



Service Manager Bulletin

TITLE:

Workshop Systems Requirements and Guidelines Peer-to-Peer Infrastructure

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"Right first time in Time"

- All computers running VIDA shall meet the minimum specifications:

Processor	Core i3 or better	
Memory	4 GB or more	
Free local disk space	10 GB	
Connections	2 x USB 2.0 or later	
Operating system	Windows 7 Professional/Enterprise (64 bits) or Windows 8.1 Professional (64 bits)	
Browser	Microsoft Internet Explorer 10	
File system	NTFS	
Screen resolution	Screen format	
	16:9 (5*)	1280 x 720
	16:10 (5*)	1280 x 800

- Retailer must have a minimum of 5 Mbp/s per client of available internet bandwidth.
- Retailer must have a configured NAS network storage device of at least (1) Terabyte to store vehicle software.



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1 INTRODUCTION

This document describes the technical specifications and standards that need to be incorporated in workshops for running VIDA, TIE and other workshop applications in 2015.

In VIDA, the vehicle communication methods differ depending on what diagnostic protocol a vehicle model is using. Also, the diagnostic protocols provide different possibilities in terms of how the vehicle model can be diagnosed in VIDA. There are two main groups of vehicles in VIDA, based on vehicle communication methods:

- VDS (Volvo Diagnostic and Software) protocol-based vehicle models (used in all vehicles on the new electrical platform, starting with XC90 model year 2016).
- D2 and GGD protocol-based vehicle models (used by all vehicles on all other existing platforms).

VDS protocol-based vehicles support diagnostics by Ethernet cable. This delivers faster communication and a simplified connection procedure compared to previous vehicle communication methods.

The new VIDA application will meet the requirement of the new VDS protocol-based vehicle models as well as for current available D2 and GGD protocol-based vehicle models. Eventually the current version of VIDA will cease to be supported.

Peer to Peer Infrastructure is terminology that describes the tethering or physical connections made between the vehicle and the computer. With the first release of the XC90, this will be the connection type you will use to communicate with the vehicle. Eventually communication will be achieved through a wireless, Bluetooth connection.

A separate communication will be released explaining the wi-fi requirements.



2 VIDA IN 2015

VDS protocol-based vehicles set to launch in 2015 will support diagnostics over Ethernet. An enhanced version of VIDA will be launched in parallel and will let the workshops work with VDS protocol-based vehicles and other existing models from Volvo Cars.

Connecting VDS protocol-based vehicles to VIDA will be done via peer-to-peer connection, using Ethernet cables between VIDA workstations and vehicles.



3 REQUIREMENT DETAILS

3.1 VIDA requirements

The following are the mandatory infrastructure components for VIDA:

- Windows 7 Pro/Enterprise or Windows 8.1 Pro
VIDA workstations need Windows 7 Pro/Enterprise or Windows 8.1 Pro as operating system.
- Internet connection
An internet connection must be available at all workshops (see Volvo Cars Dealer Standards Document for internet bandwidth requirement details). The internet connection is used for the communication between the VIDA workstations and the VIDA central servers.
- Network storage of 1 TB (terabyte)
A network storage area of at least 1 TB is needed per customer organization (Partner ID) to locally cache and store the VIDA data. This should be made available either as a NAS drive or a shared folder - accessible to all VIDA workstations in the workshop.
The main features to be considered when selecting a NAS storage appliance include:
 - **Redundant data backup.** Ideally, you should be able to set up your NAS storage appliance as a RAID system. For example, in a RAID1 configuration, the same data is simultaneously stored on two hard drives. If one drive crashes, the data is still accessible from the second.
 - **Fast data backup/restoration.** For maximum performance, your NAS storage appliance should support the Gigabit Ethernet interface.
 - **Lockability.** For extra data security, get an NAS storage appliance with a lockable front panel, to prevent theft or tampering or secure the appliance in a locked cabinet or closet.
 - **Small size and quiet operation.** Some network storage appliances are small enough to fit on a shelf. Ideally, look for a quiet appliance that will not disturb nearby workers.
 - **Automatic file encryption/decryption.** This feature protects data if a hard drive within the NAS system is stolen. For robust security, look for an NAS solution offering 256-bit AES file encryption. This option is recommended but not mandatory.
- Smartphone for mobile internet and fault tracing
The vehicles need mobile internet access in workshops for the purpose of loading in-car apps, in the same way as the customers would provide internet to their vehicles. Mobile internet is normally supplied to the vehicles by means of a smartphone connected to the vehicles using USB, Bluetooth or Wi-Fi technology (by setting up a Wi-Fi hotspot). USB dongles with 3G/4G-dongles cannot be used. Hence, the workshop will need a smartphone for fault tracing of connectivity related issues in order to be able to repeat what the customers would do.
Also VIDA needs mobile internet in the case of mobile fault tracing (e.g. while driving the vehicle), where the same smartphone could be utilized. Alternatively a USB dongle could be used for a VIDA workstation.



