Getting Started – PSCAD v4.5.3
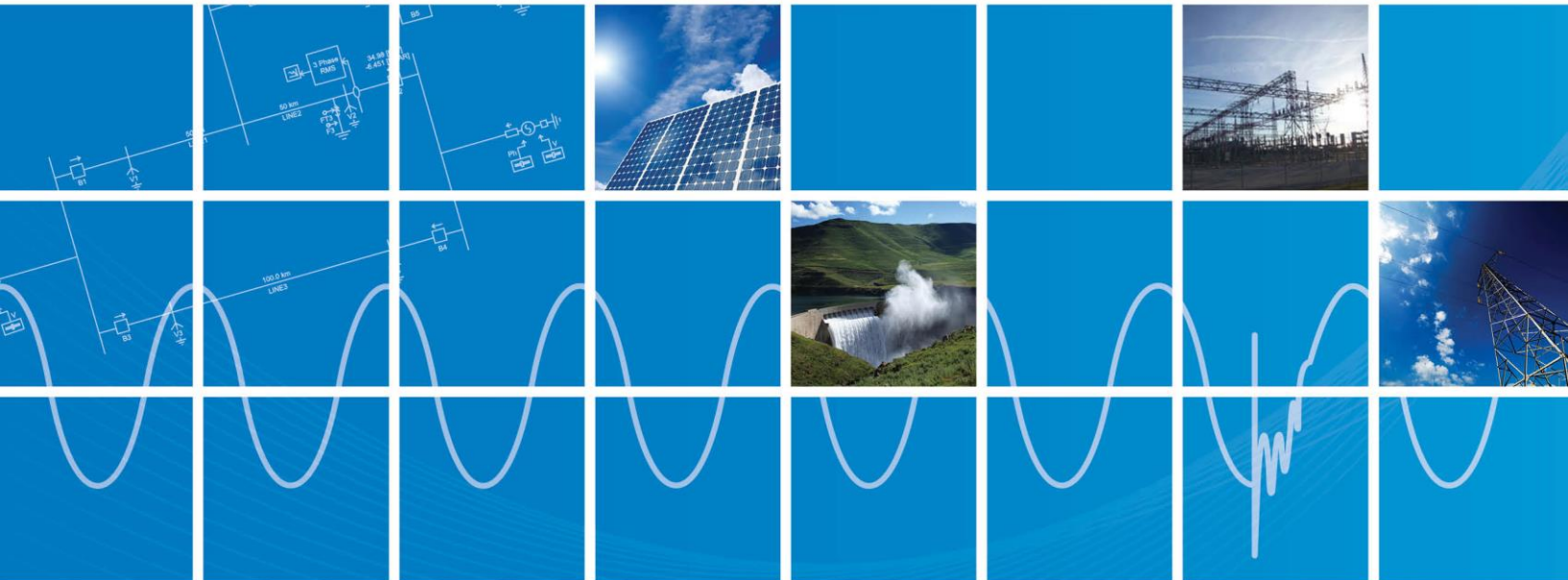
Written for PSCAD™ X4 version 4.5.3

May 18, 2018
Revision 2

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1. Computing Requirements

PSCAD is a numerically intensive power system transients simulator; a fast and efficient personal computer is recommended for best results. PSCAD is supported on any computer running Microsoft® Vista or 7.

Category	Recommended
Operating System[1]	Microsoft® Windows Vista 32 SP1, Vista 64 SP1
	Microsoft® Windows 7
Additional Software	Intel® Fortran Composer XE 2013[2]
	Microsoft® .NET Framework 4.0 Full[3]
	Microsoft Visual C++ 2010 Redistributables4
Peripherals	One USB 2.0 port[5]

[1]The PSCAD product is sold as either a 32-bit or 64-bit application. The 32-bit application will also operate on 64-bit platforms, provided the 64-bit hardware drivers are installed for the USB hardware lock.

[2]The *Intel® Fortran Composer XE 2013* compiler has shown to provide EMTDC runtime executables that are significantly faster than those built by its predecessor (*Intel Visual Fortran 11*). The latest *Line Constants Program* is also built with this compiler, with significant speed enhancements as well. Contact our *Sales Desk* (sales@pscad.com) for purchasing details. **NOTE**: The *Intel Visual Fortran* compiler is not supported in the PSCAD *Free Edition*, which uses only the *GFortran 95* compiler.

[3]The PSCAD X4 installer program requires that Microsoft® .NET Framework 4.0 Full be installed prior to installing your PSCAD X4 product. This version of the software comes complete with the Microsoft® Windows 7 operating system, but is not included with Microsoft® Windows Vista. If required, *Microsoft® .NET Framework 4.0 Full* will automatically be installed along with PSCAD (or you may download and install it by visiting www.microsoft.com).

