Component Locations

ACES VCdb Vehicle Key
Content Development Kit

VERSION 2.3

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MOTOR INFORMATION SYSTEMS

MOTOR Information Systems • HEARST business media

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1 Overview

The tables that are defined in this document explain MOTOR's **Component Location** database in Auto Care Association ACES VCdb vehicle key coding. This dataset covers most domestic and imported car and light truck models. Low census vehicles (including low sales volume and exotic vehicles) may be excluded.

The Auto Care Association has established a delivery specification for the communication of parts information in XML format utilizing a defined data schema. This delivery specification can be found in the ACES documentation package, which can be downloaded at http://www.autocare.org/what-we-do/technology/technologyhelp. The data in this delivery utilizes only the VCdb portion of the ACES standard. The data also deviates from the ACES standard in the following ways:

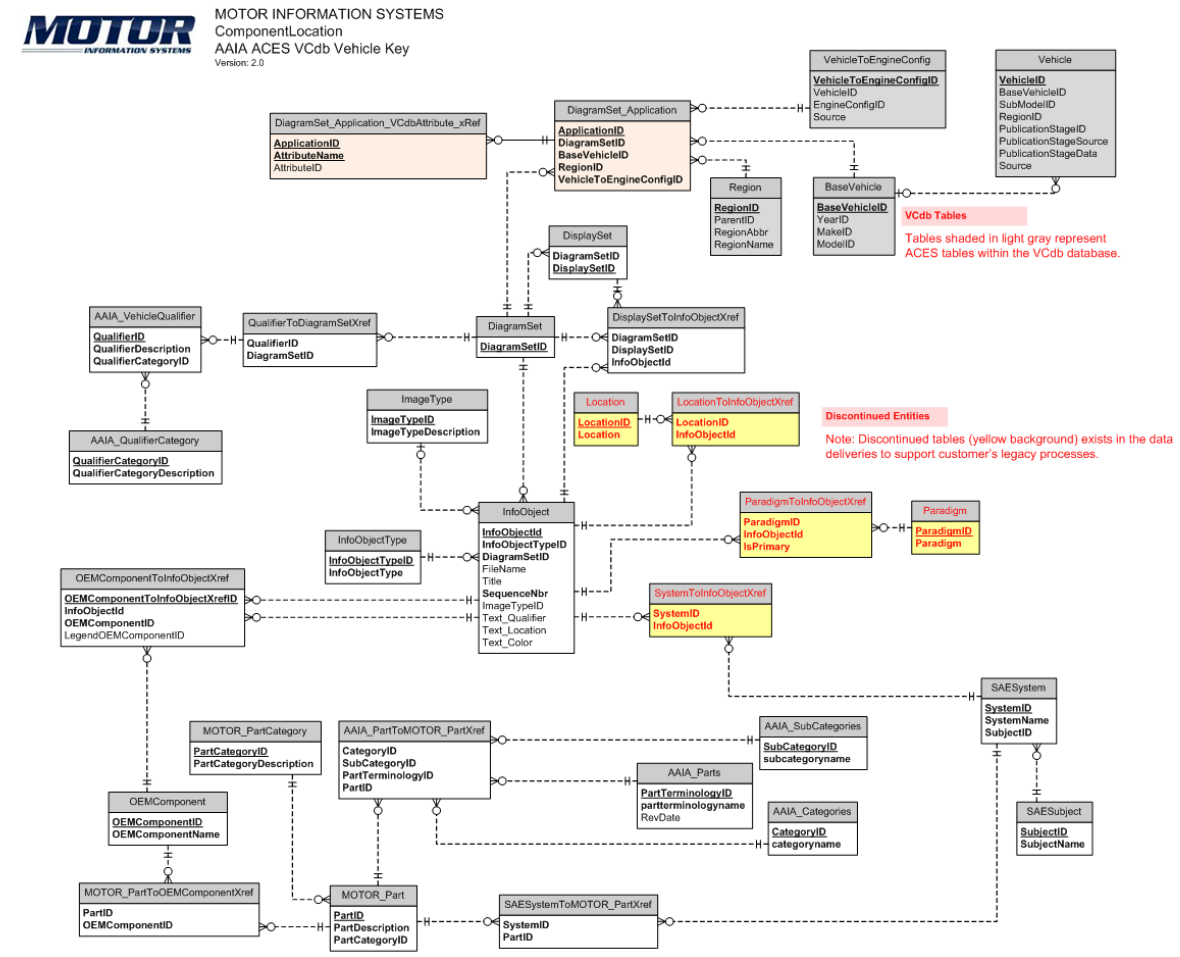
- The data described in this CDK is delivered in pipe-delimited UTF-8 text file (*.txt); not in XML database format.
- The ACES 3.0 XML lists vehicle attributes as elements to be included in an application when applied. Those elements have an attribute name "id", which provides the id value for looking up the attribute description within the VCdb Database. VCdb Attributes in the data described in this document will be listed in the table DiagramSet_Application_VCdbAttribute_xRef. The AttributeName field is the name of the VCdb vehicle attribute and is equivalent to the element name in the ACES 3.0 XML schema, and the AttributeID value is the value that is equivalent to the "id" attribute for that element.
- The ACES Delivery Specification indicates that each application should only contain the VCdb Attributes that are required to differentiate between two or more content records. In our experience, we have found that this can lead to potential errors and miscommunication of data because of implied, or assumed, vehicle coverage. Therefore, in this data, we have included enough vehicle attributes so that each Application resolves to exactly one VCdb Year, Make, Model, SubModel, Region and Engine (YMME) definition.
- As a result of adding enough vehicle attributes to the data so that each Application resolves to a single YMME, we have also added the VCdb VehicleToEngineConfigID value to the records in the DiagramSet_Application. This value represents a complete YMME description in the VCdb database.

