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2.1. Project Architecture

This section displays the package hierarchy of projects.

Project Level_And_Mode_Types
    Level_And_Mode_Types_Pkg

3. Level_And_Mode_Types Project

3.1. Level_And_Mode_Types_Pkg Package

3.1.1. Types

Table 1: Public Types of Level_And_Mode_Types_Pkg

Name	Definition	Comments and Information
T_Data_From_DMI	{Ack_LS : bool, Ack_OS : bool, Ack_RV : bool, Ack_SH : bool, Ack_SN : bool, Ack_SR : bool, Ack_TR : bool, Ack_UN : bool, Req_Exit_SH : bool, Req_NL : bool, Req_Override : bool, Req_SH : bool, Req_Start : bool, ETCS_Isolated : bool}	**Comments:** Input Data from DMI needed for Mode Management, they correspond to the acknoledgement from the driver or the request from the driver to change mode
T_Data_From_F2_functions	{Common_Errors : Common_Types_Pkg::MSG_Errors_T, Failure_Occured : bool, Continue_Shunting_Active : bool, Stop_Shunting_Stored : bool}	**Comments:** Set of data provided by other EVC functions, not identify in early version of the EVC kernel **Common_Errors Comments:** To computeLinking_Reaction_To_Trip (Condition 17), T_NV_contact_error (Condition 41), Error_BG_System_Version (Condition 65)
T_Data_From_Localisation	{BG_In_List_Expected_BG_In_SR : bool, BG_In_List_Expected_BG_In_SH : bool, PositionErrors : TrainPosition_Types_Pck::positionErrors_T, Train_Position : TrainPosition_Types_Pck::trainPosition_T, Train_Speed : Obu_BasicTypes_Pkg::Speed_T, Train_Standstill : bool}	**Comments:** Input Data From Speed and Supervision functions **PositionErrors Comments:** To compute condition 66, provided by position_errors_T
T_Data_From_Speed_Supervision	{Estim_front_End_overpass_SR_Dist : bool, Estim_Front_End_Rear_SSP : bool, Override_Function_Active : bool, EOA_Antenna_Overpass : bool, EOA_Front_End : bool, Train_Speed_Under_Overide_Limit : bool}	**Comments:** Input Data From Speed and Supervision functions
T_Data_From_STM	{Interface_To_National_System : bool, National_trip_Order : bool}	

Name	Definition	Comments and Information
T_Data_From_Track_MASSPGradient_Available	{P12_received : bool, P15_received : bool, P21_received : bool, P27_received : bool}	**Comments:** Input Data From TrackSide needed for Mode management : information that speed curve for FS mode can be computed by Speed and Supervision function **P12_received Comments:** MA in Level 1 has been received and can be used by SSF **P15_received Comments:** MA in Level 2/3 has been received and can be used by SSF **P21_received Comments:** Gradient Profile has been received and can be used by SSF **P27_received Comments:** SSP has been received and can be used by SSF
T_Data_From_Track_Mess	{Mess_15 : bool, Mess_16 : bool, Mess_2 : bool, Mess_27 : bool, Mess_28 : bool, Mess_6 : bool}	**Comments:** Data received from track side as message (without packets). Type for each message shall be defined explicitely (as packet), at least with NID_LRBG, distance, ID,...
T_Data_From_Track_Packet	{P_12 : Packet_Types_Pkg::P12_Level1MovementAuthorities_T, P_135 : Packet_Types_Pkg::P135_StopShuntingOnDeskOpening_T, P_137 : Packet_Types_Pkg::P137_StopIfInStaffResponsible_T, P_138 : Packet_Types_Pkg::P138_ReversingAreaInformation_T, P_139 : Packet_Types_Pkg::P139_ReversingSupervisionInformation_T, P_15 : Packet_Types_Pkg::P15_Level23MovementAuthorities_T, P_21 : Packet_Types_Pkg::P21_GradientProfiles_T, P_27 : Packet_Types_Pkg::P27_InternationalStaticSpeedProfile_T, P_41 : Packet_Types_Pkg::P41_LevelTransistionOrders_T, P_46 : Packet_Types_Pkg::P46_ConditionalLevelTransitionOrders_T, P_63 : Packet_Types_Pkg::P63_ListofBalisesinSRAuthority_T, P_80 : Packet_Types_Pkg::P80_ModeProfiles_T, LRBG : NID_LRBG, referenceLocation : Obu_BasicTypes_Pkg::Location_T}	**Comments:** Input Data From track needed for Mode Management **LRBG Comments:** LRBG which is the reference for the packets **referenceLocation Comments:** Position of the LRBG
T_Data_From_Track_To_Level	{level_transition_priority_table : Level_And_Mode_Types_Pkg::T_LevelTransition_PriorityTable, conditionnalTransition : Level_And_Mode_Types_Pkg::T_LevelTransition_PriorityTable, receivedL2L3MA_track : bool, receivedL1MA_track : bool}	**Comments:** Input Data from terrack to Level Management

