



Requirements for PSCAD v5.1.0

This document lists the requirements for installing, licensing, and running PSCAD, for the Released Professional and Educational Editions, version 5.1.0.

1. HARDWARE

Category	Recommendations
Computer ^[1]	Good motherboard with fast front-side speed 8 GB + of fast high quality RAM ^[2] Solid state hard drive - Recommended 64-bit operating system (see Section 2) ^[3] 8 CPU cores (minimum 4) ^[4] with a decent CPU ranking One USB 2.0 port or better if Legacy Lock-based Licensing is used (Section 4.2) Internet connection

2. Windows Software

Category	Requirements
Operating System	Supported on the following 64-bit editions of Microsoft® Operating Systems ^[3] : <ul style="list-style-type: none">Officially Supported: Windows 10, Windows 11Other: Windows Server 2008 R2 SP1 or better, Windows Servers 2012 / 2016 / 2019 / 2022 / 2025 Can also be run on a Windows virtual machine. <u>Not supported</u> on any of the following Microsoft® Operating Systems: <ul style="list-style-type: none">Not supported on Multi-session Windows operating systems. The application might not install correctly, it might not work as expected, and GUI-related issues might occur.Not supported on any 32-bit edition of WindowsNot supported on Windows XP, Windows Vista, Windows 7, Windows 8, Windows 8.1
Prerequisite Software	Microsoft® Visual C++ 2005 Redistributables, x86 ^[5] Microsoft® Visual C++ 2010 Redistributables, x86 and x64 ^[5] Microsoft® Visual C++ 2022 Redistributables, x86 and x64 (or better) ^[5] Microsoft® .NET Framework 4.8 or better ^[6]
Launching and Running	Microsoft® Windows User privileges
User Profile	Mandatory user profiles are not supported
Licensing	See Section 4
Third Party Software	A compatible FORTRAN compiler is required. For details, refer to Selecting your Fortran Compiler
Execution Permissions	The application executable files must be white-listed in all protection software: <ul style="list-style-type: none">For PSCAD:<ul style="list-style-type: none">The path may be set generally, as: %PROGRAMFILES(X86)%\PSCAD<version>Or, the path may be specified as: C:\Program Files (x86)\<version>\bin\win64\pscad.exe C:\Program Files (x86)\<version>\bin\win\tline.exe C:\Program Files (x86)\<version>\utilities



	<ul style="list-style-type: none"> For the Intel® Parallel Studio Composer Edition for FORTRAN: %PROGRAMFILES(X86)%\Intel For Microsoft® Visual Studio: %PROGRAMFILES(X86)%\Microsoft Visual Studio <version> <p>Allow the user Execute permissions to the following within %SYSTEM32%:</p> <ul style="list-style-type: none"> cmd.exe conhost.exe <p>The executable files created by the application must be permitted in all protection software. See listing in Appendix F of the Resolving Issues document posted in this article.</p>
Folder Permissions	<p>The user must have full permissions for the following folder and sub-folders:</p> <ul style="list-style-type: none"> Common Documents folder (e.g. C:\Users\Public\Documents) <p>The following sub-folders will be created, and the user must have full permissions:</p> <ul style="list-style-type: none"> C:\Users\<Your_UserID>\AppData\Local\Manitoba HVDC Research Centre C:\ProgramData\Manitoba HVDC Research Centre
PSCAD Project Folder	<p>PSCAD projects should be run from local drives in which the user has full permissions (e.g. C:\<some name>). Projects should not be run from Network drives. oneDrive should be avoided, as well as Desktop, Documents, and Pictures, since these are normally synced to oneDrive.</p>
Communication Over TCP/IP	<p>This is required for PSCAD and the executables listed in <i>Execution Permissions</i> above, for the purpose of simulation control and data collection for plots.</p>
Windows Firewall / Network Ports	<p>To run PSCAD projects, Ports 30,000 to 40,000 must be available to allow PSCAD and EMTDC communication.</p> <p>If the Python Automation Library is launching PSCAD, the Python Automation Library must be permitted to open a port on localhost within this range:</p> <p style="text-align: center;">Ports 49152 to 65535</p>
Windows Command Prompt	<p>User must have permissions to launch and use the Windows Command Prompt</p>
Allow VPN access	<p>Required if connecting remotely over your facility VPN</p> <p>Note - "Split Tunnel" VPN is preferred over "Full Tunnel" VPN when using PSCAD</p>
Launching and running as Windows App is not supported	<p>PSCAD does not support and has never supported being installed, launched, or run as a Windows App, as correct and proper operation of PSCAD cannot be guaranteed.</p>

