

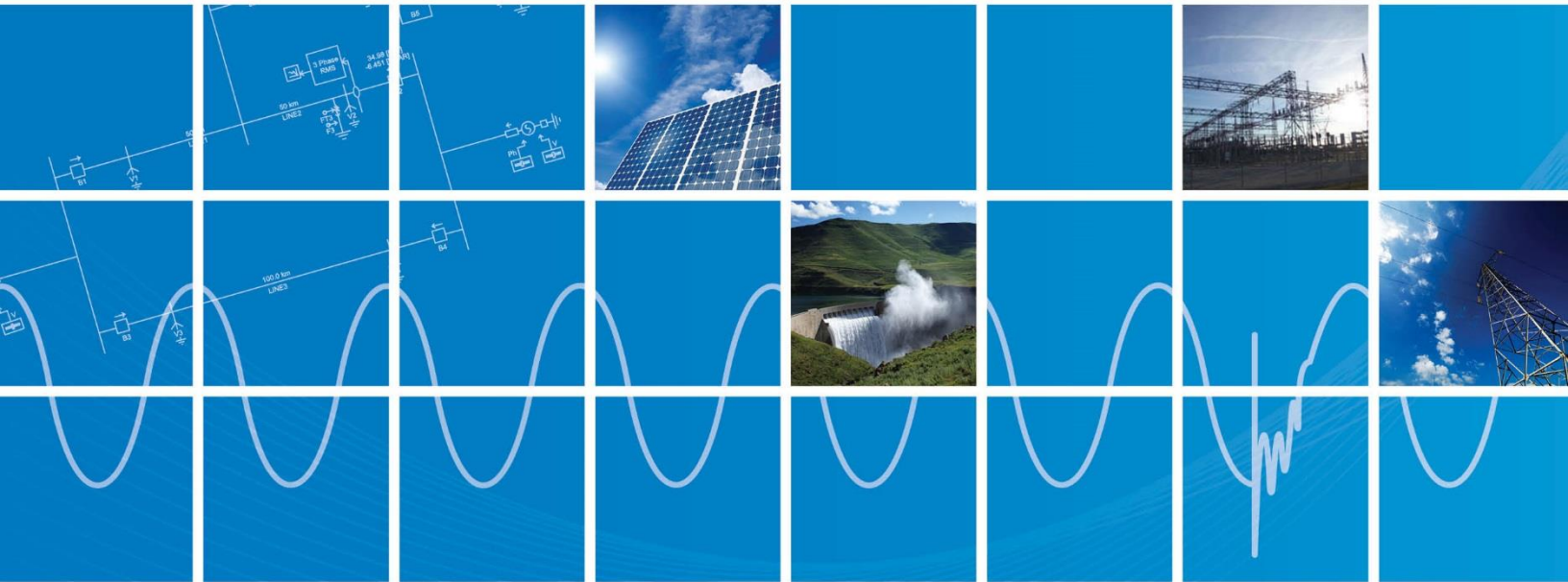


Field and Corona Effects

Software Installation and Licensing: Field and Corona Effects (FACE)

Written for FACE 2.0

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1. General

1.1 Introduction

This manual provides instructions for installing FACE and activating a license.

Also included are the steps for registering a MyCentre user account, which is required for obtaining access to the software and licensing.

For any login, installation, join code, or licensing issues, a section on obtaining assistance is also included.

1.2 Software

FACE (Field and Corona Effects) is a Windows™ application that predicts the field and corona effects of high voltage transmission lines, namely:

- Audio Noise (AN)
- Corona Loss (CL)
- Radio Interference (RI)
- Electric and Magnetic Field Distributions beneath Transmission Lines
- Ionized Fields, Ion Charges and Ion Currents under HV Lines

FACE evaluates the overall environmental effects of high voltage AC, DC, or AC/DC hybrid transmission lines. It produces the audible noises and corona losses by using empirical formulas developed by IREQ or BPA. Radio interferences are also by the semi-analytical method, where the generating functions obtained experimentally by IREQ and BPA are utilized and the frequency domain modal analysis is employed to analyze the transmission line geometries. Static fields are computed by the methods of successive images. Ionized fields for DC, as well as AC/DC hybrid, cases are computed under Deutsch's assumption and by implementing an efficient algorithm for non-linear two-point initial value problems.

Typical application areas are:

- Design of new HV transmission lines
- Reinforcement of existing HV transmission lines
- Converting existing AC lines to DC lines, or vice versa

1.3 Licensing

Certificate licensing, also known as Advanced Licensing or Internet Licensing, is used for running FACE. Login credentials in an Internet-based user portal called MyCentre are used to authorize licensing, and a certificate to run FACE is checked out onto the computer.

Once a certificate is activated, it may be used to run multiple instances of FACE on that machine, the number of instances being limited only by the machine's memory size.

