# VISION CAN OBDII
Integrated support for legislated OBD functionality

VISION's CAN OBDII Toolkit provides VISION with integrated support for legislated OBD functionality

- Read live PIDs, INFOTYPEs, Monitors, and request freeze-frame data
- Request and clear DTCs (Diagnostic Trouble Codes) manually or automatically using trigger event expressions
- Generate an OBDII snapshot report manually or automatically using trigger event expressions.
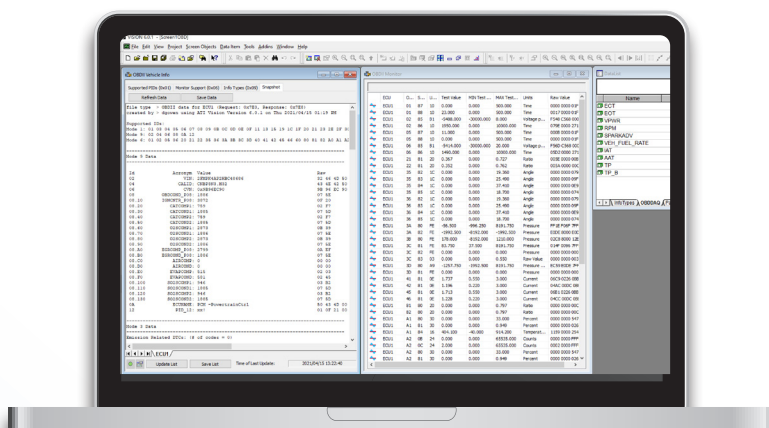
Legislated OBD II - the features that are supported by most OBD II software applications on the market - provides access to a standard modules and parameters as defined in SAE-J1979/ISO-15031. Access the status of the various vehicle sub-systems to provide real-time data in addition to a standardized series of diagnostic trouble codes which allows you to rapidly identity malfunctions within the vehicle.

VISION OBD II toolkit includes four OBDII specific Screen Objects: OBD II Vehicle Info, Freeze Frame Monitor, OBD II Monitor/Test, and OBD II DTC Monitor.

OBD Monitor has the ability to Auto-detect OBDII compliant ECUs.

Device	Status	Data Rate	Description
Computer	Online		This computer running the ATI VISION software
USB	Online	54945 bps	Universal Serial Bus Port on this computer
ATIcan	Online	54945 bps	ATI Leaf Light HS v2 #1 Channel #1 at 500 kBits/s
OBDIIMonitor	Online		OBDII Monitor Device
ECU1	Online		OBDII-ECU (Req: 0x7E0, Resp: 0x7E8)
ECU2	Online		OBDII-ECU (Req: 0x7E1, Resp: 0x7E9)
ECU3	Online		OBDII-ECU (Req: 0x7E2, Resp: 0x7EA)

```
:04:45:259  Auto-adding unresolved ECU at address 0x7E8. ...
:04:45:271  Detected ECU #0 at address 0x7E8.
:04:45:278  Supported PIDS for ECU 0x7E8: 0x01 0x03 0x04 0x05 0x06 0x07 0x08 0x09 0x0
:04:45:278  O2 Sensor Locations for ECU 0x7E8: b1s1 b1s2 b2s1 b2s2
:04:45:288  Supported InfoTypes for ECU 0x7E8: 0x02 0x04 0x06 0x08
:04:45:308  Supported Monitors for ECU 0x7E8: 0x01 0x02 0x05 0x06 0x20 0x21 0x22 0x40
```
General Log

ECU	Frame	DTC	PID	M
ECU1	0	P0113	01.07	M
ECU1	0	P0113	01.08	M
ECU1	0	P0113	01.09	F
ECU1	0	P0113	01.0A	C
ECU1	0	P0113	01.0B	C
ECU1	0	P0113	01.0C	M
ECU1	0	P0113	01.0D	F
ECU1	0	P0113	01.0E	C
ECU1	0	P0113	01.10	C

The freeze frame displays the PID or parameter ID values when the diagnostic trouble code (DTC) was triggered

OBD II Vehicle Info

The OBDII Vehicle Info Screen Object has four tabs providing the following ECU services:

**Supported PIDs** - A detailed list of PID number and names that are available from each of the connected ECUs.
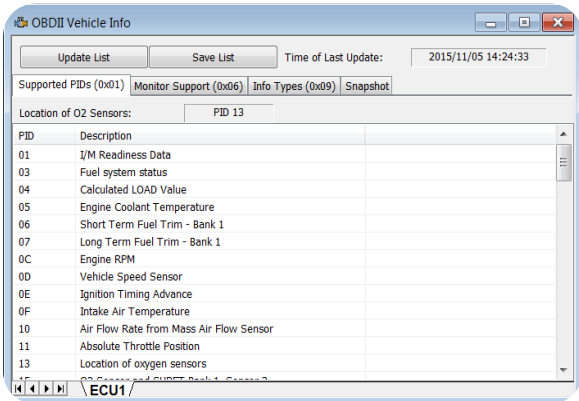
Monitor Support 0x06 (PID 00) - A detailed list of the OBDII monitor number and names from each of the connected ECUs.

