



**General Motors
Dealer Infrastructure Guidelines
Service Department
v. 2012.01**



Section 1: Guidelines Summary and Notes

GM has adopted these infrastructure guidelines for the dealership's internal network environment in accordance with Article 5.6 of the Dealer Sales and Service Agreement. These guidelines are designed to ensure a seamless and reliable conduit for GM to dealer data communications.

The infrastructure guidelines are organized as follows:

Recommended – the systems infrastructure components that will deliver performance and security while seeking to maximize the lifecycle of the investment

Minimum – the lowest acceptable systems infrastructure for conducting business with GM

The recommended and minimum guidelines apply to PC systems as well. Specific, detailed information appears in each section of the document.

Please Note the Following:

Dealerships may choose processor speeds, memory capacities, audio adapters and hard drive capacities which exceed the recommended specifications based on needs and product availability.

General Motors **does not** support the following:

- AMD, Celeron or Pentium IV or lower processors or consumer grade hardware. Techline does not support Windows XP or Windows XP Mode / Windows Virtual PC on Windows 7 Professional or other variations of operating software. Techline does not support Internet Explorer (IE) 9, 64 bit version of Java, custom built, non-branded or thin client PCs.

General Motors **does** support the following:

- Intel Dual Core, Intel Core 2 duo / quad, Intel i3 / i5 / i7, Business grade hardware, Windows 7 Professional 32 bit and 64 bit and Vista Business 32 bit SP1.

For Service Programming (SPS) purposes, a dealership may be asked to purchase a USB drive to perform programming on a Radio/Navigation or Instrument Panel Cluster (IPC) system.

The following specification should be used when purchasing the USB drive:

- USB 2.0 compliant flash drive 512 MB or greater

Techline application updates require Windows Administrative access.

General Motors estimates the life cycle of a Desktop PC, Laptop or Notebook on average is three (3) years.

Techline recommends one (1) PC for every two (2) technicians and one (1) MDI for every Techline PC.

Section 2:

DESKTOP PC

Recommended: Guidelines for purchasing new hardware	Service Department
Processor	Intel Core 2 Duo 2.5 GHz and above
System Memory (RAM)	2 GB or more
Hard Disk Drive	160 GB or more
CD / DVD Drive	CD/DVD Combo
Serial Port	1 (optional USB convertor)
USB Ports	2 or more
Audio Adapter	16 Bit
Audio Speaker	Required
Video	1024 x 768 resolution, 32 bit color, 128 MB video memory
Display	17 inch SVGA
Network Adapter	Ethernet based 100/1000Mbps (100/1000BasedT) Optional wireless WAN802.11g
Warranty	3 year onsite
Operating System	Windows 7 Professional, 32 bit or 64 bit
Printer	Networked Laser Printer

Certified Service Dept. Models:

HP: Compaq 8000 Elite Ultra-slim Series and 6000 Small Form Factor Series

Dell: OptiPlex 380 and 780 Series

The following provides what General Motors considers the minimum requirements to run dealership applications. Do not reference the minimum specification when purchasing a new PC, but rather use it as a comparison for hardware being transitioned from one department to another.

Minimum: Do Not Reference For New Hardware Purchase	Service Department
Processor	Intel Dual Core
System Memory (RAM)	2 GB
Hard Disk Drive	160 GB
CD / DVD Drive	CD / DVD Combo
Serial Port	1
USB Ports	2
Audio Adapter	16 Bit
Audio Speaker	Required
Video	1024 x 768 resolution, 32 bit color, 128 MB video memory
Display	17 inch SVGA
Network Adapter	Ethernet based 100 Mbps (100BaseT)
Operating System	Vista Business, 32 bit SP 1
Printer	Black and White Laser

LAPTOP PC

Recommended: Guidelines for purchasing new hardware	Service Department
Processor	Intel Core 2 Duo 2.4 GHz
System Memory (RAM)	2 GB or more
Hard Disk Drive	160 GB or more
CD / DVD Drive	CD / DVD Combo
Serial Port	1 (optional USB convertor)
USB Ports	2
Audio Adapter	16 Bit
Audio Speaker	Required
Video	1024 x 768 resolution, 32 bit color, 128 MB video memory
Display	15.4 inch display
Network Adapter	Ethernet based 100 Mbps (100BaseT) Wireless 802.11g
Warranty	3 year onsite
Operating System	Windows 7 Professional, 32 bit or 64 bit

