

Appendix I –

Installing NASGRO, System Requirements, and User Data Migration

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I.1 Basic Installation Information

The NASGRO software suite is distributed via *two* or *three* installation programs (program files, data files, and license file). The filenames of these three installation programs are:

Program Files installer:	<i>nasgro###X-setup-progfiles.exe</i>
Data Files installer:	<i>nasgro###X-setup-datafiles.exe</i>
License File installer:	<i>nasgro###X-setup-license-file-xxxx.exe</i>

The *standard* installation of NASGRO (for Consortium members, domestic (US) licensees, and the government organizations defined below) is delivered with the three installers above. For all other licensees (non-US users, demo versions, etc.) only the first two installers (the program files and data files installer) are provided and a *secure* license file must be generated as described in Section I.3 below.

In these filenames, the three digits *###* and the single letter *X* denote the NASGRO version and release, where *X = a* for an Alpha release, *b* for a Beta release, and *f* for a “final” or production release. For example, *800a* denotes the alpha release of NASGRO version 8.00, while *810f* denotes the production release of version 8.10.

It is possible to install NASGRO in the following environments:

- Entirely on a local personal computer (PC)
- In a server environment where the program files are installed on a server and the data files are installed in the user’s folders either on a local PC or also on a server, or vice versa
- In a Windows Terminal Services (or virtual desktop) environment

In all cases appropriate Read/Write file access privileges and Administrator rights are required for installation and program execution. Even with Administrator rights, it is recommended to right-click an installer file and select “Run as administrator”.

The four characters *xxxx* in the License File installer denote which of two standard usage licenses applies: “*govt*” for government usage or “*cons*” for NASGRO Consortium and commercial usage.

The *government* usage license restricts NASGRO use to:

- NASA, ESA, and FAA employees
- NASA contractors for use on NASA projects
- ESA contractors for use on ESA projects
- FAA contractors and FAA Designated Engineering Representatives for Damage Tolerance for use on FAA projects or FAA certification activities

The *consortium/commercial* usage license is for use by NASGRO Consortium members and commercial licensees. Some Consortium members or commercial licensees who are

also NASA, ESA, or FAA contractors may use their *consortium/commercial* usage license for NASA, ESA, or FAA purposes.

The type of NASGRO *consortium/commercial* license agreement dictates which types of installation are allowed:

- Single-seat licensees can install NASGRO only on a single local PC.
- Only Consortium members and site licensees are allowed to install NASGRO on a server or in a Windows Terminal Services environment.

Users of the government version are also allowed to install NASGRO on a server or in a Windows Terminal Services environment.

The order in which the program files and data files installation programs are run is not important, but the license file **must** be installed last.

I.2 Standard Installation Entirely on a Local PC

The program files and data files installation programs will prompt the user for the destination folders. The prompts suggest “C:\Program Files (x86)” for the program files and “My Documents” for the data files, but the user may choose any desired locations. The program and data files do not need to be installed in the same folders. Please consult Section I.6 in this chapter for additional information on required file access permissions.

It is highly recommended to **NOT** install the NASGRO **data** files in the “C:\Program Files” or “C:\Program Files (x86)” location. Recent Microsoft operating systems use User Account Control (UAC), a feature that can help prevent unauthorized changes to your computer. UAC uses a special folder called the VirtualStore which is designed to add an extra layer of security protection for applications installed under the *Program Files* folder. All changes made to files in the “C:\Program Files” or “C:\Program Files (x86)” folder tree require a special Administrator permission or are stored in the VirtualStore. It is recommended to install the NASGRO data files in the user’s “My Documents” path. This is the default location used by the data files installer.

Also, even with Administrator rights it is recommended to install NASGRO by right-clicking on the installation programs and selecting “Run as Administrator”.

