

Table check

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Caterpillar VisionLink APIs enable dealers and customers to access the fleet data remotely reported by the VisionLink® application.

The VisionLink APIs eliminates the need to “mine” the data from the VisionLink application. For example, data can be provided to an ERP system, to a project management scheduling tool of choice, or to a field service dispatching application.

Most of the data elements that are available for a specific asset by subscription can be obtained through the VisionLink API.

VisionLink APIs include:

- Assets Operation History API
- Assets Summary API
- Faults History API
- Asset Fence History API
- Utilization History API

Migration from Legacy and Unified Vision Link APIs to New VisionLink APIs

The new Caterpillar VisionLink APIs replace the legacy and unified VisionLink APIs. The legacy-unified-to-new API mappings is as follows:

VisionLink APIs (V1.0,V2.0)	New VisionLink APIs (V3.0)
Events: https://www.myvisionlink.com/APIService/CATDataTopics/v5/feed/Trimb/Event/0 Diagnostic: https://www.myvisionlink.com/APIService/CATDataTopics/v4/feed/Trimb/Diagnostic/0 Health: https://cloud.api.trimble.com/visionlink/vlfault/1.0/Health/Faults/Search/v2	Faults History API

VisionLink APIs (V1.0,V2.0)	New VisionLink APIs (V3.0)
Start/Stop: https://www.myvisionlink.com/APIService/CATDataTopics/v3/feed/Trimb/StartStop/0 Engine: https://www.myvisionlink.com/APIService/CATDataTopics/v6/feed/Trimb/Engine/0 Unified Asset Operation: https://cloud.api.trimble.com/visionlink/ulutilization/1.0/AssetOperation Unified Asset Operation v2: https://cloud.api.trimble.com/visionlink/vlutilization/1.0/Utilization/AssetOperation/V2	Asset Operation History API
Fence Alert: https://www.myvisionlink.com/APIService/CATDataTopics/v6/feed/Trimb/FenceAlert/0	Asset Fence History API
Asset Utilization: https://api.myvisionlink.com/AssetUtilization Fuel Utilization: https://api.myvisionlink.com/FuelUtilization Unified Utilization: https://cloud.api.trimble.com/visionlink/vlutilization/1.0/UnifiedFleet/Utilization/v2 Unified Utilization Details: https://cloud.api.trimble.com/visionlink/vlutilization/1.0/Utilization/details/v2	Utilization History API
Assets: https://api.myvisionlink.com/Assets Fleet Summary: https://www.myvisionlink.com/APIService/VISIONLINKReady/FleetSummary Unified Fleet Summary: https://cloud.api.trimble.com/visionlink/vlfleet/1.0/UnifiedFleet/FleetSummary/v2 Unified Asset Details: https://cloud.api.trimble.com/visionlink/vlfleet/1.0/UnifiedFleet/AssetDetails/v2	Asset Summary API

Note: The telematics data previously available through the AEMP 1.2 API is now provided through the ISO 15143-3 (AEMP 2.0). For detailed information about ISO-15143 (AEMP 2.0) API, see the [ISO-15143 \(AEMP 2.0\) API Developer Guide](#).

Data Mapping

The following tables present the data mapping between the legacy, unified and new VisionLink APIs.

Utilization History API

New Utilization History API	Legacy Asset Utilization API	Legacy Fuel Utilization API	Unified Utilization API	Unified Utilization Details API
make	MakeCode	MakeCode	makeCode	makeCode
serialNumber	SerialNumber	SerialNumber	serialNumber	assetSerialNumber

