting by User	kfent1: removed "in CCS menu" since change could be done somewhere else (FordPass , Confirming a PopUp etc.)
CCOIv2-REQ-296398/B-Assigning consentSequenceId and consentTimestamp	bhamach3: Clarification - change of lifecycle mode added as driver for consentsequenceID increment driver
CCOIv2-REQ-313179/C-Default Opt-in entity values	bhamach3: Provisioning as trigger for default settings added
CCOIv2-REQ-318338/C-Default UAllow on Reset	bhamach3: Clarification: Only bUAllow default values changed on reset
CCOIv2-REQ-342774/A-Default on Provisioned state	bhamach3: new requirement
CCOIv2-REQ-296415/C-Effects of Reset	bhamach3: Clarification of default values and settings broadcast
CCOIv2-REQ-296879/C-Entity toggle switch changed to "on"	bhamach3: Clarification of PTE dependencies
CCOIv2-REQ-296880/C-Entity toggle switch changed to "off"	bhamach3: PTE dependencies clarification
CCOIv2-SD-REQ-321292/B-Change entity setting by User	kfent1: update GetEntitySettingsAndBlacklist
CCOIv2-UC-REQ-296189/C-Enforce policies	bhamach3: blacklist reference added
CCOIv2-UC-REQ-328038/B-Feature Input PolicyEnforcement	bhamach3: blacklist/SCF reference added
CCOIv2-UC-REQ-313323/C-Meta Input PolicyEnforcement	kfent1: aligned wording with CCOIv2-UC-REQ-328038/B-Feature Input PolicyEnforcement
504786/C-Requirements	bhamach3: REQ-326670 removed - combined with REQ-326671 as generic policy enforcement logic kfent1: added CCOIv2-REQ-343058/A-Policy Enforcer has to Acknowledge Blacklist
CCOIv2-REQ-326670/B-blacklist generation	bhamach3: requirement name revised, blacklist logic added
CCOIv2-REQ-326671/B-input policy enforcement per blacklist	bhamach3: requirement name revised, policy enforcer logic changed
CCOIv2-REQ-324869/B-Policy Enforcement disabled in un-provisioned state	bhamach3: Reference to Provisioning API
CCOIv2-REQ-328100/B-Validation of Policy Enforcement	kfnet1: removed unnecessary Validation items
CCOIv2-REQ-343058/A-Policy Enforcer has to Acknowledge Blacklist	kfent1: new requirement
CCOIv2-REQ-311523/B-Policy Table Meta Data	kfent1: renamed to Policy Table Meta Data, removed 543897/A-Use Cases; removed: CCOIv2-REQ-312329/A-Policy Table Selection
543898/B-Requirements	
CCOIv2-REQ-311522/C-Default Policy Tables	bhamach3: SCF reference added; kfent1: removed language dependency
CCOIv2-REQ-296313/C-Meta Data	bhamach3: REVISION NOT REQUIRED
CCOIv2-TBL-504768/C-Meta Data Description Table	bhamach3: SCF reference added. Hash calculation clarified
CCOIv2-REQ-296319/C-Platform Version	bhamach3: SCF reference added
496258/C-Requirements	bhamach3: REQ-328987 removed (Feature Manifest logic descoped)

	CCOIv2-REQ-296414/C-Policy Tables	bhamach3: SCF description added
	CCOIv2-REQ-296305/C-Configuration and Preload	bhamach3: SCF reference added
	REQ-328988/B-Manual Policy Upload	bhamach3: SCF reference added, Feature Manifest removed
	584657/B-General explanations	bhamach3: Feature Manifest reference removed
	584671/B-CCSEntityDefinitions	bhamach3: REQ-329006 removed - any default settings to be taken from PTE
	CCOIv2-REQ-329007/B-dependencies	bhamach3: PTE dependency clairification
	CCOIv2-REQ-328949/B-messageCode (User Friendly Messages)	kfent1: clarified that screenID is used to match the nessage code
	CCOIv2-REQ-329018/B-infoText_unsubscribed_locked	bhamach3: correction
	617509/A-Service Config File content definition	bhamach3: Content definition of new Service Config File
	CCOIv2-REQ-342767/A-CCSEntity	bhamach3: new requirement
	CCOIv2-REQ-342768/A-Signal	bhamach3: new requirement
	CCOIv2-REQ-342769/A-Primitive	bhamach3: new requirement
	CCOIv2-REQ-342770/A-Application	bhamach3: new requirement
	CCOIv2-REQ-342771/A-CCSBlacklist	bhamach3: new requirement
	CCOIv2-UC-REQ-296180/B-show data sharing reminder	kfent1: wording changed from "him" to "the user"
	CCOIv2-UC-REQ-296181/B-show data sharing reminder Pop-Up	kfent1: removed "BT and USB" since phones can be paired by different means
	CCOI-REQ-303277/B-Data/Location sharing reminder Pop-Up	kfent1: clarified that data sharing Pop-Up shall not be shown again when any Pop-Up was shown before to the currently paired phone
	CCOIv2-REQ-296376/C-Diagnostics Parameters for Entity Settings	bhamach3: clarification - instead of DET or dealer tools, read out via internal developer tools will be sufficient
	CCOIv2-REQ-296379/B-Diagnostic Parameters for Active Policy Table	kfent1: removed CCOIv2-REQ-296380/A-DTC due to missing policy table
	CCOIv2-REQ-296381/C-Diagnostics Parameters for User Prompt Broker	bhamach3: clarification - instead of DET or dealer tools, read out via internal developer tools will be sufficient
	STR-506066/C-Appendix: Reference Documents	kfent1: SCF file reference
September 5, 2019	**1.3 Updated Release**	
	CCOIv2-FRD-REQ-362362/A-Customer Connectivity Settings Server ECG SPSS	bhamach3: Content revised for Release 1.3, Manager split in Server and Client SPSS, Section "General Requirements" removed
	CCOIv2-TBL-683964/A-Glossary	bhamach3: Revised from CCOI to CCOIv2, "Active Policy Table" added; mkahlen: added new terms: factory, armr admin, CCSOffBoardPolicyClient, CCSOnboardPolicyClient, CCSOnBoardPolicyModemClient, CCSOnBoardPolicyServer
	CCOIv2-TBL-683966/A-Abbreviations	bhamach3: Revised from CCOI to CCOIv2, SCF added, FM (Feature Manifest) removed; mkahlen: added new abbreviations: GUI, SOA, FCI, FOTA, MMOTA
	STR-506063/C-Architectural Design	mkahlen: replaced REQ-313614 API requirement with SOA interface
	685846/A-Boundary Diagram	bhamach3: boundary diagram added for system overview
	CCOIv2-BD-REQ-362932/A-Customer Connectivity Settings	bhamach3: boundary giagram added for system overview
	685357/A-Interface Requirements	mkahlen: new paragraph for interfaces
	685358/A-SOA Interface	mkahlen: new paragraph for soa interface
	CCOIv2-REQ-362874/A-ECG SOA Proto File	mkahlen: new requirement for the ecg soa proto file messages
	CCOIv2-REQ-362875/A-SYNC SOA Proto File	mkahlen: new requirement for the sync soa proto file messages
	CCOIv2-REQ-362876/A-FNV SOA Proto File	mkahlen: new requirement for the fnv soa proto file messages
	CCOIv2-MD-REQ-328083/B-AuthorizationStatus	hzubert: set FID to CCOIv2
	685359/A-FTCP Interface	mkahlen: new paragraph for ftcp interface
	CCOIv2-REQ-362878/A-CCS FTCP Proto File	mkahlen: new requirement for the ccs ftcp proto file messages
	CCOIv2-REQ-362879/A-Authorization FTCP Proto File	mkahlen: new requirement for the authorization ftcp proto file messages
	683198/A-Diagnostics Interface	bhamach3: Acknowledgment parameter (REQ-317029) removed; mkahlen: renamed paragraph from diagnostic requirements to diagnostics interface

685399/A-Method 2	mkahlen: new paragraph for method2 parameters
CCOIv2-REQ-296372/C-Diagnostics Parameters for CCS Communication Data	bhamach3: Config parameters re-added for OnBoardSynchronization; mkahlen: renamed from distributed state machine to ccs communication data
CCOIv2-TBL-504779/D-Diagnostics Parameters	bhamach3: Config parameters re-added for OnBoardSynchronization
CCOIv2-REQ-362675/A-Diagnostic Configuration Parameters for User Prompts	mkahlen: description of the user prompt configuration parameters
CCOIv2-TBL-684608/A-Diagnostic Parameters	mkahlen: diagnostic configuration parameters for user prompt
685400/A-Method 3	mkahlen: new paragraph for method3 parameters
685401/A-GMRDB	mkahlen: new requirement for gmrdb parameters
CCOIv2-REQ-362881/A-CCS Server Synchronization State	mkahlen: new requirement for writing the synchronization state to a diagnostic parameter
CCOIv2-REQ-296375/B-DTC due to DataStorageError	bhamach3: DTC details added
685402/A-Engineering Tool	mkahlen: new requirement for engineering tool readable parameters
CCOIv2-REQ-362674/A-Diagnostic Parameters for Active User Prompts	mkahlen: moved the text from REQ-296381 to this requirement
STR-683197/A-Functional Definition	bhamach3: Chapters removed: CCOIv2-FUN-REQ-324120, CCOIv2-FUN-REQ-291418; Chapters added:
CCOIv2-FUN-REQ-324870/C-Authorization	bhamach3: specifically referencing CCS Server as actor
576158/B-Use Cases	mkahlen: added new use cases with more details for authorization
CCOIv2-UC-REQ-296268/E-Authorize Mobile App	mkahlen: included more details in authorization use case including a link to the user prompt section
CCOIv2-UC-REQ-325945/C-De-authorize Mobile App	mkahlen: included more information about de-authorization in fleet use case
CCOIv2-UC-REQ-326207/B-Authorize Fleet Telematics	mkahlen: included more information about fleet telematics enrollment
CCOIv2-UC-REQ-355963/A-De-authorize Fleet Telematics	mkahlen: new use case describing the de authorization from fleet telematics
CCOIv2-UC-REQ-362630/A-Restore Authorization Status	mkahlen: new use case describing the self healing mechanism of authorzation status
CCOIv2-UC-REQ-355207/A-Authorization Status Change	mkahlen: new generic use case for auth status change command
CCOIv2-REQ-324884/B-Authorization status change	bhamach3: CCS Manager changed to CCS Server
CCOIv2-REQ-325856/B-Authorization enabled	mkahlen: clarified the entity type and id of authorized and that the server is the actor in setting the pallow
CCOIv2-REQ-325858/B-Authorization disabled	mkahlen: clarified the entity type and id of authorized and that the server is the actor in setting the pallow
CCOIv2-REQ-362522/A-Authorization Status Change while in DataStorageError	bhamach3: Dependency on CCS OnBoardSynchronization added
REQ-362810/A-Include Authorization Status in CommonFromVehicle	mkahlen: new requirement to avoid endless retriggering ofa auth status change command
CCOIv2-SD-REQ-325943/B-Receiving Authorization change	bhamach3: Sequence diagram updated
CCOIv2-FUN-REQ-362532/A-User Prompt and Modem activation (Server)	bhamach3: User Prompt logic split for CCS Server and Client
504763/C-Use Cases	mkahlen: Combined UC-REQ-296266, UC-REQ-313014, UC-REQ-317846, UC-REQ-296267, UC-REQ-296268, UC-REQ-313033 in a single use case UC-REQ-355216.
CCOIv2-UC-REQ-355216/A-Prompt User to Get Driver's Consent	mkahlen: initial release
683545/A-Requirements	bhamach3: Requirement REQ-296291 removed.
CCOIv2-REQ-313015/C-User Prompt Triggers	mkahlen: removed refernce to error secnarios as they are not handled through a user prompt and added an example of fleet privavcy user prompts
CCOIv2-REQ-296269/B-FTCP Command to Trigger UserPrompt	mkahlen: disentangeled requirement to only cover that the server shall send a response to commands, other parts about being able to handle user prompts is covered in requiremnent REQ-XXX
CCOIv2-REQ-362656/A-Create Pending User Prompt: Off Board Triggered User Prompts	mkahlen: new requirement with details on how to create a user prompts onboard from a received command

CCOIv2-REQ-362653/A-CCSUserPromptCommand: Fail when screenId or promptType Unknown	mkahlen: new requirement to fail ccs user prompt commands when no screen id is provided
CCOIv2-REQ-318324/B-UserAuthorizationCommand: Fail when screenId or promptType Unknown	mkahlen: split this requirement to user authorization command (this requirement) and ccs user prompts (see REQ-362653)
CCOIv2-REQ-362655/A-Maximum Number of User Prompts	mkalen: new requirement that was previously contained with other requirements in REQ-296269
CCOIv2-REQ-296282/B-CCSUserPromptCommand: Fail in DataStorage Error	mkahlen: revised requirement and split up in authorization (this requirement) and ccs user prompts REQ-362657
CCOIv2-REQ-362657/A-UserAuthorizationCommand: Fail in DataStorage Error	mkahlen: new requirement to expan on the authorization part of REQ-296282
CCOIv2-REQ-362658/A-CCSOnBoardPolicyServer to Trigger UserPrompt	mkahlen: new requirement paragraph
CCOIv2-REQ-306742/D-Create Pending User Prompt: Triggering Avenue A prompt	mkahlen: added new requirement for data storage error and clarification about the parameters that Avenue A should be triggered with
CCOIv2-REQ-362884/A-Retry Persistence of User Prompt	mkahlen: clarified in more detail how the retry of a pop-up works. also replaced req-296274 with 362884 due to problem with requirements tool
CCOIv2-REQ-362660/A-User Prompt Retry Conditions	mkahlen: new subrequirement to define the conditions when a user prompt should be retriggered
CCOIv2-REQ-362671/A-Driver Selects Ask me later	mkahlen: new subrequirement describing how the server should determine whether ask me later was selected
CCOIv2-REQ-362672/A-Driver Turns Ignition Off Without Making a Choice	mkahlen: new subrequirement describing how the server determines when a user turned ignition off without making a choice
CCOIv2-FUR-REQ-296276/B-Retry every Multiple of Ignition Cycles	mkahlen: added reference to configuration parameters
CCOIv2-FUR-REQ-296277/B-Maximum Number of Ignition Cycles within which Retry Occurs	mkahlen: added reference to configuration parameters
CCOIv2-REQ-362676/A-User Prompt Commands Timeout	mkahlen; new subrequirement describing the timeout value for user prompts
CCOIv2-REQ-318318/C-No Timeout for CCSOnBoardPolicyServer Triggered User Prompts	mkahlen: reduced this requirement to only making the timeout not applicable. Maximum retries is already covered in REQ-362660
CCOIv2-REQ-362677/A-User Prompt Display Not Possible	mkahlen: new requirement paragraph
CCOIv2-REQ-362678/A-User Prompt Timeout Conditions	mkahlen: new subrequirement to define the conditions of a user prompt timeout
CCOIv2-REQ-296271/B-CCSUserPromptCommand: Timeout	mkahlen: clarified that the server shall fail timedout user prompts
CCOIv2-REQ-318585/B-UserAuthorizationCommand: Timeout	mkahlen: clarified that the server should deny timedout authorization prompts
CCOIv2-REQ-318586/C-OnBoardPolicyServer triggered prompt: Timeout	mkahlen: clarified that the server shall also remove the user prompt from the queue when timeoud (if triggered by onboard policy server)
CCOIv2-REQ-296275/C-Effect of Master Reset on pending prompt requests	mkahlen: clarified that on a master reset all user prompts should be failed
CCOIv2-REQ-362679/A-User Prompt when Server Transitions to Data Storage Error	mkahlen: new requirement on how to handle user prompt in data storage error (fail)
CCOIv2-REQ-296280/B-Send Pending User Prompt to Client	mkahlen: clarified the message name to inform the client about a new user prompt
CCOIv2-REQ-296272/C-Unique correlationID	mkahlen: new requirement that creates a unqiue correlation ID for both server and backend triggered pop-ups to make sure consent can always be traced to one specific pop-up
CCOIv2-REQ-362680/A-Clients User Prompt Response Handling	mkahlen: new requirement paragraph
CCOIv2-REQ-296292/D-Effects of Accepting or Declining a UserPrompt	mkahlen: clarified that the server shall apply prompt policies

CCOIv2-REQ-362681/A-Persisting Entity Setting Change Not Possible	mkahlen: new requirement to handle the scenario where the server cannot persist the entity settings from the prompt policies
CCOIv2-REQ-362682/A-Applying Dependencies Not Possible	mkahlen: new requirement to handle the scenario where the server cannot apply the entity dependencies after persisting the settings from the prompt policies
CCOIv2-REQ-296273/C-Upload of User Prompt Response	mkahlen: clarified the inputs for a response to the backend in more detail
CCOIv2-REQ-362683/A-CCSUserPromptCommand: Upload of User Prompt Response	mkahlen: clarification of the inputs for a response to the backend for user prompts
CCOIv2-REQ-362684/A-UserAuthorizationCommandResponse: Upload of User Prompt Response	mkahlen: clarified the inputs for a response to the backend in more detail for userauthorizationcommandresponse
CCOIv2-REQ-362685/A-OnBoardPolicyServer triggered prompt: No Upload of User Prompt Response	mkahlen: separated out the information that no alert should be sent for server triggered user prompts in this requirement.
CCOIv2-REQ-362686/A-Performance Requierements	mkahlen: new requirement paragraph
CCOIv2-REQ-362687/A-Time to Display User Prompts	mkahlen: new performance requirement for server on how long it should take to forward user prompts to client
562210/B-Sequence Diagrams	mkahlen: removed SD-REQ-321293, SD-REQ-321294, SD-REQ-321295 and replaced them with SD-REQ-362645, SD-REQ-362646, SD-REQ-362647, and SD-REQ-362648. Instead of focusing on instances we focus on the flow.
CCOIv2-SD-REQ-362645/A-Prompt Server To get Drivers Consent	mkahlen: new SD to describe the triggers for user prompts
CCOIv2-SD-REQ-362646/A-Prompt Client To get Drivers Consent	mkahlen: new SD to describe the retry strategy to show user prompts
CCOIv2-SD-REQ-362647/A-Initial Prompt	mkahlen: new SD to describe an initial prompt flow
CCOIv2-SD-REQ-362648/A-Information and Error Prompt	mkahlen: new SD to describe an information/error prompt flow
CCOIv2-FUN-REQ-355020/A-OffBoardSynchronization (Server)	bhamach3: This section replaces CCOIv2-FUN-REQ-291418 - Synchronize OnBoard and OffBoard System
CCOIv2-UC-REQ-355220/A-Query on Ignition Cycle	bhamach3: initial release
CCOIv2-UC-REQ-355221/A-Query on Entity "Authorized" enabled	bhamach3: initial release
CCOIv2-UC-REQ-355222/A-Query on Entity "VehicleConnectivity" enabled	bhamach3: initial release
CCOIv2-UC-REQ-355223/A-Query on Provisioning	bhamach3: initial release
CCOIv2-UC-REQ-362272/A-Query on DataStorageError	bhamach3: initial release
CCOIv2-UC-REQ-355281/A-Update Query	bhamach3: initial release
CCOIv2-UC-REQ-355711/A-Update Command	bhamach3: initial release
CCOIv2-UC-REQ-349197/A-Policy File Consistency Check	bhamach3: initial release
CCOIv2-STM-REQ-296345/D-FTCP Query Function	bhamach3: Statemachine updated with new query triggers
CCOIv2-REQ-361939/A-Query Trigger Conditions	bhamach3: added separate section for query triggers
CCOIv2-REQ-296343/C-FTCP Periodic Query Policy Governed Function	bhamach3: requirement structure revised and requirement text clarified, REQ-296349 removed
CCOIv2-REQ-296347/C-OffBoard Synchronization FTCP Periodic Query Configurable Frequency	bhamach3: requirement name and wording changed from query inhibition to query trigger
CCOIv2-REQ-296350/B-OffBoard Synchronization FTCP Query Trigger Upon Authorized enabled	bhamach3: requirement name clarified - CCS entity referenced, CCS Server specifically referenced as actor
CCOIv2-REQ-296351/B-OffBoard Synchronization FTCP Query Trigger Upon VehicleConnectivity enabled	bhamach3: CCS Server specifically referenced as actor

CCOIv2-REQ-296352/B-OffBoard Synchronization FTCP Query Trigger Upon New Policy Table Selection	bhamach3: Requirement format matched to section.
CCOIv2-REQ-362290/A-OffBoard Synchronization FTCP Query Trigger Upon Provisioning	bhamach3: new query trigger to allow lower periodic query frequency
CCOIv2-REQ-362291/A-OffBoard Synchronization FTCP Query Trigger Upon DataStorageError	bhamach3: new query trigger
CCOIv2-REQ-362294/A-Query FTCP message preconditions	bhamach3: new requirement
CCOIv2-REQ-296348/C-OffBoard Synchronization FTCP Query Retry Configurable Interval	bhamach3: requirement text updated to match the revised state machine (REQ-296345)
CCOIv2-REQ-296339/B-OffBoard Synchronization FTCP Update Command with Pending Update	bhamach3: FTCP communication clarified
CCOIv2-REQ-355219/A-Server Consistency Check	bhamach3: added separate section for consistency check
CCOIv2-REQ-296338/D-meta data check for completeness	bhamach3: requirement name revised
CCOIv2-REQ-355930/A-Error code for incomplete Meta Data	bhamach3: error behavior split from REQ-296341 to match consistency check structure
CCOIv2-REQ-318484/C-entity settings check for completeness	bhamach3: CCS Server specifically referenced as actor
CCOIv2-REQ-318486/B-Error code for incomplete settings	bhamach3: ErrorCode reference corrected
CCOIv2-REQ-319299/B-Error code for unknown entities	bhamach3: ErrorCode reference corrected
CCOIv2-REQ-355961/A-consentSequenceId check	bhamach3: split from REQ-296356 to match consistency check structure.
CCOIv2-REQ-355964/A-meta data comparison to active policy table	bhamach3: added separate section for meta data check
CCOIv2-REQ-355977/A-OffBoardSynchronization without policy file	bhamach3: split from REQ-296340 to match consistency check structure
CCOIv2-REQ-296340/B-Error code for mismatching meta data	bhamach3: revised req. name and structure to match consistency check structure
CCOIv2-REQ-296341/B-OffBoardSynchronization with policy file	bhamach3: revised req. name and structure to match consistency check structure
CCOIv2-REQ-355978/A-Error code for mismatching Platform or Major version	bhamach3: error behavior split from REQ-296341 to match consistency check structure
CCOIv2-REQ-355965/A-hash value check	bhamach3: split from data persisting (REQ-296293) and moved to consistency check
CCOIv2-REQ-355973/A-Error code for hash value mismatch	bhamach3: hash check details added for consistency check in addition to REQ-296313
CCOIv2-REQ-355974/A-Success of Consistency Check	bhamach3: added requirement to clarify FTCP communciation
CCOIv2-REQ-296342/B-ccsApplyMode	bhamach3: Changed wording to reference CCS Server specifically as actor. Added clarification of consistency check in case of delayed appy mode
CCOIv2-REQ-355981/A-Conditions for OnBoardSynchronization	bhamach3: OnBoardSynchronization reference added
CCOIv2-REQ-355982/A-Conditions for EntitySettingsUpdate	bhamach3: EntitySettingsUpdate reference added
CCOIv2-ACT-REQ-362270/A-OffBoardSynchronization	bhamach3: activity diagram for offboard synchronization added
CCOIv2-SD-REQ-321883/C-OffBoardPolicyClient triggers OffBoardSynchronization - Command	bhamach3: sequence diagram for command added
CCOIv2-SD-REQ-321884/C-CCS OnBoardPolicyServer triggers OffBoardSynchronization - Query	bhamach3: sequence diagram for query added

CCOIv2-FUN-REQ-355041/A-OnBoardSynchronization (Server)	bhamach3: initial release
CCOIv2-UC-REQ-357523/A-Turn ignition on	bhamach3: initial release
CCOIv2-UC-REQ-362912/A-Turn HMI System on	bhamach3: initial release
CCOIv2-UC-REQ-362282/A-Policy File received from OffBoardPolicyClient	bhamach3: initial release
CCOIv2-UC-REQ-357522/A-Revert to Default Policy File	bhamach3: initial release
CCOIv2-UC-REQ-357525/A-Software Update	bhamach3: initial release
CCOIv2-UC-REQ-362319/A-Setting Change while OnBoardSynchronization	bhamach3: initial release
CCOIv2-UC-REQ-362320/A-Subscription Change while OnBoardSynchronization	bhamach3: initial release
CCOIv2-UC-REQ-362321/A-Authorization Change while OnBoardSynchronization	bhamach3: initial release
CCOIv2-UC-REQ-362336/A-User/Authorization Prompt while OnBoardSynchronization	bhamach3: initial release
CCOIv2-REQ-353995/A-OnBoardPolicyServer Synchronization State Transitions	bhamach3: initial release
CCOIv2-TBL-664267/A-State Transition Table	bhamach3: FB5 state transitions
CCOIv2-REQ-358975/A-Invalid to Waiting	bhamach3: initial release
CCOIv2-REQ-358976/A-Waiting to SynchronizationNeeded	bhamach3: initial release
CCOIv2-REQ-362338/A-Waiting to DataStorageError	bhamach3: initial release
CCOIv2-REQ-357524/A-SynchronizationNeeded to Synchronizing	bhamach3: initial release
CCOIv2-REQ-358307/A-SynchronizationNeeded to Synchronized	bhamach3: initial release
CCOIv2-REQ-358559/A-Synchronizing to Synchronized	bhamach3: initial release
CCOIv2-REQ-358978/A-Synchronized to Synchronizing	bhamach3: initial release
CCOIv2-REQ-358557/A-Synchronizing to SynchronizationFailed	bhamach3: initial release
CCOIv2-REQ-358519/A-SynchronizationSummaryReport failure	bhamach3: initial release
CCOIv2-REQ-358977/A-Synchronizing Timeout	bhamach3: initial release
CCOIv2-REQ-359107/A-OnBoardPolicyClient failure	bhamach3: initial release
CCOIv2-REQ-358561/A-SynchronizationFailed to SynchronizationNeeded	bhamach3: initial release
CCOIv2-REQ-358560/A-Retry Synchronization	bhamach3: initial release
CCOIv2-REQ-358562/A-Retry with LastKnownGood data	bhamach3: initial release
CCOIv2-REQ-358563/A-SynchronizationFailed to UnrecoverableSynchronizationError	bhamach3: initial release
CCOIv2-REQ-362340/A-DataStorageError to SynchronizationNeeded	bhamach3: initial release
CCOIv2-REQ-358750/A-Any to Invalid	bhamach3: initial release
CCOIv2-REQ-358980/A-Various to OnBoardDistributedStateMachineInconsistent	bhamach3: initial release
CCOIv2-REQ-358983/A-Various to Waiting	bhamach3: initial release

CCOIv2-REQ-358989/A-OnBoardDistributedStateMachineInconsistent to Waiting	bhamach3: initial release
CCOIv2-REQ-358306/A-OnBoardDistributedStateMachineInconsistent to UnrecoverableSynchronizationError	bhamach3: initial release
CCOIv2-REQ-296327/C-Maintenance of LastKnownGood Data	bhamach3: wording clarification
CCOIv2-REQ-359110/A-Application of synchronized Policy Files	bhamach3: initial release
CCOIv2-REQ-362341/A-Entitiy Setting change while OnBoardSynchronization	bhamach3: initial release
CCOIv2-REQ-362344/A-Entitiy Setting change while DataStorageError	bhamach3: initial release
CCOIv2-REQ-362521/A-Recovery from DataStorageError	bhamach3: initial release
CCOIv2-ACT-REQ-362528/A-OnBoardSynchronization	bhamach3: initial release
CCOIv2-STM-REQ-358305/A-OnBoardSynchronization	bhamach3: initial release
CCOIv2-SD-REQ-358303/A-Power On Sequence	bhamach3: initial release
CCOIv2-SD-REQ-361331/A-SynchronizationNeeded	bhamach3: initial release
CCOIv2-SD-REQ-358304/A-Synchronization	bhamach3: initial release
CCOIv2-SD-REQ-361332/A-SynchronizationFailed	bhamach3: initial release
CCOIv2-FUN-REQ-318490/D-Update Entity Setting (Server)	mkahlen: renamed the section from change entity setting to update entity setting. The whole section was revised for the Client/Server split.
492616/B-Use Cases	mkahlen: replaced use cases to change entity settings (REQ-291421/B-Change entity setting by User; REQ-291529/A-Change entity setting per policy file) with more detailed use cases
CCOIv2-UCD-REQ-361932/A-Update Entity Settings	mkahlen: new use case diagram
CCOIv2-UC-REQ-355218/A-Change Consent Setting in Menu	mkahlen: new use case for clarification
CCOIv2-UC-REQ-355186/A-Configure CCS Communication Data	mkahlen: new use case for clarification
CCOIv2-UC-REQ-355202/A-Configure Entity bSAllow	mkahlen: new use case for clarification
CCOIv2-UC-REQ-355203/A-Configure Entity bPAllow	mkahlen: new use case for clarification
CCOIv2-UC-REQ-355208/A-Reset	mkahlen: new use case for clarification
CCOIv2-UC-REQ-355201/A-Provisioning	mkahlen: new use case for clarification
CCOIv2-UC-REQ-355204/A-Change Lifecycle Mode	mkahlen: new use case for clarification
CCOIv2-UC-REQ-355206/A-ECG Swap	mkahlen: new use case for clarification
CCOIv2-UC-REQ-355212/A-Restore bUAllow Entity Settings	mkahlen: new use case for clarification
CCOIv2-UC-REQ-355214/A-Update SCF	mkahlen: new use case for clarification
CCOIv2-UC-REQ-355205/A-Hard Reset	mkahlen: new use case for clarification
CCOIv2-UC-REQ-362905/A-Update Software	mkahlen: new use case for clarification
CCOIv2-UC-REQ-355215/A-Re-connect Battery	mkahlen: new use case for clarification
CCOIv2-UC-REQ-355983/A-Update Settings Onboard	mkahlen: new use case for clarification
556170/C-Requirements	mkahlen: revised the structure of this section into the new logical sections: General, what to do when an entity changed, state machine description, and reasons for entities to change. Removed REQ-XXX as covered in REQ-329004-DefaultEntitySettingPolicies. Removed REQ-315471 as already covered in REQ-296398. Deleted requirement REQ--296295 as it is not

	correct. Not all rules (e.g. dependencies) shall be applied on every initialization. REQ-296401 removed as covered in REQ-342774.
CCOIv2-REQ-362815/A-Synchronizing Policy Files and Entity Settings in one Process	mkahlen: mapping between synchronization states and entity setting update states while the two are still combined in one process (FB4 logic)
CCOIv2-CLD-REQ-296370/B-General	mkahlen: renamed this requirement and moved the content to other requirements
CCOIv2-REQ-296877/B-Overall Entity State in Provisioned State (bAllow)	mkahlen: Clarified that the actor to calculate the entity setting bAllow is the CCSOnBoardPolicyServer and that this calculation only holds in provisioned state
CCOIv2-REQ-296400/B-ConsentSequenceId Data Type	mkahlen: Clarified that the onboardpolicyserver is the actor and should store the consent sequence id
CCOIv2-REQ-362809/A-Provide Entity Setting Information on Request	mkahlen: included a specific requirement on the API response for the server (supplements REQ-313614-Customer Connectivity Settings API)
CCOIv2-REQ-362600/A-Start in state EntitiesReady	mkahlen: new requirement
CCOIv2-REQ-362598/A-What to do When An Entity is Changed	mkahlen; new requirement paragraph
CCOIv2-REQ-362601/A-Transition to UpdateServerEntitySettings	mkahlen; new requirement
CCOIv2-REQ-362602/A-Steps in State UpdateServerEntitySettings	mkahlen; new requirement
CCOIv2-REQ-362603/A-Persist Entity Settings	mkahlen: new requirement
CCOIv2-REQ-296883/B-Dependency on Policy Table Extension	mkahlen: changed requirement, Entity dependencies from PTE file should only be applied when a setting change is not due resetting the default entity values or restoring entity values.
CCOIv2-REQ-296398/C-Assigning consentSequenceId, consentTimestamp and metaData	mkahlen: Added an explicit reference to the consent sequence ID which is reset due to provisioning and therefore should not increment the consent sequence ID. Also removed a reference to a timestamp and entity rules as these are separate requirements. Also removed the requirement that a consent sequence id should be incremented due to queries or settingsupdate commands.
CCOIv2-REQ-296399/B-Inform CCSOffBoardPolicyClient about Consent Settings Change	mkahlen: renamed requirement and included more details abuot what information the update alert should contain
CCOIv2-REQ-362604/A-Read Communication Data	mkahlen: New requirement to read entity setting update specific communication data which is due to a newly introduced separation between PTE file synchronization and entity setting update across the vehicle.
CCOIv2-REQ-362605/A-Calculate Blacklist	mkahlen: New requirement that states that when the client and server are in state update entity settings the blacklist shall be calculated
CCOIv2-REQ-326670/C-blacklist generation	mkahlen: more detailed steps added
CCOIv2-REQ-362606/A-Transition to UpdateClientEntitySettings	mkahlen: new requirement
CCOIv2-REQ-362607/A-Steps in State UpdateClientEntitySettings	mkahlen: new requirement
CCOIv2-REQ-362608/A-Inform VIM and ALM about New Blacklist	mkahlen: new requirement
CCOIv2-REQ-315469/C-Inform Clients about Updated Settings	mkahlen: clarified that the actor in sending the updated entity settings is the server.
CCOIv2-REQ-362816/A-Inform Feature Applications about Updated Settings	mkahlen; separated out the requirement that the onboardpolicyserver shall inform ecg features about entity setting changes
CCOIv2-REQ-362610/A-Transition to EntitiesReady	mkahlen: new requirement
CCOIv2-REQ-362611/A-Transition to EntityUpdateFailed	mkahlen: new requirement
CCOIv2-REQ-362613/A-Transition to EntitySettingsUnrecoverable	mkahlen: new requirement
CCOIv2-REQ-362616/A-Overview over Entity Setting Update Parameters	mkahlen: New parameters for entity update state transitions
CCOIv2-REQ-362599/A-Reasons for Entities to Change	mkahlen: new requirement paragraph