Certificate licensing is available for both the Professional Edition and the Trial Edition. The Professional Edition is permanent and fully-featured, while the Trial Edition is time-limited with all of the features in the Professional Edition except AC/DC Hybrid systems.

When a certificate is checked out, it may either be retained on that computer when FACE is exited, or returned to MyCentre so that another user may check it out. For the Professional Edition, if the certificate is retained, it will initially be valid for a four-week period; this period will then be refreshed to a new four-week period whenever FACE is re-launched with Internet access. The benefit to retaining a certificate on a machine is that FACE may be run for up to four weeks without requiring Internet access, making it portable.

For the Trial Edition, the checkout period coincides with the duration of the license.

If the certificate is returned, it is available to be activated to the same or different authorized user.

The license for the certificate is held within MyCentre in a special grouping called a "workgroup". A workgroup contains products, such as certificate licensing, and authorized users, who are called "members".

When licensing will be shared among many users within one workgroup, access to a workgroup may be controlled by a designated person (or people) within the organization. The designated person is referred to as the "WorkGroup Administrator", "Local Administrator" or simply "Administrator". In addition to adding and removing member access to the workgroup, the workgroup administrator may also designate other members as additional administrators.

This manual provides all required instructions for a member to register a MyCentre user account, join a workgroup, and set up the software and licensing.

1.4 Quick Start Instructions

This manual contains detailed instructions for setting up a member's software. For quick setup instructions, refer instead to the document "Quick Start Setup – FACE", which may be downloaded from this [link](#).

1.5 How to Use this Manual

Section 2 contains instructions for setting up your software, which include registering a MyCentre user account, joining a workgroup to access the products, and installing and licensing the software.

If you encounter any issues during this setup, assistance may be requested through our support desk as per Section 3.

Appendix A lists the resources for becoming familiar with FACE.

2. Software and Licensing Setup

This section provides all required steps for setting up FACE software and certificate licensing, and should be performed in the order presented.

2.1 Requirements

The following are requirements for installing, licensing, and using FACE:

1. USING FACE

Feature	Requirements
Windows Operating System	Microsoft® Windows 7 SP1 Operating System, or better, 64-bits
Prerequisite software	For FACE v2.0.1: Microsoft® Visual C++ 2017 Redistributables (x64) ^[1] Microsoft® .NET Framework 4.8 ^[1]
Launching and running FACE	Windows User privileges
Licensing	See Chart 3
Execution Permissions	The FACE application executable file must be whitelisted in all protection software: <ul style="list-style-type: none"> C:\Program Files (x86)\FACE\bin\WinFACE.exe
Folder Permissions	The following sub-folders will be created, and the user must have full permissions: <ul style="list-style-type: none"> For your settings files: C:\Users\Public\Documents\Manitoba Hydro International\Licensing\Settings For your log files: C:\Users\Public\Documents\Manitoba Hydro International\Licensing\Logs

2.a INSTALLING FACE – Using MyUpdater

Feature	Requirements
Access to Product Downloads	Add the first or both of the following URLs to all anti-virus/firewall whitelists: <ul style="list-style-type: none"> https://products.pscad.com ftp://ftps.pscad.com
Installing MyUpdater	Microsoft® Windows Administrator privileges Internet connection
Launching MyUpdater (to install or update software)	Microsoft® Windows Administrator privileges Internet connection
Launching MyUpdater (to uninstall software)	Microsoft® Windows Administrator privileges
Launching MyUpdater (to launch installed software)	Microsoft® Windows User privileges (unless otherwise specified)
Connection to Publication Server	Add 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 1.0, TLS 1.1, TLS 1.2

2.b INSTALLING FACE – Using the Installer Utility

Feature	Requirements
Downloading the Installer Utility	Internet connection
Running the Installer Utility	Microsoft® Windows Administrator privileges The user must have full permissions for the following path: C:\Users\Public\Documents\
Log File Folder Permission	The following sub-folder will be created, and the user must have full file/folder permissions: C:\Users\ <Your_UserID> \AppData\Local\Manitoba HVDC Research Centre\Installer

3. LICENSING FACE

Feature	Requirements
Certificate Licensing	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 the following two URLs to all anti-virus/firewall whitelists: <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • Path: C:\Users\user_id\AppData\Local\Manitoba Hydro International\Licensing\Licenses • Required permissions: FullControl for <Your_UserID> The following sub-folder should already exist and will be used: <ul style="list-style-type: none"> • Path: C:\ProgramData\Microsoft\Crypto\RSA\MachineKeys Required permissions: Read, Write for Everyone
Supported Protocols	TLS 1.0 (older releases of FACE) TLS 1.0, TLS 1.1, TLS 1.2 (newer releases of FACE)

4. THE FACE DIAGNOSTIC TOOLS

Feature	Requirements
Viewing log files	Microsoft® Windows User Privileges

Notes

1. If this prerequisite software is not already installed, the user will be prompted to install it when FACE is installed.