The vehicle data included in this deliverable provides two options for data look-up by vehicle.

- The traditional ACES approach of asking the user to select only the VCdb Attributes required to resolve to a single YMME application can be achieved by using the BaseVehicleID and RegionID values from the DiagramSet_Application table and any related Vehicle or Engine attributes in the DiagramSet_Application_VCdbAttribute_xRef table.
- The YMME application can be determined by looking at the VehicleToEngineConfigID, which references the top level table in the VCdb database that brings together Vehicle and Engine Attributes. This can be useful when trying to link multiple datasets together using a consistent vehicle key. However, when using this approach, the additional non YMME attributes listed in the DiagramSet_Application_VCdbAttribute_xRef table should still be presented to the end user to select the proper application.

2 Data Model

*Note: For a high-resolution version of the following data model, please refer to the Data Model document **MOTOR - ComponentLocations - DataModel** that is published with this CDK.*



3 Data Dictionary

The following provides a list of tables that are included in this deliverable, along with a brief description for each.

3.1 AAIA_Categories

AAIA Categories defined by Auto Care Association

Columnr Name	Type	Length	Allow Nulls	Description
CategoryID	Number		No	Unique ID for Categories defined by Auto Care Association
categoryname	Text	100	No	Category name defined by Auto Care Association

3.2 AAIA_Parts

AAIA Parts defined by Auto Care Association

Column Name	Type	Length	Allow Nulls	Description
PartTerminologyID	Number		No	Part ID defined by Auto Care Association
partterminologyname	Text	100	No	AAIA Part names, defined by Auto Care Association
RevDate	Date/Time		Yes	Timestamp from Auto Care Association

3.3 AAIA_PartToMOTOR_PartXref

Xref between AAIA Parts and MOTOR Parts, includes AAIA Categories and Sub-Categories

Column Name	Type	Length	Allow Nulls	Description
CategoryID	Number		No	CategoryID referenced from AAIA-Categories table defined by Auto Care Association
SubCategoryID	Number		No	SubCategoryID referenced from AAIA-SubCategories table defined by Auto Care Association
PartTerminologyID	Number		No	PartTerminologyID referenced from AAIA-Parts table defined by Auto Care Association
PartID	Number		No	MOTOR Part ID, referenced from MOTOR-Part table

3.4 AAIA_QualifierCategory

Defines AAIA Vehicle Qualifier Categories

Column Name	Type	Length	Allow Nulls	Description
QualifierCategoryID	Number		No	AAIA Vehicle Qualifier category ID, uniquely identifies AAIA Qualifier Category
QualifierCategoryDescription	Text	120	No	AAIA Vehicle Qualifier categories

3.5 AAIA_SubCategories

AAIA SubCategories defined by Auto Care Association

Column Name	Type	Length	Allow Nulls	Description
SubCategoryID	Number		No	SubCategoryID - unique ID for AAIA SubCategories defined by Auto Care Association
subcategoryname	Text	100	No	SubCategory description, defined by Auto Care Association