CCOIv2-REQ-324869/C-Overall Entity Setting State in Un-Provisioned State (bAllow)	mkahlen: clarified that the actor is the server
CCOIv2-REQ-342774/B-Default on Provisioned state	mkahlen: Clarification that the actor CCSOnboardPolicyServer shall reset bUAllow and bFPAllow to defaults on reprovisioning, reset consent sequence id to 0 and record a timestamp.
CCOIv2-REQ-318374/C-Default on Lifecycle Mode change	mkahlen: Clarification that the actor CCSOnboardPolicyServer shall reset bUAllow and bFPAllow to defaults on a life cycle mode change
CCOIv2-REQ-296415/D-Effects of Reset	mkahlen: Clarification that the actions on a master reset are done by the actor CCSOnboardPolicyServer
CCOIv2-REQ-362886/A-Default Settings while in DataStorageError	mkahlen: initial relase
CCOIv2-REQ-328368/B-bSAllow and bPAllow entity values	mkahlen: clarified that the actor to monitor bSAllow and bPAllow configuration values is the CCSOnBoardPolicyServe. Also included a new subrequirement to handle this requirement while in DataStorageError.
CCOIv2-REQ-362523/A-Entity Bit Change via Configuration while in DataStorageError	mkahlen: new requirement
CCOIv2-REQ-362621/A-CCSOnBoardPolicyClient Sets bUAllow Entity Setting	mkahlen: new requirement where the client sends a request to the server to change an entity setting
CCOIv2-REQ-325856/B-Authorization enabled	mkahlen: clarified the entity type and id of authorized and that the server is the actor in setting the pallow
CCOIv2-REQ-325858/B-Authorization disabled	mkahlen: clarified the entity type and id of authorized and that the server is the actor in setting the pallow
CCOIv2-REQ-296357/C-Restore Entity Settings from Backend	mkahlen: clarified that the CCSOnBoardPolicy server shall also adopt the consent sequence id, entity setting, and timestamp received from the backend if the check is ok. Also included a new subrequirement about handling in data storage error.
CCOIv2-REQ-355961/A-consentSequenceId check	bhamach3: split from REQ-296356 to match consistency check structure.
CCOIv2-REQ-362527/A-Restoring of Entity Settings while in DataStorageError	mkahlen: new requirement about how to handle restoring entity settings while in data storage error
CCOIv2-REQ-296292/D-Effects of Accepting or Declining a UserPrompt	mkahlen: clarified that the server shall apply prompt policies
CCOIv2-REQ-362681/A-Persisting Entity Setting Change Not Possible	mkahlen: new requirement to handle the scenario where the server cannot persist the entity settings from the prompt policies
CCOIv2-REQ-362682/A-Applying Dependencies Not Possible	mkahlen: new requirement to handle the scenario where the server cannot apply the entity dependencies after persisting the settings from the prompt policies
683980/A-State Machine Diagrams	mkahlen: new paragraph
CCOIv2-STM-REQ-362615/A-Update Entity Settings	mkahlen: New state machine for entity settings update due to split between file synchronization and entity setting updates.
492618/C-Sequence Diagrams	mkahlen: expanded seuqence diagrams with more details
CCOIv2-SD-REQ-362625/A-Provisioning	mkahlen: new SD illustrating the provisioning scenario
CCOIv2-SD-REQ-321292/C-Change Consent Setting in Menu	mkahlen: included more details about a user changing a setting
CCOIv2-SD-REQ-362624/A-bPAllow or bSAllow Configuration Change	mkahlen: new SD that shows the bSALlow and bPAllow configuration change impact on CCS
CCOIv2-SD-REQ-362626/A-ECG Swap	mkahlen: new SD illustrating the ECG swap scenario
CCOIv2-SD-REQ-362627/A-Update Settings Onboard	mkahlen: new SD to document how the server shall update the settings on change
CCOIv2-SD-REQ-362628/A-Distribute Entity Settings	mkahlen: new SD to document how the server informs onboard clients about setting changes
CCOIv2-FUN-REQ-296186/C-Policy Enforcement (Server)	bhamach3: Generic Policy Enforcer section replaced by Server specific Policy Enforcer
CCOI-504600/C-Use Cases	bhamach3: reduced to one generic use case
CCOIv2-UC-REQ-296189/D-Enforce policies	bhamach3: Use Case revised to cover behavior on all policy enforcing modules
504786/D-Requirements	bhamach3: section updated
CCOIv2-REQ-362748/A-General Requirements	bhamach3: initial release

CCOIv2-REQ-296383/C-Operation of PolicyEnforcer	bhamach3: clarification on power modes
CCOIv2-REQ-362749/A-Blacklist request after initialization	bhamach3: initial release
CCOIv2-REQ-362750/A-Deadline to adopt Blacklist updates	bhamach3: initial release
CCOIv2-REQ-297733/B-Persistence of Blacklist	bhamach3: clarified - enforcers shall persist blacklist, modules shall persist entity settings
CCOIv2-REQ-328100/C-Validation of Policy Enforcement	bhamach3: no changes
CCOIv2-REQ-362751/A-VIM Policy Enforcement	bhamach3: initial release
CCOIv2-REQ-362755/A-ECG Policy Enforcement of Signals and Primitives	bhamach3: initial release
CCOIv2-REQ-362756/A-Whitelisted Signals and Primitives	bhamach3: initial release
CCOIv2-REQ-362806/A-MMOTA Data Access	mkahlen: signal exceptions for MMOTA approved by email from cmicha18 on 19.06.2019
CCOIv2-REQ-362759/A-Data Elements	mkahlen: signal exceptions for MMOTA approved by email from cmicha18 on 19.06.2019
CCOIv2-REQ-362808/A-Data Element Off Board Sharing	mkahlen: signal exceptions for MMOTA approved by email from cmicha18 on 19.06.2019
CCOIv2-REQ-362763/A-Permitted Signals and Primitives	bhamach3: initial release
CCOIv2-REQ-362767/A-Fallback to Off if Blacklist not available	bhamach3: initial release
CCOIv2-REQ-362769/A-ALM Policy Enforcement	bhamach3: initial release
CCOIv2-REQ-362772/A-ECG Policy Enforcement of Applications	bhamach3: initial release
CCOIv2-REQ-362774/A-Permitted Applications	bhamach3: initial release
CCOIv2-REQ-362775/A-Fallback to Off if Blacklist not available	bhamach3: initial release
CCOI-504788/B-Requirements	mkahlen: Deleted requirement REQ-296390 as it is duplicate. It is not a requirement but a summary of other requirements.
CCOIv2-REQ-313618/B-Anonymization Flag	mkahlen: added the entity type and id in the requirement and made clear that the server is the actor
CCOIv2-REQ-296389/B-Flagging Messages which need Preprocessing in SDN	mkahlen: Clarified that the CCSOnboadPolicyServer is the actor in setting the anonymization flag
CCOIv2-REQ-296318/C-Meta Data Generation	bhamach3: moved REQ-296316 to this section
CCOIv2-REQ-296321/C-Minor Version	bhamach3: Correction: Client replaced by Server
CCOIv2-UC-REQ-296178/B-parse Policy Files	bhamach3: dependency of ignition on removed, System split into Server and Client, new Policy File contents (EnttiyDefinitions, SCF) referenced
496258/D-Requirements	bhamach3: No revision needed
CCOIv2-REQ-296414/D-Policy Tables	mkahlen: replaced backend with offboardclient (to be more specific)
CCOIv2-REQ-328988/C-Manual Policy Upload	bhamach3: no changes
CCOIv2-REQ-296293/B-Persistent Storage and Hashing	bhamach3: Recovery Requirement added
CCOIv2-REQ-319297/B-Failed Server Consistency Check	bhamach3: Consistency Check logic refined for Server and Client
CCOIv2-REQ-362361/A-DataStorageError Recovery	bhamach3: Recovery Strategy defined
CCOIv2-REQ-296368/C-User Friendly Messages variables	bhamach3: REQ references corrected; mkahlen: updated that the sText variables come from the Server message user prompt, not FTCP
CCOIv2-REQ-318822/C-unique identifier	bhamach3: PTE parameter changed from FNV2FID to FeatureCode; mkahlen: repalced backend with CCSOffBoardPolicyClient to be more specific.
CCOIv2-REQ-318823/C-regions	bhamach3: references updated

CCOIv2-REQ-329003/B-header	bhamach3: feature manifest logic descoped for J#1, instead using this requirement for general Policy File header information
584671/C-CCSEntityDefinitions	mkahlen: added new requirement in this section REQ-362720
CCOIv2-REQ-329004/B-DefaultEntitySettingPolicies	mkahlen: default settings no longer depend on conditions of other entity states
CCOIv2-REQ-329007/C-dependencies	mkahlen: Clarification: due dependencies only being applied if an entity setting settings are not changed due to a reset to default values or due to restoring values, this requirement had to be adjusted to include a reference to REQ-296883/A-Dependency on Policy Table Extension.
CCOIv2-REQ-362720/A-Dependency Execution	mkahlen: New requirement that documents how the code has implemented the execution of dependencies and which dependencies are executed first. If we need to add conflicting dependencies in the future, we are aware of which dependency takes precedence.
CCOIv2-REQ-328921/B-promptPolicies	mkahlen: updated the actor to apply prompt policies
CCOIv2-REQ-328925/B-userActions	mkahlen: updated this requirement for the client server split that user actions are interpreted depending on the clients response
CCOIv2-REQ-328939/B-iconRules	bhamach3: requirement text correct, to match revised strategy (icon reference in PTE instead of CFM)
584644/B-User Friendly Messages content definition	bhamach3: header requirement added
CCOIv2-REQ-362575/A-header	bhamach3: Policy File header information added
CCOIv2-REQ-328953/B-initalPrompt	mkahlen: added the mapping between initial prompt and the received parameter from the server
CCOIv2-REQ-328962/B-menu	bhamach3: icon reference removed, as covered by PTE logic
CCOIv2-REQ-328975/B-error	mkahlen: added the mapping between error prompt and the received parameter from the server
CCOIv2-REQ-329020/B-information	mkahlen: added the mapping between information prompt and the received parameter from the server
617509/B-Service Config File content definition	bhamach3: header requirement added
CCOIv2-REQ-362576/A-header	bhamach3: Policy File header information added
CCOIv2-UC-REQ-306740/C-Network Disconnect	mkahlen: updated the use case so that it follows the generic update entity setting and does not replicate it
CCOIv2-UC-REQ-312154/C-Network Re-Connect	bhamach3: REQ reference updated
CCOIv2-REQ-309217/B-disconnect from network	bhamach3: reference to OnBoardSynchronization removed
CCOIv2-REQ-312693/C-Reset keeps Network Disconnect	bhamach3: REQ reference corrected
CCOIv2-REQ-312694/C-Reset enters Network Disconnect	bhamach3: REQ reference corrected
CCOIv2-REQ-312209/B-FTCP queue in disconnected state	bhamach3: reference to OnBoardSynchronization removed
CCOIv2-STR-506066/D-Appendix: Reference Documents	mkahlen: added soa, ftcp, gcf reference

Table of Contents

1 Terms and Definitions

Term	Definition
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.
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 blacklist received from CCS OnBoardPolicyServer
Policy-Governed Entity	*Data Element, Function, Feature, or Meta* which is managed by customer opt-in.
Portal	An interface via which changes to *Opt-In Status* can be made. Examples would be: – The HMI System – An App
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.

Term	Definition
– *ARMR Admin*	A user with admin privileges for the CCS ARMR backend to upload new CCS policy files to the CCSOffBoardPolicyClient.
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.

Table 1 – Glossary

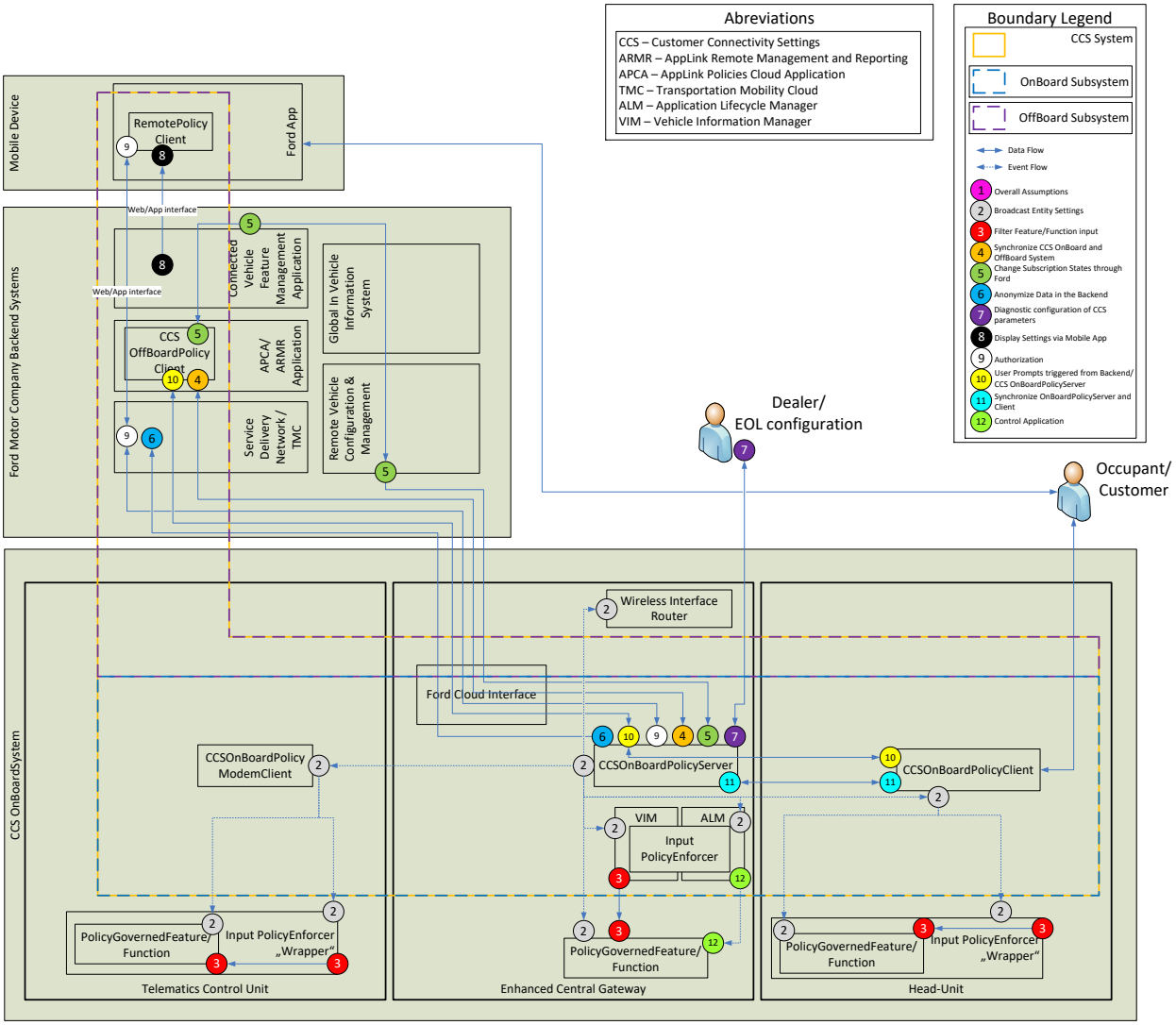
Abbreviation	Meaning
ALM	Application Lifecycle Manager, framework to securely install, launch, stop, upgrade, and uninstall applications on the ECG
ARMR	Applink Remote Management and Reporting
CCOI	Connectivity Customer Opt-In
CCS	Customer Connectivity Settings (used synonymously with CCOI)
CFM	Customer 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)

Table 2 – Abbreviations

2 Architectural Design

2.1 Boundary Diagram

2.1.1 CCOIv2-BD-REQ-362932/A-Customer Connectivity Settings



2.2 Interface Requirements

2.2.1 SOA Interface

2.2.1.1 CCOIv2-REQ-362874/A-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
SpcmCcsmBlacklistUpdateInd	Protobuf used to publish CCS blacklist to all interested parties
SpcmCcsmEntitySettingsReadReq	Protobuf used to read CCS entity settings

SpcmCcsmEntitySettingsReadResp	Protobuf used to respond to CCS entity settings read request
SpcmCcsmBlacklistReadReq	Protobuf used to read CCS blacklist
SpcmCcsmBlacklistReadResp	Protobuf used to respond to CCS blacklist 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
SpcmCcsmBlacklist	Message structure holder of blacklisted items
SpcmCcsmBlacklistType	Enumeration of different blacklist types

For message details see ECG SOA Proto File.

2.2.1.2 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.

2.2.1.3 CCOIv2-REQ-362876/A-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.

2.2.1.4 CCOIv2-MD-REQ-328083/B-AuthorizationStatus

Message Type: Status

This signal is used to distribute the Authorization status

Name	Literals	Value	Description
AuthorizationStatus	-	-	Current Authorization Status
	NotAuthorized	0x01	CCS System is Not Authorized
	Authorized	0x02	CCS System is Authorized

2.2.2 FTCP Interface

2.2.2.1 CCOIv2-REQ-362878/A-CCS FTCP Proto File

Name	Description
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)
EntitySettings	Message structure for customer's consent status per Feature/Meta
Entity	Message structure for Meta/Feature
EntityTypeENUM	Entity Type
CCSApplyModeEnum	Configuration event
CCSDataSynchronizationStateEnum	CCS Data Synchronization States
CCSData	Message structure for Customer Connectivity Settings
CCSSettingsUpdateCommand	Message structure for CCS command to publish ONLY customer settings from SDN/Cloud to Vehicle
CCSPoliciesAndSettingsUpdateCommand	Message structure for CCS command to publish CCS Policies and Settings
CCSUserPromptCommand	Message structure for CCS user prompt command
CCSSettingsUpdateCommandResponse	Message structure for CCS command response
CCSPoliciesAndSettingsUpdateCommandResponse	Message structure for CCSPoliciesAndSettingsUpdateCommand response
CCSUserPromptCommandResponse	Message structure for CCSUserPromptCommand response
CCSUpdateAlert	Message structure for correlated CCS Data Update alert. ECU(ECG/TCU) shall publish this alert as correlated alert for commands CCSPoliciesAndSettingsUpdateCommand and CCSSettingsUpdateCommand. ECU(ECG/TCU) shall set this as non-correlated alert when the settings are updated within the vehicle.
CCSUserPromptResponseAlert	Message structure for CCS User Prompt Repose alert

CCSUpdateQuery	Message structure for ECU(ECG/TCU) to get CCS Settings and policies from SDN/Cloud
CCSUpdateQueryResponse	Message Structure of CCSUpdateQuery Response

For message details see CCS FTCP Proto File.

2.2.2.2 CCOIv2-REQ-362879/A-Authorization FTCP Proto File

Name	Description
UserAuthorizationCommand	Message structure for User Authorization command
UserAuthorizationCommandResponse	Message structure for UserAuthorizationCommandResponse
UserAuthorizationResponseAlert	Message structure for User Auth Response Alert from the ECU(ECG/TCU) to the cloud
AuthorizationStatusChangeCommand	Command message structure to change ECG Authorization Status
AuthorizationStatusChangeCommandResponse	Message structure for AuthorizationStatusChangeCommandResponse

For details see Authorization FTCP Proto File.

2.2.3 Diagnostics Interface

2.2.3.1 Method 2

2.2.3.1.1 CCOIv2-REQ-296372/C-Diagnostics Parameters for CCS Communication Data

The table below lists all parameters for the CCOI distributed state machine 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	Affected Module
Revert_To_LastKnownGood_Amount_Retries	OnBoardPolicyServer
Maximum_Amount_of_Synchronizing_Retries	OnBoardPolicyServer
Minimum_Time_Spent_In_OnBoardDistributedStateMachineInconstistent	OnBoardPolicyServer
Timeout_TryingToEnter_DistributedState_Before_OnBoardDistributedStateMachineInconsistent	OnBoardPolicyServer
Minimum_Time_Spent_In_SynchronizationFailed	OnBoardPolicyServer
FTCPCCSDataUpdateQuery_Every_N_Cycle	OnBoardPolicyServer
FTCPCCSDataUpdateQuery_Interval	OnBoardPolicyServer

Table 3 – Diagnostics Parameters

2.2.3.1.2 CCOIv2-REQ-296379/B-Diagnostic Parameters for Active Policy Table

The table below lists all parameters for the generation of default policy tables that shall be accessible via diagnostic, the supplier, or by Ford via DET, EOL or OAT. The list of CCOI configurable parameters shall be identified in the CCOI Subsystem Specification Diagnostic Specification (Part 2).

CCOI Configurable Parameters	DID in Ford range	Configurable via supplier
display size	Yes (r/w)	Yes
Feature Bundle	Yes (r/w)	Yes

Table 4 – Diagnostic Parameters

2.2.3.1.3 CCOIv2-REQ-362675/A-Diagnostic Configuration Parameters for User Prompts

The table below lists all parameters for user prompts 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	Affected Module
UserPrompt_Retry_CycleCount	OnBoardPolicyServer
UserPrompt_Max_Cycles	OnBoardPolicyServer
UserPrompt_Relative_Expiration_Time_Days	OnBoardPolicyServer
UserPrompt_Relative_Expiration_Time_Hours	OnBoardPolicyServer
UserPrompt_Relative_Expiration_Time_minutes	OnBoardPolicyServer

Table 5 – Diagnostic Parameters

2.2.3.2 Method 3

2.2.3.2.1 CCOIv2-REQ-296378/A-Diagnostics Parameters for Meta Data

The table below lists the set of parameters that shall be accessible via diagnostics, the supplier, or by Ford via DET, EOL or OTA respectively, for each active policy table file carrying meta data. The list of CCOI configurable parameters shall be identified in the CCOI Subsystem Specification Diagnostic Specification (Part 2).

CCOI Configurable Parameters	Affected Module
PlatformVersion	OnBoardPolicyServer

CCOI Configurable Parameters	Affected Module
MajorVersion	OnBoardPolicyServer
MinorVersion	OnBoardPolicyServer
Timestamp	OnBoardPolicyServer
Hash	OnBoardPolicyServer

Table 6 – Diagnostics Parameters

2.2.3.3 GMRDB

2.2.3.3.1 CCOIv2-REQ-362881/A-CCS Server Synchronization State

The CCSOnBoardPolicyServer shall write the current state the CCSOnBoardPolicyServer is in (REQ-353995-OnBoardPolicyServer Synchronization State Transitions) to the following diagnostic parameter.

CCOI Configurable Parameters or Diagnostics Values	Affected Module
OnBoardPolicyServer_St	OnBoardPolicyServer

2.2.3.3.2 CCOIv2-REQ-296375/B-DTC due to DataStorageError

CCS OnBoardPolicyServer shall set DTC B156D-89 (CCS Data Storage Error) if OnBoardPolicyServer enters Synchronization state OnBoardPolicyServer_St = “DataStorageError”.

2.2.3.4 Engineering Tool

2.2.3.4.1 CCOIv2-REQ-296376/C-Diagnostics Parameters for Entity Settings

The table below lists the set of parameters that shall be accessible by supplier or Ford via internal developer tools. Once the parameter read-out got triggered, entity details for any know entity shall be provided sequentially.
As this parameter is not supposed to be readable via conventional diagnostic tools like DET, it will not be listed in the Diagnostic Specification (Part 2).

CCOI Configurable Parameters	Affected Module
EntityType	OnBoardPolicyServer
EntityID	OnBoardPolicyServer
FNV2FID	OnBoardPolicyServer

CCOI Configurable Parameters	Affected Module
bUAllow	OnBoardPolicyServer
bPAllow	OnBoardPolicyServer
bSAllow	OnBoardPolicyServer
bFPAllow	OnBoardPolicyServer
bAllow	OnBoardPolicyServer
consentSequenceId	OnBoardPolicyServer
consentTimestamp	OnBoardPolicyServer

Table 7 – Diagnostics Parameters

2.2.3.4.2 CCOIv2-REQ-362674/A-Diagnostic Parameters for Active User Prompts

The table below lists the set of parameters that shall be accessible by supplier or Ford via internal developer tools. Once the parameter read-out got triggered, user prompt details for any queued user prompt shall be provided sequentially.
As this parameter is not supposed to be readable via conventional diagnostic tools like DET, it will not be listed in the Diagnostic Specification (Part 2).

Diagnosable, i.e. Read-Only Value for Each User Prompt in Queue of Broker	Type
correlationID	Integer
screenID	Integer
PromptType	Integer
sText1	String
sText2	String
FTCPCommandReceivedTimestampSeconds	Integer
FTCPCommandReceivedTimestampMinutes	Integer
FTCPCommandReceivedTimestampHours	Integer

Diagnosable, i.e. Read-Only Value for Each User Prompt in Queue of Broker	Type
FTCPCommandReceivedTimestampDay	Integer
FTCPCommandReceivedTimestampMonth	Integer
FTCPCommandReceivedTimestampYear	Integer
ExpirationDateSeconds	Integer
ExpirationDateMinutes	Integer
ExpirationDateHours	Integer
ExpirationDateDay	Integer
ExpirationDateMonth	Integer
ExpirationDateYear	Integer
UserPromptCycles	Integer

Table 8 – Diagnostics Parameters

3 Functional Definition

3.1 CCOIv2-FUN-REQ-324870/C-Authorization

CCS Server contains the in-vehicle authorization logic and distributes the authorization state to any affected component. The authorization state may affect CCS menu appearance as per PTE rules and backend behavior like mobile app functionality.

3.1.1 Use Cases

3.1.1.1 CCOIv2-UC-REQ-296268/E-Authorize Mobile App

Linked Elements
CCOIv2-SD-REQ-321295/B-Avenue B full authorization

Actors	Mobile App User
Pre-conditions	-
Scenario Description	1. Mobile App User adds the vehicle's VIN in the mobile app 2. Mobile App User activates the vehicle's VIN in the mobile app 3. Continue with use case ref. REQ-355216 Prompt User to Get Driver's Consent 4. Continue with use case REQ-355207 Authorization Status Change
Post-conditions	-
List of Exception Use Cases	E1: 2a) Vehicle Connectivity (ID 1, Type 0) is overall disabled on the vehicle .1 The Mobile App prompts the user to enable vehicle connectivity .2 Skip step 3 and 4 from the Scenario Description E2: 4a) If the Driver has declined the user prompt in the use case REQ-355216 User Prompt to Get Driver's Consent or if the Fleet entity (ID 2, Type 1) is overall enabled on the vehicle .1 Skip step 4 from the Scenario Description
Interfaces	

3.1.1.2 CCOIv2-UC-REQ-325945/C-De-authorize Mobile App

Actors	Mobile App User
Pre-conditions	-
Scenario Description	1. Mobile App User removes the vehicle's VIN from the mobile app when no other Mobile App User has this vehicle's VIN in their mobile app 2. Continue with use case REQ-355207 Authorization Status Change
Post-conditions	-
List of Exception Use Cases	2b) Fleet Telematics is active on the vehicle .1 Skip step 2 from the Scenario Description
Interfaces	

3.1.1.3 CCOIv2-UC-REQ-326207/B-Authorize Fleet Telematics

Actors	Fleet Owner
Pre-conditions	-
Scenario Description	1. Fleet Owner subscribes the vehicle's VIN for Fleet Telematics in the Fleet Owner's portal 2. Continue with use case REQ-355207 Authorization Status Change

Post-conditions	-
List of Exception Use Cases	-
Interfaces	-

3.1.1.4 CCOIv2-UC-REQ-355963/A-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 2. Continue with use case REQ-355207 Authorization Status Change
Post-conditions	-
List of Exception Use Cases	-
Interfaces	

3.1.1.5 CCOIv2-UC-REQ-362630/A-Restore Authorization Status

Actors	CCSOnboardPolicyServer, Vehicle, Backend
Pre-conditions	
Scenario Description	1. Vehicle sends any FTCP message with current authorization status to Backend. 2. Backend notices that the vehicle has a different authorization status than the Backend. 3. Backend sends the correct authorization value to the CCSOnboardPolicyServer per UC-REQ-355207-Authorization Status Change
Post-conditions	CCSOnboardPolicyServer has the updated authorization value from the Backend
List of Exception Use Cases	
Interfaces	

3.1.1.6 CCOIv2-UC-REQ-355207/A-Authorization Status Change

Actors	Backend, CCSOffBoardPolicyClient, CCSOnboardPolicyServer, CCSOnboardPolicyClient, Driver, Dealer, Test Engineer
Pre-conditions	-
Scenario Description	1. Backend sends an Authorization Status Change Command to the CCSOnboardPolicyServer 2. CCSOnboardPolicyServer changes the authorization entity bit according to step 1 on the CCSOnboardPolicyServer 3. Continue with REQ-355983 Update Settings Onboard
Post-conditions	-
List of Exception Use Cases	
Interfaces	

3.1.2 Requirements

3.1.2.1 CCOIv2-REQ-324934/A-Authorization status change triggers

Authorization state changes may have various triggers:

- A retail customer triggering authorization via mobile app
- A fleet manager triggering authorization via Fleet telematics subscription
- A master reset / brand connect reset from vehicle triggering de-authorization
- Deleting last authorized user from mobile app triggering de-authorization

3.1.2.2 CCOIv2-REQ-324884/B-Authorization status change

CCS Server shall apply the authorization status received via FTCP message „AuthorizationStatusChangeCommand“ and shall reflect it with CCS entity „Authorized“.

3.1.2.2.1 CCOIv2-REQ-325856/B-Authorization enabled

When the CCSOnBoardPolicyServer receives a AuthorizationStatusChangeCommand with Authorization state = 1, then the CCSOnBoardPolicyServer shall set CCS „Authorized“ (ID 3, Type 0) entity bit bPAllow = enabled.

3.1.2.2.2 CCOIv2-REQ-325858/B-Authorization disabled

When the CCSOnBoardPolicyServer receives a AuthorizationStatusChangeCommand with Authorization state = 0, then the CCSOnBoardPolicyServer shall set CCS „Authorized“ (ID 3, Type 0) entity bit bPAllow = disabled.

3.1.2.2.3 CCOIv2-REQ-362522/A-Authorization Status Change while in DataStorageError

If CCS OnBoardPolicyServer is in state “DataStorageError”, and an Authorization Status Change Command is received, the CCS OnBoardPolicyServer shall not set the Authorization status (ref. CCOIv2-REQ-325856 - Authorization enabled, CCOIv2-REQ-325858 - Authorization disabled) and shall send the Command Response as “FAILED”.

3.1.2.3 CCOIv2-REQ-328716/A-Publish Authorization State

The current Authorization Status as per “Authorized” overall entity state bAllow shall be published in the vehicle enabling applications relying on the status (e.g. PAAKOnboardClient).

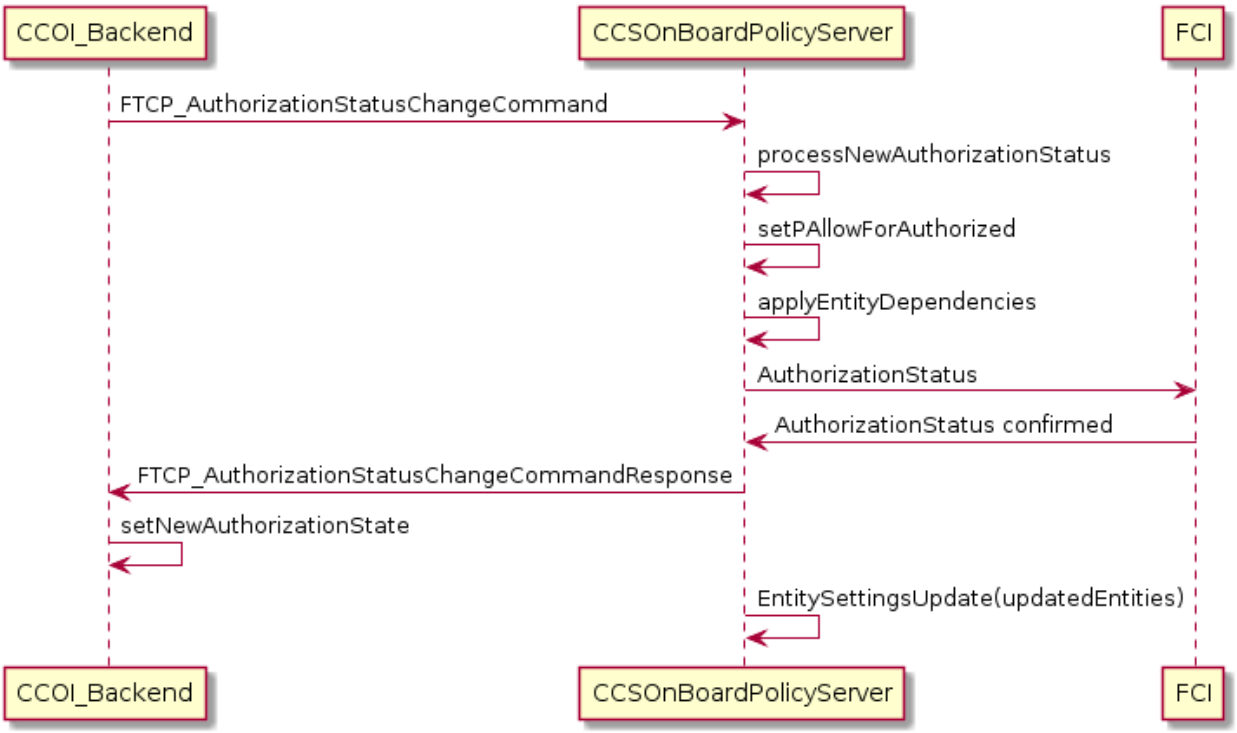
3.1.2.4 REQ-362810/A-Include Authorization Status in CommonFromVehicle

The CCSOnBoardPolicyServer shall ensure that the FCI populates the authorization status in CommonFromVehicle for every outgoing FTCP message according to the latest AuthorizationStatusChangeCommand before sending the AuthorizationStatusChangeCommandResponse.
If the FCI confirmed it will set the the authorization status in CommonFromVehicle the CCSOnBoardPolicyServer shall send the response as CommandStatusEnum = SUCCESS.
If the FCI failed to set the the authorization status in CommonFromVehicle the CCSOnBoardPolicyServer shall send the response as CommandStatusEnum = FAILED.

