



EULYNX Initiative

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Generic interface and subsystem requirements

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ID	Type	Requirement Part 1	Requirement Part 2
Eu.Gen.1	Head	1 Introduction	
Eu.Gen.5	Head	1.1 Release information	
Eu.Gen.6	Info	[Eu.Doc.20] EULYNX Generic interface and subsystem requirements CENELEC Phase: 4 Version: 3.0 (0.A) EULYNX Baseline Set: 3 Approval date: 29.11.2018	
Eu.Gen.7	Info	Version history	
Eu.Gen.9	Info	version number: 1.1 date: 15.02.2017 author: Maria Bertram generic Profile version: 5 review: - changes: EUB-36	
Eu.Gen.10	Info	version number: 1.2 date: 15.02.2017 author: Maria Bertram generic Profile version: 5 review: cluster changes: -	
Eu.Gen.11	Info	version number: 1.3 (0.A) date: 22.03.2017 author: Charlotte Gabel generic Profile version: 5 review: CCB changes: EUMT-2, EUMT-3, EUMT-4, EUMT-5, EUB-49	
Eu.Gen.12	Info	version number: 1.4 (0.A) date: 29.09.2017 author: Charlotte Gabel, Dennis Kunz, Filip Giering, Marie Killat, Jorge Block generic profile version: 20 review: - changes: EUAR-21, EUAR-56, EUAR-57, EUAR-58, EUAR-59, EUAR-60, EUAR-61, EUAR-62, EUAR-66, EUAR-67, EUAR-69, EUAR-70, EUAR-71, EUAR-73, EUAR-74, EUAR-75, EUAR-76, EUAR-77, EUAR-84, EUAR-85, EUAR-86, EUAR-87, EUAR-90, general update and revision due to Reference Architecture cluster decision to split generic and specific requirements across all clusters - this document now contains all generic requirements for the subsystems and adjacent systems of the EULYNX System note: a new DOORS module was created for this document which caused a change of the IDs	
Eu.Gen.13	Info	version number: 1.4 (1.B) date: 19.10.2017 author: Charlotte Gabel, Dennis Kunz, Marie Killat generic profile version: 21 review: Darren Witts (Network Rail), Thierry Jung (CFL), Mirko Blazic changes: EUAR-93, EUAR-97, EUAR-98, EUAR-99, EUAR-100, EUAR-104, EUAR-106, EUAR-107, EUAR-113	
Eu.Gen.380	Info	version number: 1.4 (2.B) date: 06.11.2017 author: Charlotte Gabel, Dennis Kunz, Marie Killat generic profile version: 23 review: Thierry Jung (CFL) changes: EUAR-126	
Eu.Gen.381	Info	version number: 1.4 (3.B) date: 06.11.2017 author: Dennis Kunz, Marie Killat generic profile version: 23 review: Thierry Jung (CFL) changes: EUAR-129	
Eu.Gen.382	Info	version number: 2.0 (0.A) date: 05.12.2017 author: Dennis Kunz, Marie Killat generic profile version: 25 review: CCB changes: EUAR-119, EUAR-115, EUAR-141, EUAR-156, EUAR-157, EUAR-160, EUAR-152	
Eu.Gen.384	Info	version number: 2.1 (0.A) date: 12.10.2018 author: Dennis Kunz generic profile version: 32 review: Jorge Block, Filip Giering, Charlotte Gabel changes: EUAR-88, EUAR-153, EUAR-154, EUAR-155, EUAR-162, EUAR-168, EUAR-169, EUAR-171, EUAR-174, EUAR-180, EUAR-196, EUAR-210, EUAR-216, EUAR-217, EUAR-219, EUAR-220, EUAR-221, EUAR-234, EUAR-242, general update of the document, including a restructuring and refinement of the content regarding the generic requirements for field element subsystems and adjacent systems	
Eu.Gen.4007	Info	version number: 2.1 (1.A) date: 02.11.2018 author: Dennis Kunz generic profile version: 32 review: cluster, Martin Herz, Marie Killat changes: EUAR-253, EUAR-257	

ID	Type	Requirement Part 1	Requirement Part 2
Eu.Gen.4010	Info	version number: 3.0 (0.A) date: 12.12.2018 author: Dennis Kunz generic profile version: 33 review: CCB changes: EUAR-262, EUAR-263, EUAR-269	
Eu.Gen.14	Head	1.2 Impressum	
Eu.Gen.15	Info	Publisher: EULYNX Initiative EULYNX Partners: Bane NOR Société Nationale des Chemins de Fer Luxembourgeois (CFL) DB Netz AG (DB) S.A. Infrabel Liikennevirasto (FTA) Network Rail ProRail B.V. Rete Ferroviaria Italiana (RFI) SBB AG Société Nationale des Chemins de Fer Français (SNCF) SZ-Infrastruktura, d.o.o. (SZ) Trafikverket	
Eu.Gen.16	Info	Responsible for this document: EULYNX Project Management Office www.eulynx.eu	
Eu.Gen.17	Info	Copyright EULYNX Partners All information included or disclosed in this document is licensed under the European Union Public Licence EUPL, Version 1.1.	
Eu.Gen.3	Head	1.3 Purpose	
Eu.Gen.4	Info	The purpose of the document is the specification of generic requirements for the development of the EULYNX System. The generic requirements complement the specific interface and subsystem requirements.	
Eu.Gen.2	Info	This document describes: <ul style="list-style-type: none">generic functional requirements for an EULYNX field element Subsystemgeneric functional requirements for the interface SCI-XX between an EULYNX field element Subsystem and the Subsystem - Electronic Interlockinggeneric functional requirements for the interface SDI-XX between an EULYNX field element Subsystem and Subsystem - Maintenance and Data Managementgeneric functional requirements for the interface SMI-XX between an EULYNX field element Subsystem and Subsystem - Maintenance and Data Managementgeneric functional requirements for the interface SCI-XX between an adjacent system and the Subsystem - Electronic Interlocking which are describing only the interface parts of each communication partner	
Eu.Gen.18	Info	This document is intended for the following users: <ul style="list-style-type: none">safety authoritiesinfrastructure managerssafety assessorssignalling system suppliersvalidators	
Eu.Gen.19	Info	This document is the basis for the implementation by the supplier and for approval by the infrastructure manager.	
Eu.Gen.20	Head	1.4 Applicable standards and regulations	
Eu.Gen.21	Info	A list of applicable standards and regulations used in EULYNX is listed in the EULYNX Reference Document List [Eu.Doc.12].	
Eu.Gen.22	Head	1.5 Applicable documents	
Eu.Gen.23	Info	The current versions of documents used as input or related to this document are listed in the EULYNX Documentation Plan [Eu.Doc.11]. The relationships between the documents are displayed in the Appendix A1 Documentation plan and structure [Eu.Doc.11_A1].	
Eu.Gen.24	Head	1.6 Terms and abbreviations	
Eu.Gen.25	Info	The terms and abbreviations are listed in the EULYNX Glossary [Eu.Doc.9].	
Eu.Gen.376	Head	1.7 Variability management	
Eu.Gen.377	Info	This document describes the generic functions of the EULYNX System. Variability management is not used in this document. The specific applicability of requirements is captured in individual Requirements specifications.	
Eu.Gen.26	Head	1.8 Definition of object types	
Eu.Gen.27	Info	The following definition for object types is applied in this document:	
Eu.Gen.28	Info	<ul style="list-style-type: none">"Req" - This denotes a mandatory requirement.	
Eu.Gen.29	Info	<ul style="list-style-type: none">"Info" - This denotes additional information to help understand the specification. These objects do not specify any additional requirements.	
Eu.Gen.30	Info	<ul style="list-style-type: none">"Head" - This denotes chapter headings.	
Eu.Gen.31	Head	1.9 Modelling	
Eu.Gen.32	Info	The section "Functional requirements specification" follows a model based systems engineering process using Systems Modelling Language (SysML) and defines the functional system requirements for the EULYNX field element Subsystem in stimulus-response form. Furthermore the information objects (stimuli and responses) exchanged over the interfaces of the EULYNX field element Subsystem, Subsystem - Electronic Interlocking and the adjacent systems are defined.	
Eu.Gen.33	Info	The diagrams presented in this document are modelled in SysML [SysML].	
Eu.Gen.34	Info	The rules for the interpretation of the model based parts of specification are defined in [Eu.Doc.29].	
Eu.Gen.35	Info	In chapter 3 "Functional requirements specification" the functional system requirements, defined in the form of a SysML model in the PTC Integrity Modeler are depicted as a surrogate of this model in the form of DOORS-objects.	

ID	Type	Requirement Part 1	Requirement Part 2
Eu.Gen.36	Info	A requirement thereby consists of the respective SysML model element, for instance a SysML diagram, and if necessary an additional extension of the requirement.	
Eu.Gen.37	Info	In the column "Requirement Part 1" the particular SysML model element is depicted and in the column "Requirement Part 2" the corresponding extension of the definition is given. The stated object type normally applies both to "Requirement Part 1" and to "Requirement Part 2".	
Eu.Gen.38	Info	There are requirements with type "Req" given, where the column "Requirement Part 2" or a part of it is provided with the heading "Information". In this case, the defined type only applies to the column "Requirement Part 1" and the part of "Requirement Part 2", which is not labelled as "Information".	
Eu.Gen.48	Head	2 Conditions of use	
Eu.Gen.369	Info	The specifications defined in this document shall follow the requirements of the EULYNX System Architecture Specification [Eu.Doc.16].	
Eu.Gen.49	Head	3 Functional requirements specification	
Eu.Gen.113	Head	3.1 EULYNX field element Subsystem	
Eu.Gen.3272	Head	3.1.1 Definition of time values	
Eu.Gen.3273	Req	Con_t_Ini_Def_Delay	The variable delay time Mem_t_Ini_Delay shall expire before the connection to the Subsystem - Maintenance and Data Management is going to be established. When the PDI connection is interrupted because of an interruption of the safe communication protocol, the delay time Mem_t_Ini_Delay := Con_t_Ini_Def_Delay shall be used for establishing the communication with Subsystem - Maintenance and Data Management. The configuration parameter Con_t_Ini_Def_Delay may be chosen in the interval [8 s, 20 s].
Eu.Gen.3274	Req	Con_t_Ini_Max	Con_t_Ini_Max represents a configurable maximum value of the delay time Mem_t_Ini_Delay. It shall be chosen in an interval of 600 s <= Con_t_Ini_Max <= 6000 s. If the infrastructure manager doesn't define a project specific value, the value shall be Con_t_Ini_Max := 3600 s.
Eu.Gen.3275	Req	Con_t_Ini_Step	In case of re-establishing connection to Subsystem - Maintenance and Data Management (due to unsuccessful loading of Engineering Data or not established PDI connection), the configurable parameter Con_t_Ini_Step represents the value by which the variable delay time Mem_t_Ini_Delay shall be increased. Con_t_Ini_Step shall to be chosen with an interval of 10 s <= Con_t_Ini_Step <= 60 s. If the Operator doesn't define a project specific value, the value shall to be Con_t_Ini_Step := 30 s.
Eu.Gen.158	Req	Con_tmax_Booting	Bootling shall be completed within Con_tmax_Bootling := 120 s after detecting that the operating voltage has reached the required level for operation.
Eu.Gen.3276	Req	Mem_t_Ini_Delay	Mem_t_Ini_Delay stores the variable delay time. This depends on the system status. After entering the essential state INITIALISING, the time Mem_t_Ini_Delay shall expire before the communication to Subsystem - Maintenance and Data Management is allowed to start.
Eu.Gen.159	Req	Con_tmax_DataInstallation	After the termination of loading the Engineering Data and Configuration Data from Subsystem - Maintenance and Data Management, the installation of the data shall be completed on the particular EULYNX field element Subsystem within Con_tmax_DataInstallation := 60 s. If the configured period for installation Con_tmax_DataInstallation is exceeded, a diagnostic telegram shall be sent.
Eu.Gen.160	Req	Con_tmax_DataTransmission	If the transmission of Engineering Data and Configuration Data from Subsystem - Maintenance and Data Management cannot be completed within Con_tmax_DataTransmission, data update for Engineering Data and Configuration Data shall be restarted. The default value for the configurable period Con_tmax_DataTransmission is 300 s.
Eu.Gen.3624	Req	Con_tmax_PDI_Connection	If the establishment of the PDI connection, measured from the sending of Cd_PDI_Version_Check to the receipt of Msg_Initialisation_Completed, is not completed within Con_tmax_PDI_Connection, the safe communication shall be terminated. A diagnostic message shall be issued. The Safe communication is then re-established. The default value for Con_tmax_PDI_Connection is 20 s.
Eu.Gen.161	Req	Con_tmax_Response_MDM	If the up-to-dateness of Configuration Data and Engineering Data from Subsystem - Maintenance and Data Management cannot be confirmed within Con_tmax_Response_MDM := 10 s, an attempt shall be made to establish a connection between Subsystem - Electronic Interlocking and EULYNX field element Subsystem.
Eu.Gen.162	Head	3.1.2 General structure	
Eu.Gen.3268	Head	3.1.2.1 Definition	
Eu.Gen.163	Info	F_EST_EfeS	The logical component F_EST_EfeS defines the essential states of the EULYNX field element Subsystem. These are used for the definition of the use case scenarios. This is an abstract definition which is refined by the logical components F_EST_EfeS_SR, F_SCI_EfeS_Sec_SR and F_SMI_EfeS_SR.

ID	Type	Requirement Part 1	Requirement Part 2
Eu.Gen.200	Info	<div><div>F_EST_EfeS - Events [EST_EfeS IBD 1]</div><div><div>ibd F_EST_EfeS - Events [EST_EfeS IBD 1]</div><div><div>«block» F_EST_EfeS</div><div><div><div>T1_Power_On_Detected</div><div>T12_Terminate_SCP_Connection</div></div><div><div>T2_Power_Off_Detected</div></div><div><div>T3_Reset</div></div><div><div>T4_Booted</div></div><div><div>T5_SIL_Not_Fulfilled</div></div><div><div>T6_Data_Invalid</div></div><div><div>T7_Invalid_Or_Missing_Basic_Data</div></div><div><div>T8_Data_Installation_Complete</div></div><div><div>T9_PDI_Connection_Established</div></div><div><div>T10_SCP_Connection_Terminated</div></div><div><div>T11_Data_Transmission_Timeout</div></div></div></div></div></div>	
Eu.Gen.205	Info	T1_Power_On_Detected	The FlowPort T1_Power_On_Detected indicates that the voltage has reached the required range for operation.
Eu.Gen.206	Info	T2_Power_Off_Detected	The FlowPort T2_Power_Off_Detected indicates that voltage has left the required range for operation.
Eu.Gen.207	Info	T3_Reset	The FlowPort T3_Reset indicates that a reset command was received.
Eu.Gen.208	Info	T4_Booted	<p>The FlowPort T4_Booted indicates that the booting process was completed successfully.</p> <p>T4_Booted shall be triggered under the following conditions:</p> <ul style="list-style-type: none">- all conditions for the required Safety Integrity Level are fulfilled- the Basic Data is valid and complete- the Safe communication protocol connection is disconnected- the time synchronisation was initiated according to the specification in [Eu.Doc.76], if the subsystem MDM and the SMI functionality are used
Eu.Gen.209	Info	T5_SIL_Not_Fulfilled	The FlowPort T5_SIL_Not_Fulfilled indicates that at least one condition for the required Safety Integrity Level is not fulfilled.
Eu.Gen.210	Info	T6_Data_Invalid	The FlowPort T6_Data_Invalid indicates, that the EULYNX field element Subsystem detected that the transmitted data was not transmitted correctly.
Eu.Gen.211	Info	T7_Invalid_Or_Missing_Basic_Data	The FlowPort T7_Invalid_Or_Missing_Basic_Data indicates a failed validity check of Basic Data on the system data interface to Basic Data identifier.
Eu.Gen.212	Info	T8_Data_Installation_Complete	The FlowPort T8_Data_Installation_Complete indicates that the installation of new Engineering Data and Configuration Data is completed.
Eu.Gen.213	Info	T9_PDI_Connection_Established	The FlowPort T9_PDI_Connection_Established indicates that the Process Data Interface protocol connection to Subsystem - Electronic Interlocking is established successfully.
Eu.Gen.202	Info	T10_SCP_Connection_Terminated	The FlowPort T10_SCP_Connection_Terminated indicates that the Safe communication protocol connection to Subsystem - Electronic Interlocking is terminated.
Eu.Gen.203	Info	T11_Data_Transmission_Timeout	The FlowPort T11_Data_Transmission_Timeout indicates that the EULYNX field element Subsystem recognizes that the maximum configurable time Con_tmax_DataTransmission of transmitting Engineering Data and Configuration Data has run out.
Eu.Gen.204	Info	T12_Terminate_SCP_Connection	The FlowPort T12_Terminate_SCP_Connection indicates that the EULYNX field element Subsystem initialises the termination of Safe communication protocol connection to Subsystem - Electronic Interlocking.
Eu.Gen.168	Info	F_EST_EfeS - Behaviour	

ID	Type	Requirement Part 1	Requirement Part 2
Eu.Gen.169	Info	<div>EST_EfeS STD 1</div> <div>stm F_EST_EfeS - Behaviour [EST_EfeS STD 1]</div> <div></div>	
Eu.Gen.170	Info	Initial0	
Eu.Gen.171	Info	/{Initial0 - NO_OPERATING_VOLTAGE}	
Eu.Gen.172	Info	NO_OPERATING_VOLTAGE	The EULYNX field element Subsystem is in state NO_OPERATING_VOLTAGE, if supply voltage has gone outside the required range for operation.
Eu.Gen.173	Info	when(T1_Power_On_Detected)/{NO_OPERATING_VOLTAGE - OPERATING_VOLTAGE_SUPPLIED}	
Eu.Gen.174	Info	OPERATING_VOLTAGE_SUPPLIED	The EULYNX field element Subsystem is in state OPERATING_VOLTAGE_SUPPLIED, if supply voltage is within the required range for operation.
Eu.Gen.181	Info	Initial1	
Eu.Gen.182	Info	/{Initial1 - BOOTING}	
Eu.Gen.175	Info	BOOTING	In the state BOOTING, a EULYNX field element Subsystem check is performed for the required safety integrity level (safe operation) and the correct Basic Data. When entering the state BOOTING, any existing Safe communication protocol connection shall be terminated.
Eu.Gen.176	Info	when(T4_Booted)/ Mem_t_Ini_Delay := 0;{BOOTING - INITIALISING}	
Eu.Gen.177	Info	when(T5_SIL_Not_Fulfilled)/{BOOTING - FALLBACK_MODE}	

ID	Type	Requirement Part 1	Requirement Part 2
Eu.Gen.178	Info	when(T7_Invalid_Or_Missing_Basic_Data)/{BOOTING - FALLBACK_MODE}	
Eu.Gen.179	Info	FALLBACK_MODE	In the state FALLBACK_MODE, the EULYNX field element Subsystem does no longer maintain the required safety integrity level.
Eu.Gen.180	Info	when(T3_Reset)/{FALLBACK_MODE - BOOTING}	
Eu.Gen.183	Info	INITIALISING	In the state INITIALISING, Engineering Data and Configuration Data is updated and the Process Data Interface protocol connection to Subsystem - Electronic Interlocking is established.
Eu.Gen.184	Info	when(T10_SCP_Connection_Terminated)/{INITIALISING - Junction0}	
Eu.Gen.185	Info	when(T11_Data_Transmission_Timeout)/{INITIALISING - Junction0}	
Eu.Gen.186	Info	when(T3_Reset)/ T12_Terminate_SCP_Connection := TRUE;{INITIALISING - BOOTING}	
Eu.Gen.187	Info	when(T5_SIL_Not_Fulfilled)/ T12_Terminate_SCP_Connection := TRUE;{INITIALISING - FALLBACK_MODE}	
Eu.Gen.188	Info	when(T6_Data_Invalid)/{INITIALISING - Junction0}	
Eu.Gen.189	Info	when(T8_Data_Installation_Complete)/{INITIALISING - BOOTING}	
Eu.Gen.190	Info	when(T9_PDI_Connection_Established)/{INITIALISING - OPERATIONAL}	
Eu.Gen.191	Info	Junction0	
Eu.Gen.192	Info	[Mem_t_Ini_Delay >= Con_t_Ini_Max]/ Mem_t_Ini_Delay := Con_t_Ini_Max; {Junction0 - INITIALISING}	
Eu.Gen.193	Info	[(Con_t_Ini_Step <= Mem_t_Ini_Delay) and (Mem_t_Ini_Delay < Con_t_Ini_Max)]/ Mem_t_Ini_Delay := Mem_t_Ini_Delay + Con_t_Ini_Step;{Junction0 - INITIALISING}	
Eu.Gen.194	Info	[(0 = Mem_t_Ini_Delay) or (Mem_t_Ini_Delay = Con_t_Ini_Def_Delay)]/ Mem_t_Ini_Delay := Con_t_Ini_Step; {Junction0 - INITIALISING}	
Eu.Gen.195	Info	OPERATIONAL	In the state OPERATIONAL, the Process Data Interface protocol connection is established and the EULYNX field element Subsystem is operative according to the required safety integrity level (safe operation).
Eu.Gen.196	Info	when(T10_SCP_Connection_Terminated)/ Mem_t_Ini_Delay := Con_t_Ini_Def_Delay;{OPERATIONAL - INITIALISING}	
Eu.Gen.197	Info	when(T3_Reset)/ T12_Terminate_SCP_Connection := TRUE;{OPERATIONAL - BOOTING}	
Eu.Gen.198	Info	when(T5_SIL_Not_Fulfilled)/ T12_Terminate_SCP_Connection := TRUE;{OPERATIONAL - FALLBACK_MODE}	
Eu.Gen.199	Info	when(T2_Power_Off_Detected)/{OPERATING_VOLTAGE_SUPPLIED - NO_OPERATING_VOLTAGE}	
Eu.Gen.3277	Head	3.1.2.2 Requirements	
Eu.Gen.3278	Head	3.1.2.2.1 Logical architectures	
Eu.Gen.3941	Req	<div>EuLYNX field element Subsystem SR - Logical Partitioning [EfeS BDD 1]</div> <div>bdd EuLYNX field element Subsystem SR - Logical Partitioning [EfeS BDD 1]</div> <div></div>	
Eu.Gen.3279	Info	EuLYNX field element Subsystem SR	