A smartphone is therefore a minimum requirement for mobile internet for dealers. The smartphone shall have USB and Bluetooth tethering capabilities and shall have Wi-Fi hotspot feature for internet sharing. Android is recommended as operating system due to future dealer tools deployed as Android apps.

3.1.1 Recommended specifications for VIDA workstation

It is the recommendation of Volvo Cars Customer Service that computer equipment bought for VIDA, should be possible to upgrade. If it is necessary to increase computer performance, it should be possible to increase RAM and replace hard drives easily. Furthermore, purchasing more memory will result in better performance since the use of virtual memory is minimized.

VIDA is delivered as a desktop application. Users of VIDA on Web and VIDA All-in-one will need to execute an installer package that installs the necessary software components in their workstations.

For using the full version of VIDA, including diagnostics and software download, the workstation requirements are as presented in the table below.

Item	Recommended specification for VIDA used for diagnostics and SWDL	
Processor	Core i3 and above ¹	
Memory	4 GB or more	
Local free disc space	10 GB ²	
Connections	2 x USB 2.0 or higher ³	
Operating System	Windows 7 Professional/Enterprise (64 bit) or Windows 8.1 Professional (64 bit) ⁴	
File system	NTFS	
Display resolution	Aspect ratio	Minimum resolution
	16:9 ⁵	1280 x 720
	16:10	1280 x 800
Network	Additional Ethernet/Wireless network adapters are required for each VIDA workstation to enable direct connectivity to the car. It can be a PCI network card or a USB Ethernet adapter ⁶	

¹Processors are frequently changed. These are examples of what to use.

²This is the disc space that should be available before VIDA is installed. The recommendation is based on the increase of used disk space over three years. If you have other applications (including existing VIDA All-in-one), allow extra space for these according to their requirements.



³Additional USBs may be needed for other equipment, such as mouse and keyboard.

⁴Windows Update must be enabled and all available updates from Microsoft need to be installed.

⁵ The application screen is optimized for wide screen format. However, the application design is "fluid" based, i.e. the application screen stretches to completely occupy available screen space. This makes it possible to use smaller screens but bear in mind that it can be difficult to read wiring diagrams and other features that contain a lot of information.

⁶ When connecting to a VDS based vehicle utilizing the cat5 peer-to-peer connection the computer will need another network connection for Internet connectivity. One for connectivity to the vehicle another for Internet connection.

3.2 Ethernet connectivity requirements

VDS protocol-based vehicles can be connected directly to a VIDA workstation with a standard Ethernet cable using network connectors for a peer-to-peer connection for diagnostics and software download. The following components are required:

Strongly recommended components

- Ethernet network input for each VIDA workstation. It can either be a PCI network card or a USB Ethernet adapter.
- Ethernet cable type CAT5, CAT5e or CAT6 (not a Volvo special tool).

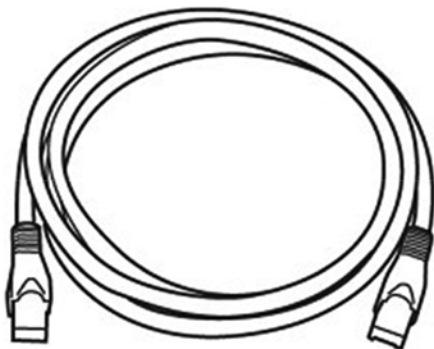


Fig. 1 Ethernet cable



- VOE (Volvo OBD to Ethernet) adapters, Volvo special tool number 9513062. This component is strongly recommended since compared to DiCE or a J2534 devices it provides:
 - Significantly faster communication, especially for software downloads.
 - A simplified connection procedure.
 - Fewer parts that can break.
 - Only a standard Ethernet cable and an adapter is needed to connect a vehicle).



Fig. 2 VOE adapter

- An Ethernet cable tester (not a Volvo special tool).

Optional components

- USB Ethernet adapters (not a Volvo special tool) for peer-to-peer connected VIDA workstations where the Ethernet ports are already in use.