2.2 Obtain Access to a FACE License Certificate

FACE is available as either the Professional Edition or the time-limited Trial Edition.

The Professional Edition may be purchased through our sales desk (sales@pscad.com). If your organization already owns FACE licensing, please request access from your WorkGroup Administrator. You will be provided a join code, that will be used to join your MyCentre user account to the workgroup containing the licensing. Proceed to Section 2.6 to use the join code.

Note

To find out who the workgroup administrator is, send a request to our sales desk (sales@pscad.com), ensuring to include your name and organization.

For the Trial Edition, please contact our sales desk (sales@pscad.com). Ensure to include your name and the name of your organization.

2.3 Register a MyCentre User Account

A MyCentre user account is required to authorize certificate licensing. If you do not already have a MyCentre user account, proceed as follows to register one:

- a. Open a web browser to the following link:

<https://mycentre.hvdc.ca/register>

Note

Firefox, Google Chrome or a recent version of Internet Explorer are recommended.

- b. Proceed through the registration process when prompted.

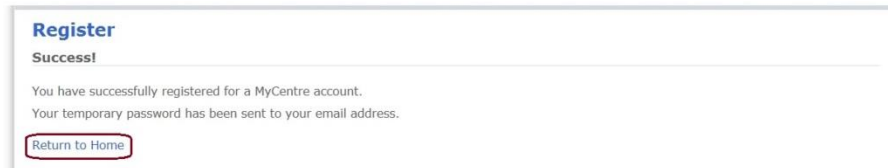
Note

If the “Next” button does not work during the registration, switch to a different browser.

- c. When the following dialog box displays, place a checkmark in the field as shown:



- d. If the registration process is successful, you will be informed that you have registered a MyCentre user account, and that an e-mail with a temporary password has been sent to you. Select “Return to Home” to continue.



- e. Obtain your temporary password from your e-mail account.

Note

If you have not received an e-mail with the password within a few minutes of finalizing the registration, refer to Section 3.3 to troubleshoot the problem.

- f. Proceed to Section 2.4 to log in to MyCentre.

2.4 Log in to MyCentre

Log in to MyCentre as follows:

Requirement

A MyCentre user account (Section 2.3)

- a. Open a web browser, and go to the following link:

<https://mycentre.hvdc.ca/login>

- b. When prompted, enter your MyCentre login credentials, then select “Log in”.

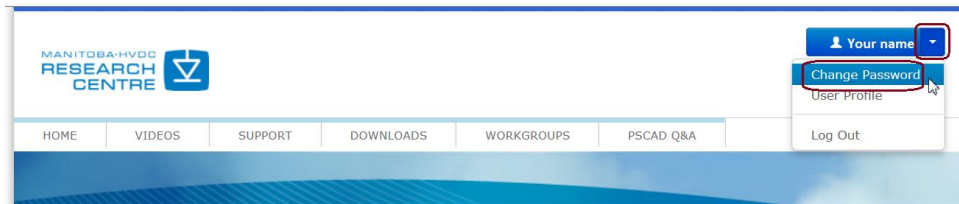
Notes

1. If this is your first time logging in, use the provided temporary password (see Section 2.3).
2. Refer to Section 3.3 for login tips and troubleshooting.
- c. It is recommended that upon registering in MyCentre, you change the temporary password per Section 2.5.
- d. If you have been provided a join code to join a workgroup, proceed to Section 2.6 to join a workgroup. Otherwise, proceed to Section 2.7 to install the software.

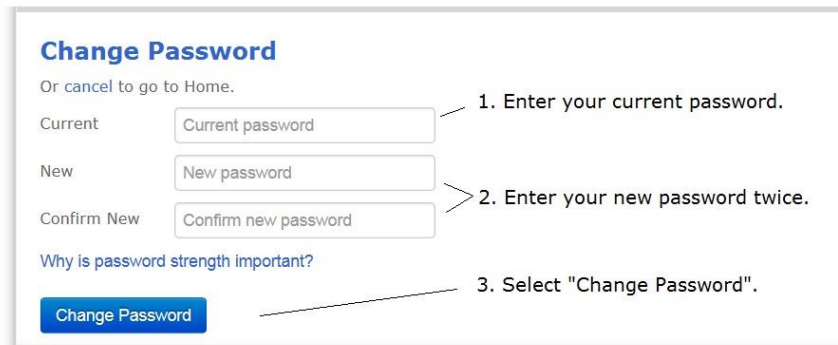
2.5 Change your MyCentre Password

If a MyCentre user account was newly registered (per Section 2.3), it is recommended that you change the assigned temporary password, as follows:


- a. If not already logged in, log in to MyCentre (Section 2.4).
- b. From the drop-down menu on the right-hand side, select “Change Password”.