3.6 AAIA_VehicleQualifier

AAIA Vehicle Qualifiers defined by Auto Care Association

Column Name	Type	Length	Allow Nulls	Description
QualifierID	Number		No	AAIA Vehicle Qualifier ID
QualifierDescription	Text	120	No	AAIA Vehicle Qualifier description
QualifierCategoryID	Number		No	AAIA Vehicle Qualifier Category ID, referenced from AAIA_QualifierCategory table

3.7 DiagramSet

InfoObjects are grouped as sets, and these sets are defined by DiagramSet IDs and referenced in other tables. A set can have one or more InfoObjects. A DiagramSet will contain InfoObjects of same type and if the InfoObjectType is Images, it will contain the images of same type (see ImageType table for different image types). Images with same DiagramSet will go together. Sometimes the images within a set must be displayed together for full understanding of the content, in which case DisplaySet is used. Display sets are optional.

Column Name	Type	Length	Allow Nulls	Description
DiagramSetID	Number		No	Unique ID to define Diagram Sets, this is referenced in InfoObject table and optionally in DisplaySet table.

3.8 DiagramSet_Application

Application reference table, which links the Component Location data to base vehicles, regions, and engine configurations that are specified in the VCdb database.

Column Name	Type	Length	Allow Nulls	Description
ApplicationID	Long Number		No	(FK) Identifies a unique set of attributes in the DiagramSet_Application_VCdbAttribute_xRef file.
DiagramSetID	Number		No	References unique identifier for the DiagramSet table
BaseVehicleID	Number		No	References unique identifier for the VCdb BaseVehicle table.
RegionID	Number		No	References unique identifier for the VCdb Region table.
VehicleToEngineConfigID	Number		No	References unique identifier for the VCdb VehicleToEngineConfig table.

3.9 DiagramSet_Application_VCdbAttribute_xRef

Cross reference table, which links the Component Location data to various VCdb attributes that are specified in the VCdb database.

The ACES 3.0 XML lists vehicle attributes as elements to be included in an application when applied. Those elements have an attribute names “id” which provides the id value for looking up the attribute description within the VCdb Database. VCdb Attributes in the data described in this document will be listed in the table DiagramSet_Application_VCdbAtttribute_xRef. The AttributeName field is the name of the VCdb vehicle attribute and is equivalent to the element name in the ACES 3.0 XML schema and the AttributeID value is the value that is equivalent to the “id” attribute for that element.

Column Name	Type	Length	Allow Nulls	Description
ApplicationID	Long Number		No	Identifies a unique set of VCdb attributes, which may span multiple rows (i.e., a “set” can include one or more attributes). Each attribute set will be referenced by one or more rows in the DiagramSet_Application table
AttributeName	Text	100	No	The AttributeName field is the name of the VCdb vehicle attribute and is equivalent to the element name in the ACES 3.0 XML schema.
AttributeID	Number		No	AttributeID value is the value that is equivalent to the “id” attribute for that element.

3.10 DisplaySet

DisplaySet definition table. DisplaySet IDs are unique within a DiagramSet. Display set will group sub-set of Images within a DiagramSet. Display sets are optional.

Column Name	Type	Length	Allow Nulls	Description
DiagramSetID	Number		No	DiagramSetID referenced from DiagramSet table, one diagramset can have zero, one or more DisplaySets and the DisplaySet IDs are unique with in a DiagramSet
DisplaySetID	Number		No	ID to define display set, it is unique with in a DiagramSet

3.11 DisplaySetToInfoObjectXref

Defines all the Image type InfoObjects that apply to a display set. A display set can have one or more Image Type InfoObjects; Table/Text type InfoObjects will never have display sets.

Column Name	Type	Length	Allow Nulls	Description
DiagramSetID	Number		No	DiagramSetID referenced from DisplaySet table
DisplaySetID	Number		No	DisplaySetID referenced from DisplaySet table
InfoObjectId	Number		No	InfoObjectId referenced from InfoObject table and these IDs are for Image type InfoObjects only

3.12 ImageType

ImageType definitions, identifies if the Image type InfoObject is a component location or legend or anything described by ImageTypeDescription in ImageType table.

Column Name	Type	Length	Allow Nulls	Description
ImageTypeID	Number		No	Unique ID to identify ImageType
ImageTypeDescription	Text	60	No	ImageType description, such as Component Location, Legend etc.