ID	Type	Requirement Part 1	Requirement Part 2
Eu.Gen.3283	Req	<div>EULYNX field element Subsystem SR - Logical Architecture [EfeS IBD 1]</div> <div><div>ibd EULYNX field element Subsystem SR - Logical Architecture [EfeS IBD 1]</div><div><div><div>«block» EULYNX field element Subsystem SR</div><div><div>SMI_XX : Subsystem_MDM_M</div><div><div><div>D1_Con_t_Ini_Def_Delay</div><div>D2_Con_t_Ini_Step</div><div>D3_Con_t_Ini_Max</div><div>D4_Con_tmax_Response_MDM</div><div>D5_Con_tmax_DataTransmission</div><div>T6_Data_Up_To_Date</div><div>T7_Data_Not_Up_To_Date : F_SMI_EfeS_SR</div><div>T8_Data</div><div>T9_Transmission_Complete</div><div>T10_Data_Valid</div><div>T11_Data_Invalid</div><div>T12_Data_Installation_Successfully</div><div>T20_Ready_For_Update_Of_Data</div><div>T19_Validate_Data</div><div>T1_Power_On_Detected</div><div>T2_Power_Off_Detected</div><div>T3_Reset</div><div>T4_Booted</div><div>T5_SIL_Not_Fulfilled</div><div>T7_Invalid_Or_Missing_Basic_Data</div><div>D20_Con_MDM_Used</div><div>D51_EST_EfeS_State</div><div>T16_Data_Installation_Complete</div><div>T15_Data_Update_In_Initialising</div><div>T14_Data_Update_After_Operational</div><div>T13_Data_Update_After_Booting</div><div>T17_Data_Update_Finished</div><div>T22_Data_Update_Stop</div><div>T21_Ready_For_PDI_Connection</div><div>T9_PDI_Connection_Established</div><div>T10_PDI_Connection_Closed</div><div>T18_Not_Ready_For_PDI_Connection</div></div><div><div>SCI_XX : Subsystem_Electronic_Interlocking</div><div><div><div>D3_Con_PDI_Version</div><div>D4_Con_Checksum_Data</div><div>D23_Con_Checksum_Data_Used</div><div>T20_Protocol_Error</div><div>T21_Formal_Telegram_Error</div><div>T22_Content_Telegram_Error</div><div>T10_SCP_Connection_Terminated</div><div>T5_SCP_Connection_Established</div><div>T12_Terminate_SCP_Connection</div><div>T7_Cd_PDI_Version_Check</div><div>DT7_PDI_Version</div><div>T13_Msg_PDI_Version_Check</div><div>DT13_Result</div><div>DT13_Checksum_Data</div><div>T8_Cd_Initialisation_Request</div><div>T14_Msg_Start_Initialisation</div><div>T15_Msg_Initialisation_Completed</div><div>T1_Ready_For_PDI_Connection</div><div>T11_PDI_Connection_Established</div><div>T17_PDI_Connection_Closed</div><div>T18_Not_Ready_For_PDI_Connection</div><div>D50_PDI_Connection_State</div><div>T6_Start_Status_Report</div><div>T9_Status_Report_Completed</div></div></div></div></div></div></div><div>Eu.Gen.3285</div><div>Req</div><div>SCI_XX</div><div>The FlowPort SCI_XX represents the interface SCI-XX.</div></div></div>	
Eu.Gen.3286	Req	SMI_XX	The FlowPort SMI_XX represents the interface SMI-XX.
Eu.Gen.3287	Head	3.1.2.2.2 Logical components	
Eu.Gen.4009	Info	The logical components F_SCI_EfeS_Sec_SR and F_SMI_EfeS_SR are defined in the chapters Interface to Subsystem - Electronic Interlocking (SCI-XX) and Interface to Subsystem - Maintenance and Data Management (SMI-XX).	
Eu.Gen.3288	Info	F_EST_EfeS_SR	

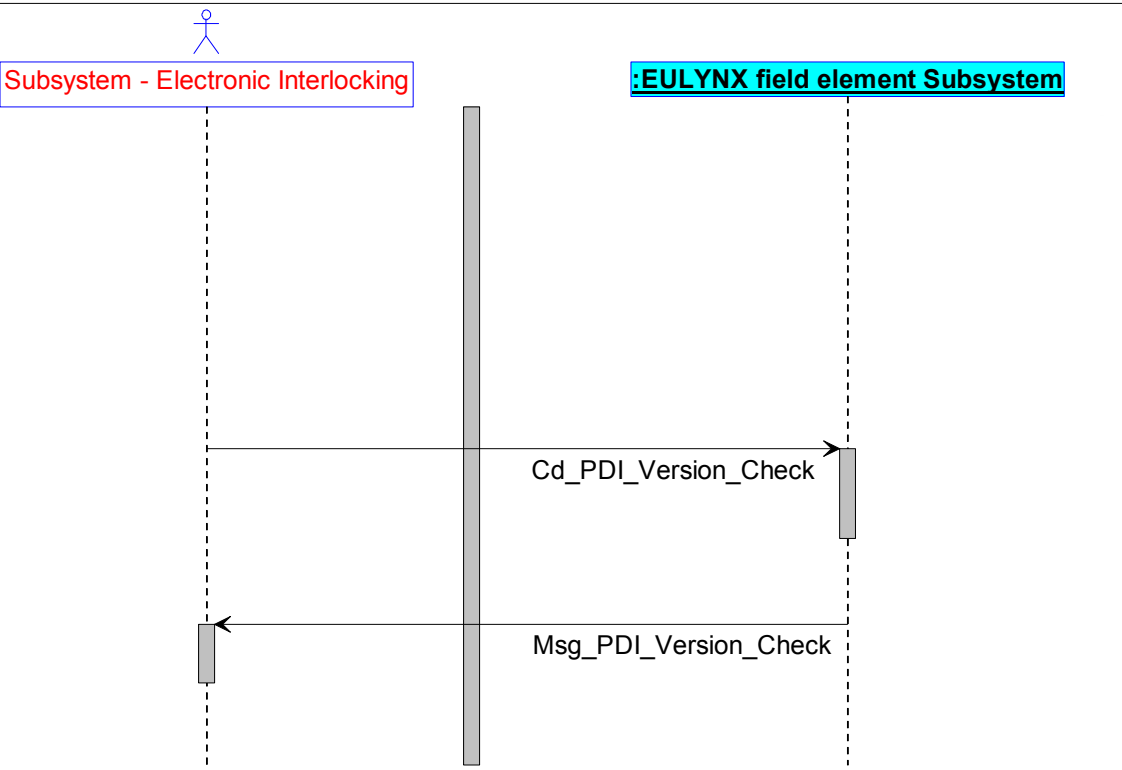
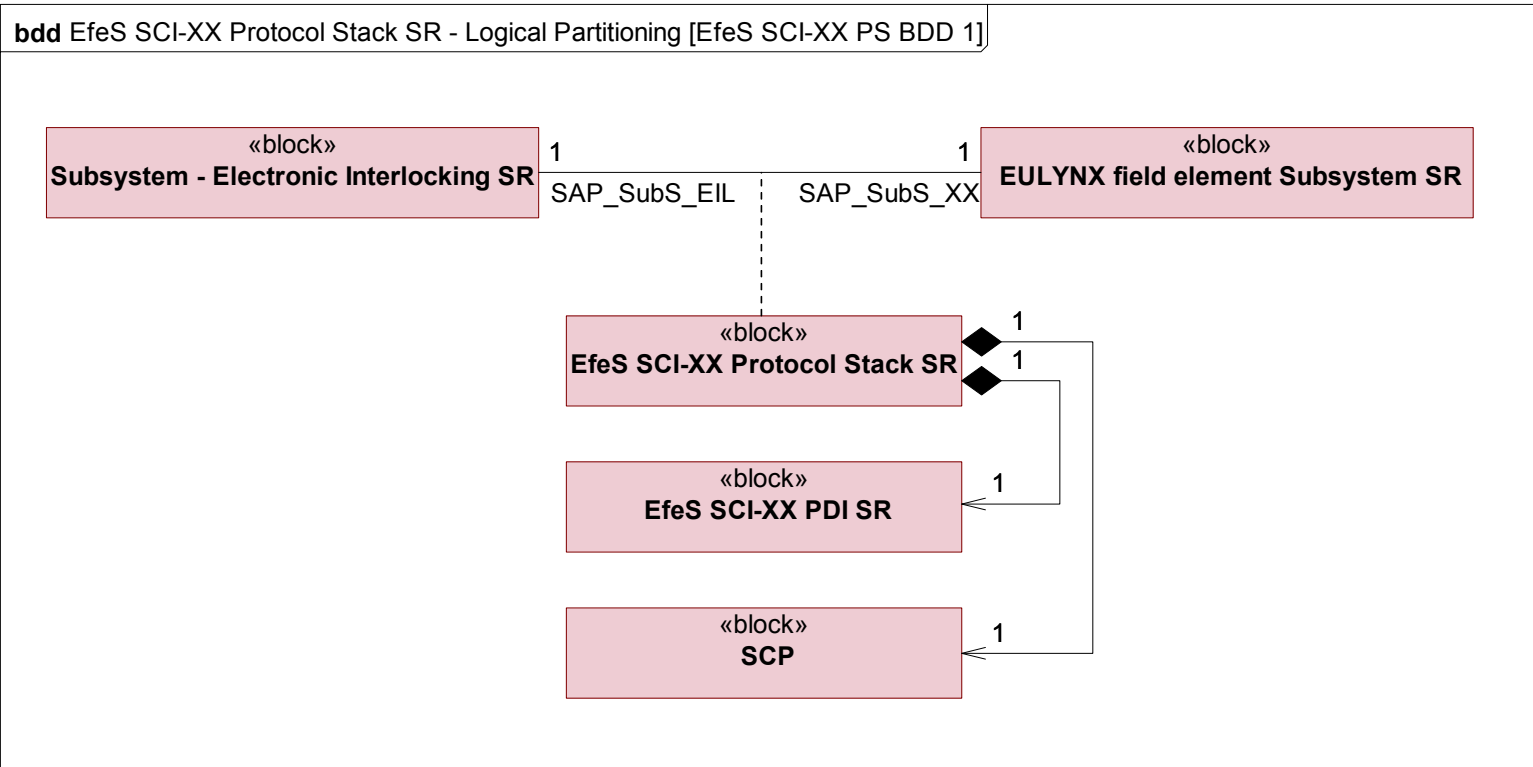
ID	Type	Requirement Part 1	Requirement Part 2
Eu.Gen.3333	Req	<div>F_EST_EfeS_SR - Events [EST_EfeS IBD 2]</div> <div><div><div><div>«block»</div><div>F_EST_EfeS_SR</div><div>Operation</div><div>«Operation» cOp1_init ()</div></div><div><div><div>T1_Power_On_Detected : PulsedIn</div><div>T2_Power_Off_Detected : PulsedIn</div><div>T3_Reset : PulsedIn</div><div>T4_Booted : PulsedIn</div><div>T5_SIL_Not_Fulfilled : PulsedIn</div><div>T7_Invalid_Or_Missing_Basic_Data : PulsedIn</div><div>T9_PDI_Connection_Established : PulsedIn</div><div>T10_PDI_Connection_Closed : PulsedIn</div></div><div><div>T18_Not_Ready_For_PDI_Connection : PulsedOut</div><div>T13_Data_Update_After_Bootng : PulsedOut</div><div>T14_Data_Update_After_Operational : PulsedOut</div><div>T15_Data_Update_In_Initialising : PulsedOut</div><div>T16_Data_Installation_Complete : PulsedIn</div><div>T17_Data_Update_Finished : PulsedIn</div><div>T22_Data_Update_Stop : PulsedOut</div><div>D20_Con_MDM_Used : Boolean</div><div>T21_Ready_For_PDI_Connection : PulsedOut</div><div>D51_EST_EfeS_State : String</div></div></div></div></div>	
Eu.Gen.3289	Req	cOp1_init	T18_Not_Ready_For_PDI_Connection := FALSE; T13_Data_Update_After_Bootng := FALSE; T14_Data_Update_After_Operational := FALSE; T15_Data_Update_In_Initialising := FALSE; D51_EST_EfeS_State := ""; T21_Ready_For_PDI_Connection := FALSE; T22_Data_Update_Stop := FALSE;
Eu.Gen.3290	Req	D20_Con_MDM_Used	The FlowPort D20_Con_MDM_Used provides configuration data that controls whether the MDM is used during initialisation. The following values are permitted: - True: MDM is used - False: MDM is not used
Eu.Gen.3292	Req	D51_EST_EfeS_State	The FlowPort D51_EST_EfeS_State indicates the current essential state of the EULYNX field element Subsystem.
Eu.Gen.3334	Req	T10_PDI_Connection_Closed	
Eu.Gen.3335	Req	T13_Data_Update_After_Bootng	
Eu.Gen.3336	Req	T14_Data_Update_After_Operational	
Eu.Gen.3337	Req	T15_Data_Update_In_Initialising	
Eu.Gen.3338	Req	T16_Data_Installation_Complete	The FlowPort T16_Data_Installation_Complete indicates that the installation of new Engineering Data and Configuration Data is completed.
Eu.Gen.3339	Req	T17_Data_Update_Finished	
Eu.Gen.3340	Req	T18_Not_Ready_For_PDI_Connection	
Eu.Gen.3341	Req	T1_Power_On_Detected	The FlowPort T1_Power_On_Detected indicates that voltage has reached the required range for operation.
Eu.Gen.3342	Req	T21_Ready_For_PDI_Connection	
Eu.Gen.3343	Req	T22_Data_Update_Stop	
Eu.Gen.3344	Req	T2_Power_Off_Detected	The FlowPort T2_Power_Off_Detected indicates that voltage has left the required range for operation.
Eu.Gen.3345	Req	T3_Reset	The FlowPort T3_Reset indicates that a reset command was received.
Eu.Gen.3346	Req	T4_Booted	The FlowPort T4_Booted indicates that the booting process was completed successfully. T4_Booted shall be triggered under the following conditions: - all conditions for the required Safety Integrity Level are fulfilled - the Basic Data is valid and complete - the Safe communication protocol connection is disconnected - the time synchronisation was initiated according to the specification in [Eu.Doc.76], if the subsystem MDM and the SMI functionality are used
Eu.Gen.3347	Req	T5_SIL_Not_Fulfilled	The FlowPort T5_SIL_Not_Fulfilled indicates that at least one condition for the required Safety Integrity Level is not fulfilled.

ID	Type	Requirement Part 1	Requirement Part 2
Eu.Gen.3348	Req	T7_Invalid_Or_Missing_Basic_Data	The FlowPort T7_Invalid_Or_Missing_Basic_Data indicates a failed validity check of Basic Data on the system data interface to Basic Data identifier.
Eu.Gen.3349	Req	T9_PDI_Connection_Established	
Eu.Gen.3293	Info	F_EST_EfeS_SR - Behaviour	
Eu.Gen.3294	Req	<div>EST_EfeS STD 2<div>stm F_EST_EfeS_SR - Behaviour [EST_EfeS STD 2]</div><pre>stateDiagram-v2 [*] --> NO_OPERATING_VOLTAGE : /cOp1_init() NO_OPERATING_VOLTAGE --> NO_OPERATING_VOLTAGE : when(T2_Power_Off_Detected) / T18_Not_Ready_For_PDI_Connection := TRUE; T22_Data_Update_Stop := TRUE; NO_OPERATING_VOLTAGE --> OPERATING_VOLTAGE_SUPPLIED : when(T1_Power_On_Detected) / state OPERATING_VOLTAGE_SUPPLIED { [*] --> BOOTING : Initial1 BOOTING --> BOOTING : Entry/D51_EST_EfeS_State := "BOOTING"; BOOTING --> BOOTING : when(T5_SIL_Not_Fulfilled) / BOOTING --> BOOTING : when(T7_Invalid_Or_Missing_Basic_Data) / BOOTING --> BOOTING : when(T3_Reset) / BOOTING --> Junction0 : when(T4_Booted) / state Junction0 { Junction0 --> INITIALISING : [NOT D20_Con_MDM_Used] / T21_Ready_For_PDI_Connection := TRUE; Junction0 --> INITIALISING : [D20_Con_MDM_Used] / T13_Data_Update_After_Booting := TRUE; } INITIALISING --> INITIALISING : Entry/D51_EST_EfeS_State := "INITIALISING"; INITIALISING --> BOOTING : when(T3_Reset) / T18_Not_Ready_For_PDI_Connection := TRUE; T22_Data_Update_Stop := TRUE; INITIALISING --> BOOTING : when(T16_Data_Installation_Complete) [D20_Con_MDM_Used] / INITIALISING --> INITIALISING : when(T10_PDI_Connection_Closed) [D20_Con_MDM_Used] / T15_Data_Update_In_Initialising := TRUE; INITIALISING --> INITIALISING : when(T10_PDI_Connection_Closed) [NOT D20_Con_MDM_Used] / T21_Ready_For_PDI_Connection := TRUE; INITIALISING --> INITIALISING : when(T17_Data_Update_Finished) [D20_Con_MDM_Used] / T21_Ready_For_PDI_Connection := TRUE; INITIALISING --> Junction1 : [NOT D20_Con_MDM_Used] / T21_Ready_For_PDI_Connection := TRUE; INITIALISING --> INITIALISING : [D20_Con_MDM_Used] / T14_Data_Update_After_Operational := TRUE; state Junction1 { Junction1 --> OPERATIONAL : when(T9_PDI_Connection_Established) / Junction1 --> INITIALISING : when(T10_PDI_Connection_Closed) / } OPERATIONAL --> OPERATIONAL : Entry/D51_EST_EfeS_State := "OPERATIONAL"; OPERATIONAL --> BOOTING : when(T3_Reset) / T18_Not_Ready_For_PDI_Connection := TRUE; OPERATIONAL --> FALLBACK_MODE : when(T5_SIL_Not_Fulfilled) / T18_Not_Ready_For_PDI_Connection := TRUE; T22_Data_Update_Stop := TRUE; OPERATIONAL --> FALLBACK_MODE : when(T5_SIL_Not_Fulfilled) / T18_Not_Ready_For_PDI_Connection := TRUE; FALLBACK_MODE --> FALLBACK_MODE : Entry/D51_EST_EfeS_State := "FALLBACK_MODE"; FALLBACK_MODE --> BOOTING : when(T5_SIL_Not_Fulfilled) / FALLBACK_MODE --> BOOTING : when(T7_Invalid_Or_Missing_Basic_Data) / FALLBACK_MODE --> BOOTING : when(T3_Reset) / FALLBACK_MODE --> BOOTING : when(T5_SIL_Not_Fulfilled) / T18_Not_Ready_For_PDI_Connection := TRUE; T22_Data_Update_Stop := TRUE; } state BOOTING { Entry/D51_EST_EfeS_State := "BOOTING"; } state INITIALISING { Entry/D51_EST_EfeS_State := "INITIALISING"; } state FALLBACK_MODE { Entry/D51_EST_EfeS_State := "FALLBACK_MODE"; } state OPERATIONAL { Entry/D51_EST_EfeS_State := "OPERATIONAL"; }</pre></div>	
Eu.Gen.3295	Info	Initial0	
Eu.Gen.3296	Req	/cOp1_init();{Initial0 - NO_OPERATING_VOLTAGE}	
Eu.Gen.3297	Info	NO_OPERATING_VOLTAGE	
Eu.Gen.3298	Req	entry/D51_EST_EfeS_State := "NO_OPERATING_VOLTAGE";{State-internal in NO_OPERATING_VOLTAGE}	
Eu.Gen.3299	Req	when(T1_Power_On_Detected)/{NO_OPERATING_VOLTAGE - OPERATING_VOLTAGE_SUPPLIED}	
Eu.Gen.3300	Info	OPERATING_VOLTAGE_SUPPLIED	
Eu.Gen.3301	Info	BOOTING	
Eu.Gen.3303	Req	entry/D51_EST_EfeS_State := "BOOTING";{State-internal in BOOTING}	
Eu.Gen.3304	Req	when(T4_Booted)/{BOOTING - Junction0}	
Eu.Gen.3305	Req	when(T5_SIL_Not_Fulfilled)/{BOOTING - FALLBACK_MODE}	
Eu.Gen.3306	Req	when(T7_Invalid_Or_Missing_Basic_Data)/{BOOTING - FALLBACK_MODE}	
Eu.Gen.3307	Info	FALLBACK_MODE	
Eu.Gen.3308	Req	entry/D51_EST_EfeS_State := "FALLBACK_MODE";{State-internal in FALLBACK_MODE}	

