

# Instructions to Download & Install FRANC3D Version 8.0

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## Section 1: Downloading

This document assumes that you will download files to your "downloads" folder.

If you are not already at:

<http://www.fracanalysis.com/software.html>

in your web browser, go there now, and click on the **Download Files** button, Fig 1.

This will prompt you to enter a UserName and Password, Fig 2, which you should have received already (via email). The username and password should be obtained from Process Optimization, or from the other distributors listed on the FAC home page.

Once you enter the username and password, you will see a list of folders, Fig 3.

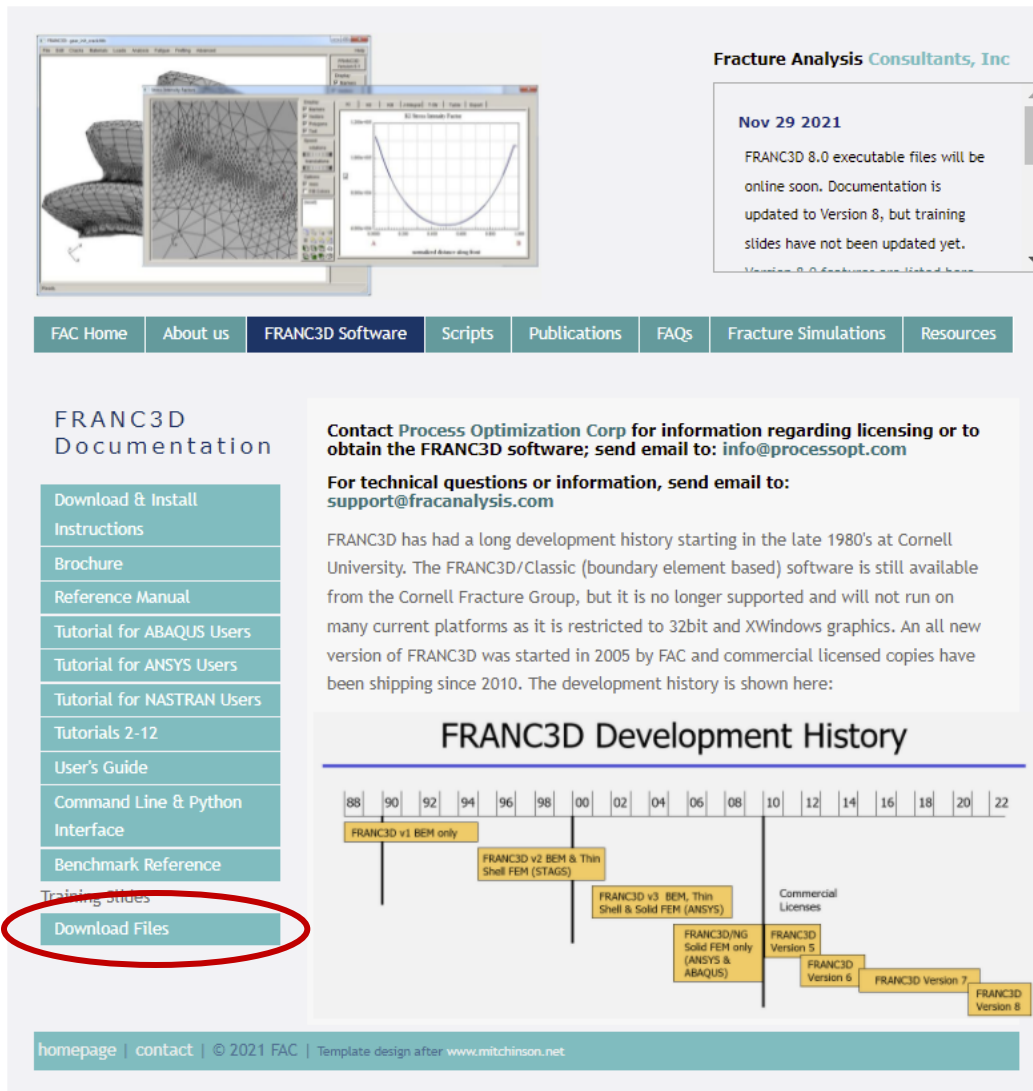


Figure 1 FAC software web page

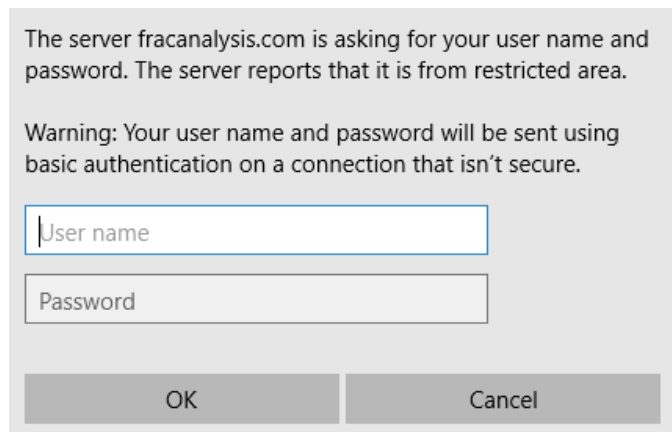


Figure 2 Download Files user name and password

# Index of /downloads

<u>Name</u>	<u>Last modified</u>
 <a href="#">Parent Directory</a>	
 <a href="#">Benchmarks/</a>	2021-11-29 11:39
 <a href="#">Executable/</a>	2021-11-29 12:02
 <a href="#">TestSuite/</a>	2021-11-29 11:34
 <a href="#">Tutorials/</a>	2021-11-29 12:29
 <a href="#">pdfs/</a>	2021-11-29 11:30

Figure 3 List of folders in downloads

Step 1: Click on the **Executable** folder, and then click on the folder for the latest version, Fig 4. If there are subfolders for minor version updates, click on the latest subfolder. This will give you a list of `.zip` and `.tgz` file names, Fig 5.

Inside the Executable folder (at the top level), there is a `readme.txt` file. This file gives a summary of the operating systems that are supported, and it indicates which Linux archive to download for your Linux flavor.