The data files installation program and the program files installation program each create a configuration file in the “NASGRO” subdirectory of the user’s “Application Data” or “AppData” directory (depending on the particular version of Windows in use):

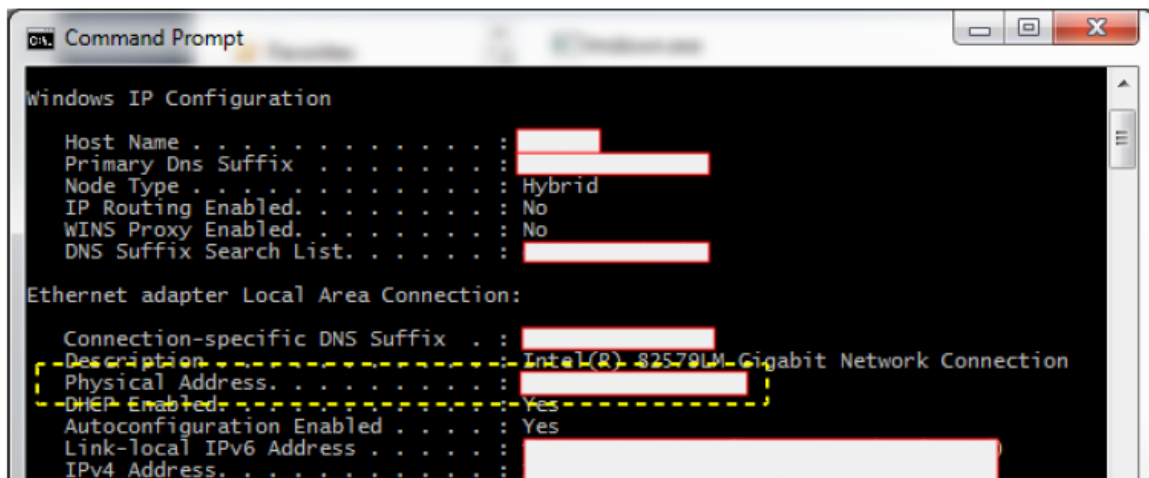
- These two “ini” files are located in C:\Users\username\AppData\Roaming\nasgro. Since these are “system files”, they may be hidden and to view them the user may need to alter their Windows Explorer settings to ensure that all files are shown.
- “nasgro.ini”, created by the data files installation program, contains the location of the data files (so that the program files know where to find the files).
- “nasgrolc.ini”, created by the program files installation program, contains the location of the program files (so that the license file installation program knows where to install the license file ... hence the license file must be installed after the program files are installed).
- If the end user does not have Administrator rights, and the installation was done by an IT person, then the above “ini” files need to be copied from the Administrator’s AppData folder into the User’s AppData folder.

I.3 Special Instructions for *Secure* Version Installation

Some NASGRO single-seat licenses require installation of a secure version with additional restrictions or security provisions. Beginning with the release of NASGRO v8.1, this process has been completely changed from earlier versions.

For the secure versions, the user will run the program files installer and the data files installer as described above for the standard installation (but NOT a license files installer). The secured license file must be provided to the user by SwRI after the user provides SwRI the physical address of the machine as described below.

In order for SwRI to generate the secured license file, the user will need to provide SwRI with the physical address (*aka*, the MAC address or the Ethernet hardware address) of the PC on which NASGRO was installed. The physical address of the PC is six groups of two hexadecimal digits, separated by hyphens (-), for example: 12-34-56-78-AB. To obtain the physical address of a PC, the user should open a Command Prompt window and enter the following command: **ipconfig /all | more**. Usually the Command Prompt application can be found in **All Programs → Accessories**. An example screen is shown below, with the physical address listing enclosed by the dashed yellow lines:



```
Windows IP Configuration

Host Name . . . . . : 
Primary Dns Suffix . . . . . : 
Node Type . . . . . : Hybrid
IP Routing Enabled. . . . . : No
WINS Proxy Enabled. . . . . : No
DNS Suffix Search List. . . . . : 

Ethernet adapter Local Area Connection:

Connection-specific DNS Suffix . . . : 
Description . . . . . : Intel(R) 82579LM Gigabit Network Connection
Physical Address. . . . . : 
DHCP Enabled. . . . . : Yes
Autoconfiguration Enabled . . . . . : Yes
Link-local IPv6 Address . . . . . : 
IPv4 Address. . . . . :
```

Note that when issuing the **ipconfig** command as instructed above, it is likely that a number of different physical addresses will be displayed. The physical address that is needed is the one corresponding to the “*Ethernet adapter Local Area Connection*” as shown in the above screen.

