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AUTODATA SOLUTIONS

StudyPrice Batch Service

Integration Guide

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DOCUMENT OVERVIEW

The StudyPRICE Batch Integration guide describes how to submit vehicles as an input file to be processed via the StudyPRICE API. As well, it describes the output files generated by the service.

Related Documentation

Document	Description
Integration Guide	The StudyPRICE Integration guide describes how to access and use the Portal to make StudyPRICE requests. It provides example requests that you can use in the Portal Test Client to make requests. It also describes responses and error messages.
API Reference	The StudyPRICE API reference is available in a Swagger UI format within the Portal. It describes the service, each endpoint, each input attribute, and each output attribute.
Feature List	The Feature List document provides a comprehensive list of the features returned by the StudyPRICE service. This list includes feature ID's and feature keys for each feature in addition to other important feature information such as feature section and sub-section.
Simple Model Walk	Two types of documentation are available for the Simple Model Walk service. • API Reference – A Simple Model Walk API reference is available in a Swagger UI format within the Portal. It describes the service, each operation, each input attribute, and each output attribute. • Tutorial – This guide provides step-by-step instructions on how to use the Simple Model Walk service to identify a style id for a vehicle. Each step provides an example request and response. You will require the Simple Model Walk service and its documentation when you do not have a VIN but require a way to identify vehicles in requests within the StudyPRICE service.
Portal Guide	The Portal Orientation guide provides step-by-step instructions on how to navigate and use the Portal. For example, it explains how you can make requests using the Portal's Test Client. Once you understand how to find and use the Test Client, you can use the example requests in the StudyPRICE Integration guide within the Test Client to send requests.
Security Guide	The Shared Secret Security Protocol document describes how to build and integrate a security token protocol into the Authorization header of the request to the service. You will need this information after you have finished testing a service in the Portal and are ready to begin your development work.

CONTACTING CLIENT SUPPORT

Client Support is available by phone toll-free at (800) 937-3661, Monday through Friday, from 6:00 a.m. to 5:00 p.m. Pacific Time, or you can reach Client Support by email at css@autodata.net. This team can help you with product support, billing questions, and other inquiries.

PRODUCT OVERVIEW

Today, the insurance industry primarily uses risk factors associated with the driver (i.e. age, marital status, credit history) when providing an insurance quote. With new driver-assist features that can prevent accidents, insurance carriers can start including vehicle factors in their premium pricing algorithms. This service allows insurance providers to quickly evaluate the vehicle being quoted, without interviewing their customer, to determine if there are any cost reductions or increases that are required based on the features of the vehicle.

The data returned focuses on features that may prevent the frequency or severity of accidents / insurance losses. The data includes passive safety features, active safety features, features that may prevent theft as well as other features that help describe the vehicle.

StudyPRICE Batch is an ETL service allowing for many vehicles to be processed at one time. This service accepts a .csv file of VINs via SFTP and posts the corresponding output files to the same SFTP location. The input .csv file requires a VIN, with the option to add trim and feature descriptions.

The service returns a .zip file containing six output files:

VIN File – Contains VIN details and a list of feature keys.

VIN Error File – Contains a list of VINs that were not processed.

Style File – Contains basic vehicle information (i.e., year, make, model, trim, description) for each style.

Style Features File – Contains feature information for each style.

Feature Dictionary File – Contains a list of all ICCodes and values used for generating the feature descriptions for the StudyPRICE product.

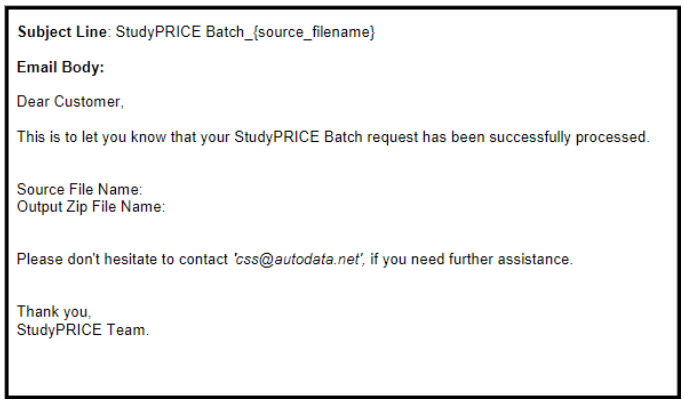
VIN Feature File – Contains feature information for each VIN.