- c. When prompted, enter your current and new passwords, then select “Change Password”.

A screenshot of the 'Change Password' form. The form title is 'Change Password'. Below the title, it says 'Or cancel to go to Home.' There are three input fields: 'Current' with the placeholder 'Current password', 'New' with the placeholder 'New password', and 'Confirm New' with the placeholder 'Confirm new password'. To the right of the 'Current' field is instruction '1. Enter your current password.' To the right of the 'New' and 'Confirm New' fields is instruction '2. Enter your new password twice.' Below the input fields is the text 'Why is password strength important?'. At the bottom left is a blue 'Change Password' button. To the right of the button is instruction '3. Select "Change Password".'.

- d. You will be notified that you have changed your account password. Select “Return to Home” to continue.

A screenshot of the 'Change Password' success message. The title is 'Change Password'. Below the title is the word 'Success!'. Underneath, it says 'You have successfully changed your password.' At the bottom left, there is a red-bordered button labeled 'Return to Home'.

2.6 Join a WorkGroup using a Join Code

If you have been provided a join code, use the join code to link your user account to the WorkGroup as per this [article](#).

Note

Refer to Section 2.2 for more information on when a join code is used.

2.7 Install the Software

This section provides instructions for installing the software. There are two tools for installing software:

- **MyUpdater Tool:** Normally, this installation tool is used (Section 2.7.1).
- **The Installer:** The alternative installation method is to use the Installer (Section 2.7.2).

2.7.1 Using MyUpdater

Install FACE using MyUpdater as follows:

Warning

Some corporate networks block MyUpdater activities. If you encounter any login or installation issues with MyUpdater, please perform this installation per Section 2.7.2 instead.

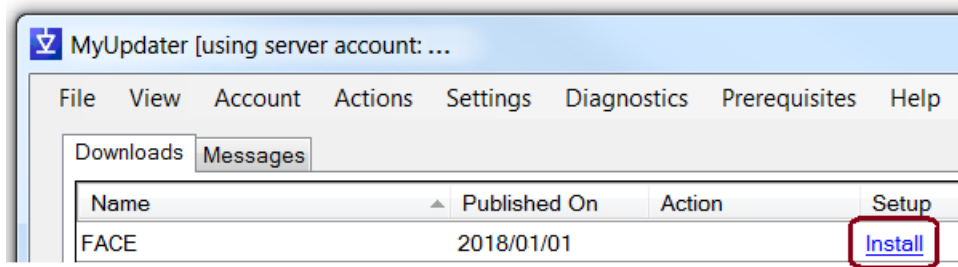
Notes

1. Refer to Section 2.1 for requirements.
 2. If not already done, refer to Section 2.2 to obtain access to the software.
 3. If you encounter any installation issues, refer to Section 3.1.
- a. If MyUpdater is not already installed, install it as follows:
- Open a web browser to this [link](#), select “Install”, and run the installation.
 - When prompted by the Windows User Account Control dialog box, select the option to run this installation with Windows administrator privileges by selecting “Yes”.
 - MyUpdater will be installed, and will launch automatically.
 - When prompted, enter your MyCentre login credentials, then select “OK”.

Note

Refer to Section 3.3 for login tips and troubleshooting.

- b. If not already running, launch MyUpdater (in the Windows Start menu, browse to All Programs | PSCAD | MyUpdater). When prompted, ensure to select the option to run with Windows administrative privileges (required when installing, updating or uninstalling software).
 - If not already logged in to MyUpdater, log in using your MyCentre login credentials. Refer to Section 3.3 for login tips and troubleshooting.
 - Your authorized products will be listed in MyUpdater. In the “Setup” column, select the “Install” button corresponding with the intended software, and it will be installed.



Proceed to Section 2.8.1 to launch this software.

2.7.2 Using the Installer

Install FACE using the Installer as follows:

Notes

1. Review the requirements as per Section 2.1.
 2. If you encounter any installation issues, refer to Section 3.2.
- a. Download the software from this [link](#), unzip the top-level file, called “FACE_Standard_Installer.zip”, and save the files to a folder on a local drive (e.g. desktop).