ID	Type	Requirement Part 1	Requirement Part 2
Eu.Gen.3309	Req	when(T3_Reset)/{(FALLBACK_MODE - BOOTING)}	
Eu.Gen.3310	Info	Initial1	
Eu.Gen.3311	Req	/{Initial1 - BOOTING}	
Eu.Gen.3312	Info	INITIALISING	
Eu.Gen.3313	Req	entry/D51_EST_EfeS_State := "INITIALISING";{State-internal in INITIALISING}	
Eu.Gen.3314	Req	when(T10_PDI_Connection_Closed)[NOT D20_Con_MDM_Used]/T21_Ready_For_PDI_Connection := TRUE; {State-internal in INITIALISING}	
Eu.Gen.3315	Req	when(T10_PDI_Connection_Closed)[D20_Con_MDM_Used]/T15_Data_Update_In_Initialising := TRUE;{State-internal in INITIALISING}	
Eu.Gen.3316	Req	when(T17_Data_Update_Finished)[D20_Con_MDM_Used]/T21_Ready_For_PDI_Connection := TRUE; {State-internal in INITIALISING}	
Eu.Gen.3317	Req	when(T16_Data_Installation_Complete)[D20_Con_MDM_Used]/{(INITIALISING - BOOTING)}	
Eu.Gen.3318	Req	when(T3_Reset)/ T18_Not_Ready_For_PDI_Connection := TRUE; T22_Data_Update_Stop := TRUE;{INITIALISING - BOOTING}	
Eu.Gen.3319	Req	when(T5_SIL_Not_Fulfilled)/ T18_Not_Ready_For_PDI_Connection := TRUE; T22_Data_Update_Stop := TRUE;{INITIALISING - FALLBACK_MODE}	
Eu.Gen.3320	Req	when(T9_PDI_Connection_Established)/{(INITIALISING - OPERATIONAL)}	
Eu.Gen.3321	Info	Junction0	
Eu.Gen.3322	Req	[NOT D20_Con_MDM_Used]/ T21_Ready_For_PDI_Connection := TRUE;{Junction0 - INITIALISING}	
Eu.Gen.3323	Req	[D20_Con_MDM_Used]/ T13_Data_Update_After_Bootng := TRUE;{Junction0 - INITIALISING}	
Eu.Gen.3324	Info	Junction1	
Eu.Gen.3325	Req	[D20_Con_MDM_Used]/ T14_Data_Update_After_Operational := TRUE;{Junction1 - INITIALISING}	
Eu.Gen.3326	Req	[NOT D20_Con_MDM_Used]/ T21_Ready_For_PDI_Connection := TRUE;{Junction1 - INITIALISING}	
Eu.Gen.3327	Info	OPERATIONAL	
Eu.Gen.3328	Req	entry/D51_EST_EfeS_State := "OPERATIONAL";{State-internal in OPERATIONAL}	
Eu.Gen.3329	Req	when(T10_PDI_Connection_Closed)/{(OPERATIONAL - Junction1)}	
Eu.Gen.3330	Req	when(T3_Reset)/ T18_Not_Ready_For_PDI_Connection := TRUE;{OPERATIONAL - BOOTING}	
Eu.Gen.3331	Req	when(T5_SIL_Not_Fulfilled)/ T18_Not_Ready_For_PDI_Connection := TRUE;{OPERATIONAL - FALLBACK_MODE}	
Eu.Gen.3332	Req	when(T2_Power_Off_Detected)/ T18_Not_Ready_For_PDI_Connection := TRUE; T22_Data_Update_Stop := TRUE;{OPERATING_VOLTAGE_SUPPLIED - NO_OPERATING_VOLTAGE}	
Eu.Gen.3620	Head	3.1.3 Interface to Subsystem - Electronic Interlocking (SCI-XX)	
Eu.Gen.3621	Head	3.1.3.1 Definition	
Eu.Gen.3994	Head	3.1.3.1.1 Context	
Eu.Gen.3995	Req	EfeS SCI-XX - Technical Connection Domain Context [EfeS SCI-XX BDD 1] <div><div>bdd EfeS SCI-XX - Technical Connection Domain Context [EfeS SCI-XX BDD 1]</div><div><div><div>«block» Subsystem - Electronic Interlocking</div><div><div>1</div><div>SCI-XX</div></div><div><div>1</div><div>SCI-XX</div></div><div>«block» EULYNX field element Subsystem</div></div></div></div>	
Eu.Gen.3996	Info	EfeS SCI-XX - Functional Connection Domain Context	

ID	Type	Requirement Part 1	Requirement Part 2
Eu.Gen.3997	Req	<div>EfeS SCI-XX - Functional Connection Domain Context [EfeS SCI-XX IBD 1]</div> <div><div><div><div><div>«block»</div><div>EfeS SCI-XX - Functional Connection Domain Context</div></div><div><div><div><div>: Subsystem - Electronic Interlocking</div><div>SCI-XX : ~Subsystem_Electronic_Interlocking</div></div><div><div><div>: EULYNX field element Subsystem</div><div>SCI-XX : Subsystem_Electronic_Interlocking</div></div></div></div></div></div></div></div>	
Eu.Gen.3622	Head	3.1.3.1.2 InformationFlow	
Eu.Gen.119	Info	Subsystem_Electronic_Interlocking	Definition of the InformationFlow (by FlowSpecification) for Process Data Interface SCI-XX (<u>Subsystem - Electronic Interlocking</u>).
Eu.Gen.120	Req	Cd_Initialisation_Request	Command (Cd) from Subsystem - Electronic Interlocking to EULYNX field element Subsystem to transmit the status information of the EULYNX field element Subsystem.
Eu.Gen.121	Req	Cd_PDI_Version_Check	Command (Cd) from Subsystem - Electronic Interlocking to EULYNX field element Subsystem to check the compatibility of parameter PDIVer.
Eu.Gen.122	Req	Msg_Initialisation_Completed	Message (Msg) from EULYNX field element Subsystem to Subsystem - Electronic Interlocking that transmission of status information is complete.
Eu.Gen.123	Req	Msg_PDI_Version_Check	Message (Msg) from EULYNX field element Subsystem to Subsystem - Electronic Interlocking that the transmitted PDIVer is either equal and applicable for the EULYNX field element Subsystem or unequal. In case of equality the EULYNX field element Subsystem additionally sends the configured value PDIVer and the newly calculated CSS. Otherwise, only the configured value PDIVer is sent.
Eu.Gen.124	Req	Msg_Start_Initialisation	Message (Msg) from EULYNX field element Subsystem to Subsystem - Electronic Interlocking that transmission of status information will start.
Eu.Gen.3623	Head	3.1.3.1.3 Time values	
Eu.Gen.4001	Info	The definition of the time values related to the interface SCI-XX are defined in the section Definition of time values.	
Eu.Gen.3625	Head	3.1.3.1.4 UseCases	
Eu.Gen.310	Info	EfeSUC1.2: Establish PDI connection	The Subsystem-UseCase EfeSUC1.2: Establish PDI connection defines the process to establish a PDI connection between Subsystem - Electronic Interlocking and EULYNX field element Subsystem.

[illegible]

ID	Type	Requirement Part 1	Requirement Part 2
Eu.Gen.311	Info	EfeS SD 1.2.3 <div><div>sd EfeSUC1.2 - Alternative Scenario [EfeS SD 1.2.3]</div><div><p>Alternative Scenario: CSS is unequal</p><p>Precondition:</p><p>The EULYNX field element Subsystem is in the INITALISING state. Ready to establish PDI connection.</p><p>Interaction 1.2.3.A:</p><p>1. - The EULYNX field element Subsystem detects that the SCP connection to the Subsystem - Electronic Interlocking has been established.</p><p>Interaction 1.2.3.B:</p><p>2. - The EULYNX field element Subsystem receives from the Subsystem - Electronic Interlocking the request to verify the match between the transmitted PDIver and the PDIver present in the EULYNX field element Subsystem.</p><p>3. The EULYNX field element Subsystem detects that the PDIver transmitted by the Subsystem - Electronic Interlocking matches the own PDIver.</p><p>4. The EULYNX field element Subsystem reports to the Subsystem - Electronic Interlocking the used PDIver and newly calculated CSS.</p><p>Postcondition:</p><p>Not ready to establish PDI connection.</p></div></div>	In this sequence it is assumed, that an invalid CSS is transmitted. The Subsystem - Electronic Interlocking terminates the SCP connection after receiving an invalid CSS.
Eu.Gen.354	Info	SubSUC1.3: Report status	The Subsystem-UseCase SubSUC1.3: Report status is described subsystem specific.
Eu.Gen.3626	Head	3.1.3.2 Requirements	
Eu.Gen.4002	Head	3.1.3.2.1 Connection	
Eu.Gen.3627	Req	EfeS SCI-XX Protocol Stack SR - Logical Partitioning [EfeS SCI-XX PS BDD 1] <div><div>bdd EfeS SCI-XX Protocol Stack SR - Logical Partitioning [EfeS SCI-XX PS BDD 1]</div></div>	
Eu.Gen.3628	Info	EfeS SCI-XX Protocol Stack SR	

ID	Type	Requirement Part 1	Requirement Part 2
Eu.Gen.3630	Req	<div>EfeS SCI-XX Protocol Stack SR - Logical Architecture [EfeS SCI-XX PS IBD 1]</div> <div><div><div><div><div>«block»</div><div>EfeS SCI-XX Protocol Stack SR</div></div><div><div><div><div>«participant»</div><div>{end = SAP_SubS_EIL}</div><div>: Subsystem - Electronic Interlocking SR</div></div><div><div><div><div>«participant»</div><div>{end = SAP_SubS_XX}</div><div>: EULYNX field element Subsystem SR</div></div><div><div><div><div>: EfeS SCI-XX PDI SR</div><div>SAP_SubS_EIL_SCP</div><div>SAP_SCP_SubS_EIL</div></div><div><div><div><div>: SCP</div><div>SAP_SubS_XX_SCP</div><div>SAP_SCP_SubS_XX</div></div></div></div></div></div></div></div></div></div></div></div></div>	
Eu.Gen.3636	Head	3.1.3.2.2 Logical architectures	
Eu.Gen.3637	Head	3.1.3.2.2.1 Process Data Interface Protocol SCI-XX	
Eu.Gen.3942	Req	<div>EfeS SCI-XX PDI SR - Logical Partitioning [EfeS SCI-XX PDI BDD 1]</div> <div><div><div><div><div>«block»</div><div>EfeS SCI-XX PDI SR</div></div><div><div><div><div>1</div><div>«block»</div><div>S_SCI_EfeS_Prim_SR</div></div><div><div><div><div>1</div><div>«block»</div><div>F_SCI_EfeS_Sec_SR</div></div></div></div></div></div></div></div></div>	
Eu.Gen.3638	Info	EfeS SCI-XX PDI SR	

ID	Type	Requirement Part 1	Requirement Part 2
Eu.Gen.3641	Req	<div>EfeS SCI-XX PDI SR - Logical Architecture [EfeS SCI-XX PDI IBD 1]</div> <div>ibd EfeS SCI-XX PDI SR - Logical Architecture [EfeS SCI-XX PDI IBD 1]</div> <div></div>	
Eu.Gen.3642	Req	SAP_SubS_EIL	The FlowPort SAP_SubS_EIL represents the interface to the core of Subsystem - Electronic Interlocking.
Eu.Gen.3643	Req	SAP_SubS_EIL_SCP	The FlowPort SAP_SubS_EIL_SCP represents the interface to the SCP on the side of Subsystem - Electronic Interlocking.
Eu.Gen.3644	Req	SAP_SubS_XX	The FlowPort SAP_SubS_XX represents the interface to the core of an EULYNX field element Subsystem.
Eu.Gen.3645	Req	SAP_SubS_XX_SCP	The FlowPort SAP_SubS_XX_SCP represents the interface to the SCP on the side of an EULYNX field element Subsystem.
Eu.Gen.3646	Head	3.1.3.2.3 Logical components	
Eu.Gen.3735	Info	S_SCI_EfeS_Prim_SR	

ID	Type	Requirement Part 1	Requirement Part 2
Eu.Gen.3801	Req	<div>S_SCI_EfeS_Prim_SR - Events [SCI_EfeS_Prim IBD 1]</div> <div><div><div><div><div>«block»</div><div>S_SCI_EfeS_Prim_SR</div><div>Operation</div><div>«Operation» cOp1_init ()</div></div></div><div><div><div><div>D2_Con_tmax_PDI_Connection : Integer</div><div>T7_Cd_PDI_Version_Check : PulsedOut</div></div><div><div>D3_Con_PDI_Version : String</div><div>DT7_PDI_Version : String</div></div><div><div>D4_Con_Checksum_Data : String</div><div>T13_Msg_PDI_Version_Check : PulsedIn</div></div><div><div>D23_Con_Checksum_Data_Used : Boolean</div><div>DT13_Result : String</div></div><div><div>T20_Protocol_Error : PulsedIn</div><div>DT13_Checksum_Data : String</div></div><div><div>T21_Formal_Telegram_Error : PulsedIn</div><div>T8_Cd_Initialisation_Request : PulsedOut</div></div><div><div>T22_Content_Telegram_Error : PulsedIn</div><div>T14_Msg_Start_Initialisation : PulsedIn</div></div><div><div></div><div>T15_Msg_Initialisation_Completed : PulsedIn</div></div><div><div>D50_PDI_Connection_State : String</div><div>T5_SCP_Connection_Established : PulsedIn</div></div><div><div></div><div>T10_SCP_Connection_Terminated : PulsedIn</div></div><div><div></div><div>T6_Establish_SCP_Connection : PulsedOut</div></div><div><div></div><div>T12_Terminate_SCP_Connection : PulsedOut</div></div></div></div></div></div>	
Eu.Gen.3736	Req	cOp1_init	D50_PDI_Connection_State := ""; T12_Terminate_SCP_Connection := FALSE; T7_Cd_PDI_Version_Check := FALSE; DT7_PDI_Version := ""; T8_Cd_Initialisation_Request := FALSE; T6_Establish_SCP_Connection := FALSE;
Eu.Gen.3737	Req	D23_Con_Checksum_Data_Used	The FlowPort D23_Con_Checksum_Data_Used provides configuration values whether the CSS is used and checked during initialisation. The following values are permitted: - True: CSS is used - False: CSS is not used
Eu.Gen.3738	Req	D2_Con_tmax_PDI_Connection	The FlowPort D2_Con_tmax_PDI_Connection provides the time value Con_tmax_PDI_Connection.
Eu.Gen.3739	Req	D3_Con_PDI_Version	The FlowPort D3_Con_PDI_Version provides the configured PDIVer.
Eu.Gen.3740	Req	D4_Con_Checksum_Data	The FlowPort D4_Con_Checksum_Data provides the configured CSS.
Eu.Gen.3741	Req	D50_PDI_Connection_State	The FlowPort D50_PDI_Connection_State provides the status of the PDI connection.
Eu.Gen.3742	Req	DT13_Checksum_Data	The FlowPort DT13_Checksum_Data belongs to T13_Msg_PDI_Version_Check.
Eu.Gen.3743	Req	DT13_Result	The FlowPort DT13_Result belongs to T13_Msg_PDI_Version_Check.
Eu.Gen.3744	Req	DT7_PDI_Version	The FlowPort DT7_PDI_Version belongs to T7_Cd_PDI_Version_Check.
Eu.Gen.3802	Req	T10_SCP_Connection_Terminated	The FlowPort T10_SCP_Connection_Terminated represents the event of the terminated SCP connection.
Eu.Gen.3803	Req	T12_Terminate_SCP_Connection	The FlowPort T12_Terminate_SCP_Connection represents the event to terminate the SCP connection.
Eu.Gen.3804	Req	T13_Msg_PDI_Version_Check	The FlowPort T13_Msg_PDI_Version_Check refines the FlowProperty Msg_PDI_Version_Check.
Eu.Gen.3805	Req	T14_Msg_Start_Initialisation	The FlowPort T14_Msg_Start_Initialisation refines the FlowProperty Msg_Start_Initialisation.
Eu.Gen.3806	Req	T15_Msg_Initialisation_Completed	The FlowPort T15_Msg_Initialisation_Completed refines the FlowProperty Msg_Initialisation_Completed.
Eu.Gen.3807	Req	T20_Protocol_Error	The FlowPort T20_Protocol_Error represents the event of a protocol error. The following events are possible as defined in [Eu.Doc.16]. - incomplete activation - improper message sequence - message at improper instant case

ID	Type	Requirement Part 1	Requirement Part 2
Eu.Gen.3808	Req	T21_Formal_Telegram_Error	<p>The FlowPort T21_Formal_Telegram_Error represents the event of a formal telegram error. The following events are possible as defined in [Eu.Doc.16].</p> <ul style="list-style-type: none">- deviating message type- deviating protocol type- message length- unknown sender or receiver identifier
Eu.Gen.3809	Req	T22_Content_Telegram_Error	<p>The FlowPort T22_Content_Telegram_Error represents the event of a content telegram error. The following events are possible as defined in [Eu.Doc.16].</p> <ul style="list-style-type: none">- improper value- locally improper value- improper combination of values
Eu.Gen.3810	Req	T5_SCP_Connection_Established	The FlowPort T5_SCP_Connection_Established represents the event of the established SCP connection.
Eu.Gen.3811	Req	T6_Establish_SCP_Connection	The FlowPort T6_Establish_SCP_Connection represents the event for the SCP to establish the SCP connection.
Eu.Gen.3812	Req	T7_Cd_PDI_Version_Check	The FlowPort T7_Cd_PDI_Version_Check refines the FlowProperty Cd_PDI_Version_Check.
Eu.Gen.3813	Req	T8_Cd_Initialisation_Request	The FlowPort T8_Cd_Initialisation_Request refines the FlowProperty Cd_Initialisation_Request.
Eu.Gen.3745	Info	S_SCI_EfeS_Prim_SR - Behaviour	

ID	Type	Requirement Part 1	Requirement Part 2
Eu.Gen.3800	Req	<div>SCI_EfeS_Prim STD 1 stm S_SCI_EfeS_Prim_SR - Behaviour [SCI_EfeS_Prim STD 1]</div> <p>The diagram illustrates the state transitions for the SCI_EfeS_Prim STD 1 requirement. It starts at Initial0, leading to PDI_CONNECTION_CLOSED. From there, it can transition to ESTABLISHING_PDI_CONNECTION (when T5_SCP_Connection_Established) or back to PDI_CONNECTION_CLOSED (when T10_SCP_Connection_Terminated). ESTABLISHING_PDI_CONNECTION contains an internal state machine starting at Initial1, leading to WAITING_FOR_VERSION_CHECK. This leads to Junction0, which branches based on DT13_Result. If "match", it goes to Junction1, then Junction2, and finally to WAITING_FOR_INITIALISATION. If "not match", it goes to PDI_VERSION_UNEQUAL. WAITING_FOR_INITIALISATION leads to RECEIVING_STATUS, which then leads to PDI_CONNECTION_ESTABLISHED. Various error states like PDI_INIT_TIMEOUT, PDI_CHECKSUM_UNEQUAL, PDI_PROTOCOL_ERROR, and PDI_TELEGRAM_ERROR are also shown, each with specific entry conditions and actions.</p> <p>The transition for leaving the state PDI_CONNECTION_IMPERMISSIBLE will be further developed in the next development phase.</p>	
Eu.Gen.3772	Info	Initial0	
Eu.Gen.3773	Req	/cOp1_init();{Initial0 - PDI_CONNECTION_CLOSED}	
Eu.Gen.3774	Info	PDI_CHECKSUM_UNEQUAL	
Eu.Gen.3775	Req	entry/D50_PDI_Connection_State := "CHECKSUM_UNEQUAL"; T12_Terminate_SCP_Connection := TRUE;{State-internal in PDI_CHECKSUM_UNEQUAL}	
Eu.Gen.3776	Req	when(T10_SCP_Connection_Terminated){PDI_CHECKSUM_UNEQUAL - PDI_CONNECTION_CLOSED}	
Eu.Gen.3777	Info	PDI_CONNECTION_CLOSED	
Eu.Gen.3778	Req	entry/D50_PDI_Connection_State := "CLOSED_REQUESTED"; T6_Establish_SCP_Connection := TRUE;{State-internal in PDI_CONNECTION_CLOSED}	
Eu.Gen.3779	Req	when(T5_SCP_Connection_Established){PDI_CONNECTION_CLOSED - ESTABLISHING_PDI_CONNECTION}	
Eu.Gen.3780	Info	PDI_CONNECTION_ESTABLISHED	

ID	Type	Requirement Part 1	Requirement Part 2
Eu.Gen.3781	Req	entry/D50_PDI_Connection_State := "ESTABLISHED";{State-internal in PDI_CONNECTION_ESTABLISHED}	
Eu.Gen.3782	Req	when(T10_SCP_Connection_Terminated)/{PDI_CONNECTION_ESTABLISHED - PDI_CONNECTION_CLOSED}	
Eu.Gen.3783	Req	when(T20_Protocol_Error)/{PDI_CONNECTION_ESTABLISHED - PDI_PROTOCOL_ERROR}	
Eu.Gen.3784	Req	when(T21_Formal_Telegram_Error)/{PDI_CONNECTION_ESTABLISHED - PDI_TELEGRAM_ERROR}	
Eu.Gen.3785	Req	when(T22_Content_Telegram_Error)/{PDI_CONNECTION_ESTABLISHED - PDI_TELEGRAM_ERROR}	
Eu.Gen.3786	Info	PDI_CONNECTION_IMPERMISSIBLE	
Eu.Gen.3787	Req	entry/D50_PDI_Connection_State := "IMPERMISSIBLE";{State-internal in PDI_CONNECTION_IMPERMISSIBLE}	
Eu.Gen.3788	Info	PDI_INIT_TIMEOUT	
Eu.Gen.3789	Req	entry/D50_PDI_Connection_State := "INIT_TIMEOUT"; T12_Terminate_SCP_Connection := TRUE;{State-internal in PDI_INIT_TIMEOUT}	
Eu.Gen.3790	Req	when(T10_SCP_Connection_Terminated)/{PDI_INIT_TIMEOUT - PDI_CONNECTION_CLOSED}	
Eu.Gen.3791	Info	PDI_PROTOCOL_ERROR	
Eu.Gen.3792	Req	entry/D50_PDI_Connection_State := "PROTOCOL_ERROR"; T12_Terminate_SCP_Connection := TRUE;{State-internal in PDI_PROTOCOL_ERROR}	
Eu.Gen.3793	Req	when(T10_SCP_Connection_Terminated)/{PDI_PROTOCOL_ERROR - PDI_CONNECTION_CLOSED}	
Eu.Gen.3794	Info	PDI_TELEGRAM_ERROR	
Eu.Gen.3795	Req	entry/D50_PDI_Connection_State := "TELEGRAM_ERROR"; T12_Terminate_SCP_Connection := TRUE;{State-internal in PDI_TELEGRAM_ERROR}	
Eu.Gen.3796	Req	when(T10_SCP_Connection_Terminated)/{PDI_TELEGRAM_ERROR - PDI_CONNECTION_IMPERMISSIBLE}	
Eu.Gen.3797	Info	PDI_VERSION_UNEQUAL	
Eu.Gen.3798	Req	entry/D50_PDI_Connection_State := "VERSION_UNEQUAL"; T12_Terminate_SCP_Connection := TRUE;{State-internal in PDI_VERSION_UNEQUAL}	
Eu.Gen.3799	Req	when(T10_SCP_Connection_Terminated)/{PDI_VERSION_UNEQUAL - PDI_CONNECTION_CLOSED}	
Eu.Gen.3746	Info	ESTABLISHING_PDI_CONNECTION	
Eu.Gen.3747	Req	after(D2_Con_tmax_PDI_Connection)/{ESTABLISHING_PDI_CONNECTION - PDI_INIT_TIMEOUT}	
Eu.Gen.3748	Info	Initial1	
Eu.Gen.3749	Req	/DT7_PDI_Version := D3_Con_PDI_Version; T7_Cd_PDI_Version_Check := TRUE;{Initial1 - WAITING_FOR_VERSION_CHECK}	
Eu.Gen.3750	Info	Junction0	
Eu.Gen.3751	Req	[DT13_Result = "match"]/{Junction0 - Junction1}	
Eu.Gen.3752	Req	[DT13_Result = "not match"]/{Junction0 - PDI_VERSION_UNEQUAL}	
Eu.Gen.3753	Info	Junction1	
Eu.Gen.3754	Req	[D23_Con_Checksum_Data_Used]/{Junction1 - Junction2}	
Eu.Gen.3755	Req	[NOT D23_Con_Checksum_Data_Used]/ T8_Cd_Initialisation_Request := TRUE;{Junction1 - WAITING_FOR_INITIALISATION}	
Eu.Gen.3756	Info	Junction2	
Eu.Gen.3757	Req	[NOT (DT13_Checksum_Data = D4_Con_Checksum_Data)]/{Junction2 - PDI_CHECKSUM_UNEQUAL}	
Eu.Gen.3758	Req	[DT13_Checksum_Data = D4_Con_Checksum_Data]/ T8_Cd_Initialisation_Request := TRUE;{Junction2 - WAITING_FOR_INITIALISATION}	
Eu.Gen.3759	Info	RECEIVING_STATUS	
Eu.Gen.3760	Req	entry/D50_PDI_Connection_State := "RECEIVING_STATUS";{State-internal in RECEIVING_STATUS}	
Eu.Gen.3761	Req	when(T15_Msg_Initialisation_Completed)/{RECEIVING_STATUS - PDI_CONNECTION_ESTABLISHED}	
Eu.Gen.3762	Info	WAITING_FOR_INITIALISATION	
Eu.Gen.3763	Req	entry/D50_PDI_Connection_State := "WAITING_FOR_INITIALISATION";{State-internal in WAITING_FOR_INITIALISATION}	
Eu.Gen.3764	Req	when(T14_Msg_Start_Initialisation)/{WAITING_FOR_INITIALISATION - RECEIVING_STATUS}	
Eu.Gen.3765	Info	WAITING_FOR_VERSION_CHECK	
Eu.Gen.3766	Req	entry/D50_PDI_Connection_State := "WAITING_FOR_VERSION_CHECK";{State-internal in WAITING_FOR_VERSION_CHECK}	
Eu.Gen.3767	Req	when(T13_Msg_PDI_Version_Check)/{WAITING_FOR_VERSION_CHECK - Junction0}	
Eu.Gen.3768	Req	when(T10_SCP_Connection_Terminated)/{ESTABLISHING_PDI_CONNECTION - PDI_CONNECTION_CLOSED}	
Eu.Gen.3769	Req	when(T20_Protocol_Error)/{ESTABLISHING_PDI_CONNECTION - PDI_PROTOCOL_ERROR}	
Eu.Gen.3770	Req	when(T21_Formal_Telegram_Error)/{ESTABLISHING_PDI_CONNECTION - PDI_TELEGRAM_ERROR}	
Eu.Gen.3771	Req	when(T22_Content_Telegram_Error)/{ESTABLISHING_PDI_CONNECTION - PDI_TELEGRAM_ERROR}	
Eu.Gen.3647	Info	F_SCI_EfeS_Sec_SR	