Note: For weight and measurement related data returned, standardWeightUnits attribute defines the unit of measure for the vehicle's standard weight attribute and numericUnits defines the unit of measure for the numeric feature, if applicable. In addition, weight data is returned as rounded figures and prices returned are in United States (US) dollars for US styles and Canadian (CA) dollars for CA styles.

Processing Files

During the onboarding process, you will receive a Welcome Letter providing the location of your FTP site and success credentials.

Once the input file has been processed, you will receive an email notification, similar to the following.



Subject Line: StudyPRICE Batch_{source_filename}

Email Body:

Dear Customer,

This is to let you know that your StudyPRICE Batch request has been successfully processed.

Source File Name:
Output Zip File Name:

Please don't hesitate to contact *'css@autodata.net'*, if you need further assistance.

Thank you,
StudyPRICE Team.

After you receive this email notification, you can download the response .zip file from the Out folder on the FTP site.

Note: Only upload files with less than 10 million VIN per file on the FTP for processing.

INPUT FILE

The input file must be in .csv format and contain the following fields in the listed order:

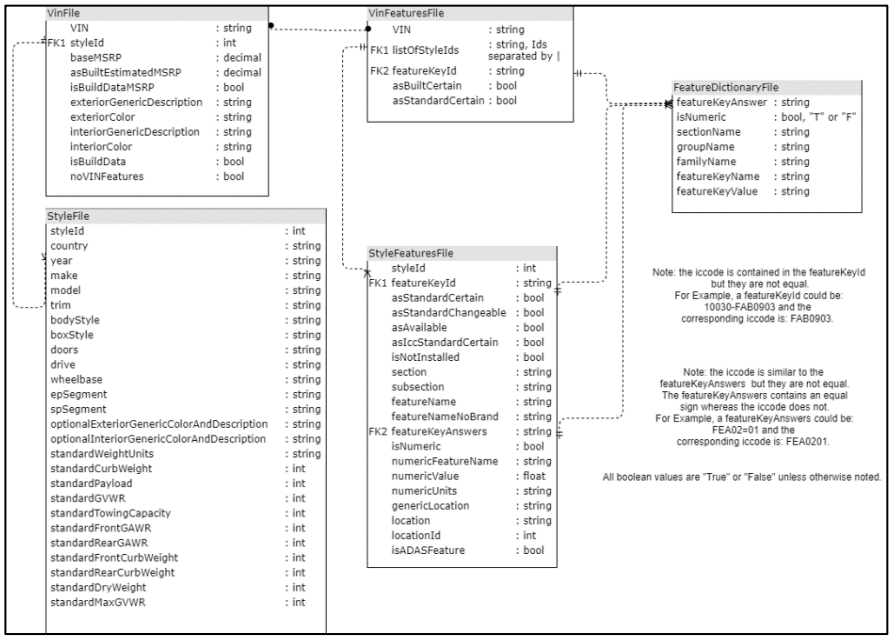
- VIN (Required)
- Trim (Optional)
- Feature Descriptions (Optional)

Note: The input file can have a maximum of 5M VINs.

Name	Description
VIN	Contains the vehicle identification number. This is required for each vehicle that you want to process. For example, 137FA84323E204917 or a partial VIN 2G4GS5GX4G9189, 4S3BNAB60J3.
Trim	Identifies a trim. For example, XLT. When a response returns one-to-many styles, the trim can be used in conjunction with the VIN to reduce the styles returned in the response.
Feature Descriptions	Identifies a comma delimited list of feature descriptions. For example, "air bags, heated seats" When a response returns one-to-many styles, the feature description list can be used in conjunction with the VIN to reduce the styles returned in the response.

OUTPUT FILES

The relationship between the output files is shown in the following data model.



VIN File

The VIN file contains VIN details and a list of key features for each VIN submitted in the input file.

