

Feature and Attribute Editor on Windows 7

This Technical Tip provides information on using the Feature and Attribute Editor (FAE) utility included with Trimble Geomatics Office (TGO) with a standard user account on a computer running the Windows 7 operating system.

Trimble Navigation Limited does not support TGO or its utilities on operating systems after Windows XP, so the information presented here is compiled from the experiences of Inland GPS and others.

Remember that when TGO was first introduced in late 1999, most users were running Windows 98 as individual users and no one gave much thought to computer security. Windows XP did not come out until 2001. Wave after wave of malware has drastically changed the cyberworld over the past decade-plus. Practices that were acceptable in 1999 are woefully inadequate today.

FAE seems to be the black sheep of the TGO utilities. FAE's executable, **FCEDIT.exe**, attempts to write to registry locations to which standard users are not permitted write access in modern versions of Windows. Worse yet, it does it in a way that apparently cannot be tamed by Windows 7's File and Registry Virtualization. When run by itself **FCEDIT.exe** will not operate properly unless it is launched by an account with administrator privileges. It seems that when TGO is run by an administrator and FAE is started from TGO's **Utilities** menu **FCEDIT.exe** obtains whatever it needs to run properly from the account that launched TGO.

This document provides a workaround as follows –

1. Create an administrator account named **TGO Admin** (or any other appropriate name you may choose) that will be used only for running TGO and only when FAE is required.
2. Use a utility named RunasSpc (free for private use – 20 euros [\$28.20 at the 25 May 2011 exchange rate] for up to five business computers) to encrypt **TGO Admin**'s credentials so the standard user can launch TGO as **TGO Admin** even though the standard user does not have or know **TGO Admin**'s password.
3. Create a separate desktop shortcut to launch TGO under **TGO Admin**'s administrator account.

One drawback with RunasSpc is that it is likely that at some point during the User Access Control (UAC) process the administrator-account password is accessible to the standard user. When that vulnerability may exist and how the standard user could capture the password is not obvious to Inland GPS. The System Administrator may change TGO Admin to a standard user when FAE is not required. Also, the RunasSpc documentation provides no information as to the type or level used in the cryptfile. Even though this workaround is not perfect, one must always keep in mind that if a malevolent user has physical access to a computer it is impossible to block all exploits.

If this solution is not acceptable in your organization, two possible alternative solutions are suggested at the end of this document.

This document is based on a TGO installation performed by the process detailed in the Inland GPS Technical Tips document titled [Installing TGO on Windows 7](#). The computer used is running Windows 7 Ultimate 64-bit operating system, but it is expected that all will work the same when installing TGO on the 32-bit version of Windows 7. This document was created with User Account Control (UAC) set to the most-sensitive **Default – Always notify me when:** setting.

Because web URLs can and do change, in most instances this document does not contain actual hyperlinks to resources outside the control of Inland GPS. For those items this document provides general navigation information that should not quickly go out of date. Please advise Inland GPS if you have trouble finding any of the required files.

The steps you need to follow to implement the workaround described above are -

1. Downloading RunasSpc

Using your web browser, open the Company Hessing web page at www.robotronic.de.

Click the [RunasSpc](#) hyperlink, then click the [Download runasspc >>>](#) hyperlink to download the file named **RunasSpcEn.zip**. Save the file to an appropriate location on your computer, such as the default Downloads folder.

Extract the contents of **RunasSpcEn.zip** to an appropriate location, such as a folder named **RunasSpcEn** in the default Downloads folder. Inside **RunasSpcEn** will be another folder named **RunasSpc**. Both executables used in this document are Ver 2.0.8.0.

2. Creating the single-purpose administrator account

Log on to the computer under an administrator account.

Create a new administrator account named **TGO Admin** (or any other name desired – for convenience this document will use that account name).

3. Moving the RunasSpc files to the location from which they will run

While still logged on to the computer under an administrator account, copy the **RunasSpc** folder from Step 1 above and paste to an appropriate location for 32-bit programs, such as:

[System]:\Program Files (x86)\

4. Creating the RunasSpc cryptfile that will launch TGO with TGO Admin's credentials

Log on to the computer under an administrator account unless you are already logged on as an administrator.

First we need to determine an acceptable extension for the RunasSpc cryptfile. The default extension generated by **runasspcadmin.exe** is **.spc**. While preparing this document Inland GPS checked the Windows 7 test computer for existing file-type associations as follows:

Clicked **Start**, then **Default Programs**, then **Associate a file type or protocol with a program**, and finally confirmed that the **Name** column was sorted ascending. It was found that the **.spc** extension was associated with a file type of PKCS #7 Certificates and Crypto Shell Extensions was the current default program. It was also found that the **.crf** extension was not in the list of extensions, indicating there wasn't any conflicting file association. You may have to find a different extension, but this document will use the **.crf** extension.