Once this physical address is obtained, please send it by e-mail to SwRI (Joe Cardinal, jcardinal@swri.org) and a license file will be generated and returned along with instructions for where to save it on the user’s machine (provided below in Section 3.1).

A typical license file may look like this:

```
FEATURE nasgro.8.10.f.c nasgro 1.000 permanent uncounted \  
HOSTID=[REDACTED] TS_OK SIGN="0010 [REDACTED] B262 5901 D078 0331 \  
5208 [REDACTED] 28AC [REDACTED] 5A01 [REDACTED] C875 B249 FE66 C5E3 [REDACTED] A25D \  
C1D9 [REDACTED] A7DA"
```

1.3.1 Instructions for Saving the Secure License File

The secure license file is a text file having a name of the form *nasgro###fc_XXXXXX.txt* where *###* corresponds to the NASGRO version number and *XXXXXX* is an identifier for the user's company name. After receiving the license file from SwRI:

1. Copy the supplied license file to the NASGRO Program Files installation folder. For example, assuming the default location was chosen during installation, this would be *C:\Program Files (x86)\nasgro###f* or *C:\Program Files\nasgro###f*. Otherwise, if you did not install in the suggested folders, you will need to copy the license file to the folder that you specified.
2. Rename the above text file to *nasgro.lic*. (Note, it is helpful to have Windows display the file extensions to ensure that you have renamed the file properly.)

I.4 Installation in a Server Environment

The program files and data files installation programs will prompt the user for the destination folders. Typically, the program files will be installed in a common area on the server for access to all users, while the data files will be installed on the individual users' own local PC's, or perhaps in the individual users' data directory on that or another server. Please consult Section I.6 in this Appendix for additional information on required file access permissions.

It is highly recommended to **NOT** install the NASGRO **data** files in the “C:\Program Files” or “C:\Program Files (x86)” location. Recent Microsoft operating systems use User Account Control (UAC), a feature that can help prevent unauthorized changes to your computer. UAC uses a special folder called the VirtualStore which is designed to add an extra layer of security protection for applications installed under the *Program Files* folder. All changes made to files in the “C:\Program Files” or “C:\Program Files (x86)” folder tree require a special Administrator permission or are stored in the VirtualStore. It is recommended to install the NASGRO data files in the user's “My Documents” path. This is the default location used by the data files installer.

Also, even with Administrator rights it is recommended to install NASGRO by right-clicking on the installation programs and selecting “Run as Administrator”.

The data files installation program and the program files installation program each create a configuration file in the “NASGRO” subdirectory of the user's “*Application Data*” or “*AppData*” directory (depending on the particular version of Windows in use):

- These two “*ini*” files are located in C:\Users\username\AppData\Roaming\nasgro. Since these are “system files”, they may be hidden and to view them the user may need to alter their Windows Explorer settings to ensure that all files are shown.
- “*nasgro.ini*”, created by the data files installation program, contains the location of the data files (so that the program files know where to find the files).
- “*nasgrolic.ini*”, created by the program files installation program, contains the location of the program files (so that the license file installation program knows where to install the license file ... hence the license file must be installed after the program files are installed).

I.4.1 Installation in a Server Environment for Multiple Users

The essential component to a successful NASGRO installation in a multi-user server environment is that each user has the two configuration files (“*nasgro.ini*” and “*nasgrolic.ini*”) in the “*Application Data*” or “*AppData*” directory (depending on the particular version of Windows in use) on his/her own PC.

