Requirements – PSCAD Beta Edition

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
	64 bit operating system
	8 CPU cores (minimum 4)[3] with a decent CPU ranking
	Internet connection

2. USAGE

Category	Requirements
Operating System	Microsoft® Windows 7 SP1 64-bit and Windows 10 64-bit[4] (officially supported)
	• It may be possible to run on a virtual machine.
	• The following additional operating systems may also work: Microsoft®Windows 8 and 8.1, and Windows Server 2008 R2 SP1, 2012 R2, 2016 and 2019
	• Not supported on: Microsoft®Windows XP, Windows Vista, and Windows 7 SP0
Prerequisite Software	Microsoft® Visual C++ 2017 Redistributables, x86 and x64[5]
	Microsoft® .NET Framework 4.6.1 Full, minimum[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 the article Selecting your FORTRAN Compiler.
Execution Permissions	The application executable files must be whitelisted in all protection software:
	• For PSCAD:
	o The path may be set generally, as: %PROGRAMFILES%\PSCAD**\<version>**
	o 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
	• For the Intel® Parallel Studio Composer Edition for FORTRAN: %PROGRAMFILES%\Intel
	• For Microsoft® Visual Studio: %PROGRAMFILES%\Microsoft Visual Studio **<version>**

Execution Permissions (continued)	Allow the user execute permissions to the following within %SYSTEM32%: • cmd.exe • conhost.exe The executable files created by the application must be permitted in all protection software. See listing in Appendix F of Resolving Issues.
Folder Permissions	The user must have full permissions for the following folder and sub-folders: • Common Documents folder (e.g. C:\Users\Public\Documents) The following sub-folders will be created, and the user must have full permissions: • C:\Users**\<your username\>**\AppData\Local\Manitoba HVDC Research Centre • C:\ProgramData\Manitoba HVDC Research Centre
Communication Over TCP/IP	This is required for PSCAD and the executables listed above for the purpose of simulation control and data collection for plots.
Network Ports	Ports 30,000 to 40,000 must be available to allow PSCAD and EMTDC communication

3.1 INSTALLATION – General

Category	Requirements
Registry Keys Permissions	32-bit registry keys (used by PSCAD (64-bit)): • 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 64-bit registry keys (used by PSCAD (64-bit)): • 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

3.2 INSTALLATION – 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	Microsoft® Windows Administrator privileges Internet connection
Launching (to Install or Update Software)	Microsoft® Windows Administrator privileges Internet connection
Launching (to Uninstall Software)	Microsoft® Windows Administrator privileges
Launching (to Launch Installed Software)	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:
	• http://publisher.pscad.com:80/
	• net.tcp://publisher.pscad.com:443/
Supported Protocols	TLS 1.0, TLS 1.1, TLS 1.2

3.3 INSTALLATION – Installer Utility

Category	Requirements
General Requirements	As listed in Section 3.1
Downloading	Internet connection
Running	Microsoft® Windows Administrator privileges
Logging	The following sub-folders will be created, and the user must have full permissions:
	C:\Users**<your username>**\AppData\Local\Manitoba HVDC Research Centre\Installer

4 CERTIFICATE LICENSING

Category	Requirements
Certificate	MyCentre user account with access to a licensed WorkGroup
Operational Requirements	Supported on a local desktop, or remote desktop, or over virtual private network (VPN). Not guaranteed in a cloud desktop environment, but could be verified using diagnostic tools.
Connection to the License Server	Add both of the following URLs to all anti-virus/firewall whitelists:
	• http://licensing.pscad.com:80/Licensing
	• net.tcp://licensing.pscad.com:443/Licensing
Activate/Release/Refresh a Certificate	Microsoft® Windows User Privileges
	Internet connection
Using Certificates	The following sub-folders will be created for certificates:
	• Path: C:\Users\user_id\AppData\Local\Manitoba Hydro International\Licensing\Licenses
	• Required permissions: FullControl for **<user_id>**
	The following sub-folder should already exist and will be used:
	• Path: C:\ProgramData\Microsoft\Crypto\RSA\MachineKeys
	• Required permissions: Read, Write for Everyone
Supported Protocols	TLS 1.0, TLS 1.1, TLS 1.2

5. 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
	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 PSCAD Support Desk for information (support@mhi.ca).

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. 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 (support@mhi.ca).

4. The PSCAD Beta Edition is not supported on a 32-bit operating system.

5. Both the 32-bit and 64-bit editions of Visual C++ Redistributables are required. 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 4.6.1 Full or better is not already installed, the user will be prompted to install it when PSCAD is installed.

DOCUMENT TRACKING

Rev.	Description	Date
0	Initial	08/May/2019
1	Correction to title	31/May/2019
2	Multiple updates and improvements throughout	23/Jan/2020
3	Updated versions of Windows servers in Chart 2	22/Oct/2020
4	Update to folder permissions in Chart 4	27/Oct/2020