Rationale: FCI needs to populate the authorization state in CommonFromVehicle in every FTCP message. If a successful AuthorizationStatusChangeCommandResponse is sent before FCI is aware of the new authorization state and FCI sends an FTCP message without the new authorization flag in CommonFromVehicle this may retrigger a AuthorizationStatusChangeCommand from the Backend (per REQ-362630-Restore Authorization Status) potentially resulting in an endless loop.

3.1.3 Sequence Diagrams

3.1.3.1 CCOIv2-SD-REQ-325943/B-Receiving Authorization change



3.2 CCOIv2-FUN-REQ-362532/A-User Prompt and Modem activation (Server)

3.2.1 Use Cases

3.2.1.1 CCOIv2-UC-REQ-355216/A-Prompt User 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
Interfaces	GUI, SOA, FCI

3.2.2 Requirements

3.2.2.1 CCOIv2-REQ-313015/C-User Prompt Triggers

Examples of user prompts include:

Prompt	Scenario	Initiated by
Avenue A prompt	Activation of Modem	CCSOnBoardPolicyServer
Avenue B prompt	Authorization of Modem	Backend
Subscription prompt	Subscription to connected feature	CCSOffBoardPolicyClient
Revert Settings for Fleet Privacy	When a vehicle is enrolled for fleet telematics and a subscription for fleet telematics privacy settings is disabled a driver is informed about that privacy settings were re-set to ON	CCSOffBoardPolicyClient

All user prompt triggers are discussed in the following sub-requirements:

3.2.2.1.1 CCOIv2-REQ-296269/B-FTCP Command to Trigger UserPrompt

When the CCSOnBoardPolicyServer receives FTCP command CCSUserPromptCommand or UserAuthorizationCommand the CCSOnBoardPolicy shall send a response “IN_PROGRESS”.

3.2.2.1.1.1 CCOIv2-REQ-362656/A-Create Pending User Prompt: Off Board Triggered User Prompts

If the CCSOnBoardPolicyServer receives a CCSUserPromptCommand or a UserAuthorizationCommand where “screenId” and “promptType” are populated,
AND
the CCSOnBoardPolicyServer can still handle more user prompts (REQ-362655-Maximum Number of User Prompts)
AND
the CCSOnBoardPolicyServer is not in state “DataStorageError”

the CCSOnBoardPolicyServer shall create a pending user prompt with the following information from the received FTCP message:

Value (Received)	Pending User Prompt Inputs
cloudMessageId transformed per REQ-296272- Unique correlationID	correlationID
screenId	messageCode
elementName	variableText1
elementValue	variableText2
If received promptType = INITIAL_PROMPT, then promptType = SPCM_CCSM_PROMPT_TYPE_INITIAL_PROMPT	promptType
If received promptType = ERROR, then promptType = SPCM_CCSM_PROMPT_TYPE_ERROR	
If received promptType = INFORMATION, then promptType = SPCM_CCSM_PROMPT_TYPE_INFORMATION	

3.2.2.1.1.2 CCOIv2-REQ-362653/A-CCSUserPromptCommand: Fail when screenId or promptType Unknown

If the CCSOnBoardPolicyServer receives a CCSUserPromptCommand where “screenId” or “promptType” is not populated, the CCSOnBoardPolicyServer shall send the correlated alert as “FAILED” and shall not create a pending user prompt.

3.2.2.1.1.3 CCOIv2-REQ-318324/B-UserAuthorizationCommand: Fail when screenId or promptType Unknown

If the CCSOnBoardPolicyServer receives a UserAuthorizationCommand where the “screenId” or “promptType” is not populated, the CCSOnBoardPolicyServer shall send the correlated alert as “DENIED” and shall not create a pending user prompt.

3.2.2.1.1.4 CCOIv2-REQ-362655/A-Maximum Number of User Prompts

The CCSOnBoardPolicyServer shall be able to queue at least 10 concurrent FTCP user prompt requests. If the CCSOnBoardPolicyServer has already queued the maximum amount of requests and a new request is received, the CCSOnBoardPolicyServer shall not create a pending user prompt and

- If triggered by a CCSUserPromptCommand, the CCSOnBoardPolicyServer shall send a correlated CCSUserPromptResponseAlert to the CCSOnBoardPolicy server with responseCode = “FAILED”.
- If triggered by a UserAuthorizationCommand, the CCSOnBoardPolicyServer shall send a correlated UserAuthorizationResponseAlert to the CCSOnBoardPolicy server with authResponse = “DENIED”.

3.2.2.1.1.5 CCOIv2-REQ-296282/B-CCSUserPromptCommand: Fail in DataStorage Error

If the CCSOnBoardPolicyServer receives a CCSUserPromptCommand while in state “DataStorageError”, the CCSOnBoardPolicyServer shall not create a pending user prompt and send a correlated alert with responseCode = “FAILED”.

3.2.2.1.1.6 CCOIv2-REQ-362657/A-UserAuthorizationCommand: Fail in DataStorage Error

If the CCSOnBoardPolicyServer receives a UserAuthorizationCommand while in state “DataStorageError”, the CCSOnBoardPolicyServer shall not create a pending user prompt and send a correlated alert with responseCode = “DENIED”.

3.2.2.1.2 CCOIv2-REQ-362658/A-CCSOnBoardPolicyServer to Trigger UserPrompt

3.2.2.1.2.1 CCOIv2-REQ-306742/D-Create Pending User Prompt: Triggering Avenue A prompt

If all of the following conditions evaluate to FALSE

1) User already accepted or declined the Avenue A prompt since last reset

OR

2) Vehicle is in Factory or Transport Mode

OR

3) Fleet Telematics is overall enabled

EntityName	EntityType	EntityID	bAllow
Fleet	1	2	True

OR

4) VehicleConnectivity was overall enabled at least once since last Reset (ref. REQ-296415)

EntityName	EntityType	EntityID	bAllow
VehicleConnectivity	0	1	True

OR

5) Authorized is overall enabled

EntityName	EntityType	EntityID	bAllow
Authorized	0	3	True

OR

6) The CCSOnBoardPolicyServer is in state = “DataStorageError”

OR

7) There is already a pending user prompt to trigger Avenue A.

the CCSOnBoardPolicyServer shall create a pending user prompt for Avenue A with the following information.

If any of the conditions 1), OR 2) OR 3), OR 4) OR 5) evaluate to TRUE the CCSOnBoardPolicyServer shall delete the pending user prompt for Avenue A (i.e. with the following information).

Values	**Pending User Prompt Inputs**
correlationID per REQ-296272- Unique correlationID	correlationID
2	messageCode
“” – empty string	variableText1
“” – empty string	variableText2
SPCM_CCSM_PROMPT_TYPE_INITIAL_PROMPT	promptType

3.2.2.2 CCOIv2-REQ-362884/A-Retry Persistence of User Prompt

If the conditions to retry a user prompt evaluate to TRUE (REQ-362660-User Prompt Retry Conditions) the CCSOnBoardPolicyServer shall keep the pending user prompt and show it again on the next multiple of UserPrompt_Retry_CycleCount ignition cycles (REQ-296276-Retry every Multiple of Ignition Cycles).

3.2.2.2.1 CCOIv2-REQ-362660/A-User Prompt Retry Conditions

- (The driver selects “Ask me later” REQ-362671 – The driver selects “Ask me later”

OR

- The driver turns ignition OFF without making a choice (REQ-362672 - Driver Turns Ignition Off Without Making a Choice)

AND

- The user prompt was shown less than or equal to UserPrompt_Max_Cycles times (REQ-296276-Retry every Multiple of Ignition Cycles)

AND

- The user prompt did not time out out (REQ-362676 - User Prompt Commands Timeout , REQ-318318 - No Timeout for CCSOnBoardPolicyServer Triggered User Prompts)

AND

- The CCSOnBoardPolicyServer is not in state “DataStorageError”

3.2.2.2.1.1 CCOIv2-REQ-362671/A-Driver Selects Ask me later

The CCSOnBoardPolicyServer receives a correlated SpcmCcsmUserPromptResp with promptResult = “SPCM_CCSM_PROMPT_RESULT_SELECT_ASKMELATER”.

3.2.2.2.1.2 CCOIv2-REQ-362672/A-Driver Turns Ignition Off Without Making a Choice

The CCSOnBoardPolicyServer did not receive a correlated SpcmCcsmUserPromptResp for a pending user prompt until the Driver turns ignition OFF.

3.2.2.2.1.3 CCOIv2-FUR-REQ-296276/B-Retry every Multiple of Ignition Cycles

Name	Description
UserPrompt_Retry_CycleCount	The UserPromptBroker shall continue to retry issuing UserPrompt_Rq every configurable multiple of ignition cycles.

Ref. REQ-362675-User Prompt Configuration

3.2.2.2.1.4 CCOIv2-FUR-REQ-296277/B-Maximum Number of Ignition Cycles within which Retry Occurs

Name	Description
UserPrompt_Max_Cycles	The maximum number of ignition cycles, within which UserPromptBroker retries to issue a UserPrompt_Rq. If the value is 255, UserPromptBroker shall not be limited in the number of retries.

Ref. REQ-362675-User Prompt Configuration

3.2.2.2.1.5 CCOIv2-REQ-362676/A-User Prompt Commands Timeout

The CCSOnBoardPolicyServer shall consider user prompt commands as timed out when the time since the command was received is at least UserPrompt_Relative_Expiration_Time (REQ-362675-User Prompt Configuration).

3.2.2.2.1.6 CCOIv2-REQ-318318/C-No Timeout for CCSOnBoardPolicyServer Triggered User Prompts

For user prompts triggerd by the CCSOnBoardPolicyServer, (REQ-362658-CCSOnBoardPolicyServer to Trigger UserPrompt), the CCSOnBoardPolicyServer shall not consider the parameter UserPrompt_Relative_Expiration_Time timeout when retrying to show the user prompts.

3.2.2.3 CCOIv2-REQ-362677/A-User Prompt Display Not Possible

3.2.2.3.1 CCOIv2-REQ-362678/A-User Prompt Timeout Conditions

- (The driver selects “Ask me later” REQ-362671-Driver Selects Ask me later

OR

- The driver turns ignition OFF without making a choice REQ-362672-Driver Turns Ignition Off Without Making a Choice)

AND

- (The user prompt was shown more than UserPrompt_Max_Cycles times REQ-296276-Retry every Multiple of Ignition Cycles

OR

- The user prompt timed out (REQ-362676-User Prompt Commands Timeout, REQ-318318-No Timeout for CCSOnBoardPolicyServer Triggered User Prompts)

Note: when the timeout expires while the user prompt is displayed on the client and the user makes a choice then the user choice shall still be accepted and reported in the alert per REQ-296273-Upload of User Prompt Response.

3.2.2.3.1.1 CCOIv2-REQ-296271/B-CCSUserPromptCommand: Timeout

If the User Prompt Timeout Conditions for a CCSUserPromptCommand evaluate to TRUE (REQ-362677-User Prompt Display Not Possible) the CCSOnBoardPolicyServer shall send a correlated CCSUserPromptResponseAlert to the CCSOffBoardPolicyClient with responseCode = “TIMEOUT” and remove the corresponding pending user prompt.

3.2.2.3.1.2 CCOIv2-REQ-318585/B-UserAuthorizationCommand: Timeout

If the User Prompt Timeout Conditions for a UserAuthorizationCommand evaluate to TRUE (REQ-362678-User Prompt Timeout Conditions) the CCSOnBoardPolicyServer shall send a correlated UserAuthorizationResponseAlert to the Backend with authResponse = “DENIED” and remove the corresponding pending user prompt.

3.2.2.3.1.3 CCOIv2-REQ-318586/C-OnBoardPolicyServer triggered prompt: Timeout

If the User Prompt Timeout Conditions for a user prompt triggered by the OnBoardPolicyServer evaluate to TRUE (REQ-362678-User Prompt Timeout Conditions) the CCSOnBoardPolicyServer shall remove the corresponding pending user prompt and consider the user prompt as declined.

3.2.2.4 CCOIv2-REQ-296275/C-Effect of Master Reset on pending prompt requests

If the CCSOnBoardPolicyServer receives a reset (Master Rest, Brand Connected Reset or ClearUserSettingsCommand), the following steps shall be applied for each pending user prompt:

- The CCSOnBoardPolicyServer shall remove the pending user prompt.
- If triggered by a UserAuthorizationCommand, the CCSOnBoardPolicyServer shall send a correlated UserAuthorizationResponseAlert to the CCSOnBoardPolicy server with authResponse = “DENIED”.
- If triggered by a CCSUserPromptCommand, the CCSOnBoardPolicyServer shall send a correlated UserAuthorizationResponseAlert to the CCSOnBoardPolicy server with responseCode = “SELECT_NO”.

3.2.2.5 CCOIv2-REQ-362679/A-User Prompt when Server Transitions to Data Storage Error

If the CCSOnBoardPolicyServer transitions to the state “DataStorageError”, the following steps shall be applied for each pending user prompt:

- the CCSOnBoardPolicyServer shall remove the pending user prompt.
- If triggered by a UserAuthorizationCommand, the CCSOnBoardPolicyServer shall send a correlated UserAuthorizationResponseAlert to the CCSOnBoardPolicy server with authResponse = “DENIED”.
- If triggered by a CCSUserPromptCommand, the CCSOnBoardPolicyServer shall send a correlated UserAuthorizationResponseAlert to the CCSOnBoardPolicy server with responseCode = “FAILED”.

3.2.2.6 CCOIv2-REQ-296280/B-Send Pending User Prompt to Client

If

- the CCSOnBoardPolicyClient is ready to show user prompts (HMIMode_St = ON)

AND

- the CCSOnBoardPolicyServer is in state Synchronized

the CCSOnBoardPolicyServer shall send a SpcmCcsmUserPromptReq to the CCSOnBoardPolicyClient for each pending user prompt requests.

3.2.2.6.1 CCOIv2-REQ-296272/C-Unique correlationID

The CCSOnBoardPolicyServer shall create a unique correlationID for every pending user prompt. If the user prompt was triggered from the backend (REQ-296269 - FTCP Command to Trigger UserPrompt) the CCSOnBoardPolicyServer shall maintain a mapping to the corresponding cloudMessageId.

Rationale: using the cloudMessageId from a command is not a unique identifier for onboard user prompts as there is a chance that the CCSOnBoardPolicyServer creates the same correlationID for an onboard triggered user prompt. Unique identifiers are important to track what prompt a driver gives consent for.

3.2.2.7 CCOIv2-REQ-362680/A-Clients User Prompt Response Handling

3.2.2.7.1 CCOIv2-REQ-296292/D-Effects of Accepting or Declining a UserPrompt

If the CCSOnBoardPolicyServer receives a SpcmCcsmUserPromptResp from the CCSOnBoardPolicyClient with promptResult = ("SPCM_CCSM_PROMPT_RESULT_SELECT_NO" OR "SPCM_CCSM_PROMPT_RESULT_SELECT_YES"), the CCSOnBoardPolicyServer shall apply the effects defined in the PTE file per REQ-328921.

3.2.2.7.1.1 CCOIv2-REQ-362681/A-Persisting Entity Setting Change Not Possible

If the CCSOnBoardPolicyServer cannot persist the entity settings (REQ-362603-Persist Entity Settings) the CCSOnBoardPolicyServer shall send a correlated alert. In case of UserAuthorizationResponseAlert send DENIED, in case of UserAuthorizationCommand send FAILED.

3.2.2.7.1.2 CCOIv2-REQ-362682/A-Applying Dependencies Not Possible

If the CCSOnBoardPolicyServer cannot apply the dependencies (REQ-296883-Dependency on Policy Table Extension) the CCSOnBoardPolicyServer shall send a correlated alert. In case of UserAuthorizationResponseAlert send DENIED, in case of UserAuthorizationCommand send FAILED.

3.2.2.8 CCOIv2-REQ-296273/C-Upload of User Prompt Response

If the CCSOnBoardPolicyServer receives a SpcmCcsmUserPromptResp from the CCSOnBoardPolicyClient
AND
the CCSOnBoardPolicyServer has applied the effects where applicable (REQ-296292-Effects of Accepting or Declining a UserPrompt)

the CCSOnBoardPolicyServer shall inform the Backend as follows:

3.2.2.8.1 CCOIv2-REQ-362683/A-CCSUserPromptCommand: Upload of User Prompt Response

If the CCSOnBoardPolicyServer receives a SpcmCcsmUserPromptResp from the CCSOnBoardPolicyClient, which was originally triggered by a CCSUserPromptCommand, the CCSOnBoardPolicyServer shall send a correlated CCSUserPromptResponseAlert with the responseCode from the column Outgoing via FTCP:

Received from CCSOnBoardPolicyClient (promptResult)	**Action**	**Outgoing via FTCP (responseCode)**
SPCM_CCSM_PROMPT_RESULT_FAILED	Send Alert	FAILED
SPCM_CCSM_PROMPT_RESULT_TIMEOUT	N/A (promptResult not used by client)	-
SPCM_CCSM_PROMPT_RESULT_SELECT_NO	Send Alert	SELECT_NO
SPCM_CCSM_PROMPT_RESULT_ SELECT_ASKMELATER	Do not send Alert	-
SPCM_CCSM_PROMPT_RESULT_SELECT_YES	Send Alert	SELECT_YES

SPCM_CCSM_PROMPT_RESULT_ SELECT_YES_PLUS_OPTIONAL	N/A (promptResult not used by client)	-
SPCM_CCSM_PROMPT_RESULT_DISPLAYED	Send Alert	DISPLAYED

3.2.2.8.2 CCOIv2-REQ-362684/A-UserAuthorizationCommandResponse: Upload of User Prompt Response

If the CCSOnBoardPolicyServer receives a SpcmCcsmUserPromptResp from the CCSOnBoardPolicyClient, which was originally triggered by a UserAuthorizationCommand, the CCSOnBoardPolicyServer shall send a correlated UserAuthorizationResponseAlert with the responseCode from the column Outgoing via FTCP:

Received from CCSOnBoardPolicyClient (promptResult)	**Action**	**Outgoing via FTCP (authResponse)**
SPCM_CCSM_PROMPT_RESULT_FAILED	Send Alert	DENIED
SPCM_CCSM_PROMPT_RESULT_TIMEOUT	N/A (promptResult not used by client)	-
SPCM_CCSM_PROMPT_RESULT_SELECT_NO	Send Alert	DENIED
SPCM_CCSM_PROMPT_RESULT_SELECT_ASKMELATER	Do not send Alert	-
SPCM_CCSM_PROMPT_RESULT_SELECT_YES	Send Alert	ALLOWED
SPCM_CCSM_PROMPT_RESULT_SELECT_YES_ PLUS_OPTIONAL	N/A (promptResult not used by client)	-
SPCM_CCSM_PROMPT_RESULT_DISPLAYED	N/A (promptResult not for consent prompts)	-

3.2.2.8.3 CCOIv2-REQ-362685/A-OnBoardPolicyServer triggered prompt: No Upload of User Prompt Response

If the CCSOnBoardPolicyServer receives a SpcmCcsmUserPromptResp from the CCSOnBoardPolicyClient, which was originally triggered by the CCSOnBoardPolicyServer, the CCSOnBoardPolicyServer shall not send an alert to the backend.

3.2.2.9 CCOIv2-REQ-362686/A-Performance Requierements

3.2.2.9.1 CCOIv2-REQ-362687/A-Time to Display User Prompts

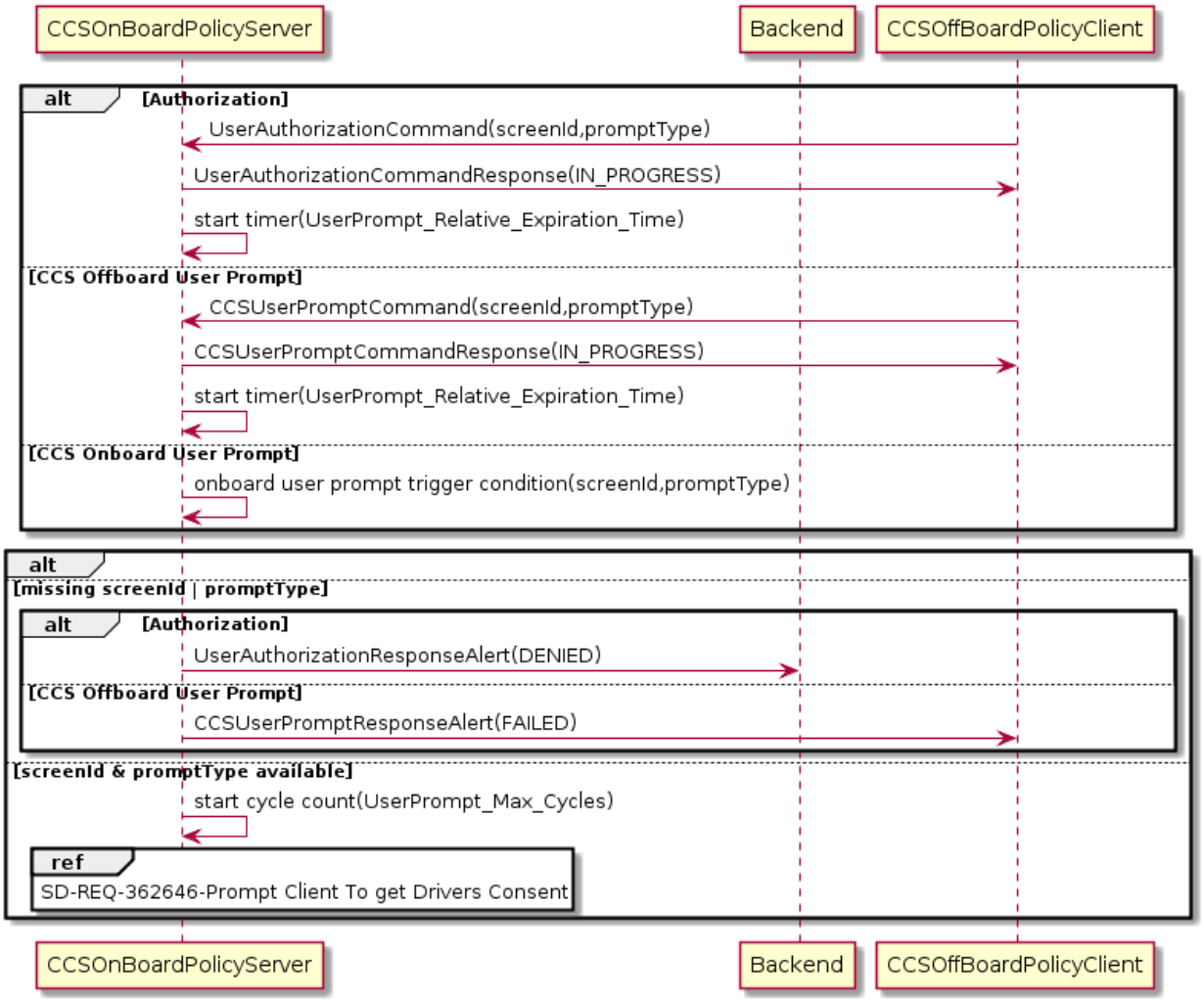
- If HMIMode_St = ON AND CCSOnBoardPolicyServer is in state Synchronized, the CCSOnBoardPolicyServer shall send the SpcmCcsmUserPromptReq within 1 second of receiving the trigger for a user prompt.

- If
  (HMIMode_St = ON AND CCSOnBoardPolicyServer transitions to state Synchronized)
  OR
  (HMIMode_St transitions to ON AND CCSOnBoardPolicyServer is in state Synchronized)

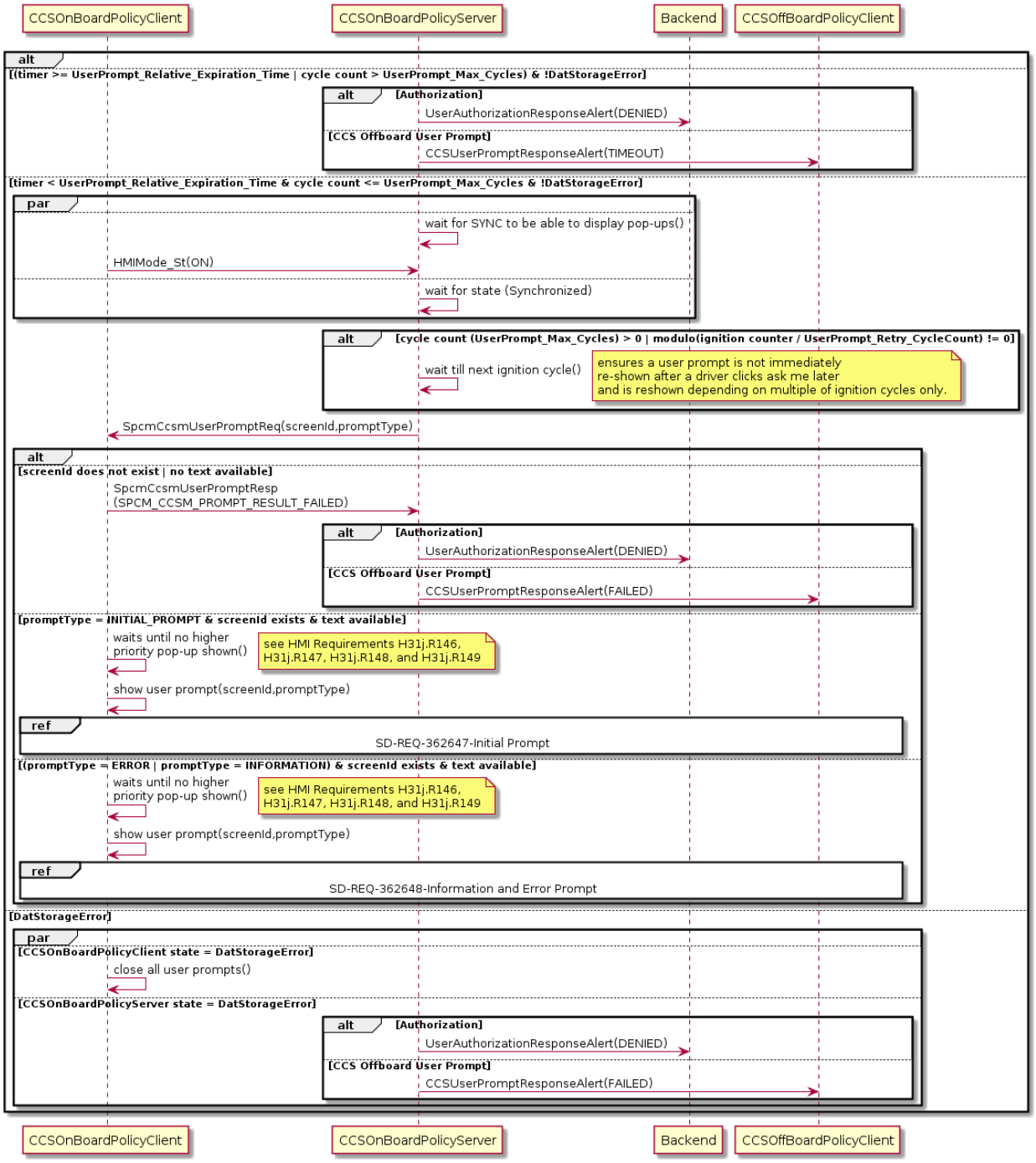
  the CCSOnBoardPolicyServer shall send pending user prompts per SpcmCcsmUserPromptReq within 1 second after the transition.

3.2.3 Sequence Diagrams

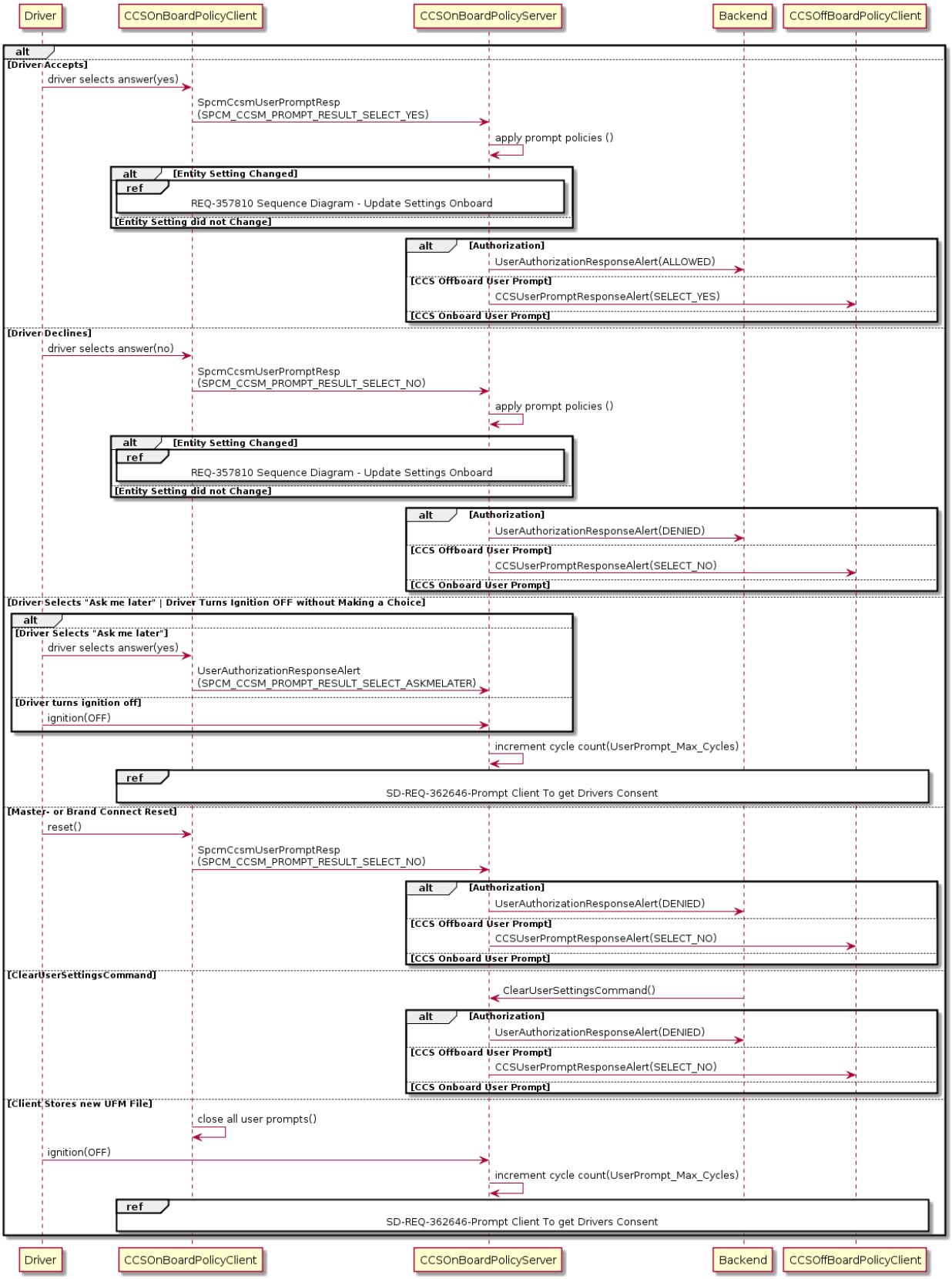
3.2.3.1 CCOIv2-SD-REQ-362645/A-Prompt Server To get Drivers Consent



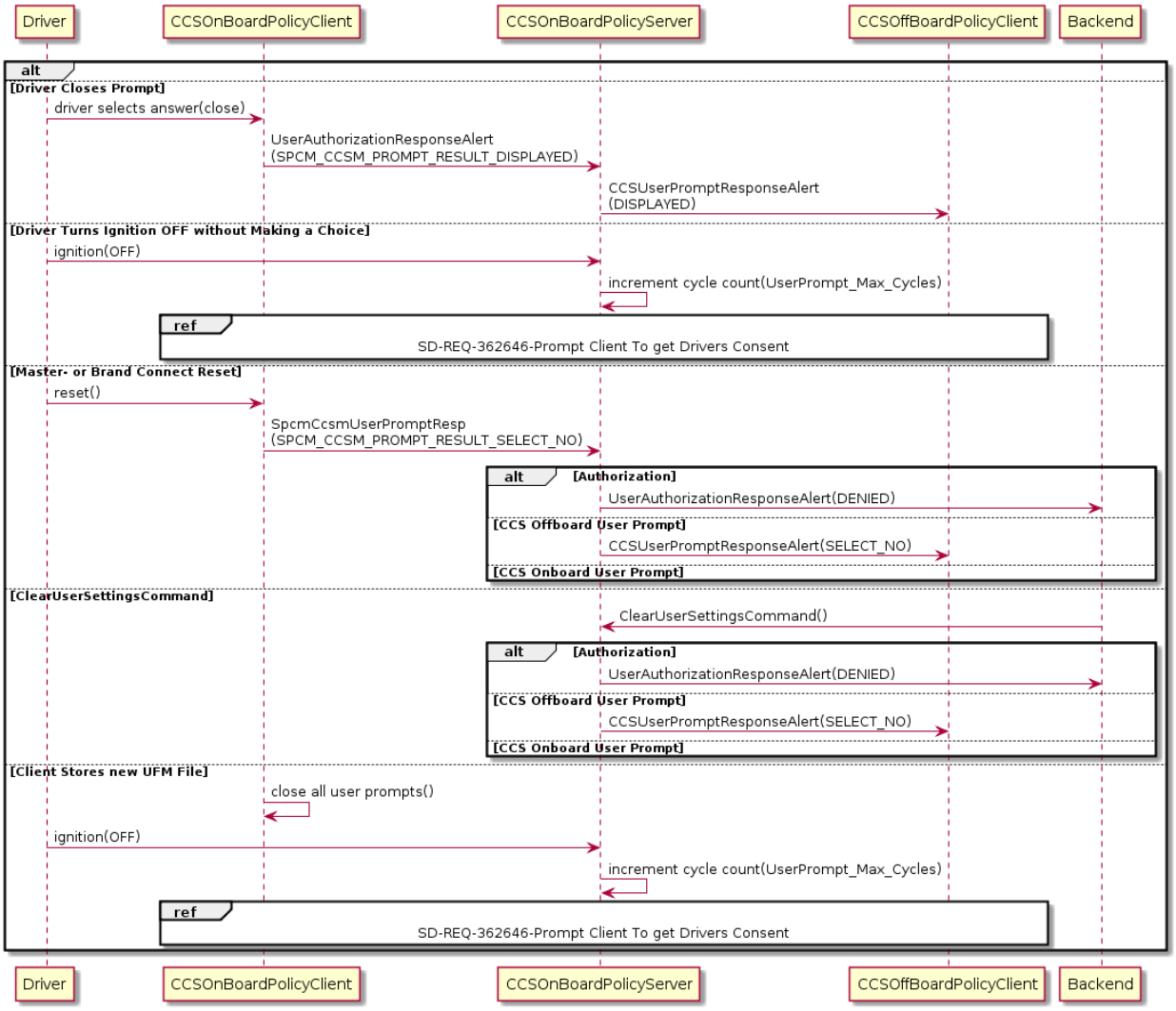
3.2.3.2 CCOIv2-SD-REQ-362646/A-Prompt Client To get Drivers Consent