ID	Type	Requirement Part 1	Requirement Part 2
Eu.Gen.3717	Req	<div><div>F_SCI_EfeS_Sec_SR - Events [SCI_EfeS_Sec IBD 1]</div><div><div><div>ibd F_SCI_EfeS_Sec_SR - Events [SCI_EfeS_Sec IBD 1]</div><div><div><div>«block»<div>F_SCI_EfeS_Sec_SR</div><div>Operation</div></div><div>«Operation» cOp1_init ()</div><div><div><div><div>D3_Con_PDI_Version : String</div><div>T7_Cd_PDI_Version_Check : PulsedIn</div><div>←</div></div><div><div><div>D4_Con_Checksum_Data : String</div><div>DT7_PDI_Version : String</div><div>←</div></div><div><div><div>D23_Con_Checksum_Data_Used : Boolean</div><div>T13_Msg_PDI_Version_Check : PulsedOut</div><div>→</div></div><div><div><div>T20_Protocol_Error : PulsedIn</div><div>DT13_Result : String</div><div>→</div></div><div><div><div>T21_Formal_Telegram_Error : PulsedIn</div><div>DT13_Checksum_Data : String</div><div>→</div></div><div><div><div>T22_Content_Telegram_Error : PulsedIn</div><div>T8_Cd_Initialisation_Request : PulsedIn</div><div>←</div></div><div><div><div>D50_PDI_Connection_State : String</div><div>T14_Msg_Start_Initialisation : PulsedOut</div><div>→</div></div><div><div><div>T6_Start_Status_Report : PulsedOut</div><div>T15_Msg_Initialisation_Completed : PulsedOut</div><div>→</div></div><div><div><div>T1_Ready_For_PDI_Connection : PulsedIn</div><div>T10_SCP_Connection_Terminated : PulsedIn</div><div>←</div></div><div><div><div>T18_Not_Ready_For_PDI_Connection : PulsedIn</div><div>T5_SCP_Connection_Established : PulsedIn</div><div>←</div></div><div><div><div>T11_PDI_Connection_Established : PulsedOut</div><div>T9_Status_Report_Completed : PulsedIn</div><div>←</div></div><div><div><div>T17_PDI_Connection_Closed : PulsedOut</div><div>T12_Terminate_SCP_Connection : PulsedOut</div><div>→</div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div>	
Eu.Gen.3648	Req	cOp1_init	D50_PDI_Connection_State := ""; T11_PDI_Connection_Established := FALSE; T13_Msg_PDI_Version_Check := FALSE; DT13_Result := ""; DT13_Checksum_Data := ""; T14_Msg_Start_Initialisation := FALSE; T15_Msg_Initialisation_Completed := FALSE; T12_Terminate_SCP_Connection := FALSE; T17_PDI_Connection_Closed := FALSE;
Eu.Gen.3649	Req	D23_Con_Checksum_Data_Used	The FlowPort D23_Con_Checksum_Data_Used provides configuration values whether the CSS is used and checked during initialisation. The following values are permitted: - True: CSS is used - False: CSS is not used
Eu.Gen.3650	Req	D3_Con_PDI_Version	The FlowPort D3_Con_PDI_Version provides the configured PDIVer.
Eu.Gen.3651	Req	D4_Con_Checksum_Data	The FlowPort D4_Con_Checksum_Data provides the configured CSS.
Eu.Gen.3652	Req	D50_PDI_Connection_State	The FlowPort D50_PDI_Connection_State provides the status of the PDI connection.
Eu.Gen.3653	Req	DT13_Checksum_Data	The FlowPort DT13_Checksum_Data belongs to T13_Msg_PDI_Version_Check.
Eu.Gen.3654	Req	DT13_Result	The FlowPort DT13_Result belongs to T13_Msg_PDI_Version_Check.
Eu.Gen.3655	Req	DT7_PDI_Version	The FlowPort DT7_PDI_Version belongs to T7_Cd_PDI_Version_Check.
Eu.Gen.3718	Req	T10_SCP_Connection_Terminated	The FlowPort T10_SCP_Connection_Terminated represents the event of the terminated SCP connection.
Eu.Gen.3719	Req	T11_PDI_Connection_Established	
Eu.Gen.3720	Req	T12_Terminate_SCP_Connection	The FlowPort T12_Terminate_SCP_Connection represents the event to terminate the SCP connection.
Eu.Gen.3721	Req	T13_Msg_PDI_Version_Check	The FlowPort T13_Msg_PDI_Version_Check refines the FlowProperty Msg_PDI_Version_Check.
Eu.Gen.3722	Req	T14_Msg_Start_Initialisation	The FlowPort T14_Msg_Start_Initialisation refines the FlowProperty Msg_Start_Initialisation.
Eu.Gen.3723	Req	T15_Msg_Initialisation_Completed	The FlowPort T15_Msg_Initialisation_Completed refines the FlowProperty Msg_Initialisation_Completed.
Eu.Gen.3724	Req	T17_PDI_Connection_Closed	

ID	Type	Requirement Part 1	Requirement Part 2
Eu.Gen.3725	Req	T18_Not_Ready_For_PDI_Connection	
Eu.Gen.3726	Req	T1_Ready_For_PDI_Connection	
Eu.Gen.3727	Req	T20_Protocol_Error	The FlowPort T20_Protocol_Error represents the event of a protocol error. The following events are possible as defined in [Eu.Doc.16]. - incomplete activation - improper message sequence - message at improper instant case
Eu.Gen.3728	Req	T21_Formal_Telegram_Error	The FlowPort T21_Formal_Telegram_Error represents the event of a formal telegram error. The following events are possible as defined in [Eu.Doc.16]. - deviating message type - deviating protocol type - message length - unknown sender or receiver identifier
Eu.Gen.3729	Req	T22_Content_Telegram_Error	The FlowPort T22_Content_Telegram_Error represents the event of a content telegram error. The following events are possible as defined in [Eu.Doc.16]. - improper value - locally improper value - improper combination of values
Eu.Gen.3730	Req	T5_SCP_Connection_Established	The FlowPort T5_SCP_Connection_Established represents the event of the established SCP connection.
Eu.Gen.3731	Req	T6_Start_Status_Report	
Eu.Gen.3732	Req	T7_Cd_PDI_Version_Check	The FlowPort T7_Cd_PDI_Version_Check refines the FlowProperty Cd_PDI_Version_Check.
Eu.Gen.3733	Req	T8_Cd_Initialisation_Request	The FlowPort T8_Cd_Initialisation_Request refines the FlowProperty Cd_Initialisation_Request.
Eu.Gen.3734	Req	T9_Status_Report_Completed	
Eu.Gen.3656	Info	F_SCI_EfeS_Sec_SR - Behaviour	

ID	Type	Requirement Part 1	Requirement Part 2
Eu.Gen.3716	Req	<div>SCI_EfeS_Sec STD 1</div> <div>stm F_SCI_EfeS_Sec_SR - Behaviour [SCI_EfeS_Sec STD 1]</div> <div><div><div><div><div><div>Initial0</div><div>/cOp1_init();</div></div><div>PDI_CONNECTION_CLOSED</div><div><div>Initial1</div><div>NOT_READY_FOR_CONNECTION</div><div>Entry/D50_PDI_Connection_State := "CLOSED";</div><div>when(T1_Ready_For_PDI_Connection)/</div><div>when(T18_Not_Ready_For_PDI_Connection)/</div><div>READY_FOR_CONNECTION</div><div>Entry/D50_PDI_Connection_State := "CLOSED_READY";</div></div></div><div><div>when(T10_SCP_Connection_Terminated)/ T17_PDI_Connection_Closed := TRUE;</div><div>when(T10_SCP_Connection_Terminated)/</div><div>ESTABLISHING_PDI_CONNECTION</div><div><div>Initial2</div><div>READY_FOR_VERSION_CHECK</div><div>Entry/D50_PDI_Connection_State := "READY_FOR_VERSION_CHECK";</div><div>when(T7_Cd_PDI_Version_Check)/</div><div>Junction0</div><div>[NOT (DT7_PDI_Version = D3_Con_PDI_Version)]/</div><div>Junction1</div><div>[DT7_PDI_Version = D3_Con_PDI_Version]/</div><div><div>[NOT D23_Con_Checksum_Data_Used]/ DT13_Result := "match"; DT13_Checksum_Data := "not applicable"; T13_Msg_PDI_Version_Check := TRUE;</div><div>Junction2</div><div>[D23_Con_Checksum_Data_Used]/ DT13_Result := "match"; DT13_Checksum_Data := D4_Con_Checksum_Data; T13_Msg_PDI_Version_Check := TRUE;</div></div><div>READY_FOR_INITIALISATION</div><div>Entry/D50_PDI_Connection_State := "READY_FOR_INITIALISATION";</div><div>when(T8_Cd_Initialisation_Request)/ T14_Msg_Start_Initialisation := TRUE;</div><div>SENDING_STATUS</div><div>Entry/D50_PDI_Connection_State := "SENDING_STATUS"; T6_Start_Status_Report := TRUE;</div><div>when(T9_Status_Report_Completed)/ T15_Msg_Initialisation_Completed := TRUE;</div><div>PDI_CONNECTION_ESTABLISHED</div><div>Entry/D50_PDI_Connection_State := "ESTABLISHED"; T11_PDI_Connection_Established := TRUE;</div></div></div><div><div>The transition for leaving the state PDI_CONNECTION_IMPERMISSIBLE will be further developed in the next development phase.</div><div>PDI_CONNECTION_IMPERMISSIBLE</div><div>Entry/D50_PDI_Connection_State := "IMPERMISSIBLE";</div><div>when(T10_SCP_Connection_Terminated)/ T17_PDI_Connection_Closed := TRUE;</div><div>when(T10_SCP_Connection_Terminated)/ T17_PDI_Connection_Closed := TRUE;</div><div>when(T10_SCP_Connection_Terminated)/ T17_PDI_Connection_Closed := TRUE;</div><div>CLOSING_PDI_CONNECTION</div><div>Entry/D50_PDI_Connection_State := "CLOSING"; T12_Terminate_SCP_Connection := TRUE;</div><div>when(T18_Not_Ready_For_PDI_Connection)/</div><div>PDI_VERSION_UNEQUAL</div><div>Entry/D50_PDI_Connection_State := "VERSION_UNEQUAL";</div><div>[D23_Con_Checksum_Data_Used]/ DT13_Result := "not match"; DT13_Checksum_Data := D4_Con_Checksum_Data; T13_Msg_PDI_Version_Check := TRUE;</div><div>[NOT D23_Con_Checksum_Data_Used]/ DT13_Result := "not match"; DT13_Checksum_Data := "not applicable"; T13_Msg_PDI_Version_Check := TRUE;</div><div>PDI_PROTOCOL_ERROR</div><div>Entry/D50_PDI_Connection_State := "PROTOCOL_ERROR"; T12_Terminate_SCP_Connection := TRUE;</div><div>when(T20_Protocol_Error)/</div><div>PDI_TELEGRAM_ERROR</div><div>Entry/D50_PDI_Connection_State := "TELEGRAM_ERROR"; T12_Terminate_SCP_Connection := TRUE;</div><div>when(T21_Formal_Telegram_Error)/</div><div>when(T22_Content_Telegram_Error)/</div><div>when(T21_Formal_Telegram_Error)/</div><div>when(T22_Content_Telegram_Error)/</div><div>when(T20_Protocol_Error)/</div><div>when(T18_Not_Ready_For_PDI_Connection)/</div></div></div></div></div>	
Eu.Gen.3686	Info	Initial0	
Eu.Gen.3687	Req	/cOp1_init();{Initial0 - PDI_CONNECTION_CLOSED}	
Eu.Gen.3688	Info	PDI_CONNECTION_CLOSED	
Eu.Gen.3689	Info	Initial1	
Eu.Gen.3690	Req	/{Initial1 - NOT_READY_FOR_CONNECTION}	

ID	Type	Requirement Part 1	Requirement Part 2
Eu.Gen.3691	Info	NOT_READY_FOR_CONNECTION	
Eu.Gen.3692	Req	entry/D50_PDI_Connection_State := "CLOSED";{State-internal in NOT_READY_FOR_CONNECTION}	
Eu.Gen.3693	Req	when(T1_Ready_For_PDI_Connection)/{NOT_READY_FOR_CONNECTION - READY_FOR_CONNECTION}	
Eu.Gen.3694	Info	READY_FOR_CONNECTION	
Eu.Gen.3695	Req	entry/D50_PDI_Connection_State := "CLOSED_READY";{State-internal in READY_FOR_CONNECTION}	
Eu.Gen.3696	Req	when(T18_Not_Ready_For_PDI_Connection)/{READY_FOR_CONNECTION - NOT_READY_FOR_CONNECTION}	
Eu.Gen.3697	Req	when(T5_SCP_Connection_Established)/{READY_FOR_CONNECTION - ESTABLISHING_PDI_CONNECTION}	
Eu.Gen.3698	Info	PDI_CONNECTION_ESTABLISHED	
Eu.Gen.3699	Req	entry/D50_PDI_Connection_State := "ESTABLISHED"; T11_PDI_Connection_Established := TRUE;{State-internal in PDI_CONNECTION_ESTABLISHED}	
Eu.Gen.3700	Req	when(T10_SCP_Connection_Terminated)/ T17_PDI_Connection_Closed := TRUE;{PDI_CONNECTION_ESTABLISHED - PDI_CONNECTION_CLOSED}	
Eu.Gen.3701	Req	when(T18_Not_Ready_For_PDI_Connection)/{PDI_CONNECTION_ESTABLISHED - CLOSING_PDI_CONNECTION}	
Eu.Gen.3702	Req	when(T20_Protocol_Error)/{PDI_CONNECTION_ESTABLISHED - PDI_PROTOCOL_ERROR}	
Eu.Gen.3703	Req	when(T21_Formal_Telegram_Error)/{PDI_CONNECTION_ESTABLISHED - PDI_TELEGRAM_ERROR}	
Eu.Gen.3704	Req	when(T22_Content_Telegram_Error)/{PDI_CONNECTION_ESTABLISHED - PDI_TELEGRAM_ERROR}	
Eu.Gen.3705	Info	PDI_CONNECTION_IMPERMISSIBLE	
Eu.Gen.3706	Req	entry/D50_PDI_Connection_State := "IMPERMISSIBLE";{State-internal in PDI_CONNECTION_IMPERMISSIBLE}	
Eu.Gen.3707	Info	PDI_PROTOCOL_ERROR	
Eu.Gen.3708	Req	entry/D50_PDI_Connection_State := "PROTOCOL_ERROR"; T12_Terminate_SCP_Connection := TRUE;{State-internal in PDI_PROTOCOL_ERROR}	
Eu.Gen.3709	Req	when(T10_SCP_Connection_Terminated)/ T17_PDI_Connection_Closed := TRUE;{PDI_PROTOCOL_ERROR - PDI_CONNECTION_CLOSED}	
Eu.Gen.3710	Info	PDI_TELEGRAM_ERROR	
Eu.Gen.3711	Req	entry/D50_PDI_Connection_State := "TELEGRAM_ERROR"; T12_Terminate_SCP_Connection := TRUE;{State-internal in PDI_TELEGRAM_ERROR}	
Eu.Gen.3712	Req	when(T10_SCP_Connection_Terminated)/{PDI_TELEGRAM_ERROR - PDI_CONNECTION_IMPERMISSIBLE}	
Eu.Gen.3713	Info	PDI_VERSION_UNEQUAL	
Eu.Gen.3714	Req	entry/D50_PDI_Connection_State := "VERSION_UNEQUAL";{State-internal in PDI_VERSION_UNEQUAL}	
Eu.Gen.3715	Req	when(T10_SCP_Connection_Terminated)/ T17_PDI_Connection_Closed := TRUE;{PDI_VERSION_UNEQUAL - PDI_CONNECTION_CLOSED}	
Eu.Gen.3657	Info	CLOSING_PDI_CONNECTION	
Eu.Gen.3658	Req	entry/D50_PDI_Connection_State := "CLOSING"; T12_Terminate_SCP_Connection := TRUE;{State-internal in CLOSING_PDI_CONNECTION}	
Eu.Gen.3659	Req	when(T10_SCP_Connection_Terminated)/ T17_PDI_Connection_Closed := TRUE;{CLOSING_PDI_CONNECTION - PDI_CONNECTION_CLOSED}	
Eu.Gen.3660	Info	ESTABLISHING_PDI_CONNECTION	
Eu.Gen.3661	Info	Initial2	
Eu.Gen.3662	Req	/({Initial2 - READY_FOR_VERSION_CHECK})	
Eu.Gen.3663	Info	Junction0	
Eu.Gen.3664	Req	[NOT (DT7_PDI_Version = D3_Con_PDI_Version)]/({Junction0 - Junction1})	
Eu.Gen.3665	Req	[DT7_PDI_Version = D3_Con_PDI_Version]/({Junction0 - Junction2})	
Eu.Gen.3666	Info	Junction1	
Eu.Gen.3667	Req	[NOT D23_Con_Checksum_Data_Used]/ DT13_Result := "not match"; DT13_Checksum_Data := "not applicable"; T13_Msg_PDI_Version_Check := TRUE;{Junction1 - PDI_VERSION_UNEQUAL}	
Eu.Gen.3668	Req	[D23_Con_Checksum_Data_Used]/ DT13_Result := "not match"; DT13_Checksum_Data := D4_Con_Checksum_Data; T13_Msg_PDI_Version_Check := TRUE;{Junction1 - PDI_VERSION_UNEQUAL}	
Eu.Gen.3669	Info	Junction2	
Eu.Gen.3670	Req	[D23_Con_Checksum_Data_Used]/ DT13_Result := "match"; DT13_Checksum_Data := D4_Con_Checksum_Data; T13_Msg_PDI_Version_Check := TRUE;{Junction2 - READY_FOR_INITIALISATION}	
Eu.Gen.3671	Req	[NOT D23_Con_Checksum_Data_Used]/ DT13_Result := "match"; DT13_Checksum_Data := "not applicable"; T13_Msg_PDI_Version_Check := TRUE;{Junction2 - READY_FOR_INITIALISATION}	