Using Windows Explorer, open the **[System]:\Program Files (x86)\RunasSpc** folder and double-click the **runasspcadmin.exe** icon.

Click **Run** to get past the **Open File – Security Warning** dialog. The **runasspcadmin** dialog at right will appear.

At **Path\Application.exe** use the **Browse** button to select **TGOOffice.exe**. The complete path will populate the field.

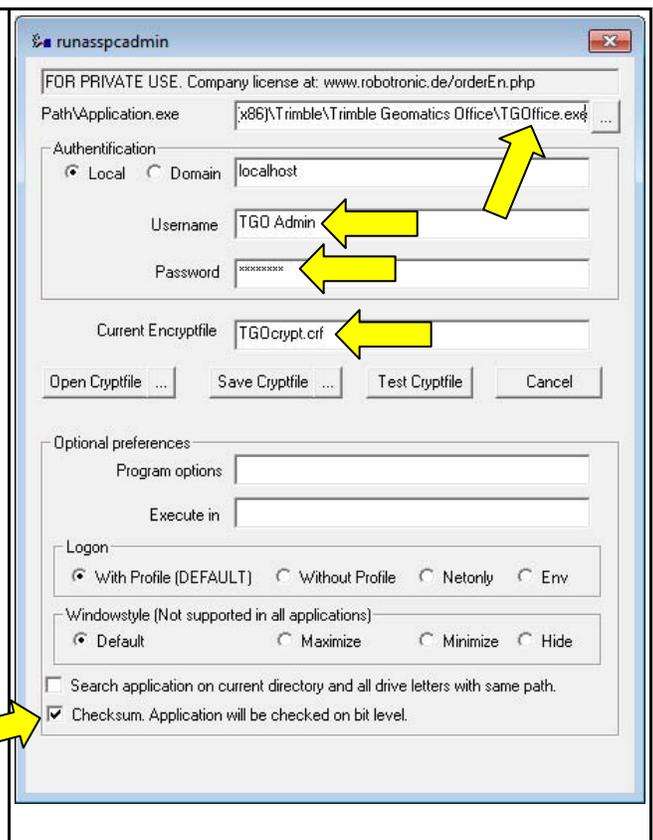
Under **Authentication** enter **TGO Admin's** username and password in the appropriate fields.

At the **Current Encryptfile** field, type in **TGOcrypt.crf** to name the cryptfile you are about to create.

Check the **Checksum. Application will be checked on bit level** option. This insures the cryptfile only starts the intended application because no other file would match the bit-level checksum.

Click the **Save Cryptfile** button to generate the cryptfile. It should be in the same folder with **TGOOffice.exe**.

Click the **Test Cryptfile** button. Acknowledge the UAC dialog by clicking **Yes**, then TGO should launch.



Close TGO, then close the **runasspcadmin.exe** dialog by clicking the **X** at the upper-right corner.

5. Creating a desktop shortcut to the RunasSpc cryptfile that will launch TGO

Log on to the computer under the standard user account to be used with TGO.

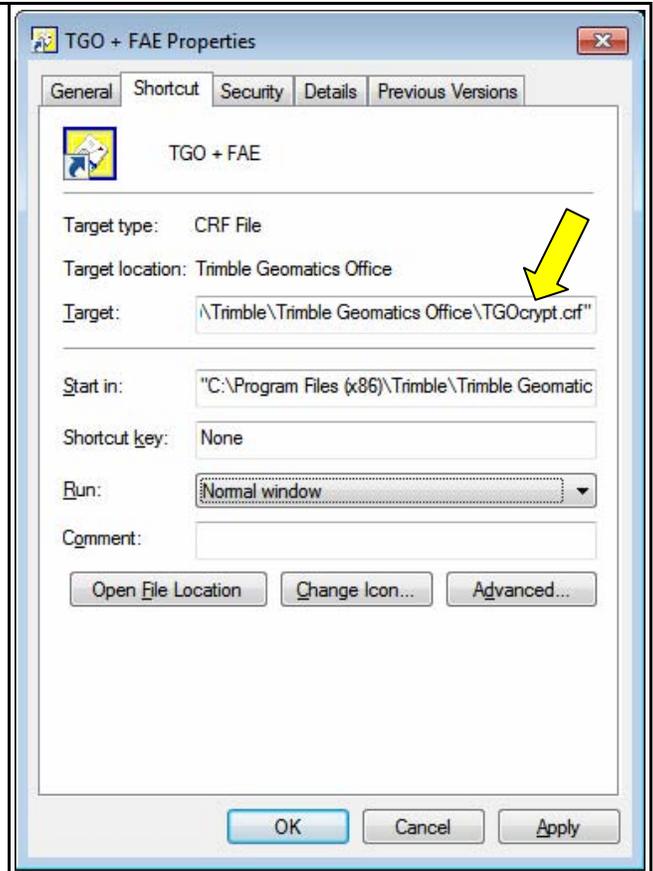
There should be a **TGOoffice** shortcut on the standard user's desktop. Create a copy of that shortcut on the desktop and rename the copy **TGO + FAE** or some other appropriate name.