We support only 64bit operating systems. The `.zip` files are for MS Windows, and the `.tgz` files are for Linux. If you hover the mouse over the file name, the full name will be displayed at the bottom of the browser window.

Download the file for the flavor of Windows or Linux that you are running; see the "readme.txt" file (see Fig 4) if there are any doubts or you can contact us via email.

# Index of /downloads/Executable







<a href="#">Name</a>	<a href="#">Last modified</a>	<a href="#">Size</a>	<a href="#">Description</a>
 <a href="#">Parent Directory</a>		-	
 <a href="#">Version 7.5/</a>	2021-11-29 12:21	-	
 <a href="#">Version 8.0/</a>	2021-11-29 12:45	-	
 <a href="#">readme.txt</a>	2021-11-29 11:27	1.0K	
 <a href="#">rlm_lnx.tgz</a>	2021-11-29 11:28	1.5M	
 <a href="#">rlm_mswin.zip</a>	2021-11-29 11:28	3.2M	

Figure 4 List of franc3d version folders

# Index of /downloads/Executable/Version 8.0










<a href="#">Name</a>	<a href="#">Last modified</a>	<a href="#">Size</a>	<a href="#">Description</a>
 <a href="#">Parent Directory</a>		-	
 <a href="#">MSWin10_Installer/</a>	2021-11-29 12:45	-	
 <a href="#">Sandia/</a>	2021-11-29 12:45	-	
 <a href="#">franc3d-8.0.1-CentOS..&gt;</a>	2021-11-29 12:45	26M	
 <a href="#">franc3d-8.0.1-MSWin1..&gt;</a>	2021-11-29 12:45	15M	
 <a href="#">franc3d-8.0.1-RH-Alm..&gt;</a>	2021-11-29 12:43	29M	
 <a href="#">franc3d-8.0.1-Ubuntu..&gt;</a>	2021-11-29 12:44	28M	
 <a href="#">franc3d-8.0.1-Ubuntu..&gt;</a>	2021-11-29 12:44	30M	
 <a href="#">franc3d-8.0.1-openSU..&gt;</a>	2021-11-29 12:42	28M	

Figure 5 List of franc3d executable packages

Step 2: Select the *.zip* or *.tgz* file for your operating system, right-click on the file name, and select "Save link/target as..." to download and save the file to your "downloads" folder.