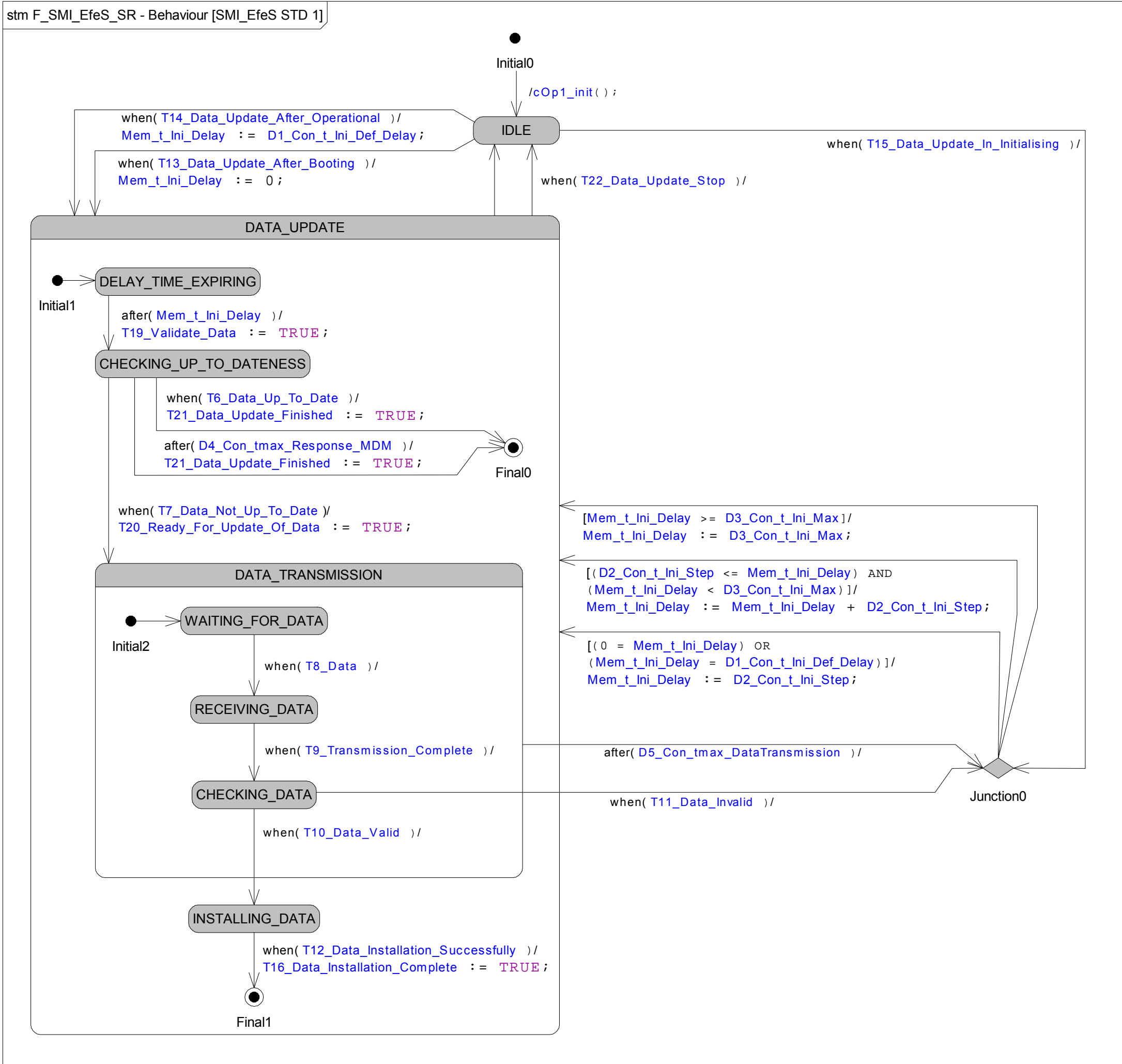
ID	Type	Requirement Part 1	Requirement Part 2
Eu.Gen.3672	Info	READY_FOR_INITIALISATION	
Eu.Gen.3673	Req	entry/D50_PDI_Connection_State := "READY_FOR_INITIALISATION";{State-internal in READY_FOR_INITIALISATION}	
Eu.Gen.3674	Req	when(T8_Cd_Initialisation_Request)/ T14_Msg_Start_Initialisation := TRUE;{READY_FOR_INITIALISATION - SENDING_STATUS}	
Eu.Gen.3675	Info	READY_FOR_VERSION_CHECK	
Eu.Gen.3676	Req	entry/D50_PDI_Connection_State := "READY_FOR_VERSION_CHECK";{State-internal in READY_FOR_VERSION_CHECK}	
Eu.Gen.3677	Req	when(T7_Cd_PDI_Version_Check)/{READY_FOR_VERSION_CHECK - Junction0}	
Eu.Gen.3678	Info	SENDING_STATUS	
Eu.Gen.3679	Req	entry/D50_PDI_Connection_State := "SENDING_STATUS"; T6_Start_Status_Report := TRUE;{State-internal in SENDING_STATUS}	
Eu.Gen.3680	Req	when(T9_Status_Report_Completed)/ T15_Msg_Initialisation_Completed := TRUE;{SENDING_STATUS - PDI_CONNECTION_ESTABLISHED}	
Eu.Gen.3681	Req	when(T10_SCP_Connection_Terminated)/{ESTABLISHING_PDI_CONNECTION - PDI_CONNECTION_CLOSED}	
Eu.Gen.3682	Req	when(T18_Not_Ready_For_PDI_Connection)/{ESTABLISHING_PDI_CONNECTION - CLOSING_PDI_CONNECTION}	
Eu.Gen.3683	Req	when(T20_Protocol_Error)/{ESTABLISHING_PDI_CONNECTION - PDI_PROTOCOL_ERROR}	
Eu.Gen.3684	Req	when(T21_Formal_Telegram_Error)/{ESTABLISHING_PDI_CONNECTION - PDI_TELEGRAM_ERROR}	
Eu.Gen.3685	Req	when(T22_Content_Telegram_Error)/{ESTABLISHING_PDI_CONNECTION - PDI_TELEGRAM_ERROR}	
Eu.Gen.3817	Head	3.1.4 Interface to Subsystem - Maintenance and Data Management (SMI-XX)	
Eu.Gen.3818	Head	3.1.4.1 Definition	
Eu.Gen.3819	Head	3.1.4.1.1 InformationFlow	
Eu.Gen.148	Info	Subsystem_MDM_M	Definition of the InformationFlow (by FlowSpecification) for the data for the interface SMI-XX to Subsystem - Maintenance and Data Management.
Eu.Gen.149	Req	Data	<u>Configuration Data</u> and <u>Engineering Data</u> , which is transmitted by <u>Subsystem - Maintenance and Data Management</u> .
Eu.Gen.150	Req	Data_Not_Up_To_Date	Message from Subsystem - Maintenance and Data Management to EULYNX field element Subsystem that the Configuration Data or Engineering Data or both are not up-to-date at the EULYNX field element Subsystem.
Eu.Gen.151	Req	Data_Up_To_Date	Message from Subsystem - Maintenance and Data Management to EULYNX field element Subsystem that the Configuration Data and Engineering Data are up-to-date at the EULYNX field element Subsystem.
Eu.Gen.152	Req	Ready_For_Update_Of_Data	Message of <u>Subsystem - Maintenance and Data Management</u> that the readiness for receiving the data is given.
Eu.Gen.153	Req	Reset	A request for resetting is pending. Information: The remote-reset is subject to further development.
Eu.Gen.154	Req	Transmission_Complete	Message from Subsystem - Maintenance and Data Management to EULYNX field element Subsystem that the updated data has been transmitted completely, which means that loading process is completed.
Eu.Gen.155	Req	Validate_Data	Request to Subsystem - Maintenance and Data Management to verify that the Configuration Data and Engineering Data is up-to-date.
Eu.Gen.3820	Head	3.1.4.1.2 Time values	
Eu.Gen.4003	Info	The definition of the time values related to the interface SMI-XX are defined in the section Definition of time values.	
Eu.Gen.3821	Head	3.1.4.1.3 UseCases	
Eu.Gen.216	Info	EfeSUC1.1: Updating Configuration and Engineering Data	The Subsystem-UseCase EfeSUC1.1: Updating Configuration and Engineering Data defines the update process of Configuration Data and Engineering Data.

ID	Type	Requirement Part 1	Requirement Part 2
Eu.Gen.296	Info	<div>EfeS SD 1.1.1</div> <div><div><div>sd EfeSUC1.1 - Main Success Scenario [EfeS SD 1.1.1]</div><div><div><div><div>Subsystem - Maintenance and Data Management</div><div><div><div></div><div></div><div></div></div></div><div><div><div></div><div></div><div></div></div></div><div><div><div></div><div></div><div></div></div></div></div><div><div><div></div><div></div><div></div></div></div><div><div><div></div><div></div><div></div></div></div></div><div><div><div></div><div></div><div></div></div></div><div><div><div></div><div></div><div></div></div></div></div><div><div><div></div><div></div><div></div></div></div><div><div><div></div><div></div><div></div></div></div></div><div><div><div></div><div></div><div></div></div></div><div><div><div></div><div></div><div></div></div></div></div> <div><div><div></div><div></div><div></div></div></div> <div><div><div></div><div></div><div></div></div></div> <div><div><div></div><div></div><div></div></div></div> 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[illegible]

ID	Type	Requirement Part 1	Requirement Part 2
Eu.Gen.241	Info	<div>EfeS SD 1.1.4</div> <div><div><div>sd EfeSUC1.1 - Alternative Scenario [EfeS SD 1.1.4]</div><div><div><div>Subsystem - Maintenance and Data Management</div><div><div>:EULYNX field element Subsystem</div></div></div></div><div><div><div>Alternative Scenario: Data is Updated; Transmission Incorrect</div><div>Precondition: SCP connection to Subsystem - Electronic Interlocking is terminated.</div><div>Interaction 1.1.4.A: 1. - The EULYNX field element Subsystem enters the state of INITIALISING.</div><div>2. The delay period Mem_t_Ini_Delay is started.</div><div>Interaction 1.1.4.B: 3. - The EULYNX field element Subsystem detects that the delay period Mem_t_Ini_Delay has expired.</div><div>4. The EULYNX field element Subsystem sends to the Subsystem - Maintenance and Data Management the SubS_ID, the identifier of the safety-relevant data (PR_ID = 1), the identifier of the non safety-relevant data (PR_ID = 2), the calculated CSS based on the current safety-relevant data and the calculated CSNS based on the current non safety-relevant data.</div><div>Interaction 1.1.4.C: 5. - The EULYNX field element Subsystem receives from the Subsystem - Maintenance and Data Management the message, that data is not up-to-date (either the safety-relevant data or the non safety-relevant data or both). The name(s) (PR_Name) of the file(s) to be downloaded and the corresponding PR_ID are also transmitted.</div><div>6. The EULYNX field element Subsystem signals its readiness to update the data. It also transmits the name(s) (PR_Name) of the file(s) to be downloaded.</div><div>Interaction 1.1.4.D: 7. - The EULYNX field element Subsystem receives from the Subsystem - Maintenance and Data Management the current data in the sequence in which the PR_Names were sent with the information object Ready_For_Update_Of_Data.</div><div>Interaction 1.1.4.E: 8. - The EULYNX field element Subsystem receives the information from the Subsystem - Maintenance and Data Management that the data transmission process is complete.</div><div>9. The data was not transmitted correctly.</div><div>10. The event T6_Data_Invalid is triggered.</div><div>Postcondition: The data is invalid.</div></div></div></div></div>	
Eu.Gen.276	Info	<div>EfeS SD 1.1.5</div> <div><div><div>sd EfeSUC1.1 - Alternative Scenario [EfeS SD 1.1.5]</div><div><div><div>Subsystem - Maintenance and Data Management</div><div><div>:EULYNX field element Subsystem</div></div></div></div><div><div><div>Alternative Scenario: Timeout of Data Transmission</div><div>Precondition: SCP connection to Subsystem - Electronic Interlocking is terminated.</div><div>Interaction 1.1.5.A: 1. - The EULYNX field element Subsystem enters the state of INITIALISING.</div><div>2. The delay period Mem_t_Ini_Delay is started.</div><div>Interaction 1.1.5.B: 3. - The EULYNX field element Subsystem detects that the delay period Mem_t_Ini_Delay has expired.</div><div>4. The EULYNX field element Subsystem sends to the Subsystem - Maintenance and Data Management the SubS_ID, the identifier of the safety-relevant data (PR_ID = 1), the identifier of the non safety-relevant data (PR_ID = 2), the calculated CSS based on the current safety-relevant data and the calculated CSNS based on the current non safety-relevant data.</div><div>Interaction 1.1.5.C: 5. - The EULYNX field element Subsystem receives from the Subsystem - Maintenance and Data Management the message, that data is not up-to-date (either the safety-relevant data or the not safety-relevant data or both). The name(s) (PR_Name) of the file(s) to be downloaded and the corresponding PR_ID are also transmitted.</div><div>6. The EULYNX field element Subsystem signals its readiness to update the data. It also transmits the name(s) (PR_Name) of the file(s) to be downloaded.</div><div>Interaction 1.1.5.D: 7. - The EULYNX field element Subsystem receives from the Subsystem - Maintenance and Data Management the current data in the sequence in which the PR_Names were sent with the information object Ready_For_Update_Of_Data.</div><div>Interaction 1.1.5.E: 8. - The EULYNX field element Subsystem detects that the maximum period configured for the transmission of the data Con_tmax_DataTransmission has been exceeded.</div><div>9. The event T11_Data_Transmission_Timeout is triggered.</div><div>Postcondition: Up-to-date data has not been installed.</div></div></div></div></div>	
Eu.Gen.3822	Head	3.1.4.2 Requirements	

ID	Type	Requirement Part 1	Requirement Part 2
Eu.Gen.3823	Head	3.1.4.2.1 Logical components	
Eu.Gen.4008	Info	The requirements for the Subsystem - Maintenance and Data Management side of the interface will be further developed in the next development phase.	
Eu.Gen.3824	Info	F_SMI_EfeS_SR	
Eu.Gen.3869	Req	<div><div>F_SMI_EfeS_SR - Events [SMI_EfeS IBD 1]</div><div><div><div><div><div>«block»</div><div>F_SMI_EfeS_SR</div><div>values</div><div>«BlockProperty» Mem_t_Ini_Delay : Integer</div><div>«Operation» cOp1_init ()</div></div></div><div><div><div>→ D1_Con_t_Ini_Def_Delay : Integer</div><div>T21_Data_Update_Finished : PulsedOut →</div></div><div><div><div>→ D2_Con_t_Ini_Step : Integer</div><div>T19_Validate_Data : PulsedOut →</div></div><div><div><div>→ D3_Con_t_Ini_Max : Integer</div><div>T20_Ready_For_Update_Of_Data : PulsedOut →</div></div><div><div><div>→ D4_Con_tmax_Response_MDM : Integer</div><div>T16_Data_Installation_Complete : PulsedOut →</div></div><div><div><div>→ D5_Con_tmax_DataTransmission : Integer</div><div></div></div><div><div><div>→ T6_Data_Up_To_Date : PulsedIn</div><div></div></div><div><div><div>→ T7_Data_Not_Up_To_Date : PulsedIn</div><div></div></div><div><div><div>→ T8_Data : PulsedIn</div><div></div></div><div><div><div>→ T9_Transmission_Complete : PulsedIn</div><div></div></div><div><div><div>→ T10_Data_Valid : PulsedIn</div><div></div></div><div><div><div>→ T11_Data_Invalid : PulsedIn</div><div></div></div><div><div><div>→ T12_Data_Installation_Successfully : PulsedIn</div><div></div></div><div><div><div>→ T13_Data_Update_After_Bootling : PulsedIn</div><div></div></div><div><div><div>→ T14_Data_Update_After_Operational : PulsedIn</div><div></div></div><div><div><div>→ T15_Data_Update_In_Initialising : PulsedIn</div><div></div></div><div><div><div>→ T22_Data_Update_Stop : PulsedIn</div><div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div>	
Eu.Gen.3825	Req	cOp1_init	T16_Data_Installation_Complete := FALSE; T19_Validate_Data := FALSE; T20_Ready_For_Update_Of_Data := FALSE; T21_Data_Update_Finished := FALSE;
Eu.Gen.3826	Req	D1_Con_t_Ini_Def_Delay	The FlowPort D1_Con_t_Ini_Def_Delay provides the time value Con_t_Ini_Def_Delay.
Eu.Gen.3827	Req	D2_Con_t_Ini_Step	The FlowPort D2_Con_t_Ini_Step provides the time value Con_t_Ini_Step.
Eu.Gen.3828	Req	D3_Con_t_Ini_Max	The FlowPort D3_Con_t_Ini_Max provides the time value Con_t_Ini_Max.
Eu.Gen.3829	Req	D4_Con_tmax_Response_MDM	The FlowPort D4_Con_tmax_Response_MDM provides the configured value of Con_tmax_Response_MDM.
Eu.Gen.3830	Req	D5_Con_tmax_DataTransmission	The FlowPort D5_Con_tmax_DataTransmission provides the configured value of Con_tmax_DataTransmission.
Eu.Gen.3882	Req	T6_Data_Up_To_Date	The FlowPort T6_Data_Up_To_Date refines the FlowProperty Data_Up_To_Date.
Eu.Gen.3883	Req	T7_Data_Not_Up_To_Date	The FlowPort T7_Data_Not_Up_To_Date refines the FlowProperty Data_Not_Up_To_Date.
Eu.Gen.3884	Req	T8_Data	The FlowPort T8_Data refines the FlowProperty Data.
Eu.Gen.3885	Req	T9_Transmission_Complete	The FlowPort T9_Transmission_Complete refines the FlowProperty Transmission_Complete.
Eu.Gen.3871	Req	T10_Data_Valid	The FlowPort T10_Data_Valid indicates that the EULYNX field element Subsystem detected, that data was transmitted correctly.
Eu.Gen.3872	Req	T11_Data_Invalid	The FlowPort T11_Data_Invalid indicates that the EULYNX field element Subsystem detected, that the transmitted data was not transmitted correctly.
Eu.Gen.3873	Req	T12_Data_Installation_Successfully	The FlowPort T12_Data_Installation_Successfully indicates that the EULYNX field element Subsystem detected, that the installation of the received data has completed successfully.

ID	Type	Requirement Part 1	Requirement Part 2
Eu.Gen.3874	Req	T13_Data_Update_After_Bootng	
Eu.Gen.3875	Req	T14_Data_Update_After_Operational	
Eu.Gen.3876	Req	T15_Data_Update_In_Initialising	
Eu.Gen.3877	Req	T16_Data_Installation_Complete	
Eu.Gen.3878	Req	T19 Validate_Data	The FlowPort T19_Validate_Data refines the FlowProperty Validate_Data.
Eu.Gen.3879	Req	T20_Ready_For_Update_Of_Data	The FlowPort T20_Ready_For_Update_Of_Data refines the FlowProperty Ready_For_Update_Of_Data.
Eu.Gen.3880	Req	T21_Data_Update_Finished	
Eu.Gen.3881	Req	T22_Data_Update_Stop	
Eu.Gen.3831	Info	F_SMI_EfeS_SR - Behaviour	
Eu.Gen.3868	Req	SMI_EfeS STD 1 	
Eu.Gen.3862	Info	Initial0	
Eu.Gen.3863	Req	/cOp1_init():{Initial0 - IDLE}	

ID	Type	Requirement Part 1	Requirement Part 2
Eu.Gen.3858	Info	IDLE	
Eu.Gen.3859	Req	when(T13_Data_Update_After_Booting)/ Mem_t_Ini_Delay := 0;{IDLE - DATA_UPDATE}	
Eu.Gen.3860	Req	when(T14_Data_Update_After_Operational)/ Mem_t_Ini_Delay := D1_Con_t_Ini_Def_Delay;{IDLE - DATA_UPDATE}	
Eu.Gen.3861	Req	when(T15_Data_Update_In_Initialising)/{IDLE - Junction0}	
Eu.Gen.3832	Info	DATA_UPDATE	
Eu.Gen.3853	Info	Initial1	
Eu.Gen.3854	Req	/{Initial1 - DELAY_TIME_EXPIRING}	
Eu.Gen.3849	Info	DELAY_TIME_EXPIRING	
Eu.Gen.3850	Req	after(Mem_t_Ini_Delay)/ T19_Validate_Data := TRUE;{DELAY_TIME_EXPIRING - CHECKING_UP_TO_DATENESS}	
Eu.Gen.3834	Info	CHECKING_UP_TO_DATENESS	
Eu.Gen.3835	Req	after(D4_Con_tmax_Response_MDM)/ T21_Data_Update_Finished := TRUE;{CHECKING_UP_TO_DATENESS - Final0}	
Eu.Gen.3836	Req	when(T6_Data_Up_To_Date)/ T21_Data_Update_Finished := TRUE;{CHECKING_UP_TO_DATENESS - Final0}	
Eu.Gen.3837	Req	when(T7_Data_Not_Up_To_Date)/ T20_Ready_For_Update_Of_Data := TRUE;{CHECKING_UP_TO_DATENESS - DATA_TRANSMISSION}	
Eu.Gen.3851	Info	Final0	
Eu.Gen.3838	Info	DATA_TRANSMISSION	
Eu.Gen.3843	Info	Initial2	
Eu.Gen.3844	Req	/{Initial2 - WAITING_FOR_DATA}	
Eu.Gen.3847	Info	WAITING_FOR_DATA	
Eu.Gen.3848	Req	when(T8_Data)/{WAITING_FOR_DATA - RECEIVING_DATA}	
Eu.Gen.3845	Info	RECEIVING_DATA	
Eu.Gen.3846	Req	when(T9_Transmission_Complete)/{RECEIVING_DATA - CHECKING_DATA}	
Eu.Gen.3840	Info	CHECKING_DATA	
Eu.Gen.3841	Req	when(T10_Data_Valid)/{CHECKING_DATA - INSTALLING_DATA}	
Eu.Gen.3842	Req	when(T11_Data_Invalid)/{CHECKING_DATA - Junction0}	
Eu.Gen.3839	Req	after(D5_Con_tmax_DataTransmission)/{DATA_TRANSMISSION - Junction0}	
Eu.Gen.3833	Req	/{DATA_UPDATE - IDLE}	
Eu.Gen.3857	Req	when(T22_Data_Update_Stop)/{DATA_UPDATE - IDLE}	
Eu.Gen.3852	Info	Final1	
Eu.Gen.3855	Info	INSTALLING_DATA	
Eu.Gen.3856	Req	when(T12_Data_Installation_Successfully)/ T16_Data_Installation_Complete := TRUE;{INSTALLING_DATA - Final1}	
Eu.Gen.3864	Info	Junction0	
Eu.Gen.3865	Req	[(D2_Con_t_Ini_Step <= Mem_t_Ini_Delay) AND (Mem_t_Ini_Delay < D3_Con_t_Ini_Max)]/ Mem_t_Ini_Delay := Mem_t_Ini_Delay + D2_Con_t_Ini_Step;{Junction0 - DATA_UPDATE}	
Eu.Gen.3866	Req	[Mem_t_Ini_Delay >= D3_Con_t_Ini_Max]/ Mem_t_Ini_Delay := D3_Con_t_Ini_Max;{Junction0 - DATA_UPDATE}	
Eu.Gen.3867	Req	[(0 = Mem_t_Ini_Delay) OR (Mem_t_Ini_Delay = D1_Con_t_Ini_Def_Delay)]/ Mem_t_Ini_Delay := D2_Con_t_Ini_Step;{Junction0 - DATA_UPDATE}	
Eu.Gen.3814	Head	3.1.5 Interface to Subsystem - Maintenance and Data Management (SDI-XX)	
Eu.Gen.3815	Head	3.1.5.1 Definition	
Eu.Gen.3816	Head	3.1.5.1.1 InformationFlow	
Eu.Gen.126	Info	Subsystem_MDM_D	Definition of the InformationFlow (by FlowSpecification) for the diagnostic data for the interface SDI-XX to Subsystem - Maintenance and Data Management.
Eu.Gen.127	Req	BaseDataReadable	Type: Enumeration Status of the Basic_Data. The message shall be transmitted with the download of basic data.
Eu.Gen.128	Req	DataStatus_PR_ID1	Type: Enumeration Result of the version check carried out by the Subsystem -