3.13 InfoObject

Definition table for InfoObject. InfoObjects are of two types (defined in InfoObjectType table and identified by InfoObjectTypeID):

1) Component Location Images, as a set
2) Textual description of location, with optional color description

Column Name	Type	Length	Allow Nulls	Description
InfoObjectId	Number		No	Unique ID to identify InfoObject
InfoObjectTypeID	Number		No	Identifies the type of InfoObject, (Component location Image or Table/Text data)
DiagramSetID	Number		No	DiagramSetID referenced from DiagramSet table. An InfoObject can belong to only one DiagramSet.
FileName	Text	20	Yes	I/O FileName of InfoObject, if its Image type
Title	Text	250	Yes	Title of the InfoObject, if its Image type
SequenceNbr	Number		No	Sequence number with in the Set
ImageTypeID	Number		Yes	Identifies if the Image type InfoObject is component location image or a legend image
Text_Qualifier	Text	120	Yes	Textual Qualifier, for Table/Text type infoObjects
Text_Location	Text	255	Yes	Text location, for Table/Text type InfoObject
Text_Color	Text	120	Yes	Color, if the InfoObject is Table/Text

3.14 InfoObjectType

Definition table for Information ObjectType, identifies the type of information object, such as Image, Text/Table. This can be used for content formatting and presentation to end users.

Column Name	Type	Length	Allow Nulls	Description
InfoObjectTypeID	Number		No	Unique ID to identify InfoObject types
InfoObjectType	Text	50	No	InfoObjectType describes the type of information object, such as Image or Table/Text etc.

3.15 Location *(discontinued)*

Location definitions. (This is an optional path to navigate to component location diagrams; this may **not** lead to full set of component location images. It is recommended to use navigation path as shown in sample queries.)

Column Name	Type	Length	Allow Nulls	Description
LocationID	Number		No	Location ID - primary key to identify locations
Location	Text	120	No	Location description

3.16 LocationToInfoObjectXref *(discontinued)*

InfoObject to Location xref, InfoObject of Image type will have locations; table/text type will not have location. One image asset can have one or more location and one location can have one or more image.

Column Name	Type	Length	Allow Nulls	Description
LocationID	Number		No	LocationID referenced from Location table
InfoObjectId	Number		No	InfoObjectId referenced from InfoObject table

3.17 MOTOR_Part

MOTOR-Part definition table

Component Legend MOTOR Part with ID: 11296 and description: "COMPONENT LEGEND"

Column Name	Type	Length	Allow Nulls	Description
PartID	Number		No	Unique ID identify MOTOR Part
PartDescription	Text	120	No	MOTOR part description
PartCategoryID	Number		No	MOTOR Part category ID, referenced from MOTORPartCategory table

3.18 MOTOR_PartCategory

Definition table for MOTOR Part categories

Column Name	Type	Length	Allow Nulls	Description
PartCategoryID	Number		No	Unique ID for identify MOTOR Part Category
PartCategoryDescription	Text	120	No	MOTOR part category description

3.19 MOTOR_PartToOEMComponentXref

MOTOR_Part To OEMComponent Xref, relates MOTOR component names to OEM Component names

Column Name	Type	Length	Allow Nulls	Description
PartID	Number		No	MOTOR Part ID referenced from MOTOR-Part table
OEMComponentID	Number		No	OEM Component ID referenced from OEMComponent table

3.20 OEMComponent

OEMComponent definition table

Column Name	Type	Length	Allow Nulls	Description
OEMComponentID	Number		No	Unique ID for each OEM Component
OEMComponentName	Text	120	No	OEM Component description

3.21 OEMComponentToInfoObjectXref

OEM Component to InfoObject Xref, defines OEM components that apply to InfoObject. Optionally, the OEM Component can have Legend coding represented by the LegendOEMComponentID.

Column Name	Type	Length	Allow Nulls	Description
OEMComponentToInfoObjectXrefID	Number		No	Unique ID that defines a combination of InfoObjectID, OEMComponentID and LegendComponentID. Legend ID can be NULL.
InfoObjectId	Number		No	InfoObjectId to which OEM components applies, referenced from InfoObject table
OEMComponentID	Number		No	OEMComponentID which applies to the InfoObject, this is referenced from OEMComponent table
LegendOEMComponentID	Number		Yes	LegendOEMComponentID is the OEM Component ID for the Legends, if available.