New Utilization History API	Legacy Asset Utilization API	Legacy Fuel Utilization API	Unified Utilization API	Unified Utilization Details API
equipment id	AssetID	AssetID	n/a	assetId
model	Model	Model	model	model
productFamily	n/a	n/a	n/a	n/a
unitInstallDate	n/a	n/a	n/a	n/a
customName	n/a	n/a	n/a	n/a
customValue	n/a	n/a	n/a	n/a
assetLocalDate	CalendarDayAssetLocalTime	CalendarDayAssetLocalTime	date (UTC)	date (UTC)
idleHours	IdleHours	IdleHours	idleHours	idleHours
workingHours	WorkingHours	WorkingHours	workingHours	workingHours
runtimeHours	RuntimeHours	RuntimeHours	runtimeHours	runtimeHours
workingEfficiency	EfficiencyPercentage	n/a	workingEfficiency	workingEfficiency
customUtilizationType	n/a	n/a	n/a	n/a
distanceTravelledKms	n/a	n/a	distanceTravelledKilometers	distanceTravelledKilometers
targetIdlePerformance	n/a	n/a	targetIdlePerformance	targetIdlePerformance
targetIdleHours	n/a	n/a	targetIdle	targetIdle
targetRuntimeHours	ExpectedRuntimeHours	n/a	targetRuntime	targetRuntime
targetRuntimePerformance	n/a	n/a	targetRuntimePerformance	targetRuntimePerformance
runtimeHours (hourCallouts)	n/a	n/a	runtimeHoursCalloutTypes	runtimeHoursCalloutTypes
idleHours (hourCallouts)	n/a	n/a	idleHoursCalloutTypes	idleHoursCalloutTypes
workingHours (hourCallouts)	n/a	n/a	workingHoursCalloutTypes	workingHoursCalloutTypes
runtimeFuelBurnedLiters	n/a	RuntimeFuelBurnedGallons	runtimeFuelConsumedLiters	runtimeFuelConsumedLiters
idleFuelBurnedLiters	n/a	IdleFuelBurnedGallons	idleFuelConsumedLiters	idleFuelConsumedLiters
workingFuelBurnedLiters	n/a	WorkingFuelBurnedGallons	workingFuelConsumedLiters	workingFuelConsumedLiters
runtimeFuelBurnRate	n/a	RuntimeFuelBurnRate	runtimeFuelConsumptionRate	runtimeFuelConsumptionRate
idleFuelBurnRate	n/a	IdleFuelBurnRate	idleFuelConsumptionRate	idleFuelConsumptionRate
workingFuelBurnRate	n/a	WorkingFuelBurnRate	workingFuelConsumptionRate	workingFuelConsumptionRate
mileage	n/a	n/a	kmsPerRuntimeFuelConsumedLiter	kmsPerRuntimeFuelConsumedLiter
runtimeFuelBurned (fuelCallouts)	n/a	n/a	runtimeFuelConsumedLitersCalloutTypes	runtimeFuelConsumedLitersCalloutTypes
idleFuelBurned (fuelCallouts)	n/a	n/a	idleFuelConsumedLitersCalloutTypes	idleFuelConsumedLitersCalloutTypes
workingFuelBurned (fuelCallouts)	n/a	n/a	workingFuelConsumedLitersCalloutTypes	workingFuelConsumedLitersCalloutTypes
latestUtilizationReport	n/a	n/a	lastReportedTime	lastReportedTime
defBurnedLiters	n/a	n/a	dieselExhaustFluidLiters	dieselExhaustFluidLiters
defBurnRate	n/a	n/a	dieselExhaustFluidLitersBurnedRate	dieselExhaustFluidLitersBurnedRate
deviceStatus	n/a	n/a	n/a	n/a
co2EmissionsKilogram	n/a	n/a	co2Emission	co2Emission
assetStatus	n/a	n/a	n/a	n/a
nextCursor	n/a	n/a	n/a	n/a

Asset Fence History API

New Asset Fence History API	Fence Alert API
make	make

New Asset Fence History API	Fence Alert API
model	model
serialNumber	serialNumber
equipment ID	nickname
productFamily	n/a
customName	n/a
customValue	n/a
receivedTime	receivedTime
event	n/a
(fence) name	n/a
(fence) id	n/a
nextCursor	n/a

Faults History API

New Faults History API	Legacy Diagnostic API	Legacy Events API	Legacy Health API
make	make	make	makeCode
model	model	model	model
serialNumber	serialNumber	serialNumber	serialNumber
equipmentId	n/a	n/a	n/a
productFamily	n/a	n/a	productFamily
customName	n/a	n/a	n/a
customValue	n/a	n/a	n/a
severity	n/a	n/a	severityLabel/severityLevel
eid	n/a	eid	n/a
fmi	fmi	n/a	n/a
cid	n/a	n/a	n/a

New Faults History API	Legacy Diagnostic API	Legacy Events API	Legacy Health API
spn	spn	n/a	n/a
faultType	n/a	n/a	faultType
faultDescription	n/a	n/a	faultDescription
mid	mid	mid	n/a
sourceDescription	n/a	n/a	sourceDescription
faultReceivedTime	receivedTime	n/a	faultReceivedUtc
faultOccuredTime	timestamp	timestamp	faultOccuredUTC
occurrences	occurrences	occurrences	occurrences
dataLinkType	n/a	n/a	dataLinkType
hourMeter	n/a	n/a	hourMeter
odometerInKilometer	n/a	n/a	odometer
assetLocalDate	n/a	n/a	n/a
latitude	n/a	n/a	locationLatitude
longitude	n/a	n/a	locationLongitude
address	n/a	n/a	n/a
nextCursor	n/a	n/a	n/a

Asset Operation History API

New Asset Operations API	Legacy Asset Operation API	Legacy Engine Parameters API	Legacy Engine StartStop API	Unified AssetOperation V2 API
Make	MakeCode	make	make	makeCode
Serial Number	SerialNumber	serialNumber	serialNumber	serialNumber
equipment id	AssetID	moduleCode	moduleCode	assetId
Model	Model	model	model	model
productFamily	n/a	n/a	n/a	productFamily
assetOperationDateInfo	n/a	n/a	n/a	n/a

