

Concurrent Licensing with GeoMedia Applications

The GeoMedia suite of applications have the ability to utilize FLEXlm's concurrent license option which allows software licenses to be used anywhere on the network instead of being tied to specific computer hardware (node locked). For example, you may have twenty people in your department who need to access GeoMedia, but at any given time only five copies may be in use. Using concurrent licensing, you can load GeoMedia to everyone's workstation, but only five copies will run concurrently. As each workstation initializes GeoMedia, a license is checked out from a license server. When all licenses are checked out, no one else can access the application until one of the current users is finished.

NOTE: Concurrent licensing requires specific applications to be present on the license server as well as a license pool file.

The four main components of FLEXlm's concurrent licensing are:

- The license manager - *lmgrd.exe*
- The vendor daemon - *INGR.exe*
- The license pool file, which contains the application licenses
- The client application (GeoMedia) and client license file

NOTE: The first three items listed above (*lmgrd.exe*, *INGR.exe*, and license pool file) are located on the license server. The client license file is located on the machine running the client application (i.e. GeoMedia.)

The license manager daemon (*lmgrd*) handles the initial contact with the client application program, passing the connection on to the appropriate vendor daemon (*INGR*). It also starts and restarts the vendor daemons.

The vendor daemon keeps track of how many licenses are checked out, and who has them. If the vendor daemon terminates for any reason, all users lose their licenses (though this does not mean the applications suddenly stop running). The application will continue to run on the checked out license until the user exits the application. Users normally regain their license automatically when *lmgrd* restarts the vendor daemon.,

Client programs communicate with the vendor daemon through TCP/IP network communications. The client application and the daemon processes (the license server) can run on separate nodes on your network across any size wide-area network.

Licensing data is stored in a text file called the license pool file. The license pool file is edited and installed by the license administrator. It contains information about the server nodes and vendor daemons and at least one line of data (called the FEATURE or INCREMENT line) that corresponds to each licensed product.

When running a concurrently licensed application, the following occurs:

1. The license module in the client application finds the client license file, which includes the host name (or address) of the license server, and port number of the license manager daemon (*lmgrd*).
2. The client application establishes a connection with the *lmgrd* and tells it what vendor daemon needs to be used. In this case, *INGR*.
3. *lmgrd* contacts the *INGR* daemon and sends that information back to the client.
4. The client application then establishes a connection with the *INGR* daemon and sends its request for a license.
5. The *INGR* daemon checks in its memory to see if any licenses are available and sends a grant or denial back to the client.
6. The license module in the application grants or denies use of the application, as appropriate.

Server Installation:

You should have a license administrator set up licensing on your system or network. To obtain proper license, you will need the TCP/IP address of the server you want to use as a license server.

Note: The TCP/IP address of the license server must be static. It cannot be dynamically assigned.

Refer to the the licensing web site at (<http://www.intergraph.com/imgs/license>) for specific information regarding the generation of licenses.

1. Determine the Host ID of the license server. For concurrent licenses the Host ID is the TCP/IP address of the server.
2. Go to the licensing web site at <http://www.intergraph.com/imgs/license> . Key in your License Authentication Code (LAC) at the prompt. After submitting the LAC a list of products will be displayed. Select the product for which you are generating the license file. Click on Generate License and when prompted key in the TCP/IP address of the license server in the following format:

INTERNET=xxx.xxx.xxx.xxx

where .xxx.xxx.xxx.xxx is the TCP/IP address.

If you are licensing multiple applications, you will need to add the license for each application to the license pool file.

3. Create a folder on the server for the licensing software and files.
4. Located on the product CD is a top level folder called *License*. Copy the contents of the *License* folder on the CD to the license folder you created on the server. Included in this folder will be the FLEXIm utility program **LMTOOLS**, the license daemon **LMGRD**, and the vendor daemon **INGR**.
5. If an options file is required refer to *Options File* section below for configuration details.

Server Configuration:

To configure a license server, you must be logged on to the license server with Administrator privileges.

