



## Overview of NX Licensing

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1. FLEXlm Components
2. License checkout process
3. License server configurations
  - ▶ Single server configuration
  - ▶ Redundant server configuration
  - ▶ Multiple server configuration
4. License types
5. License bundles
  - ▶ Selecting license bundles
  - ▶ *License Options* utility
  - ▶ Manually setting license bundles
6. Common problems and solutions
  - ▶ FLEXlm errors
7. FLEXlm tools and utilities
8. Questions and answers

Notes:



## What is FLEXIm?



- ▶ FLEXIm is one of the most widely used and successful electronic licensing technologies.
  - ▶ It is used by over 2000 leading software vendors in over 20,000 products.
- ▶ FLEXIm controls and monitors customers' compliance with licensing terms. This is accomplished by placing a few FLEXIm calls into UGS PLM applications.
- ▶ FLEXIm can be used for electronic licensing of software products on single systems, local and wide area networks

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Notes:



## Two FLEXlm License Models



- ▶ FLEXlm components are organized on two basic license models. License models are classified according to their requirement for a license server:
  1. Licenses are served by a license server.
    - ▶ UG NX, iDEAS, etc.
  2. Licenses are not served by a license server but are available directly to the application.
    - ▶ Solid Edge

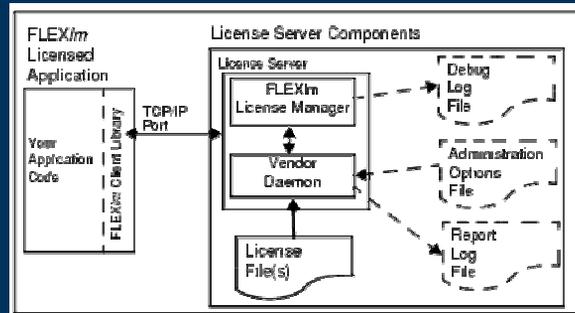
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FLEXlm components are organized based on the license model used by your software vendor. License models are classified according to their requirement for a license server:

- Licenses are served by a license server. This is commonly referred to as a *served* license model. License files supplied by your software vendor that include SERVER, VENDOR.
- Licenses are not served by a license server but are available directly to the application. This is commonly referred to as an uncounted, or *unserved* license model.



Commonly referred to as a served license model. License files supplied by your software vendor that include SERVER and VENDOR lines require a license server.



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### Served Licenses

For served licenses, there are four required FLEXlm components:

- [The FLEXlm-Licensed Application](#)
- [The License Manager Daemon \(lmgrd\).](#)
- [The Vendor Daemon,](#)
- [The License File.](#)

In addition to these four components, there are three optional components:

- [Debug Log File](#) — created and written by `lmgrd`.
- [Report Log File](#) — created and written by the vendor daemon for use by `SAMreport`.
- [End-User Administration Options File](#) — file created and maintained by the end user.

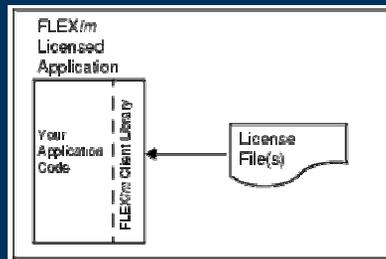
The figure shows the relationship these components have to one another. See [Section 1.3.3, "Component Overview"](#) for a description of each component.

Typically, the license server components reside on a machine in the network but can optionally reside on the same machine as the licensed application.

The three optional files: Debug Log, Administration Options, and Usage Log files are configured by the end user.



Licenses are not served by a license server but are available directly to the application. This is commonly referred to as an uncounted, or unserved license model.



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### Unserviced Licenses

License models that do not need a license server have two components:

- [The FLEX/m-Licensed Application](#), with the FLEX/m static client library linked into it.
- [The License File](#).

The figure shows this model.

The licensed application and license certificate reside on the same machine



## Components of FLEXlm



1. Application Program controlled by FLEXlm
  - ▶ *NX, IDEAS, Solid Edge*
2. License Manager Daemon
  - ▶ *lmgrd*
3. Vendor Daemon(s)
  - ▶ *uglmd, eds\_idX, sedemon*
4. License file(s)
  - ▶ *ugnx2.lic, eds\_idX.lic, selicense.dat*
5. Debug log file(s)
  - ▶ *Ugflexlm.log, eds\_idX.[hostname], debug.log*
6. License file environment variables
  - ▶ Specifies location of license files
  - ▶ Specifies behavior of license server
    - ▶ License bundle selection, etc.