New Asset Operations API	Legacy Asset Operation API	Legacy Engine Parameters API	Legacy Engine StartStop API	Unified AssetOperation V2 API
eventType	WorkingState	Starts idleTime (Value)	startStop	n/a
eventTime	n/a	idleTime (UOM)	start stop	n/a
customName	n/a	n/a	n/a	customStateDescription
customValue	n/a	n/a	n/a	n/a
revolutions	n/a	revolution	n/a	n/a
startStateTime	StartStateUtc	n/a	n/a	startTimeUtc
startStateAssetLocalTime	StartStateAssetLocalTime	n/a	n/a	startTimeLocal
startStateAssetTimezoneAbbrev	n/a	n/a	n/a	n/a
endStateUtc	EndStateUtc	n/a	n/a	endTimeUtc
endStateAssetLocalTime	EndStateAssetLocalTime	n/a	n/a	endTimeLocal
endStateAssetTimezoneAbbrev	n/a	n/a	n/a	n/a
durationSeconds	DurationSeconds	n/a	n/a	totalRuntimeDurationSeconds
customUtilizationCategory	WorkDefinition	n/a	n/a	n/a
segmentType	n/a	n/a	n/a	segmentType
ApiTrackingId	n/a	n/a	n/a	n/a
MakeSerialNumbers	n/a	n/a	n/a	n/a
responseMetadata	n/a	n/a	n/a	n/a
nextCursor	n/a	n/a	n/a	n/a
latitude (start state)	Latitude (Start location)	n/a	n/a	startLocationLatitude
longitude(start state)	Longitude(Start location)	n/a	n/a	startLocationLongitude
latitude (end state)	Latitude (End location)	n/a	n/a	endLocationLatitude
longitude(end state)	Longitude(End location)	n/a	n/a	endLocationLongitude
code	n/a	n/a	n/a	n/a
details	n/a	n/a	n/a	n/a
AdditionalInfo	n/a	n/a	n/a	n/a
subCode	n/a	n/a	n/a	code
field	n/a	n/a	n/a	n/a

New Asset Operations API	Legacy Asset Operation API	Legacy Engine Parameters API	Legacy Engine StartStop API	Unified AssetOperation V2 API
message	n/a	n/a	n/a	message

Asset Summary API

New Asset Summary API	Legacy Assets Utilization API	Legacy Fleet Summary API	Unified Fleet Summary API	Unified Asset Details API
make	MakeCode	MakeCode	makeCode	makeCode
makeDescription	MakeName	n/a	n/a	n/a
model	Model	Model	model	model
serialNumber	SerialNumber	SerialNumber	assetSerialNumber	assetSerialNumber
equipmentId	AssetID	AssetID	assetId	assetId
productFamily	ProductFamily	n/a	productFamily	productFamily
assetStatus	n/a	LastKnownStatus	status	status
deviceStatus	n/a	n/a	n/a	deviceState
deviceType	DeviceType	n/a	deviceType	deviceType
deviceSerialNumber	DeviceSerialNumber	n/a	n/a	deviceSerialNumber
mainboardSoftwareVersion	n/a	n/a	mainboardSoftwareVersion	mainboardSoftwareVersion
radioFirmwarePartNumber	n/a	n/a	n/a	radioFirmwarePartNumber
gatewayFirmwarePartNumber	n/a	n/a	n/a	gatewayFirmwarePartNumber
dataLinkType	n/a	n/a	n/a	dataLinkType
name - geofence	n/a	n/a	name	name
areaSqM - geofence	n/a	n/a	areaSqM	areaSqM
name - groups	n/a	n/a	n/a	n/a
subscription	n/a	n/a	n/a	n/a
hourMeter	n/a	n/a	hourMeter	hourMeter
lastReportedTime	n/a	n/a	lastHourMeterUTC	lastHourMeterUTC
userEnteredRuntimeHours	n/a	n/a	n/a	n/a
odometerInKilometer	n/a	n/a	odometer	odometer
lastReportedTime	n/a	n/a	lastOdometerUTC	n/a
latitude	n/a	Latitude	lastReportedLocationLatitude	lastReportedLocationLatitude
longitude	n/a	Longitude	lastReportedLocationLongitude	lastReportedLocationLongitude
address	n/a	Address	lastReportedLocation	lastReportedLocation
lastReportedTimeUtc	n/a	LastLocationUTC	lastReportedUTC	lastLocationUpdateUTC
lastKnownFuelLevelPercent	n/a	FuelPercentRemaining	fuelLevelLastReported	fuelLevelLastReported
lastReportedTime	n/a	n/a	lastPercentFuelRemainingUTC	lastPercentFuelRemainingUTC
lifetimeFuelLiters	n/a	LifetimeFuelConsumed	lifetimeFuelLiters	lifetimeFuelLiters

New Asset Summary API	Legacy Assets Utilization API	Legacy Fleet Summary API	Unified Fleet Summary API	Unified Asset Details API
lastReportedTime	n/a	n/a	lastLifetimeFuelLitersUTC	lastLifetimeFuelLitersUTC
defRemainingPercent	n/a	n/a	percentDEFRemaining	percentDEFRemaining
lastReportedTime	n/a	n/a	lastPercentDEFRemainingUTC	lastPercentDEFRemainingUTC
lifetimeDefLiters	n/a	n/a	n/a	lifetimeDEFLiters
lastReportedTime	n/a	n/a	n/a	lastLifetimeDEFLitersUTC
customUtilizationType	n/a	n/a	n/a	n/a
name - last operator	n/a	n/a	lastOperatorName	lastOperatorName
id - last operator	n/a	n/a	lastOperatorID	lastOperatorID
dealerName	n/a	n/a	dealerName	dealerName
dealerCode	n/a	n/a	dealerCode	n/a
dcn	n/a	n/a	dealerCustomerNumber	dealerCustomerNumber
name - Customer	n/a	n/a	universalCustomerName	universalCustomerName
ucid	n/a	n/a	universalCustomerIdentifier	universalCustomerIdentifier
customName	n/a	n/a	n/a	n/a
customValue	n/a	n/a	n/a	n/a
responseMetadata	n/a	n/a	n/a	n/a
nextCursor	n/a	n/a	n/a	n/a

Subscribing to the APIs

To access the API, you must first request a subscription:

- Fill out the API Subscription Request Form.
- The form will open in a new window without closing this page.
- You may be asked to login to the Digital Marketplace again before completing the form.
- After completing your subscription, you may close the subscription window to return to this page.
- You will receive an email with your credentials when your subscription is approved. This process may take approximately two (2) weeks.