For program files installed on a server in a single location to be available to multiple users, this requirement can be satisfied in two different ways:

- 1) the program files are installed for every user using his/her PC and specifying the same folder on the server for the installation location; each such installation will overwrite the program files installed by a previous user (no problem since these are identical each time) but it also ensures that the “*nasgrolic.ini*” configuration file is installed properly in the user’s “*Application Data*” or “*AppData*” directory
- 2) alternatively, the program files can be installed once on the server using any user’s PC, but then that user’s “*nasgrolic.ini*” configuration file must be copied manually to every other user’s “*Application Data*” or “*AppData*” directory

Similarly, there are two ways to satisfy this requirement for data files installed on a server in a single location to be available to multiple users:

- 1) the data files are installed for every user using his/her PC and specifying the same folder on the server for the installation location; each such installation will overwrite the program files installed for a previous user (care should be taken here in case data files have been changed by another user prior to a particular installation) but it also ensures that the “*nasgro.ini*” configuration file is installed properly in the user’s “*Application Data*” or “*AppData*” directory
- 2) alternatively, the data files can be installed once on the server using any user’s PC, but then that user’s “*nasgro.ini*” configuration file must be copied manually to every other user’s “*Application Data*” or “*AppData*” directory

1.4.2 Installation in a Windows Terminal Server (or virtual desktop) Environment

The program files and data files installation programs will prompt the user for the destination folders.

The program files will be installed in a common area on the server for access to all users. The program files installation program will create a configuration file on the server in the “*nasgro*” subdirectory to the server’s “*Application Data*” or “*AppData*” directory. This file is named “*nasgrolic.ini*” and it contains the location of the program files (so that the license file installation program knows where to install the license file ... hence the license file must be installed after the program files are installed). This file must be copied to the “*nasgro*” subdirectory to the “*Application Data*” or “*AppData*” directory in the individual user’s own data area. This “*nasgro*” subdirectory must be created if it does not already exist in the user’s own data area.

The data files must initially be installed on the server and then copied to the individual user’s own data area. The data files installation program will create a configuration file on the server in the server’s “*Application Data*” or “*AppData*” directory. This file is

named “*nasgro.ini*” and it contains the location of the data files. This file must be copied to the “*nasgro*” subdirectory to the “*Application Data*” or “*AppData*” directory in the individual user’s own data area, and then edited to contain the path to where the data files were copied in the individual user’s data area. This “*nasgro*” subdirectory must be created if it does not already exist in the user’s own data area.

If the user’s disk area is volatile (i.e., files are not retained upon logoff), it may be possible to automate copying these two files to the user’s disk area via batch files run at logon.

Please consult Section I.6 in this Appendix for additional information on required file access permissions.

I.5 General System Requirements

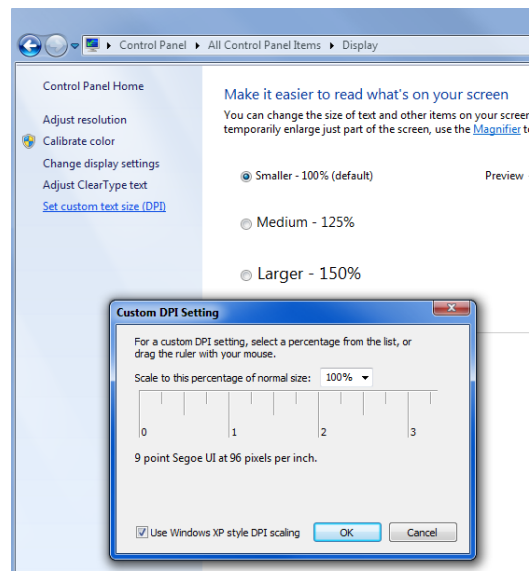
NASGRO has been successfully installed and tested on a variety of different Windows operating systems. Current development and testing activity is focused on Windows 7 implementations. NASGRO has been tested on Windows 7, 8 and 10 operating systems and runs successfully. NASGRO also runs successfully on Linux and MacOS using the *Wine* Windows compatibility program. In addition, NASGRO runs equally well on 32-bit and 64-bit systems, but as a 32-bit code it does not take advantage of the 64-bit architecture.

I.5.1 Requirements for Disk Space and RAM

- Installation: 400MB disk space for NASGRO program and data files
- Running: sufficient space for user data files (e.g. load spectrum files) and program output files (dependent on user-selected frequency of writing output to file). The NASGRO component programs each typically take up less than 25MB of RAM.