Right-click the **TGO + FAE** shortcut, select **Properties** from the context menu, then click the **Shortcut** tab to show the **TGO + FAE Properties** dialog at right.

Edit the **Target** field to point to **TGOcrypt.crf**. The rest of the information in the **Target** field remains the same.

(Since we are targeting the cryptfile, the **Run** option on this dialog affects only the RunasSpc window that appears momentarily during the launch process – not the TGO window.)

Click **OK** to save the settings and close the dialog.



6. Associating the cryptfile with the correct application

In Windows Explorer, navigate to the folder that contains **TGOcrypt.crf**.

Right-click the **TGOcrypt.crf** icon and select the **Open with** option on the context menu.

An **Open with** dialog similar to the one at right should appear.



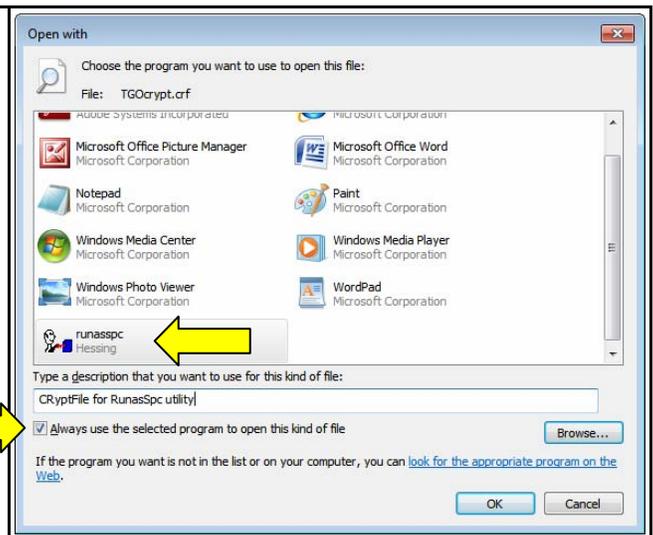
Click **Browse** to navigate to and select **runnasspc.exe** (NOT **runnasspcadmin.exe** – that program is only used to create the cryptfile.)

You may choose to enter a description of the file type - you could enter **CryptFile for RunasSpC utility** as shown at right.

Check the **Always use the selected program to open this kind of file** option.

Click **OK** to save the settings and close the dialog.

(Since this is a non-standard extension, it is believed necessary to establish this association for each user that will launch TGO via the cryptfile.)



7. Testing and using the workaround

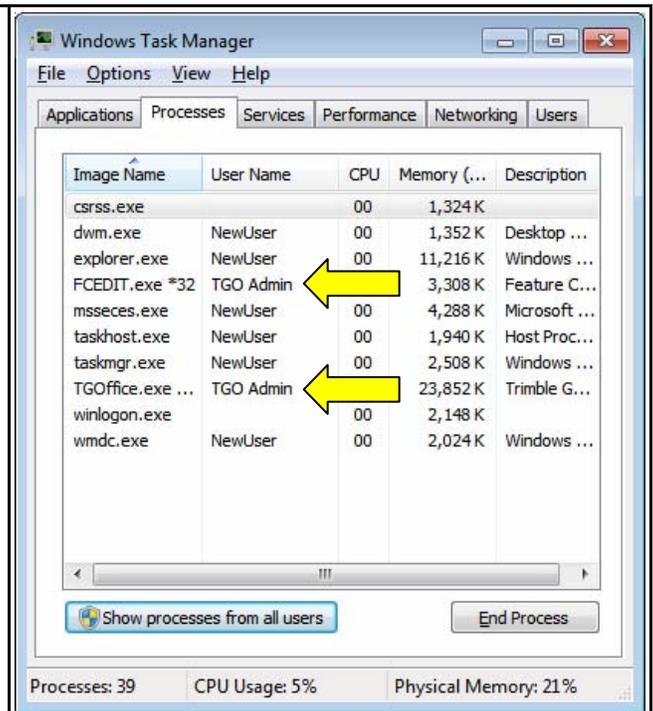
While logged on as a standard user (this document will use a standard user named **NewUser**), double-click the **TGO + FAE** desktop shortcut. RunasSpC will start. Click the **Start** button to allow the process to go forward. Click **Yes** on the UAC dialog, and TGO should launch.