Security

The API uses the OAuth 2.0 protocol for authorization. In order to access the API, an OAuth access token is required in the request headers of each API call. A valid OAuth client ID and client secret is required to obtain an OAuth access token.

The following basic information is required to authenticate and generate the token.

Field	Value
Grant Type	Set this to "client_credentials".

Field	Value
Token URL	https://fedlogin.cat.com/as/token.oauth2
Client ID	Your application's Client ID. Contact your credentials owner.
Client Secret	Your application's Client Secret. Contact your credentials owner.

An OAuth token expires after 60 minutes. An expired token will need to be replaced with a new token.

Additional OAuth information can be found in [Caterpillar OAuth 2.0 Documentation](#).

API Environments

VisionLink APIs are only available in production environment.

Faults History API

The API returns each fault code recorded within the specified time range for the asset/fleet, along with the timestamp (UTC) when it was created. Data availability is dependent on machine support and commercial subscription. The Fault History API helps in determining the health of the machine by analyzing the various faults reported along with source, type, and severity.

Sample request

```
curl -v -X GET \  
"https://services.cat.com/catDigital/faultsHistory/v1/faults" -H "Authorization: Bearer {token}" \  
-H 'Accept: application/json' \  

```

Use Accept header to specify the response format:

- **JSON** - `application/json`
- **XML** - `application/xml`

JSON is the default response format.

Sample JSON response

```
{  
  "faults": [  
    {  
      "equipmentHeader": {  
        "make": "CAT",  

```

```
"model": "368B",
"serialNumber": "FA12345L-2D",
"equipmentId": "myfavasset",
"productFamily": "Motor Grader",
"customFields": [
  {
    "customName": "region",
    "customValue": "North America"
  }
]
},
"faultBlock": {
  "severity": "Medium",
  "eid": 878,
  "fmi": 5,
  "cid": 247,
  "spn": 521891,
  "faultType": "Event",
  "faultDescription": "After treatment SCR Operator Inducement Severity -
Data Valid But Above Normal Operational Range - Most Severe Level.",
  "mid": 299,
  "sourceDescription": "Steering Control",
  "faultReceivedTime": "2020-03-06T17:27:04.222Z",
  "faultOccuredTime": "2020-03-06T17:27:04.222Z",
  "occurrences": 127
},
"dataLinkType": "J1939",
"hourMeter": 1583.2,
"odometerInKilometer": 214.7,
"assetLocalDate": "2016-01-31",
"location": {
  "latitude": 38.07671,
  "longitude": -78.50494,
  "address": "201 Lambs Lane, Charlottesville, VA, Albemarle, United
States, 22901."
}
},
"responseMetadata": {
  "nextCursor": "eyJvZmZzZXQiOjR9"
}
```

```
}
```

Depending on the combination of query parameters, the default value of the `limit` parameter defining the response size can be 500 ("bulk") or 50 records ("lightweight").

Use these query parameters to return a bulk response (500 records maximum):

- all input query parameters blank
- all optional query parameters specified: `make`, `model`, `productFamily`, `dealerCode`, `language`, `ucid`, `faultType`, `deviceType`, and `cursor`
- `severity`
- `faultType`
- `deviceType`
- `make`
- `model`
- `productFamily`
- `ucid`
- `dealerCode`
- `language`
- `cursor`
- `limit` and `startTime` and `endTime` for a date range of 3 months from the current date
- `startTime` and `endTime` for a date range of 3 months from the current date
- `limit` and `occurredTime` within 3 month from the current date
- `limit` and `occurredTime`
- `limit`, `faultType`, `startTime` and `endTime` for a date range of 3 months from the current date
- `limit`, `severity`, `startTime` and `endTime` for a date range of 3 months from the current date
- `limit`, `deviceType`, `startTime` and `endTime` for a date range of 3 months from the current date
- `limit`, `model`, `startTime` and `endTime` for a date range of 3 months from the current date
- `limit`, `make`, `startTime` and `endTime` for a date range of 3 months from the current date
- `limit`, `productFamily`, `startTime` and `endTime` for a date range of 3 months from the current date
- `limit`, `ucid`, `startTime` and `endTime` for a date range of 3 months from the current date
- `limit`, `language`, `startTime` and `endTime` for a date range of 3 months from the current date

Use these query parameters to return a lightweight response (50 records maximum):

- `limit` and `startTime` and `endTime` for a date range of 1 month from the current date
- `limit`, `faultType`, and `startTime` and `endTime` for a date range of 1 month from the current date
- `limit`, `language`, and `startTime` and `endTime` for a date range of 1 month from the current date
- `limit`, `severity`, and `startTime` and `endTime` for a date range of 1 month from the current date
- `limit` and `occurredTime` within 1 month from the current date
- `limit`, `faultType`, and `occurredTime` within 1 month from the current date
- `limit`, `severity`, and `occurredTime` within 1 month from the current date
- `limit`, `language`, and `occurredTime` within 1 month from the current date

You can paginate through the response data using the `responseMetadata.nextCursor` value in the cursor query parameter.