*Note that if you download a .tgz using a Windows PC, the .tgz extension might be changed automatically.*

Step 3: If you will be using a floating license with a license server, you should download either the *rlm\_lnx64.tgz* file for a Linux server or the *rlm\_win64.zip* file for a MS Windows server, Fig 6. The *.zip* and *.tgz* files contain the RLM executable and the *fracanalys.set* files. We will refer to these files in Section 2.2.

## Index of /downloads/Executable







<u>Name</u>	<u>Last modified</u>	<u>Size</u>	<u>Description</u>
 <a href="#">Parent Directory</a>		-	
 <a href="#">Version 7.5/</a>	2021-11-29 12:21	-	
 <a href="#">Version 8.0/</a>	2021-11-29 12:45	-	
 <a href="#">readme.txt</a>	2021-11-29 11:27	1.0K	
 <a href="#">rlm_lnx.tgz</a>	2021-11-29 11:28	1.5M	
 <a href="#">rlm_mswin.zip</a>	2021-11-29 11:28	3.2M	

Figure 6 RLM server software

## Section 2: License Installation

FRANC3D can be used with a node-locked license or with a server-based floating license.

A node-locked license is configured for a single client PC based on its MAC hardware or IP address.

A floating license is installed on a server that is running the RLM executable. Client PCs are configured to use the license server to check out a license. This allows multiple PCs to access a single license as opposed to a node-locked license where the license is tied to a single PC.

The license file (*franc3d.lic*) will be sent (via email) after you send us the relevant information as described below.

## **Section 2.1: Node-lock License**

A node-lock license file can be placed in the same folder as the `franc3d` executable.

*Note that our temporary trial license files can serve as generic node-lock licenses.*

Step 1: Choose the client PC where `franc3d` will be installed and determine the MAC or IP address. One way to do this is to start a command or terminal window and execute `"ipconfig /all"` for MS Windows or `"ifconfig -a"` for Linux. Then send us the Physical Address (for MS Windows) or the `HWaddr` (for Linux) information.

You can also use the `rlmhostid` executable from the `rlm_win64.zip` or `rlm_lnx64.tgz` archive (see Step 3 in Section 1).

You run `rlmhostid` from a MS Windows command line using:

- `.\rlmhostid ether`
- `.\rlmhostid internet`

to obtain the MAC or ethernet address, respectively.

For Linux, you run `rlmutil` from a terminal/bash window using:

- `./rlmutil rlmhostid ether`
- `./rlmutil rlmhostid internet`

Step 2: Send the information from Step 1 to us so that we can generate a `franc3d.lic` file that is locked to the client PC.

Step 3: Place the `franc3d.lic` file that we send to you into the folder that contains the `franc3d` executable (see Section 3).

## **Section 2.2: Floating License**

In Step 3 of Section 1, you should have downloaded either the `rlm_lnx64.tgz` file for a Linux server or the `rlm_win64.zip` file for a Windows server. The `.zip` or `.tgz` file contains:

```
fracanalys.set
```

```
rlm.exe (rlm for Linux)
rlmhostid.exe (rlmutil for Linux)
rlmutil.exe (rlmutil for Linux)
```

Note that most servers will have dedicated folders for licensing software. If not, you can create a folder for the RLM executable. You will need to place the *fracanalys.set* with the *rlm.exe* or you can configure RLM to find the *.set* file.

You should review the RLM End User license administration guide: [http://www.reprisesoftware.com/RLM\\_Enduser.html](http://www.reprisesoftware.com/RLM_Enduser.html)

This document describes how to run RLM as a service (that will run in the background and automatically start on reboot) and how to configure such things as log files.

Step 1: Choose the server where RLM will be installed and determine the server name, the MAC or IP address, and the tcp/ip port. Review the **License File** portion of the **RLM End User** guide. You can use the same commands as described in Step 1 of Section 2.1.

Step 2: Send us the server name, id and tcp/ip port #. Note that we will use the default port 5053 if none is specified. We will generate a *franc3d.lic*, which is required for Step 3.

We will also need to know if the server is virtual and if a roll-over server is required.

A separate port # for the ISV *fracanalys* line in the *.lic* file might also be required.

Step 3: Place the *rlm.exe*, *fracanalys.set* and *franc3d.lic* file (that we will send via email) in a folder and start RLM.