Certified Service Dept. Models:

HP: Elitebook 2500p Series, Probook 6500b Series, Probook 6400b Series, Elitebook 8400p Series and Probook 5330m
 Dell: Latitude E5500 Series and Latitude E6400ATG Series
 Panasonic: Toughbook CF30 Series, CF52 Series and CF 53 Series

The following provides what General Motors considers the minimum requirements to run dealership applications. Do not reference the minimum specification when purchasing a new PC, but rather use it as a comparison for hardware being transitioned from one department to another.

Minimum: Do Not Reference For New Hardware Purchase	Service Department
Processor	Intel Dual Core
System Memory (RAM)	2 GB
Hard Disk Drive	80 GB
CD / DVD Drive	CD / DVD Combo
Serial Port	1 (optional USB convertor)
USB Ports	2
Audio Adapter	16 Bit
Audio Speaker	Required
Video	1024 x 768 resolution, 32 bit color, 128 MB video memory
Display	15.4 inch display
Network Adapter	Ethernet based 100 Mbps (100BaseT) Wireless 802.11g
Operating System	Vista Business, 32 bit SP 1

TABLET LAPTOP PC

Recommended: Guidelines for purchasing new hardware	Service Department
Processor	Intel Core 2 Duo 2.4 GHz
System Memory (RAM)	2 GB or more
Hard Disk Drive	160 GB or more
CD / DVD Drive	CD / DVD Combo
Serial Port	1 (optional USB convertor)
USB Ports	2
Video	1024 x 768 resolution, 32 bit color, 128 MB video memory
Display	12.1 inch TFT XGA
Network Adapter	Wireless 802.11g
Warranty	3 year onsite
Operating System	Windows 7 Professional, 32 bit and 64 bit

Certified Service Dept. Models:

HP: Elitebook 2700p Series

Dell: Latitude XT and XT2 models

Panasonic: CF19 Series

The following provides what General Motors considers the minimum requirements to run dealership applications. Do not reference the minimum specification when purchasing a new PC, but rather use it as a comparison for hardware being transitioned from one department to another

Minimum: Do Not Reference For New Hardware Purchase	Service Department
Processor	Intel Dual Core
System Memory (RAM)	2 GB RAM
Hard Disk Drive	80 GB
CD / DVD Drive	CD / DVD Combo
Serial Port	1 (optional USB convertor)
USB Ports	2
Video	1024 x 768 resolution, 32 bit color, 128 MB video memory
Display	12.1 inch TFT XGA
Network Adapter	Ethernet based 100 Mbps (100BaseT) Wireless 802.11g
Operating System	Vista Business, 32 bit SP 1

The Tablet Laptop runs Windows 7 for its operating system. This is not to be confused with other Tablets that run alternative operating system i.e., Android and Mac operating systems. These tablets will not be supported by Techline at this time.

GM EPC (Electronic Parts Catalog)

Hardware Requirements

Server and PC Standalone

Recommended: Guidelines for Purchasing new	Recommended <u>Server</u> Specs	Recommended <u>PC</u> Specs
Processor	Intel® Dual Core Xeon, or better	Intel® Core2Duo, or better
RAM	4 GB	4 GB
Free Disk Space	60 GB free disk space <ul style="list-style-type: none"> • 20 GB to install the catalog, • 40 GB for Q.link™ online updating. 	60 GB free disk space <ul style="list-style-type: none"> • 20 GB to install the catalog, • 40 GB for Q.link™ online updating
Operating System	Server 2000, Server 2003, and Server 2008 "Standard" and "Enterprise" editions.	XP, Vista, and Windows 7 "Professional" and "Enterprise" editions

Minimum: Do Not reference for new hardware purchase	Minimum <u>Server</u> Specs	Minimum <u>PC</u> Specs
Processor	Intel® 2 GHz Pentium D	Intel® 2 GHz Pentium D
RAM	2 GB	2 GB
Free Disk Space	60 GB free disk space <ul style="list-style-type: none"> • 20 GB to install the catalog, • 40 GB for Q.link™ online updating. 	60 GB free disk space <ul style="list-style-type: none"> • 20 GB to install the catalog, • 40 GB for Q.link™ online updating
Operating System	Server 2000, Server 2003, and Server 2008 "Standard" and "Enterprise" editions.	XP, Vista, and Windows 7 "Professional" and "Enterprise" editions

Free Disk Space specifications apply to the GMNA edition of the GM EPC.
Other editions may require more or less disk space.