1. The content used in the pool file comes from the information generated when you entered the Host ID on the license WEB site. On the server, the license pool file name is user specified and the content of the file depends on the number of applications you are going to license. In our example we named the license pool file *INGR.lic*. The contents of a typical license pool file containing one application license is shown below:

```
SERVER 129.135.144.212 INTERNET=129.135.144.212
VENDOR INGR
USE_SERVER
#
INCREMENT GeoMedia Professional INGR 5.0 permanent 35 \
0332CE03G7C4 ISSUER="Intergraph Mapping and GIS Solutions" ck= 102
```

If multiple GeoMedia applications are licensed concurrently, the license entries for each product need to be added to the license pool file. Use a text editor like notepad and copy the entire INCREMENT section from each separate license file into one large master pool file like the example shown below:

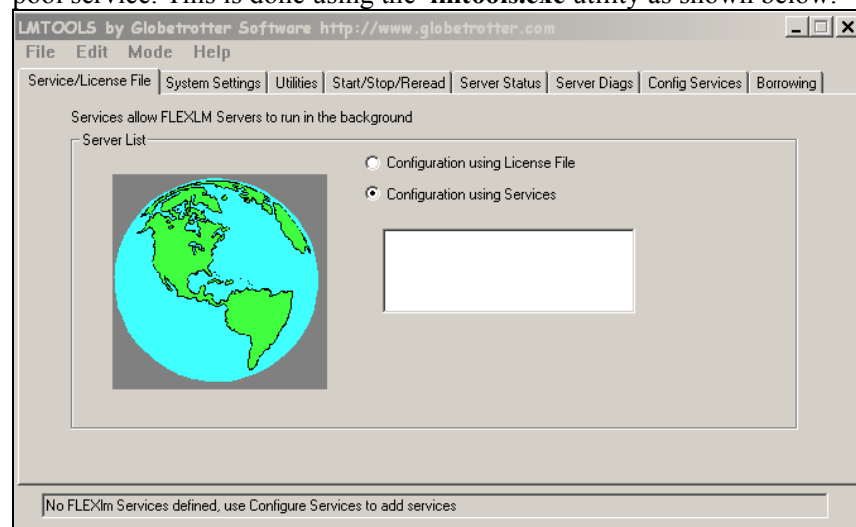
```
SERVER 129.135.144.212 INTERNET=129.135.144.212
VENDOR INGR
USE_SERVER
#
INCREMENT GeoMedia Professional INGR 5.0 permanent 35 \
0389FE05A7C6 ISSUER="Intergraph Mapping and 015 Solutions" ck= 102
#
INCREMENT GeoMedia Transaction_Manager INGR 5.0 permanent 25 \
```

9FA3BE6OECF9 ISSUER="Intergraph Mapping and 015 Solutions" ck=171

INCREMENT GeoN4edia PublicWorks_N1ana~er [NOR 5.0 permanent 25 \
040DB6B2A7 IA ISSUER="Intergraph Mapping and GIS Solutions' ck~ 131

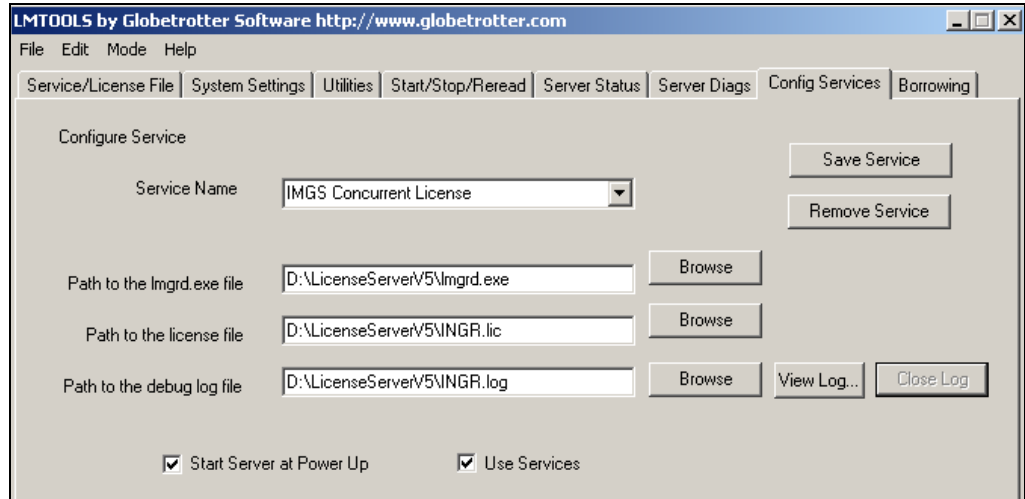
NOTE: You will need to rename *the_host* entry in the license file to the server's specific TCP/IP address. Use the TCP/IP address used for the INTERNET parameter.