**Info Types 0x09** - A detailed list of static vehicle information.
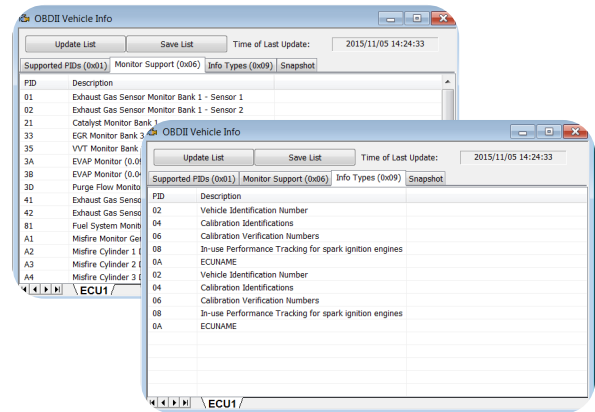
Snapshots - Displays all OBDII data encompassing all supported OBDII Services to assemble a list of all supported Service sub-functions and the instantaneous data values for each sub-function. The listed data is grouped by Service and includes a time-stamp from the last data refresh.
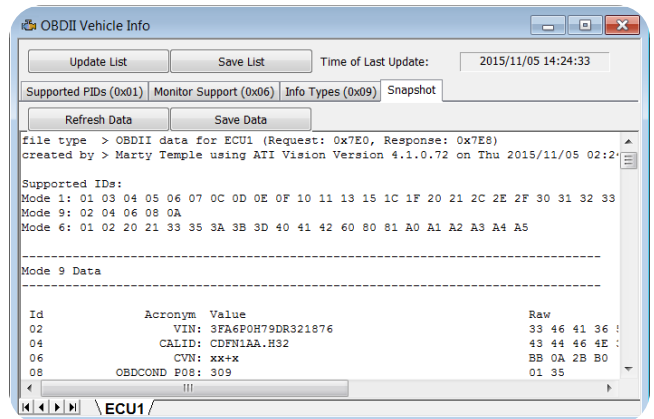
Freeze Frame Monitor

The OBDII Freeze Frame Monitor Screen Object will handle Service 0x02 as defined in J1979/ISO15031. This Screen Object is similar to a Data List, but has columns specific to the Service 0x02 response data.
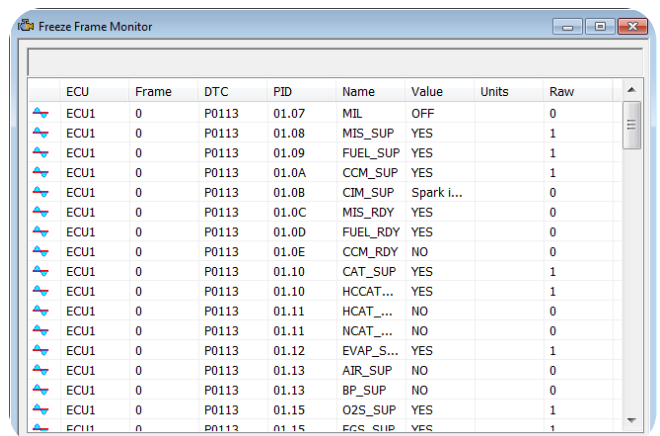
OBD II Monitor/Test

The OBDII OBD Monitor/Test Screen Object will handle Service 0x06 as defined in J1979/ISO15031. This Screen Object is similar to a Data List, but has columns specific to the Service 0x06 response data.

OBD II DTC Monitor

The OBD II DTC Monitor Screen Object is used to monitor and display the DTC's in three charts: Stored DTCs (0x03), Pending DTCs (0x07), and Permanent DTCs (0x0A). All three sections contain the same columns:

- Time - PC time when code was pulled
- ECU - The ECU containing the fault code
- DTC - Fault Code number
- Description - Description of the generated fault code

CAN OBDII Diagnostic Service Support

OBDII Diagnostic Services		VISION Screen Objects
0x01	Powertrain Diagnostic Data	✓
0x02	Powertrain Freeze Frame Data	✓
0x03	Emission Related DTCs	✓
0x04	Clear Emission Related DTCs	✓
0x06	On-Board Monitoring Test Results	✓
0x07	Recent Emission-Related DTCs	✓
0x09	Vehicle Information	✓
0x0A	Permanent Emission-Related DTCs	✓

OBDII Diagnostics Toolkits

Part Number	Name	Description
Toolkits		
152-0033	VISION CAN OBD Toolkit	✓ Enables OBD device. ✓ Enables the acquisition of OBD based data. ✓ Enables all of the OBD screen objects, including those to configure the data acquisition of the OBD device.

VISION Enhanced Diagnostics
Access to advanced vehicle on-board diagnostic capabilities

VISION Diagnostics is the combination of the CAN OBDII Toolkit and the Enhanced Diagnostics Toolkit (EDT). This provides VISION with integrated support for legislated OBD functionality and advanced features available in World-Wide Harmonized On-Board Diagnostics (WWH-OBD).