3.22 **Paradigm** *(discontinued)*

Paradigm definitions. (This is an optional path to navigate to component location diagrams; this may **not** lead to full set of component location images. It is recommended to use navigation path as shown in sample queries.)

Column Name	Type	Length	Allow Nulls	Description
ParadigmID	Number		No	Unique ID to for each paradigm description
Paradigm	Text	120	No	Paradigm description

3.23 ParadigmToInfoObjectXref *(discontinued)*

Table of Paradigm to InfoObject X reference, a paradigm can have one or more InfoObjects and an InfoObject can have one or more paradigm, but only one paradigm of an InfoObject can be primary

Column Name	Type	Length	Allow Nulls	Description
ParadigmID	Number		No	ParadigmID - Paradigm that is associated with the InfoObject - Lookup from Paradigm table
InfoObjectId	Number		No	InfoObjectId for which paradigm is applies to - Lookup from InfoObject table
IsPrimary	Yes/No	1	No	IsPrimary - indicates whether this paradigm is primary or not, defaults to false

3.24 QualifierToDiagramSetXref

Xref table for AAIA Vehicle Qualifiers that apply to a DiagramSet of Image type only, Table/Text type InfoObjects will never have Vehicle Qualifiers (as they have their own textual qualifiers descriptions).

Column Name	Type	Length	Allow Nulls	Description
QualifierID	Number		No	QualifierID referenced from AAIA Vehicle Qualifier table
DiagramSetID	Number		No	DiagramSetID referenced from DiagramSet table

3.25 SAESubject

Defines SAE Subjects

Column Name	Type	Length	Allow Nulls	Description
SubjectID	Number		No	Unique ID for each SAE Subject
SubjectName	Text	60	No	SAE Subject name/description

3.26 SAESystem

Defines SAE Systems

Column Name	Type	Length	Allow Nulls	Description
SystemID	Number		No	Unique ID for each SAE System name/description
SystemName	Text	60	No	SAE System name/description
SubjectID	Number		No	Subject ID referenced from SAE Subject table

3.27 SAESystemToMOTOR_PartXref

Defines MOTOR parts that belong to SAESystems. One or more SAE Systems can have one or more MOTOR Parts.

Column Name	Type	Length	Allow Nulls	Description
SystemID	Number		No	SAESystemID referenced from SAESystem table
PartID	Number		No	MOTOR Part IDs that belong to this system, referenced from MOTOR-Part table

3.28 SystemToInfoObjectXref *(discontinued)*

SAESystem To InfoObject Xref. If an InfoObject has System paradigm, then there must be one or more SAESystems associated with the InfoObject of Image type. Only one SAESystem can be primary paradigm and IsPrimary.

Column Name	Type	Length	Allow Nulls	Description
SystemID	Number		No	SystemID to which InfoObject is associated with, its referenced from SAESystem table
InfoObjectId	Number		No	InfoObjectId to which the System is associated with

4 Sample Code

The following provides an example of how the DiagramSet, DiagramSet_Application, and DiagramSet_Application_VcdbAttribute_Xref table can be joined to each other, as well as to various VCdb tables, in order to display DiagramSet data with associated vehicle application data.

```
SELECT
       A.*
      ,B.BaseVehicleID
      ,B.RegionID
      ,B.VehicleToEngineConfigID
      ,G.AttributeID
      ,G.AttributeName
      ,G.AttributeID
      ,H.Liter
      ,H.CC
FROM
      DiagramSet A
INNER JOIN
      DiagramSet_Application  B  ON A.DiagramSetID = B.DiagramSetID
INNER JOIN
      VehicleToEngineConfig C
            ON B.VehicleToEngineConfigID = C.VehicleToEngineConfigID
INNER JOIN
      Vehicle D ON C.VehicleID = D.VehicleID
INNER JOIN
      Region E ON B.RegionID = E.RegionID
INNER JOIN
      BaseVehicle F ON B.BaseVehicleID = F.BaseVehicleID
INNER JOIN
      DiagramSet_Application_VCdbAttribute_xRef G
            ON B.ApplicationID = G.ApplicationID
LEFT JOIN
      EngineBase H
            ON G.AttributeName = 'EngineBase'
            AND H.EngineBaseID = G.AttributeID
WHERE
      A.DiagramSetID = 76
```