This file contains information for each style to which the vehicle was decoded. The styleId can be used to pull style details from the Style File and the feature key list. The styleId can also be used to look up the features for a vehicle style in the Style Features file.

The VIN file has a header with the following columns:

```
"VIN","styleId","baseMSRP","asBuiltEstimatedMSRP","isBuildDataMSRP","exteriorGenericDescription","exterior
Color","interiorGenericDescription","interiorColor","isBuildData","noVINFeatures"
```

Name	Description
VIN	Contains the vehicle identification number. This is required for each vehicle that you want to process. For example, 137FA84323E204917.
styleId	Contains the styleId of a vehicle. For example, 330161.
baseMSRP	Contains the base price of the vehicle before adding options. For example, 55940.
asBuiltEstimatedMSRP	When the isBuildDataMSRP flag is set to true, it indicates the asBuiltEstimatedMSRP came from the build record. When isBuildDataMSRP is set to false, and the isBuildData value is true, asBuiltEstimatedMSRP contains the baseMSRP plus the MSRP of all options from the build record contained within our Catalog data. When the isBuildDataMSRP is set to false and isBuildData is false, the asBuiltEstimatedMSRP attribute contains the baseMSRP from Catalog data. For example, 55940.

Name	Description
isBuildDataMSRP	Flag indicating whether the MSRP value came from a build data record or from catalog data. If set to true, the MSRP value came from a build data record. If set to false, the MSRP value came from Catalog data. For example, TRUE.
exteriorGenericDescription	Contains a user-friendly name for the paint color. For example, Black. **Note:** If this field returns empty and the isBuildData value is set to False, check the Styles file for a list of optional colors that are available for the vehicle.
exteriorColor	Contains a marketing name for the specific paint color. For example, Crystal Black Pearl. **Note:** If this field returns empty and the isBuildData value is set to False, check the Styles file for a list of optional colors that are available for the vehicle.
interiorGenericDescription	Contains a user-friendly name for the interior color. For example, Black. **Note:** If this field returns empty and the isBuildData value is set to False, check the Styles file for a list of optional colors that are available for the vehicle.
interiorColor	Contains a marketing name for the specific interior color. For example, Almond. **Note:** If this field returns empty and the isBuildData value is set to False, check the Style file for a list of optional colors that are available for the vehicle.
isBuildData	Flag indicating whether build data was available at time of decode. When set to TRUE, build data is returned, if FALSE, catalog data is returned. For example, TRUE.
noVINFeatures	Contains a flag that when set to True indicates that features did not return in the VIN Feature file for the VIN.

VIN Error File

The VIN Error file contains a list of VINs that were not able to be processed along with a description of the error.

Name	Description
VIN	Contains the vehicle identification number of a VIN that could not be decoded. For example, 137FA84323E204917.
Error Message	Contains a description of the error relating back to why a VIN could not be decoded.

The follow table lists the errors returned in this file and provides a description of each error.

Error	Description
"„„", Invalid Record: too many commas	Returns if the line in the input file is not properly formatted as the batch service is expecting a .csv file that has no more than three columns.
“test”test”, Invalid Record: double quote mismatch	Returns if the line in the input file is not properly formatted.

Error	Description
123abc, Invalid Vin	Returns if the VIN provided in the input file is not 17 characters in length.
test””test, Invalid Record	Returns if the line in the input file is not properly formatted.
Vin Files Processing Error	Returns if more than half of the VINs fail out of the first 10,000 VINs in the input file. A fail is considered as any of the above errors.
1INVALID92E198INV,,"",Unable to decode vin	Returns if there is no data on the provided VIN or when there is a server error. This error does not affect the count for the Vin Files Processing Error.

Style File

The Style file contains basic vehicle information (i.e., year, make, model, trim, description) for the styleids associated with the processed VINs.

The Style file has a header with the following columns:

```
"styleId","country","year","make","model","trim","bodyStyle","boxStyle","doors","drive","wheelbase","epSegment","spSegment","optionalExteriorGenericColorAndDescription","optionalInteriorGenericColorAndDescription","standardWeightUnits","standardCurbWeight","standardPayload","standardGVWR","standardTowingCapacity","standardFrontGAWR","standardRearGAWR","standardFrontCurbWeight","standardRearCurbWeight","standardDryWeight", "standardMaxGVWR"
```

This is a dictionary of style information.