Warning

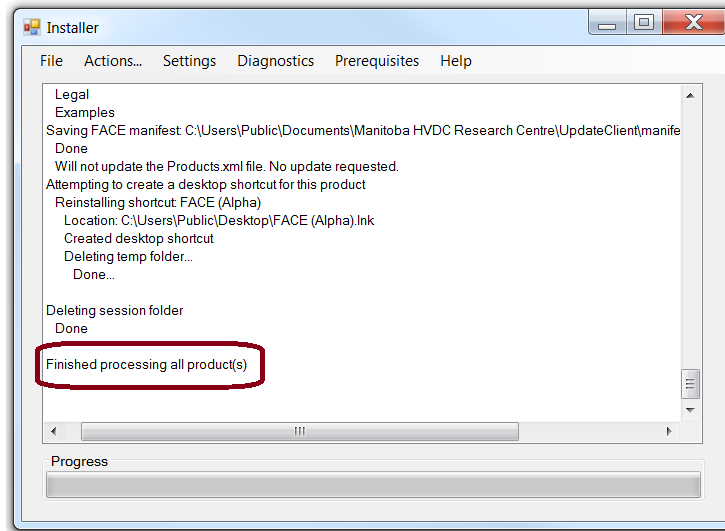
Do not unzip any of the other downloaded zipped sub-files.

- b. Right-click on the unzipped “Installer.exe” file, and select “Run as administrator”.
- c. When prompted by the User Account Control dialog box, select the option to run this installation with Windows administrator privileges by selecting “Yes”.
- d. Enter your MyCentre account login credentials when prompted, and the software will install.

Note

Refer to Section 3.3 for login tips and troubleshooting.

- e. The “Installer” will launch, and install FACE. When the installation is complete, a message similar to the following will display:



- f. Close the Installer.

FACE will be installed, and a link to launch this edition will have been created on your desktop. Proceed to Section 2.8.2 to launch this software.

2.8 Launching FACE

2.8.1 Launching FACE using MyUpdater

If FACE was installed using MyUpdater (Section 2.7.1), launch this software as follows:

- a. Launch MyUpdater (from the Windows Start menu, browse to All Programs | PSCAD | MyUpdater).

Note

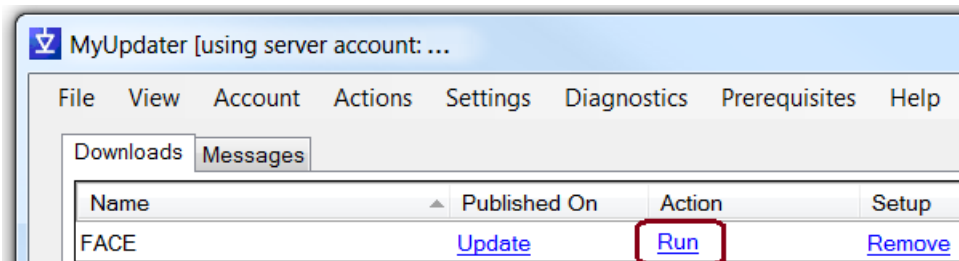
When prompted, you may select the option to run MyUpdater without Windows administrative privileges (administrative privileges are only required when installing, updating or uninstalling software).

- b. When prompted, enter your MyUpdater login credentials, then select “OK”.

Note

Refer to Section 3.3 for login tips and troubleshooting.

- c. In the “Action” column, select “Run” to launch FACE:

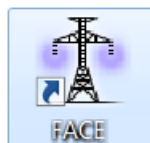


- d. Face will launch, and licensing should automatically be activated. Refer to Section 3.4 for any licensing issues.

2.8.2 Launching FACE using the Desktop Link

If FACE was installed using the Installer (Section 2.7.2), perform the following:

- a. Launch the software from the desktop shortcut:



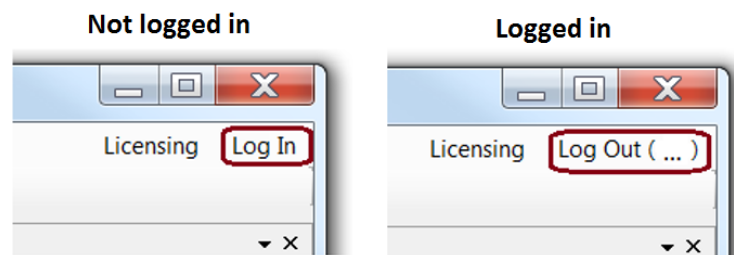
- b. Proceed to Section 2.9 to activate a certificate.

2.9 Activating a Certificate

Activate a certificate as follows:

Notes

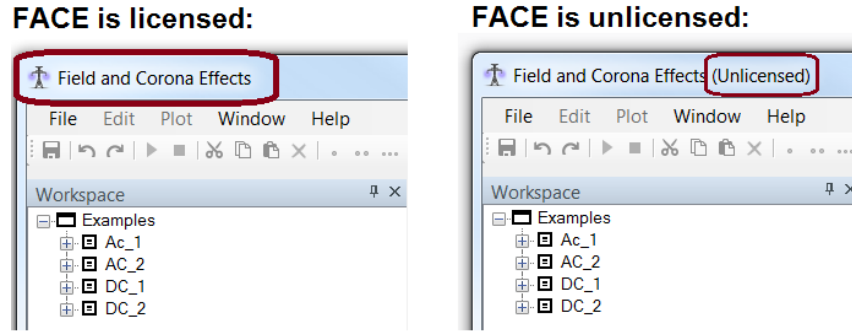
1. Refer to Section 2.1 for requirements.
2. If there are any issues when activating a certificate, refer to Section 3.4.
 - a. If not already running, launch FACE as per Section 2.8.
 - b. If not already logged in to FACE, select “Log In”, and enter your MyCentre login credentials:



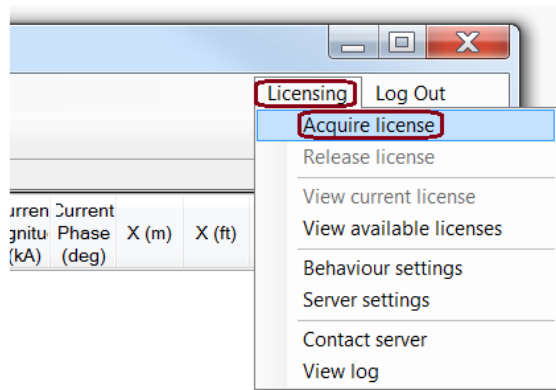
Note

Refer to Section 3.3 for login tips and troubleshooting.

- c. If FACE is unlicensed (see below), activate licensing:



- Select Licensing | Acquire license.



- d. A temporary certificate will be activated, and the software will be available to use. See Section 1.2 for details on certificate licensing.

Note

Once a certificate is activated, it may be used to run multiple instances of FACE on that machine, the number of which is limited only by the machine's memory size.

- e. Configure licensing behaviour upon exit as per Section 2.12.

WARNING

To ensure that licensing will be available for you or your colleagues, it is strongly recommended that you configure PSCAD for appropriate exiting behaviour as per Section 2.12.

- f. For new FACE users, refer to Appendix A for accessing the help files.

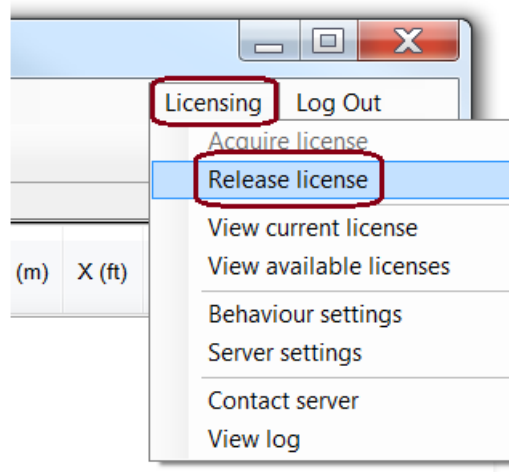
2.10 Returning the Certificate

A certificate may be returned either manually or automatically to MyCentre so that it is available to be activated on another machine.

2.10.1 Manually Return the Certificate

Return the certificate manually as follows:

- a. Select Licensing | Release license:



- b. The certificate will be returned to MyCentre.

2.10.2 Automatically Return the Certificate

Set the certificate to be returned automatically whenever PSCAD is closed as per Section 2.11.

2.11 Configuring FACE to Retain or Return a Certificate

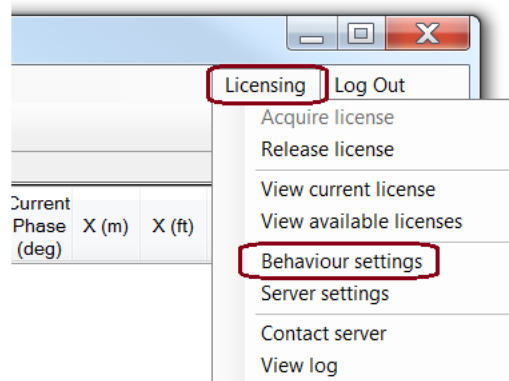
This section provides instructions for configuring FACE to either retain or return a certificate automatically, whenever the application is exited. This will ensure that the certificate will be available to yourself or another user as applicable.

There are three considerations for the next software launch:

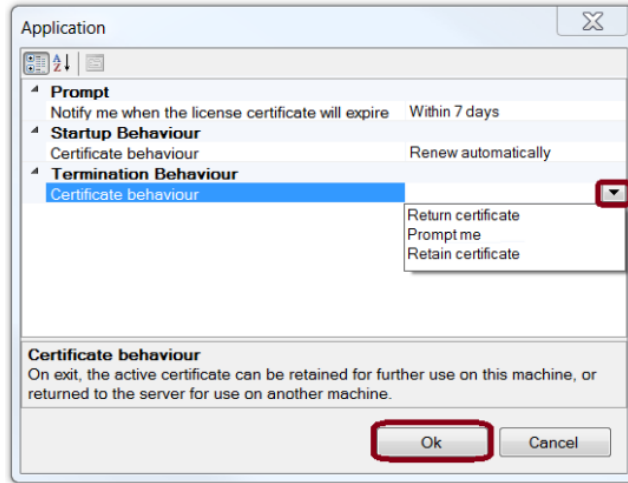
- If the next launch will be on this same machine, and you will not be working offline, the certificate may either be retained or returned.
- Or, if the next launch will be on this same machine, but you will be working offline, the certificate should be retained.
- Or, if the next launch will be on a different machine (e.g. other user), the certificate should be returned so that it will be available for activation on the other machine.