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Notes:



- ▶ **License Manager Daemon (lmgrd)**
  - ▶ The license manager daemon (*lmgrd*) handles the initial contact with the application program, and then passes the connection on to the vendor daemon. The license manager daemon also starts and restarts the vendor daemon.
  
- ▶ **Vendor Daemon (uglmd)**
  - ▶ The vendor daemon (*uglmd*) keeps track of how many licenses are checked out and who has them. If *uglmd* terminates for any reason, all users lose their licenses\*\*. Users normally regain their licenses automatically when *lmgrd* restarts *uglmd*.

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\*\* Users don't instantaneously lose their licenses, but they will not be able to change Applications or save part files.



## FLEXlm License File



- ▶ The license file is a text file that stores the licensing data. The license file must be accessible to each machine designated as a license server. The license file contains all of the site-specific information required by FLEXlm. This includes:
  - ▶ Server Names and Host Identifiers
  - ▶ Vendor Daemon Name
  - ▶ PACKAGE Information (Optional)
  - ▶ INCREMENT / FEATURE Information

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Notes:



```
# Server line
SERVER serverA 08002b32b1616 27000

# Vendor daemon line
VENDOR uglmd

# Bundle
PACKAGE ADVDES uglmd 20.000 03179E54E9ED COMPONENTS=" \
  ADVDES_assemblies ADVDES_drafting ADVDES_dxf_to_ug \
  ADVDES_dxfdwg ADVDES_features_modeling \
  ADVDES_free_form_modeling ADVDES_gateway \
  ADVDES_iges ADVDES_sla_3d_systems \
  ADVDES_solid_modeling ADVDES_step_ap203 \
  ADVDES_step_ap214 ADVDES_ug_to_dxf \
  ADVDES_usr_defined_features" OPTIONS=SUITE ck=29
INCREMENT ADVDES uglmd 20.000 permanent 56 FC31C2D2D13A \
  SUPERSEDE ISSUED=01-dec-2001 DUP_GROUP=UHD ck=119

# Floating Features
INCREMENT cam_base uglmd 20.000 permanent 56 FC31C2D2D13A \
  SUPERSEDE ISSUED=01-dec-2001 DUP_GROUP=UHD ck=119
INCREMENT drafting uglmd 20.000 permanent 56 8CB1511E30947 \
  SUPERSEDE ISSUED=01-dec-2001 DUP_GROUP=UHD ck=103
INCREMENT assemblies uglmd 20.000 permanent 56 CCD1D193EC4F \
  SUPERSEDE ISSUED=01-dec-2001 DUP_GROUP=UHD ck=120
INCREMENT gateway uglmd 20.000 permanent 56 CC11214354B1 \
  SUPERSEDE ISSUED=01-dec-2001 DUP_GROUP=UHD ck=98
```

## Sample License File

The following is a sample of a license file, or your `ugnx4.lic` file. In this particular example, note the single server configuration, single vendor (*uglmd*), four features, and one suite package. This license file allows the license server *serverA* with the hostid of *08002b32b1616* to serve 56 floating licenses of the four features, and one bundle to any user on the network



## Editable Parameters of the License File



- ▶ Within the FLEXlm license file, you have the option to modify three (and only three) of the data items.
  1. hostnames on the SERVER line(s)
  2. port numbers on SERVER line(s)
  3. user\_info on INCREMENT / FEATURE line(s) that correspond to PACKAGE / SUITE
- ▶ Everything else is used to compute the license key and must not be edited.
- ▶ Note: All data in the license file is case sensitive unless otherwise indicated.

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### Hostname

This is the hostname for the license server. The hostname is limited to 32 characters. The string returned by the UNIX "hostname" or, on some systems, "uname -n" command. On Windows use the value returned from the Command Prompt "hostname" command. "YourHostnameX" or "this\_host" is used in the license file as a place holder for the actual hostname and should be replaced with the real hostname. The proper hostname value is used on the client side for setting UGII\_LICENSE\_FILE to port@hostname.

### Port Number

This is the TCP port number used by the client application to communicate with the license server. A port number is required if the license file is a 3-server redundant license file. The initial value is 27000 but can be changed. The proper port number value is used on the client side for setting UGII\_LICENSE\_FILE to port@hostname.