2. After you have set up the license pool file, you need to start the license pool service. This is done using the **lmtools.exe** utility as shown below.



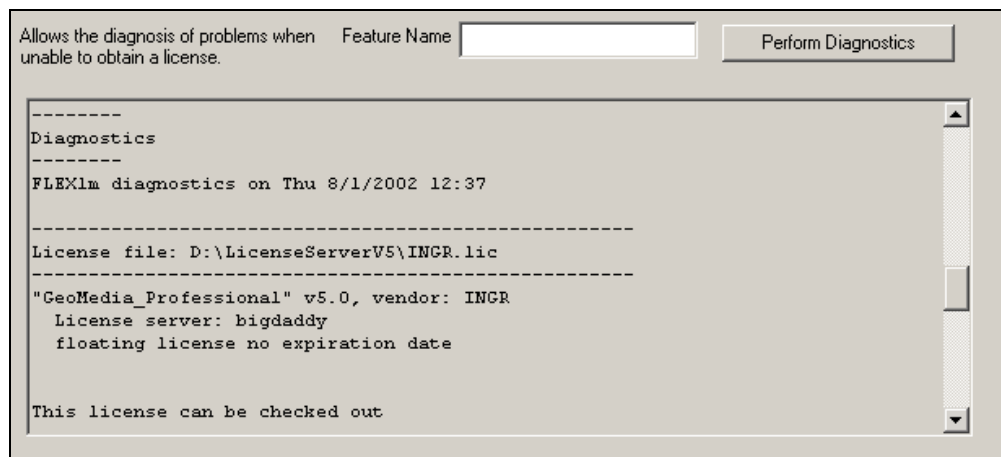
3. On the **LMTools** dialog, select the **Configuration using Services** radio button under the **Service/License** file tab.
4. Select the **Config Services** tab. This is where you configure the license pool service.
 - a. Enter a service name of your choice. E.g. *GeoMedia License Server*
 - b. Browse to select the license daemon file: *lmgrd.exe*
 - c. Browse to select the license pool file. E.g. *INGR.lic*
 - d. Browse to select a location for the log file and give the log file a name. E.g. *INGR.log*
 - e. Enable the 'Start Server at Power Up' and 'Use Services' options by selecting the appropriate check boxes..
 - f. Select the **Save** button to save the service. From now on, when this machine is rebooted, this license server will start automatically as a Windows service.

- g. To immediately start the service, select the **Start/Stop/Reread** tab and then select the **Start Server** button.



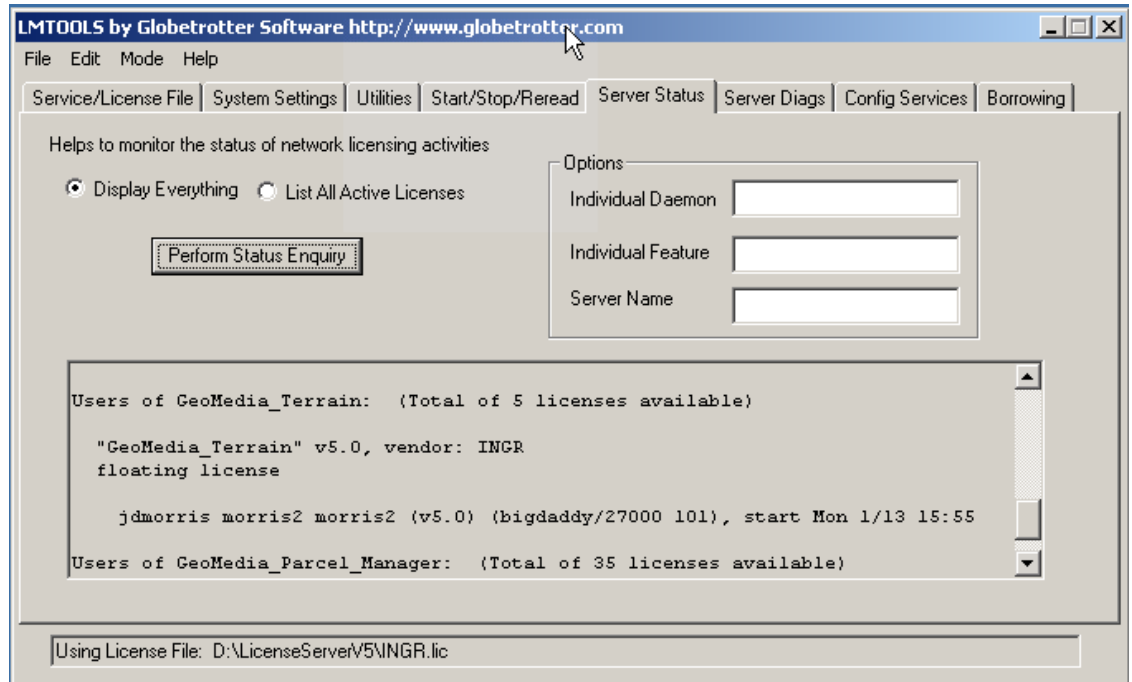
- 5. To verify the license server configuration and check for problems with the license file, select the **Server Diags** tab and choose the **Perform Diagnostics** button without entering a Feature Name. This will return the license status for each application (FEATURE) in the license pool file.