Name	Description
styleId	Contains the styleId of a vehicle. For example, 330161.
country	Contains the country related to the styleId(s) returned for the requested VIN. Values can be US or CA.
year	Contains the vehicle model year. For example, 2016.
make	Contains the vehicle division. For example, Ford.
model	Contains the name of a vehicle model. For example, F-150.
trim	Contains the vehicle trim. For example, Platinum.
bodyStyle	Contains the generic classification of a vehicle. For example, Crew Cab.
boxStyle	Contains the box style of a truck. For example, Regular Side.
doors	Contains the number of doors on a vehicle. For example, 4.
drive	Contains the drivetrain description. For example, 4x4.

Name	Description
wheelbase	Contains the wheelbase of a truck in inches. For example, 157".
epSegment	Contains the EPA classification of a vehicle. For example, Mid-Size Cars.
spSegment	Contains the generic classification of a vehicle. For example, van.
Optional exterior generic color and description	Contains a pipe-delimited list of exterior generic and OEM color descriptions available on vehicles when build data is not available or the build record did not include color information. As well, user-friendly color names are returned (~ is the delimited used between the two color descriptions). For example, Black~Crystal Black Pearl|Gray~Graphite Luster Metallic. Contains a list of optional exterior generic and OEM color descriptions available on the requested VIN when build data is not available or the build record did not include color information
Optional interior generic color and description	Contains a pipe-delimited list of interior generic and OEM color descriptions available on vehicles when build data is not available or the build record did not include color information. As well, user-friendly color names are returned (~ is the delimited used between the two color descriptions). For example, Gray~Dark Titanium/Jet Black|Black~Jet Black.
standardWeightUnits	Contains the unit of measure for the vehicle standard weight attributes. For example, lbs.
standardCurbWeight	Contains the standard curb weight of the vehicle. For example, 5691.
standardPayload	Contains the standard payload of the vehicle. For example, 1609.
standardGVWR	Contains the standard gross vehicle weight rating of the vehicle. For example, 7300.
standardTowingCapacity	Contains the standard towing capacity of the vehicle. For example, 7300.
standardFrontGAWR	Contains the standard front Gross Axle Weight Rating. For example, 5500.
standardRearGAWR	Contains the standard rear Gross Axle Weight Rating. For example, 6000.
standardFrontCurbWeight	Contains the standard front curb weight. For example, 3989.
standardRearCurbWeight	Contains the standard rear curb weight. For example, 2816.
standardDryWeight	Contains the standard dry weight of the vehicle. For example, 3216.
standardMaxGVWR	Contains the standard maximum gross vehicle weight of the vehicle. For example, 6000.

Style Features File

A Style Features file is returned that contains feature information for the styleIds associated with the processed VINs.

The Style Features file has a header with the following columns:

```
"styleId","featureKeyId","asStandardCertain","asStandardChangeable","asAvailable","asIccStandardCertain",
"isNotInstalled","section","subsection","featureName", "featureNameNoBrand",
"featureKeyAnswers","isNumeric","numericFeatureName","numericValue","numericUnits","genericLocation",
"location","locationId","isADASFeature"
```

This is a dictionary of features for each style.