3.2.3.3 CCOIv2-SD-REQ-362647/A-Initial Prompt



3.2.3.4 CCOIv2-SD-REQ-362648/A-Information and Error Prompt



3.3 CCOIv2-FUN-REQ-355020/A-OffBoardSynchronization (Server)

3.3.1 Use Cases

3.3.1.1 CCOIv2-UC-REQ-355220/A-Query on Ignition Cycle

Actors	Driver, CCS OffBoardPolicyClient, CCS OnBoardPolicyServer
Pre-conditions	Provisioning status is provisioned CCS OnBoard System is started Communication channel to Backend is established
Scenario Description	1. Driver turns on ignition 2. Configurable multiple of ignition cycles is reached 3. CCS OnBoardPolicyServer initiates Query procedure, ref. UC-REQ-355281
Post-conditions	
List of Exception Use Cases	E1: 2a) Current ignition cycle is not multiple of configured ignition cycle .1 Skip step 3.
Interfaces	

3.3.1.2 CCOIv2-UC-REQ-355221/A-Query on Entity "Authorized" enabled

Actors	Backend, CCS OffBoardPolicyClient
Pre-conditions	Provisioning status is provisioned CCS OnBoard System is started Communication channel to Backend is established
Scenario Description	1. Backend sends AuthorizationStatusChangeCommand 2. CCS Entity “Authorized” changes to overall enabled state 3. CCS OnBoardPolicyServer initiates Query procedure, ref. UC-REQ-355281
Post-conditions	
List of Exception Use Cases	E1: 2a) CCS Entity “Authorized” changes to overall disabled state .1 Skip step 3.
Interfaces	

3.3.1.3 CCOIv2-UC-REQ-355222/A-Query on Entity "VehicleConnectivity" enabled

Actors	Driver, CCS OffBoardPolicyClient
Pre-conditions	Provisioning status is provisioned CCS System is started Communication channel to Backend is established
Scenario Description	1. Driver enables CCS Entity “VehicleConnectivity” 2. CCS OnBoardPolicyServer initiates Query procedure, ref. UC-REQ-355281
Post-conditions	
List of Exception Use Cases	E1: 2a) CCS Entity “VehicleConnectivity” changes to overall disabled state .1 Skip step 3.
Interfaces	

3.3.1.4 CCOIv2-UC-REQ-355223/A-Query on Provisioning

Actors	Dealer, Factory, CCS OffBoardPolicyClient
Pre-conditions	
Scenario Description	1. Dealer OR Factory provisions ECG 2. CCS OnBoardPolicyServer starts up for the first time after provisioning 3. Communication channel to Backend is established 4. CCS OnBoardPolicyServer initiates Query procedure, ref. UC-REQ-355281
Post-conditions	
List of Exception Use Cases	E1: 4a) Entity VehicleConnectivity default state for current LifeCycle Mode is overall disabled .1 Skip step 3,4, no communication with Backend possible
Interfaces	

3.3.1.5 CCOIv2-UC-REQ-362272/A-Query on DataStorageError

Actors	CCS OnBoardPolicyServer, CCS OffBoardPolicyClient
Pre-conditions	
Scenario Description	1. CCS OnBoardPolicyServer transitions to synchronization state “Waiting” and performs Consistency Check (ref. REQ-296293) 2. Consistency Check fails and CCS OnBoardPolicyServer transitions to “DataStorageError” 3. CCS OnBoardPolicyServer initiates Query procedure, ref. UC-REQ-355281
Post-conditions	
List of Exception Use Cases	E1: 4a) Entity VehicleConnectivity state is overall disabled – no communication with Backend possible .1 Skip step 3. .2 CCS OnBoardPolicyServer remains in State “DataStorageError”
Interfaces	

3.3.1.6 CCOIv2-UC-REQ-355281/A-Update Query

Actors	CCS OnBoardPolicyServer, CCS OffBoardPolicyClient
Pre-conditions	CCS System is started and synchronized Communication channel to Backend is established Query trigger condition applies
Scenario Description	1. CCS OnBoardPolicyServer sends CCSUpdateQuery 2. CCS OffBoardPolicyClient holds a policy file update for any policy file type OR new entity settings 3. CCS OffBoardPolicyClient sends query response with up to three policy files OR new entity settings
Post-conditions	CCS OnBoardPolicyServer holds new policy files for consistency check, ref. UC-REQ-349197
List of Exception Use Cases	E1: 2a) Meta data from CCSUpdateQuery match to latest policy files on OffBoardPolicyClient .1 CCS OffBoardPolicyClient sends query response as confirmation without any policy file payload E2: 2b) Entity Settings from CCSUpdateQuery match to settings record on CCSOffBoardPolicyClient .1 CCS OffBoardPolicyClient sends query response as confirmation without entity settings

Interfaces	

3.3.1.7 CCOIv2-UC-REQ-355711/A-Update Command

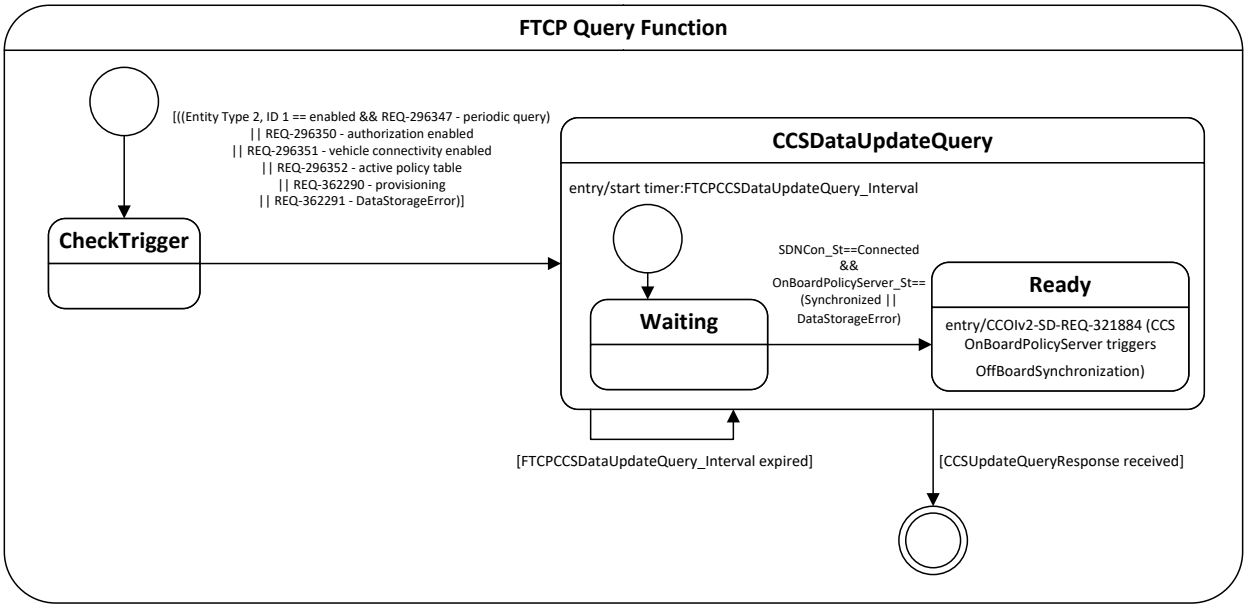
Actors	CCS OffBoardPolicyClient, CCS OnBoardPolicyServer
Pre-conditions	
Scenario Description	1. ARMR Admin uploads new policy file via CCS OffBoardPolicyClient User Interface 2. CCS OffBoardPolicyClient checks if updated policy files match to the active policy file on CCS OnBoardPolicyServer (VIN specific) 3. CCS OffBoardPolicyClient sends Policies Update Command with up to three new policy files
Post-conditions	
List of Exception Use Cases	E1: 2a) Updated policy content does not match to active policy files on CCS OnBoardPolicyServer .1 Skip step 3.
Interfaces	

3.3.1.8 CCOIv2-UC-REQ-349197/A-Policy File Consistency Check

Actors	CCS OffBoardPolicyClient, CCS OnBoardPolicyServer
Pre-conditions	OnBoardPolicyServer received QueryResponse or Command from OffBoardPolicyClient
Scenario Description	1. OnBoardPolicyServer checks, if the information received from OffBoardPolicyClient has valid content and format (ref. CCOIv2-REQ-355219 - Server Consistency Check) 2. Consistency check is successful 3. OnBoardPolicyServer processes QueryResponse or Command depending on content (ref. REQ-362282, REQ-355212)
Post-conditions	
List of Exception Use Cases	E1: 2a. Any consistency check step fails 1. CCS OnBoardPolicyServer rejects received file(s) and keeps LastKnownGood copy. 2. Response is sent to CCSOffBoardPolicyClient as “FAILED”.
Interfaces	

3.3.2 Requirements (Server)

3.3.2.1 CCOIv2-STM-REQ-296345/D-FTCP Query Function



3.3.2.2 CCOIv2-REQ-361939/A-Query Trigger Conditions

3.3.2.2.1 CCOIv2-REQ-296343/C-FTCP Periodic Query Policy Governed Function

The periodic CCSDataUpdateQuery shall only be executed, if the corresponding entity CCOIPeriodicQuery is overall enabled.

3.3.2.2.2 CCOIv2-REQ-296347/C-OffBoard Synchronization FTCP Periodic Query Configurable Frequency

The periodic CCSDataUpdateQuery shall only be executed in a configurable multiple of ignition cycles. If this value is set to zero, periodic queries shall be disabled permanently (ref. REQ-296372, FTCPCCSDataUpdateQuery_Every_N_Cycle).

3.3.2.2.3 CCOIv2-REQ-296350/B-OffBoard Synchronization FTCP Query Trigger Upon Authorized enabled

The CCS OnBoardPolicyServer shall trigger an OffBoardSynchronization via CCSDataUpdateQuery, once the meta entity Authorized transitioned to overall enabled.

3.3.2.2.4 CCOIv2-REQ-296351/B-OffBoard Synchronization FTCP Query Trigger Upon VehicleConnectivity enabled

The CCS OnBoardPolicyServer shall trigger an OffBoardSynchronization via CCSDataUpdateQuery, once the meta entity VehicleConnectivity transitioned to overall enabled.

3.3.2.2.5 CCOIv2-REQ-296352/B-OffBoard Synchronization FTCP Query Trigger Upon New Policy Table Selection

The CCS OnBoardPolicyServer shall trigger an OffBoardSynchronization via CCSDataUpdateQuery after a change of language or display size and selection of active policy table (ref. REQ-296316).

3.3.2.2.6 CCOIv2-REQ-362290/A-OffBoard Synchronization FTCP Query Trigger Upon Provisioning

The CCS OnBoardPolicyServer shall trigger an OffBoardSynchronization via CCSDataUpdateQuery, once ECG Provisioning state changed to “Provisioned”.

3.3.2.2.7 CCOIv2-REQ-362291/A-OffBoard Synchronization FTCP Query Trigger Upon DataStorageError

The CCS OnBoardPolicyServer shall trigger an OffBoardSynchronization via CCSDataUpdateQuery, once CCS System entered state “DataStorageError”.

3.3.2.3 CCOIv2-REQ-362294/A-Query FTCP message preconditions

CCS OnBoardPolicyServer shall only continue with the OffBoardSynchronization (ref. SD-REQ-321884), if a Connection to the CCS OffBoardPolicyClient is established and the OnBoardSynchronization State Machine is state Synchronized or DataStorageError.

3.3.2.4 CCOIv2-REQ-296348/C-OffBoard Synchronization FTCP Query Retry Configurable Interval

Once state CCSDataUpdateQuery was entered, the CCS OnBoardPolicyServer shall re-enter the same state CCSDataUpdateQuery when a configurable timeout expires (REQ-296372, FTCPCCSDataUpdateQuery_Interval), if the response was not received or was not successfully processed (ref. CCOIv2-STM-REQ-296345).

3.3.2.5 CCOIv2-REQ-296339/B-OffBoard Synchronization FTCP Update Command with Pending Update

If CCS OnBoardPolicyServer received an FTCP command to update data as part of the off board synchronization and did not send a correlated Alert yet, for any further command of the same type the CCS OnBoardPolicyServer shall

- Send a command response as FAILED with no ErrorDetail
- Send a correlated alert that contains the meta data of the active policy files of CCS OnBoardPolicyServer

3.3.2.6 CCOIv2-REQ-355219/A-Server Consistency Check

As part of the OffBoardSynchronization, CCS Policy File or entity setting bUAllow (Opt-in) updates can be received from CCS OffBoardPolicyClient via CCSPoliciesAndSettingsUpdateCommand, CCSSettingsUpdateCommand or CCSUpdateQueryResponse.
Any data received via above FTCP messages must be checked for consistency. CCS Server may only use the received data, if the following consistency checks are successful.

3.3.2.6.1 CCOIv2-REQ-296338/D-meta data check for completeness

CCS OnBoardPolicyServer shall only process an FTCP command or query response to update data during the off board synchronization, if meta data of all active policy files PTE, CFM and SCF are included.

3.3.2.6.1.1 CCOIv2-REQ-355930/A-Error code for incomplete Meta Data

If meta data of any policy file is missing, the CCS OnBoardPolicyServer shall in case of a Command

- Send a command response as FAILED with ErrorCode = CCS_META_DATA_MISMATCH
- Send a correlated alert that contains the meta data of the active policy files of CCS OnBoardPolicyServer.

In case of a Query Response CCS OnBoardPolicyServer shall not process the Query Response any further.

3.3.2.6.2 CCOIv2-REQ-318484/C-entity settings check for completeness

If entity settings are present in an FTCP message, CCS OnBoardPolicyServer shall only process inputs, which contain the complete list of all meta and feature entities defined in policy files.

3.3.2.6.2.1 CCOIv2-REQ-318486/B-Error code for incomplete settings

If entity settings are present in an FTCP command or query response and not all known entities are contained, the CCS OnBoardPolicyServer shall in case of a Command

- Send a command response as FAILED with no ErrorCode
- Send a correlated alert that contains the currently applied entity settings details.

In case of a Query Response CCS OnBoardPolicyServer shall not process the Query Response any further.

3.3.2.6.2.2 CCOIv2-REQ-319299/B-Error code for unknown entities

If entity settings are present in an FTCP command or query response and unknown entities are present, the CCS OnBoardPolicyServer shall in case of a Command

- Send a command response as FAILED with no ErrorCode
- Send a correlated alert that contains the currently applied entity settings details.

In case of a Query Response CCS OnBoardPolicyServer shall not process the Query Response any further.

3.3.2.6.3 CCOIv2-REQ-355961/A-consentSequenceId check

CCS OnBoardPolicyServer shall only process an update for an entity setting bUAllow via FTCP command or query response, if the consentSequenceId in the FTCP packet is larger than the current consentSequenceId associated with the entity.

3.3.2.6.4 CCOIv2-REQ-355964/A-meta data comparison to active policy table

With each OffBoardSynchronization process, CCS OnBoardPolicyServer shall compare the received meta data (REQ-296313) to the active meta data on the CCS OnBoardPolicyServer:

3.3.2.6.4.1 CCOIv2-REQ-355977/A-OffBoardSynchronization without policy file

If an OffBoardSynchronization process was initiated via Command or QueryResponse without policy file payload, CCS OnBoardPolicyServer shall only process the input, if the received meta data is the same as the meta data of the active policy file on the CCS OnBoardPolicyServer.

3.3.2.6.4.1.1 CCOIv2-REQ-296340/B-Error code for mismatching meta data

If CCS data was received without policy file payload and the meta data of the active policy file on the CCS OnBoardPolicyServer is not the same as the received meta data, the CCS OnBoardPolicyServer shall in case of a Command

- Send a command response as FAILED with ErrorCode = CCS_META_DATA_MISMATCH
- Send a correlated alert that contains the meta data of the active policy files of CCS OnBoardPolicyServer.

In case of a Query Response CCS OnBoardPolicyServer shall not process the Query Response any further.

3.3.2.6.4.2 CCOIv2-REQ-296341/B-OffBoardSynchronization with policy file

If an OffBoardSynchronization process was initiated and contains at least one policy file, CCS OnBoardPolicyServer shall only process the input, if the Platform and Major Version of the received meta data is the same as the corresponding currently active policy table meta data on the CCS OnBoardPolicyServer.

Rationale: Thereby it is made sure, that only policy files are transferred to the CCS client, which match to the correct feature bundle, equipped screen and currently selected language.

3.3.2.6.4.2.1 CCOIv2-REQ-355978/A-Error code for mismatching Platform or Major version

If CCS data was received with at least one policy file and the meta data Platform or Major version of the active policy file on the CCS OnBoardPolicyServer is not the same as the received meta data Platform or Major version, the CCS OnBoardPolicyServer shall in case of a Command

- Send a command response as FAILED with ErrorCode = CCS_META_DATA_MISMATCH
- Send a correlated alert that contains the meta data of the active policy files of CCS OnBoardPolicyServer.

In case of a Query Response CCS OnBoardPolicyServer shall not process the Query Response any further.

3.3.2.6.5 CCOIv2-REQ-355965/A-hash value check

If an OffBoardSynchronization process was initiated via Command or QueryResponse including at least one policy file, the CCS OnBoardPolicyServer shall decompress any of the received policy files and calculate the hash value(s). The CCS OnBoardPolicyServer shall not process any of the received policy files, if the calculated hash and the received hash value as part of the policy file meta data (ref. REQ-296313) are not the same for at least one file.

3.3.2.6.5.1 CCOIv2-REQ-355973/A-Error code for hash value mismatch

If calculated and received hash values mismatch, the CCS OnBoardPolicyServer shall in case of a Command

- Send a command response as FAILED with ErrorCode = CCS_META_DATA_MISMATCH
- Send a correlated alert that contains the meta data of the active policy files of CCS OnBoardPolicyServer.

In case of a Query Response CCS OnBoardPolicyServer shall not process the Query Response any further.

3.3.2.6.6 CCOIv2-REQ-355974/A-Success of Consistency Check

If all of the above, applicable consistency check steps (CCOIv2-REQ-355219 - Server Consistency Check) were completed successfully, the CCS OnBoardPolicyServer shall send the Command Response as „IN_PROGRESS“. The correlated Alert shall only be sent after application of the received data.

3.3.2.7 CCOIv2-REQ-296342/B-ccsApplyMode

The FTCP parameter “ccsApplyMode” shall define, if CCS commands and query responses shall be applied “immediate” or “delayed”. When flagged as “delayed”, CCS OnBoardPolicyServer shall perform the Consistency Check immediately, but changes shall only be applied with next ignition cycle.

3.3.2.8 CCOIv2-REQ-355981/A-Conditions for OnBoardSynchronization

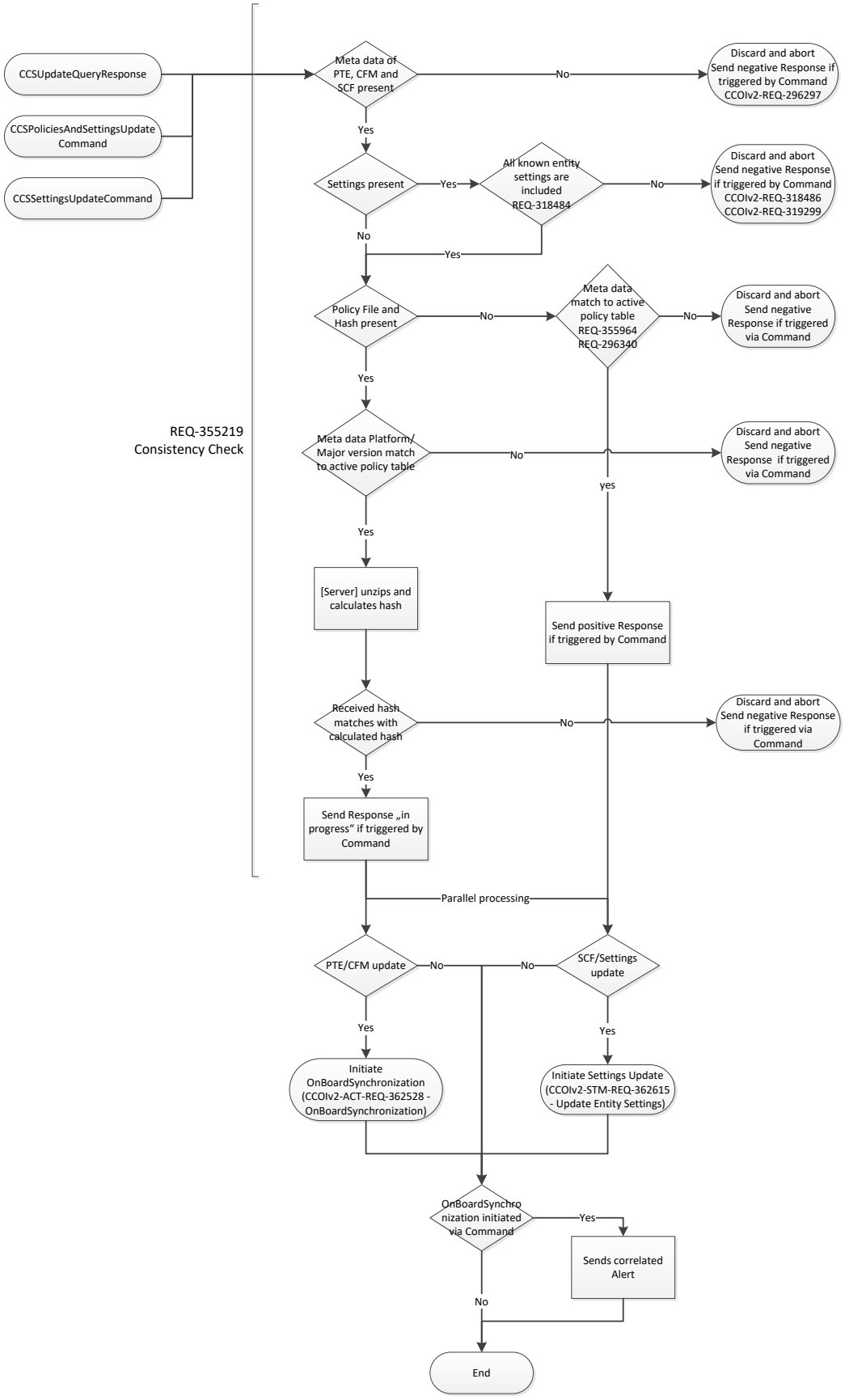
If a PTE or CFM file was received via OffBoardSynchronization, the CCS OnBoardPolicyServer shall initiate an OnBoardSynchronization to forward the policy files to the CCS OnBoardPolicyClient (ref. REQ-355041).

3.3.2.9 CCOIv2-REQ-355982/A-Conditions for EntitySettingsUpdate

If an SCF file or an entity settings update was received via OffBoardSynchronization, the CCS OnBoardPolicyClient shall initiate an EntitySettingsUpdate to forward the updated settings and blacklist to the CCS OnBoardPolicyClient and Policy Enforcers (ref. REQ-318490).

3.3.3 Activity Diagrams

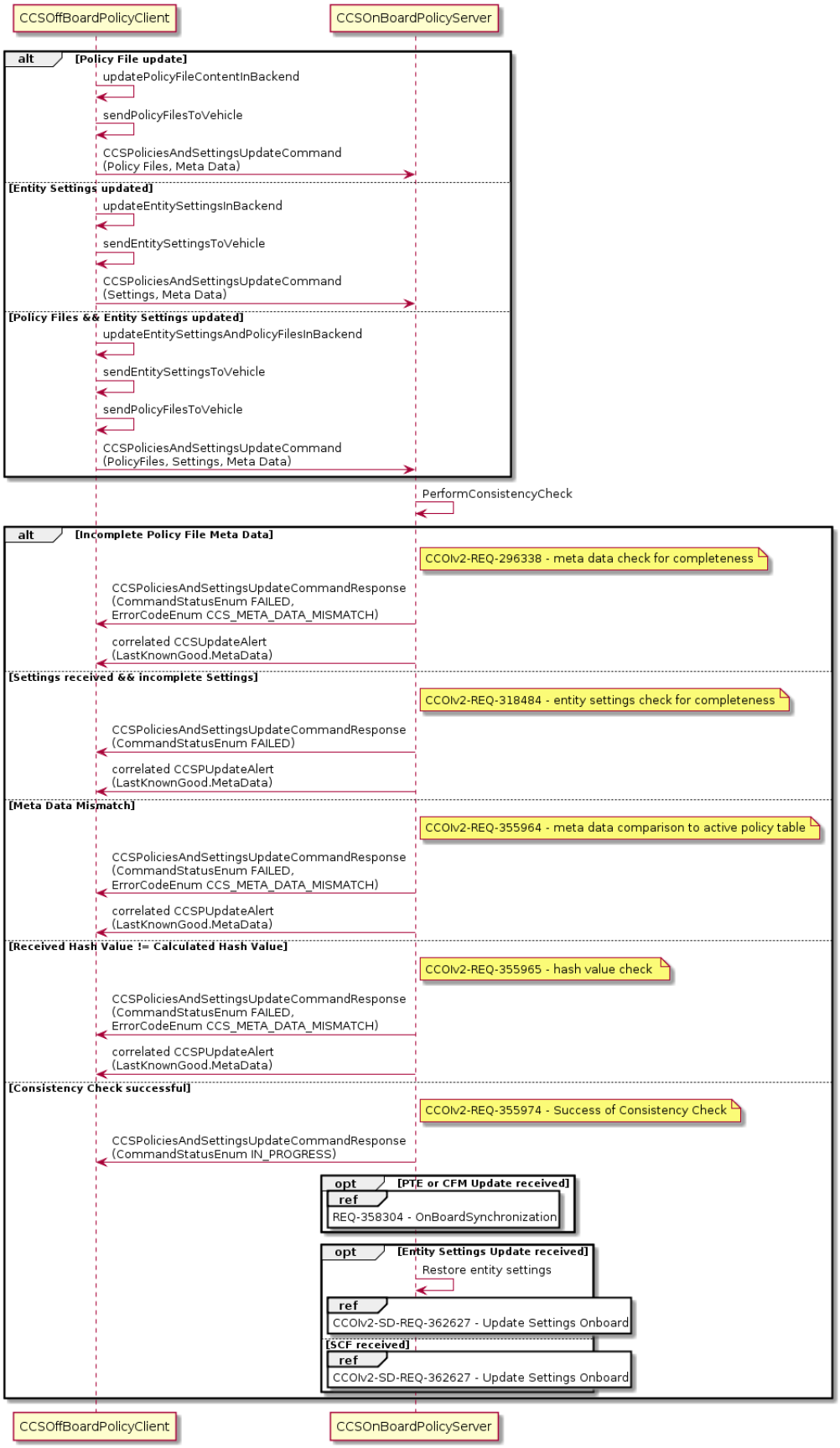
3.3.3.1 CCOIv2-ACT-REQ-362270/A-OffBoardSynchronization


CCSUpdateQueryResponse
CCSPoliciesAndSettingsUpdate Command
CCSSettingsUpdateCommand
REQ-355219 Consistency Check
Meta data of PTE, CFM and SCF present
No
Discard and abort Send negative Response if triggered by Command CCOIv2-REQ-296297
Yes
Settings present
Yes
All known entity settings are included REQ-318484
No
Discard and abort Send negative Response if triggered by Command CCOIv2-REQ-318486 CCOIv2-REQ-319299
No
Yes
Policy File and Hash present
No
Meta data match to active policy table REQ-355964 REQ-296340
No
Discard and abort Send negative Response if triggered via Command
Yes
Meta data Platform/ Major version match to active policy table
No
Discard and abort Send negative Response if triggered via Command
yes
Yes
[Server] unzips and calculates hash
Send positive Response if triggered by Command
Received hash matches with calculated hash
No
Discard and abort Send negative Response if triggered via Command
Yes
Send Response „in progress“ if triggered by Command
Parallel processing
PTE/CFM update
No
No
SCF/Settings update
Yes
Yes
Initiate OnBoardSynchronization (CCOIv2-ACT-REQ-362528 - OnBoardSynchronization)
Initiate Settings Update (CCOIv2-STM-REQ-362615 - Update Entity Settings)
OnBoardSynchronization initiated via Command
Yes
Sends correlated Alert
No
End

3.3.4 Sequence Diagrams

3.3.4.1 CCOIv2-SD-REQ-321883/C-OffBoardPolicyClient triggers OffBoardSynchronization - Command

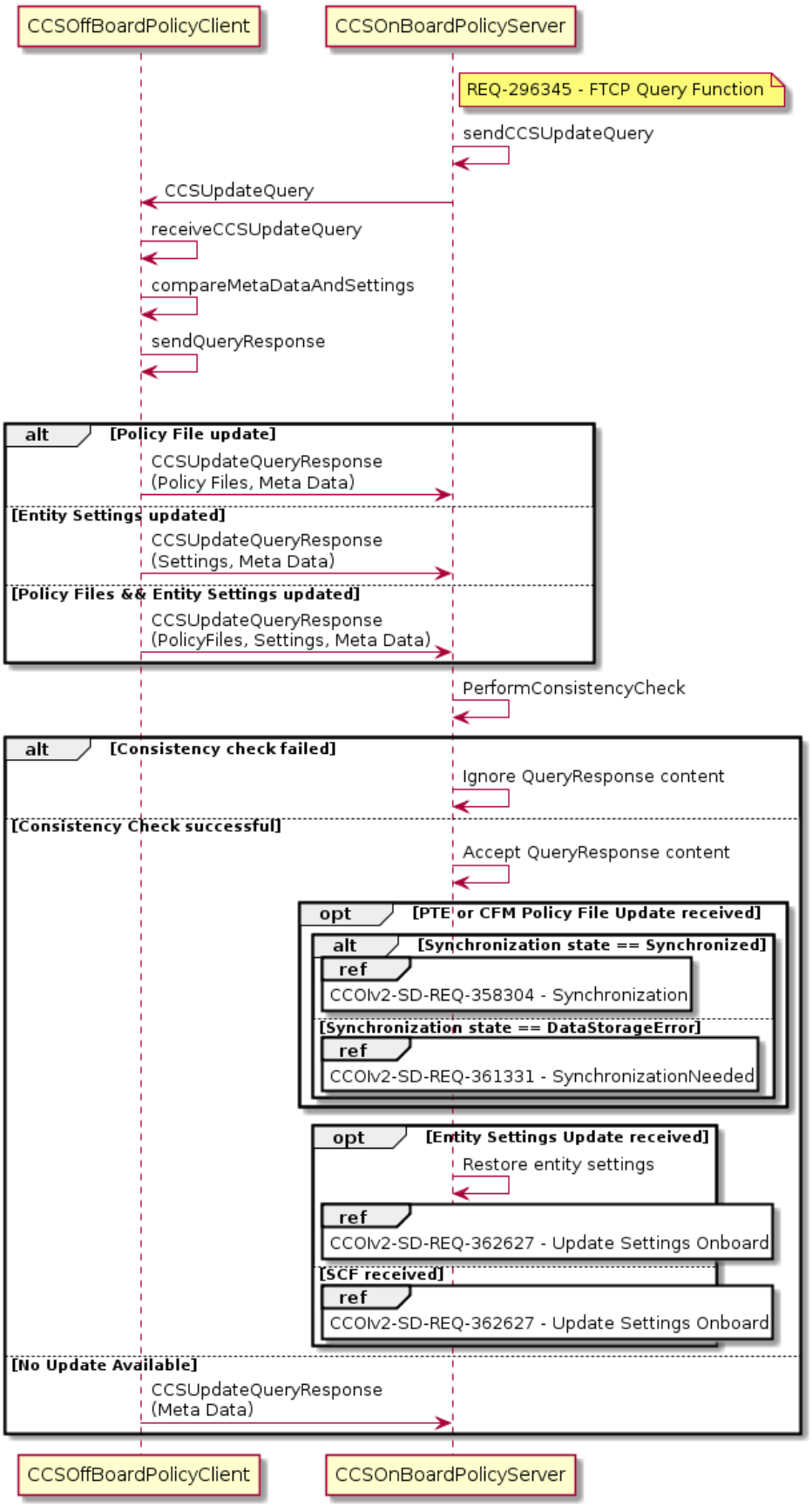
Linked Elements
CCOIv2-UC-REQ-296264/A-OffBoardPolicyClient triggers OffBoardSynchronization


