# Table check

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<br><br>Diagnostic: https://www.myvisionlink.com/APIService/CATDataTopics/v4/feed/Trimb/Diagnostic/0<br><br>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:<br>https://www.myvisionlink.com/APIService/CATDataTopics/v3/feed/Trimb/StartStop/0<br><br>Engine:<br>https://www.myvisionlink.com/APIService/CATDataTopics/v6/feed/Trimb/Engine/0<br><br>Unified Asset Operation:<br>https://cloud.api.trimble.com/visionlink/ulutilization/1.0/AssetOperation<br><br>Unified Asset Operation v2:<br>https://cloud.api.trimble.com/visionlink/vlutilization/1.0/Utilization/AssetOperation/V2 | Asset Operation History API |
| Fence Alert:<br>https://www.myvisionlink.com/APIService/CATDataTopics/v6/feed/Trimb/FenceAlert/0 | Asset Fence History API |
| Asset Utilization: https://api.myvisionlink.com/AssetUtilization<br><br>Fuel Utilization: https://api.myvisionlink.com/FuelUtilization<br><br>Unified Utilization:<br>https://cloud.api.trimble.com/visionlink/vlutilization/1.0/UnifiedFleet/Utilization/v2<br><br>Unified Utilization Details:<br>https://cloud.api.trimble.com/visionlink/vlutilization/1.0/Utilization/details/v2 | Utilization History API |
| Assets: https://api.myvisionlink.com/Assets<br><br>Fleet Summary:<br>https://www.myvisionlink.com/APIService/VISIONLINKReady/FleetSummary<br><br>Unified Fleet Summary:<br>https://cloud.api.trimble.com/visionlink/vlfleet/1.0/UnifiedFleet/FleetSummary/v2<br><br>Unified Asset Details:<br>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 | occurances | occurances | 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<br><br>idleTime (Value) | startStop | n/a |
| eventTime | n/a | idleTime (UOM) | start<br><br>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 | | | |
| 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 |
| productFamily | 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": "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`, `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. |