I.5.2 Recommended Graphics Settings

- **A minimum vertical screen resolution of 800 pixels;** for example, a resolution of 1280x800 (width x height) would be sufficient. Going to the Control Panel or right-clicking in the desktop will allow you to display and/or change the screen resolution.
- **A display DPI setting of 96;** on some systems this is labeled as the “Smaller - 100% (default)” setting or the “Normal size (96 DPI)”. At settings other than 96 DPI some NASGRO GUI elements (input boxes, drop down menus, etc.) overlap each other. Access to the display of the DPI setting and the ability to change it depends on the version of Windows on the user’s machine. Generally, going to the Control Panel or right-clicking in the desktop will allow you to display and/or change the DPI setting. For example, the display from a Windows 7 machine is shown below; similar displays are possible with Windows 8 and 10 systems.



- With certain **font settings**, some NASGRO GUI elements (input boxes, drop down menus, etc.) may overlap each other. The font setting can be accessed via the Windows Control Panel and clicking on “Fonts” to select a font and font size. Select "Tahoma" at size 8 if available. If not, then experiment with other fonts in that size or close to that size.

As mentioned in the earlier sections on specific installation environments, even with Administrator rights it is recommended to install NASGRO by right-clicking on the installation programs and selecting “Run as Administrator”.

I.6 File and Folder Access Permissions

Several folders require “write” permissions for successful operation of NASGRO:

- NASGRO executable files location
 - Suggested at installation: “*C:\Program Files (x86)*” path, but can be anywhere
 - Access required during runtime
 - Files/folders affected
 - Temporary runtime folder (all data files needed for run are copied here because computational core requires all files to be in one folder)

- NASGRO data files location
 - Suggested at installation: “*My Documents*” path, but can be anywhere
 - Access required during runtime
 - Files affected
 - User materials files
 - User stress distribution and load spectrum files
 - Program output files

It is highly recommended to **NOT** install the NASGRO **data** files in the “*C:\Program Files*” or “*C:\Program Files (x86)*” location. Recent Microsoft operating systems use User Account Control (UAC), a feature that can help prevent unauthorized changes to your computer. UAC uses a special folder called the VirtualStore which is designed to add an extra layer of security protection for applications installed under the *Program Files* folder. All changes made to files in the “*C:\Program Files*” or “*C:\Program Files (x86)*” folder tree require a special Administrator permission or are stored in the VirtualStore. It is recommended to install the NASGRO data files in the user’s “*My Documents*” path. This is the default location used by the data files installer.

I.7 Installation Error Messages

Most installation related error messages can be avoided by ensuring that appropriate Read/Write file access privileges and Administrator rights were used during the installation process. Even with Administrator rights, it is recommended to right-click an installer file and select “Run as administrator”.

Another common cause of error messages (for secure license installations) is mistakes made in saving and renaming the license file (see Section I.3.1).

Below is a list of possible error messages that may occur along with a description of their meaning and a recommendation for their resolution.

Error Message #1:

No entry for this version was found in "nasgrolc.ini" or "nasgrolc.ini" was not found.

Meaning and Resolution:

This means that the "nasgrolc.ini" file is not located in the proper directory (C:\Users\username\AppData\Roaming\nasgro) *OR* that the version in question (say, 8.1f) does not have an entry in "nasgrolc.ini". Both indicate an issue with installation, usually the absence of "nasgrolc.ini". First debugging step: Verify the location of the "nasgrolc.ini" file and view its contents to ensure the version exists. (It can be opened using Notepad). See Section I.2 of this Appendix. This file should be located in C:\Users\username\AppData\Roaming\nasgro.

Error Message #2:

"nasgro.lic" was not located in the directory specified in "nasgrolc.ini"

Meaning and Resolution:

This means that the "nasgro.lic" file was not in the directory listed for that version in "nasgrolc.ini". Either the file is missing, named incorrectly, or the "nasgrolc.ini" entry is pointing to the wrong directory. Debugging: Open *nasgrolc.ini* in Notepad, find the directory for that version, verify that "nasgro.lic" is there (case sensitive) and named properly (no hidden .txt extensions). The file type should read "License" or "LIC" when viewed in the File Explorer. This is a common error message (for secure license installations) caused by making a mistake in saving and renaming the license file (see Section I.3.1).