For detailed information about the API input parameters, response structure, and error messages, see the [API reference documentation](#).

Asset Operation History API

The Asset Operation API returns the asset operation and asset operation feed data such as engine stop and start events.

Get Asset Operations History

To get asset operation data, use the GET

`https://services.cat.com/catDigital/assetOperationsHistory/v1/assetOperations` endpoint.

Sample request

```
curl -v -X GET \  
"https://services.cat.com/catDigital/assetOperationsHistory/v1/assetOperations" \  
-H "Authorization: Bearer {token}" \  
-H 'Accept: application/json' \  

```

Use Accept header to specify the response format:

- **JSON** - `application/json`
- **XML** - `application/xml`

JSON is the default response format.

Sample JSON response

```
{  
  "assetOperations": [  
    {  
      "equipmentHeader": {  
        "make": "CAT",  
        "model": "368B",  
        "serialNumber": "FA12345L-2D",  
        "equipmentId": "Myfavasset",  
        "productFamily": "Motor Grader",  
        "customFields": [  

```

```

    {
      "customName": "region",
      "customValue": "North America"
    }
  ]
},
"calendarDayAssetLocalDate": "2016-01-31",
"assetOperationDateInfo": [
  {
    "revolutions": "18",
    "startStateTime": "2020-03-06T17:27:04.222Z",
    "startStateAssetLocalTime": "2020-03-06T17:27:04.222Z",
    "startStateAssetTimezoneAbbrev": "EDT",
    "startLocation": {
      "latitude": 40.69223,
      "longitude": -89.58893
    },
    "endStateUtc": "2020-03-06T17:27:04.222Z",
    "endStateAssetLocalTime": "High Torque Converter Oil Temperature",
    "endStateAssetTimezoneAbbrev": "EDT",
    "endLocation": {
      "latitude": 40.69223,
      "longitude": -89.58893
    },
    "durationSeconds": "2017-10-31T11:52:32.0000000+00:00",
    "customUtilizationCategory": "Movement, Machine Sourced, Switches
Movement, or Switches",
    "segmentType": "Running/Idle/Working"
  }
]
}
},
"responseMetadata": {
  "nextCursor": "eyJvZmZzZXQiOjR9"
}
}

```

Depending on the combination of query parameters, the default value of the `limit` parameter defining the response size can be 500 ("bulk") or 50 records ("lightweight").

Use these query parameters to return a bulk response (500 records maximum):

- all input query parameters blank
- all optional query parameters specified: `make`, `model`, `productFamily`, `dealerCode`, `ucid`
- `make`
- `model`
- `productFamily`
- `ucid`
- `dealerCode`
- `cursor`
- `limit` and `startTime` and `endTime` for a date range of 3 months from the current date
- `startDate` and `endTime` for a date range of 3 months from the current date
- `limit`, `model`, `startDate` and `endTime` for a date range of 3 months from the current date
- `limit`, `make`, `startDate` and `endTime` for a date range of 3 months from the current date
- `limit`, `productFamily`, `startDate` and `endTime` for a date range of 3 months from the current date
- `limit`, `ucid`, `startDate` and `endTime` for a date range of 3 months from the current date

Use these query parameters to return a lightweight response (50 records maximum):

- `limit`, `make`, `serialNumber`, and `startDate` and `endTime` for a date range of 1 month from the current date
- `limit` and `startDate` and `endTime` for a date range of 1 month from the current date
- `makeSerialNumbers` (an array of values)

You can paginate through the response data using the `responseMetadata.nextCursor` value in the cursor query parameter.

The following table provides the detailed information about the response data:

Field Name	Type	Description	Sample
Equipment Header Block			
<code>make</code>	String	Make code of the asset	CAT
<code>model</code>	String	Model of the Asset	368B
<code>serialNumber</code>	String	Serial number of the asset	FA12345L-2D
<code>equipmentId</code>	String	Nickname or Equipment ID or Asset ID	myfavasset
<code>productFamily</code>	String	Product family to which the machine belongs to	Motor Grader

Field Name	Type	Description	Sample
Custom Fields Block			
customName	String	Name of the custom variable being passed	region
customValue	String	Value of the custom variable being passed	America
Asset Operations Block			
calendarDayAssetLocalDate	String(\$date)	A date	2016-01-31
AssetOperationDateInfo Block			
revolutions	String	The total number of engine revolutions	18
startStateTime	String(\$date-time)	A date-time	2020-03-06T17:27:04.222Z
startStateAssetLocalTime	String(\$date-time)	A date-time	2020-03-06T17:27:04.222Z
startStateAssetTimezoneAbbrev	String	Abbreviation of the asset's local timezone at the time of start of the operation segment	EDT
startLocation	number(\$double)	Asset start location	N/A
endStateUtc	String(\$date-time)	A date-time	2020-03-06T17:27:04.222Z
endStateAssetLocalTime	String	Description of the fault for the specified language	High Torque Converter Oil Temperature
endStateAssetTimezoneAbbrev	String	Abbreviation of the asset's local timezone at the time of end of the operation segment	EDT
endLocation	number(\$double)	Asset end location	N/A

