

Verify Schema Change Log for Verify Light-Duty Greenhouse Gas Updates

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Compliance and Innovative Strategies Division
Office of Transportation and Air Quality
U.S. Environmental Protection Agency

VERIFY

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This document identifies XML schema modifications to the VERIFY Light Duty (LD) and Fuel Economy (FE) family of schemas to include Greenhouse Gas (GHG) data elements. There are 2 basic types of modifications. Modifications that involve internal file structure, having no impact to the logical data model, were made to bring the new schema in sync with the current schema development paradigm per EPA XML data standard [GD2-E]. These changes involve only the location and organization of the schema components that comprise the logical data model and some changes to data type names. Modifications that involve the addition of new schema components to included GHG data were also made. Because the current schema development paradigm for certain kinds of data validation has moved the validation to business rules, hence making the schema much less susceptible to data requirement changes, new GHG data elements have more generic data types. Because some of the GHG data elements have been reused from the original LD schemas, these LD data elements now also have more generic data types. This basically relaxes the schema validation of the LD instances of these data elements but also requires that any business rules written for data validation for the GHG instances additionally be applied to the LD instances as well.

LD Modified/New XML Files

EN_VER_LD_CertificateRequestSubmissionRootElement_v0.9.xsd

EN_VER_LD_CTD_TestVehicleInformationSubmissionRootElement_v0.9.xsd

EN_VER_LD_CTD_TestInformationSubmissionRootElement_v0.9.xsd

EN_VER_LD_CTD_FuelPropertiesSubmissionRootElement_v0.9.xsd

EN_VER_LD_CFT_DecisionInformationSubmissionRootElement_v0.9.xsd

EN_VER_LD_CFT_SupplementalInformationSubmissionRootElement_v0.9.xsd

EN_VER_LD_CFT_ShiftScheduleSubmissionRootElement_v0.9.xsd

EN_VER_LD_CD_CarlineSubmissionRootElement_v0.9.xsd

EN_VER_LD_CD_EvaporativeFamilySubmissionRootElement_v0.9.xsd

EN_VER_LD_CD_CertificationDataSubmissionRootElement_v0.9.xsd

EN_VER_LD_FE_LabelSubmissionRootElement_v0.9.xsd

EN_VER_LD_FE_CAFESubmissionRootElement_v0.9.xsd

EN_VER_LD_FE_InUseVerificationProgramSubmissionRootElement_v0.9.xsd

EN_VER_LD_FE_FootprintSubmissionRootElement_v0.9.xsd

EN_VER_LD_FE_RoadLoadSubmissionRootElement_v0.9.xsd

(New schema file. As such, there is no change log for this file.)

EN_VER_LD_SharedDataElements_v0.9.xsd

EN_VER_LD_FE_SharedDataElements_v0.9.xsd

Individual XML Schema File Modifications

For new and modified data elements, the annotation following the data element name references the corresponding data element identifiers in the DR spreadsheet. Note that individual data elements may be used in more locations in the schemas than defined in the DR spreadsheet.

EN_VER_LD_CTD_TestInformationSubmissionRootElement_v0.9.xsd

- The following changes were made to EPAGeneratedTestInformationDetails[Type]:
 - Data element CarbonRelatedExhaustEmissionValue [0.0000000 to 9,999.9999999 (LD-TI19.5)] was removed.
 - Data element OptionalCarbonRelatedExhaustEmissionValue [0.0000000 to 9,999.9999999 (LD-TI19.6)] was removed.
 - Complex data element EPAGeneratedCarbonRelatedExhaustEmissionDetails[Type] was added with cardinality (0, 1).
 - Complex data element EPAGeneratedOptionalCarbonRelatedExhaustEmissionDetails was added with cardinality (0, 1).
- The following changes were made to EPAGeneratedEmissionTestDetails[Type]:
 - Data element RoundedEmissionResultValue [0.0000000 to 9,999.9999999 (TG212.9,228)] was replaced by UnroundedResultValue [0.0000000 to 9,999.9999999 (LD-TI20,38)] with cardinality (1,1).
- The complex data element EPAGeneratedCarbonRelatedExhaustEmissionDetails and EPAGeneratedOptionalCarbonRelatedExhaustEmissionDetails, both with type EPAGeneratedCarbonRelatedExhaustEmissionDetailsType, were added as follows:
 - Data element UnroundedUnadjusted7Value [0.0000000 to 9,999.9999999 (LD-TI19.1,19.5)] was added with cardinality (1,1).
 - Data element RoundedUnadjustedValue [0 to 9,999 (LD-TI19.2,19.6)] was added with cardinality (1,1).
 - Data element UnroundedAdjusted7Value [0.0000000 to 9,999.9999999 (LD-TI19.3,19.7)] was added with cardinality (1,1).
 - Data element RoundedAdjustedValue [0 0 to 9,999 (LD-TI19.4,19.8)] was added with cardinality (1,1).

EN_VER_LD_CD_CertificationDataSubmissionRootElement_v0.9.xsd

- The following changes were made to GreenhouseGasOfficialTestNumberDetails[Type]:
 - Data element ManufacturerCalculatedCombinedTestGroupCarbonRelatedExhaustEmissionCertificationLevelNumber [0 to 9,999 (LD-TG8.4)] was removed.