Configure the certificate behaviour upon exit as follows:

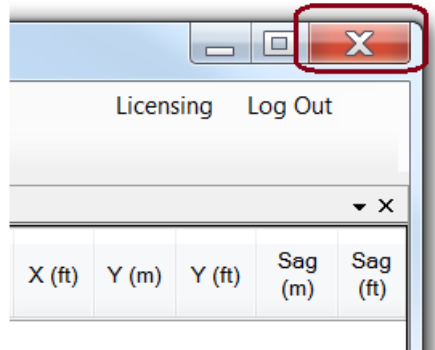
- a. Select Licensing | Behaviour settings.



- b. From the “Certificate Behaviour” drop-down menu, select the appropriate exiting behaviour, then select “Ok”:



- c. FACE will now perform the selected certificate behaviour whenever the application is exited:



2.12 Sharing a Certificate with Multiple Users

This section provides an important configuration when multiple users will be accessing a certificate.

A certificate may be activated (checked out) on one computer to run one or more instances of FACE. When FACE is closed, the certificate should be configured to be returned to the license server, to make it available for activation on another user's machine.

If the certificate is not returned to the license server, it will remain checked out on this user's machine, and will not be available to any other users until it is returned.

To avoid locking a certificate on a particular machine, FACE should be configured to always return the certificate to the license server whenever the application is closed as per Section 2.11 with the following note:

- At Step (b), select "Return certificate".

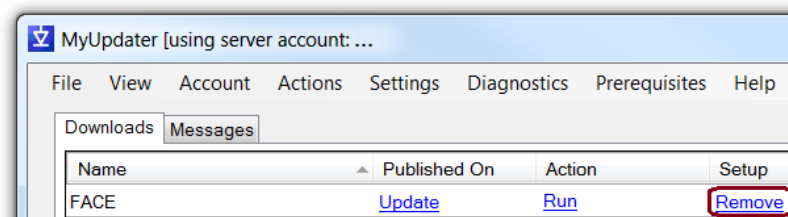
2.13 Removing FACE

This section provides instructions for removing FACE software. Proceed as follows:

Requirement

MyUpdater is required for this step, and must be installed (Section 2.7.1)

- a. If not already running, launch MyUpdater (in the Windows Start menu, browse to All Programs | PSCAD | MyUpdater). When prompted, ensure to select the option to run with Windows administrative privileges (required when installing, updating or uninstalling software).
- b. Log in to MyUpdater using your MyCentre login credentials. Refer to Section 3.3 for login tips and troubleshooting.
- c. In the “Setup” column, select the “Remove” button corresponding with the intended software, and it will be removed.





2.14 Viewing your WorkGroup Products

Refer to the Quick Start document posted to this [article](#) for instructions.



2.15 Viewing and Updating your Profile

Refer to the Quick Start document posted to this [article](#) for instructions

3. Resolving Issues

Refer to the following sections if you encounter any issues:

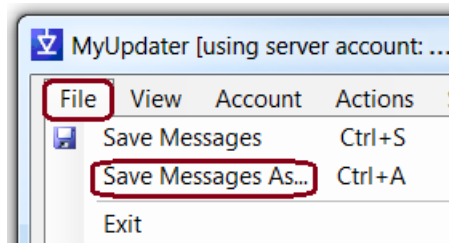
- See Section 3.1 for software installation issues when using MyUpdater
- See Section 3.2 for software installation issues when using the Installer
- See Section 3.3 for MyCentre login issues
- See Section 3.4 for licensing issues
- See Section 3.5 to determine your FACE license number
- See Section 3.6 to contact our support desk

3.1 Software Installation Issues - MyUpdater

For issues related to installing and using MyUpdater, refer to the manual “Update Client (MyUpdater) - Common Issues”, which may be downloaded from [here](#).

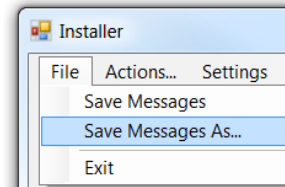
If you require further assistance, please forward the following information to our support desk as per Section 3.6:

- Your username and e-mail address as registered in MyCentre.
- A description of the problem and the point at which it occurred.
- Screenshots of any error messages.
- If MyUpdater is installed, save the messages to your computer following the failed step, and send in the log file:



3.2 Software Installation Issues - Installer

If any error messages display while using the Installer, please send in a support request to our support desk for assistance (from the “File” menu, select “Save Messages As”, and send in the log file along with a detailed description of the issue to face@mhi.ca).