ID	Type	Requirement Part 1	Requirement Part 2
			Maintenance and Data Management indicating whether the PR_ID = 1 data version matches the latest version held in the Subsystem - Maintenance and Data Management. The message shall be transmitted as event triggered.
Eu.Gen.129	Req	DataStatus_PR_ID2	Type: Enumeration Result of the version check carried out by the Subsystem - Maintenance and Data Management indicating whether the PR_ID = 2 data version matches the latest version held in the Subsystem - Maintenance and Data Management. The message shall be transmitted as event triggered.
Eu.Gen.130	Req	DeviceRevision	Type: String General revision of the EULYNX field element Subsystem. Is given by manufacturer and inculdes hardware as well as software revision. The message shall be transmitted with the establishing of the connection.
Eu.Gen.131	Req	HardwareRevision	Type: String Hardware revision level of the EULYNX field element Subsystem. The message shall be transmitted with the establishing of the connection.
Eu.Gen.132	Req	Identification	Type: String Functional location of EULYNX field element Subsystem (e.g. DB Netz AG TP 1-3 from SAP R/3). If this attribute is not defined, it needs to be filled with Underscore (0x5F). The attribute shall be changeable by updating of Configuration Data. The message shall be transmitted with the establishing of the connection.
Eu.Gen.133	Req	InterfaceRevision	Type: String Version of the EULYNX field element Subsystem requirement specification which was used for development and production of the EULYNX field element Subsystem. For example the EULYNX field element Subsystem is developed and produced basically on version 1.6 (1.A), the InterfaceRevision has the value "1.6 (1.A)". The message shall be transmitted with the establishing of the connection.
Eu.Gen.134	Req	IsFailure	Type: Boolean If no defined message in the residual list is applicable, "IsFailure" is applying as general fault indication. When an underlying parameter changes, the message shall be generated and transmitted.
Eu.Gen.135	Req	IsTemperatureTooHigh	Type: Boolean The EULYNX field element Subsystem is allowed to send the message "IsTemperatureTooHigh" according to the requirement of the manufacturer. It is information for the cases - Introduction of provision for damage limitation by maintenance or - Provision to increase availability or durability The manufacturer defines - place and type to determine temperature and - the limiting temperature value when the message shall to be sent. When an underlying parameter changes, the message shall be generated and transmitted.
Eu.Gen.136	Req	Manufacturer	Type: String Name of manufacturer from EULYNX field element Subsystem. The message shall be transmitted with the establishing of the connection.
Eu.Gen.137	Req	ManufacturerSpecificMessage	Manufacturer specific diagnostic messages are allowed after they are agreed with the railway operator according to a process (e.g. failure counter of Safe communication protocol connection). Note: The amount of messages is not limited but shall not replace other defined messages e.g Model, SerialNumber, OpStatus etc.
Eu.Gen.138	Req	MDM_InteractionStatus_Download	Type: Enumeration Status of the interaction at the loading process. When an underlying parameter changes, the message shall be generated and transmitted.
Eu.Gen.139	Req	Model	Type: String Manufactures name of model from EULYNX field element Subsystem.

ID	Type	Requirement Part 1	Requirement Part 2
			This attribute is not allowed to be changed during the life time of device. The message shall be transmitted with the establishing of the connection.
Eu.Gen.140	Req	OpStatus	Type: Enumeration For operation state. When an underlying parameter changes, the message shall be generated and transmitted.
Eu.Gen.141	Req	PDLError	Type: Enumeration In case of a fault on the PDI connection. When an underlying parameter changes, the message shall be generated and transmitted.
Eu.Gen.142	Req	PDIStatus	Type: Enumeration Status of PDI connection. When an underlying parameter changes, the message shall be generated and transmitted.
Eu.Gen.143	Req	RevisionCounter	Type: Integer Incremental counter to inform how often Configuration Data and Engineering Data of the EULYNX field element Subsystem has changed technically. The message shall be transmitted with the establishing of the connection.
Eu.Gen.144	Req	SafeCommunicationProtocolConnectionStatus	Type: Enumeration Status of the safe communication protocol connection. When an underlying parameter changes, the message shall be generated and transmitted.
Eu.Gen.145	Req	SerialNumber	Type: String Main identificator of EULYNX field element Subsystem. This identificator serves as an assignment characteristic for further replaceable components with their own serial number. This assignment shall be stored in the diagnostic configuration data of the Subsystem - Maintenance and Data Management. The message shall be transmitted with the establishing of the connection.
Eu.Gen.146	Req	SoftwareRevision	Type: String Software revision level of the EULYNX field element Subsystem (not interface software revision). With an update of the software, the SoftwareRevision as well as DeviceRevision shall be changed. The message shall be transmitted with the establishing of the connection.
Eu.Gen.115	Head	3.1.6 Interface to Basic Data identifier	
Eu.Gen.4005	Head	3.1.6.1 Definition	
Eu.Gen.114	Head	3.1.6.1.1 InformationFlow	
Eu.Gen.116	Info	Basic_Data_Identifier	Definition of the InformationFlow (by FlowSpecification) for the interface to <u>Basic Data identifier</u> .
Eu.Gen.117	Req	Basic_Data	The Basic_Data are the basis for booting the EULYNX field element Subsystem. The Basic_Data enables the EULYNX field element Subsystem to become operational.
Eu.Gen.3613	Head	3.1.7 Interface to Maintainer	
Eu.Gen.4006	Head	3.1.7.1 Definition	
Eu.Gen.3614	Head	3.1.7.1.1 InformationFlow	
Eu.Gen.3615	Info	Maintainer	
Eu.Gen.3616	Req	Ethernet_Connection_ETH1	Display of the status of the Ethernet_Connection_ETH1 of the EULYNX field element Subsystem at the local status display.
Eu.Gen.3617	Req	Ethernet_Connection_ETH2	Display of the status of the Ethernet_Connection_ETH2 of the EULYNX field element Subsystem at the local status display.
Eu.Gen.3618	Req	Local_Reset	Local request to reset the EULYNX field element Subsystem.
Eu.Gen.3619	Req	Operation_State	Display of the status of the operation state of the EULYNX field element Subsystem at the local status display.
Eu.Gen.87	Head	3.2 Adjacent Systems	

ID	Type	Requirement Part 1	Requirement Part 2
Eu.Gen.3350	Head	3.2.1 Interface to Subsystem - Electronic Interlocking (SCI-XX)	
Eu.Gen.3351	Head	3.2.1.1 Definition	
Eu.Gen.3990	Head	3.2.1.1.1 Context	
Eu.Gen.3991	Req	<div>AdjS SCI-XX - Technical Connection Domain Context [AdjS SCI-XX BDD 1]</div> <div><div>bdd AdjS SCI-XX - Technical Connection Domain Context [AdjS SCI-XX BDD 1]</div><div><div><div>«block» Subsystem - Electronic Interlocking</div><div>«block» Adjacent System</div></div><div><div>1</div><div>SCI-XX</div><div>1</div><div>SCI-XX</div></div></div></div>	
Eu.Gen.3992	Info	AdjS SCI-XX - Functional Connection Domain Context	
Eu.Gen.3993	Req	<div>AdjS SCI-XX - Functional Connection Domain Context [AdjS SCI-XX IBD 1]</div> <div><div>ibd AdjS SCI-XX - Functional Connection Domain Context [AdjS SCI-XX IBD 1]</div><div><div>«block» AdjS SCI-XX - Functional Connection Domain Context</div><div><div><div>: Subsystem - Electronic Interlocking</div><div>SCI-XX : Adjacent_System</div></div><div><div>: Adjacent System</div><div>SCI-XX : ~Adjacent_System</div></div></div></div></div>	
Eu.Gen.3352	Head	3.2.1.1.2 InformationFlow	
Eu.Gen.3353	Req	Adjacent_System	Definition of the InformationFlow (by FlowSpecification) for Process Data Interface SCI-XX (Subsystem - Electronic Interlocking).
Eu.Gen.3354	Req	Cd_Initialisation_Request	Command (Cd) from Adjacent System to Subsystem - Electronic Interlocking to transmit the status information of the Subsystem - Electronic Interlocking.
Eu.Gen.3355	Req	Cd_PDI_Version_Check	Command (Cd) from Adjacent System to Subsystem - Electronic Interlocking to check the compatibility of parameter PDIVer.
Eu.Gen.3356	Req	Msg_Initialisation_Completed	Message (Msg) from Subsystem - Electronic Interlocking to Adjacent System that transmission of status information is complete.
Eu.Gen.3357	Req	Msg_PDI_Version_Check	Message (Msg) from Subsystem - Electronic Interlocking to Adjacent System that the transmitted PDIVer is either equal and applicable for the Subsystem - Electronic Interlocking or unequal. In case of equality the Subsystem - Electronic Interlocking additionally sends the configured value PDIVer and the newly calculated CSS. Otherwise, only the configured value PDIVer is sent.
Eu.Gen.3358	Req	Msg_Start_Initialisation	Message (Msg) from Subsystem - Electronic Interlocking to Adjacent System that transmission of status information will start.
Eu.Gen.3359	Head	3.2.1.1.3 Time values	
Eu.Gen.3360	Req	Con_tmax_PDI_Connection	If the establishment of the PDI connection, measured from the sending of Cd_PDI_Version_Check to the receipt of Msg_Initialisation_Completed, is not completed within Con_tmax_PDI_Connection, the safe communication shall be terminated. A diagnostic message shall be issued. The Safe communication is then re-established. The default value for Con_tmax_PDI_Connection is 20 s.
Eu.Gen.3361	Head	3.2.1.1.4 UseCases	
Eu.Gen.3362	Info	AdjS SCI-XX CDUC1.1: Establish PDI connection	The Connection Domain-UseCase AdjS SCI-XX CDUC1.1: Establish PDI connection defines the process to establish a PDI connection between Subsystem - Electronic Interlocking and Adjacent System.

ID	Type	Requirement Part 1	Requirement Part 2
Eu.Gen.3363	Info	<div>AdjS SCI-XX CD SD 1.1.1</div> <div><div><div>sd AdjS SCI-XX CDUC1.1 - Main Success Scenario [AdjS SCI-XX CD SD 1.1.1]</div><div><div><div><div><div><div><div></div><div>:Subsystem - Electronic Interlocking</div></div><div><div><div></div><div>:Adjacent System</div></div></div></div></div><div><div>Main Success Scenario: Establish PDI connection</div><div>Precondition:</div><div>---</div><div>Interaction 1.1.1.A:</div><div><div>1. - Adjacent System detects that the PDI connection is closed.</div><div>2. Adjacent System initiates the SCP connection.</div></div><div>par</div><div><div>Interaction 1.1.1.B:</div><div><div>3.a1 - Adjacent System detects that the SCP connection is established.</div></div></div><div>also par</div><div><div>Interaction 1.1.1.C:</div><div><div>3.b1 - Subsystem - Electronic Interlocking detects that the SCP connection is established.</div></div></div><div>end par</div><div><div>4. Adjacent System sends the request to verify the match between the transmitted PDIVer and the PDIVer present in the Subsystem - Electronic Interlocking.</div><div>5. Subsystem - Electronic Interlocking evaluates that the PDI versions are equal.</div><div>6. Subsystem - Electronic Interlocking reports to Adjacent System the used PDIVer and newly calculated CSS.</div><div>7. Adjacent System evaluates that the CSS is equal.</div><div>8. Adjacent System sends the request to transmit the status to Subsystem - Electronic Interlocking.</div><div>9. Subsystem - Electronic Interlocking notifies Adjacent System about the transmission of the status information.</div><div>10. Subsystem - Electronic Interlocking and Adjacent System perform the status report.</div><div>11. Subsystem - Electronic Interlocking notifies Adjacent System that the transmission of the status information is complete.</div></div><div>Postcondition:</div><div>The PDI connection is established.</div></div></div></div><div><div><div><div><div><div><div></div><div>Establish_SCP_Connection</div><div></div></div><div><div></div><div>SCP_Connection_Established</div><div></div></div></div><div><div></div><div>Cd_PDI_Version_Check</div><div></div></div><div><div></div><div>Msg_PDI_Version_Check</div><div></div></div><div><div></div><div>Cd_Initialisation_Request</div><div></div></div><div><div></div><div>Msg_Start_Initialisation</div><div></div></div><div><div></div><div>SCI-XX CD SD 1.2.x Report status</div><div></div></div><div><div></div><div>Msg_Initialisation_Completed</div><div></div></div></div><div><div>par</div><div><div></div><div>SCP_Connection_Established</div><div></div></div><div><div></div><div>Establish_SCP_Connection</div><div></div></div><div><div></div><div>SCP_Connection_Established</div><div></div></div></div><div><div></div><div>{< Con_tmax_PDI_Connection}</div><div></div></div><div><div></div><div>ref</div><div></div></div></div></div></div></div></div></div>	

ID	Type		Requirement Part 1	Requirement Part 2
Eu.Gen.3387	Info	AdjS SCI-XX CD SD 1.1.2 sd AdjS SCI-XX CDUC1.1 - Alternative Scenario [AdjS SCI-XX CD SD 1.1.2] Alternative Scenario: PDI version is unequal Precondition: — Interaction 1.1.2.A: 1. - Adjacent System detects that the PDI connection is closed. 2. Adjacent System initiates the SCP connection. par Interaction 1.1.2.B: 3.a1 - Adjacent System detects that the SCP connection is established. also par Interaction 1.1.2.C: 3.b1 - Subsystem - Electronic Interlocking detects that the SCP connection is established. end par 4. Adjacent System sends the request to verify the match between the transmitted PDIVer and the PDIVer present in the Subsystem - Electronic Interlocking. 5. Subsystem - Electronic Interlocking evaluates that the PDI versions are unequal. 6. Subsystem - Electronic Interlocking reports to Adjacent System that PDIVer does not match. 7. Adjacent System requests the termination of the SCP connection. par Interaction 1.1.2.D: 8.a1 - Adjacent System detects that SCP connection is terminated. also par Interaction 1.1.2.E: 8.b1 - Subsystem - Electronic Interlocking detects that SCP connection is terminated. end par Postcondition: The PDI connection is impermissible.	<pre>sequenceDiagram\n participant S as :Subsystem - Electronic Interlocking\n participant A as :Adjacent System\n Note over A: Establish_SCP_Connection\n activate A\n Note over A: SCP_Connection_Established\n deactivate A\n par\n Note left of S: SCP_Connection_Established\n S->>A: Cd_PDI_Version_Check\n end\n Note left of S: Cd_PDI_Version_Check\n S->>A: Msg_PDI_Version_Check\n Note right of A: Terminate_SCP_Connection\n activate A\n Note right of A: SCP_Connection_Terminated\n deactivate A\n par\n Note left of S: SCP_Connection_Terminated\n end</pre>	

ID	Type	Requirement Part 1	Requirement Part 2
Eu.Gen.3414	Info	<div>AdjS SCI-XX CD SD 1.1.3</div> <div><div>sd AdjS SCI-XX CDUC1.1 - Alternative Scenario [AdjS SCI-XX CD SD 1.1.3]</div><div><div>:Subsystem - Electronic Interlocking</div><div>:</div><div>:Adjacent System</div></div><div><p>Alternative Scenario: CSS is unequal</p><p>Precondition:</p><p>—</p><p>Interaction 1.1.3.A:</p><p>1. - Adjacent System detects that the PDI connection is closed.</p><p>2. Adjacent System initiates the SCP connection.</p><p>par</p><div><p>Interaction 1.1.3.B:</p><p>3.a1 - Adjacent System detects that the SCP connection is established.</p></div><p>also par</p><div><p>Interaction 1.1.3.C:</p><p>3.b1 - Subsystem - Electronic Interlocking detects that the SCP connection is established.</p></div><p>end par</p><p>4. Adjacent System sends the request to verify the match between the transmitted PDIVer and the PDIVer present in the Subsystem - Electronic Interlocking.</p><p>5. Subsystem - Electronic Interlocking evaluates that the PDI versions are equal.</p><p>6. Subsystem - Electronic Interlocking reports to Adjacent System the used PDIVer and newly calculated CSS.</p><p>7. Adjacent System evaluates that the CSS is not equal.</p><p>8. Adjacent System requests the termination of the SCP connection.</p><p>par</p><div><p>Interaction 1.1.3.D:</p><p>9.a1 - Adjacent System detects that SCP connection is terminated.</p></div><p>also par</p><div><p>Interaction 1.1.3.E:</p><p>9.b1 - Subsystem - Electronic Interlocking detects that SCP connection is terminated.</p></div><p>end par</p><p>Postcondition:</p><p>The PDI connection is impermissible.</p></div><div><pre>sequenceDiagram\n participant S as :Subsystem - Electronic Interlocking\n participant A as :Adjacent System\n Note over A: Establish_SCP_Connection\n activate A\n Note over A: SCP_Connected_Established\n deactivate A\n par\n S->>A: Cd_PDI_Version_Check\n activate S\n and\n A-->>S: \n end\n S->>A: Msg_PDI_Version_Check\n activate S\n Note over A: Terminate_SCP_Connection\n activate A\n Note over A: SCP_Connected_Terminated\n deactivate A\n par\n S->>A: \n activate S\n and\n A-->>S: \n end\n deactivate S</pre></div></div>	
Eu.Gen.3442	Head	3.2.1.2 Requirements	
Eu.Gen.4000	Head	3.2.1.2.1 Connection	
Eu.Gen.3458	Req	<div>AdjS SCI-XX Protocol Stack SR - Logical Partitioning [AdjS SCI-XX PS BDD 1]</div> <div><div>bdd AdjS SCI-XX Protocol Stack SR - Logical Partitioning [AdjS SCI-XX PS BDD 1]</div><div><pre>graph TD\n EIL["«block» Subsystem - Electronic Interlocking SR"]\n ASR["«block» Adjacent System SR"]\n APSR["«block» AdjS SCI-XX Protocol Stack SR"]\n PDISR["«block» AdjS SCI-XX PDI SR"]\n SCP["«block» SCP"]\n EIL -- "1 SAP_SubS_EIL" --- J(())\n J -- "1 SAP Sys_XX" --- ASR\n APSR *-- 1 APSR\n APSR -- 1 --> PDISR\n APSR -- 1 --> SCP</pre></div></div>	
Eu.Gen.3456	Info	AdjS SCI-XX Protocol Stack SR	

ID	Type	Requirement Part 1	Requirement Part 2
Eu.Gen.3457	Req	<div>AdjS SCI-XX Protocol Stack SR - Logical Architecture [AdjS SCI-XX PS IBD 1]</div> <div>ibd AdjS SCI-XX Protocol Stack SR - Logical Architecture [AdjS SCI-XX PS IBD 1]</div> <div><pre>graph TD subgraph "«block» AdjS SCI-XX Protocol Stack SR" direction TB subgraph Participants direction LR P1["«participant» {end = SAP_SubS_EIL} : Subsystem - Electronic Interlocking SR"] P2["«participant» {end = SAP_Sys_XX} : Adjacent System SR"] end PDI[": AdjS SCI-XX PDI SR"] SCP[": SCP"] PDI --- SAP_SubS_EIL_SCP --- P1 PDI --- SAP_Sys_XX_SCP --- P2 PDI --- SAP_SCP_SubS_EIL --- SCP PDI --- SAP_SCP_Sys_XX --- SCP end</pre></div>	
Eu.Gen.3443	Head	3.2.1.2.2 Logical architectures	
Eu.Gen.3460	Req	3.2.1.2.2.1 Process Data Interface Protocol SCI-XX	
Eu.Gen.3455	Req	<div>AdjS SCI-XX PDI SR - Logical Partitioning [AdjS SCI-XX PDI BDD 1]</div> <div>bdd AdjS SCI-XX PDI SR - Logical Partitioning [AdjS SCI-XX PDI BDD 1]</div> <div><pre>graph TD subgraph "«block» AdjS SCI-XX PDI SR" direction TB PDI["AdjS SCI-XX PDI SR"] PDI -- 1 --> Prim["«block» S_SCI_AdjS_Prim_SR"] PDI -- 1 --> Sec["«block» S_SCI_AdjS_Sec_SR"] end</pre></div>	
Eu.Gen.3445	Info	AdjS SCI-XX PDI SR	

ID	Type	Requirement Part 1	Requirement Part 2
Eu.Gen.3450	Req	<div>AdjS SCI-XX PDI SR - Logical Architecture [AdjS SCI-XX PDI IBD 1]</div> <div>ibd AdjS SCI-XX PDI SR - Logical Architecture [AdjS SCI-XX PDI IBD 1]</div> <div></div>	
Eu.Gen.3451	Req	SAP_Sys_XX	The FlowPort SAP_Sys_XX represents the interface to the core of an Adjacent System.
Eu.Gen.3452	Req	SAP_Sys_XX_SCP	The FlowPort SAP_Sys_XX_SCP represents interface to the SCP on the side of an Adjacent System.
Eu.Gen.3453	Req	SAP_SubS_EIL	The FlowPort SAP_SubS_EIL represents the interface to the core of Subsystem - Electronic Interlocking.
Eu.Gen.3454	Req	SAP_SubS_EIL_SCP	The FlowPort SAP_SubS_EIL_SCP represents the interface to the SCP on the side of Subsystem - Electronic Interlocking.
Eu.Gen.3461	Head	3.2.1.2.3 Logical components	
Eu.Gen.3462	Info	S_SCI_AdjS_Prim_SR	