3.1 INSTALLATION – General

Category	Requirements
Registry Keys Permissions	<p>32-bit registry keys (used by PSCAD (64-bit)):</p> <ul style="list-style-type: none"> HKCU\Software\Manitoba HVDC Research Centre\Pscad HKCU\Software\Manitoba HVDC Research Centre Inc\Pscad HKLM\Software\Manitoba HVDC Research Centre\Pscad HKLM\Software\Manitoba HVDC Research Centre Inc\Pscad <p>64-bit registry keys (used by PSCAD (64-bit)):</p> <ul style="list-style-type: none"> HKCU\Software\Manitoba HVDC Research Centre\Pscad HKCU\Software\Manitoba HVDC Research Centre Inc\Pscad HKLM\Software\Manitoba HVDC Research Centre\Pscad HKLM\Software\Manitoba HVDC Research Centre Inc\Pscad
Repackaging is not supported	<p>PSCAD does not support being packaged, repackaged, or installed as an MSIX installer, as correct and proper operation of PSCAD cannot be guaranteed.</p>

3.2 INSTALLATION – Using the InstallShield Wizard (REMOVED)



3.3 INSTALLATION – Using the Installer Utility

Category	Requirements
General Requirements	As listed in Section 3.1
Operating System	See Operating Systems listed in Section 2
Downloading	Internet connection, to download the installer package
Running (Installing PSCAD, Automation Library, Prerequisites, Sentinel Drivers, GFortran)	Microsoft® Windows Administrator privileges The user must have full permissions for the following path: C:\Users\Public\Documents\
Logging	The following sub-folder will be created, and the user must have full permissions: C:\Users\ <Your_UserID> \AppData\Local\Manitoba Hydro International\Installer\Messages\

3.4 INSTALLATION – Using MyUpdater

Category	Requirements
General Requirements	As listed in Section 3.1
Access to Product Downloads	Add the first or both of the following URLs to all anti-virus/firewall whitelists: https://products.pscad.com ftp://ftps.pscad.com
Installing or Updating the MyUpdater Utility	Microsoft® Windows Administrator privileges Internet connection
Launching MyUpdater	To install or update products: <ul style="list-style-type: none"> • Microsoft® Windows Administrator privileges / Internet connection To uninstall products: <ul style="list-style-type: none"> • Microsoft® Windows Administrator privileges To run installed products: <ul style="list-style-type: none"> • Microsoft® Windows User privileges (unless otherwise specified)
Connection to Publication Server	Add the first or both of the following URLs to all anti-virus/firewall whitelists: <ul style="list-style-type: none"> • http://publisher.pscad.com:80/ • net.tcp://publisher.pscad.com:443/
Supported Protocols	TLS 1.2
HTTP Service	Add to all anti-virus/firewall whitelists: http://publisher.pscad.com/Updater/ClientService

4.1 LICENSING – Using Certificate Licensing^[7]

Category	Requirements
	Note – Protection software can block certificate licensing if not properly configured as specified below.
Certificate	MyCentre user account with access to a licensed workGroup.
Operational Requirements	Supported on a local desktop, remote desktop, over virtual private network (VPN), and in a cloud desktop environment.
Connection to the License Server	Must be permitted to communicate with the License Server over the Internet: <ul style="list-style-type: none"> • Add both of the following URLs to all anti-virus/firewall whitelists if needed: http://licensing.pscad.com:80/Licensing net.tcp://licensing.pscad.com:443/Licensing