For MS Windows, from a CMD line:

```
➤ rlm.exe -c franc3d.lic
```

For Linux, from a terminal/bash window:

```
➤ rlm -c franc3d.lic
```

This starts RLM interactively. RLM reads the *franc3d.lic* file and the *fracanalys.set* file, and should start the service, Fig 7.

```

09/21 14:57 (rlm) RLM License Server Version 13.0BL2

    Copyright (C) 2006-2019, Reprise Software, Inc. All rights reserved.

09/21 14:57 (rlm) License server started on renoir
09/21 14:57 (rlm) Server architecture: x64_w3
09/21 14:57 (rlm) License files:
09/21 14:57 (rlm)     franc3d.lic
09/21 14:57 (rlm)
09/21 14:57 (rlm) Web server starting on port 5054
09/21 14:57 (rlm) Using TCP/IP port 5053
09/21 14:57 (rlm) ... adding UDP/IP port 5053
09/21 14:57 (rlm) Starting ISV server fracanalys on port 33257
09/21 14:57 (rlm) New thread created to watch ISV fracanalys
09/21 14:57 (fracanalys) RLM License Server Version 13.0BL2 for ISV "fracanalys"
09/21 14:57 (fracanalys) Settings from RLM Version 13.0BL2 for ISV "fracanalys"
09/21 14:57 (fracanalys) Server architecture: x64_w3

    Copyright (C) 2006-2019, Reprise Software, Inc. All rights reserved.

    RLM contains software developed by the OpenSSL Project
    for use in the OpenSSL Toolkit (http://www.openssl.org)
    Copyright (c) 1998-2008 The OpenSSL Project. All rights reserved.
    Copyright (c) 1995-1998 Eric Young (eay@cryptsoft.com) All rights reserved.

09/21 14:57 (fracanalys)
09/21 14:57 (fracanalys) Server started on renoir (hostid: 00d861464157) for:
09/21 14:57 (fracanalys)     franc3d
09/21 14:57 (fracanalys)
09/21 14:57 (fracanalys) License files:
09/21 14:57 (fracanalys)     franc3d.lic
09/21 14:57 (fracanalys)

```

Figure 7 RLM service started for FRANC3D

Step 4: Test the RLM server by starting a web browser and entering your "server\_name":5054 in the URL. Fig 8 shows the webpage with the license status displayed. Note that 5054 is the default port, but this can be changed also.

Step 5: Set up RLM to start automatically on restart/reboot. Read **The License Server** portion of the RLM End User guide ([http://www.reprisesoftware.com/RLM\\_Enduser.html](http://www.reprisesoftware.com/RLM_Enduser.html)).



Lgins disabled

**RLM Administration Commands**

Choose a command from the list below

Status

Shutdown

Reread/Restart Servers

Switch Reportlog

New Reportlog

Switch Debuglog

Edit License Files

Activate License

Diagnostics

RLM Manual...

System Info

About...

**Status for "rlm" on pilsner (port 5053)**

RLM software version	v12.1 (build:2)
RLM comm version	v1.2
debug log file	_stdout_
license files	franc3d.lic

rlm Statistics	Since Start	Since Midnight	Recent
Start time	04/17 17:21:57	04/17 17:21:59	04/17 17:21:59
Messages	1 (0/sec)	1 (0/sec)	1 (0/sec)
Connections	1 (0/sec)	1 (0/sec)	1 (0/sec)

ISV Servers											
Name	port	Running	Restarts	Server Status	License Usage	Debug Log	REREAD	OPTIONS	TRANSFER	SHUTDOWN	
fracanalys	65496	Yes	0	<input type="button" value="fracanalys"/>	<input type="button" value="fracanalys"/>	<input type="button" value="fracanalys"/>	<input type="button" value="fracanalys"/>	<input type="button" value="fracanalys"/>	<input type="button" value="fracanalys"/>	<input type="button" value="fracanalys"/>	

Figure 8 RLM server web page

### Section 3: FRANC3D Installation

You should have already downloaded the appropriate set of files for the client PC where FRANC3D will be installed (see Section 1). If you have not already, you can unzip the files into a folder. The folder location will depend on the installation process at your site.

For this document, we have created a folder on the C: drive for MS Windows called "C:\f3d".

For Linux, we have created a folder in the user's home folder called "/home/bruce/f3d".

*Note that for MS Windows, you can create a shortcut for the franc3d.exe file and pin it to the taskbar or desktop.*

## Section 3.1: FRANC3D with a Node-lock License

Step 1: Define the environment variable: **FRANC3D\_PATH**

This must point to the folder that contains the franc3d executable.