### User\_info

The user\_info field in the activating INCREMENT / FEATURE line for a bundle is used to display a descriptive name for the bundle. You can delete or edit this field to provide a different name for the bundle. It is not recommended to exceed 30 characters for this field. Do not change this field for the "server\_id" license module, as this value is your WEBKEY access code.



- ▶ NX Licensing recognizes two types of packages,
  1. Non-suite packages
  2. Package suites
- ▶ The first is designed to simplify and shorten the license file. The second causes component features to be tied together and checked out as a group, or **BUNDLE**

### Packages

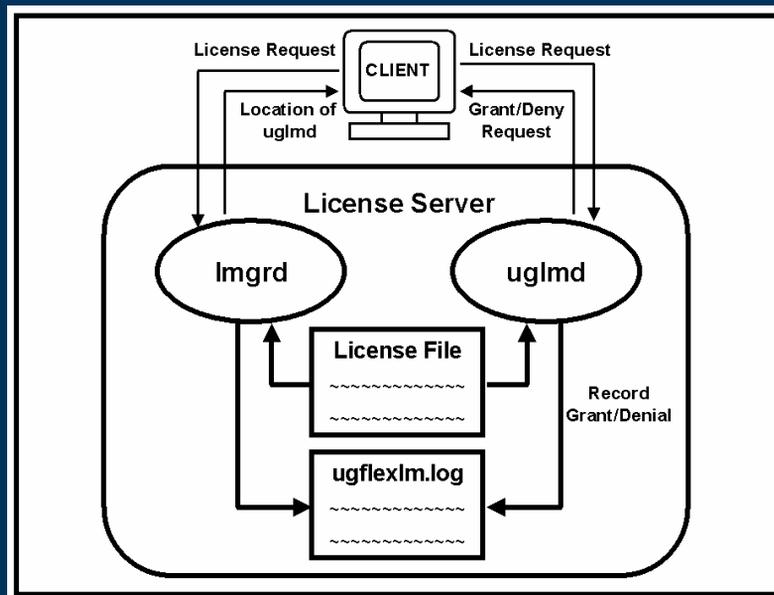
NX Licensing uses "packages" to group features. The license file contains a PACKAGE line for each of these groupings. The COMPONENT field contains a list of all included features. An INCREMENT / FEATURE line is required to activate a PACKAGE definition.

NX Licensing recognizes two types of packages, non-suite packages and suite packages. Nonsuite packages are designed to simplify and shorten the license file. Suite packages are designed to tie component features together to be checked out as a group. The presence of the OPTIONS field on the PACKAGE line distinguishes the package types.

Non-suite packages do not use OPTIONS=SUITE in the PACKAGE definition line and act according to the standard behavior defined for this type of FLEXlm package.

Suite packages have the following differences from non-suite packages:

1. OPTIONS=SUITE is in the PACKAGE definition line.
2. Features in the COMPONENTS list are prefixed with the package name and an underscore.
3. When the initial component feature is checked out, the suite package is checked out as well, and a license for each of the other component features is reserved for that session of the application.



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## The License Request Process

When you run a counted FLEXlm-licensed application, the following occurs:

1. The license module in the FLEXlm-licensed application finds the license file, which includes the host name of the license server machine and TCP/IP port number of the license manager daemon, Imgrd.
2. The FLEXlm-licensed application establishes a connection with the license manager daemon (Imgrd) and tells it what vendor daemon it needs to talk to.
3. Imgrd determines which machine and TCP/IP port correspond to the master vendor daemon and sends that information back to the FLEXlm-licensed application.
4. The FLEXlm-licensed application establishes a connection with the specified vendor daemon and sends its request for a license.
5. The vendor daemon checks in its memory to see if any licenses are available and sends a grant or denial back to the FLEXlm-licensed application.
6. The license module in the application grants or denies use of the feature, as appropriate.

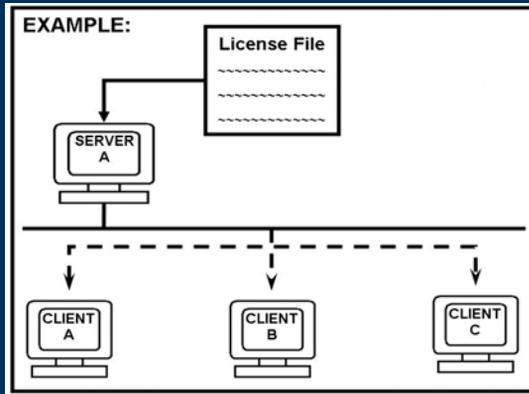
Uncounted features (where the license count is 0) do not require a license server, and the FLEXlm client library routines in the application grant or deny usage based solely upon the contents of the license file.