- Full integration with VISION's Data Item Manager, screen controls, and recorders to optimize workflow.
- Simplify data collection and analysis by combining Measurement, Calibration and Diagnostics data onto a single recording.
- Auto-detect connected ECUs for quick discovery and connectivity. Manual overrides for custom applications.
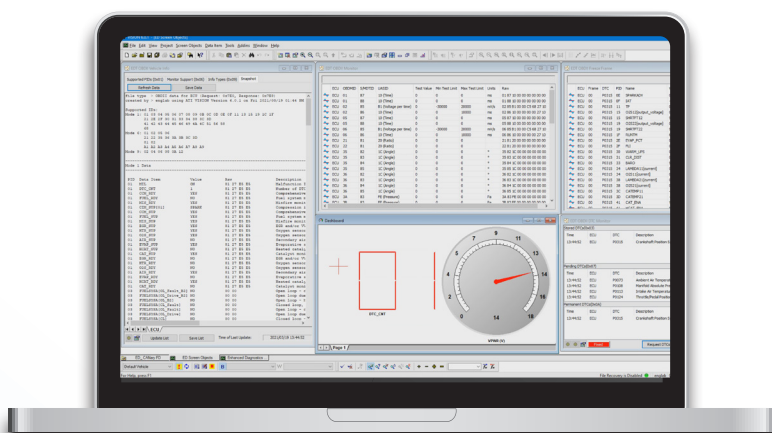
EDT extends VISION's diagnostic capabilities to include ISO-14229 diagnostic services. These services can be accessed using the feature rich API. In addition to reading and clearing codes, EDT allows users to gain access to extended trouble code descriptions and help information (when available), plus access to hundreds of additional parameters that can viewed in real-time.

More Features:
- Expand the number of available diagnostic data items by using a compatible ODX.
- Acquire data using UDS Periodic Transmission (service 0x2A) to increase DAQ throughput dramatically.
- Customer specific diagnostic features can be easily implemented using the extensive service and sub-functions available through XML-based Diagnostics via VISION's COM API
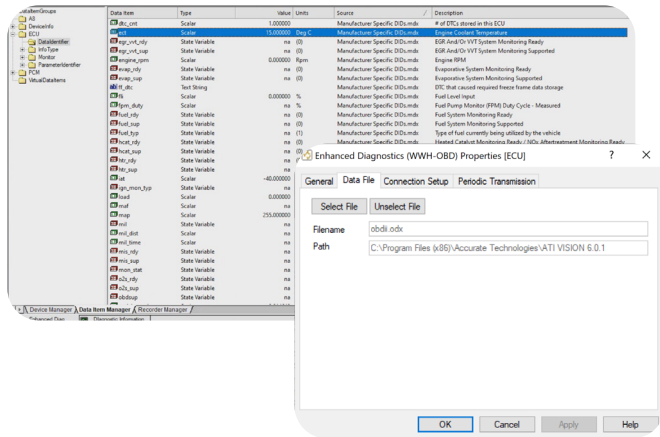- Comprehensive API documentation, quick-start guide, and SDK with example source code

Comprehensive API documentation, quick-start guide, and SDK with example source code

Enhanced Diagnostic Service Support

UDS Diagnostic Services		CAN OBDII	VISION Screen Objects	Supported by API
0x01	Powertrain Diagnostic Data	✓	✓	✓
0x02	Powertrain Freeze Frame Data	✓	✓	✓
0x03	Emission Related DTCs	✓	✓	✓
0x04	Clear Emission Related DTCs	✓	✓	✓
0x06	On-Board Monitoring Test Results	✓	✓	✓
0x07	Recent Emission-Related DTCs	✓	✓	✓
0x08	Control of On-Board System			✓
0x09	Vehicle Information	✓	✓	✓
0x0A	Permanent Emission-Related DTCs	✓	✓	✓
0x10	Diagnostic Session Control			✓
0x11	ECU Reset			✓
0x14	Clear Diagnostic Information			✓
0x19	Read DTC Information			✓
0x22	Read Data by Identifier			✓
0x23	Read Memory by Address			✓
0x24	Read Scaling Data by Identifier			✓
0x27	Security Access			✓
0x2C	Dynamically Define Data Identifier			✓
0x2E	Write Data by Identifier			✓
0x2F	Input/Output Control by Identifier			✓
0x2A	Read Data by Periodic Identifier		✓	
0x31	Routine Control			✓
0x3D	Write Memory by Address			✓
0x3E	Tester Present			✓
0x85	Control DTC Setting			✓

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DATA ACQUISITION ECU CALIBRATION ECU RAPID PROTOTYPING ECU INTERFACES CAN BUS PRODUCTS NETWORK SOLUTIONS TEST CELL MEASUREMENT

MEASURE • CALIBRATE • DEVELOP • OPTIMIZE • SUCCEED