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- 6. To determine which licenses are checked out and by whom, select the **Server Status** tab and choose the **Perform Status Enquiry** button. This

will display the total number of available license for each application and which user has a specific application license checked out.



Client Installation:

The license administrator must supply a license file for each application on the client machine. The client side license files are specific to the application and have a preferred naming convention. A list of current applications and their associated license file names are shown in the table below:

Product	License File Name
GeoMedia	GeoMedia.lic
GeoMedia Professional	GeoMedia_Professional.lic
GeoMedia Grid	GeoMedia_Grid.lic
GeoMedia Parcel Manager	GeoMedia_Parcel_Manager.lic
GeoMedia PublicWorks Manager	GeoMedia_PublicWorks_Manager.lic
GeoMedia Terrain	GeoMedia_Terrain.lic

GeoMedia Transaction Manager	GeoMedia_Transaction_Manager.lic
GeoMedia Transportation Analyst	GeoMedia_TransportationAnalyst.lic
GeoMedia Transportation Manager	GeoMedia_TransportationManager.lic

For example, the license file for GeoMedia Professional should be called *GeoMedia_Professional.lic*.

The contents of each file need to contain the header information required to contact the license server as well as the license itself. For example, if the license pool file looks like the example below:

```
SERVER 129.135.144.212 INTERNET=129.135.144.212
VENDOR INGR
USE_SERVER
#
INCREMENT GeoMedia Professional INGR 5.0 permanent 35 \ 0389FE05A7C6
ISSUER="Intergraph Mapping and 015 Solutions" ck= 102
#
INCREMENT GeoMedia Transaction Manager INGR 5.0 permanent 25 \
9FA3BE6OECF9 ISSUER="Intergraph Mapping and 015 Solutions" ck=171
```

Then the contents of the client file *GeoMedia_Professional.lic* will be:

```
SERVER 129.135.144.212 INTERNET=129.135.144.212
VENDOR INGR
USE_SERVER
```

and the contents of the client file *GeoMedia_Transaction_Manager.lic* will be:

```
SERVER 129.135.144.212 INTERNET=129.135.144.212
VENDOR INGR
USE_SERVER
```

Because the license server is the same for both applications, the contents of the license files are identical, only the names of the files are different

The location of the license file is also important. For most the of the GeoMedia suite of applications, the location of the license file will either be in the folder:

../Program Files/GeoMedia Professional/Program

or in

../Program Files/GeoMedia/Program

This is not the case for some applications such as GeoMedia Grid or GeoMedia Terrain. Consult the Installation Guide for each of the applications if you are unsure where to put the license files.

To verify that the license file has been installed correctly, initialize the application and see if it runs correctly. If a dialog is displayed indicating the

license file is not found a problem may exist with either the license file or the connection to the license server.

Compatibility Issues:

If you are running multiple applications from the same vendor, concatenate the license entries for each of the applications into the same license pool file. If you have applications from different vendors utilizing concurrent licensing, you may need to take steps to prevent licensing conflicts during installation. There are several ways to accomplish this:

- Use multiple license servers (separate systems), each running one *lmgrd* and one license pool file.
- Install one license server (single system) running one *lmgrd* and several license pool files.
- Install one license server node running multiple *lmgrds* and multiple license files

License files for two different FLEXlm-licensed products may or may not be using the same version of FLEXlm. FLEXlm should handle this situation as long as the following guidelines are used:

- A newer *lmgrd* can be used with an older vendor daemon, but a newer vendor daemon will not work properly with an older *lmgrd*.
- A newer vendor daemon (or *lmgrd*) can be used with an older client program, but a newer client program might not work properly with an older vendor daemon.