- Data element
ManufacturerCalculatedCombinedTestGroupOptionalCarbonRelatedExhaustEmissionCertificationLevelNumber [0 to 9,999 (LD-TG8.4.1)] was removed.
- The following changes were made to TestGroupIdentificationDetails[Type]:
 - Complex data element ChargeDepletingOfficialTestNumberDetails[Type] was added with cardinality (0,∞).
- The complex data element ChargeDepletingOfficialTestNumberDetails[Type] was added as follows:
 - Data element FuelIdentifier [Enumeration of 9 Identifiers (LD-TG7.3,204,217.1,223,SI56.5,80,VI11.1,EV3.5)] was added with cardinality (1,1).
 - Data element UDDSTestNumber [12 characters (LD-TG219.3)] was added with cardinality (1,1).
 - Data element HighwayTestNumberText [12 characters (LD-TG219.2,219.4)] was added with cardinality (1,1).
- The following changes were made to EPAGeneratedGreenhouseGasDetails[Type]:
 - Complex data element
EPAGeneratedCombinedTestGroupCertificationLevelDetails[Type] was removed.
- The complex data element
EPAGeneratedCombinedTestGroupCertificationLevelDetails[Type] was removed as follows:
 - Data element
CombinedTestGroupCarbonRelatedExhaustEmissionCertificationLevelNumber [0 to 9999 (LD-TG8.5)] was removed.
 - Data element
CombinedTestGroupCarbonRelatedExhaustEmissionCertificationLevelDiscrepancyNumber [0 to 9999 (LD-TG8.6)] was removed.
 - Data element
CombinedTestGroupOptionalCarbonRelatedExhaustEmissionCertificationLevelNumber [0 to 9999 (LD-TG8.5.1)] was removed.
 - Data element
CombinedTestGroupOptionalCarbonRelatedExhaustEmissionCertificationLevelDiscrepancyNumber [0 to 9999 (LD-TG8.6.1)] was removed.

EN_VER_LD_FE_LabelSubmissionRootElement_v0.9.xsd

- The following changes were made to FuelEconomyReportDeleteDetails[Type]:
 - Data element ReportDeleteProcessCode [Enumeration of 2 codes (FE-IV1,FTRD)] was replaced ReportProcessCode [R (GL0.5,CA3)].

EN_VER_LD_FE_CAFESubmissionRootElement_v0.9.xsd

- The following changes were made to FuelEconomyCAFEDetails[Type]:
 - Data element GreenhouseGasExemptionIndicator [Y/N (FE-CA127)] was added with cardinality (0,1).
 - Data element GreenhouseGasCalculationMethodIdentifier [Enumeration of 2 identifiers (FE-CA128)] was added with cardinality (0,1).

- Data element was added N2ODefaultValueUsageIndicator [Y/N (FE-CA129)] with cardinality (0,1).
 - Complex data element ManufacturerTruckResultDetails was added with cardinality (0,1).
 - Complex data element ManufacturerDomesticPassengerVehicleDetails was added with cardinality (0,1).
 - Complex data element ManufacturerImportedPassengerVehicleDetails was added with cardinality (0,1).
 - Complex data element ManufacturerGreenhouseGasResultsDetails was added with cardinality (0,1).
 - Complex data element ManufacturerTemporaryLeadtimeAllowanceAlternativeStandardResultsDetails was added with cardinality (0,1).
 - Complex data element ReformedStandardCalculationDetails was changed to ReformedStandardDetails with cardinality (0,1).
 - Data element FinalModelYearProductionNumber was removed.
 - Data element ManufacturerBaselineAverageUnroundedUnadjustedValue was removed.
 - Data element ManufacturerAverageUnroundedUnadjustedValue was removed.
 - Data element ManufacturerBaselineAverageRoundedAdjustedValue was removed.
 - Data element ManufacturerAverageRoundedAdjustedValue was removed.
 - Data element OfficialMilesPerGallonValue was removed.
- The complex data element ManufacturerTruckResultDetails[Type] was added as follows:
 - Data element OfficialModelYearProductionCount [0 to 9,999,999 (FE-CA50,51,52,53,54,55,130,131,132,133)] was added with cardinality (0,1).
 - Complex data element BaselineTruckDetails was added with cardinality (0,1).
 - Complex data element FinalTruckDetails was added with cardinality (0,1).
 - Data element OfficialMPGValue [0.00 to 9,999.9 (FE-CA88,89,90,91,92,93)] was added with cardinality (0,1).
- The complex data elements BaselineTruckDetails and FinalTruckDetails, both with type TruckDetailsType, were added as follows:
 - Data element Unrounded4Value [0.0000 to 9999.9999 (FE-CA56,59,72,75,134,135,138,139,142,143,146,147)] was added with cardinality (0,1).
 - Data element Rounded1Value [0.0 to 9999.9 (FE-CA62,63,79,150)] was added with cardinality (0,1).
- The complex data elements ManufacturerDomesticPassengerVehicleDetails and ManufacturerImportedPassengerVehicleDetails, both with type VehicleResultDetailsType, were added as follows:
 - Data element OfficialModelYearProductionCount [0 to 9,999,999 (FE-CA50,51,52,53,54,55,130,131,132,133)] was added with cardinality (0,1).
 - Complex data element BaselineVehicleDetails was added with cardinality (0,1).
 - Complex data element FinalVehicleDetails was added with cardinality (0,1).
 - Data element OfficialMPGValue [0.00 to 9,999.9 (FE-CA88,89,90,91,92,93)] was added with cardinality (0,1).
- The complex data elements BaselineVehicleDetails and FinalVehicleDetails, both with type VehicleDetailsType, were added as follows:

- Data element UnroundedUnadjusted4Value [0.0000 to 9999.9999 (FE-CA6,6.7,7.9,8.2,57,58,60,61,73,74,76,77)] was added with cardinality (0,1).
 - Data element UnroundedAdjusted4Value [0.0000 to 9999.9999 (FE-CA64,65,66,67,80,81,82,83)] was added with cardinality (0,1).
 - Data element RoundedAdjusted1Value [0.0 to 9999.9 (FE-CA6.3,7,8,8.5,68,69,70,71,84,85,86,87)] was added with cardinality (0,1).
- The complex data elements ManufacturerGreenhouseGasResultsDetails and ManufacturerTemporaryLeadtimeAllowanceAlternativeStandardResultsDetails, both with type ResultsDetailsType, were added as follows:
 - Data element OfficialModelYearProductionCount [0 to 9,999,999 (FE-CA50,51,52,53,54,55,130,131,132,133)] was added with cardinality (0,1).
 - Complex data element BaselineAverageDetails was added with cardinality (0,1).
 - Complex data element FinalAverageDetails was added with cardinality (0,1).
 - Data element OfficialAverageGramsPerMileNumber [0 to 9,999 (FE-CA151,152,153,154)] was added with cardinality (0,1).
- The complex data elements BaselineAverageDetails and FinalAverageDetails, both with type AverageDetailsType, were added as follows:
 - Data element Unrounded4Value [0.0000 to 9999.9999 (FE-CA56,59,72,75,134,135,138,139,142,143,146,147)] was added with cardinality (0,1).
 - Data element RoundedIntegerValue [0 to 9,999 (FE-CA136,137,140,141,144,145,148,149)] was added with cardinality (0,1).
- The following changes were made to ReformedStandardDetails[Type]:
 - Data element ManufacturerUnroundedGreenhouseGasStandardValue [0.0 to 9999.9 (FE-CA160)] was added with cardinality (0,1).
 - Data element ManufacturerGreenhouseGasCommentsText [1 to 1,000 characters (FE-CA164)] was added with cardinality (0,1).
 - The complex data element FinalModelYearProductionDetails[Type] was changed to FootprintInformationDetails[Type] with cardinality (0, ∞).
- The following changes were made to FootprintInformationDetails[Type]:
 - Data element EPAManufacturerCode [3 characters (FE-IV2,IV-DR2,IT2,IT-DR2,GL2, 10,125.5, CA0,11.5,25.1,??, 124, FT1, RL1.1)] was added with cardinality (1,1).
 - Data element ManufacturerDivisionCode [1 to 99 (LD-CL3,TG30,IV10,GL11,126.5,CA125,FT3)] was added with cardinality (1,1).
 - Data element CarlineCode [1 to 999 (LD-CL4,TG302,IV11,GL12,CA126,FT4)] was added with cardinality (1,1).
 - Data element FootprintIndexNumber [1 to 99 (FE-CA14.5,FT5)] was added with cardinality (1,1).
 - Data element FinalModelYearGreenhouseGasProductionNumber [0 to 9,999,999 (FE-CA158)] was added with cardinality (0,1).
 - Data element FinalModelYearProductionNumber [0 to 9,999,999 (LD-CA20)] was added with cardinality (0,1).
 - Data element DomesticImportIndicator [D/I type definition] was removed.
 - Data element TemporaryLeadtimeAllowanceAlternativeStandardIndicator [Y/N (FE-CA156)] was removed.
 - A unique constraints was added on the following data elements:

- EPAManufacturerCode [3 characters (FE-IV2,IV-DR2,IT2,IT-DR2,GL2, 10,125.5, CA0,11.5,25.1,??, 124, FT1, RL1.1)]
 - ManufacturerDivisionCode [1 to 99 (FE-IV10,GL11,126.5,CA12,125,??,FT3)]
 - CarlineCode [1 to 999 (FE-IV11,GL12,CA13,126,??,FT4)]
 - FootprintIndexNumber [1 to 99 (FE-CA14.5,FT5)]
- The following changes were made to ModelTypeDetails[Type]:
 - Data element EPAManufacturerCode [3 characters (LD-CL1,TG1,300,EV19,CR1,FP1,DI1,VI1,TI3,SS4,SI1,IV2,IV-DR2,IT2,IT-DR2,GL2,10,125.5,CA0,25.1,124,FT1,RL1.1)] was added with cardinality (1,1).
 - Data element ModelTypeIndexNumber [1 to 999 (FE-GL1,CA25,??,RL2)] was added with cardinality (1,1).
 - Data element DomesticImportIndicator [D/I type definition] was added with cardinality (0,1).
 - Data element TemporaryLeadtimeAllowanceAlternativeStandardIndicator [Y/N (FE-CA156)] was added with cardinality (0,1).
 - The cardinality of complex data element BaseLevelDetails[Type] was changed from (0,1) to (1,1).
 - A unique constraint was added on the following data elements:
 - EPAManufacturerCode [3 characters (FE-IV2,IV-DR2,IT2,IT-DR2,GL2, 10,125.5, CA0,11.5,25.1,??, 124, FT1, RL1.1)]
 - ModelTypeIndexNumber [1 to 999 (FE-GL1,CA25,??,RL2)]
- The following changes were made to BaseLevelDetails[Type]:
 - The cardinality of data element BaseLevelIndexNumber [1 to 99 (FE-GL109,CA25.5)] was changed from (1,1) to (0,1).
- The following changes were made to SubConfigurationDetails[Type]:
 - Data element SaleAltitudeCode [A/L/H (LD-GL125)] was deleted.
- The following changes were made to SubConfigurationSalesDetails[Type]:
 - Data element EPAManufacturerCode [3 characters (LD-CL1,TG1,300,EV19,CR1,FP1,DI1,VI1,TI3,SS4,SI1,IV2,IV-DR2,IT2,IT-DR2,GL2,10,125.5,CA0,25.1,124,FT1,RL1.1)] was added with cardinality (1,1).
 - Data element ManufacturerDivisionCode [1 to 99 (LD-CL3,TG30,IV10,GL11,126.5,CA125,FT3)] was added with cardinality (1,1).
 - Data element CarlineCode [1 to 999 (LD-CL4,TG302,IV11,GL12,CA126,FT4)] was added with cardinality (1,1).
 - Data element TestGroupName [12 characters, optional . after 5th and before last (LD-TG2,CR4,DI7,VI5,IV6,GL13.5,126,CA34,RL4)] was added (relocated from SubConfigurationDetails) with cardinality (1,1).
 - Data element SubConfigurationFinalModelYearProductionNumber [1 to 999,999 (LD-CA32)] was added (relocated from SubConfigurationDetails) with cardinality (1,1).
 - Data element SubConfigurationFinalModelYearGreenhouseGasProductionNumber [1 to 999,999 (FE-CA193)] was added with cardinality (0,1).
 - A unique constraint was added on the following data elements:
 - EPAManufacturerCode [3 characters (FE-IV2,IV-DR2,IT2,IT-DR2,GL2, 10,125.5, CA0,11.5,25.1,??, 124, FT1, RL1.1)]

- ManufacturerDivisionCode [1 to 99 (FE-IV10,GL11,126.5,CA12,125,??,FT3)]
 - CarlineCode [1 to 999 (FE-IV11,GL12,CA13,126,??,FT4)]
 - TestGroupName [12 characters, optional . after 5th and before last (FE-IV6,GL13.5,126,CA34,RL4)]
- The following changes were made to EPAGeneratedFuelEconomyCAFEDetails [Type]:
 - Data element TargetDiscrepancyValue [0.0 to 99.9 (FE-CA11)] was added with cardinality (0,1).
 - Complex data element EPATruckResultDetails[Type] was added with cardinality (0,1).
 - Complex data element EPADomesticPassengerVehicleDetails was added with cardinality (0,1).
 - Complex data element EPAImportedPassengerVehicleDetails was added with cardinality (0,1).
 - Complex data element EPAGreenhouseGasResultsDetails was added with cardinality (0,1).
 - Complex data element EPATemporaryLeadtimeAllowanceAlternativeStandardResultsDetails was added with cardinality (0,1).
 - Complex data element EPAREformedStandardDetails[Type] was added with cardinality (0,1).
 - Complex data element EPAModelTypeDetails[Type] was added with cardinality (0,1).
 - Data element CalculatedUnroundedReformedStandardValue [0.0001 to 999.9999 (FE-CA22)] was removed.
 - Data element CalculatedReformedDiscrepancyValue [999.9999 to 999.9999 (FE-CA22.5)] was removed.
 - Data element CalculatedFinalReformedStandardValue [0.1 to 999.9 (FE-CA22.7)] was removed.
 - Complex data element EPAREformedModelTypeDetails[Type] was removed.
 - Complex data element EPAModelTypeFootprintDetails[Type] was removed.
- The complex data element EPATruckResultDetails[Type] was added as follows:
 - Data element OfficialModelYearProductionCount [0 to 9,999,999 (FE-CA50,51,52,53,54,55,130,131,132,133)] was added with cardinality (0,1).
 - Complex data element BaselineTruckDetails was added with cardinality (0,1).
 - Complex data element FinalTruckDetails was added with cardinality (0,1).
 - Data element OfficialMPGValue [0.00 to 9,999.9 (FE-CA88,89,90,91,92,93)] was added with cardinality (0,1).
- The complex data elements BaselineTruckDetails and FinalTruckDetails, both with type BaselineTruckDetails, were added as follows:
 - Data element Unrounded4Value [0.0000 to 9999.9999 (FE-CA56,59,72,75,134,135,138,139,142,143,146,147)] was added with cardinality (0,1).
 - Data element Rounded1Value [0.0 to 9999.9 (FE-CA62,63,79,150)] was added with cardinality (0,1).