	<ul style="list-style-type: none"> If there is a proxy server, then communication to the server must either be permitted through the proxy server or bypassed around the proxy server.
Proxy servers	<p>Not all proxy servers are supported.</p> <p>If your proxy server is not supported, the proxy server will need to be bypassed for all licensing traffic to the specified URLs.</p>
Activate/Release/Refresh a Certificate	<p>Microsoft® Windows User privileges</p> <p>Internet connection</p>
Using Certificates	<p>The following sub-folders will be created for certificates for PSCAD v4.5.1...v4.6.3:</p> <ul style="list-style-type: none"> Path: C:\Users\Public\Documents\Manitoba HVDC Research Centre\Licensing\Licenses Required permissions: FullControl for Everyone <p>The following sub-folders will be created for certificates for PSCAD v5 and newer:</p> <ul style="list-style-type: none"> Path: C:\Users\<Your_UserID >\AppData\Local\Manitoba Hydro International\Licensing\Licenses Required permissions: FullControl for <Your_UserID > <p>The following sub-folder should already exist and will be used:</p> <ul style="list-style-type: none"> Path: C:\ProgramData\Microsoft\Crypto\RSA\MachineKeys Required permissions: Read, Write for Everyone
Logging Certificate Licensing Activities	<p>The following sub-folder will be created:</p> <ul style="list-style-type: none"> Path: C:\ProgramData\Manitoba HVDC Research Centre Required Permissions: FullControl for Everyone
Supported Protocols	TLS 1.2
System Time	Must be within 5 minutes of a recognized internet time server

4.2 LICENSING – Using Legacy Lock-based Licensing - General

Category	Requirements
Licensing Media	<p>The License Database File must be installed on the machine hosting the license</p> <p>The Sentinel USB Lock must be installed on the machine hosting the license</p>
To Communicate with the Sentinel Lock	<p>Sentinel Driver software to use the Sentinel USB lock^[8]</p> <p>For Microsoft® Windows 10 (all releases) and better:</p> <ul style="list-style-type: none"> Sentinel System Driver 7.6.0 or better is required; 7.6.1 is available^[9] For Microsoft® Windows 10 Build 1803 or better, Sx32w.dll, version 7.1.0.14 is required <p>One USB 2.0 port or better.</p>
To Install a License Database File	Microsoft® Windows Administrator privileges
To Use the License Update Tool	<p>Microsoft® Windows Administrator privileges</p> <p>Internet connection is required if downloading the posted (current) version</p>
To Activate a License	Microsoft® Windows User privileges
Access to Obtain and Retain Licensing Settings	<ul style="list-style-type: none"> Settings accessible to everyone on the specified machine: HKEY_LOCAL_MACHINE\SOFTWARE\Manitoba HVDC Research Centre Inc\PSCAD\License <p>Note</p> <p>Microsoft® Windows Administrator privileges are required to modify them.</p> <ul style="list-style-type: none"> Settings applicable only to specified individuals on a machine: HKEY_CURRENT_USER\Software\Manitoba HVDC Research Centre Inc\PSCAD\License <p>Note</p> <p>Only Microsoft® Windows User-level privileges are required to read or modify them, unless prohibited by a group policy.</p>

4.3 LICENSING – Using Legacy Lock-based Licensing – Local Licensing

Category	Requirements
General Requirements	As listed in Section 4.2
Machine	Supported on a local machine, but may be possible to use virtual private network (VPN) to remote log in. Not supported in a cloud desktop environment.
Firewall	Ports 2053 and 2054 must be open
Standalone License Manager (see Section 5 below)	Must be installed if the PSCAD license contains more than one PSCAD seat.

4.4 LICENSING – Using Legacy Lock-based Licensing – Network Licensing

Category	Requirements
General Requirements	As listed in Section 4.2
Machine – Client	Supported on a local machine, but may be possible to use virtual private network (VPN) to connect to the server Not supported in a cloud desktop environment (they are not generally connected to the corporate network) Internet connection is required if using VPN for a remote License Manager
Machine – Server	Supported on a physical machine, but may be possible to use a virtual server. Contact the PSCAD Support Desk support@mhi.ca for details.
License Manager Software (see Section 5 below)	Must be installed on the server to manage license sharing
ICMP Ping Echo and ICMP Ping Reply	Must be enabled on the firewall for the host and client machines
TCP/IP and UDP/IP on Ports 2053 / 2054	Must be open on the firewall
NetBIOS (if used) Port 137	Must be allowed on the server