- For MS Windows, this must be defined as a system-wide environment variable. Right-click on MyComputer (or ThisPC), select Properties, select the Advanced tab, and then select the Environment Variables button. Select the New button under System Variables and fill in the dialog, Fig 9.

Replace the folder in Variable value: with your folder name.

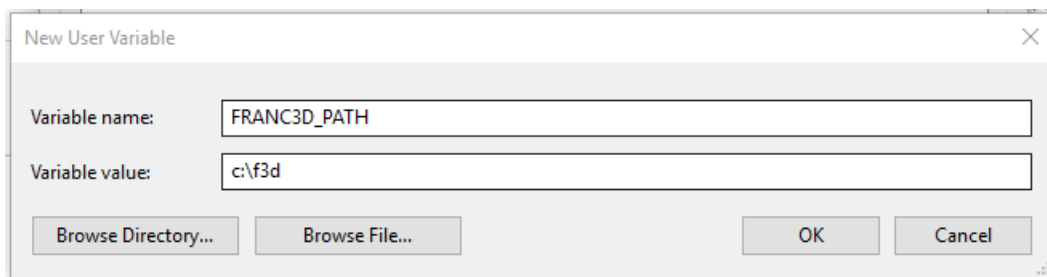


Figure 9 MS Windows FRANC3D\_PATH environment variable

- For Linux, the environment variable can be defined in a system-wide or user-specific resource/profile file (i.e., /etc/bash.bashrc or \$HOME/.bashrc). You can also define this from the command line from a terminal window; using the bash shell, this would be:  

```
export FRANC3D_PATH=/home/user/f3d
```

For persistence, it should be added to your .profile or .bashrc file.

Step 2: Start the franc3d executable to verify that the license is checked out and that FRANC3D starts.

- For MS Windows, double click on the *franc3d.exe* icon (or start it from the command line in a CMD window).
- For Linux, start franc3d from a terminal window; in the folder where franc3d is located, type `./franc3d`.

## Section 3.2: FRANC3D with a Floating License

Step 1: Define the environment variable: **fracanalys\_LICENSE**

- For MS Windows, this must be defined as a system-wide environment variable. Right-click on MyComputer (or ThisPC), select Properties, select the Advanced tab, and then select the Environment Variables button. Select the New button under System Variables and fill in the dialog, Fig 10.

Replace the server name and port # with your server information (see Section 2.2).

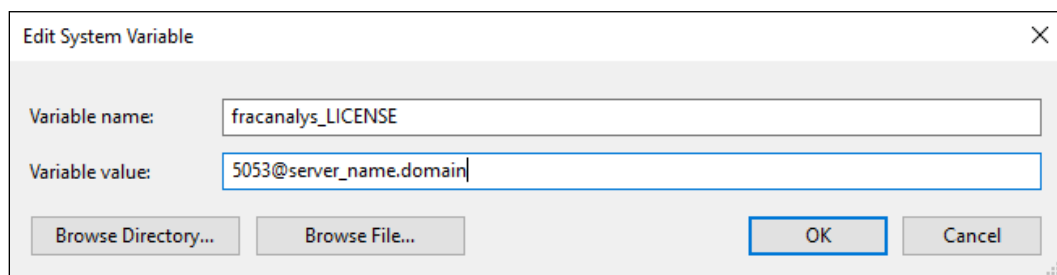


Figure 10 MS Windows fracanalys\_LICENSE environment variable

- For Linux, the environment variable can be defined in a system-wide or user-specific resource/profile file (i.e., /etc/bash.bashrc or \$HOME/.bashrc). You can also define this from the command line from a terminal window; using the bash shell, this would be: `export fracanalys_LICENSE=5053@alt.cfg.cornell.edu`  
For persistence, it should be added to your .profile or .bashrc file.

Step 2: Define the environment variable: **FRANC3D\_PATH**  
This must point to the folder that contains the franc3d executable.

- For MS Windows, you need to create the environment variable in the Advanced System Properties (see Step 1 of Section 3.1); this should point to C:\f3d.
- For Linux, you can add the environment variable to your .profile or .bashrc file (see Step 1 of Section 3.1); this should point to /home/user/f3d.

Step 3: Start the franc3d executable to verify that the license is checked out and that FRANC3D starts.