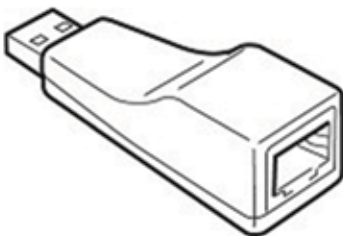
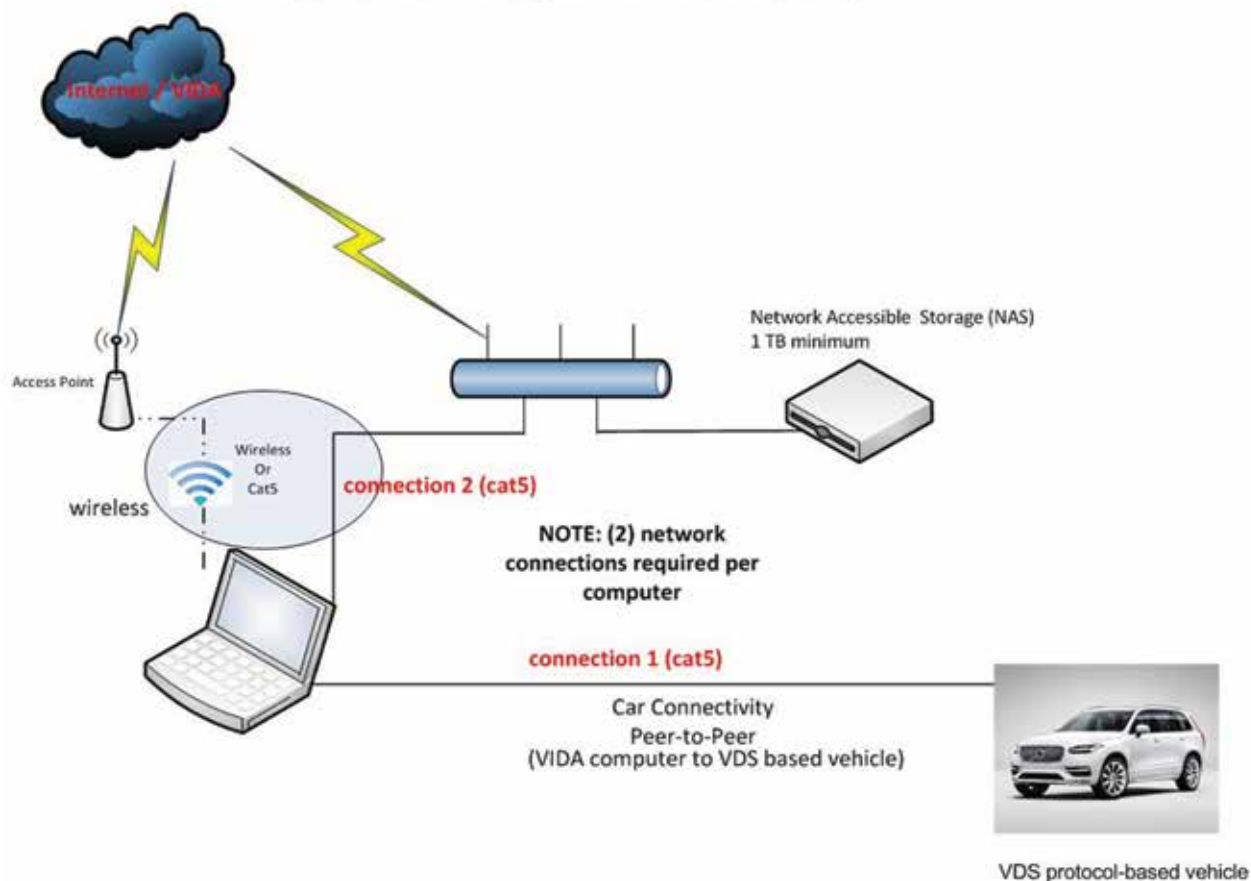


Fig. 3 USB Ethernet adapter



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PEER-TO-PEER INFRASTRUCTURE





4 ELECTRONIC WIRING DIAGRAM

Electronic Wiring Diagrams (EWDs) are accessible through VIDA.



5 TIE

TIE is used to report errors/discrepancies and to distribute information. To access TIE, Microsoft Internet Explorer 10 is required. Independent repairers have access to the same information via the pdf viewing library on volvotechinfo.com



6 CONFIGURATION SPECIFICATIONS

6.1 Network specifications

The network related changes specifications are specified below.

Central systems

If a firewall is used, make sure that port 80 for http and port 443 for https are open.

Network cable type

Twisted-pair cables (CAT5, CAT5e, CAT6) shall be used for network connectivity.

Universal Resource Locators

VIDA will use several URLs - all will be on *.volvocars.biz. Make sure that *.volvocars.biz is not blocked by a proxy or firewall.

Service	URL	Port
VIDA Installation Package	http://vidainstaller.volvocars.biz/client-installer	80
VIDA Production	http://vida-prod.volvocars.biz	80
VIDA Admin	http://vidaca.volvocars.biz/AdministrationWeb	80
TIE	https://tie.volvocars.biz	443

6.2 Additional software requirements

There are different plug-ins that are needed for VIDA to work properly, these are described below.

6.2.1 IsoView

IsoView is an image viewing plug-in, automatically started together with VIDA. IsoView is included in the VIDA installation and there is no additional license fee.