5. THE LICENSE MANAGER^[10]

Category	Requirements
Operating System	Recommended on the following Microsoft® Windows Operating Systems: <ul style="list-style-type: none"> Windows 10, Windows 11 Other Microsoft® Windows Operating Systems that can be used: Windows Servers 2022, 2019, 2016, 2012, 2008 R2 SP1 or better Not supported or not recommended on the following Microsoft® Windows Operating Systems: <ul style="list-style-type: none"> Windows XP (SP0-SP2), Windows Vista (SP0-SP2), Windows 7 (SP0) , Windows 7 SP1, Windows 8, Windows 8.1 Supported on a physical machine and also on a virtual server. The USB lock must be connected. Contact the PSCAD Support Desk support@mhi.ca for details.
Installation	Microsoft® Windows Administrator privileges
IP Address	If the License Manager is to be installed on a license host machine (server), the IP address must be static
Sleep/Hibernate	If the License Manager is to be installed on a license host machine (server), the server must not be allowed to sleep or hibernate
Start/Stop/Restart the License Manager	Microsoft® Windows Administrator privileges



License Manager Setup Tool	Microsoft® Windows Administrator privileges Internet connection is required if downloading the posted (current) version
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Running/Restarting the License Manager	Whitelist the License Manager executable files in this folder: <i>C:\Program Files (x86)\HVDC Lmgr\WinNT</i>
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TCP/IP and UDP/IP on Ports 2053 / 2054	Must be open on the firewall
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6. DIAGNOSTIC TOOLS

Category	Requirements
Running the Get Info tool	Microsoft® Windows User privileges Internet connection is required if downloading the posted (current) version
Running the FORTRAN Medic Tool	Microsoft® Windows User privileges if it will only be used to gather and display information. Microsoft® Windows Administrator privileges if it will be used to make any modifications. Internet connection is required if downloading the posted (current) version
Viewing Log Files	Microsoft® Windows User privileges

Notes

1. PSCAD is a numerically intensive power system transients simulator; a fast and efficient personal computer is recommended for best results. To obtain specifications for extremely high workloads, please contact the [Support Desk](#).
2. Personal computers configured with slower processors and lesser RAM may be used, but slower execution performance will result. In other words, simulation speed increases with processor speed and amount of installed RAM.
3. PSCAD v5 is only available as a 64-bit application, and is only supported on a 64-bit operating system (**not** 32-bit).
4. Generally, the faster the better. We recommend an eight-core processor (or at least a four-core processor) to take advantage of Parallel and High Performance Computing (refer [here](#) and [here](#)). Additional licensed capabilities may be purchased to maximize these features. For more information, refer to the [requirements](#) manuals or contact the [Support Desk](#).
5. These specified editions of Visual C++ Redistributables are required on your Windows 64-bit Operating System. If this prerequisite software is not already installed, the user will be prompted to install it when PSCAD is installed.
6. If Microsoft® .NET Framework 4.8 is not already installed, the user will be prompted to install it when PSCAD is installed.
7. The Fortran Medic Utility can be used to configure a machine for certificate licensing as per this [article](#).
8. Sentinel Driver software is installed automatically alongside PSCAD and the License Manager.
9. Sentinel Driver version 7.6.1 is deployed with PSCAD 5.1, and with License Manager v1.50.
10. The License Manger is required to manage either a “local license” containing multiple seats or a “network license” (see Sections 4.3 and 4.4).



DOCUMENT TRACKING

Rev.	Description	Date
0	Initial	07/Jan/2025
1	Added Note 7 and renumbered existing Notes 7-10 to 8-11; Minor improvements	19/Feb/2025
2	Update to Section 4.1	05/Mar/2025
3	Update to Section 2 and to Note 7	12/Mar/2025
4	Update to Chart 3.3	31/Mar/2025
5	Removed InstallShield Wizard (Section 3.2); Removed the associated note #7; Renumbered remaining Notes 8-11 to 7-10	08/Sep/2025
6	Specified no support on multi-session Windows operating systems (Chart 2); Update to Visual C++ Redistributables (Chart 2); Minor fixes	16/Dec/2025
7	Added Windows Server 2025 to Chart 2; Update to Chart 3.4; Remove TLS 1.0 and 1.1 in Charts 3.4 and 4.1; General improvements	21/Jan/2026