PC SOFTWARE

	RECOMMENDED SPECS Guidelines for purchasing new software	MINIMUM SPECS Lowest acceptable infrastructure for systems already in use at the dealership
Word Processing	MS Word for Windows version 2007 (with current Service Pack)	MS Office Viewer
Spreadsheets	MS Excel for Windows version 2007 (with current Service Pack)	MS Office Viewer
Presentation	MS PowerPoint for Windows version 2007 (with current Service Pack)	MS Office Viewer
Web Browser	Internet Explorer, version IE8 (with current Service Pack) with the "Compatibility View" enabled	Internet Explorer, version IE7 (with current Service Pack)
Java	Current 32 bit version of Java J2SE™ Runtime Environment	Current 32 bit version of Java J2SE™ Runtime Environment
Reader	Current version of Adobe Acrobat, Full Version	Current version of Adobe Acrobat reader
System Recovery	Full Operating System Recovery Package. Ensure the PC manufacturer or reseller provides the necessary recovery software to restore the operating system in the event of a major software failure.	Full Operating System Recovery Package. Ensure the PC manufacturer or reseller provides the necessary recovery software to restore the operating system in the event of a major software failure.
Desktop Anti-Virus	Enterprise Desktop Anti-virus solution that is updated automatically and managed through a centralized console.	Enterprise Desktop Anti-virus solution that is updated automatically and managed through a centralized console.

LOCAL AREA NETWORK (LAN) CONFIGURATION

Local Area Network	Ethernet based 100/1000Mbps (100/1000BaseT)
Data Cabling	Category 5e
Equipment Location	LAN wiring should terminate, and equipment should be housed, in a wiring closet or communications room
IP Addressing	Dynamic addressing (DHCP) should be used to ease support
Network Adapter	100/1000Mbps
Traffic Switching	Managed switch
Routers	Business-grade router

WIRELESS NETWORK

	Recommended Specs Guidelines for implementing new systems	Minimum Specs Lowest acceptable infrastructure for systems already in use at the dealership
Network Standard	WPA2 Enterprise, 802.11i with RADIUS authentication	WPA2 PSK Compliant
Authentication & Encryption	WPA2 Enterprise, 802.11i with RADIUS authentication and AES Encryption	WPA2 Authentication w/ AES Encryption
Service Dept. Note:		

The MDI Tool currently does not support RADIUS authentication; however, it is still possible to implement WPA2 Enterprise (i.e. 802.1x/802.11i) and WPA2 pre-shared key on the same network. This can be accomplished through network segmentation. This allows for a more secure WPA2 Enterprise solution that incorporates RADIUS as an authentication mechanism.

Wireless Access Points:

GM supports business grade access points only and does not support Small Office/ Home Office equipment. All access points must adhere to the Guidelines specifications above. The following access points (or equivalent) are acceptable:

- Cisco Aironet 1100 B/G Access Point (PN # AIR-AP1121G-X-K9)
- Cisco Aironet 1130 A/B/G Access Point (PN # AIR-AP1131AG-X-K9)
- Cisco 1242 A/B/G Access Point (PN# AIR-AP1242AG-X-K9)
- HP ProCurve MSM310 A/B/G (PN J9374A)
- HP ProCurve MSM 320 A/B/G (PN # J9360A)
- HP ProCurve 420 B/G (PN # J8130B)
- HP ProCurve 530 A/B/G (PN # J8986A)

SECURITY

PC Virus Monitoring

Anti-Virus products should be installed on all PCs and configured to automatically perform the following:

- Download and install virus signature updates
- Actively monitor for viruses and
- Quarantine and eradicate infected files

Disaster or Attack Recovery

Essential dealership data should be backed up and verified regularly, using a backup utility or service that has the following capabilities:

- Offsite secured storage of media
- Regular daily backups

Data Network Security

Comply with all federal, state, local, and industry regulations for financial institutions, such as GLBA, PCI, etc.