Name	Description
styleId	Contains the styleId of a vehicle. For example, 330161.
featureKeyId	Contains a unique identifier for a feature. For example, 17560-RBA01.
asStandardCertain	Set to True if the feature is standard equipment on the vehicle per the manufacturers' catalog and no option in the catalog can change it. In this case build data is not required to know the feature is on the vehicle. For example, False.
asStandardChangeable	Set to True if the feature is standard equipment on the vehicle per the manufacturers' catalog but options exist in the catalog that could change the feature on the vehicle. In this case, catalog data indicates that the feature is standard on the vehicle but there is no build data to confirm whether the feature has been replaced with an available optional feature. For example, True.
asAvailable	Set to True if the feature is available as an option per the catalog. In this case, catalog data indicates the feature is available for the vehicle but there is no build data to confirm whether the feature is installed on the vehicle. For example, False.
asIccStandardCertain	Set to True if the feature is Standard Certain and only the brand changes the feature. For example, False
isNotInstalled	Contains a flag that when set to True indicates that the feature is not installed or is optionally available on the vehicle. If multiple styleIds are returned for a vehicle, this flag will return as True only if the feature is not installed or optionally installed on any of the styles. This data is available with additional licensing.
section	Contains a user-friendly name for the main feature category. For example, High Replacement Cost, Safety Active.
subsection	Contains a user-friendly name for the sub-category of each feature. For example, Airbags.
featureName	Contains a user-friendly name describing the feature name with the brand. For example, Pentastar 3.6L DOHC V-6 engine.
featureNameNoBrand	Contains a user-friendly name describing the feature name with no brand. For example, 3.6L DOHC V-6 engine.
featureKeyAnswers	Contains a list of possible answers that make up part of the featureKeyId. For example, "HQA03=14","HQA04=05","HQB03=02","HQB04=14" are possible answers for featureKeyId "19140-HQA03140405HQB030204140505HQD01110201"

Name	Description
isNumeric	Contains a flag that when set to True indicates that the feature returns a numeric value. This field defaults to False.
numericFeatureName	Contains the name of the numeric feature. For example, “Vehicle body length”. Only returns in a response if isNumeric is set to True.
numericValue	Contains the numeric value. For example, “194.4”.
numericUnits	Contains the unit of measure for the numeric feature, if applicable. For example, “inches”. Only returns in a response if isNumeric is set to True and if the numeric value represents a measurement like vehicle body length. If the numeric value is a count, like number of doors, this value does not return in the response.
genericLocation	Contains the generic repairing location of the vehicle. This data is available with additional licensing.
location	Contains the collision location of the vehicle. This data is available with additional licensing.
locationId	Contains the location id of the feature. This data is available with additional licensing.
isADASFeature	Contains a flag that when set to True indicates that feature is an ADAS feature. This data is available with additional licensing.

Feature Dictionary File

A Feature Dictionary File is returned that contains a list of all ICCodes and values used for generating the feature descriptions for the StudyPRICE product. These are the answers that correspond to the feature descriptions.

The Feature Dictionary File has a header with the following columns:

```
"featureKeyAnswer", "isNumeric", “sectionName” "groupName", "familyName", "featureKeyName",
"featureKeyValues"
```

Name	Description
featureKeyAnswer	Contains a feature key answer. For example, FAB04.
isNumeric	Contains a flag that when set to T (True), indicates that the iccValues field has a number value.
sectionName	Contains the section name. For example, Mechanical.
groupName	Contains the group name. For example, Engine.
familyName	Contains the family name. For example, Type.
featureKeyName	Contains a user-friendly name describing the feature key. For example, Compressor.
featureKeyValues	Contains the value returned for the feature key. For example, Turbo.

VIN Feature File

The VIN Feature File contains feature information for each VIN in the input file.

The VIN Feature File has a header with the following columns:

"VIN","listOfStyleIds","featureKeyId","asBuiltCertain","asStandardCertain"

The VIN Feature file returns values for asBuiltCertain; either True or False. The Style Features file returns values for asStandardCertain; either True or False. Together the values set for these flags provide information about the features available on a VIN, as described in the following scenarios.

1. In the VIN Feature file asBuiltCertain = True and in the Style Features file asStandardCertain = False.

   This means the feature is on this VIN based on the build data record.

2. In the VIN Feature file asBuiltCertain = False and in the Style Features file asStandardCertain = True.

   This means the feature comes Standard on the VIN because there aren't any features available to upgrade or downgrade the feature

3. In the VIN Feature file asBuiltCertain = False and in the Style Features file asStandardCertain = False.

   This means the feature is available on this VIN, but build data is not available for the feature and one of the following two scenarios is true for the feature.

   1. The feature is standard on the VIN but can be upgraded or downgraded, therefore; in the Style Features File for the same styleId and featureKeyId asStandardChangeable=True.
   2. The feature is available as an option but there is no build data to confirm whether the feature is installed, therefore; in the Style Features File for the same styleId and featureKeyId asAvailable=True.

This is a dictionary of features for each VIN.