- The complex data elements EPADomesticPassengerVehicleDetails and EPAImportedPassengerVehicleDetails, both with type VehicleResultDetailsType, were added as follows:
 - Data element OfficialModelYearProductionCount [0 to 9,999,999 (FE-CA50,51,52,53,54,55,130,131,132,133)] was added with cardinality (0,1).
 - Complex data element BaselineVehicleDetails was added with cardinality (0,1).
 - Complex data element FinalVehicleDetails was added with cardinality (0,1).
 - Data element OfficialMPGValue [0.00 to 9,999.9 (FE-CA88,89,90,91,92,93)] was added with cardinality (0,1).

- The complex data elements BaselineVehicleDetails and FinalVehicleDetails, both with type VehicleDetailsType, were added as follows:
 - Data element UnroundedUnadjusted4Value [0.0000 to 9999.9999 (FE-CA6,6.7,7.9,8.2,57,58,60,61,73,74,76,77)] was added with cardinality (0,1).
 - Data element UnroundedAdjusted4Value [0.0000 to 9999.9999 (FE-CA64,65,66,67,80,81,82,83)] was added with cardinality (0,1).
 - Data element RoundedAdjusted1Value [0.0 to 9999.9 (FE-CA6.3,7,8,8.5,68,69,70,71,84,85,86,87)] was added with cardinality (0,1).

- The complex data elements EPAGreenhouseGasResultsDetails and EPATemporaryLeadtimeAllowanceAlternativeStandardResultsDetails, both with type ResultsDetailsType, were added as follows:
 - Data element OfficialModelYearProductionCount [to 9,999,999 (FE-CA50,51,52,53,54,55,130,131,132,133)] was added with cardinality (0,1).
 - Complex data element BaselineAverageDetails was added with cardinality (0,1).
 - Complex data element FinalAverageDetails was added with cardinality (0,1).
 - Data element OfficialAverageGramsPerMileNumber [0 to 9,999 (FE-CA151,152,153,154)] was added with cardinality (0,1).

- The complex data elements BaselineAverageDetails and FinalAverageDetails, both with type AverageDetailsType, were added as follows:
 - Data element Unrounded4Value [0.0000 to 9999.9999 (FE-CA56,59,72,75,134,135,138,139,142,143,146,147)] was added with cardinality (0,1).
 - Data element RoundedIntegerValue [0 to 9,999 (FE-CA136,137,140,141,144,145,148,149)] was added with cardinality (0,1).

- The complex data element EPAREformedStandardDetails[Type] was added as follows:
 - Data element CalculatedUnroundedReformedStandardValue [0.0001 to 999.9999 (FE-CA22)] was added with cardinality (0,1).
 - Data element CalculatedReformedDiscrepancyValue [999.9999 to 999.9999 (FE-CA22.5)] was added with cardinality (0,1).
 - Data element CalculatedFinalReformedStandardValue [0.1 to 999.9 (FE-CA22.7)] was added with cardinality (0,1).
 - Data element CalculatedUnroundedGreenhouseGasStandardValue [0.0 to 9999.9 (FE-CA161)] was added with cardinality (0,1).
 - Data element CalculatedUnroundedGreenhouseGasDiscrepancyValue [-9999.9 to 9999.9 (FE-CA162)] was added with cardinality (0,1).
 - Data element CalculatedFinalGreenhouseGasStandardValue [0 to 9999 (FE-CA163)] was added with cardinality (0,1).

- The complex data element EPAModelTypeDetails[Type] was added as follows:
 - Data element ModelTypeIndexNumber [1 to 999 (FE-GL1,CA25,??,RL2)] was added with cardinality (1,1).
 - Complex data element EPAModelTypeFuelEconomyResults[Type] was added with cardinality (1,1).
 - Complex data element EPAModelTypeGreenhouseGasResults [Type] was added with cardinality (0,1).
 - Complex data element EPABaseLevelDetails[Type] was added with cardinality (1,∞).

- The complex data element EPAModelTypeFuelEconomyResults[Type] was added as follows:
 - Complex data element EPAModelTypeFuelEconomyBaselineDetails was added with cardinality (1,1).
 - Complex data element EPAModelTypeFuelEconomyFinalDetails was added with cardinality (1,1).
 - Data element ModelTypeProductionCount [0 to 9,999,999 (FE-CA102,109,116,123,173,180,187,192)] was added with cardinality (1,1).

- The complex data elements EPAModelTypeFuelEconomyBaselineDetails and EPAModelTypeFuelEconomyFinalDetails, both with type EPAModelTypeFuelEconomyResultDetailsType, were added as follows:
 - Data element CityResult4Value [0.0000 to 999.9999 (FE-CA94,98,102,103,106,109,110,113,117,120)] was added with cardinality (1,1).
 - Data element HighwayResult4Value [0.0000 to 999.9999 (FE-CA95,99,104,107,111,114,118,121)] was added with cardinality (1,1).
 - Data element CombinedResult4Value [0.0000 to 999.9999 (FE-CA96,100,105,108,112,115)] was added with cardinality (1,1).
 - Data element CombinedResult4Point1Value [0.0 to 999.9 (FE-CA97,101)] was added with cardinality (1,1).