Field Name	Type	Description	Sample
durationSeconds	String(\$date-time)	Date time in UTC that the diagnostic received	2017-10-31T11:52:32.0000000+00:00
customUtilizationCategory	String	Describes on what basis the working state of the machine is interpreted	Movement, Machine Sourced, Switches Movement, or Switches
segmentType	String	Segment types	Running/Idle/Working
Location Block			
latitude	number(\$double)	Latitude of the location. Minimum -90 maximum 90	38.07671
longitude	number(\$double)	Latitude of the location, Minimum -180, maximum: 180	-78.50494
address	String	Reverse geolocation	201 Lambs Lane, Charlottesville, VA, Albemarle, United States, 22901
Error Block			
code	String	Error Code represents an alpha-numeric error code received from the error	400.100
description	String	Message represents a textual description of a given error code	EndTime format is invalid
details	String	Details represents technical details about the error with additional message	N/A
AdditionalInfo Block			

Field Name	Type	Description	Sample
subCode	String	Error code sent by API for each validation	100
field	String	The property or field that was validated and triggered an error	endTime
message	String	Each error message on the property level validation done by the API	endTime must be in UTC format

Note: Once the Asset Operations API is published in the Digital Marketplace API Catalog, use the OpenAPI spec for detailed reference information.

Get Asset Operation Feeds

To get asset operation feed data, use the GET

<https://services.cat.com/catDigital/assetOperationsHistory/v1/feeds> endpoint.

Sample request

```
curl -v -X GET \
"https://services.cat.com/catDigital/assetOperationsHistory/v1/feeds" -H
"Authorization: Bearer {token}" \
-H 'Accept: application/json' \
```

Use Accept header to specify the response format:

- **JSON** - `application/json`
- **XML** - `application/xml`

JSON is the default response format.

Sample JSON response

```
{
  "assetOperationFeeds": [
    {
      "equipmentHeader": {
```

```

    "make": "CAT",
    "model": "368B",
    "serialNumber": "FA12345L-2D",
    "equipmentId": "MyfavAsset",
    "productFamily": "Motor Grader",
    "customFields": [
      {
        "customName": "region",
        "customValue": "North America"
      }
    ]
  },
  "calendarDayAssetLocalTime": "11-11-2020 11:11:23",
  "eventType": "Engine Start, Engine Stop, Movement Start, Movement Stop,
Idle Start, Idle Stop.",
  "eventTime": "2020-03-06T17:27:04.222Z"
}
],
"responseMetadata": {
  "nextCursor": "eyJvZmZzZXQiOjR9"
}
}

```

Asset operation feed response size, filtering, and pagination follow the same rules as the [GET /assetOperations](#) endpoint.

The following table provides the detailed information about the response data:

Field Name	Type	Description	Sample
Equipment Header Block			
make	String	Make code of the asset	CAT
model	String	Model of the Asset	368B
serialNumber	String	Serial number of the asset	FA12345L-2D
equipmentId	String	Nickname or Equipment ID or Asset ID	myfavasset

Field Name	Type	Description	Sample
productFamily	String	Product family to which the machine belongs to	Motor Grader
Custom Fields Block			
customName	String	Name of the custom variable being passed	region
customValue	String	Value of the custom variable being passed	America
Asset Operation Feeds Block			
calendarDayAssetLocalTime	String	CalendarDay Asset LocalTime	11-11-2020 11:11:23
eventType	String	Event Types	Engine Start, Engine Stop, Movement Start, Movement Stop, Idle Start, Idle Stop
eventTime	String(\$date-time)	A date-time	2020-03-06T17:27:04.222Z
Error Block			
code	String	Error Code represents an alpha-numeric error code received from the error	400.100
description	String	Message represents a textual description of a given error code	EndTime format is invalid
details	String	Details represents technical details about the error with additional message	N/A
AdditionalInfo Block			

Field Name	Type	Description	Sample
subCode	String	Error code sent by API for each validation	100
field	String	The property or field that was validated and triggered an error	endTime
message	String	Each error message on the property level validation done by the API	endTime must be in UTC format

Note: Once the Asset Operations API is published in the Digital Marketplace API Catalog, use the OpenAPI spec for detailed reference information.

Asset Fence History API

The Asset Fence History API returns the site entry and site exit events reported for assets for a given period of time.

Sample request

```
curl -v -X GET \
"https://services.cat.com/catDigital/assetFenceHistory/v1/fences" -H
"Authorization: Bearer {token}" \
-H 'Accept: application/json' \
```

Use Accept header to specify the response format:

- **JSON** - `application/json`
- **XML** - `application/xml`

JSON is the default response format.

Sample JSON response

```
{
  "fences": [
    {
      "equipmentHeader": {
        "make": "CAT",
```

```

    "model": "368B",
    "serialNumber": "FA12345L-2D",
    "equipmentId": "myfavasset",
    "productFamily": "Motor Grader",
    "customFields": [
      {
        "customName": "region",
        "customValue": "North America"
      }
    ]
  },
  "receivedTime": "2020-03-06T17:27:04Z",
  "event": "entry",
  "fence": {
    "name": "Chicago Grant Park",
    "id": "XYZFence"
  }
},
"responseMetadata": {
  "nextCursor": "eyJvZmZmZXQ1OjR9"
}
}

```

Depending on the combination of query parameters, the default value of the `limit` parameter defining the response size can be 500 ("bulk") or 50 records ("lightweight").