Use the following guidelines to determine which version to use:

- Always use the newest version of *lmgrd* and the newest version of each vendor daemon.
- Use the newest FLEXlm utilities.

Example 1: Conflict with an older license daemon

The current release of ZI-Imaging applications uses an older version of FLEXlm. If you wish to serve licenses from that same system for both ZI and IMGS applications, you will need to reconfigure the ZI concurrent licenses to use the license manager daemon (*lmgrd.exe*) that is delivered with IMGS applications.

- 1) Create the IMGS Licenses service as outlined in the Server Configuration section.
- 2) Copy the *ziimag.exe* vendor daemon to the same folder as the IMGS *lmgrd.exe* file.
- 3) Copy the ZI license file to this location as well.

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- 4) Create a new service called ZI Licenses using the same procedure as that in the Server Configuration section. The only difference is that you will use the `lmgrd.exe` delivered by IMGS and specify the ZI license file.

Example 2: Conflict with a newer license daemon

The current release of AutoDesk uses a newer version of FLEXlm. If you wish to serve licenses from that same system for both AutoDesk and IMGS applications, you will need to reconfigure the IMGS concurrent licenses to use the license manager daemon (`lmgrd.exe`) that is delivered with AutoDesk applications.

- 1) Copy the `ingr.exe` vendor daemon to the same folder as the AutoDesk `lmgrd.exe` file.
- 2) Copy the IMGS License file to this location as well
- 3) Create a new service called IMGS Licenses using the same procedure as that in the Server Configuration section. The only difference is that you will use the `lmgrd.exe` delivered by AutoDesk and specify the IMGS license file.

Example 3: Variable Conflicts

On some client system, you may get the error: *License File Not Found* even though the `GeoMedia_Professional.lic` file exists in the proper location and contains a valid license. This is usually caused by a conflict with other FlexLM licensed software that utilizes a license variable to locate their license files. Look for a system variable called `LM_LICENSE_FILE`. If this variable exists, it will override the location for license files.

LaserScan is an example of an application that may cause this conflict. The LaserScan application uses the `LM_LICENSE_FILE` Variable to locate its licenses similar to the example shown below:

```
LM_LICENSE_FILE = d:\LaserScan\Data\lic\license.dat
```

Because the variable is set, GeoMedia applications will also look in this file for licenses. To solve the problem, add GeoMedia's license path to the variable definition. An example is shown below:

```
LM_LICENSE_FILE=d:\LaserScan\Data\lic\license.dat ; d:\program files\GeoMedia Professional\program\Geomedia_Professional.lic
```

Options File:

When using concurrent licenses, you can use the default mode or you can select from a number of options that control how the licenses are used. A License

Administrator can use the options file to further secure the use of the licenses available on the server. Usage can be controlled by user login, machine address or by groups. Specifically, the license administrator can:

- Allow the use of a license
- Deny the use of a license
- Reserve licenses for specific users
- Control the amount of information logged about license usage

Setup

1. Name of Options File: The options file needs to be the same name as the vendor. In this case, the vendor is INGR so the options file should be called *INGR.OPT*.
2. Location of Options File:: The options file should be in the same folder as the *VENDOR.EXE* file. In this case the vendor file is *INGR.EXE* and the *INGR.OPT* file should be in the same folder.
3. Add the option file as an option in the VENDOR line of the license file (*GeoMedia.lic*).
VENDOR INGR options=path\INGR.OPT
VENDOR INGR options=INGR.OPT (If same folder as INGR.EXE)
VENDOR INGR (see note below)
4. Restart the License server (**LMTOOLS> START/STOP/REREAD TAB> STOP SERVER> START SERVER**).

NOTE: If you follow the convention of naming the options file as VENDOR.OPT (e.g., *INGR.OPT*) and place in the same folder as the VENDOR DAEMON file (*INGR.EXE*), there is no need to edit the License file to add the 'options=' parameter. *INGR.EXE* will directly search for an options file with the same name in its folder and use it. If you do **not** want the options file to be used, you will have to rename *INGR.OPT*, or remove it from the folder.

When the vendor daemon is started by *lmgrd* the vendor daemon reads its options file. Only one options file is allowed per vendor daemon. If any changes are made in the options file, it must be re-read by the vendor daemon by restarting the license server.