- For MS Windows, double click on the *franc3d.exe* icon (or start it from the command line in a CMD window).
- For Linux, start franc3d from a terminal window; in the folder where franc3d is located, type `./franc3d`.

### **Special Note for Linux installation:**

You can move the FOX (and any other) `.so` file, that is included in the packaged `.tgz` file, from the `/home/user/f3d` folder to a system folder, such as `/usr/local/lib`.

You might need to export the `LD_LIBRARY_PATH` to include the folder location of the FOX `.so` file.

The Python 3.# `.so` file is not included. You might need to install Python 3.# or add to your `LD_LIBRARY_PATH` (if you use the PyF3D module or the Python user-extensions).

FRANC3D is built using many "system" libraries, in addition to Python. You will need to install any packages that are required but missing from your system. You can determine which libraries are required by running the `ldd` command, type `ldd .\franc3d`

## **Section 4: Extra Downloads**

The FRANC3D documentation is available from:

<http://www.fraanalysis.com/software.html>

You can click on the menu buttons on the left side (see Fig 1) to view the pdf file; the pdf file can be saved to your PC. The files can also be downloaded from the "pdfs" folder (see Fig 3).

Tutorial and Benchmark example files are available from the "downloads" folder also.

You can click on the **Tutorial Models** or **Benchmark Models** folder (see Fig 3) to get to the sub-folders for each Tutorial or Benchmark example. Inside the various subfolders, you can right-click and select "Save link (or target) as..." to download a file; choose the files corresponding to the FE analysis code that you

will be using. You can also download all files as a single .zip file.

The **TestSuite** folder contains a *readme.txt* file that describes the folder contents.

## Section 5: Switching From Version 7

There are differences in the GUI preferences between Version 7 and Version 8. One should check (and set) the preferences when first starting FRANC3D (or when switching from Version 7).

One of the main differences is the crack insertion & meshing library. Version 8 allows one to use the old version 7 library, but it is recommended that you use the new insertion library, Fig 11.

The Preference tabs are described in Section 5 of the Reference document.

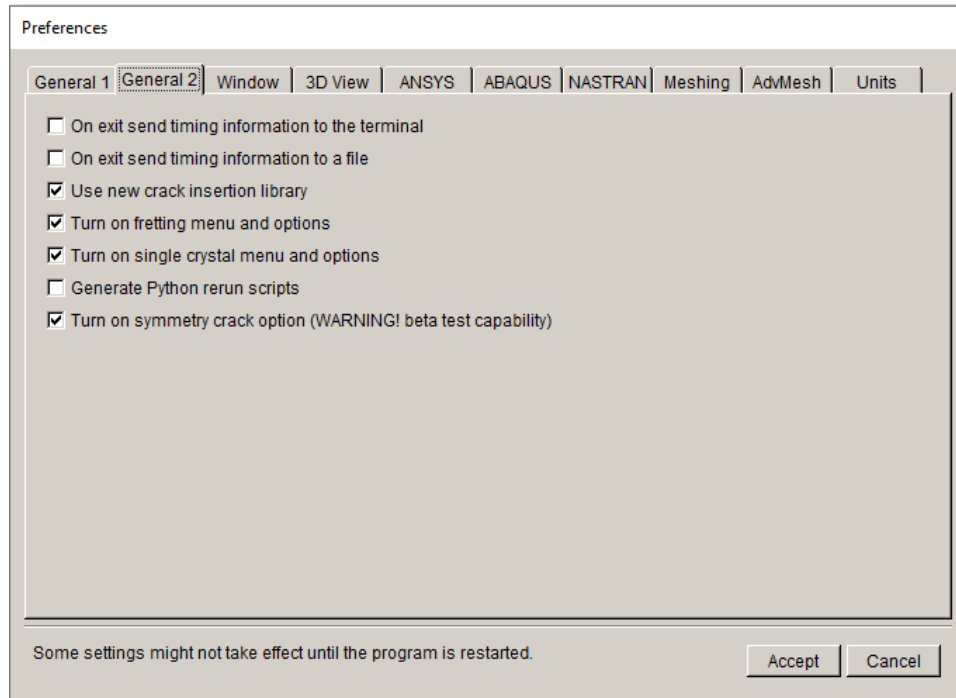


Figure 11 General 2 preferences tab