NX Licensing is designed to support three server configurations. You can select the server configuration that best suits the needs of your site from the following:

1. Single Server Configuration
2. Redundant Server Configuration
3. Multiple Server Configuration

Notes:



## Benefits of a Single Server Configuration

- ▶ Single point of administration
- ▶ Good for customers with small installations who want to focus their resources on a few key servers.
- ▶ Most common installation type, easiest to maintain

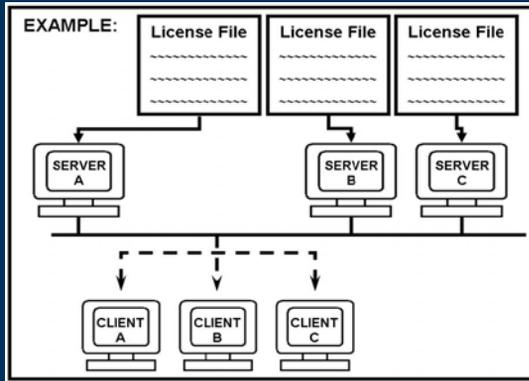
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## Single Server Configuration

The single server configuration has one server that your clients communicate with for licenses. Clients A, B, and C check out licenses from Server A. If Server A goes down, licenses are denied.

### Benefits of a Single Server Configuration

1. Single point of administration.
2. Good for customers with small installations who want to focus their resources on a few key servers.
3. Best for installations that have single point(s) of failure.



- ▶ Benefits of a Redundant Server Configuration
  - ▶ Better chance that all licenses will be available (if all other single points of failure have been removed).
- ▶ Considerations
  - ▶ It should be maintained by a System Administrator.
  - ▶ All three redundant servers must maintain communications with each other.
  - ▶ All three servers use identical license files.

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## Redundant Server Configuration

Unigraphics NX FLEXlm supports redundant license servers operating as a single logical license server. Redundant servers help ensure the availability of your licenses in the event of a daemon crash until your local system administrator is available. This feature is controlled solely by the SERVER lines in the license file. To implement Server Redundancy, you must identify and provide the hostids for three servers where copies of the license file will reside. Upon receiving this data, EDS generates your license file with the corresponding three SERVER lines.

You should verify that each license server has Unigraphics NX FLEXlm installed on a local file system. Proceed by starting each license server on each machine in the order they are listed in the license file, top line first.

The redundant server configuration requires at least two of the three servers to be active for the licenses to be available. No licenses are available until this quorum of two is met. A quorum of servers is defined as a strict majority of servers listed in the license file, so the quorum in the three-server configuration is two. If only one of the servers is available, the quorum is not satisfied and no licenses will be available.

One of the servers starts out as the master server and serves licenses. If the master goes down, another server takes over as master. Once the issue that brought down the master server is resolved, you can reset the license servers at your convenience. To reset the license servers, stop all three license servers and then restart in the order they are listed in the license file, top line first.



# Setup for a Redundant Server Configuration



- ▶ Define UGII\_LICENSE\_FILE

- ▶ On Unix AND Windows

```
UGII_LICENSE_FILE=
27000@serverA,27000@serverB,27000@serverC
```

- ▶ For **pre-NX versions** you should use colons ":" on UNIX and semicolons ";" on Windows as separators instead of commas.

```
UGII_LICENSE_FILE=
27000@serverA;27000@serverB;27000@serverC
```

- ▶ Common license file on all license servers

```
# Server line
SERVER serverA 08002b32b1e16 27000
SERVER serverB 0800317004355 27000
SERVER serverC 0802b17007ea8 27000

VENDOR ugldm

INCREMENT cam_base ugldm 20.000 permanent 56 FC31C2D2D13A /
SUPERSEDE ISSUED=01-dec-2001 DUP_GROUP=UHD ck=119
INCREMENT drafting ugldm 20.000 permanent 56 8CB1511E30947 /
SUPERSEDE ISSUED=01-dec-2001 DUP_GROUP=UHD ck=103
INCREMENT assemblies ugldm 20.000 permanent 56 CCD1D193EC4F /
SUPERSEDE ISSUED=01-dec-2001 DUP_GROUP=UHD ck=120
INCREMENT gateway ugldm 20.000 permanent CC11214354B1 /
SUPERSEDE ISSUED=01-dec-2001 DUP_GROUP=UHD ck=98
```

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## Setup for a Redundant Server Configuration

The following examples illustrate how to set the environment settings for the client node pointing to a redundant server configuration using the proper port@hostname syntax. The separator used is a comma ",". If you are running pre-NX versions also you should use colons ":" on UNIX and semicolons ";" on Windows instead of commas.

