

Scan-Tool types, definitions and descriptions.

- **Scan-tool**

Scan tools come in many shapes, sizes, configurations and capabilities. They are connected to a vehicle Diagnostic Link connector also known as OBD port by a cable or a wireless dongle. These can be simple code readers to enhanced aftermarket tools that include programming, coding, and calibration capabilities equal to manufacturer OE tools. OEM scan tools are limited to the manufacturer of origin, but have the complete suite of capabilities. Scan tools also come in a variety of hardware and software configurations including PC or laptop based tools connected with a vehicle interface to hand held tools with built in interfaces and software.

- **Application Based Scan-Tool (software with communication interface)**

This is a laptop, PC, or tablet based software package that utilizes the computing resources of the device and is connected to a vehicle via a USB, Blue-Tooth, Wi-Fi, interface (API) (VCI) to a vehicle diagnostic connector. Both OEM and aftermarket scan tools are available in this configuration. Functionality is dependent on the scan-tool software and the interface.

- **Hand Held Scan-Tool**

This is a scan tool that has a built-in vehicle interface, software and operating system in one handled device

- **J2534-1**

J2534 is a standard designed by SAE (Society of Automotive Engineers) and mandated by the US EPA (Environmental Protection Agency) for vehicle ECU reprogramming. Its purpose is to create an API (Application Programming Interface) and software standards to be adopted by all vehicle manufacturers, allowing the Independent Aftermarket (IAM) the ability to reprogram ECU's without the need for a special dealer-only tool.

- Most aftermarket scan tools do not include this with the scan tool, but can be available as a separate or built in component for programming purposes.
- Modules with security related functions (Anti-theft systems imbedded) will require licensed security identification (LSID) through the Secure data release model (SDRM) see <http://www.nastf.org/i4a/pages/index.cfm?pageid=3532> for detailed information

- **J2534-2**

This is an extension of j2534-1, using the same vehicle communication standards as module programming with the added full functionality of OEM scan tool application software. Using this standard with OEM software is the same scan tool software used by OEM franchised dealers. See www.NASTF.org for more information on OEMs using this functionality for OEM scan tool software.

- Access to the scan tool software functions are purchased directly from the OEM provider
- Subscriptions can be short or long term (1 day to 1 year) options are dictated by each OEM provider.

1. OEM Scan Tool

A scan tool or scan tool application (Program) that is designed and tested by an OEM for their vehicles. Coverage is limited to the manufacture the scan tool is developed for.

- Limited vehicle coverage specific to manufacturer (FCA, GM, Ford Motor company, Toyota/Lexus/Scion, BMW/Mini, Honda/Acura, Etc.)
- Complete module and function coverage within Manufacture (There are a few exceptions)

- More than one tool version may be needed per manufacture as some late models and earlier models use different scan tool platforms. (GM tech 2 and GDS2)
- Tool and software development is commonly contracted to separate scan tool companies.
- Contains latest available coverage released and/or validated by OEM Manufactures.
- Tool functions are validated By OEM manufacturer
- Tool functions, capabilities and user functions vary among manufacturers
- Updates released frequently as functions are improved for newest vehicle models
- Updates must be monitored and performed by user
- Availability and cost to aftermarket can be prohibitive for some manufacturers
- Some OEM tool subscriptions include service information access separately from tool

2. Aftermarket Scan Tools

A scan tool that is developed and marketed outside of OEM manufacture and dealer control. Aftermarket scan tools vary from the most basic to highly complex and specialized. Scan-tool functionality is dependent on the software packages developed and purchased from the tool provider. Some aftermarket scan tools contain advanced procedures and functions for advanced diagnostics, coding, calibrations equal to or exceeding manufacturer OE tools

A. Top Tier Aftermarket Scan tool

- This contains software and coverage for the systems found in today's vehicles, Model year coverage is typically 6 months within current model year
- Can be specific or limited to certain manufacturer groups (Domestic, Asian, European)
- Updates are typically available quarterly with some available more frequently.
- Includes codes and data for Chassis, Body and Powertrain
- Enhanced manufacture specific codes and data are available for most common systems. (Engine, Transmission, ABS, Air Bag, and many Body controls.)
- Coverage and capabilities vary depending on tool maker preference and/or software packages purchased by customer
- Contains most or all scan tool based calibration procedures such as; occupant detection, steering angle, yaw rate, active lighting, ADAS, etc.

B. Advanced Aftermarket Scan tool

This contains software and coverage for the most common systems found in today's vehicles, Model year coverage is typically 2- years behind current model year

- Can be specific and limited to certain manufacturer groups (Domestic, Asian, European)
- Updates are typically released annually
- Includes codes and data for Chassis, Body and Powertrain
- Enhanced manufacture specific codes and data are available for most common systems. (*Engine, Transmission, ABS, Air Bag, and many Body controls.*)
- Coverage and capabilities vary depending on tool maker preference and/or software packages purchased by customer
- Contains many scan tool based calibration procedures such as; occupant detection, steering angle, yaw rate, active lighting

C. Mid-Level Enhanced Aftermarket scan-tool

This contains software and coverage for the most common systems found in today's vehicles, Model year coverage is typically 2- years behind current model year

- Can be specific and limited to certain manufacturer groups (Domestic, Asian, European)
- Updates are typically released annually
- Includes codes and data for Chassis, Body and Powertrain
- Enhanced manufacture specific codes and data are available for the most common systems. (*Engine, Transmission, ABS, Air Bag, and many Body controls.*)
- Coverage and capabilities vary depending on tool maker preference and/or software packages purchased by customer
- May contain most common scan tool based calibration procedures such as; occupant detection, steering angle, Idle learn.

D. Enhanced OBD2 scan-tool

This include manufacture specific powertrain system codes and additional data streams that are not available with generic. Manufacture coverage is dependent on the software level available or purchased form the tool provider.

- Reads engine emission related generic trouble codes
- Clears engine emission related generic trouble codes
- Some can show if emissions monitors have passed.
- Some include Freeze Frame data for emission related codes

E. Basic OBD2 with data stream

Has the ability to read live generic engine data such as RPM, vehicle speed, O2 sensor data.

- Reads engine emission related generic trouble codes
- Clears engine emission related generic trouble codes
- Some can show if emissions monitors have passed.
- Some include Freeze Frame data for emission related codes

F. Basic OBD2 code reader

A scan tool that is equipped with only the basic emission controls capabilities to read and clear trouble within generic powertrain system only that are mandated by EPA regulations. (Engine and some Transmission)

- Reads engine related generic trouble codes
- Clears engine related generic trouble codes
- Some can show if emissions monitors have passed.