[4]If required, the Microsoft Visual Studio C++ 2010 Redistributables (either x86 for PSCAD 32-bit or x64 for PSCAD 64-bit) will automatically be installed along with PSCAD (or you may download and install it by visiting www.microsoft.com). Please note that if you are running PSCAD 32-bit, you only need the (x86) version, even if you are using a 64-bit operating system.

[5]A USB 2.0 port is required for the hardware lock. Parallel port type locks are no longer supported.

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.

2. Scope Boundaries

Any boundaries imposed on your projects will depend mainly on which PSCAD edition you are using. The following tables list the most commonly encountered boundaries.

2.1 PSCAD Imposed Boundaries (all Editions and Compilers)

Description	Boundary
Transformers	Unlimited
Mutually coupled windings	Unlimited
Component Graphical Layers	256
T-Lines/Cables	Unlimited
Conductors per T-line Right-of-Way	30
Cables per Right-of-Way	12
Data signal dimension	1,024
Radio Transmitters/Receivers	1,024
STOR allocations	Unlimited
STORF/L/I/C allocations	Unlimited

2.2 Edition Specific Boundaries

Description	Free	Educational	Professional
Electrical Sub-systems	1	1	256
Electrical Nodes	15	200	Unlimited
Modules	5	64	2,048
Components	1,024	32,768	65,536
Output Channels	64	1,024	1,024

2.3   Free Edition Restrictions

Description	PRO and EDU Editions	Free Edition
Create Definition	✓	✗
Edit Definition	✓	✗
Navigate Module Hierarchy	✓	✓
Import/Export Definition	✓	✗
Copy/Paste Definition	✓	✗
Import Legacy Project (i.e. V4)	✓	✗
Commercial FORTRAN Compiler	✓	✗
Frequency-Dependent T-Lines	✓	✗
MATLAB Interface	✓	✗
Multiple Subsystems	✓	✗
Printing	✓	✓

3. Supported FORTRAN Compilers

PSCAD requires a FORTRAN compiler to build and simulate projects. The following commercially available compilers are presently supported:

- Intel Visual Fortran 9.x, 10.x, 11.x, 12.x & 13.x[1]
- GFortran 95

For your convenience, a free FORTRAN compiler, called the GFortran 95 compiler, is provided on your PSCAD CD. If you have installed the Free Edition with your MyCentre account, the GFortran compiler is available as a separate download.

If you are the owner of a professional or educational PSCAD license, it is recommended that you purchase the Intel® Visual Fortran Composer XE 2011 (v12) compiler, mainly for its superior debugging environment and optimization features. Also, has shown to provide EMTDC runtime executables that are significantly faster than those built by its predecessor (Intel Visual Fortran 11); in some cases <u>twice as fast</u>. Contact our Sales Desk (<u>sales@pscad.com</u>) for purchasing details.

[1]The Intel Visual Fortran compiler is <u>not supported</u> in the PSCAD Free Edition, which uses only the GFortran 95 compiler.

4. Installing PSCAD

4.1   Professional and Educational Editions

Installing your PSCAD software should be a straightforward process. If problems do arise, please contact the *PSCAD Support Desk* (support@pscad.com) for assistance. Proceed as follows:

a. Insert CD into a compatible optical drive. The installer should start automatically.
b. Follow the instructions given in each, sequential installer dialog.
c. For more detailed instructions, please refer to the references available on the following web page:

> https://hvdc.ca/knowledge-library/reference-material

> - For a new installation, download *PSCAD X4 Installation*.
> - For an update, download *Updating PSCAD X4*.

4.2   Free Edition

Installing your PSCAD Free software is a simple process. If problems do arise, please request support through the 'Support' tab in your MyCentre account. Proceed as follows:

a. Register a user profile in your MyCentre account.
b. Install the *MyUpdater* tool, which manages your software installation and updates.
c. Launch *MyUpdater*, and install or update your PSCAD Free product.
d. Ensure that the *GFortran* product is installed (also via *MyUpdater*).
e. For more detailed instructions, please download *Managing MyCentre* from the following web page:

> https://hvdc.ca/knowledge-library/reference-material

4.3   Running the Free Edition

a.   Launch the *MyUpdater* tool.

b.   If your PSCAD Free installation is outdated, you will need to first select *Update* before you can run it.

c.   If your PSCAD Free installation is up-to-date, select *Run* to launch.

d.   Acquire a license to run PSCAD Free.

   Notes:
   1.   A license is valid for four weeks, which permits users to work offline for that period. Once the license has expired, a new four-week license may be acquired.
   2.   Software updates are regularly published, and are only available when logged in on the *MyUpdater* tool.

e.   For more detailed instructions, please download *Managing MyCentre* from the following web page:

   https://hvdc.ca/knowledge-library/reference-material

DOCUMENT TRACKING

Rev.	Description	Date
0	Initial	27/Jun/2013
1	Minor updates for v4.5.3 release and corrections, updated title page	22/Nov/2013
2	Update to new Branding Guidelines	18/May/2018