Name	Description
VIN	Contains the vehicle identification number. This is required for each vehicle that you want to process. For example, 137FA84323E204917.
listOfStyleIds	Contains a pipe-delimited list of styleIds. For example, 379583|381961.
featureKeyId	Contains a unique identifier for a feature. For example, 10500-FCB010202.
asBuiltCertain	Set to True if the feature is on the vehicle as per the manufacturer's build data. For example, FALSE.
AsStandardCertain	Set to True if the feature is standard equipment on the vehicle per the manufacturers' catalog and no option in the catalog can change it. In this case build data is not required to know the feature is on the vehicle. For example, TRUE.

Note: Additional information may be returned in your files based on optional features enabled in your client's profile"

STYLE FLAG COMBINATION AND INTERPRETATION CHART

S/N	IsBuild Data	asIcc Standard Certain	asBuilt Certain	asStandard Certain	asStandard Changeable	asAvailable	isNot Installed	Interpretation	Additional Comment
1	FALSE	FALSE	FALSE	FALSE	FALSE	TRUE	FALSE	Maybe Installed	Optional feature but there is no build data to confirm that the feature is installed
2	FALSE	FALSE	FALSE	FALSE	FALSE	TRUE	TRUE	Maybe Not Installed	Optional removeable feature but there is no build data to confirm that the feature is not installed
3	FALSE	FALSE	FALSE	FALSE	TRUE	FALSE	FALSE	Maybe Installed	Standard feature that can be optionally upgraded.
4	FALSE	FALSE	FALSE	FALSE	TRUE	FALSE	TRUE	Maybe Not Installed	Standard not installed feature that can be optionally upgraded.
5	FALSE	FALSE	FALSE	TRUE	FALSE	FALSE	FALSE	Installed	
6	FALSE	FALSE	FALSE	TRUE	FALSE	FALSE	TRUE	Not Installed	
7	FALSE	TRUE	FALSE	FALSE	FALSE	TRUE	FALSE	Maybe Installed	
8	FALSE	TRUE	FALSE	FALSE	TRUE	FALSE	FALSE	Maybe Installed	

9	FALSE	TRUE	FALSE	TRUE	FALSE	FALSE	FALSE	Installed	
10	FALSE	TRUE	FALSE	TRUE	FALSE	FALSE	TRUE	Not Installed	
11	FALSE	TRUE	FALSE	TRUE	FALSE	TRUE	FALSE	Installed	Optional engine is installed based on the requested VIN.
12	FALSE	TRUE	FALSE	TRUE	TRUE	FALSE	FALSE	Installed	Standard engine is installed based on the requested VIN
13	TRUE	FALSE	TRUE	FALSE	FALSE	TRUE	FALSE	Installed	
14	TRUE	FALSE	TRUE	FALSE	TRUE	TRUE	TRUE	Not Installed	
15	TRUE	FALSE	TRUE	FALSE	TRUE	FALSE	FALSE	Installed	
16	TRUE	FALSE	TRUE	FALSE	TRUE	FALSE	TRUE	Not Installed	
17	TRUE	FALSE	TRUE	TRUE	FALSE	FALSE	FALSE	Installed	
18	TRUE	FALSE	TRUE	TRUE	FALSE	FALSE	TRUE	Not Installed	
19	TRUE	TRUE	TRUE	FALSE	FALSE	TRUE	FALSE	Installed	
20	TRUE	TRUE	TRUE	FALSE	TRUE	FALSE	FALSE	Installed	

21	TRUE	TRUE	TRUE	TRUE	FALSE	FALSE	FALSE	Installed	
22	TRUE	TRUE	TRUE	TRUE	FALSE	FALSE	TRUE	Not Installed	
23	TRUE	TRUE	TRUE	TRUE	FALSE	TRUE	FALSE	Installed	Optional engine is installed based on the requested VIN.
24	TRUE	TRUE	TRUE	TRUE	TRUE	FALSE	FALSE	Installed	Standard engine is installed based on the requested VIN

Notes: In cases where build data is false, the values of the flags need to match across all the styles returned for the Vin for the interpretation to match the chart above.

The chart above is a guide and does not represent all possible flag combinations in the service