6.2.2 Adobe Acrobat Reader

Adobe Acrobat Reader is included in the VIDA installation.

6.2.3 Microsoft Windows user account

In order to install VIDA, the Microsoft Windows user account has to be set to administrator.



NOTE

It is not possible to run VIDA logged in to the operating system with a guest account. Try to avoid having a domain policy that will override the normal rights for the supported user accounts. Some restrictions might make VIDA not work. For example a user must have right to change the registry since VIDA requires that when adding a DiCE. It is strongly recommended that all VIDA users log in as administrators with full admin rights.



6.3 Vehicle communication tools



NOTE

Vehicle communication tools are used to perform diagnostic readouts, diagnostic fault tracing and software downloads on D2 and GGD protocol-based vehicles. For VDS protocol-based vehicles, VIDA will eventually not need to be connected to the vehicle through a communication tool.

A vehicle communication tool transfers data from a VIDA workstation to the correct receiver in the vehicle.

VIDA supports DiCE and J2534 devices. Volvo Car Corporation recommends DiCE for vehicle communication with D2 and GGD protocol-based vehicles.

6.3.1 DiCE

DiCE uses a Bluetooth connection to transfer information between VIDA and the vehicle. A USB cable can be used as an alternative to the Bluetooth connection.

Please note that no third party Bluetooth dongles can be used with DiCE, only Volvo Cars DiCE equipment can be used.

Multiple DiCEs

It is possible to connect more than one DiCE to VIDA and download software to as many as three vehicles in parallel and have one vehicle in the diagnostic workflow at the same time. One VIDA workstation with four DiCEs can thus handle four vehicles simultaneously.

6.3.2 J2534 devices

For all vehicles with model year 2004 and later, equipped with OBD and reprogramming capability, manufacturers shall comply with SAE J2534. There are two different versions of J2534:

- J2534-1 can be used to download software to vehicles from, and including, model year 2004. J2534-1 manages software to control modules on CAN HS (Controller Area Network High Speed) that are emission related. J2534-1 cannot be used for diagnostics.
- J2534-2 manages software download to control modules on both CAN HS and CAN MS (Controller Area Network Middle Speed).

The hardware used to validate VIDA's compliance with J2534 can be purchased separately from third-party suppliers. Validation has been done using the following J2534 pass-thru devices:

- J2534-1: Actia Passthru+ XS and CarDAQ2534.
- J2534-2s: CarDAQ Plus.

For more information regarding these devices, please contact the respective manufacturer.



7 ADMINISTRATION

7.1 High availability

It is recommended that all the network devices and servers should be configured in high availability mode.

It is highly recommended to have redundant internet connectivity for high availability. Independent operators should consider having internet connectivity from multiple service providers to maintain high availability.

It is also recommended to have redundant power supply for the network devices and servers.

7.2 Endpoint security

Licensed and regularly updated version of antivirus software should be used to protect all servers and workstations.

7.3 Patch management

Security patches (Microsoft or non-Microsoft) should be applied on workstations, servers and non-windows systems on monthly/quarterly basis as applicable.

Questions and Support

For US and Canadian retailers all questions related to this document should be directed to the Volvo Support Center.

Independent retailers should submit a help request via www.volvotechinfo.com



8 APPENDICES

8.1 Vendor reference for NAS storage

The below list presents recommended, but not mandatory vendors. It is the specifications that need to be met.

- Synology
- Lacie
- Seagate
- Netgear
- NetApp
- Hitachi
- IBM
- HP
- Dell
- EMC



9 ABBREVIATIONS

CAT	- Category (cable)
CAN HS	- Controller Area Network High Speed
CAN MS	- Controller Area Network Middle Speed
D2	- Volvo Diagnostics II
DiCE	- Diagnostic Communication Equipment
GGD	- Generic Global Diagnostic Specification
NAS	- Network Attached Storage
NTFS	- New Technology File System
OBD	- On Board Diagnosis
PCI	- Peripheral Component Interconnect
RAM	- Random Access Memory
SWDL	- Software download
TBD	- To Be Decided
TIE	- Technical Information Exchange
USB	- Universal Serial Bus
URL	- Universal Resource Locator
VDS	- Volvo Diagnostics and Software download
VIDA	- Vehicle Information and Diagnostics for Aftersales



10 HISTORY LOG

10.1 320US01

Document created.

10.2 320US02

The Introduction chapter has been updated.

The dates in the Timeline chapter have been updated.

The Recommended specifications for VIDA workstation have been updated.

The Ethernet connectivity requirements chapter has been updated with new requirements and recommendations.

The table of URLs in the Network specifications chapter has been updated.

Some term e.g. "SPA vehicles" and "point-to-point" have been revised.

New images have been added and existing images have been updated with minor adjustments and corrections.

Additional minor adjustments have been made throughout the document.



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