Use these query parameters to return a bulk response (500 records maximum):

- all input query parameters blank
- all optional query parameters specified: `make`, `model`, `productFamily`, `group`, `ucid`
- `make`
- `model`
- `productFamily`
- `ucid`
- `group`
- `limit` and `startDate` and `endTime` for a date range of 3 months from the current date
- `startDate` and `endTime` for a date range of 3 months from the current date
- `limit`, `model`, `startDate` and `endTime` for a date range of 3 months from the current date
- `limit`, `make`, `startDate` and `endTime` for a date range of 3 months from the current date
- `limit`, `productFamily`, `startDate` and `endTime` for a date range of 3 months from the current date
- `limit`, `group`, `startDate` and `endTime` for a date range of 3 months from the current date

- `limit`, `ucid`, `startDate` and `endTime` for a date range of 3 months from the current date

Use these query parameters to return a lightweight response (50 records maximum):

- `limit`, `make`, `serialNumber`, and `startDate` and `endTime` for a date range of 1 month from the current date
- `limit` and `startDate` and `endTime` for a date range of 1 month from the current date
- `makeSerialNumbers` (an array of values)

You can paginate through the response data using the `responseMetadata.nextCursor` value in the cursor query parameter.

For detailed information about the API input parameters, response structure, and error messages, see the [API reference documentation](#).

Utilization History API

The Utilization API returns asset and fuel utilization data that provides a reading of how efficiently your assets are using fuel per targets set for them.

Sample request

```
curl -v -X GET \  
"https://services.cat.com/catDigital/utilizationHistory/v1/utilization" -H \  
"Authorization: Bearer {token}" \  
-H 'Accept: application/json' \  

```

Use Accept header to specify the response format:

- **JSON** - `application/json`
- **XML** - `application/xml`

JSON is the default response format.

Sample JSON response

```
{  
  "utilizations": [  
    {  
      "equipmentHeader": {  
        "make": "CAT",  
        "model": "368B",  
        "serialNumber": "FA12345L-2D",  
        "equipmentId": "Myfavasset",  

```

```
"productFamily": "Motor Grader",
"unitInstallDate": "2020-03-06T17:27:04.222Z",
"customFields": [
  {
    "customName": "region",
    "customValue": "North America"
  }
]
},
"assetLocalDate": "2016-01-31",
"runtimeHours": 10.2,
"idleHours": 3.6,
"workingHours": 6.6,
"customUtilizationType": "Movement",
"distanceTravelledKms": 122.7,
"workingEfficiency": 78,
"targetIdlePerformance": 13,
"targetIdleHours": 1.6,
"targetRuntimeHours": 8.1,
"targetRuntimePerformance": 88,
"hourCallouts": {
  "runtimeHours": "Invalid value detected/detected in date range",
  "idleHours": "Invalid value detected/detected in date range",
  "workingHours": "Insufficient Runtime meter precision for valid
calculation"
},
"runtimeFuelBurnedLiters": 27.5,
"idleFuelBurnedLiters": 3.2,
"workingFuelBurnedLiters": 24.3,
"runtimeFuelBurnRate": 2.9,
"idleFuelBurnRate": 0.9,
"workingFuelBurnRate": 3.8,
"mileage": 1.3,
"fuelCallouts": {
  "runtimeFuelBurned": "Invalid value detected/detected in date range",
  "idleFuelBurned": "Invalid value detected/detected in date range",
  "workingFuelBurned": "Invalid value detected/detected in date range"
},
"latestUtilizationReport": "2021-07-13 23:52 CDT",
"defBurnedLiters": 0.8,
"defBurnRate": 0.1,
```

```

    "deviceStatus": "Not Reporting",
    "co2EmissionsKilogram": 590.5,
    "assetStatus": "Ready to Run"
  }
],
"responseMetadata": {
  "nextCursor": "eyJvZmZzZXQiOjR9"
}
}

```

Depending on the combination of query parameters, the default value of the `limit` parameter defining the response size can be 500 ("bulk") or 50 records ("lightweight").

Use these query parameters to return a bulk response (500 records maximum):

- all input query parameters blank
- all optional query parameters specified: `make`, `model`, `productFamily`, `dealerCode`, `subscription`, `ucid`, `startDate`, `endDate`, and `cursor`
- `make`
- `model`
- `productFamily`
- `ucid`
- `dealerCode`
- `subscription`
- `cursor`
- `limit`, `make`, `startDate` and `endDate` for a date range of 3 months from the current date
- `limit`, `model`, `startDate` and `endDate` for a date range of 3 months from the current date
- `limit`, `productFamily`, `startDate` and `endDate` for a date range of 3 months from the current date
- `limit`, `ucid`, `startDate` and `endDate` for a date range of 3 months from the current date
- `limit`, `dealerCode`, `startDate` and `endDate` for a date range of 3 months from the current date
- `limit`, `subscription`, `startDate` and `endDate` for a date range of 3 months from the current date

Use these query parameters to return a lightweight response (50 records maximum):

- `limit`, `make`, `serialNumber`, and `startDate` and `endDate` for a date range of 3 months from the current date
- `makeSerialNumbers` (an array of values)

You can paginate through the response data using the `responseMetadata.nextCursor` value in the `cursor` query parameter.