CCSOffBoardPolicyClient
CCSOnBoardPolicyServer
alt [Policy File update]
updatePolicyFileContentInBackend
sendPolicyFilesToVehicle
CCSPoliciesAndSettingsUpdateCommand
(Policy Files, Meta Data)
[Entity Settings updated]
updateEntitySettingsInBackend
sendEntitySettingsToVehicle
CCSPoliciesAndSettingsUpdateCommand
(Settings, Meta Data)
[Policy Files && Entity Settings updated]
updateEntitySettingsAndPolicyFilesInBackend
sendEntitySettingsToVehicle
sendPolicyFilesToVehicle
CCSPoliciesAndSettingsUpdateCommand
(PolicyFiles, Settings, Meta Data)
PerformConsistencyCheck
alt [Incomplete Policy File Meta Data]
CCOIv2-REQ-296338 - meta data check for completeness
CCSPoliciesAndSettingsUpdateCommandResponse
(CommandStatusEnum FAILED,
ErrorCodeEnum CCS_META_DATA_MISMATCH)
correlated CCSUpdateAlert
(LastKnownGood.MetaData)
[Settings received && incomplete Settings]
CCOIv2-REQ-318484 - entity settings check for completeness
CCSPoliciesAndSettingsUpdateCommandResponse
(CommandStatusEnum FAILED)
correlated CCSPUpdateAlert
(LastKnownGood.MetaData)
[Meta Data Mismatch]
CCOIv2-REQ-355964 - meta data comparison to active policy table
CCSPoliciesAndSettingsUpdateCommandResponse
(CommandStatusEnum FAILED,
ErrorCodeEnum CCS_META_DATA_MISMATCH)
correlated CCSPUpdateAlert
(LastKnownGood.MetaData)
[Received Hash Value != Calculated Hash Value]
CCOIv2-REQ-355965 - hash value check
CCSPoliciesAndSettingsUpdateCommandResponse
(CommandStatusEnum FAILED,
ErrorCodeEnum CCS_META_DATA_MISMATCH)
correlated CCSPUpdateAlert
(LastKnownGood.MetaData)
[Consistency Check successful]
CCOIv2-REQ-355974 - Success of Consistency Check
CCSPoliciesAndSettingsUpdateCommandResponse
(CommandStatusEnum IN_PROGRESS)
opt [PTE or CFM Update received]
ref
REQ-358304 - OnBoardSynchronization
opt [Entity Settings Update received]
Restore entity settings
ref
CCOIv2-SD-REQ-362627 - Update Settings Onboard
[SCF received]
ref
CCOIv2-SD-REQ-362627 - Update Settings Onboard
CCSOffBoardPolicyClient
CCSOnBoardPolicyServer

3.3.4.2 CCOIv2-SD-REQ-321884/C-CCS OnBoardPolicyServer triggers OffBoardSynchronization - Query

Linked Elements

CCOIv2-UC-REQ-318886/C-CCSManager triggers OffBoardSynchronization


CCSOffBoardPolicyClient
CCSOnBoardPolicyServer
REQ-296345 - FTCP Query Function
sendCCSUpdateQuery
CCSUpdateQuery
receiveCCSUpdateQuery
compareMetaDataAndSettings
sendQueryResponse
alt [Policy File update]
CCSUpdateQueryResponse (Policy Files, Meta Data)
[Entity Settings updated]
CCSUpdateQueryResponse (Settings, Meta Data)
[Policy Files && Entity Settings updated]
CCSUpdateQueryResponse (PolicyFiles, Settings, Meta Data)
PerformConsistencyCheck
alt [Consistency check failed]
Ignore QueryResponse content
[Consistency Check successful]
Accept QueryResponse content
opt [PTE or CFM Policy File Update received]
alt [Synchronization state == Synchronized]
ref
CCOIv2-SD-REQ-358304 - Synchronization
[Synchronization state == DataStorageError]
ref
CCOIv2-SD-REQ-361331 - SynchronizationNeeded
opt [Entity Settings Update received]
Restore entity settings
ref
CCOIv2-SD-REQ-362627 - Update Settings Onboard
[SCF received]
ref
CCOIv2-SD-REQ-362627 - Update Settings Onboard
[No Update Available]
CCSUpdateQueryResponse (Meta Data)
CCSOffBoardPolicyClient
CCSOnBoardPolicyServer

3.4 CCOIv2-FUN-REQ-355041/A-OnBoardSynchronization (Server)

3.4.1 Use Cases

3.4.1.1 CCOIv2-UC-REQ-357523/A-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 or CFM file 4. CCS System transitions through OnboardDistributedStateMachine to state “Synchronizing” 5. CCS Server transmits new policy files to CCS Client successfully 6. CCS Server and Client enter Synchronization state “Synchronized”
Post-conditions	Latest policy files 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	

3.4.1.2 CCOIv2-UC-REQ-362912/A-Turn HMI System 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 OnBoardPolicyClient on while Ignition off 2. CCS OnBoardPolicyServer and CCS OnBoardPolicyClient start up 3. CCS OnBoardPolicyServer holds an update of PTE or CFM file 4. CCS System transitions through OnboardDistributedStateMachine to state “Synchronizing” 5. CCS Server transmits new policy files to CCS Client successfully 6. CCS Server and Client enter Synchronization state “Synchronized”
Post-conditions	Latest policy files 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	

3.4.1.3 CCOIv2-UC-REQ-362282/A-Policy File 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 or CFM file update via OffBoardSynchronization 2. CCS OnBoardPolicyServer completes Consistency Check successfully 3. CCS System transitions to "synchronizing" 4. CCS Server transmits new policy files to CCS Client successfully 5. CCS Server and Client enter Synchronization state "Synchronized"
Post-conditions	Policy files synchronized between CCS Server and CCS Client
List of Exception Use Cases	E1: 1a) CCS OnBoardPolicyServer received an SCF policy file update .1 CCS Server does not initiate an OnBoardSynchronization E2: 2a) Consistency Check was not successful .1 CCS Server does not initiate an OnBoardSynchronization E3: 4a) Transmission failed .1 CCS Server applies OnBoardSynchronization retry strategy
Interfaces	

3.4.1.4 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	

3.4.1.5 CCOIv2-UC-REQ-357525/A-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 enters Synchronization state "Invalid" 3. Software update completes 4. CCS System transitions through OnboardDistributedStateMachine to state "Synchronizing" 5. CCS Server transmits new policy files to CCS Client successfully 6. CCS Server and Client enter Synchronization state "Synchronized"
Post-conditions	Latest policy files synchronized between CCS Server and CCS Client
List of Exception Use Cases	4a. 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	

3.4.1.6 CCOIv2-UC-REQ-362319/A-Setting Change while OnBoardSynchronization

Actors	CCS OnBoardPolicyServer, CCS OnBoardPolicyClient, Driver
Pre-conditions	CCS OnBoardPolicyServer and CCS OnBoardPolicyClient are running, CCS System synchronized
Scenario Description	1. CCS OnBoardPolicyServer transfers a Policy File to CCS OnBoardPolicyClient via OnBoardSynchronization 2. While Synchroization process, Driver enters CCS menu and changes an entitiy setting 3. CCS OnBoardPolicyClient and CCS OnBoardPolicyServer appy rule set of the last successfully synchronized policy files
Post-conditions	OnBoardSynchronization completes successful, CCS OnBoardPolicyServer uses new Policy File set for future entity setting changes
List of Exception Use Cases	E1: 3a) CCS System is in state “Unrecoverable” or “DataStorageError” .1 CCS OnBoardPolicyClient applies HMI lockout, no CCS setting changes possible
Interfaces	

3.4.1.7 CCOIv2-UC-REQ-362320/A-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. CCS OnBoardPolicyServer transfers a Policy File to CCS OnBoardPolicyClient via OnBoardSynchronization 2. While OnBoardSynchronization, Backend triggers a CCS Subscription value change via Config Change Command 3. CCS OnBoardPolicyClient and CCS OnBoardPolicyServer appy rule set of the LastKnownGood policy files
Post-conditions	OnBoardSynchronization completes successful, OnBoardPolicyServer uses new Policy File set for future entity setting changes
List of Exception Use Cases	E1: 3a) CCS System is in state “Unrecoverable” .1 CCS OnBoardPolicyServer applies rule set of the LastKnownGood record E2: 3b) CCS System is in state “DataStorageError” .1 CCS OnBoardPolicyServer shall not persist the new entity value. .2 Once CCS OnBoardPolicyServer transistions to any synchronization state other than DataStorageError, the CCS OnBoardPolicyServer shall persist the new entity value.
Interfaces	

3.4.1.8 CCOIv2-UC-REQ-362321/A-Authorization Change while OnBoardSynchronization

Actors	Backend, CCS OnBoardPolicyServer, CCS OnBoardPolicyClient
Pre-conditions	CCS OnBoardPolicyServer and CCS OnBoardPolicyClient are running, CCS System synchronized
Scenario Description	1. CCS OnBoardPolicyServer transfers a Policy File to CCS OnBoardPolicyClient via OnBoardSynchronization

	2. While OnBoardSynchroniazation, Backend triggers an Authorization status change via Auth Status Change Command 3. CCS OnBoardPolicyClient and CCS OnBoardPolicyServer appy rule set of the LastKnownGood policy files
Post-conditions	OnBoardSynchronization completes successfully, OnBoardPolicyServer uses new Policy File set for future entity setting changes
List of Exception Use Cases	E1: 3a) CCS System is in state “Unrecoverable” .1 CCS OnBoardPolicyServer applies rule set of the LastKnownGood record E2: 3b) CCS System is in state “DataStorageError” .1 CCS OnBoardPolicyServer shall reject the Authorization update and send the Auth Status Change Command Response as “FAILED”
Interfaces	

3.4.1.9 CCOIv2-UC-REQ-362336/A-User/Authorization Prompt while OnBoardSynchronization

Actors	Backend, CCS OnBoardPolicyServer, CCS OnBoardPolicyClient
Pre-conditions	CCS OnBoardPolicyServer and CCS OnBoardPolicyClient are running, CCS System synchronized
Scenario Description	1. CCS OnBoardPolicyServer transfers a Policy File to CCS OnBoardPolicyClient via OnBoardSynchronization 2. While OnBoardSynchronization, Backend triggers an Authorization Prompt or User Prompt 3. CCS OnBoardPolicyClient and CCS OnBoardPolicyServer appy rule set of the LastKnownGood policy files
Post-conditions	OnBoardSynchronization completes successful, OnBoardPolicyServer uses new Policy File set for future entity setting changes
List of Exception Use Cases	E1: 3a) CCS System is in state “DataStorageError” .1 CCS OnBoardPolicyServer shall not trigger the corresponding User Prompt and shall send the Response as “FAILED”/”DENIED”
Interfaces	

3.4.2 Requirements (Server)

3.4.2.1 CCOIv2-REQ-353995/A-OnBoardPolicyServer 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.

OnBoardPolicyServer_St In State	Trigger and Guard	OnBoardPolicyServer_St Transitions to and Transmits New State
Invalid	OnBoardPolicyServer is started	Waiting

OnBoardPolicyServer_St In State	Trigger and Guard	OnBoardPolicyServer_St Transitions to and Transmits New State
Waiting	OnBoardPolicyServer initialized without DataStorageError AND OnBoardPolicyClient_St == Waiting	SynchronizationNeeded
Waiting	OnBoardPolicyServer detected a DataStorageError (ref. CCOIv2-REQ-296293, CCOIv2-REQ-319297) AND OnBoardPolicyClient_St == Waiting	DataStorageError
SynchronizationNeeded	OnBoardPolicyClient_St == SynchronizationNeeded and received SynchronizationSession_Rq does not match to current active set of Policy Files on CCS Server.	Synchronizing
SynchronizationNeeded	OnBoardPolicyClient_St == SynchronizationNeeded and received SynchronizationSession_Rq is the same as current active set of Policy Files on CCS Server.	Synchronized
Synchronizing	All OnBoardPolicyServer meta data of the active policy table is the same as the meta data in SynchronizationSummaryReport AND OnBoardPolicyClient_St == Synchronizing	Synchronized
Synchronizing	Timeout “OnBoard_Synchronization_Timeout” expires, OR any of the OnBoardPolicyServer meta data of the active policy table is not the same as the meta data in SynchronizationSummaryReport	SynchronizationFailed
Synchronizing	OnBoardPolicyClient_St == SynchronizationFailed	SynchronizationFailed
SynchronizationFailed	OnBoardPolicyClient_St == SynchronizationFailed AND timeout “Minimum_Time_Spent_In_SynchronizationFailed” expires AND amount of retries “Maximum_Amount_of_Synchronizing_Retries” is not exceeded	SynchronizationNeeded
SynchronizationFailed	OnBoardPolicyClient_St == SynchronizationFailed AND timeout “Minimum_Time_Spent_In_SynchronizationFailed” expires AND amount of retries “Maximum_Amount_of_Synchronizing_Retries” is exceeded	UnrecoverableSynchronizationError
Synchronized	OnBoardPolicyClient_St == Synchronized AND Server holds policy file update AND Apply Mode == immediate	Synchronizing
Any of {Waiting, DataStorageError, SynchronizationNeeded, Synchronizing, SynchronizationFailed, Synchronized}	OnBoardPolicyClient_St != INVALID AND OnBoardPolicyClient_St != OnBoardPolicyServer_St for more than timeout “Timeout_TryingToEnter_DistributedState_Before_OnBoardDistributedStateMachineInconsistent”	OnBoardDistributed StateMachine Inconsistent
Any of {SynchronizationNeeded, Synchronizing, SynchronizationFailed, Synchronized, OnBoardDistributed StateMachine Inconsistent}	OnBoardPolicyClient_St == Invalid	Waiting

OnBoardPolicyServer_St In State	Trigger and Guard	OnBoardPolicyServer_St Transitions to and Transmits New State
OnBoardDistributed StateMachine Inconsistent	OnBoardPolicyClient_St == OnBoardDistributed StateMachineInconsistent for timespan "Minimum_Time_Spent_In_OnBoardDistributedStateMachineInconstistent" AND amount of retries "Maximum_Amount_Of_Retries_To_Reset_State_Machine_After_Inconsistency_Detected" not exceeded	Waiting
OnBoardDistributed StateMachine Inconsistent	Amount of retries "Maximum_Amount_Of_Retries_To_Reset_State_Machine_After_Inconsistency_Detected" exceeded OR (OnBoardPolicyClient_St != OnBoardDistributed StateMachineInconsistent AND timespan "Timeout_TryingToEnter_DistributedState_Before_OnBoardDistributed StateMachineInconsistent" expired)	UnrecoverableSynchronizationError
DataStorageError	OnBoardPolicyClient_St == DataStorageError AND OnBoardPolicyServer completed OffBoardSynchronization (ref. CCOIv2-SD-REQ-321884) including Consistency Check successfully.	SynchronizationNeeded
Any state	CCS Server is conducting firmware update	Invalid
Invalid	Firmware update completed, OnBoardPolicyServer is restarted	Waiting

Table 9 – State Transition Table

3.4.2.1.1 CCOIv2-REQ-358975/A-Invalid to Waiting

CCS OnBoardPolicyServer shall transition from Invalid into the Waiting state every time the implementing part starts up OR restarts after a Firmware update completed.

3.4.2.1.2 CCOIv2-REQ-358976/A-Waiting to SynchronizationNeeded

CCS OnBoardPolicyServer shall transition from "Waiting" to "SynchronizationNeeded" once CCS OnBoardPolicyServer completed the Consistency Check successfully (ref. CCOIv2-REQ-296293) AND CCS OnBoardPolicyClient reached state "Waiting", i.e. its boot-up sequence is complete.

3.4.2.1.3 CCOIv2-REQ-362338/A-Waiting to DataStorageError

CCS OnBoardPolicyServer shall transition from "Waiting" to "DataStorageError" once the Consistency Check on Start Up failed (CCOIv2-REQ-319297) AND CCS OnBoardPolicyClient reached state "Waiting", i.e. its boot-up sequence is complete.

3.4.2.1.4 CCOIv2-REQ-357524/A-SynchronizationNeeded to Synchronizing

Once the CCS Server receives SynchronizationSession_Rq from CCS OnBoardPolicyClient in Synchronization State "SynchronizationNeeded" AND the received meta data do not match to the active policy table set (ref. CCOIv2-REQ-296316), CCS OnBoardPolicyServer shall transition to "Synchronizing".

Once CCS OnBoardPolicyClient has followed into the new state, the OnBoardPolicyServer shall shall transmit all active policy tables for which the meta data check failed in the SynchronizationSession_Rsp to the CCS OnBoardPolicyClient.

3.4.2.1.5 CCOIv2-REQ-358307/A-SynchronizationNeeded to Synchronized

Once the CCS Server receives SynchronizationSession_Rq from CCS OnBoardPolicyClient in Synchronization State "SynchronizationNeeded" AND all received meta data values are the same as the meta data of the active policy table set, CCS OnBoardPolicyServer shall send the SynchronizationSession_Rsp with same meta data, but without policy files.

After sending the response, CCS OnBoardPolicyServer shall transition to state "Synchronized".

3.4.2.1.6 CCOIv2-REQ-358559/A-Synchronizing to Synchronized

Once CCS OnBoardPolicyServer receives a SynchronizationSummaryReport in Synchronization state “Synchronizing” AND all received meta data are the same as the active policy table set, CCS OnBoardPolicyServer shall set the active policy table set to “LastKnownGood” (ref. CCOIv2-REQ-296327) and transition to state “Synchronized”.

3.4.2.1.7 CCOIv2-REQ-358978/A-Synchronized to Synchronizing

Once CCS OnBoardPolicyServer received a PTE or CFM policy file update via OffBoardSynchronization with Apply Mode == immediate AND CCS OnBoardDistributedStateMachine is in state “Synchronized”, CCS OnBoardPolicyServer shall transition to state “Synchronizing”.

Rationale: An SCF policy file update does not trigger OnBoardSynchronization, because this policy file is only parsed on CCS OnBoardPolicyServer.

3.4.2.1.8 CCOIv2-REQ-358557/A-Synchronizing to SynchronizationFailed

3.4.2.1.8.1 CCOIv2-REQ-358519/A-SynchronizationSummaryReport failure

Once CCS OnBoardPolicyServer receives a SynchronizationSummaryReport in Synchronization state “Synchronizing” and any of the received meta data are not the same as the active policy table data, CCS OnBoardPolicyServer shall transition to state “SynchronizationFailed”.

3.4.2.1.8.2 CCOIv2-REQ-358977/A-Synchronizing Timeout

If OnBoardSynchronization state machine remains in state “Synchronizing” for longer than „OnBoard_Synchronization_Timeout”, CCS OnBoardPolicyServer shall transition to state „SynchronizationFailed“.

3.4.2.1.8.3 CCOIv2-REQ-359107/A-OnBoardPolicyClient failure

Once CCS OnBoardDistributedStateMachine is in state „Synchronizing“ AND CCS OnBoardPolicyClient transitions to „SynchronizationFailed“, CCS OnBoardPolicyServer shall follow into state „SynchronizationFailed“.

3.4.2.1.9 CCOIv2-REQ-358561/A-SynchronizationFailed to SynchronizationNeeded

3.4.2.1.9.1 CCOIv2-REQ-358560/A-Retry Synchronization

If OnBoardDistributedStateMachine remains in state “SynchronizationFailed” for longer than “Minimum_Time_Spent_In_SynchronizationFailed” AND number of retries to re-send the policy files does not exceed “Revert_To_LastKnownGood_Amount_Retries”, CCS OnBoardPolicyServer shall transition to state “SynchronizationNeeded” and retry the OnBoardSynchronization with pending policy table.

3.4.2.1.9.2 CCOIv2-REQ-358562/A-Retry with LastKnownGood data

If OnBoardDistributedStateMachine remains in state “SynchronizationFailed” for longer than “Minimum_Time_Spent_In_SynchronizationFailed” AND number of retries to re-send the policy files exceeds “Revert_To_LastKnownGood_Amount_Retries”, CCS OnBoardPolicyServer shall transition to state “SynchronizationNeeded” and retry the OnBoardSynchronization with policy files stored as “LastKnownGood”.

3.4.2.1.10 CCOIv2-REQ-358563/A-SynchronizationFailed to UnrecoverableSynchronizationError

If OnBoardDistributedStateMachine remains in state “SynchronizationFailed” for longer than “Minimum_Time_Spent_In_SynchronizationFailed” AND number of retries to re-send the policy files exceeds “Maximum_Amount_of_Synchronizing_Retries”, CCS OnBoardPolicyServer shall transition to state “UnrecoverableSynchronizationError”.

3.4.2.1.11 CCOIv2-REQ-362340/A-DataStorageError to SynchronizationNeeded

Once CCS OnBoardPolicyServer received a Policy File update via OffBoardSynchronization AND the Consistency Check was completed successfully (ref. CCOIv2-REQ-355974) AND CCS OnBoardPolicyClient is in state “DataStorageError”, CCS OnBoardPolicyServer shall transition to “SynchronizationNeeded”.

3.4.2.1.12 CCOIv2-REQ-358750/A-Any to Invalid

If the driver turns off ignition OR if the CCS Server is conducting a firmware update, CCS OnBoardPolicyServer shall transition from any state to state „Invalid“.

3.4.2.1.13 CCOIv2-REQ-358980/A-Various to OnBoardDistributedStateMachineInconsistent

If CCS OnBoardPolicyClient state is not "Invalid" AND CCS OnBoardPolicyClient is not in same state as CCS OnBoardPolicyServer for longer than "Timeout_TryingToEnter_DistributedState_Before_OnBoardDistributedStateMachineInconsistent", AND CCS OnBoardPolicyServer is in any of the states Waiting, DataStorageError, SynchronizationNeeded, Synchronizing, Synchronized or SynchronizationFailed, CCS OnBoardPolicyServer shall transition to state "OnBoardDistributedStateMachineInconsistent".

3.4.2.1.14 CCOIv2-REQ-358983/A-Various to Waiting

If CCS OnBoardPolicyClient state is "Invalid", AND CCS OnBoardPolicyServer is in any of the states DataStorageError, SynchronizationNeeded, Synchronizing, Synchronized, SynchronizationFailed or OnBoardDistributedStateMachineInconsistent, CCS OnBoardPolicyServer shall transition to state "Waiting".

3.4.2.1.15 CCOIv2-REQ-358989/A-OnBoardDistributedStateMachineInconsistent to Waiting

If CCS OnBoardPolicyServer is in state OnBoardDistributedStateMachineInconsistent AND OnBoardPolicyClient remains in state OnBoardDistributedStateMachineInconsistent for longer than "Minimum_Time_Spent_In_OnBoardDistributedStateMachineInconstistent" AND amount of retries to send policy files "Maximum_Amount_Of_Retries_To_Reset_State_Machine_After_Inconsistency_Detected" is not exceeded, CCS OnBoardPolicyServer shall transition to state "Waiting".

3.4.2.1.16 CCOIv2-REQ-358306/A-OnBoardDistributedStateMachineInconsistent to UnrecoverableSynchronizationError

If CCS OnBoardPolicyServer is in state "OnBoardDistributedStateMachineInconsistent" AND the amount of retries to send policy files "Maximum_Amount_Of_Retries_To_Reset_State_Machine_After_Inconsistency_Detected" is exceeded OR (CCS OnBoardPolicyClient is not in state "OnBoardDistributedStateMachineInconsistent" AND "Timeout_TryingToEnter_DistributedState_Before_OnBoardDistributedStateMachineInconsistent" expired), CCS OnBoardPolicyServer shall transition to state "UnrecoverableSynchronizationError".

3.4.2.2 CCOIv2-REQ-296327/C-Maintenance of LastKnownGood Data

OnBoardPolicyServer shall persist LastKnownGood policy file data. Policy file data received via OffBoardSynchronization shall become LastKnownGood, if the OnBoardSynchronization Procedure successfully completed for these policy files. CCS OnBoardPolicyServer shall store LastKnownGood meta data information as a diagnostic parameter, ref. REQ-296378.

3.4.2.3 CCOIv2-REQ-359110/A-Application of synchronized Policy Files

OnBoardPolicyServer shall only parse new PTE or CFM policy files, after the CCS OnBoardPolicyServer set the new policy files to LastKnownGood.

3.4.2.4 CCOIv2-REQ-362341/A-Entitiy Setting change while OnBoardSynchronization

In any state of CCS OnBoardSynchronization except DataStorageError, CCS OnBoardPolicyServer shall accept new entity values and use the LastKnownGood Policy Table.

3.4.2.5 CCOIv2-REQ-362344/A-Entitiy Setting change while DataStorageError

In Synchronization state "DataStorageError", CCS OnBoardPolicyServer shall not persist entity changes and shall handle entity change use cases as per following requirements

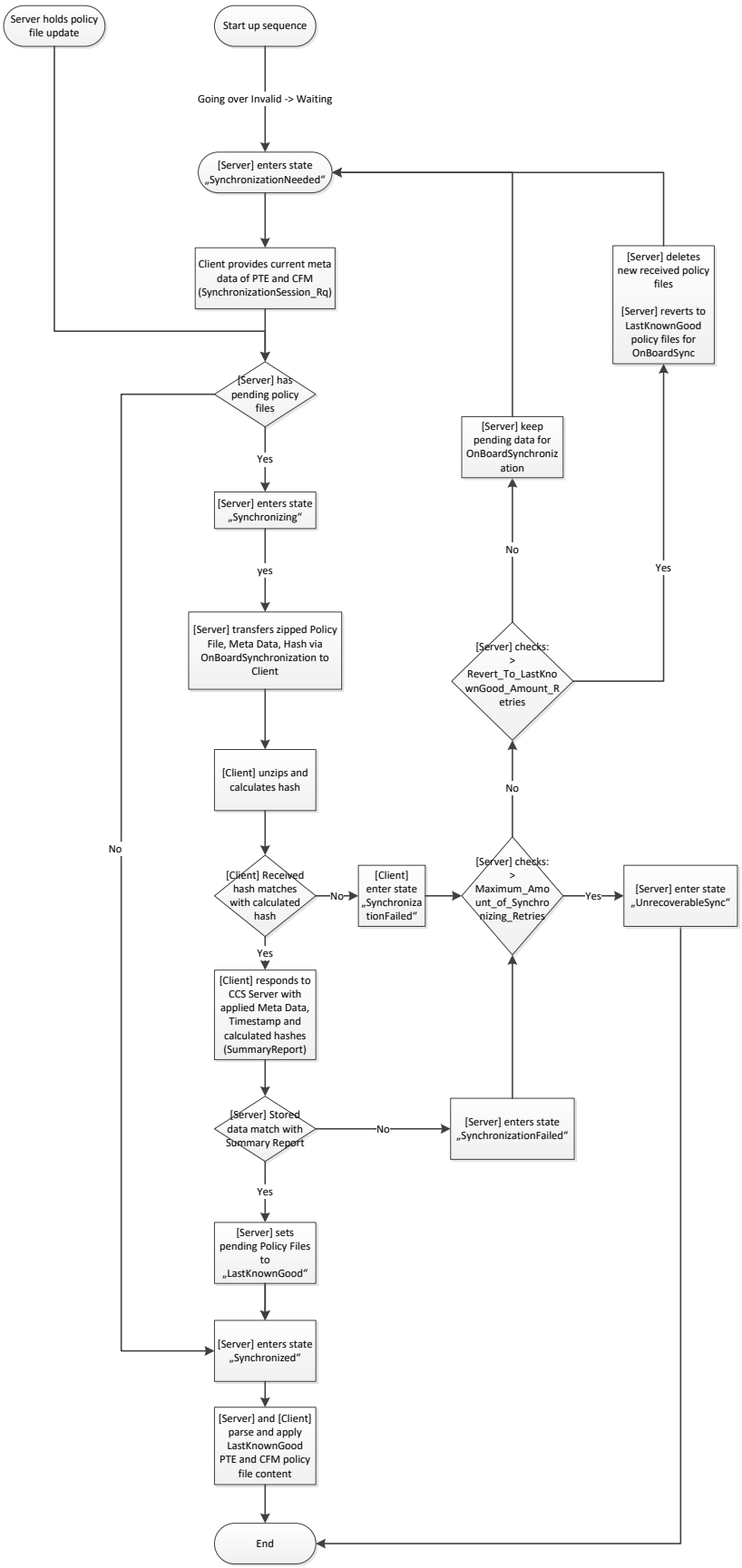
- Authorization per CCOIv2-REQ-362522 - Authorization Status Change while in DataStorageError
- User Prompts per CCOIv2-REQ-296282 User Prompts while in DataStorageError
- Lifecycle Mode, Provisioning, Master Reset per CCOIv2-REQ-362886 - Default Settings while in DataStorageError
- Subscription or Policy changes per CCOIv2-REQ-362523 - Entity Bit Change via Configuration while in DataStorageErrorChange setting in menu per CCOIv2-REQ-317863 - Error Pop-Up "Feature Unavailable"
- Restore settings from Backend per REQ-362527 - Restoring of Entity Settings while in DataStorageError

3.4.2.6 CCOIv2-REQ-362521/A-Recovery from DataStorageError

Only if CCS Server and Client enter Synchronization state "Synchronized", any entity value changes which have not been considered due to DataStorageError (ref. CCOIv2-REQ-362344 - Entitiy Setting change while DataStorageError) shall be applied per CCOIv2-FUN-REQ-318490 - Update Entity Settings.