- The complex data element EPAModelTypeGreenhouseGasResults[Type] was added as follows:
 - Complex data element EPAModelTypeGreenhouseGasBaselineDetails was added with cardinality (1,1).
 - Complex data element EPAModelTypeGreenhouseGasFinalDetails was added with cardinality (1,1).
 - Data element ModelTypeProductionCount [0 to 9,999,999 (FE-CA102,109,116,123,173,180,187,192)] was added with cardinality (1,1).

- The complex data elements EPAModelTypeGreenhouseGasBaselineDetails and EPAModelTypeGreenhouseGasFinalDetails, both with type EPAModelTypeGreenhouseGasResultDetailsType, were added as follows:
 - Data element CityResult1Value [0.0 to 99999.9 (FE-CA165,169,174,177,181,184,188,190)] was added with cardinality (1,1).
 - Data element HighwayResult1Value [0.0 to 99999.9 (FE-CA166,170,175,178,182,185,189,191)] was added with cardinality (1,1).
 - Data element CombinedResult5Point1Value [0.0 to 9999.9 (FE-CA167,171,176,179,183,186)] was added with cardinality (1,1).

- Data element CombinedResultValue [0 to 9,999 (FE-CA168,172)] was added with cardinality (1,1).
- The complex data element EPABaseLevelDetails[Type] was added as follows:
 - Data element BaseLevelIndexNumber [1 to 99 (FE-GL109,CA25.5)] was added with cardinality (0,1).
 - Complex data element EPABaseLevelFuelEconomyResults was added with cardinality (1,1).
 - Complex data element EPABaseLevelGreenhouseGasResults was added with cardinality (0,1).
 - Complex data element EPAConfigurationDetails[Type] was added with cardinality (1,∞).
- The complex data elements EPABaseLevelFuelEconomyResults and EPAConfigurationFuelEconomyResults, both with type EPAFuelEconomyResultsType, were added as follows:
 - Complex data element EPAFuelEconomyResultBaselineDetails was added with cardinality (1,1).
 - Complex data element EPAFuelEconomyResultFinalDetails was added with cardinality (1,1).
 - Data element ModelTypeProductionCount [0 to 9,999,999 (FE-CA102,109,116,123,173,180,187,192)] was added with cardinality (1,1).
- The complex data elements EPAFuelEconomyResultBaselineDetails and EPAFuelEconomyResultFinalDetails, both with type EPAFuelEconomyResultDetailsType, were added as follows:
 - Data element CityResult4Value [0.0000 to 999.9999 (FE-CA94,98,102,103,106,109,110,113,117,120)] was added with cardinality (1,1).
 - Data element HighwayResult4Value [0.0000 to 999.9999 (FE-CA95,99,104,107,111,114,118,121)] was added with cardinality (1,1).
 - Data element CombinedResult4Value [0.0000 to 999.9999 (FE-CA96,100,105,108,112,115)] was added with cardinality (1,1).
- The complex data elements EPABaseLevelGreenhouseGasResults and EPAConfigurationGreenhouseGasResults, both with type EPAGreenhouseGasResultsType, were added as follows:
 - Complex data element EPAGreenhouseGasResultBaselineDetails was added with cardinality (1,1).
 - Complex data element EPAGreenhouseGasResultFinalDetails was added with cardinality (1,1).
 - Data element ModelTypeProductionCount [0 to 9,999,999 (FE-CA102,109,116,123,173,180,187,192)] was added with cardinality (1,1).
- The complex data elements EPAGreenhouseGasResultBaselineDetails and EPAGreenhouseGasResultFinalDetails, both with type EPAGreenhouseGasResultDetailsType, were added as follows:
 - Data element CityResult1Value [0.0 to 99999.9 (FE-CA165,169,174,177,181,184,188,190)] was added with cardinality (1,1).
 - Data element HighwayResult1Value [0.0 to 99999.9 (FE-CA166,170,175,178,182,185,189,191)] was added with cardinality (1,1).