3.3 MyCentre Login Issues

This section provides assistance when any MyCentre login issues are encountered, for example logging in to the MyCentre website, logging in to MyUpdater, and logging in to FACE:

- [General login tips](#)
- [You register, but do not receive the email to set your password](#)
- [You forget your password](#)
- [You launch the password reset feature, but do not receive the password reset email](#)

3.4 Certificate Licensing Issues

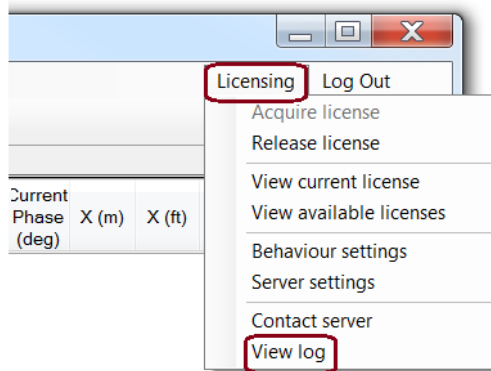
If you encounter any issues with activating a certificate (Sections 2.8.1 or 2.9), please forward your FACE.txt file to our support desk to determine the reason.

This file may be found in the following location:

C:\Users\Public\Documents\Manitoba HVDC Research Centre\Licensing\Logs\FACE.txt

Note

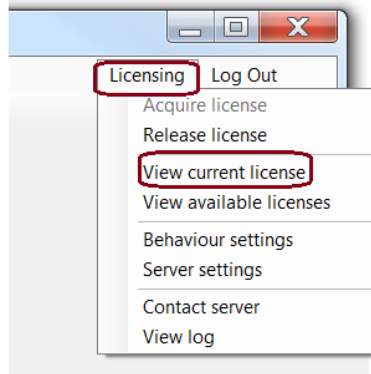
This log file may also be displayed easily from within the FACE application by selecting Licensing | View log.



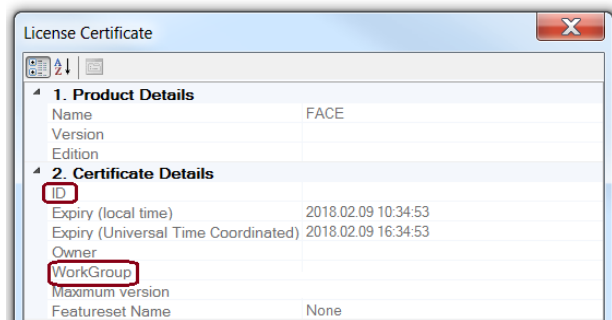
3.5 Determining your FACE License Number

When requesting support from our support desk, your license certificate number is required. This may be determined as follows:

- a. Launch FACE (Section 2.8), and activate a certificate (Section 2.9).
- b. Select Licensing | View current license:



- c. The certificate number (ID) and WorkGroup name will be displayed:



3.6 Contact the Support Desk

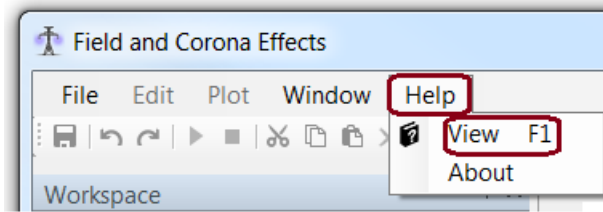
If you are unable to resolve an installation, login, join code, or licensing issue, please submit a support request to our support desk.

Send an e-mail to face@mhi.ca, ensuring to include all relevant information to expedite assistance, including:

- The name of your organization
- If known, your license number, which may be determined as per Section 3.5
- A detailed description of the issue
- For a licensing issue, include your licensing log file as per Section 3.4
- Screenshots of any error messages

Appendix A: Resources for New Users

A Help manual is available to assist new users to become familiar with FACE:



DOCUMENT TRACKING

Rev.	Description	Date
0	Initial	12/Jan/2018
1	Update to New Brand Guidelines; General improvements	01/Jun/2018
2	Restored copyright	18/Jun/2018
3	Update to footers per New Brand Guidelines	19/Jun/2018
4	New copyright page	21/Jun/2018
5	Rebranding update	25/Jun/2018
6	Rebranding update	13/Jul/2018
7	Rebranding update	13/Sep/2018
8	Update to Requirements	14/Feb/2019
9	Update to Sections 2.1, 2.6, 2.14, 2.15, 3.3	07/Dec/2022