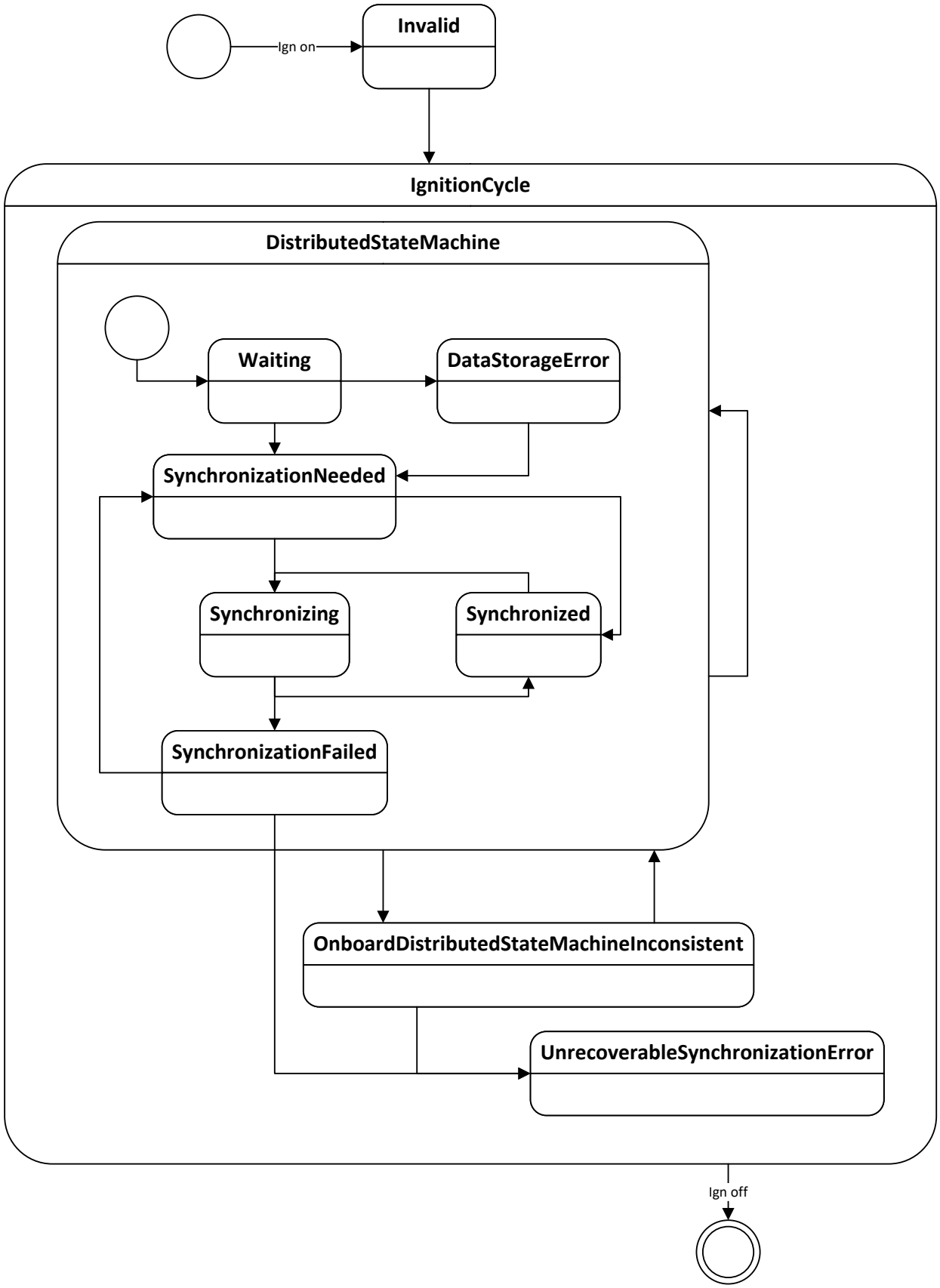
3.4.3 Activity Diagrams

3.4.3.1 CCOIv2-ACT-REQ-362528/A-OnBoardSynchronization


Server holds policy file update
Start up sequence
Going over Invalid -> Waiting
[Server] enters state „SynchronizationNeeded“
Client provides current meta data of PTE and CFM (SynchronizationSession_Rq)
[Server] has pending policy files
Yes
[Server] enters state „Synchronizing“
yes
[Server] transfers zipped Policy File, Meta Data, Hash via OnBoardSynchronization to Client
[Client] unzips and calculates hash
[Client] Received hash matches with calculated hash
No
[Client] enter state „SynchronizationFailed“
[Server] checks: > Maximum_Amount_of_Synchronizing_Retries
Yes
[Server] enter state „UnrecoverableSync“
No
[Server] checks: > Revert_To_LastKnownGood_Amount_Retries
Yes
[Server] deletes new received policy files
[Server] reverts to LastKnownGood policy files for OnBoardSync
No
[Server] keep pending data for OnBoardSynchronization
Yes
[Client] responds to CCS Server with applied Meta Data, Timestamp and calculated hashes (SummaryReport)
[Server] Stored data match with Summary Report
No
[Server] enters state „SynchronizationFailed“
Yes
[Server] sets pending Policy Files to „LastKnownGood“
[Server] enters state „Synchronized“
[Server] and [Client] parse and apply LastKnownGood PTE and CFM policy file content
End

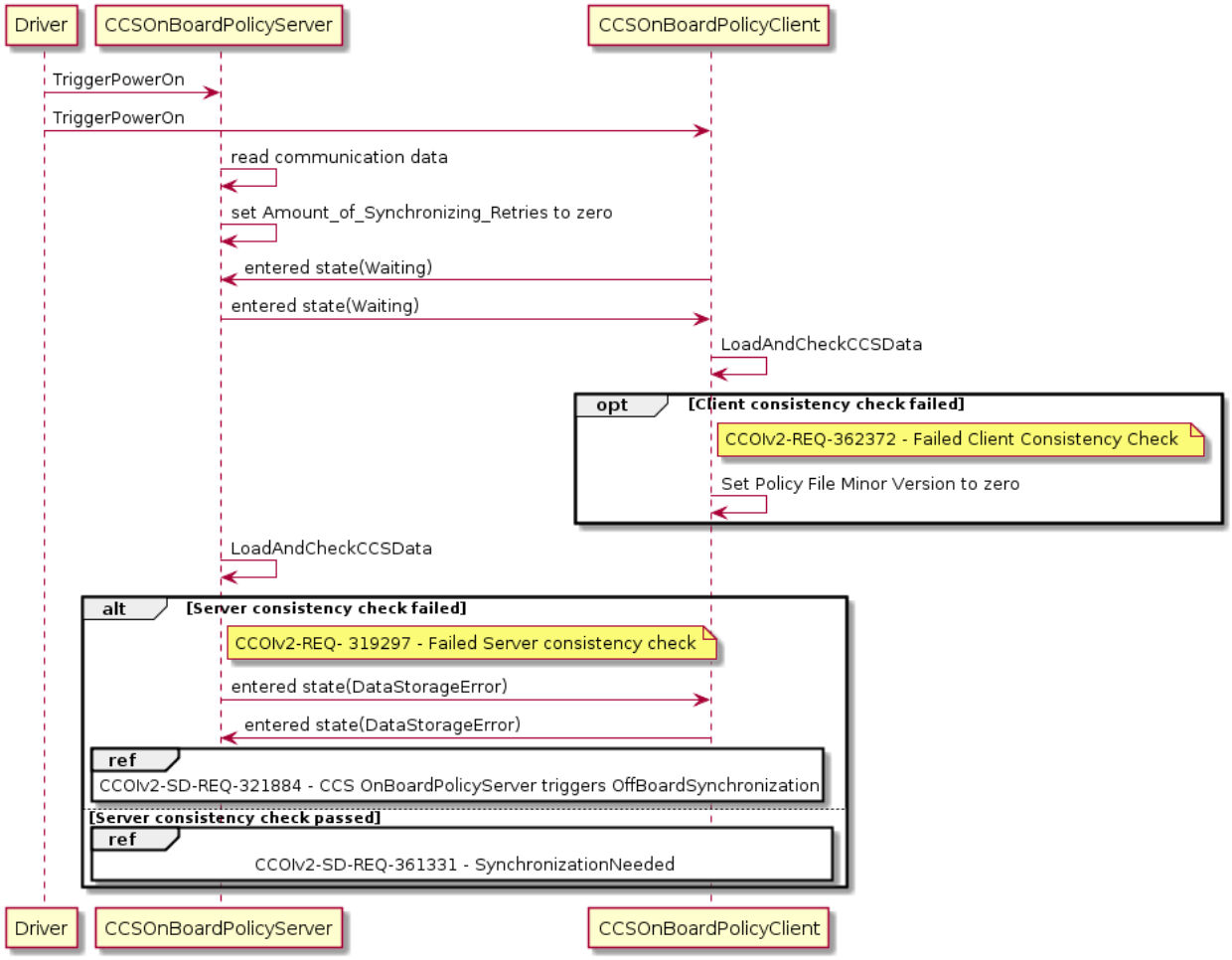
3.4.4 State Machine Diagrams

3.4.4.1 CCOIv2-STM-REQ-358305/A-OnBoardSynchronization

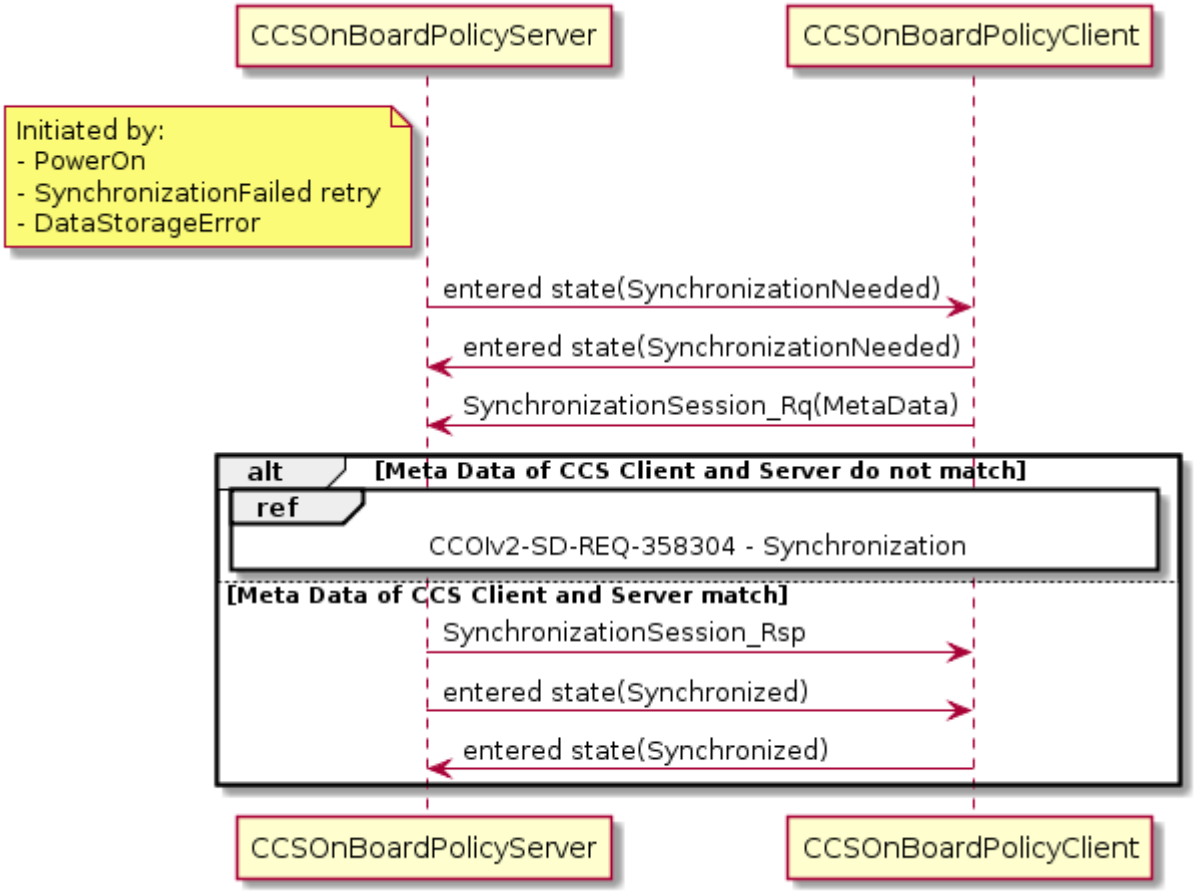


3.4.5 Sequence Diagrams

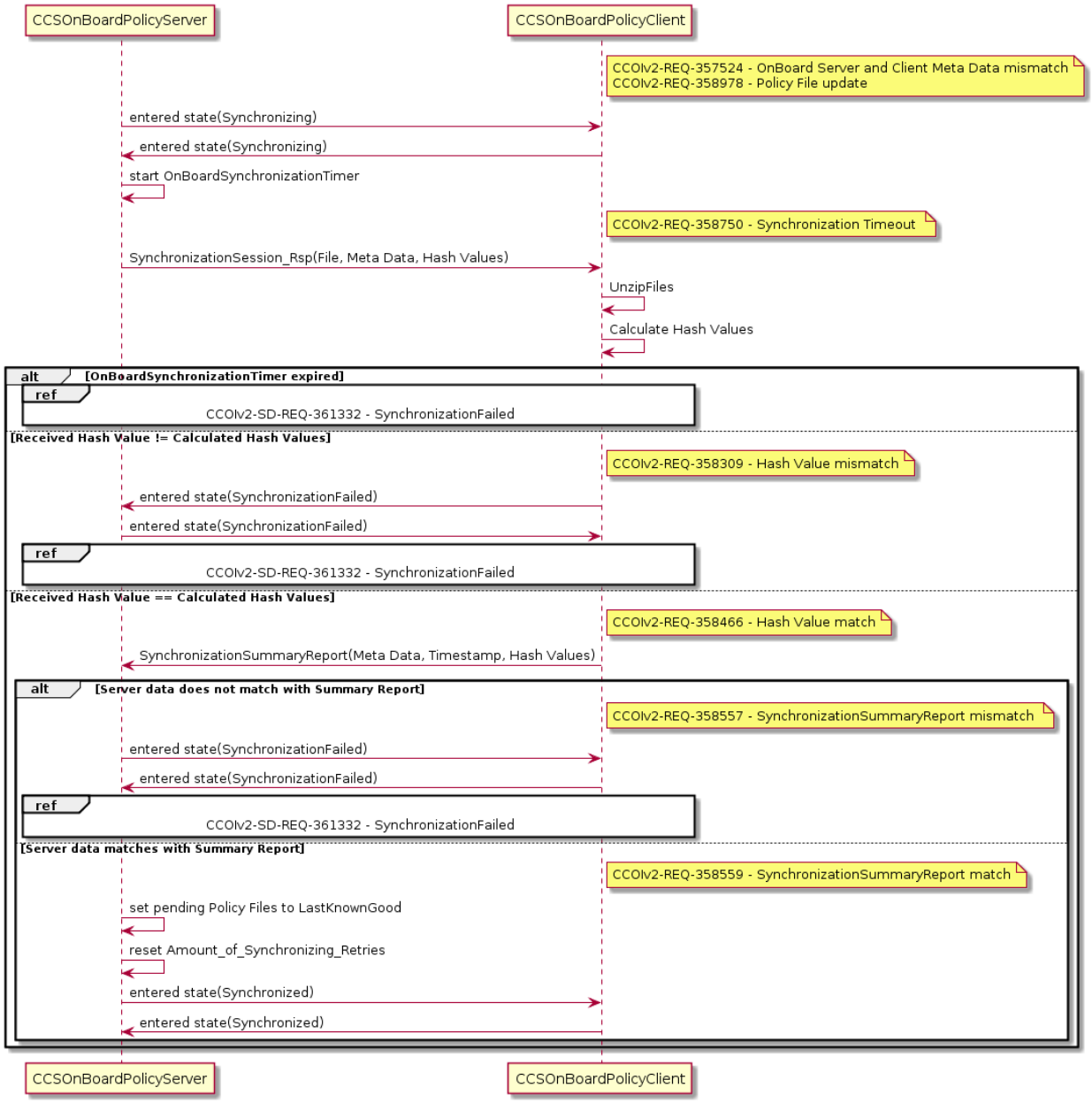
3.4.5.1 CCOIv2-SD-REQ-358303/A-Power On Sequence



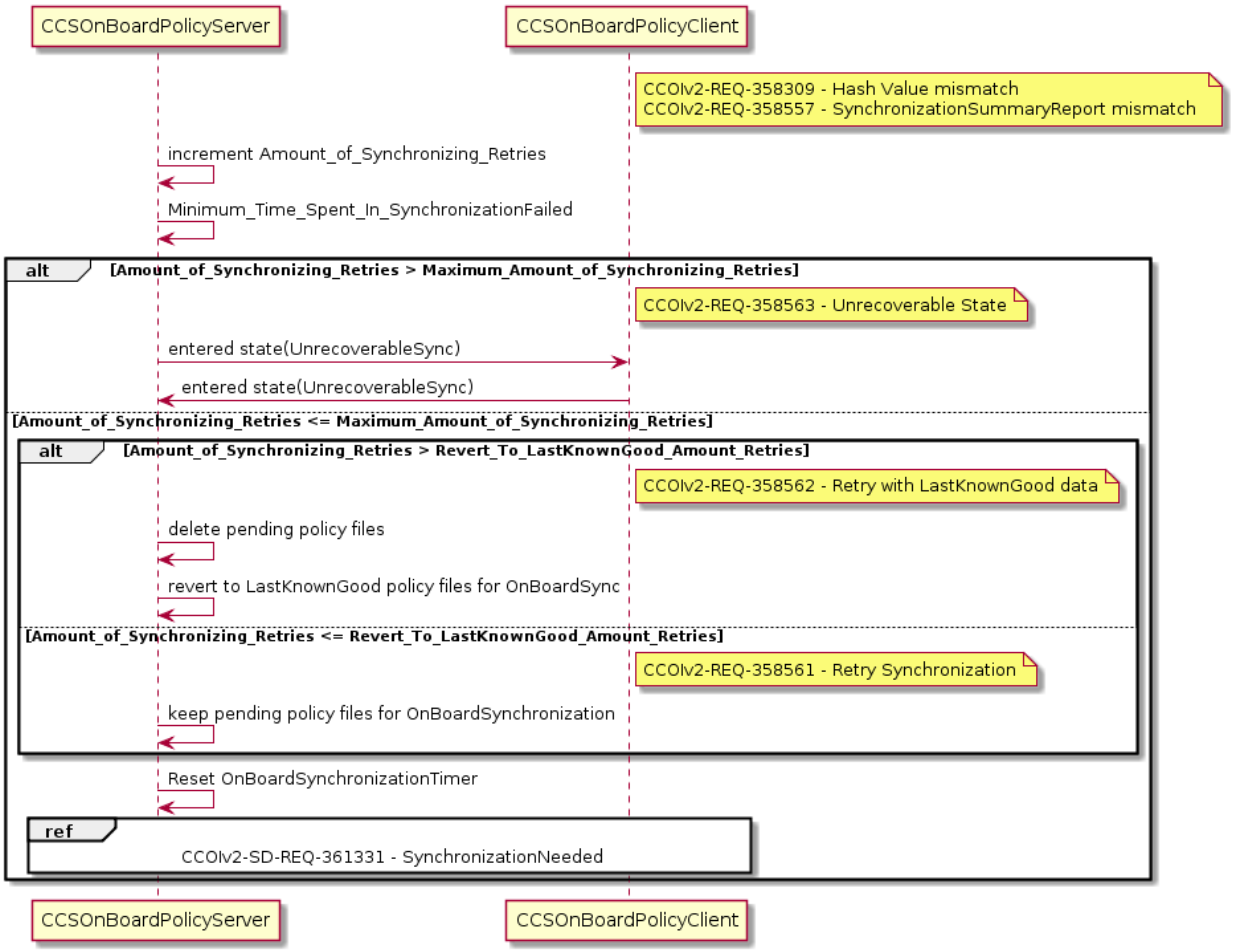
3.4.5.2 CCOIv2-SD-REQ-361331/A-SynchronizationNeeded



3.4.5.3 CCOIv2-SD-REQ-358304/A-Synchronization



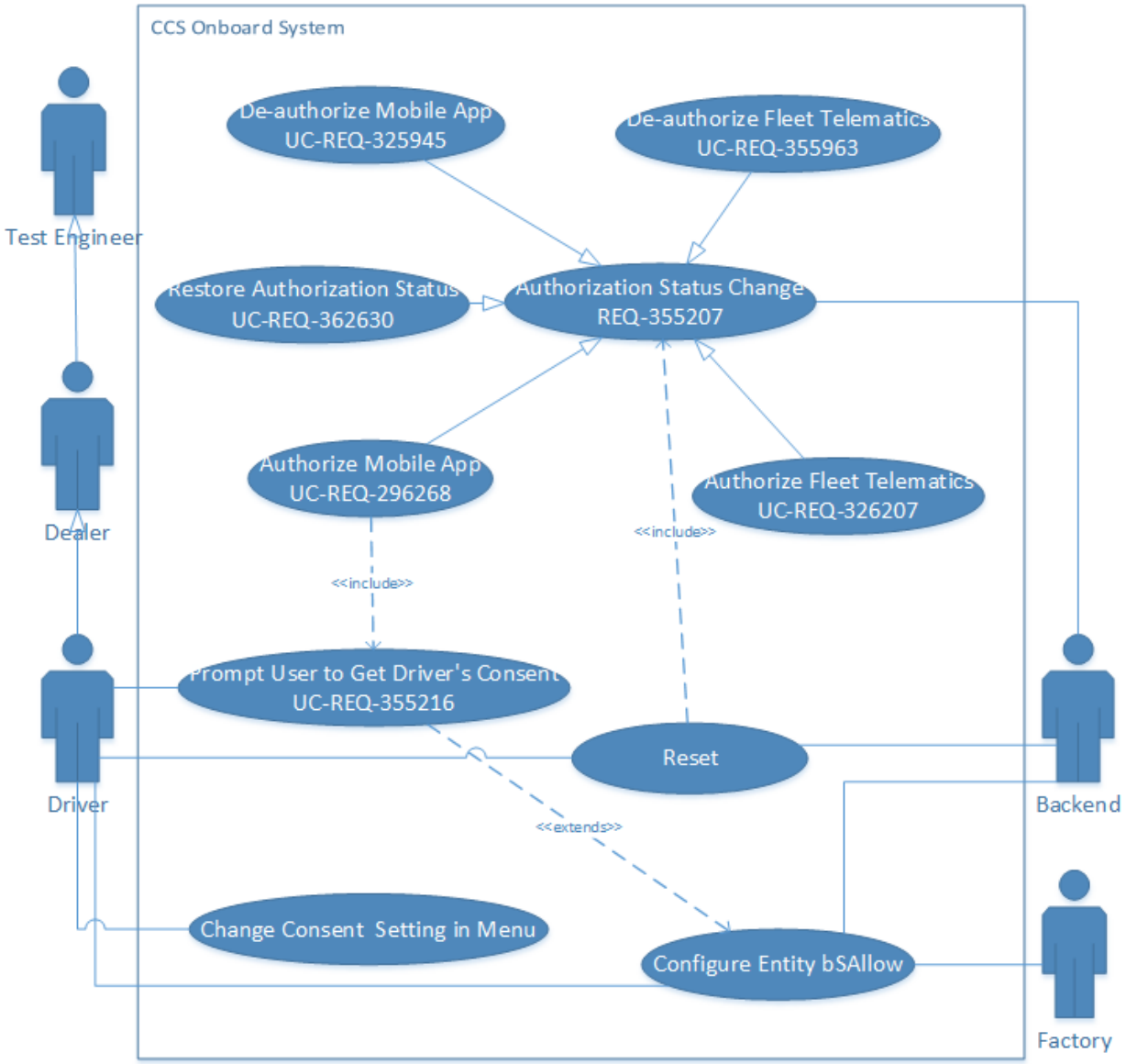
3.4.5.4 CCOIv2-SD-REQ-361332/A-SynchronizationFailed

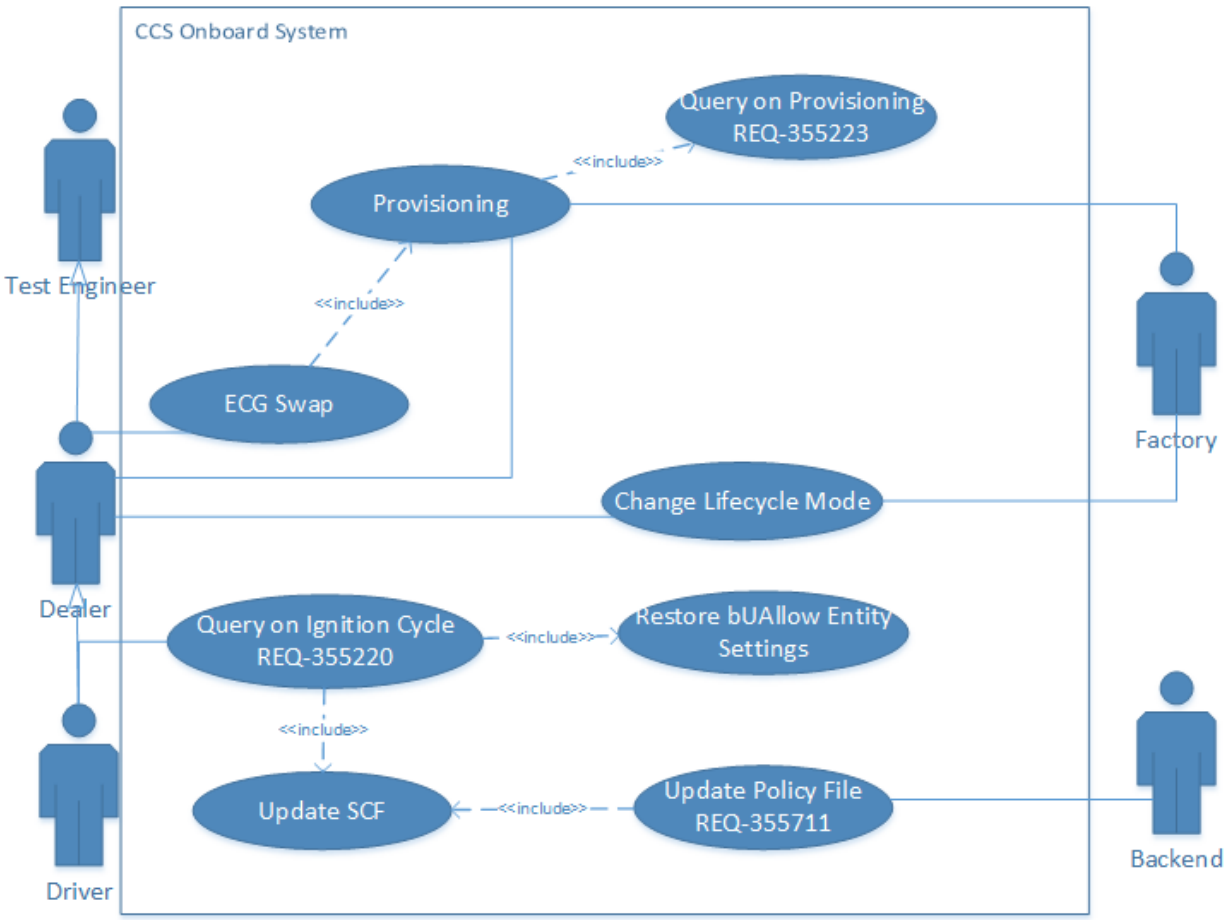


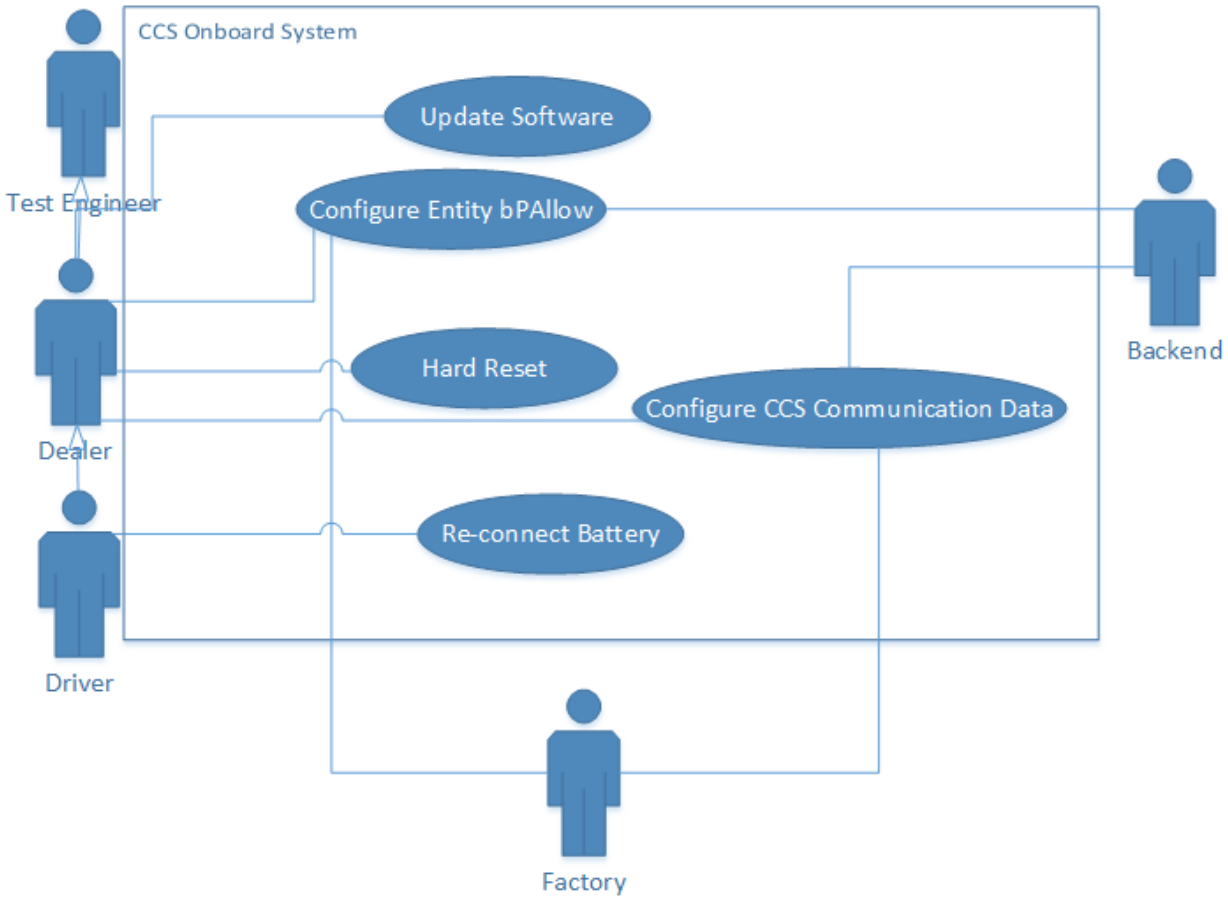
3.5 CCOIv2-FUN-REQ-318490/D-Update Entity Setting (Server)

3.5.1 Use Cases

3.5.1.1 CCOIv2-UCD-REQ-361932/A-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
<<include>>
Update SCF
<<include>>
Update Policy File
REQ-355711
Driver
Backend



3.5.1.2 CCOIv2-UC-REQ-355218/A-Change Consent Setting in Menu

Actors	Driver, Dealer, Test Engineer, CCSOffBoardPolicyClient
Pre-conditions	CCSServerEntitySettingsStatus is in status EntitiesReady
Scenario Description	1. Driver, Dealer, or Test Engineer navigates to the CCS 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. Continue with REQ-355983 Update Settings Onboard
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	

3.5.1.3 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	

3.5.1.4 CCOIv2-UC-REQ-355202/A-Configure Entity bSAllow

Actors	Test Engineer, VSCS, Backend, Driver
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. Continue with REQ-355983 Update Settings Onboard
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	

3.5.1.5 CCOIv2-UC-REQ-355203/A-Configure Entity bPAllow

Actors	Test Engineer, Dealer, VSCS, CCSOffBoardPolicyClient, Driver
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. Continue with REQ-355983 Update Settings Onboard
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	

3.5.1.6 CCOIv2-UC-REQ-355208/A-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. Continue with REQ-355983 Update Settings Onboard
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) .1 Continue with REQ-355207 Authorization Status Change (CCS OnBoardPolicyServer)
Interfaces	

3.5.1.7 CCOIv2-UC-REQ-355201/A-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. Continue with use case REQ-355983 Update Settings Onboard 4. Continue with use case REQ-355223 Query on Provisioning (CCS OnBoardPolicyServer)
Post-conditions	-
List of Exception Use Cases	-
Interfaces	

3.5.1.8 CCOIv2-UC-REQ-355204/A-Change Lifecycle Mode

Actors	Dealer, Test Engineer, Factory
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. Continue with REQ-355983 Update Settings Onboard
Post-conditions	The vehicle uses the CCS default entity settings
List of Exception Use Cases	-
Interfaces	

3.5.1.9 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	

3.5.1.10 CCOIv2-UC-REQ-355212/A-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. Continue with REQ-355983 Update Settings Onboard
Post-conditions	CCSOnBoardPolicyServer has restored the settings form the CCSOffBoardPolicyClient.
List of Exception Use Cases	
Interfaces	

3.5.1.11 CCOIv2-UC-REQ-355214/A-Update SCF

Actors	CCSOnboardPolicyServer, CCSOnboardPolicyClient, Policy Enforcers
Pre-conditions	1. CCS OnBoardPolicyServer received a valid SCF file in REQ-355711 Update Policy File
Scenario Description	1. Continue with REQ-355983 Update Settings Onboard
Post-conditions	-
List of Exception Use Cases	
Interfaces	

3.5.1.12 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	

3.5.1.13 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	

3.5.1.14 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	

3.5.1.15 CCOIv2-UC-REQ-355983/A-Update Settings Onboard

Actors	CCSOnboardPolicyServer, CCSOnboardPolicyClient, CCSOnboardModemPolicyClient, FNV2_VIM, FNV2_ALM, and CCSOffBoardPolicyClient
Pre-conditions	-
Scenario Description	1. CCSOnBoardPolicyServer sends the CCS entity settings to the CCSOnBoardPolicyClient and CCSOnboardModemPolicyClient 2. CCSOnboardModemPolicyClient and CCSOnboardModemPolicyClient confirm to the CCSOnBoardPolicyServer that they use the received CCS entity settings 3. CCSOnBoardPolicyServer sends the new CCS blacklist to the FNV2_VIM and FNV2_ALM.
Post-conditions	1. CCSOnboardPolicyServer, CCSOnboardPolicyClient, CCSOnboardModemPolicyClient, and CCSOffBoardPolicyClient have the same, updated entity settings 2. All CCS blacklisted data elements are disabled by FNV2_VIM 3. All applications listed on the CCS blacklist are disabled by FNV2_ALM
List of Exception Use Cases	
Interfaces	

3.5.2 Requirements

3.5.2.1 CCOIv2-REQ-362815/A-Synchronizing Policy Files and Entity Settings in one Process

If the CCSOnBoardPolicyServer synchronizes the policy files and entity settings in one synchronization, the CCSOnBoardPolicyServer shall use the following mapping of states:

OnBoardSynchronization States	EntitySettingUpdate States
Invalid	-
Waiting	-
DataStorageError	-
SynchronizationNeeded	-
Synchronizing	{UpdateServerEntitySettings, UpdateClientEntitySettings}
Synchronized	EntitiesReady
SynchronizationFailed	EntityUpdateFailed
OnBoardDistributedStateMachineInconsistent	-
UnrecoverableSynchronizationError	EntitySettingsUnrecoverable

Rationale: the implementation is based on the FB4 synchronization while the FB5 SPSS documents that the entity settings and policy files are transferred separately. This mapping serves as a translation table. Since the EntitySettingUpdate states may not exists and are therefore not readable for testers, testers can use the states indicated in this table from the OnBoardSynchronization states instead.

3.5.2.2 CCOIv2-CLD-REQ-296370/B-General

3.5.2.2.1 CCOIv2-REQ-296877/B-Overall Entity State in Provisioned State (bAllow)

If the ECG's provisioning state is 0x26 (i.e. the ECG is provisioned), the CCSOnBoardPolicyServer shall determine the entity state bAllow for any defined entity by the combination of the entity bits bPAllow, bSAllow, bUAllow and bFPAllow:

IF bPAllow == 1 && bSAllow == 1 && (bUAllow == 1 || bFPAllow == 1) THEN bAllow == 1
ELSE bAllow == 0

Ref. REQ-324869-Overall Entity Setting State in Un-Provisioned State (bAllow)

3.5.2.2.2 CCOIv2-REQ-296400/B-ConsentSequenceId Data Type

The CCSOnBoardPolicyServer shall shall store the consentSequenceId as an unsigned 32 Bit wide Integer which wraps on overflow.

3.5.2.2.3 CCOIv2-REQ-362809/A-Provide Entity Setting Information on Request

When the CCSOnBoardPolicyServer receives a request to read CCS entity settings SpcmCcsmEntitySettingsReadReq, the CCSOnBoardPolicyServer shall respond with a SpcmCcsmEntitySettingsReadResp:

- If the request contains a list of CCS entities the CCSOnBoardPolicyServer shall populate the response with the EntityStatus of each requested entity
- If the request contains an empty list of CCS entities the CCSOnBoardPolicyServer shall populate the response with the EntityStatus of all entities

Ref. REQ-313614-Customer Connectivity Settings API

3.5.2.2.4 CCOIv2-REQ-362600/A-Start in state EntitiesReady

When the CCSOnBoardPolicyServer is started, the CCSOnBoardPolicyServer shall enter the state EntitiesReady.

3.5.2.3 CCOIv2-REQ-362598/A-What to do When An Entity is Changed

3.5.2.3.1 CCOIv2-REQ-362601/A-Transition to UpdateServerEntitySettings

If any of the following requirements are met

- Any entity setting changed (REQ-362599-Reasons for Entities to Change)
- The CCSOffBoardPolicyClient sends a new SCF file to CCSOnBoardPolicyServer (REQ-355020 – OffBoardSynchronization (Server), REQ-355214 - Update SCF)

the CCSOnBoardPolicyServer shall enter the state UpdateServerEntitySettings as soon as all steps from the previous UpdateServerEntitySettings are completed (REQ-362602-Steps in State UpdateServerEntitySettings).

3.5.2.3.2 CCOIv2-REQ-362602/A-Steps in State UpdateServerEntitySettings

When the CCSOnBoardPolicyServer enters the state UpdateServerEntitySettings, the CCSOnBoardPolicyServer shall execute the following sup-requirement steps in chronological order. These steps shall not be interrupted by a new trigger condition to enter the state update entity settings (REQ-362601-Transition from to UpdateServerEntitySettings) or the driver turning off ignition.