Without opening a TGO project, select **Feature and Attribute Editor** from the **Utilities** menu.

Right-click on an empty area in the Taskbar and select **Start Task Manager** from the context menu.

In the **Windows Task Manager** dialog, click the **Processes** tab. You should see a screen similar to the one at right.

Note that both **TGOoffice.exe** and **FCEDIT.exe** are being run by **TGO Admin**.



It is also possible to have custom shortcuts targeting the cryptfile in locations other than the Desktop. Not rocket surgery, you can do that on your own if that is desired.

Some TGO users prefer to launch FAE by double-clicking the feature-and-attribute (.fcl) files that usually reside in the same folder with **FCEDIT.exe**. That method will not work with RunasSpC, but it is a simple matter to create a cryptfile and custom shortcut that will launch FAE separate from TGO. Then the user can select and open the individual .fcl files. Since, in the opinion of Inland GPS, starting FAE from TGO's **Utilities** menu provides a reasonably convenient way to access the feature-and-attribute files this document will not cover the simple process of creating the cryptfile and custom shortcut to launch FAE by itself.

8. Ordering your RunasSpc license

If this workaround meets the needs of your organization, go back to the Company Hessing web site accessed in Step 1 above and order your commercial-use license to cover an appropriate number of computers. At the 25 May 2011 exchange rate, the base package works out to only \$5.64 per computer.

Other considerations –

Since it is not likely FAE will run often or for long periods it is suggested that this less-than-ideal workaround will not pose a significant security risk. And the System Administrator always has the option of converting **TGO Admin** to a standard user when FAE is not needed.

RunasSpc quiet mode?

It is also possible to configure RunasSpc in a “quiet” mode. That will require a different and somewhat more complicated target in the modified shortcut. The target would be **runnasspc.exe** itself instead of the cryptfile. A command-line switch would direct **runnasspc.exe** to the cryptfile and another command-line switch would invoke the quiet mode. In our example, the shortcut **Target** field would read -

```
"C:\Program Files (x86)\RunasSpc\runnasspc.exe" /cryptfile:"C:\Program Files(x86)\Trimble\Trimble Geomatics Office\TGOcrypt.crf" /quiet
```

After implementing that configuration it was found that instead of the RunasSpc launch screen an **Open File – Security Warning** dialog appeared stating that the publisher of RunasSpc could not be verified. This method still required two additional clicks to open TGO after double-clicking the desktop shortcut. Sort of like six dozen of one or half a gross of the other – do it however you like.

Other methods?

After learning of this problem Inland GPS investigated a number of approaches to resolving the issues with FCEDIT.exe including the Microsoft Application Compatibility Toolkit and its Microsoft Standard User Analyzer. Inland GPS created application-compatibility shims, both for TGO and FAE, that used all the suggested tweaks. All efforts via these avenues were met with failure.

If you find better way to fix this problem, please let Inland GPS know.

Alternatives to RunasSpc?

Inland GPS did not do an extensive search on this topic, but did notice two possibilities –

1. BeyondTrust Software, Inc. (www.beyondtrust.com) has a product named PowerBroker Desktops that is said to manage elevated rights without giving administrator credentials to standard users. As of 25 May 2011 the basic package of PowerBroker desktop covers 25 computers at a price of \$930.00 including one year of maintenance and support. A free evaluation version is available for testing.

As a sidelight, BeyondTrust offers at no cost the PowerBroker Desktops Free Edition that manages elevation of common system tasks (adding printers, setting time, etc.) so standard users can perform those tasks without administrator credentials. You may need to use your search engine to locate this on the BeyondTrust web site.

2. Avecto (www.avecto.com) has its Privilege Guard privilege-management software that assigns privileges to applications as required, without standard users having administrator credentials. As of 25 May 2011, the base package of Privilege Guard covers 25 computers and sells for \$937.00, including one year of support and updates. Interested parties may download a free evaluation version of Privilege Guard.