- Data element CombinedResult5Point1Value [0.0 to 9999.9 (FE-CA167,171,176,179,183,186)] was added with cardinality (1,1).
- The complex data element EPAConfigurationDetails[Type] was added as follows:
 - Data element ConfigurationIndexNumber [1 to 999 (FE-GL117,CA26)] was added with cardinality (1,1).
 - Complex data element EPAConfigurationFuelEconomyResults was added with cardinality (1,1).
 - Complex data element EPAConfigurationGreenhouseGasResults was added with cardinality (0,1).
 - Complex data element EPASubConfigurationDetails was added with cardinality (1,∞).
- The complex data element EPASubConfigurationDetails[Type] was added as follows:
 - Data element SubConfigurationIndexNumber was added with cardinality (1,1).
 - Complex data element EPASubConfigurationFuelEconomyResults[Type] was added with cardinality (1,1).
 - Complex data element EPASubConfigurationGreenhouseGasResults [Type] was added with cardinality (0,1).
- The complex data element EPASubConfigurationFuelEconomyResults[Type] was added as follows:
 - Complex data element EPASubConfigurationFuelEconomyResultBaselineDetails was added with cardinality (1,1).
 - Complex data element EPASubConfigurationFuelEconomyResultFinalDetails was added with cardinality (1,1).
 - Data element ModelTypeProductionCount [0 to 9,999,999 (FE-CA102,109,116,123,173,180,187,192)] was added with cardinality (1,1).
- The complex data element EPASubConfigurationFuelEconomyResultBaselineDetails and EPASubConfigurationFuelEconomyResultFinalDetails , both with type EPASubConfigurationFuelEconomyResultDetailsType, were added as follows:
 - Data element CityResult4Value [0.0000 to 999.9999 (FE-CA94,98,102,103,106,109,110,113,117,120)] was added with cardinality (1,1).
 - Data element HighwayResult4Value [0.0000 to 999.9999 (FE-CA95,99,104,107,111,114,118,121)] was added with cardinality (1,1).
- The complex data element EPASubConfigurationGreenhouseGasResults[Type] was added as follows:
 - Complex data element EPASubConfigurationGreenhouseGasResultBaselineDetails was added with cardinality (1,1).
 - Complex data element EPASubConfigurationGreenhouseGasResultFinalDetails was added with cardinality (1,1).
 - Data element ModelTypeProductionCount [0 to 9,999,999 (FE-CA102,109,116,123,173,180,187,192)] was added with cardinality (1,1).
- The complex data element EPASubConfigurationGreenhouseGasResultBaselineDetails and EPASubConfigurationGreenhouseGasResultFinalDetails, both with type EPASubConfigurationGreenhouseGasResultDetailsType, were added as follows:

- Data element CityResult1Value [0.0 to 99999.9 (FE-CA165,169,174,177,181,184,188,190)] was added with cardinality (1,1).
- Data element HighwayResult1Value [0.0 to 99999.9 (FE-CA166,170,175,178,182,185,189,191)] was added with cardinality (1,1).
- The following changes were made to FuelEconomyCAFEReportDeleteDetails [Type]:
 - Data element ReportDeleteProcessCode [Enumeration of 2 codes (FE-IV1,FTRD)] was replaced ReportProcessCode [R (GL0.5,CA3)].

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- The following changes were made to FootprintDataDetails[Type]:
 - Data element CarlineManufacturerCode [3 characters (FE-FT1)] was added with cardinality (1,1).
- The complex data element FootprintIndexDetails and ManufacturerSubmittedFootprintIndexDetails, both with type FootprintIndexDetails[Type], were changed as follows:
 - The cardinality of FootprintIndexNumber [1 to 99 (FE-CA14.5,FT5)] was changed to (0,1).
 - Data element name of ModelTypeFootprintDescriptionText [1 to 300 characters (FE-FT6)] was changed to FootprintDescriptionText [1 to 300 characters (FE-FT6)] having cardinality (1,1).
 - Data element TargetMilesPerGallonValue[0.01 to 999.99 (FE-FT13)] was renamed to ManufacturerTargetFuelEconomyValue [0.01 to 999.99 (FE-FT13)] having cardinality (1,1).
 - Data element TargetGreenhouseGasRounded2DecimalValue [MPG, 0.00 to 999.99 (FE-FT16,17)] was renamed to ManufacturerTargetGreenhouseGasValue [MPG, 0.00 to 999.99 (FE-FT16)] having cardinality (0,1).
- The following changes were made to EPAGeneratedFootprintIndexResults[Type]:
 - Data element FootprintAreaRounded1DecimalValue [Square feet, 0.1 to 999.9 (FE-FT11)] was renamed to EPAFootprintAreaMeasure [Square feet, 0.1 to 999.9 (FE-FT11)] having cardinality (0,1).
 - Data element ManufacturerEPADiscrepancyValue [0.0 to 999.9 (FE-FT12)] was renamed to ManufacturerEPAFootprintAreaMeasureDiscrepancyValue [0.0 to 999.9 (FE-FT12)] having cardinality (0,1).
 - Data element TargetFuelEconomyRounded2DecimalValue [GPM, 0.01 to 999.99 (FE-FT14)] was renamed to EPATargetFuelEconomyValue [GPM, 0.01 to 999.99 (FE-FT14)] having cardinality (0,1).
 - Data element TargetFuelEconomyDiscrepancyValue [0.00 to 999.99 (FE-FT15)] was renamed to ManufacturerEPATargetFuelEconomyDiscrepancyValue [0.00 to 999.99 (FE-FT15)] having cardinality (0,1).
 - Data element TargetGreenhouseGasRounded2DecimalValue [MPG, 0.00 to 999.99 (FE-FT16,17)] was renamed to EPATargetGreenhouseGasValue [MPG, 0.0 to 999.9 (FE-FT17)] having cardinality (0,1).
 - Data element TargetGreenhouseGasDiscrepancyValue [0.0 to 999.9 (FE-FT18)] was renamed to ManufacturerEPATargetGreenhouseGasDiscrepancyValue [0.0 to 999.9 (FE-FT18)] having cardinality (0,1).