3.5.2.3.2.1 CCOIv2-REQ-362603/A-Persist Entity Settings

The CCSOnboardPolicyServer shall persist updated entity settings on receipt.

3.5.2.3.2.2 CCOIv2-REQ-296883/B-Dependency on Policy Table Extension

If the trigger conditions to change an entity setting is not any of the following:

- a reset (REQ-296415-Effects of Reset)
- restoring entity settings from the CCSOffBoardPolicyClient (REQ-296357-Restore Entity Settings from Backend)
- restoring default settings (REQ-342774-Default on Provisioned state, REQ-318374-Default on Lifecycle Mode change)

the CCSOnboardPolicyServer shall apply the CCS entity dependencies for the changed entity (bUAllow, bPAllow, bFPAllow, bSAllow) defined in the PTE per REQ-329007-dependencies.
If the trigger conditions to change an entity setting are the conditions mentioned above the CCSOnBoardPolicyServer shall not apply the CCS entity dependencies.

3.5.2.3.2.3 CCOIv2-REQ-296398/C-Assigning consentSequenceId, consentTimestamp and metaData

If a bUAllow entity setting is changed, the CCSOnBoardPolicyServer shall increment the consentSequenceID by 1, record a timestamp, and record the meta data of the PTE, SCF, and UFM files (REQ-296313-Meta Data). See REQ-362599-Reasons for Entities to Change and REQ-296883-Dependency on Policy Table Extension Dependencies for trigger conditions for bUAllow entity settings to change.

Exceptions to changing the consentSequenceID and recording a timestamp are described in:

- REQ-296357-Restore Entity Settings from Backend
- REQ-342774-Default on Provisioned state

3.5.2.3.2.4 CCOIv2-REQ-296399/B-Inform CCSOffBoardPolicyClient about Consent Settings Change

When a consent setting (bUAllow) changes, the CCSOnboardPolicyServer shall send an uncorrelated CCSUpdateAlert. This alert shall include all bUAllow entity settings, consent sequence ID, the respective timestamp of consent (REQ-296398-Assigning consentSequenceId and consentTimestamp), and the meta data of the last known good PTE, SCF, and UFM files (REQ-296313-Meta Data) to the CCSOffBoardPolicyClient.

3.5.2.3.2.5 CCOIv2-REQ-362604/A-Read Communication Data

Before any onboard setting update (REQ-315469-Entity States Update on settings change) the CCSOnboardPolicyServer shall apply the latest CCS Communication data (REQ-296372-Diagnostics Parameters for Distributed State Machine).

3.5.2.3.2.6 CCOIv2-REQ-362605/A-Calculate Blacklist

When the bAllow value of any entity setting changed OR the vehicle received a new SCF file the CCSOnboardPolicyServer shall calculate a new CCSBlacklist (REQ-326670-blacklist generation).

3.5.2.3.2.7 CCOIv2-REQ-326670/C-blacklist generation

Once a trigger condition for new blacklist generation is met, CCS OnBoardPolicyServer shall generate SpcmCcsmBlacklist by following the below steps:

- clear the previously generated blacklist
- create a new SpcmCcsmBlacklist with any CAN signal, SOA primitive and application, which is assigned to an overall disabled entity (bAllow==disabled) in the SCF policy file
- add independently from any entity setting all signals, primitives and applications from SCF section “CCSBlacklist”

3.5.2.3.3 CCOIv2-REQ-362606/A-Transition to UpdateClientEntitySettings

When the CCSOnBoardPolicyServer is in state UpdateServerEntitySettings and completed all steps (REQ-362602-Steps in State UpdateServerEntitySettings)
OR
the timeout for onboard entity settings expired Update_Onboard_Settings_Timeout
OR
(When the CCSOnBoardPolicyServer was in state EntityUpdateFailed for longer than
Minimum_Time_Spent_In_EntityUpdateFailed
AND
CCSOnBoardPolicyServer tried to inform the CCSOnBoardPolicyClient and the CCSOnBoardPolicyModem client about entity setting changes fewer than Maximum_Entity_Update_Tries times)

the CCSOnBoardPolicyServer shall enter the state UpdateClientEntitySettings.

3.5.2.3.4 CCOIv2-REQ-362607/A-Steps in State UpdateClientEntitySettings

When the CCSOnBoardPolicyServer enters the state UpdateClientEntitySettings, the CCSOnBoardPolicyServer shall execute the following sup-requirement steps.

3.5.2.3.4.1 CCOIv2-REQ-362608/A-Inform VIM and ALM about New Blacklist

When the CCSOnBoardPolicyServer enters the state UpdateClientEntitySettings the CCSOnBoardPolicyServer shall send a SpcmCcsmBlacklistUpdateInd message with the updated CCSBlacklist to FNV2_VIM and FNV2_ALM.

3.5.2.3.4.2 CCOIv2-REQ-315469/C-Inform Clients about Updated Settings

When the CCSOnboardPolicyServer enters the state UpdateClientEntitySettings the CCSOnboardPolicyServer shall send a SpcmCcsmEntitySettingsUpdateInd message to inform the OnboardPolicyClient and OnboardPolicyModemClient about the updated entity settings.

3.5.2.3.4.3 CCOIv2-REQ-362816/A-Inform Feature Applications about Updated Settings

When the CCSOnboardPolicyServer enters the state UpdateClientEntitySettings the CCSOnboardPolicyServer shall inform the CCSOnboardPolicyServer feature applications about the updated entity settings.

3.5.2.3.5 CCOIv2-REQ-362610/A-Transition to EntitiesReady

When the CCSOnBoardPolicyServer is in state UpdateClientEntitySettings
AND
the CCSOnBoardPolicyServer received a SpcmCcsmEntitySettingsUpdateResp with Success and ECU ID TCU=0x754
AND
(the CCSOnBoardPolicyServer received a SpcmCcsmEntitySettingsUpdateResp with Success and ECU ID SYNC=0x7D0 OR Ignition is OFF)
AND
the maximum time for the entity setting update Update_Onboard_Settings_Timeout is not expired

the CCSOnBoardPolicyServer shall enter the state EntitiesReady.

3.5.2.3.6 CCOIv2-REQ-362611/A-Transition to EntityUpdateFailed

When the CCSOnBoardPolicyServer is in state UpdateClientEntitySettings
AND
(The timeout to receive an answer from the CCSOnBoardPolicyClient and CCSOnBoardPolicyModemClient Timeout_EntitySettings_Client_Acknowledgement has expired

OR
the CCSOnBoardPolicyServer received a SpcmCcsmEntitySettingsUpdateResp with Failure from and ECU ID TCU=0x754 OR SYNC=0x7D0
OR
the maximum time for the entity setting update Update_Onboard_Settings_Timeout expired)

the CCSOnBoardPolicyServer shall enter the state EntitiesReady.

3.5.2.3.7 CCOIv2-REQ-362613/A-Transition to EntitySettingsUnrecoverable

When the CCSOnBoardPolicyServer is in state EntityUpdateFailed
AND
(the CCSOnBoardPolicyS server tried unsuccessfully at least Maximum_Entity_Update_Tries times to inform the CCSOnBoardClient OR the CCSOnBoardModemClient
OR
the maximum time for the entity setting update Update_Onboard_Settings_Timeout expired)

the CCSOnBoardPolicyServer shall enter the state EntitySettingsUnrecoverable.

3.5.2.3.8 CCOIv2-REQ-362616/A-Overview over Entity Setting Update Parameters

Logical Parameter	Physical Parameter
Maximum_Entity_Update_Tries	Maximum_Amount_of_Synchronizing_Retries
Minimum_Time_Spent_In_EntityUpdate Failed	Minimum_Time_Spent_In_SynchronizationFailed
Timeout_EntitySettings_Client_Acknowledgement	Timeout_TryingToEnter_DistributedState_Before_OnBoardDistributedStateMachineInconsistent
Update_Onboard_Settings_Timeout	OnBoard_Synchronization_Timeout

3.5.2.4 CCOIv2-REQ-362599/A-Reasons for Entities to Change

3.5.2.4.1 CCOIv2-REQ-324869/C-Overall Entity Setting State in Un-Provisioned State (bAllow)

If the ECG's provisioning state is less than 0x26 (i.e. the ECG is not provisioned), the CCSOnBoardPolicyServer shall set all bAllow values to be enabled and shall override the value generated per REQ-296877-Settings Translation to Overall Entity State (bAllow) in unprovisioned state.

References:
- For Provisioning state, refer to ECGProvisioningState API, Provisioning Specification REQ-331824
- REQ-296877-Overall Entity State in Provisioned State (bAllow)

3.5.2.4.2 CCOIv2-REQ-342774/B-Default on Provisioned state

If the CCSOnBoardPolicyServer enters the provisioned state, the CCSOnboardPolicyServer shall set the default entity values (bUAllow and bFPAllow) each time ECG enters provisioning state „Provisioned", set all consentSequenceId values to 0, and record the time of provisioning in the consent timestamp.

Rationale: this requirement makes sure the CCSOnBoardPolicyServer always adopts the latest settings from the backend after a ECG module swap. This also resets the settings during a TCU swap, which is an undesirable side effect, but is acceptable since the vehicle will restore the old settings through an off board update.

Related: REQ-329004-DefaultEntitySettingPolicies

3.5.2.4.3 CCOIv2-REQ-318374/C-Default on Lifecycle Mode change

The CCSOnboardPolicyServer shall set the default entity values (bUAllow and bFPAllow) each time Lifecycle Mode is changed.

Related: REQ-329004-DefaultEntitySettingPolicies

3.5.2.4.4 CCOIv2-REQ-296415/D-Effects of Reset

Upon a Master Reset, Brand Connect Reset or a ClearUserSettings command from the backend the CCSOnBoardPolicyServer shall apply the following effects:

- The CCSOnboardPolicyServer shall set the default bUAllow entity values (ref. REQ-329004-DefaultEntitySettingPolicies)
- The CCSOnBoardPolciyServer shall remove CCSOffBoardPolicyClient triggered User Prompts which are pending to be confirmed by the user from the queue and notify the backend per REQ-296275 - Effect of Master Reset on pending prompt requests
- The CCSOnBoardPolicyServer shall reset the AveA user decision parameter (ref. REQ-306742)

Note:

- The CCSOnBoardPolicyServer shall not set the default bFPAllow entity values
- The CCSOnBoardPolicyServer shall keep the last known good policy files

3.5.2.4.5 CCOIv2-REQ-362886/A-Default Settings while in DataStorageError

If CCS OnBoardPolicyServer is in state “DataStorageError”, and a trigger for reverting to default entity settings applies (REQ-342774, REQ-318374, REQ-296415), the CCS OnBoardPolicyServer shall not apply the default values befor Recovery from DataStorageError (CCOIv2-REQ-362521 - Recovery from DataStorageError).

3.5.2.4.6 CCOIv2-REQ-328368/B-bSAllow and bPAllow entity values

The CCSOnboardPolicyServer shall monitor the configurable parameters diagnostic kernel as per diagnostic specification for the current entity bit values bPAllow and bSAllow.

3.5.2.4.6.1 CCOIv2-REQ-362523/A-Entity Bit Change via Configuration while in DataStorageError

If CCS OnBoardPolicyServer is in state “DataStorageError”, and an entity bit value is changed via configuration (ref. REQ-328368 - Subscription and Policy entity values), the CCSOnBoardPolicyServer shall not consider the new entity bit value before Recovery from DataStorageError (CCOIv2-REQ-362521 - Recovery from DataStorageError).

3.5.2.4.7 CCOIv2-REQ-362621/A-CCSOnBoardPolicyClient Sets bUAllow Entity Setting

When

- the CCSOnBoardPolicyServer receives a SpcmCcsmSettingsUpdateInd from the CCSOnBoardPolicyClient

AND

- the received bUAllow value is different than the bUAllow value on the CCSOnBoardPolicyServer

the CCSOnBoardPolicyServer shall replace the entity value on the CCSOnBoardPolicyServer with the received bUAllow and the received metaData for REQ-296398-Assigning consentSequenceId, consentTimestamp and metaData.

3.5.2.4.8 CCOIv2-REQ-325856/B-Authorization enabled

When the CCSOnBoardPolicyServer receives a AuthorizationStatusChangeCommand with Authorization state = 1, then the CCSOnBoardPolicyServer shall set CCS „Authorized“ (ID 3, Type 0) entity bit bPAllow = enabled.

3.5.2.4.9 CCOIv2-REQ-325858/B-Authorization disabled

When the CCSOnBoardPolicyServer receives a AuthorizationStatusChangeCommand with Authorization state = 0, then the CCSOnBoardPolicyServer shall set CCS „Authorized“ (ID 3, Type 0) entity bit bPAllow = disabled.

3.5.2.4.10 CCOIv2-REQ-296357/C-Restore Entity Settings from Backend

If the check for consentSequenceId (REQ-355961) is successful for an entity, CCSOnBoardPolicyServer shall replace the onboard entity value with the received bUAllow value, the received consentSequenceId, and the received timestamp for this entity.

3.5.2.4.10.1 CCOIv2-REQ-355961/A-consentSequenceId check

CCS OnBoardPolicyServer shall only process an update for an entity setting bUAllow via FTCP command or query response, if the consentSequenceId in the FTCP packet is larger than the current consentSequenceId associated with the entity.

3.5.2.4.10.2 CCOIv2-REQ-362527/A-Restoring of Entity Settings while in DataStorageError

If CCS OnBoardPolicyServer is in state “DataStorageError”, and new entity values are received via CCS Update Query Response, the CCSOnBoardPolicyServer shall not consider new entity bit values from restoring (REQ-296357 - Restore Entity Settings from Backend) before recovery from DataStorageError (CCOIv2-REQ-362521 - Recovery from DataStorageError).

3.5.2.4.11 CCOIv2-REQ-296292/D-Effects of Accepting or Declining a UserPrompt

If the CCSOnBoardPolicyServer receives a SpcmCcsmUserPromptResp from the CCSOnBoardPolicyClient with promptResult = (“SPCM_CCSM_PROMPT_RESULT_SELECT_NO” OR “SPCM_CCSM_PROMPT_RESULT_SELECT_YES”), the CCSOnBoardPolicyServer shall apply the effects defined in the PTE file per REQ-328921.

3.5.2.4.11.1 CCOIv2-REQ-362681/A-Persisting Entity Setting Change Not Possible

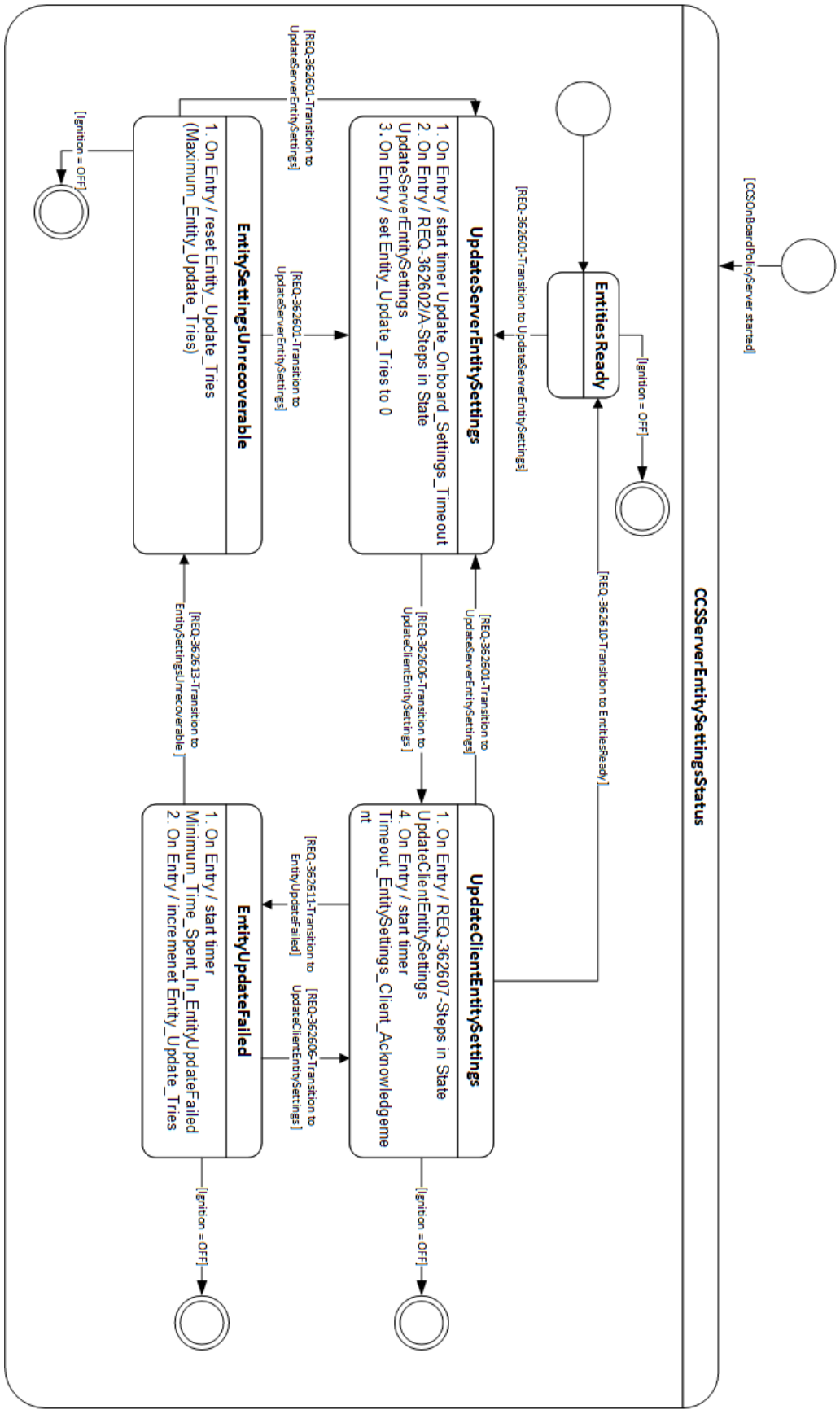
If the CCSOnBoardPolicyServer cannot persist the entity settings (REQ-362603-Persist Entity Settings) the CCSOnBoardPolicyServer shall send a correlated alert. In case of UserAuthorizationResponseAlert send DENIED, in case of UserAuthorizationCommand send FAILED.

3.5.2.4.11.2 CCOIv2-REQ-362682/A-Applying Dependencies Not Possible

If the CCSOnBoardPolicyServer cannot apply the dependencies (REQ-296883-Dependency on Policy Table Extension) the CCSOnBoardPolicyServer shall send a correlated alert. In case of UserAuthorizationResponseAlert send DENIED, in case of UserAuthorizationCommand send FAILED.

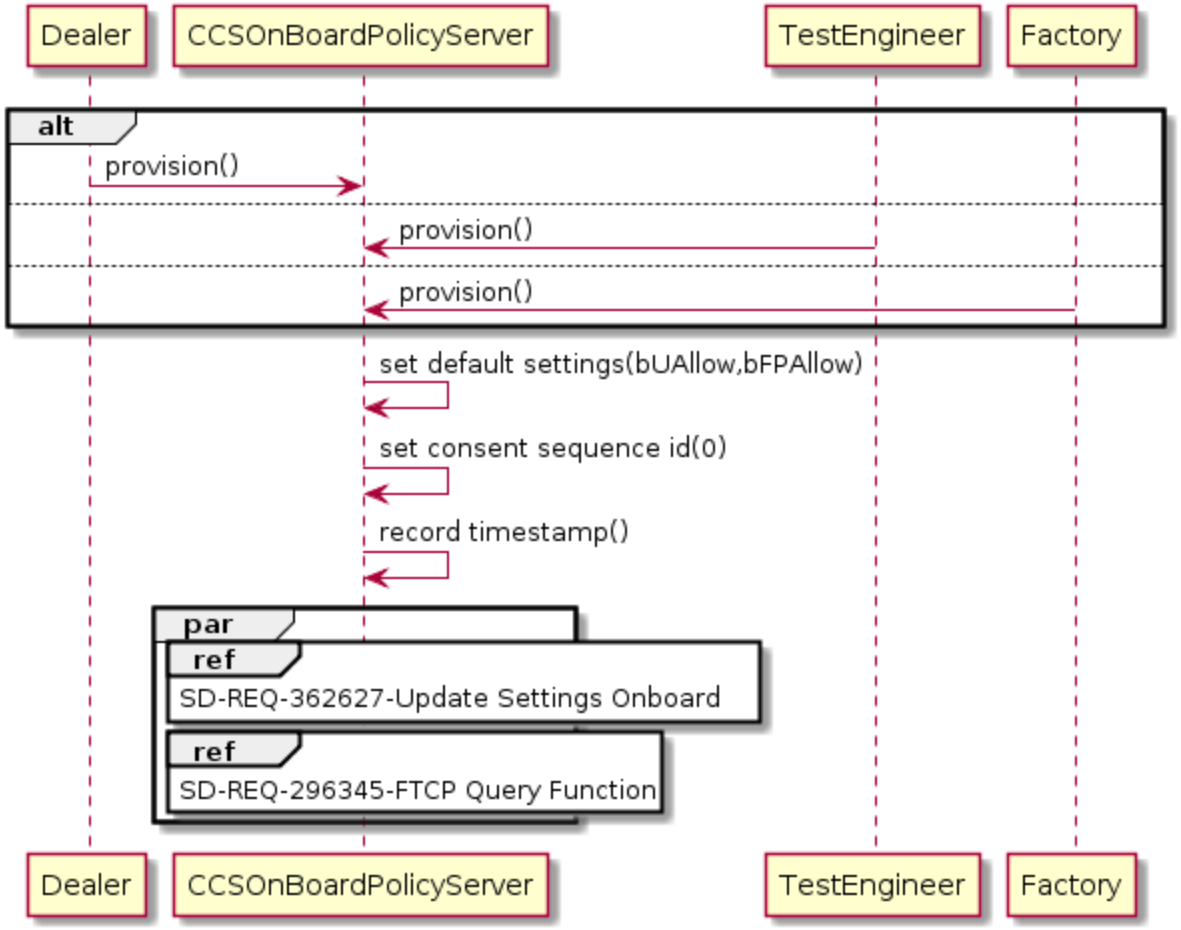
3.5.3 State Machine Diagrams

3.5.3.1 CCOIv2-STM-REQ-362615/A-Update Entity Settings


CCSServerEntitySettingsStatus
[CCSOnBoardPolicyServer started]
EntitiesReady
[Ignition = OFF]
[REQ-362601-Transition to UpdateServerEntitySettings]
[REQ-362610-Transition to EntitiesReady]
UpdateServerEntitySettings
1. On Entry / start timer Update_Onboard_Settings_Timeout
2. On Entry / REQ-362602/A-Steps in State UpdateServerEntitySettings
3. On Entry / set Entity_Update_Tries to 0
[REQ-362601-Transition to UpdateServerEntitySettings]
[REQ-362601-Transition to UpdateServerEntitySettings]
EntitySettingsUnrecoverable
1. On Entry / reset Entity_Update_Tries (Maximum_Entity_Update_Tries)
[Ignition = OFF]
[REQ-362606-Transition to UpdateClientEntitySettings]
[REQ-362606-Transition to UpdateClientEntitySettings]
UpdateClientEntitySettings
1. On Entry / REQ-362607-Steps in State UpdateClientEntitySettings
4. On Entry / start timer Timeout_EntitySettings_Client_Acknowledgement
[REQ-362613-Transition to EntitySettingsUnrecoverable]
[REQ-362611-Transition to EntityUpdateFailed]
EntityUpdateFailed
1. On Entry / start timer Minimum_Time_Spent_In_EntityUpdateFailed
2. On Entry / incremenet Entity_Update_Tries
[Ignition = OFF]
[Ignition = OFF]
[Ignition = OFF]

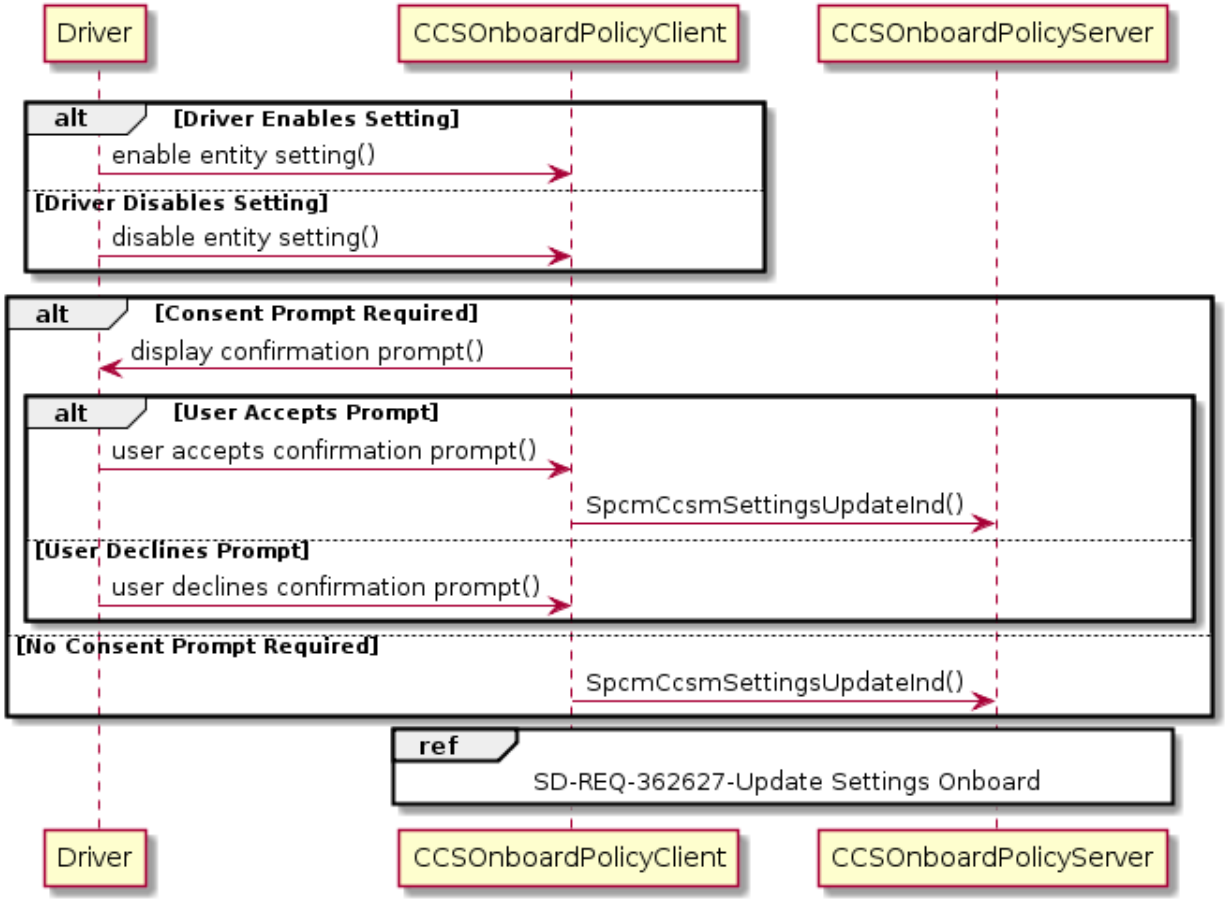
3.5.4 Sequence Diagrams

3.5.4.1 CCOIv2-SD-REQ-362625/A-Provisioning

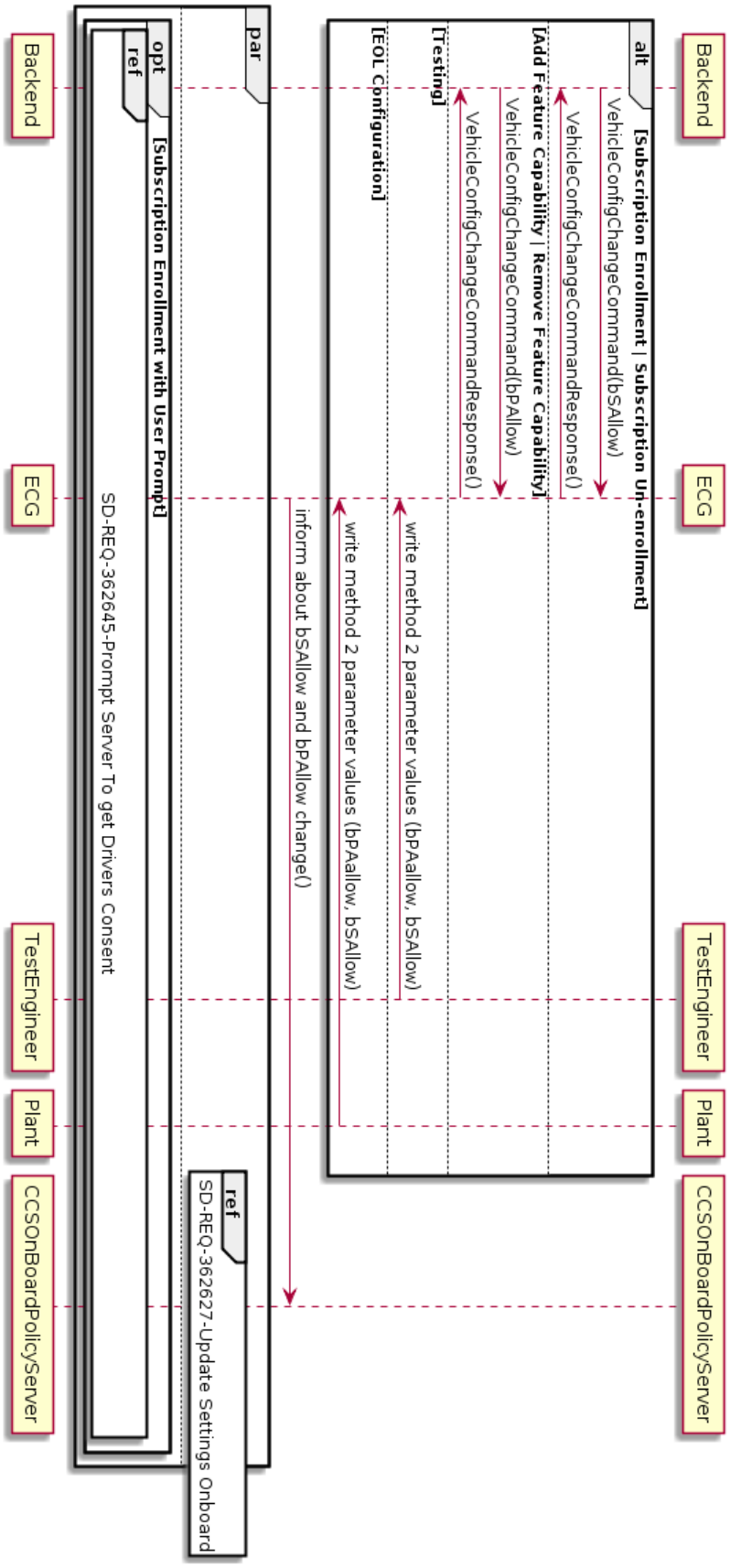


3.5.4.2 CCOIv2-SD-REQ-321292/C-Change Consent Setting in Menu

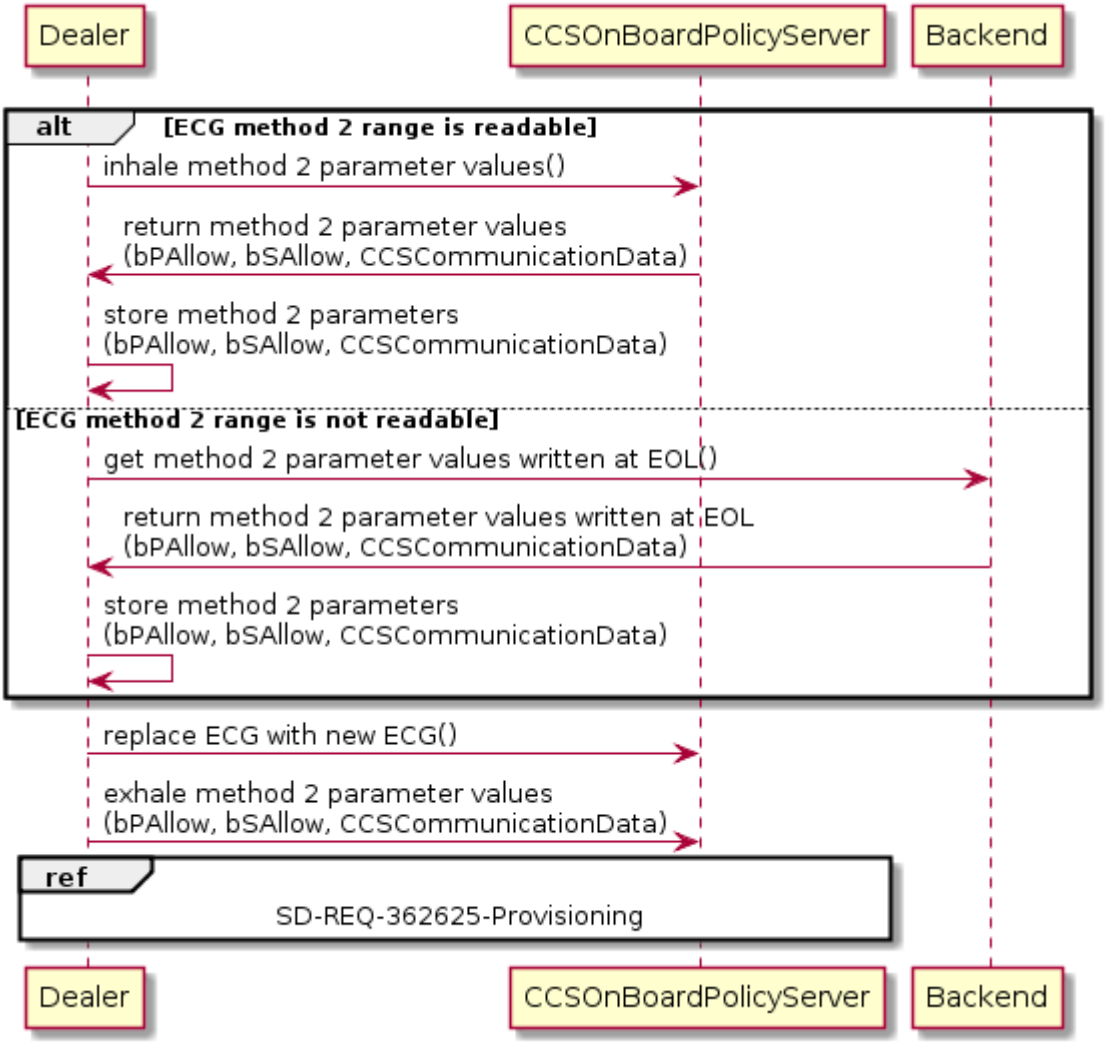
Linked Elements
CCOIv2-UC-REQ-291421/B-Change entity setting by User