For detailed information about the API input parameters, response structure, and error messages, see the [API reference documentation](#).

Asset Summary API

The Asset Summary API returns the summary of each asset within the fleet view.

Sample request

```
curl -v -X GET \  
"https://services.cat.com/catDigital/assetSummary/v1/assets" -H "Authorization: Bearer {token}" \  
-H 'Accept: application/json' \  

```

Sample JSON response

```
{  
  "assetSummaries": [  
    {  
      "equipmentHeader": {  
        "make": "CAT",  
        "makeDescription": "Komatsu",  
        "model": "368B",  
        "serialNumber": "FA12345L-2D",  
        "equipmentId": "Myfavasset",  
        "productFamily": "Motor Grader"  
      },  
      "assetStatus": "Ready to Run",  
      "deviceStatus": "Not Reporting",  
      "deviceInfo": {  
        "deviceType": "PLE742",  
        "deviceSerialNumber": "2090F001TR",  
        "mainboardSoftwareVersion": "6013399-00",  
        "radioFirmwarePartNumber": "6013399-00",  
        "gatewayFirmwarePartNumber": "6013399-00",  
        "dataLinkType": "J1939"  
      },  
      "geofences": [  
        {  
          "name": "testgeofence",  
          "areaSqm": 33.33  
        }  
      ],  
      "groups": [  

```

```
{
  "name": "testgroup"
}
],
"subscription": "VisionlinkDaily",
"hourMeter": {
  "value": 2356.7,
  "lastReportedTime": "2020-03-06T17:27:04.222Z"
},
"userEnteredRuntimeHours": 2500.8,
"odometerInKilometer": {
  "value": 2356.7,
  "lastReportedTime": "2020-03-06T17:27:04.222Z"
},
"lastKnownLocation": {
  "latitude": 38.07671,
  "longitude": -78.50494,
  "address": "201 Lambs Lane, Charlottesville, VA, Albemarle, United
States, 22901"
},
"lastReportedTimeUtc": "2020-03-06T17:27:04.222Z",
"lastKnownFuelLevelPercent": {
  "value": 73,
  "lastReportedTime": "2020-03-06T17:27:04.222Z"
},
"lifetimeFuelLiters": {
  "value": 2322,
  "lastReportedTime": "2020-03-06T17:27:04.222Z"
},
"defRemainingPercent": {
  "value": 219.6,
  "lastReportedTime": "2020-03-06T17:27:04.222Z"
},
"lifetimeDefLiters": {
  "value": 219.6,
  "lastReportedTime": "2020-03-06T17:27:04.222Z"
},
"customUtilizationType": "Movement",
"lastOperator": {
  "name": "Harry Hoggard",
  "id": 123456
}
```

```

    },
    "dealerInfo": {
      "dealerName": "Caterpillar Demo Dealer",
      "dealerCode": "TD00",
      "dcn": "1134ABC"
    },
    "customerInfo": {
      "name": "Demo Customer",
      "ucid": 2968305643
    },
    "customFields": [
      {
        "customName": "region",
        "customValue": "North America"
      }
    ]
  }
],
"responseMetadata": {
  "nextCursor": "eyJvZmZzZXQiOjR9"
}
}

```

Use Accept header to specify the response format. Specify `application/xml` for XML. Specify `application/json` for JSON. JSON is the default response format.

Depending on the combination of query parameters, the default value of the `limit` parameter defining the response size can be 500 ("bulk") or 50 records ("lightweight").

Use these query parameters to return a bulk response (500 records maximum):

- all input query parameters blank
- all optional query parameters specified: `limit`, `make`, `model`, `productFamily`, `dealerCode`, `subscription`, `ucid`, `cursor`, `deviceType`
- `deviceType`
- `make`
- `model`
- `productFamily`
- `ucid`
- `dealerCode`
- `subscription`
- `cursor`

Use these query parameters to return a lightweight response (50 records maximum):

- `limit`, `make`, `serialNumber`, and `startDate` and `endDate` for a date range of 1 months from the current date
- `makeSerialNumbers` (an array of values)

You can paginate through the response data using the `responseMetadata.nextCursor` value in the cursor query parameter.

For detailed information about the API input parameters, response structure, and error messages, see the [API reference documentation](#).

Additional Documentation

The following additional documentation is available as part of the VisionLink APIs bundle:

- **Access Guide:** <https://digital.cat.com/knowledge-hub/document/new-visionlink-api-access-guide>
- **VisionLink API Cheat Sheet:**
<https://digital.cat.com/knowledge-hub/document/new-visionlink-specifications-document>
- **VisionLink API Postman Collection:**
<https://digital.cat.com/knowledge-hub/document/visionlink-apis-postman-collection>

Glossary

CID

Component Identifier (CID) identifies the on-board sensor that reported the diagnostic.

CWS

Caterpillar Corporate Web Security (CWS). CWS ID and password are created when an account is created within Caterpillar. The credentials can be used to log into various systems and applications within Caterpillar.

EID

Event ID (EID) identifies the specific event that was generated.

FMI

Failure Mode Indicator (FMI) identifies the diagnostic.

MID

Machine Component Identifier (MID) reporting the event.

SMU

Service Meter Unit.

Change History

Date	Description of Change
11-21-2022	New document.
1-24-2023	Add review comments of Product Owner on API naming.