Options File Syntax

Lines in the options file are limited to 2048 characters. The “\” character is a continuation character in options file lines. You can include comments in your options file by starting each comment line with a pound sign #. Everything in an options file is case sensitive. Be sure that user names and feature names are entered correctly.

Terminology:

user – Win NT/2k user name of the user executing the program

host – Machine where the application is executing

feature – Name of the feature being licensed (e.g., GeoMedia)

type – One of USER, HOST, INTERNET (IP Address), GROUP, or HOST_GROUP

The following options are supported with *INGR.EXE* vendor daemon. An example *EXAMPLE_INGR.OPT* file is available in the *License* folder on the CD.

- GROUP:** Defines a group of users for use in INCLUDE, INCLUDEALL, EXCLUDE, EXCLUDEALL, and RESERVE option lines. Multiple GROUP lines for the same group will add all the specified users into the same group.
Syntax: GROUP group_name user_list
Example: GROUP G1 user1 user2 user3
- HOST_GROUP:** Defines a group of users for use in INCLUDE, INCLUDEALL, EXCLUDE, EXCLUDEALL, and RESERVE option lines. Multiple HOST_GROUP lines for the same host group will add all the specified users into the same host group. Anywhere a host name can be used in an options file, an IP-address can be used instead (wild cards can be used in IP address).
Syntax: HOST_GROUP group_name host_list
Examples:
HOST_GROUP HG1 host1 host2 host3
HOST_GROUP HG2 123.456.*.* 122.223.32.*
- INCLUDE:** Includes a list or pre-defined group of users, hosts etc., in the list of who is allowed to use licenses for this feature. Anyone not in an INCLUDE statement will not be allowed to use that feature.
Syntax: INCLUDE feature type {list | group_name}
Examples:
INCLUDE GeoMedia USER user1
INCLUDE GeoMedia HOST host1
INCLUDE GeoMedia HOST_GROUP host1 host2 host3
Or
INCLUDE GeoMedia HOST_GROUP H1 (*h1=host1-3*)
INCLUDE GeoMedia GROUP user1 user2 user3
Or
INCLUDE GeoMedia GROUP G1 (*G1=user1-3*)

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- INCLUDE GeoMedia INTERNET 123.234.456.678
INCLUDE GeoMedia INTERNET 123.234.456.*
- INCLUDEALL:** Includes a list or pre-defined group of users in the list of who is allowed to use all features served by this vendor daemon. Anyone not in an INCLUDEALL statement will not be allowed to use these features.
- Syntax: INCLUDEALL type {list | group_name}
Example: INCLUDEALL USER user1
- EXCLUDE:** EXCLUDE overrides INCLUDE. Excludes a list or pre-defined group of users, hosts etc., in the list of who is allowed to use licenses for this feature. Anyone not in an EXCLUDE statement will be allowed to use that feature.
- Syntax: EXCLUDE feature type {list | group_name}
- Examples:
EXCLUDE GeoMedia USER user1
EXCLUDE GeoMedia HOST host1
EXCLUDE GeoMedia HOST_GROUP host1 host2 host3
Or
EXCLUDE GeoMedia HOST_GROUP H1 (*h1=host1-3*)
EXCLUDE GeoMedia GROUP user1 user2 user3
Or
EXCLUDE GeoMedia GROUP G1 (*G1=user1-3*)
EXCLUDE GeoMedia INTERNET 123.234.456.678
EXCLUDE GeoMedia INTERNET 123.234.456.* (group)
- EXCLUDEALL:** Excludes a list or pre-defined group of users, etc. in the list of who is allowed to use all features served by this vendor daemon. Anyone not in an EXCLUDEALL statement will be allowed to use these features.
- Syntax: EXCLUDEALL type {list | group_name}
Example: EXCLUDEALL USER user1
- MAX:** Limits license usage for a group or user.
- Syntax: MAX num_lic feature type {list | group_name}
Example: MAX 2 GeoMedia GROUP G1
- RESERVE:** Reserves licenses for a specific user or a group. Any licenses reserved for a user are dedicated to that user. Even when that user is not actively using the license it will be unavailable to other users.
- Syntax: RESERVE num_lic feature type {list | group_name}
Example: RESERVE 1 GeoMedia USER user1

NOLOG: Suppresses logging the selected type of event in the debug log file.
Syntax: NOLOG {IN | OUT | DENIED | QUEUED}
Example: NOLOG DENIED