Driver
CCSOnboardPolicyClient
CCSOnboardPolicyServer
alt
[Driver Enables Setting]
enable entity setting()
[Driver Disables Setting]
disable entity setting()
alt
[Consent Prompt Required]
display confirmation prompt()
alt
[User Accepts Prompt]
user accepts confirmation prompt()
SpcmCcsmSettingsUpdateInd()
[User Declines Prompt]
user declines confirmation prompt()
[No Consent Prompt Required]
SpcmCcsmSettingsUpdateInd()
ref
SD-REQ-362627-Update Settings Onboard
Driver
CCSOnboardPolicyClient
CCSOnboardPolicyServer

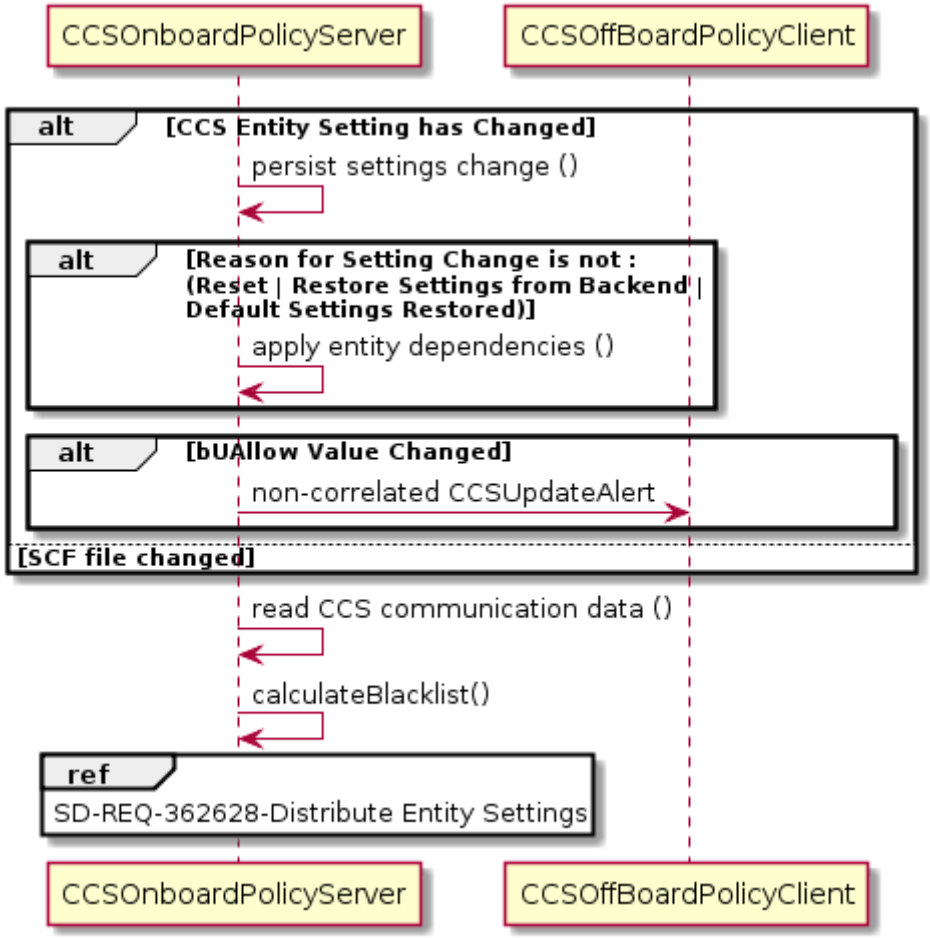
3.5.4.3 CCOIv2-SD-REQ-362624/A-bPAllow or bSAllow Configuration Change



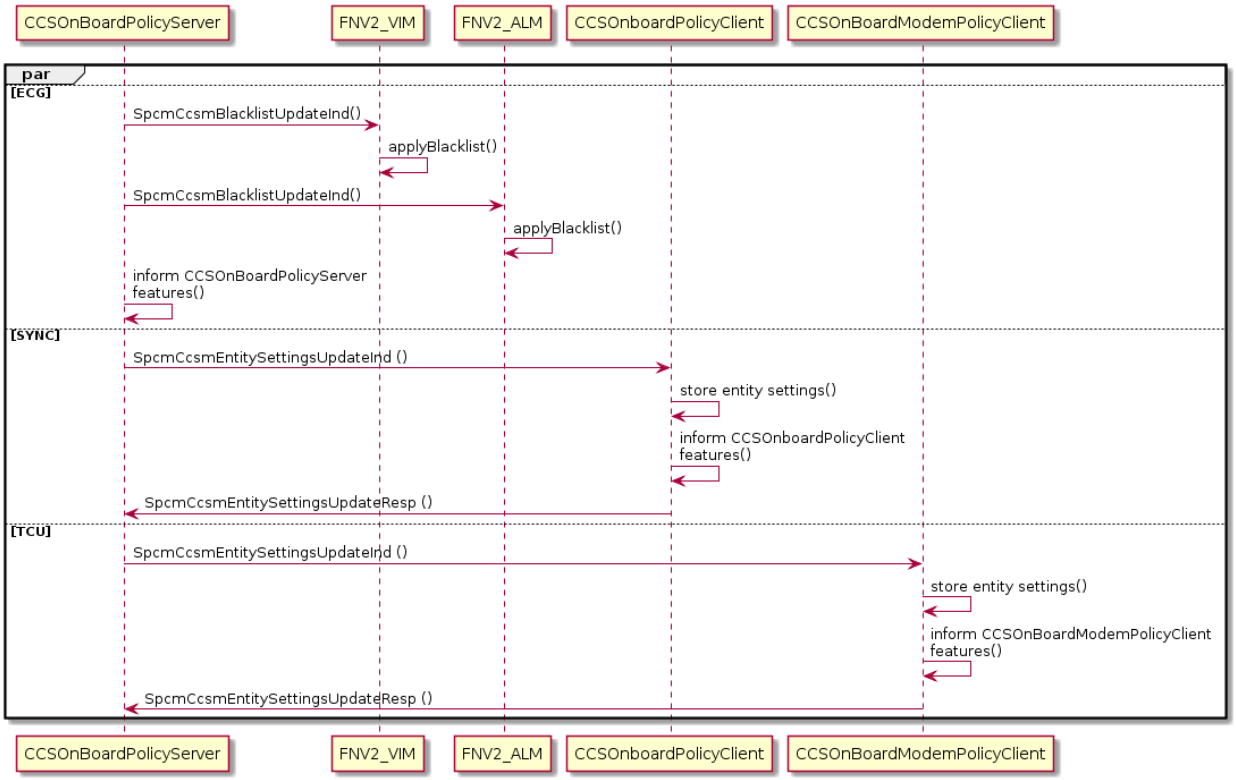
3.5.4.4 CCOIv2-SD-REQ-362626/A-ECG Swap



3.5.4.5 CCOIv2-SD-REQ-362627/A-Update Settings Onboard



3.5.4.6 CCOIv2-SD-REQ-362628/A-Distribute Entity Settings



3.6 CCOIv2-FUN-REQ-296186/C-Policy Enforcement (Server)

The central purpose of CCS is to give notice and control to vehicle users regarding the data that is wirelessly transmitted off of 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.

3.6.1 Use Cases

3.6.1.1 CCOIv2-UC-REQ-296189/D-Enforce policies

Actors	CCSOnBoardPolicyServer, CCSOnBoardPolicyClient, CCSOnBoardPolicyModemClient, ALM, VIM, Feature Applications
Pre-conditions	Updated Entity Settings and Blacklist are distributed to all relevant parties (ref. UC-REQ-355983-Update Settings Onboard)
Scenario Description	1. PolicyEnforcers apply received blacklist 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 3.2. Feature Applications don't get access to information 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	

3.6.2 Requirements

3.6.2.1 CCOIv2-REQ-362748/A-General Requirements

3.6.2.1.1 CCOIv2-REQ-296383/C-Operation of PolicyEnforcer

A Policy Enforcer shall operate in any power mode, to control any feature application, which is requesting access to signals or primitives.

3.6.2.1.2 CCOIv2-REQ-362749/A-Blacklist request after initialization

Once VIM and ALM have completed the initialization, both components shall request the latest blacklist via SpcmCcsmBlacklistReadReq.

3.6.2.1.3 CCOIv2-REQ-362750/A-Deadline to adopt Blacklist updates

VIM and ALM shall enforce SpcmCcsmBlacklist updates within 1 second after reception.

3.6.2.1.4 CCOIv2-REQ-297733/B-Persistence of Blacklist

VIM and ALM shall persist the SpcmCcsmBlacklist and shall enforce its content. Once a SpcmCcsmBlacklist is replaced via SpcmCcsmBlacklistUpdateInd or SpcmCcsmBlacklistReadResp, VIM and ALM shall enforce the new SpcmCcsmBlacklist.

3.6.2.1.5 CCOIv2-REQ-328100/C-Validation of Policy Enforcement

Policy Enforcer activity shall be monitored. It shall be readable via diagnostic tools:

- Which topic/service is requested
- Is the request allowed or rejected per policy enforcer

SOA requests shall be possible to be sent out by engineering tool.

3.6.2.2 CCOIv2-REQ-362751/A-VIM Policy Enforcement

3.6.2.2.1 CCOIv2-REQ-362755/A-ECG Policy Enforcement of Signals and Primitives

VIM shall not forward any CAN signals or SOA primitives, which are listed in the SpcmCcsmBlacklist to any VIM managed feature application.

3.6.2.2.2 CCOIv2-REQ-362756/A-Whitelisted Signals and Primitives

3.6.2.2.2.1 CCOIv2-REQ-362806/A-MMOTA Data Access

The VIM shall grant the MMOTA feature application access to the following data elements independently of the SpcmCcsmBlacklist:

3.6.2.2.2.1.1 CCOIv2-REQ-362759/A-Data Elements

Name	Description
OtaActv_D_Stat	GMW_ECG sends to ECUs to Inform what OTA activity (For example, Interruptible A/B, Non-Interruptible A/B, Non-Interruptible E/R,etc) is taking place.
Ignition_Status	The processed value for current Ignition state.
PwPckTq_D_Stat	Indicates if the power pack is a motive (wheel torque producing) or non-motive (non-wheel torque producing) mode. It also indicates to if a transition from a non-motive to a motive mode is in progress. NOTE: nothing else should be inferred from this signal.
KeyOffMde_D_Actl	Used to minimize battery drain when vehicle is off by informing ECUs when to go into their different states of low-current operation.
VehOnCtl_D_Stat	ISPR Off , On or Unknown
VehOn_D_RqCld	Request Signal to Turn On RunStart (ISPR) Circuit for Cloud Activity.
VehOnRqstr_D_Stat	Requestor (OTA, Fleet, Stolen Vehicle) of Vehicle RunStart Bus Control from ECG
VehOnSrc2_D_Stat	Indicates which Feature in under PowerBus Control Note: Duplicate signal - BCM to ECG for AUTPOSAR 1A Profile ISO26262 E2E implementation.
VehOnSrc_D_Stat	Indicates which Feature in under PowerBus Control
VehStrtInhbt_D_Stat	Vehicle Start is inhibited/Not inhibited to due to Cloud command (CAVC)
CrnkInhbt_B_Stat	ESCL Start Inhibit Signal
PtIgnSwtch_D_Stat	Powertrain module status of the Ignition Switch Position – Run/Start h/w line , ie, the ignition switch. The "No data exists" state is the default CAN signal if the input has not yet been read.

3.6.2.2.2.1.2 CCOIv2-REQ-362808/A-Data Element Off Board Sharing

The MMOTA feature application shall not share the data elements listed in REQ-362759-Data Elements off board with the exception of VehOnRqstr_D_Stat and VehStrtInhbt_D_Stat. These two signals maybe shared with the Ford Backend if an OTA update is in progress.

3.6.2.2.3 CCOIv2-REQ-362763/A-Permitted Signals and Primitives

VIM shall not block any CAN signals or SOA primitives from any feature application, which are not contained in the SpcmCcsmBlacklist.

3.6.2.2.4 CCOIv2-REQ-362767/A-Fallback to Off if Blacklist not available

If due to an internal error no SpcmCcsmBlacklist is available on VIM, VIM shall block any CAN signal or SOA primitive, which is not specifically whitelisted (ref. CCOIv2-REQ-362756).

3.6.2.3 CCOIv2-REQ-362769/A-ALM Policy Enforcement

3.6.2.3.1 CCOIv2-REQ-362772/A-ECG Policy Enforcement of Applications

ALM shall disable any feature application, which is listed in the SpcmCcsmBlacklist.

3.6.2.3.2 CCOIv2-REQ-362774/A-Permitted Applications

ALM is allowed to enable applications, which are not contained in the SpcmCcsmBlacklist.

3.6.2.3.3 CCOIv2-REQ-362775/A-Fallback to Off if Blacklist not available

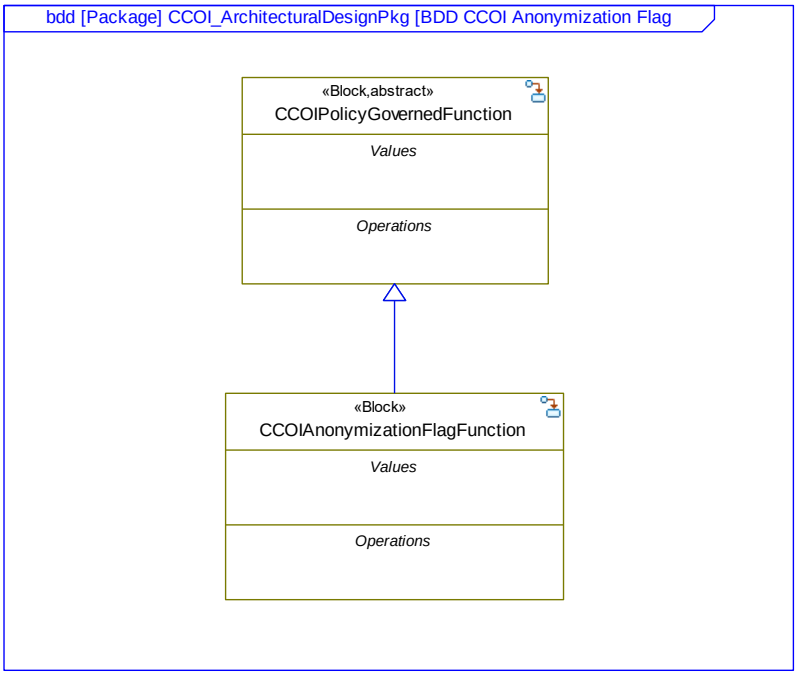
If due to an internal error no SpcmCcsmBlacklist is available on ALM, ALM shall disable any feature application.

3.7 CCOIv2-REQ-296391/A-FTCP Anonymization Flag Function

Setting or not setting the FTCP Anonymization Flag in CommonFromVehicle shall be encapsulated by an appropriate policy governed function.

3.7.1 Static View

3.7.1.1 CCOIv2-BDD-REQ-296392/A-FTCP Anonymization Flag Function



3.7.2 Requirements

3.7.2.1 CCOIv2-REQ-313618/B-Anonymization Flag

If the entity AnonymizationOfPII (ID 4, Type 2) is overall enabled, the CCSOnBoardPolicyServer shall set the anonymization flag to On.
If the entity AnonymizationOfPII (ID 4, Type 2) is overall disabled, the CCSOnBoardPolicyServer shall set the anonymization flag to Off.

3.7.2.2 CCOIv2-REQ-296389/B-Flagging Messages which need Preprocessing in SDN

The CCSOnBoardPolicyServer shall set the anonymizationStatus in CommonFromVehicle in every FTCP message according to anonymization flag (REQ-313618-Anonymization Flag).

3.8 CCOIv2-REQ-311523/B-Policy Table Meta Data

3.8.1 Requirements

3.8.1.1 CCOIv2-REQ-311522/C-Default Policy Tables

The OnBoardPolicyServer shall store a default set of policy files:

- PTE file
- SCF file
- CFM file containing all language and screen size combinations

3.8.1.2 CCOIv2-REQ-296313/C-Meta Data

The meta data for the policy tables is defined as Policy-Platform-, -Major-, and -Minor-Version, Timestamp of change, and SHA-256 hash-value.

Data	Usage
PlatformVersion	The CFM platform version contains information about display and selected language. The PTE and SCF platform version is a simple version number without further content information.
MajorVersion	The value of the major version parameter refers to the applicable Feature Bundle.
MinorVersion	The minor version represents the revision of the policy table.
Timestamp of Change	UTC Timestamp of revision of content
Hash Values	Integrity check of files transmitted from service delivery network to the CCS Server and Client. Comparison of hash values prior to adoption of settings. Re-submission in case of mismatch.

Table 10 – Meta Data Description Table

3.8.1.2.1 CCOIv2-REQ-296314/B-Policy Table Meta Data

The CCS OnBoardPolicyServer determines which set of policy data is required for the current CCS system. The underlying logic requires the following inputs:

- Feature Bundle – config. parameter “Feature Bundle” – ref. REQ-296379
- Display size – config. parameter “display size” – ref. REQ-296379
- Currently selected language – ref. Language input signal “Disp_LangSel.St”

3.8.1.2.2 CCOIv2-REQ-296318/C-Meta Data Generation

Policy table meta data consist of 3 blocks: platform, major and minor version, each with 16 bit of information.

3.8.1.2.2.1 CCOIv2-REQ-296319/C-Platform Version

The CFM platform version contains display size and language information:

Byte 1 reflects the display size information and shall receive its value from diagnostic parameter “display size” (ref. REQ-296379).
If the value of “display size” equals FF, the language input shall be ignored and platform version shall be set to FF00. Thereby, a CFM file with all display/language information as introduced with Feature Bundle 3 can still be handled.

Byte 2 reflects the currently system selected language. It is generated based on language CAN signal input Disp_LangSel_St. E.g. For German as selected language, Byte 2 shall be set to 0x04.

As the PTE and SCF content is defined independently from display size and language, it shall be statically set to 0001.

3.8.1.2.2.2 CCOIv2-REQ-296320/B-Major Version

The major version contains feature bundle information:

Byte 1 is a place holder.

Byte 2 reflects the feature bundle and shall receive its value from diagnostic parameter “Feature Bundle” (ref. REQ-296379).

3.8.1.2.2.3 CCOIv2-REQ-296321/C-Minor Version

The minor version contains the revision number of the platform/major version combination. When generating a new “active policy table set” (ref. REQ-296316), the minor version shall be copied from the policy file stored on the CCS Server, that matches to the generated platform/major version.

3.8.1.2.2.4 CCOIv2-REQ-324478/A-Behaviour on FNV2 architecture

Once CCS Server and Client logic are combined on CCS Manager with FNV2 architecture, Platform version can be set to value 0xFF00 and Major version can be set to 0x0005 statically. Consideration of configuration parameters or language is not required for meta data generation.

3.8.1.2.2.5 CCOIv2-REQ-296316/C-Active Policy Table Set

The active policy table set consist of PTE, CFM and SCF. The CCS OnBoardPolicyServer shall monitor each of the parameters defined in REQ-296314. Whenever one of the input values change, the Server shall generate the new policy meta data and compare it to the meta data of the stored policy tables. The policy files with matching platform and major version and the highest minor version shall be determined as the active policy table set.

3.9 CCOIv2-FUN-REQ-292436/B-Policy Table Definition

3.9.1 Use Cases

3.9.1.1 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

3.9.2 Requirements

3.9.2.1 CCOIv2-REQ-296414/D-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 blacklist of signals, primitives and applications, which need to be blocked. This information is published to, and applied by the Policy Enforcer implementing modules.

3.9.2.2 CCOIv2-REQ-328986/A-Policy File compression

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

3.9.2.3 CCOIv2-REQ-296305/C-Configuration and Preload

The component implementing OnBoardPolicyServer shall be provided with an appropriate set of CCS data for operation preloaded from the supplier. This includes configuration files for Policy Table Extension, User Friendly Messages for any display/language combination, Service Config File and meta data for any policy file.

3.9.2.4 CCOIv2-REQ-328988/C-Manual Policy Upload

The system shall enable a test engineer to upload Common PTE, UFM and SCF files manually via developer tools.

3.9.2.5 CCOIv2-REQ-296293/B-Persistent Storage and Hashing

CCS OnBoardPolicyServer shall store CCOI data persistently across power states. To protect against inconsistency, the stored information shall be checked against attached hash values before using it.

3.9.2.5.1 CCOIv2-REQ-319297/B-Failed Server Consistency Check

Upon reading stored information and failing the hash based consistency check, CCS OnBoardPolicyServer shall transition to Synchronization state “DataStorageError” and the DataStorageError DTC shall be raised. In order to recover from this state and receive a valid policy file, CCS Server shall initiate an OffBoardSynchronization via CCSUpdateQuery (ref. CCOIv2-REQ-362291, CCOIv2-SD-REQ-321884) with Platform and Major Version according to the Meta Data Generation logic (ref. CCOIv2-REQ-296319, CCOIv2-REQ-296320) and Minor Version set to zero.

3.9.2.5.2 CCOIv2-REQ-362361/A-DataStorageError Recovery

Once Query Response is received and the Consistency Check is passed, CCS OnBoardPolicyServer shall transition from “DataStorageError” to “SynchronizationNeeded” (ref. CCOIv2-REQ-362340) and DTC DataStorageError shall be deleted.

3.9.2.6 CCOIv2-REQ-296368/C-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

Variables for subscription end dates:
Variable name: %expirationDate%
Refer to CCOIv2-REQ-328948 - featureSubscriptions. Depending on the message code the variable is used in, the expiration date with the matching entityID/type needs to be shown.

3.9.2.7 Policy Table Extension content definition

3.9.2.7.1 General explanations

3.9.2.7.1.1 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.

3.9.2.7.1.2 CCOIv2-REQ-318821/A-EntityType

Valid entity types are

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

3.9.2.7.1.3 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.

3.9.2.7.1.4 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.

3.9.2.7.1.5 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.

3.9.2.7.1.6 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.

3.9.2.7.1.7 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

3.9.2.7.1.8 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.

3.9.2.7.1.9 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”.

3.9.2.7.1.10 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.

3.9.2.7.2 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.

3.9.2.7.3 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.

3.9.2.7.3.1 CCOIv2-REQ-329004/B-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).

3.9.2.7.3.2 CCOIv2-REQ-329005/A-DefaultEntityLifecycleModeSettings

Defines the default values for the allow bit settings for bUAllow and bFPAllow depending on the life cycle modes. 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.

3.9.2.7.3.3 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

3.9.2.7.3.4 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.

3.9.2.7.4 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.

3.9.2.7.4.1 CCOIv2-REQ-328921/B-promptPolicies

promptPolicies Parameter specifies the effects for each user‘s decision on UserPrompt Pop-ups of type initialPrompt (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 userAction see REQ-328925
For effects see REQ-328932
For action see REQ-329002
For conditions see REQ-328931
For regions see REQ-318823

3.9.2.7.4.1.1 CCOIv2-REQ-328925/B-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 “affirmative”.

3.9.2.7.4.2 CCOIv2-REQ-328928/A-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 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.

3.9.2.7.4.3 CCOIv2-REQ-328933/A-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.

3.9.2.7.4.3.1 CCOIv2-REQ-328936/A-showInMenu

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

- showInConnectivitySettingsMenu: the entities shall be displayed in the placeholder from the HMI specification for the CCS Connectivity Settings

- showInMetaSettingsMenu: the entities shall be displayed in the placeholder from the HMI specification for the CCS Meta Settings
- showInFeatureSettingsMenu: the entities shall be displayed in the placeholder from the HMI specification for the CCS Feature Settings

3.9.2.7.4.3.2 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}).

3.9.2.7.4.3.3 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.

3.9.2.7.4.4 CCOIv2-REQ-328939/B-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.

3.9.2.7.4.5 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.

3.9.2.8 User Friendly Messages content definition

3.9.2.8.1 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.

3.9.2.8.2 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.

3.9.2.8.3 CCOIv2-REQ-328950/A-displaySize

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

3.9.2.8.4 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".

3.9.2.8.5 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.

3.9.2.8.5.1 CCOIv2-REQ-328953/B-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.

3.9.2.8.5.1.1 CCOIv2-REQ-329016/A-textBody

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

3.9.2.8.5.1.2 CCOIv2-REQ-328959/A-infoText

The text body of pop-up H31c (infoIcon) shall be populated with this string.

3.9.2.8.5.1.3 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.

3.9.2.8.5.1.4 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.

3.9.2.8.5.2 CCOIv2-REQ-328962/B-menu

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

3.9.2.8.5.2.1 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

3.9.2.8.5.2.2 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.

3.9.2.8.5.2.3 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.

3.9.2.8.5.2.4 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.

3.9.2.8.5.2.5 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.

3.9.2.8.5.2.6 CCOIv2-REQ-328966/A-data_sharing_popup

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

3.9.2.8.5.3 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.

3.9.2.8.5.3.1 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.

3.9.2.8.5.3.2 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.

3.9.2.8.5.3.3 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

3.9.2.8.5.3.3.1 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.

3.9.2.8.5.3.3.2 CCOIv2-REQ-328973/A-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

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

3.9.2.8.5.3.3.3 CCOIv2-REQ-328974/A-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
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.

3.9.2.8.5.4 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.

3.9.2.8.5.4.1 CCOIv2-REQ-328976/A-textBody

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

3.9.2.8.5.5 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.

3.9.2.8.5.5.1 CCOIv2-REQ-329133/A-textBody

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

3.9.2.8.6 CCOIv2-REQ-328977/A-ford_app

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

3.9.2.8.7 CCOIv2-REQ-328978/A-lincoln_app

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

3.9.2.8.8 CCOIv2-REQ-328979/A-ford_brand

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

3.9.2.8.9 CCOIv2-REQ-328980/A-lincoln_brand

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

3.9.2.8.10 CCOIv2-REQ-328981/A-ford_modemName

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

3.9.2.8.11 CCOIv2-REQ-328982/A-lincoln_modemName

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

3.9.2.8.12 CCOIv2-REQ-328983/A-Missing content strategy

If not a single dynamic text field (e.g. button1ConfirmationText AND button1ConfirmationTextHeader) on a specific Pop-Up/Info-Book is populated do not show the corresponding Pop-Up/Info-Book pop-up and icon.

If at least one dynamic text field (e.g. initialPrompt: textBody, textBodyHeader) on a specific Pop-Up/Info-Book is populated show the corresponding Pop-Up/Info-Book pop-up and icon.

3.9.2.8.13 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.

3.9.2.8.14 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

3.9.2.9 Service Config File content definition

3.9.2.9.1 CCOIv2-REQ-362576/A-header

The header section of the SCF file consists of the parameters „xmlns", „xmlns:xsi", „xsi:schemaLocation" „platformVersion", „majorVersion" and „minorVersion". These parameters are for reference and troubleshooting only and shall not be parsed by the CCS System.
The SCF Platform Version represents the CANdb version without the full stop separator.

3.9.2.9.2 CCOIv2-REQ-342767/A-CCSEntity

This parameter defines the entity, which the below listed data shall be assigned to. Each CCS entity is defined by name, entity type (REQ-318821) and entity ID. While the entity name is only referenced for better SCF readability, entity type and ID shall be used in combination with the current CCS Entity settings by the CCS OnBoardPolicyServer for the blacklist creation.

3.9.2.9.3 CCOIv2-REQ-342768/A-Signal

A CAN signal, defined by the FNV2 CANdb. If the parent CCS entity is disabled, this signal shall be added to the CCS blacklist and consequently blocked by Policy Enforcers.

3.9.2.9.4 CCOIv2-REQ-342769/A-Primitive

A signal generated by the ECG Vehicle Information Manager (VIM) for communication on ECG. If the parent CCS entity is disabled, this primitive shall be added to the CCS blacklist and consequently blocked by Policy Enforcers.

3.9.2.9.5 CCOIv2-REQ-342770/A-Application

The application containing code of one or more features. If the parent CCS entity is disabled, this application shall be added to the CCS blacklist and consequently disabled by the policy enforcer.

3.9.2.9.6 CCOIv2-REQ-342771/A-CCSBlacklist

This section may contain any signals, primitives or applications that shall always be added to the CCS OnBoardPolicyServer created blacklist independent from the current CCS Entity settings.

3.10 CCOIv2-FUN-REQ-296416/A-Network Disconnect

3.10.1 Use Cases

3.10.1.1 CCOIv2-UC-REQ-306740/C-Network Disconnect

Actors	Driver or Configuration
Pre-conditions	Entity “VehicleConnectivity” is overall enabled
Scenario Description	1. Driver or default settings disable Entity “VehicleConnectivity”. 2. Continue with REQ-355983-Update Settings Onboard.
Post-conditions	The Vehicle Connectivity entity is switched off. Any vehicle connectivity is disabled via WIR logic.
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
Interfaces	SOA, G-HMI

3.10.1.2 CCOIv2-UC-REQ-312154/C-Network Re-Connect

Actors	User or Configuration
Pre-conditions	Entity “VehicleConnectivity” is overall disabled, vehicle is disconnected from backend via WIR logic.
Scenario Description	1. Driver or default settings enable Entity “VehicleConnectivity” 2. Continue with REQ-355983-Update Settings Onboard.
Post-conditions	WIR re-connects based on enabled “VehicleConnectivity” entity, latest CCS settings are communicated to backend via CCSUpdateAlert (ref. REQ-296399).
List of Exception Use Cases	
Interfaces	FCI

3.10.2 Requirements

3.10.2.1 CCOIv2-REQ-309217/B-disconnect from network

When entity Type 0, entityID 1 "VehicleConnectivity" is overall disabled, the CCSOnBoardPolicyServer updated the entities (REQ-362602-Steps in State UpdateServerEntitySettings), and CCSUpdateAlert (REQ-296399-Inform CCSOffBoardPolicyClient about Consent Settings Change) was sent out, WIR shall

- shut down the existing MQTT broker connection, disconnect from cellular network and enter “eCall-inactive” / Spy mode
- disconnect from Wifi networks via ECG
- disconnect from Wifi networks via headunit

3.10.2.2 CCOIv2-REQ-309233/A-reconnect to network

When entity Type 0, entityID 1 “VehicleConnectivity” is overall enabled, WIR shall

- Exit “eCall-inactive” / Spy mode, reconnect to cellular network and re-establish a connection to MQTT broker
- Re-enable ECG Wifi
- Re-enable SYNC Wifi

Once the connection to the CCS OffBoardPolicyClient is re-established, an OffBoardSynchronization shall be triggered.

3.10.2.3 CCOIv2-REQ-312196/A-Master Reset effect on disconnected state

Depending on the configurable default state of entitiy VehicleConnectivity, a master reset might lead to a disconnection from cellular network.

3.10.2.3.1 CCOIv2-REQ-312693/C-Reset keeps Network Disconnect

If VehicleConnectivity is disabled per default and VehicleConnectivity is in disabled state at the time when a master reset is triggered, a connection must be established only for sending out the revised settings, i.e. CCSUpdateAlert (ref. CCOIv2-REQ-296399 - Inform CCSOffBoardPolicyClient about Consent Settings Change) and master reset alert. Once the alerts left the message queue, TCU must enter “eCall-inactive” / Spy mode again.

3.10.2.3.2 CCOIv2-REQ-312694/C-Reset enters Network Disconnect

If VehicleConnectivity is disabled per default and VehicleConnectivity is in enabled state at the time when a master reset is triggered, the TCU may only enter “eCall-inactive” / Spy mode after CCSUpdateAlert (ref. CCOIv2-REQ-296399 - Inform CCSOffBoardPolicyClient about Consent Settings Change) and master reset alert left the message queue.
If backend driven prompt are still pending (per UserAuthorizationCommand or CCSUserPromptCommand), also the correlated alert shall be handled per CCOIv2-REQ-296275 before network disconnect.

3.10.2.4 CCOIv2-REQ-312313/A-eCall trigger effect on disconnected state

In case the vehicle is configured as eCall vehicle (ref. EECS-FUR-REQ-284822), TCU shall reconnect to cellular network for eCall handling while trigger conditions apply (ref. EECS-FUR-REQ-252079).

3.10.2.5 CCOIv2-REQ-312314/A-ERA GLONASS trigger effect on disconnected state

In case the vehicle is configured as ERA GLONASS vehicle (EECS-REQ-282408), TCU shall switch SIM profile and place an emergency call while trigger conditions apply according to ERA GLONASS specification.

3.10.2.6 CCOIv2-REQ-312209/B-FTCP queue in disconnected state

Once the CCSOnBoardPolicyServer updated the entities to disable VehicleConnectivity (ID 1,Type 0)(REQ-362602-Steps in State UpdateServerEntitySettings), any FTCP alert or query must be discarded and must not be queued. Only exception is the FTCP CCSUpdateAlert to provide the new CCS setting to the backend.

4 Appendix: Reference Documents

Reference #	Document Title
1	Policy Table Extension
2	Consumer Friendly Messages
3	H31j_SYNC4_Customer_Connectivity_Settings
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”