Designate an employee (dealer direct possibly your PSC) to be in charge of security policies, procedures, and FTC required paperwork. The Gramm-Leach-Bliley Act (GLBA) requires that financial institutions regularly perform a Risk Assessment to identify foreseeable risks.

Security Information and Event Management: Proactive, real-time event monitoring that utilizes a SIEM (Security Information and Event Management) tool. The SIEM needs to be able to collect and collate the log data and security event data from the network in real-time, and be able to notify network administrator in the case of a security event. The purpose of a SIEM is to aid in identifying or preventing an intrusion into your network. Immediate response to a breach can greatly reduce or prevent data loss.

Note: Reactive management software is not to be confused with a proactive SIEM

Implement comprehensive security measures that include:

- Fully-managed security device that continually monitors threats through Intrusion Detection System "IDS" and Intrusion Prevention System "IPS" and other mechanisms.

Data Network Security (continued)

A firewall should include the functionality listed below.

- Filter packets and protocols
- Antivirus Scanning
- Perform stateful inspection of connections
- Perform proxy operations on selected applications
- Report traffic allowed and denied by the firewall on a regular basis (i.e. monthly)

The firewall should be able to filter packets based on the following characteristics:

- *Protocol, e.g. IP, ICMP
- Source and destination IP addresses
- Source and destination ports
- The appliance should perform real-time scanning of HTTP, SMTP, and FTP traffic for malware, spy ware, and other intrusions.

In addition, GM recommends web filtering and monitoring websites visited to block inappropriate or entertainment orientated websites that are the most dangerous source for inadvertently downloading malicious programs.

Protect each PC with unique passwords and a corporate anti-virus solution.

Timely, customized reporting on (IDS and IPS) activity Respond to all identified threats (form reporting) immediately.

For additional information on Network Security, please reference the following resources that provide industry laws, Standards, and recommendations:

PCI Security Standards: <https://www.pcisecuritystandards.org>
Gramm-Leach-Bliley Act: <http://www.ftc.gov/privacy/privacyinitiatives/glbact.html>
STARS Standard: <http://www.starstandard.org/>

INTERNET BANDWIDTH GUIDELINES

DEALER SIZE	GUIDELINE
SMALL (fewer than 200 units/yr)	512Kbps
MEDIUM (201-899 units/yr)	768Kbps
LARGE (900+ units/yr)	1.54Mbps+

Note: GM recommends that dealerships also maintain on-demand back-up Internet Connectivity.

Compliant Internet Connections

- Dedicated T-1 Line
- Dedicated Fractional T-1 Line (256k, 512Kbps, 768Kbps)
- Dedicated Symmetrical Digital Subscriber Line (SDSL) (512Kbps, 768Kbps, 1.54Mbps+)
- Business-grade Cable

Non-Compliant Internet Connections:

- Dial-up (any analog service)
- ADSL (Asymmetric Digital Subscriber Line)
- IDSL (ISDN (Integrated Systems Digital Network) Digital Subscriber Line)
- Wireless ("last mile" or "line of site", services that connect to your facility via wireless antenna)
- Satellite

Internet Notes

- Inefficient bandwidth may result in unreliable or slow performance and may negatively affect GM application speed and functionality.
- Internet speed and performance can be greatly impacted by virus, spyware and malware malicious infiltrations.
- Bandwidth dependant activities not related to dealer/GM communications can greatly impact Internet performance as well. Examples of these activities are non-business Internet usage, i.e. video/audio downloads/uploads, gaming, file- sharing, etc.
- DMS communication requirements can also utilize significant amounts of bandwidth. Each dealer solution should consider the overall Internet utilization requirements for each area of the dealership. Additionally, dealers should develop Internet usage Guidelines for their employees that address non-dealership business Internet usage.

GM Dealerships, not General Motors Company, are ultimately responsible for determining their own network infrastructure, security, and network configuration.

Questions related to the Service Department specification can be directed to Techline at 1-800-828-6860 or www.GMDEolutions.com.