- The following changes were made to FootprintReportDeleteDetails[Type]:
 - Data element CarlineManufacturerCode [3 characters (FE-FT1)] was added with cardinality (1,1).

XML Shared Data Element and Data Type File Modifications

The annotation following the data element name references the corresponding data element identifiers in the DR spreadsheet. Note that some data elements may be used in more locations in the schemas than defined in the DR spreadsheet.

EN_VER_LD_SharedDataElements_v0.9.xsd

The following data elements had their data type or enumerations modified. As such, this modification has an impact to each schema that the associated data element is used in. The annotation following the data element name references the corresponding data element identifiers in the DR spreadsheet. Note that some data elements may be used in more locations in the schemas than defined in the DR spreadsheet.

- Enumerations for GreenhouseGasExemptStatusIdentifier were changed as follows:
 - ‘SBE’ [Small Business Administration Exemption] was changed to ‘SBA’ [Small Business Administration Exemption].
- Enumerations for CarlineClassCode were changed as follows:
 - ‘30’ [Small SUV 2WD] was added.
 - ‘31’ [Small SUV 4WD] was added.
 - ‘32’ [Standard SUV 2WD] was added.
 - ‘33’ [Standard SUV 4WD] was added.

EN_VER_LD_FE_SharedDataElements_v0.9.xsd

The following data elements had their data type or enumerations modified. As such, this modification has an impact to each schema that the associated data element is used in. The annotation following the data element name references the corresponding data element identifiers in the DR spreadsheet. Note that some data elements may be used in more locations in the schemas than defined in the DR spreadsheet.

- Data type CalculatedFinalReformedStandardValue [0.1 to 999.9 (FE-CA22.7)] was changed to Decimal4Point1NonNegativeType.
- Data type for GreenhouseGasCalculationMethodIdentifier [Enumeration of 2 identifiers (FE-CA128)] was changed to GreenhouseGasCalculationMethodIdentifierType and changes to enumerations were made as follows:
 - ‘CREE’ [Carbon-Related Exhaust Emissions] was added.
 - ‘OPT-CREE’ [Optional Carbon-Related Exhaust Emissions] was added.
- Data type for RoadLoadDeterminationIdentifier [1 to 100 characters (FE-RL27)] was changed to RoadLoadDeterminationIdentifierType and changes to enumerations were made as follows:
 - ‘CALCULATED’ [Vehicle not coasted down on track] was added.
 - ‘MEASURED’ [Actual vehicle coasted down on track] was added.
- Data type for Rounded1Value [0.0 to 9999.9 (FE-CA62,63,79,150)] was changed to Decimal5Point1NonNegativeType.
- Data type for RoundedAdjusted1Value [0.0 to 9999.9 (FE-CA6.3,7,8,8.5,68,69,70,71,84,85,86,87)] was changed to Decimal5Point1NonNegativeType.

- Data type for ManufacturerEPA targetGreenhouseGasDiscrepancyValue [0.0 to 999.9 (FE-FT18)] was changed to Decimal4Point1PositiveType.
- Data type for ManufacturerTargetGreenhouseGasValue [MPG, 0.00 to 999.99 (FE-FT16)] was changed to Decimal5Point2NonNegativeType.
- Data type for TireTypeIdentifier [Enumeration of 5 identifiers (FE-RL17)] was changed to TireTypeIdentifierType and changes to enumeration were made as follows:
 - 'ALS' [All Season] was added.
 - 'AT' [All Terrain] was added.
 - 'HPR' [High Performance] was added.
 - 'LRR' [Low Rolling Resistance] was added.
 - 'RF' [Run Flat] was added.
- Data type for Unrounded4Value [0.0000 to 9999.9999 (FE-CA56,59,72,75,134,135,138,139,142,143,146,147)] was changed to Decimal8Point4NonNegativeType.
- Data type for UnroundedAdjusted4Value [0.0000 to 9999.9999 (FE-CA64,65,66,67,80,81,82,83)] was changed to Decimal8Point4NonNegativeType.
- Data type for UnroundedUnadjusted4Value [0.0000 to 9999.9999 (FE-CA6,6.7,7.9,8.2,57,58,60,61,73,74,76,77)] was changed to Decimal8Point4NonNegativeType.
- Enumerations for ComplianceCategoryIdentifier were changed as follows:
 - 'IP' [Import Passenger Vehicles] was removed.
 - 'DP' [Domestic Passenger Vehicles] was removed.
 - 'PV' [Passenger Vehicles] was added.
- Enumerations for ReportDeleteProcessCode were changed as follows:
 - 'D' [Delete] was added.
- Data type for FinalModelYearGreenhouseGasProductionNumber [0 to 9,999,999 (FE-CA158)] was changed to Integer7DigitNonNegativeType.
- Data type for FinalModelYearProductionNumber [0 to 9,999,999 (FE-CA20)] was changed to Integer7DigitNonNegativeType.
- Data type for EPATargetGreenhouseGasValue [MPG, 0.0 to 999.9 (FE-FT17)] was changed to Decimal4Point1NonNegativeType.