ID	Type	Requirement Part 1	Requirement Part 2
Eu.Gen.3528	Req	<div>S_SCI_AdjS_Prim_SR - Events [SCI_AdjS_Prim IBD 1]</div> <div><div><div><div><div>«block»</div><div>S_SCI_AdjS_Prim_SR</div><div>Operation</div><div>«Operation» cOp1_init ()</div></div><div><div><div>D2_Con_tmax_PDI_Connection : Integer</div><div>T7_Cd_PDI_Version_Check : PulsedOut</div></div><div><div><div>D3_Con_PDI_Version : String</div><div>DT7_PDI_Version : String</div></div><div><div><div>D4_Con_Checksum_Data : String</div><div>T13_Msg_PDI_Version_Check : PulsedIn</div></div><div><div><div>D23_Con_Checksum_Data_Used : Boolean</div><div>DT13_Result : String</div></div><div><div><div>T20_Protocol_Error : PulsedIn</div><div>DT13_Checksum_Data : String</div></div><div><div><div>T21_Formal_Telegram_Error : PulsedIn</div><div>T8_Cd_Initialisation_Request : PulsedOut</div></div><div><div><div>T22_Content_Telegram_Error : PulsedIn</div><div>T14_Msg_Start_Initialisation : PulsedIn</div></div><div><div><div>T15_Msg_Initialisation_Completed : PulsedIn</div><div></div></div><div><div><div>D50_PDI_Connection_State : String</div><div>T5_SCP_Connection_Established : PulsedIn</div></div><div><div><div>T10_SCP_Connection_Terminated : PulsedIn</div><div>T6_Establish_SCP_Connection : PulsedOut</div></div><div><div><div>T12_Terminate_SCP_Connection : PulsedOut</div><div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div>	
Eu.Gen.3463	Req	cOp1_init	D50_PDI_Connection_State := ""; T12_Terminate_SCP_Connection := FALSE; T7_Cd_PDI_Version_Check := FALSE; DT7_PDI_Version := ""; T8_Cd_Initialisation_Request := FALSE; T6_Establish_SCP_Connection := FALSE;
Eu.Gen.3464	Req	D23_Con_Checksum_Data_Used	The FlowPort D23_Con_Checksum_Data_Used provides configuration values whether the CSS is used and checked during initialisation. The following values are permitted: - True: CSS is used - False: CSS is not used
Eu.Gen.3465	Req	D2_Con_tmax_PDI_Connection	The FlowPort D2_Con_tmax_PDI_Connection provides the time value Con_tmax_PDI_Connection.
Eu.Gen.3466	Req	D3_Con_PDI_Version	The FlowPort D3_Con_PDI_Version provides the configured PDIVer.
Eu.Gen.3467	Req	D4_Con_Checksum_Data	The FlowPort D4_Con_Checksum_Data provides the configured CSS.
Eu.Gen.3468	Req	D50_PDI_Connection_State	The FlowPort D50_PDI_Connection_State provides the status of the PDI connection. It is used by the system core to determine the connection status.
Eu.Gen.3469	Req	DT13_Checksum_Data	The FlowPort DT13_Checksum_Data belongs to T13_Msg_PDI_Version_Check.
Eu.Gen.3470	Req	DT13_Result	The FlowPort DT13_Result belongs to T13_Msg_PDI_Version_Check.
Eu.Gen.3471	Req	DT7_PDI_Version	The FlowPort DT7_PDI_Version belongs to T7_Cd_PDI_Version_Check.
Eu.Gen.3529	Req	T10_SCP_Connection_Terminated	The FlowPort T10_SCP_Connection_Terminated represents the event of the terminated SCP connection.
Eu.Gen.3530	Req	T12_Terminate_SCP_Connection	The FlowPort T12_Terminate_SCP_Connection represents the event to terminate the SCP connection.
Eu.Gen.3531	Req	T13_Msg_PDI_Version_Check	The FlowPort T13_Msg_PDI_Version_Check refines the FlowProperty Msg_PDI_Version_Check.
Eu.Gen.3532	Req	T14_Msg_Start_Initialisation	The FlowPort T14_Msg_Start_Initialisation refines the FlowProperty Msg_Start_Initialisation.
Eu.Gen.3533	Req	T15_Msg_Initialisation_Completed	The FlowPort T15_Msg_Initialisation_Completed refines the FlowProperty Msg_Initialisation_Completed.
Eu.Gen.3534	Req	T20_Protocol_Error	The FlowPort T20_Protocol_Error represents the event of a protocol error. The following events are possible as defined in [Eu.Doc.16]. - incomplete activation - improper message sequence - message at improper instant case

ID	Type	Requirement Part 1	Requirement Part 2
Eu.Gen.3535	Req	T21_Formal_Telegram_Error	<p>The FlowPort T21_Formal_Telegram_Error represents the event of a formal telegram error. The following events are possible as defined in [Eu.Doc.16].</p> <ul style="list-style-type: none">- deviating message type- deviating protocol type- message length- unknown sender or receiver identifier
Eu.Gen.3536	Req	T22_Content_Telegram_Error	<p>The FlowPort T22_Content_Telegram_Error represents the event of a content telegram error. The following events are possible as defined in [Eu.Doc.16].</p> <ul style="list-style-type: none">- improper value- locally improper value- improper combination of values
Eu.Gen.3537	Req	T5_SCP_Connection_Established	The FlowPort T5_SCP_Connection_Established represents the event of the established SCP connection.
Eu.Gen.3538	Req	T6_Establish_SCP_Connection	The FlowPort T6_Establish_SCP_Connection represents the event for the SCP to establish the SCP connection.
Eu.Gen.3539	Req	T7_Cd_PDI_Version_Check	The FlowPort T7_Cd_PDI_Version_Check refines the FlowProperty Cd_PDI_Version_Check.
Eu.Gen.3540	Req	T8_Cd_Initialisation_Request	The FlowPort T8_Cd_Initialisation_Request refines the FlowProperty Cd_Initialisation_Request.
Eu.Gen.3472	Info	S_SCI_AdjS_Prim_SR - Behaviour	

ID	Type	Requirement Part 1	Requirement Part 2
Eu.Gen.3527	Req	<div><div>stm S_SCI_AdjS_Prim_SR - Behaviour [S_SCI_AdjS_Prim STD 1]</div><div><div><div><div><div><div>Initial0</div><div>/cOp1_init();</div></div><div><div>PDI_CONNECTION_CLOSED</div><div>Entry/D50_PDI_Connection_State := "CLOSED"; T6_Establish_SCP_Connection := TRUE;</div></div></div><div><div>when(T10_SCP_Connection_Terminated)/</div><div>when(T10_SCP_Connection_Terminated)/</div><div>when(T10_SCP_Connection_Terminated)/</div><div>when(T10_SCP_Connection_Terminated)/</div><div>when(T5_SCP_Connection_Established)/</div></div><div><div>ESTABLISHING_PDI_CONNECTION</div><div><div><div>Initial1</div><div>/DT7_PDI_Version := D3_Con_PDI_Version; T7_Cd_PDI_Version_Check := TRUE;</div></div><div><div>WAITING_FOR_VERSION_CHECK</div><div>Entry/D50_PDI_Connection_State := "WAITING_FOR_VERSION_CHECK";</div></div><div><div>when(T13_Msg_PDI_Version_Check)/</div><div><div><div>Junction0</div><div><div>[DT13_Result = "match"]/</div></div><div><div>Junction1</div><div><div>[NOT D23_Con_Checksum_Data_Used]/ T8_Cd_Initialisation_Request := TRUE;</div><div>[D23_Con_Checksum_Data_Used]/</div></div><div><div>Junction2</div><div><div>[DT13_Checksum_Data = D4_Con_Checksum_Data]/ T8_Cd_Initialisation_Request := TRUE;</div></div></div><div><div>WAITING_FOR_INITIALISATION</div><div>Entry/D50_PDI_Connection_State := "WAITING_FOR_INITIALISATION";</div></div><div><div>when(T14_Msg_Start_Initialisation)/</div><div><div>REPORTING_STATUS</div><div>Entry/D50_PDI_Connection_State := "REPORTING_STATUS";</div></div><div><div>when(T15_Msg_Initialisation_Completed)/</div></div></div><div><div>PDI_CONNECTION_ESTABLISHED</div><div>Entry/D50_PDI_Connection_State := "ESTABLISHED";</div></div></div></div><div><div><div>The transition for leaving the state PDI_CONNECTION_IMPERMISSIBLE will be further developed in the next development phase.</div></div><div><div>PDI_CONNECTION_IMPERMISSIBLE</div><div>Entry/D50_PDI_Connection_State := "IMPERMISSIBLE";</div></div><div><div>when(T10_SCP_Connection_Terminated)/</div><div>when(T10_SCP_Connection_Terminated)/</div><div>when(T10_SCP_Connection_Terminated)/</div></div><div><div>PDI_INIT_TIMEOUT</div><div>Entry/D50_PDI_Connection_State := "INIT_TIMEOUT"; T12_Terminate_SCP_Connection := TRUE;</div></div><div><div>after(D2_Con_tmax_PDI_Connection)/</div></div><div><div>PDI_VERSION_UNEQUAL</div><div>Entry/D50_PDI_Connection_State := "VERSION_UNEQUAL"; T12_Terminate_SCP_Connection := TRUE;</div></div><div><div>[DT13_Result = "not match"]/</div></div><div><div>PDI_CHECKSUM_UNEQUAL</div><div>Entry/D50_PDI_Connection_State := "CHECKSUM_UNEQUAL"; T12_Terminate_SCP_Connection := TRUE;</div></div><div><div>[NOT (DT13_Checksum_Data = D4_Con_Checksum_Data)]/</div></div><div><div>PDI_PROTOCOL_ERROR</div><div>Entry/D50_PDI_Connection_State := "PROTOCOL_ERROR"; T12_Terminate_SCP_Connection := TRUE;</div></div><div><div>when(T20_Protocol_Error)/</div></div><div><div>PDI_TELEGRAM_ERROR</div><div>Entry/D50_PDI_Connection_State := "TELEGRAM_ERROR"; T12_Terminate_SCP_Connection := TRUE;</div></div><div><div>when(T21_Formal_Telegram_Error)/</div><div>when(T22_Content_Telegram_Error)/</div><div>when(T21_Formal_Telegram_Error)/</div><div>when(T22_Content_Telegram_Error)/</div><div>when(T20_Protocol_Error)/</div></div></div></div></div></div></div></div></div></div></div>	
Eu.Gen.3499	Info	Initial0	
Eu.Gen.3500	Req	/cOp1_init():{Initial0 - PDI_CONNECTION_CLOSED}	
Eu.Gen.3501	Info	PDI_CHECKSUM_UNEQUAL	
Eu.Gen.3502	Req	entry/D50_PDI_Connection_State := "CHECKSUM_UNEQUAL"; T12_Terminate_SCP_Connection := TRUE;{State-internal in PDI_CHECKSUM_UNEQUAL}	
Eu.Gen.3503	Req	when(T10_SCP_Connection_Terminated)/{PDI_CHECKSUM_UNEQUAL - PDI_CONNECTION_IMPERMISSIBLE}	
Eu.Gen.3504	Info	PDI_CONNECTION_CLOSED	
Eu.Gen.3505	Req	entry/D50_PDI_Connection_State := "CLOSED"; T6_Establish_SCP_Connection := TRUE;{State-internal in PDI_CONNECTION_CLOSED}	
Eu.Gen.3506	Req	when(T5_SCP_Connection_Established)/{PDI_CONNECTION_CLOSED - ESTABLISHING_PDI_CONNECTION}	
Eu.Gen.3507	Info	PDI_CONNECTION_ESTABLISHED	

ID	Type	Requirement Part 1	Requirement Part 2
Eu.Gen.3508	Req	entry/D50_PDI_Connection_State := "ESTABLISHED";{State-internal in PDI_CONNECTION_ESTABLISHED}	
Eu.Gen.3509	Req	when(T10_SCP_Connection_Terminated)/{PDI_CONNECTION_ESTABLISHED - PDI_CONNECTION_CLOSED}	
Eu.Gen.3510	Req	when(T20_Protocol_Error)/{PDI_CONNECTION_ESTABLISHED - PDI_PROTOCOL_ERROR}	
Eu.Gen.3511	Req	when(T21_Formal_Telegram_Error)/{PDI_CONNECTION_ESTABLISHED - PDI_TELEGRAM_ERROR}	
Eu.Gen.3512	Req	when(T22_Content_Telegram_Error)/{PDI_CONNECTION_ESTABLISHED - PDI_TELEGRAM_ERROR}	
Eu.Gen.3513	Info	PDI_CONNECTION_IMPERMISSIBLE	
Eu.Gen.3514	Req	entry/D50_PDI_Connection_State := "IMPERMISSIBLE";{State-internal in PDI_CONNECTION_IMPERMISSIBLE}	
Eu.Gen.3515	Info	PDI_INIT_TIMEOUT	
Eu.Gen.3516	Req	entry/D50_PDI_Connection_State := "INIT_TIMEOUT"; T12_Terminate_SCP_Connection := TRUE;{State-internal in PDI_INIT_TIMEOUT}	
Eu.Gen.3517	Req	when(T10_SCP_Connection_Terminated)/{PDI_INIT_TIMEOUT - PDI_CONNECTION_CLOSED}	
Eu.Gen.3518	Info	PDI_PROTOCOL_ERROR	
Eu.Gen.3519	Req	entry/D50_PDI_Connection_State := "PROTOCOL_ERROR"; T12_Terminate_SCP_Connection := TRUE;{State-internal in PDI_PROTOCOL_ERROR}	
Eu.Gen.3520	Req	when(T10_SCP_Connection_Terminated)/{PDI_PROTOCOL_ERROR - PDI_CONNECTION_CLOSED}	
Eu.Gen.3521	Info	PDI_TELEGRAM_ERROR	
Eu.Gen.3522	Req	entry/D50_PDI_Connection_State := "TELEGRAM_ERROR"; T12_Terminate_SCP_Connection := TRUE;{State-internal in PDI_TELEGRAM_ERROR}	
Eu.Gen.3523	Req	when(T10_SCP_Connection_Terminated)/{PDI_TELEGRAM_ERROR - PDI_CONNECTION_IMPERMISSIBLE}	
Eu.Gen.3524	Info	PDI_VERSION_UNEQUAL	
Eu.Gen.3525	Req	entry/D50_PDI_Connection_State := "VERSION_UNEQUAL"; T12_Terminate_SCP_Connection := TRUE;{State-internal in PDI_VERSION_UNEQUAL}	
Eu.Gen.3526	Req	when(T10_SCP_Connection_Terminated)/{PDI_VERSION_UNEQUAL - PDI_CONNECTION_IMPERMISSIBLE}	
Eu.Gen.3473	Info	ESTABLISHING_PDI_CONNECTION	
Eu.Gen.3474	Req	after(D2_Con_tmax_PDI_Connection)/{ESTABLISHING_PDI_CONNECTION - PDI_INIT_TIMEOUT}	
Eu.Gen.3475	Info	Initial1	
Eu.Gen.3476	Req	/DT7_PDI_Version := D3_Con_PDI_Version; T7_Cd_PDI_Version_Check := TRUE;{Initial1 - WAITING_FOR_VERSION_CHECK}	
Eu.Gen.3477	Info	Junction0	
Eu.Gen.3478	Req	[DT13_Result = "match"]/{Junction0 - Junction1}	
Eu.Gen.3479	Req	[DT13_Result = "not match"]/{Junction0 - PDI_VERSION_UNEQUAL}	
Eu.Gen.3480	Info	Junction1	
Eu.Gen.3481	Req	[D23_Con_Checksum_Data_Used]/{Junction1 - Junction2}	
Eu.Gen.3482	Req	[NOT D23_Con_Checksum_Data_Used]/ T8_Cd_Initialisation_Request := TRUE;{Junction1 - WAITING_FOR_INITIALISATION}	
Eu.Gen.3483	Info	Junction2	
Eu.Gen.3484	Req	[NOT (DT13_Checksum_Data = D4_Con_Checksum_Data)]/{Junction2 - PDI_CHECKSUM_UNEQUAL}	
Eu.Gen.3485	Req	[DT13_Checksum_Data = D4_Con_Checksum_Data]/ T8_Cd_Initialisation_Request := TRUE;{Junction2 - WAITING_FOR_INITIALISATION}	
Eu.Gen.3486	Info	REPORTING_STATUS	
Eu.Gen.3487	Req	entry/D50_PDI_Connection_State := "REPORTING_STATUS";{State-internal in REPORTING_STATUS}	
Eu.Gen.3488	Req	when(T15_Msg_Initialisation_Completed)/{REPORTING_STATUS - PDI_CONNECTION_ESTABLISHED}	
Eu.Gen.3489	Info	WAITING_FOR_INITIALISATION	
Eu.Gen.3490	Req	entry/D50_PDI_Connection_State := "WAITING_FOR_INITIALISATION";{State-internal in WAITING_FOR_INITIALISATION}	
Eu.Gen.3491	Req	when(T14_Msg_Start_Initialisation)/{WAITING_FOR_INITIALISATION - REPORTING_STATUS}	
Eu.Gen.3492	Info	WAITING_FOR_VERSION_CHECK	
Eu.Gen.3493	Req	entry/D50_PDI_Connection_State := "WAITING_FOR_VERSION_CHECK";{State-internal in WAITING_FOR_VERSION_CHECK}	
Eu.Gen.3494	Req	when(T13_Msg_PDI_Version_Check)/{WAITING_FOR_VERSION_CHECK - Junction0}	
Eu.Gen.3495	Req	when(T10_SCP_Connection_Terminated)/{ESTABLISHING_PDI_CONNECTION - PDI_CONNECTION_CLOSED}	
Eu.Gen.3496	Req	when(T20_Protocol_Error)/{ESTABLISHING_PDI_CONNECTION - PDI_PROTOCOL_ERROR}	
Eu.Gen.3497	Req	when(T21_Formal_Telegram_Error)/{ESTABLISHING_PDI_CONNECTION - PDI_TELEGRAM_ERROR}	
Eu.Gen.3498	Req	when(T22_Content_Telegram_Error)/{ESTABLISHING_PDI_CONNECTION - PDI_TELEGRAM_ERROR}	
Eu.Gen.3541	Info	S_SCI_AdjS_Sec_SR	

ID	Type	Requirement Part 1	Requirement Part 2
Eu.Gen.3599	Req	<div><div>S_SCI_AdjS_Sec_SR - Events [SCI_AdjS_Sec IBD 1]</div><div><div><div><div><div>«block»</div><div>S_SCI_AdjS_Sec_SR</div><div>«Operation» cOp1_init ()</div></div></div><div><div><div><div>D3_Con_PDI_Version : String</div><div>T7_Cd_PDI_Version_Check : PulsedIn</div></div><div><div>D4_Con_Checksum_Data : String</div><div>DT7_PDI_Version : String</div></div><div><div>D23_Con_Checksum_Data_Used : Boolean</div><div>T13_Msg_PDI_Version_Check : PulsedOut</div></div><div><div>T20_Protocol_Error : PulsedIn</div><div>DT13_Result : String</div></div><div><div>T21_Formal_Telegram_Error : PulsedIn</div><div>DT13_Checksum_Data : String</div></div><div><div>T22_Content_Telegram_Error : PulsedIn</div><div>T8_Cd_Initialisation_Request : PulsedIn</div></div><div><div>T14_Msg_Start_Initialisation : PulsedOut</div><div>T15_Msg_Initialisation_Completed : PulsedOut</div></div><div><div>D50_PDI_Connection_State : String</div><div>T5_SCP_Connection_Established : PulsedIn</div></div><div><div>T6_Start_Status_Report : PulsedOut</div><div>T10_SCP_Connection_Terminated : PulsedIn</div></div><div><div>T17_Status_Report_Completed : PulsedIn</div><div>T12_Terminate_SCP_Connection : PulsedOut</div></div></div></div></div></div></div>	
Eu.Gen.3542	Req	cOp1_init	D50_PDI_Connection_State := ""; T12_Terminate_SCP_Connection := FALSE; T13_Msg_PDI_Version_Check := FALSE; DT13_Result := ""; DT13_Checksum_Data := ""; T14_Msg_Start_Initialisation := FALSE; T15_Msg_Initialisation_Completed := FALSE; T6_Start_Status_Report := FALSE;
Eu.Gen.3543	Req	D23_Con_Checksum_Data_Used	The FlowPort D23_Con_Checksum_Data_Used provides configuration values whether the CSS is used and checked during initialisation. The following values are permitted: - True: CSS is used - False: CSS is not used
Eu.Gen.3544	Req	D3_Con_PDI_Version	The FlowPort D3_Con_PDI_Version provides the configured PDIVer.
Eu.Gen.3545	Req	D4_Con_Checksum_Data	The FlowPort D4_Con_Checksum_Data provides the configured CSS.
Eu.Gen.3546	Req	D50_PDI_Connection_State	The FlowPort D50_PDI_Connection_State provides the status of the PDI connection. It is used by the system core to determine the connection status.
Eu.Gen.3547	Req	DT13_Checksum_Data	The FlowPort DT13_Checksum_Data belongs to T13_Msg_PDI_Version_Check.
Eu.Gen.3548	Req	DT13_Result	The FlowPort DT13_Result belongs to T13_Msg_PDI_Version_Check.
Eu.Gen.3549	Req	DT7_PDI_Version	The FlowPort DT7_PDI_Version belongs to T7_Cd_PDI_Version_Check.
Eu.Gen.3600	Req	T10_SCP_Connection_Terminated	The FlowPort T10_SCP_Connection_Terminated represents the event of the terminated SCP connection.
Eu.Gen.3601	Req	T12_Terminate_SCP_Connection	The FlowPort T12_Terminate_SCP_Connection represents the event for the SCP to terminate the SCP connection.
Eu.Gen.3602	Req	T13_Msg_PDI_Version_Check	The FlowPort T13_Msg_PDI_Version_Check refines the FlowProperty Msg_PDI_Version_Check.
Eu.Gen.3603	Req	T14_Msg_Start_Initialisation	The FlowPort T14_Msg_Start_Initialisation refines the FlowProperty Msg_Start_Initialisation.
Eu.Gen.3604	Req	T15_Msg_Initialisation_Completed	The FlowPort T15_Msg_Initialisation_Completed refines the FlowProperty Msg_Initialisation_Completed.
Eu.Gen.3605	Req	T17_Status_Report_Completed	
Eu.Gen.3606	Req	T20_Protocol_Error	The FlowPort T20_Protocol_Error represents the event of a protocol error. The following events are possible as defined in [Eu.Doc.16]. - incomplete activation - improper message sequence - message at improper instant case