Name	Definition	Comments and Information
T_Data_From_Track_To_Mode	{MA_SSP_Gradient_Available : bool, Mode_Profile_On_Board : Level_And_Mode_Types_Pkg::T_Mode_Profile_Table, Shunting_granted_By_RBC : bool, Trip_Order_Given_By_Balise : bool, List_Bg_Related_To_SR_Empty : bool, Stop_If_In_shunting : bool, Stop_If_In_SR : bool, RBC_Ack_TR_EB_Revocked : bool, RBC_Authorized_SR : bool, Reversing_Data : Level_And_Mode_Types_Pkg::T_Reversing_Data, Emergency_Stop_Message_Received : bool}	**Comments:** Input Data From track needed for Mode Management
T_Data_To_BG_Management	{EoM_Procedure_req : bool, Clean_BG_List_SH_Area : bool, MA_Req : bool, Req_for_SH_from_Driver : bool, Connection_to_RBC_req : bool, Position_Repport_Needed : bool}	**Comments:** Output to BG Management or RBC
T_Data_To_DMI	{Ack_LS : bool, Ack_OS : bool, Ack_RV : bool, Ack_SH : bool, Ack_SN : bool, Ack_SR : bool, Ack_TR : bool, Ack_UN : bool, SH_Refused_By_RBC : bool}	**Comments:** Output to DMI interface
T_ERTMS_capabilities	{NTC : bool, L0 : bool, L1 : bool, L2 : bool, L3 : bool}	
T_LevelTansitionInfo	{level : M_LEVEL, position : M_POSITION, transitionType : Level_And_Mode_Types_Pkg::T_TransitionType, immediateAck : bool, AckLength : Obu_BasicTypes_Pkg::Location_T}	**Comments:** "5.10.1.2 A level transition announcement to the ERTMS/ETCS on-board equipment shall consist of an order to execute the level transition at a further location corresponding to the border." **level Comments:** the level to swtich to **position Comments:** the position at which to switch **transitionType Comments:** signals type of transition
T_LevelTransition	{is_set : bool, transition : Level_And_Mode_Types_Pkg::T_LevelTansitionInfo, LRBG : NID_LRBG, referenceLocation : Obu_BasicTypes_Pkg::L_internal_Type}	
T_LevelTransition_PriorityTable	Level_And_Mode_Types_Pkg::T_LevelTransition ^M_Max_TransitionInPriorityTable	
T_MA	enum {Profile_OS, Profile_LS, Profile_SH, No_Profile}	
T_Mode	enum {NP, SB, PS, SH, FS, LS, SR, OS, SL, NL, UN, TR, PT, SF, IS, SN, RV}	

Name	Definition	Comments and Information
T_Mode_Level	{compatibleModeAndLevel : bool, level : M_LEVEL, newLevel : bool, Mode : M_MODE, newMode : bool}	
T_Mode_Profile	{Distance : Obu_BasicTypes_Pkg::Location_T, Mode : Level_And_Mode_Types_Pkg::T_MA, Speed : Obu_BasicTypes_Pkg::Speed_T, Length : Obu_BasicTypes_Pkg::Location_T, Length_Ack : Obu_BasicTypes_Pkg::Location_T}	
T_Mode_Profile_Table	Level_And_Mode_Types_Pkg::T_Mode_Profile ^M_Max_ModeProfile	
T_Reversing_Data	{Available : bool, Dist_Start : Obu_BasicTypes_Pkg::Location_T, Length : Obu_BasicTypes_Pkg::Location_T, Dist_Run : Obu_BasicTypes_Pkg::Location_T, Speed : Obu_BasicTypes_Pkg::Speed_T}	
T_TransitionType	enum {M_TransitionType_Conditional, M_TransitionType_DriverInit, M_TransitionType_Normal}	

3.1.2. Constants

Table 2: Public Constants of Level_And_Mode_Types_Pkg

Name	Type	Value	Comments and Information
C_Cycle_Duration	int	300	**Comments:** 300 millisecond
C_Driver_Ack_Delay	int	5000	**Comments:** 5 second
C_Immediate_transition_order_position	int	32767	
C_NoTrackLevelTransition	Level_And_Mode_Types_Pkg::T_Data_From_Track_MASSP Gradient_Available	{P12_received : false, P15_received : false, P21_received : false, P27_received : false}	
M_Default_Transition	Level_And_Mode_Types_Pkg::T_LevelTransition	{is_set : false, transition : {level : M_LEVEL_Level_0, position : 0, transitionType : M_TransitionType_Normal, immediateAck : false, AckLength : 0}, LRBG : 0, referenceLocation : 0}	
M_Max_ModeProfile	int	3	

Name	Type	Value	Comments and Information
M_Max_TransitionInPriorityTable	int	7	

End of document.