Error Message #3:

There was an error parsing "nasgrolc.ini" or "nasgro.lic"

Meaning and Resolution:

This is a generic error indicating either *nasgrolc.ini* or *nasgro.lic* is malformed in some way. The best recourse to resolve this error is to send a copy of "nasgrolc.ini" and "nasgro.lic" to SwRI for debugging.

Error Message #4:

There is an error in the contents of the license feature "type" -- the license type is not correctly defined

Meaning and Resolution:

This means the license file is malformed or has been edited in some way. The best recourse to resolve this error is to send a copy of "nasgro.lic" to SwRI for debugging. It's either a mistake made when generating the license or someone has edited it. The latter will also generate error message number 6.

Error Message #5:

There is an error in the contents of the license feature "Version" -- the License version does not match the NASGRO version.

Meaning and Resolution:

This means the version of NASGRO being executed does not match the version listed in the feature keyword in the license. If you are running 8.1f and it opens a file with the feature ("nasgro.8.20.b.g") --- it will generate this error, because that is an 8.2b license. Most likely cause: Error in the "nasgrolic.ini" file (user edited it to point to an already existing location), installed the incorrect license (say, one for a previous version) or other such copy and paste error. Solution is to send the "nasgrolic.ini" file and the "nasgro.lic" file to SwRI for debugging

Error Message #6:

There is an error in the contents of the license "Return Code" -- this license is not valid.

Meaning and Resolution:

This means the license has been denied because the digital signature is incorrect -- someone has edited the license, inadvertently or otherwise. A new license will need to be installed, or replaced with an unaltered copy of the previous license.

Error Message #7:

This license has expired.

Meaning and Resolution:

This message is issued when a time-limited license has expired, usually for a demo version. Contact SwRI to resolve.

In the event that the user needs to contact SwRI for debugging, the user should provide the following items:

- A copy of their "nasgrolic.ini" file in the user's AppData directory and the full path to that file (or a screen shot showing the path)
- A copy of their "nasgro.lic" file in the user's AppData directory and the path to that file (or a screen shot showing the path)
- A screen shot of the NASGRO program files folder (including the file types and sizes), i.e., C:\Program Files (x86)\nasgro810f
- A screen shot of the NASGRO program files folder (including the file types and sizes), i.e., C:\Users\username\Documents\nasgro810f

I.8 Migrating User Data Files from Prior NASGRO Versions to a Current Version

Starting with version 6.2, NASGRO is distributed with a User Data Files Migration Utility which, similar to the other NASGRO modules, is called up from the NASGRO main window by clicking on the “*Migrate User Data*” button (at the bottom of the NASGRO main window). The purpose of this utility is to make it easier for a user to copy user data files from an older installation when upgrading to a newer version of NASGRO, without having to manually find and copy these files. Some users install new NASGRO versions in the same location as older ones; this utility is useful for those who install new versions in different locations from prior versions.

A detailed description of the User Data File Migration Utility is available by clicking on the “*Help*” button that appears on this utility’s main screen after clicking on the “*Migrate User Data*” button.

In addition, starting with version NASGRO 6.2, the suggested installation location for NASGRO data files has changed from the “*C:\Program Files*” path to the “*My Documents*” path due to increased restrictions in newer versions of the Microsoft Windows operating system on accessibility to files placed in the “*C:\Program Files*” path. In this situation, this utility will allow a user to copy user data files from a pre-6.2 installation that was in the “*C:\Program Files*” path to the new path used for v6.2 (and up) installations.

The user data files this utility applies to include the following:

- 1) NASFLA material files: *USREEM*, *USRETM*, *USREWMM*, *USRMFC*, *USRMFM*, *USRMTC*, *USRMTM*, *USRMXC*, *USRMXM*, *USRTBC*, *USRTBM*, *USRTTC*, *USRTTM*
- 2) NASFLA spectrum files: *BLOCKS*, *BLOCKT*
- 3) NASMAT files: *userdata.dat*, *userdkeffdata.dat*, *userdkeffhead.dat*, *userhead.dat*, *usrkcdata.dat*

Starting with NASGRO version 7.1, NASFLA material files are distributed in the XML format. During data file migration, this utility will convert to XML any older data files that use the pre-7.1 format.