ID	Type	Requirement Part 1	Requirement Part 2
Eu.Gen.3607	Req	T21_Formal_Telegram_Error	<p>The FlowPort T21_Formal_Telegram_Error represents the event of a formal telegram error. The following events are possible as defined in [Eu.Doc.16].</p> <ul style="list-style-type: none">- deviating message type- deviating protocol type- message length- unknown sender or receiver identifier
Eu.Gen.3608	Req	T22_Content_Telegram_Error	<p>The FlowPort T22_Content_Telegram_Error represents the event of a content telegram error. The following events are possible as defined in [Eu.Doc.16].</p> <ul style="list-style-type: none">- improper value- locally improper value- improper combination of values
Eu.Gen.3609	Req	T5_SCP_Connection_Established	The FlowPort T5_SCP_Connection_Established represents the event of the established SCP connection.
Eu.Gen.3610	Req	T6_Start_Status_Report	
Eu.Gen.3611	Req	T7_Cd_PDI_Version_Check	The FlowPort T7_Cd_PDI_Version_Check refines the FlowProperty Cd_PDI_Version_Check.
Eu.Gen.3612	Req	T8_Cd_Initialisation_Request	The FlowPort T8_Cd_Initialisation_Request refines the FlowProperty Cd_Initialisation_Request.
Eu.Gen.3550	Info	S_SCI_AdjS_Sec_SR - Behaviour	

ID	Type	Requirement Part 1	Requirement Part 2
Eu.Gen.3598	Req	<div><div>SCI_AdjS_Sec STD 1</div><div>stm S_SCI_AdjS_Sec_SR - Behaviour [SCI_AdjS_Sec STD 1]</div><div><div><div><div>Initial0</div><div>/cOp1_init();</div><div>PDI_CONNECTION_CLOSED</div><div>Entry/D50_PDI_Connection_State := "CLOSED";</div></div><div><div>when(T10_SCP_Connection_Terminated) /</div><div>when(T10_SCP_Connection_Terminated) /</div><div>when(T10_SCP_Connection_Terminated) /</div><div>when(T5_SCP_Connection_Established) /</div><div>ESTABLISHING_PDI_CONNECTION</div><div><div>Initial1</div><div>WAITING_FOR_VERSION_CHECK</div><div>Entry/D50_PDI_Connection_State := "WAITING_FOR_VERSION_CHECK";</div><div><div>when(T7_Cd_PDI_Version_Check) /</div><div>Junction0</div><div>[NOT (DT7_PDI_Version = D3_Con_PDI_Version)] /</div><div>Junction1</div><div>[DT7_PDI_Version = D3_Con_PDI_Version] /</div><div>Junction2</div><div>[NOT D23_Con_Checksum_Data_Used] /</div><div>DT13_Result := "match";</div><div>DT13_Checksum_Data := "not applicable";</div><div>T13_Msg_PDI_Version_Check := TRUE;</div><div>[D23_Con_Checksum_Data_Used] /</div><div>DT13_Result := "match";</div><div>DT13_Checksum_Data := D4_Con_Checksum_Data;</div><div>T13_Msg_PDI_Version_Check := TRUE;</div><div>WAITING_FOR_INITIALISATION</div><div>Entry/D50_PDI_Connection_State := "WAITING_FOR_INITIALISATION";</div><div><div>when(T8_Cd_Initialisation_Request) /</div><div>T14_Msg_Start_Initialisation := TRUE;</div><div>REPORTING_STATUS</div><div>Entry/D50_PDI_Connection_State := "REPORTING_STATUS";</div><div>T6_Start_Status_Report := TRUE;</div><div><div>when(T17_Status_Report_Completed) /</div><div>T15_Msg_Initialisation_Completed := TRUE;</div><div>PDI_CONNECTION_ESTABLISHED</div><div>Entry/D50_PDI_Connection_State := "ESTABLISHED";</div></div></div></div><div><div>The transition for leaving the state PDI_CONNECTION_IMPERMISSIBLE will be further developed in the next development phase.</div><div><div>when(T10_SCP_Connection_Terminated) /</div><div>when(T10_SCP_Connection_Terminated) /</div><div>PDI_CONNECTION_IMPERMISSIBLE</div><div>Entry/D50_PDI_Connection_State := "IMPERMISSIBLE";</div></div><div><div>PDI_VERSION_UNEQUAL</div><div>Entry/D50_PDI_Connection_State := "VERSION_UNEQUAL";</div><div>[D23_Con_Checksum_Data_Used] /</div><div>DT13_Result := "not match";</div><div>DT13_Checksum_Data := D4_Con_Checksum_Data;</div><div>T13_Msg_PDI_Version_Check := TRUE;</div></div><div><div>[NOT D23_Con_Checksum_Data_Used] /</div><div>DT13_Result := "not match";</div><div>DT13_Checksum_Data := "not applicable";</div><div>T13_Msg_PDI_Version_Check := TRUE;</div><div>PDI_PROTOCOL_ERROR</div><div>Entry/D50_PDI_Connection_State := "PROTOCOL_ERROR";</div><div>T12_Terminate_SCP_Connection := TRUE;</div><div><div>when(T20_Protocol_Error) /</div></div></div><div><div>PDI_TELEGRAM_ERROR</div><div>Entry/D50_PDI_Connection_State := "TELEGRAM_ERROR";</div><div>T12_Terminate_SCP_Connection := TRUE;</div><div><div>when(T21_Formal_Telegram_Error) /</div><div>when(T22_Content_Telegram_Error) /</div><div>when(T21_Formal_Telegram_Error) /</div><div>when(T22_Content_Telegram_Error) /</div><div>when(T20_Protocol_Error) /</div></div></div></div></div></div></div></div></div>	
Eu.Gen.3576	Info	Initial0	
Eu.Gen.3577	Req	/cOp1_init();{Initial0 - PDI_CONNECTION_CLOSED}	
Eu.Gen.3578	Info	PDI_CONNECTION_CLOSED	
Eu.Gen.3579	Req	entry/D50_PDI_Connection_State := "CLOSED";{State-internal in PDI_CONNECTION_CLOSED}	
Eu.Gen.3580	Req	when(T5_SCP_Connection_Established)/{PDI_CONNECTION_CLOSED - ESTABLISHING_PDI_CONNECTION}	
Eu.Gen.3581	Info	PDI_CONNECTION_ESTABLISHED	
Eu.Gen.3582	Req	entry/D50_PDI_Connection_State := "ESTABLISHED";{State-internal in PDI_CONNECTION_ESTABLISHED}	
Eu.Gen.3583	Req	when(T10_SCP_Connection_Terminated)/{PDI_CONNECTION_ESTABLISHED - PDI_CONNECTION_CLOSED}	
Eu.Gen.3584	Req	when(T20_Protocol_Error)/{PDI_CONNECTION_ESTABLISHED - PDI_PROTOCOL_ERROR}	
Eu.Gen.3585	Req	when(T21_Formal_Telegram_Error)/{PDI_CONNECTION_ESTABLISHED - PDI_TELEGRAM_ERROR}	
Eu.Gen.3586	Req	when(T22_Content_Telegram_Error)/{PDI_CONNECTION_ESTABLISHED - PDI_TELEGRAM_ERROR}	
Eu.Gen.3587	Info	PDI_CONNECTION_IMPERMISSIBLE	
Eu.Gen.3588	Req	entry/D50_PDI_Connection_State := "IMPERMISSIBLE";{State-internal in PDI_CONNECTION_IMPERMISSIBLE}	
Eu.Gen.3589	Info	PDI_PROTOCOL_ERROR	

ID	Type	Requirement Part 1	Requirement Part 2
Eu.Gen.3590	Req	entry/D50_PDI_Connection_State := "PROTOCOL_ERROR"; T12_Terminate_SCP_Connection := TRUE;{State-internal in PDI_PROTOCOL_ERROR}	
Eu.Gen.3591	Req	when(T10_SCP_Connection_Terminated)/{PDI_PROTOCOL_ERROR - PDI_CONNECTION_CLOSED}	
Eu.Gen.3592	Info	PDI_TELEGRAM_ERROR	
Eu.Gen.3593	Req	entry/D50_PDI_Connection_State := "TELEGRAM_ERROR"; T12_Terminate_SCP_Connection := TRUE;{State-internal in PDI_TELEGRAM_ERROR}	
Eu.Gen.3594	Req	when(T10_SCP_Connection_Terminated)/{PDI_TELEGRAM_ERROR - PDI_CONNECTION_IMPERMISSIBLE}	
Eu.Gen.3595	Info	PDI_VERSION_UNEQUAL	
Eu.Gen.3596	Req	entry/D50_PDI_Connection_State := "VERSION_UNEQUAL";{State-internal in PDI_VERSION_UNEQUAL}	
Eu.Gen.3597	Req	when(T10_SCP_Connection_Terminated)/{PDI_VERSION_UNEQUAL - PDI_CONNECTION_IMPERMISSIBLE}	
Eu.Gen.3551	Info	ESTABLISHING_PDI_CONNECTION	
Eu.Gen.3552	Info	Initial1	
Eu.Gen.3553	Req	/{Initial1 - WAITING_FOR_VERSION_CHECK}	
Eu.Gen.3554	Info	Junction0	
Eu.Gen.3555	Req	[NOT (DT7_PDI_Version = D3_Con_PDI_Version)]/{Junction0 - Junction1}	
Eu.Gen.3556	Req	[DT7_PDI_Version = D3_Con_PDI_Version)]/{Junction0 - Junction2}	
Eu.Gen.3557	Info	Junction1	
Eu.Gen.3558	Req	[NOT D23_Con_Checksum_Data_Used]/ DT13_Result := "not match"; DT13_Checksum_Data := "not applicable"; T13_Msg_PDI_Version_Check := TRUE;{Junction1 - PDI_VERSION_UNEQUAL}	
Eu.Gen.3559	Req	[D23_Con_Checksum_Data_Used]/ DT13_Result := "not match"; DT13_Checksum_Data := D4_Con_Checksum_Data; T13_Msg_PDI_Version_Check := TRUE;{Junction1 - PDI_VERSION_UNEQUAL}	
Eu.Gen.3560	Info	Junction2	
Eu.Gen.3561	Req	[D23_Con_Checksum_Data_Used]/ DT13_Result := "match"; DT13_Checksum_Data := D4_Con_Checksum_Data; T13_Msg_PDI_Version_Check := TRUE;{Junction2 - WAITING_FOR_INITIALISATION}	
Eu.Gen.3562	Req	[NOT D23_Con_Checksum_Data_Used]/ DT13_Result := "match"; DT13_Checksum_Data := "not applicable"; T13_Msg_PDI_Version_Check := TRUE;{Junction2 - WAITING_FOR_INITIALISATION}	
Eu.Gen.3563	Info	REPORTING_STATUS	
Eu.Gen.3564	Req	entry/D50_PDI_Connection_State := "REPORTING_STATUS"; T6_Start_Status_Report := TRUE;{State-internal in REPORTING_STATUS}	
Eu.Gen.3565	Req	when(T17_Status_Report_Completed)/ T15_Msg_Initialisation_Completed := TRUE;{REPORTING_STATUS - PDI_CONNECTION_ESTABLISHED}	
Eu.Gen.3566	Info	WAITING_FOR_INITIALISATION	
Eu.Gen.3567	Req	entry/D50_PDI_Connection_State := "WAITING_FOR_INITIALISATION";{State-internal in WAITING_FOR_INITIALISATION}	
Eu.Gen.3568	Req	when(T8_Cd_Initialisation_Request)/ T14_Msg_Start_Initialisation := TRUE;{WAITING_FOR_INITIALISATION - REPORTING_STATUS}	
Eu.Gen.3569	Info	WAITING_FOR_VERSION_CHECK	
Eu.Gen.3570	Req	entry/D50_PDI_Connection_State := "WAITING_FOR_VERSION_CHECK";{State-internal in WAITING_FOR_VERSION_CHECK}	
Eu.Gen.3571	Req	when(T7_Cd_PDI_Version_Check)/{WAITING_FOR_VERSION_CHECK - Junction0}	
Eu.Gen.3572	Req	when(T10_SCP_Connection_Terminated)/{ESTABLISHING_PDI_CONNECTION - PDI_CONNECTION_CLOSED}	
Eu.Gen.3573	Req	when(T20_Protocol_Error)/{ESTABLISHING_PDI_CONNECTION - PDI_PROTOCOL_ERROR}	
Eu.Gen.3574	Req	when(T21_Formal_Telegram_Error)/{ESTABLISHING_PDI_CONNECTION - PDI_TELEGRAM_ERROR}	
Eu.Gen.3575	Req	when(T22_Content_Telegram_Error)/{ESTABLISHING_PDI_CONNECTION - PDI_TELEGRAM_ERROR}	
Eu.Gen.3886	Head	4 RAMSS requirements	
Eu.Gen.3888	Info	The requirements for reliability, availability, maintainability, safety and security shall be defined by national specifications. Note: The RAMSS requirements will be specified in the EULYNX Specifications of RAMS requirements [Eu.Doc.13], to be developed at a later stage.	
Eu.Gen.3887	Head	5 Technical requirements	
Eu.Gen.3889	Info	Additional technical requirements shall be defined by national specifications.	
Eu.Gen.3890	Head	5.1 Generic technical interface requirements	
Eu.Gen.3891	Head	5.1.1 Interface to the Point of Service – Signalling (PoS-Signalling)	
Eu.Gen.3892	Req	The EULYNX field element Subsystem shall meet the requirements of the PoS-Signalling as defined in [Eu.Doc.100].	

ID	Type	Requirement Part 1	Requirement Part 2
Eu.Gen.3893	Head	5.1.1.1 Communication profile VLAN at the PoS-Signalling	
Eu.Gen.3894	Req	For the communication via SCI-XX at the PoS-Signalling, the EULYNX field elements Subsystem shall provide a communication profile VLAN with the priority class 1 according to [Eu.Doc.100].	
Eu.Gen.3895	Req	For the communication with the service function Loading procedure via SMI-XX at the PoS-Signalling, the EULYNX field elements Subsystem shall provide a communication profile VLAN with the priority class 3 according to [Eu.Doc.100].	
Eu.Gen.3896	Req	For the communication with the service function Time synchronisation via SMI-XX at the PoS-Signalling, the EULYNX field elements Subsystem shall provide a communication profile VLAN with the priority class 4 according to [Eu.Doc.100].	
Eu.Gen.3897	Req	For the communication with the service function Diagnostics collector via SDI-XX at the PoS-Signalling, the EULYNX field elements Subsystem shall provide a communication profile VLAN with the priority class 4 according to [Eu.Doc.100].	
Eu.Gen.3900	Head	5.1.1.2 Reliability profile of the data network at the PoS-Signalling	
Eu.Gen.3898	Req	For the communication via SCI-XX at the PoS-Signalling, the EULYNX field elements Subsystem shall provide a reliability and availability of the data network of reliability and availability class 3 (RAC 3) according to [Eu.Doc.100].	
Eu.Gen.3899	Req	For the communication with the service function Loading procedure via SMI-XX at the PoS-Signalling, the EULYNX field elements Subsystem shall provide a reliability and availability of the data network of reliability and availability class 2 (RAC 2) according to [Eu.Doc.100].	
Eu.Gen.3901	Req	For the communication with the service function Time synchronisation via SMI-XX at the PoS-Signalling, the EULYNX field elements Subsystem shall provide a reliability and availability of the data network of reliability and availability class 1 (RAC 1) according to [Eu.Doc.100].	
Eu.Gen.3902	Req	For the communication with the service function Diagnostics collector via SDI-XX at the PoS-Signalling, the EULYNX field elements Subsystem shall provide a reliability and availability of the data network of reliability and availability class 2 (RAC 2) according to [Eu.Doc.100].	
Eu.Gen.3903	Req	For logical connections SCI-XX between two communication partners with required redundant connection via two PoS-Signalling, the data connections shall be guaranteed by the communication partners independently in accordance with the "hot standby with continuous data update" method.	
Eu.Gen.3904	Head	5.1.1.3 KPI	
Eu.Gen.3905	Req	The EULYNX field element Subsystem shall meet or expect the following KPI requirements at the PoS-Signalling during the communication on SCI-XX: <ul style="list-style-type: none">Data throughput according to CIR (committed information rate) with 15 kbit/sData throughput according to PIR (peak information rate) with 30 kbit/s	
Eu.Gen.3907	Req	The max. allowed delay between the sender at a PoS-Signalling and the receiver at a PoS-Signalling during the communication on SCI-XX is 50 ms. The max. allowed package loss rate between two PoS-Signalling during the communication on SCI-XX is < 1%.	
Eu.Gen.3906	Req	The EULYNX field element Subsystem shall meet or expect the following KPI requirements at the PoS-Signalling during the communication on SMI-XX for the service function Loading procedure: <ul style="list-style-type: none">Data throughput according to CIR (committed information rate) with 45 kbit/sData throughput according to PIR (peak information rate) with 2 Mbit/s	
Eu.Gen.3912	Req	The max. allowed delay between the sender at a PoS-Signalling and the receiver at a PoS-Signalling during the communication on SMI-XX for the service function Loading procedure is 250 ms. The max. allowed package loss rate between two PoS-Signalling during the communication on SMI-XX is < 5%.	
Eu.Gen.3911	Req	The EULYNX field element Subsystem shall meet or expect the following KPI requirements at the PoS-Signalling during the communication on SMI-XX for the service function Time synchronisation: <ul style="list-style-type: none">Data throughput according to CIR (committed information rate) with 30 kbit/sData throughput according to PIR (peak information rate) with 45 kbit/s	
Eu.Gen.3910	Req	The max. allowed delay between the sender at a PoS-Signalling and the receiver at a PoS-Signalling during the communication on SMI-XX for the service function Time synchronisation is 250 ms. The max. allowed package loss rate between two PoS-Signalling during the communication on SMI-XX is < 5%.	
Eu.Gen.3909	Req	The EULYNX field element Subsystem shall meet or expect the following KPI requirements at the PoS-Signalling during the communication on SDI-XX: <ul style="list-style-type: none">Data throughput according to CIR (committed information rate) with 30 kbit/sData throughput according to PIR (peak information rate) with 2 Mbit/s	
Eu.Gen.3908	Req	The max. allowed delay between the sender at a PoS-Signalling and the receiver at a PoS-Signalling during the communication on SDI-XX is 250 ms. The max. allowed package loss rate between two PoS-Signalling during the communication on SDI-XX is < 5%.	
Eu.Gen.3913	Head	5.1.2 Interface to the Point of Power – Output (PoP-O)	
Eu.Gen.3914	Info	These requirements shall be defined by national specifications.	
Eu.Gen.3915	Head	5.1.3 Interface to Basic Data identifier	
Eu.Gen.3918	Req	The basic data of the EULYNX field element subsystem shall be stored on a data carrier (Basic Data identifier).	
Eu.Gen.3919	Req	The Basic Data identifier shall be permanently assigned to the slot of the component of the EULYNX field element Subsystem (subsystem controller). To avoid erroneous assignments, the Basic Data identifier shall be attached to the subsystem in a manner that it remains assigned to that subsystem when a subsystem controller is replaced. Note: The implementation of the Basic Data identifier is left to the suppliers. This is not specified by EULYNX.	
Eu.Gen.3916	Head	5.1.4 Local status display interface	
Eu.Gen.3917	Info	These requirements shall be defined by national specifications.	
Eu.Gen.3920	Head	5.2 Electrical subsystem requirements	
Eu.Gen.3921	Info	These requirements shall be defined by national specifications.	
Eu.Gen.3922	Head	5.3 Constructive subsystem requirements	
Eu.Gen.3923	Info	These requirements shall be defined by national specifications.	
Eu.Gen.3924	Head	5.4 Configuration and engineering data	
Eu.Gen.3925	Head	5.4.1 Generic data	
Eu.Gen.3926	Req	The minimum configuration and engineering data for the EULYNX field element Subsystem is specified in Eu.SAS.1755.	
Eu.Gen.3929	Req	The PDI connection from the EULYNX field element Subsystem to the Subsystem - Electronic Interlocking shall be assigned to exactly one safe communication by configuration.	
Eu.Gen.3927	Req	The validity of the configuration and engineering data shall be determined using the checksum method.	
Eu.Gen.3930	Req	The CSS and CSNS shall be calculated with [MD5] (16 Bytes).	

ID	Type	Requirement Part 1	Requirement Part 2
Eu.Gen.3931	Head	5.4.2 Data designation	
Eu.Gen.3932	Info	The naming of the data files is not based on version counting, but on timestamps.	
Eu.Gen.3933	Req	The configuration and engineering data are stored in the Subsystem - Maintenance and Data Management as individual files for each instance of a EULYNX field element Subsystem.	
Eu.Gen.3938	Req	The file designations of the configuration and engineering files shall be created in accordance with the following schema:	
Eu.Gen.3937	Req	<ul style="list-style-type: none">the file name for PR_ID1 (safety-relevant data) is "SubS_ID_SRD_yyyymmdd_hhmm"	
Eu.Gen.3939	Req	<ul style="list-style-type: none">the file name for CSS is "SubS_ID_CSS_yyyymmdd_hhmm" <p>Note: The CSS is also loaded in the Subsystem - Electronic Interlocking.</p>	
Eu.Gen.3936	Req	<ul style="list-style-type: none">the file name for PR_ID2 (non safety-relevant data) is "SubS_ID_NSRD_yyyymmdd_hhmm"	
Eu.Gen.3935	Req	<ul style="list-style-type: none">the file name for CSNS is "SubS_ID_CSNS_yyyymmdd_hhmm"	
Eu.Gen.3934	Req	<ul style="list-style-type: none">the file name for the diagnosic configuration is "SubS_ID_DC_yyyymmdd_hhmm" <p>Note: With this file, the data for the Maintenance and Data Management (SNMP, MIB, OPC-UA config) is provided for processing or opening the diagnostic data. No checksum is required for the diagnostic data from a safety point of view.</p>	
Eu.Gen.3940	Req	<ul style="list-style-type: none">the file name for the diagnostic configuration of the Diagnostic system is "SubS_ID_DS_yyyymmdd_hhmm" <p>Note: With this file, the diagnostic data for the Diagnostic system is provided and is made available to the Diagnostic system through upload (SDI-DS).</p>	