### **UNIX**

If using csh (C-shell), enter the following in /etc/csh.login:

```
setenv UGII_LICENSE_FILE "27000@serverA,27000@serverB,27000@serverC"
```

If using sh (Bourne shell or Korn shell), enter the following in /etc/profile:

```
export UGII_LICENSE_FILE=27000@serverA,27000@serverB,27000@serverC
```

If using colons the environment variable value would change to the following. For pre-NX user only.

```
27000@serverA:27000@serverB:27000@serverC
```

### **Windows**

Go to **Control Panel** > **System** > **Advanced** (tab) > **Environment Variables...** (button) and enter the following under "System Variables":

Variable Name: UGII\_LICENSE\_FILE

Variable Value: 27000@serverA,27000@serverB,27000@serverC

If using commas the environment variable value would change to the following. For pre-NX user only.

```
27000@serverA;27000@serverB;27000@serverC
```

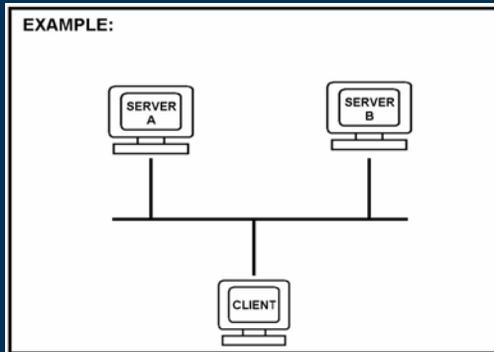
The order in which the servers are listed in the UGII\_LICENSE\_FILE is the order in which they are checked. If the first server is not the master, the client will continue to search through the license servers until either a master server is found or all three servers have been checked. Once the master server is found, it then determines if a license is available for the client.



- ▶ The order in which the servers are listed in the `UGII_LICENSE_FILE` is the order in which they are checked.
- ▶ If the master server goes down, another server takes over as master. Once the master is back on-line, you should reset the license servers at your convenience
  - ▶ Stop all three license servers and then restart in the order they are listed in the license file
- ▶ Protects against a SINGLE-POINT failure only

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One of the servers starts out as the master server and serves licenses. If the master goes down, another server takes over as master. Once the issue that brought down the master server is resolved, you should reset the license servers at your convenience. To reset the license servers, stop all three license servers and then restart in the order they are listed in the license file, top line first. See the sections on “Stopping the NX FLEXlm License Server...” and “Starting the NX FLEXlm License Server...”, later in this guide, for instructions on resetting the license daemon.



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- ▶ Benefits of a Multiple Server Configuration
  - ▶ No changes to your license files are necessary.
  - ▶ For backup there is no quorum necessary if done with all single servers.
  - ▶ Allows cross server licensing checkout.
  - ▶ Allows license requests to overflow to other license servers in cases of occasional heavy use by one department.
- ▶ Considerations for Multiple Server Configuration
  - ▶ Is controlled from the client side.
  - ▶ When used for backup once a server configuration is down you lose all the licenses that that server configuration had.

## Multiple Server Configuration

- The multiple server configuration is a way of combining server configuration types to create a license backup or overflow mechanism. The other server configuration types are single and redundant. The multiple license server configuration is set up by defining the `UGII_LICENSE_FILE` environment variable with more than one potential license server for the client application program.
- This configuration is also referred to as a license list because of the way it is set up.

## Benefits of a Multiple Server Configuration

1. No changes to your license files are necessary.
2. For backup there is no quorum necessary if done with all single servers.
3. Allows cross server licensing checkout.
4. Allows license requests to overflow to other license servers in cases of occasional heavy use by one group.

## Considerations for Multiple Server Configuration

1. Is controlled from the client side.
2. When a server configuration is down you lose all the licenses that the server configuration had.



## Setup for a Multiple Server Configuration



- ▶ The separator on UNIX is the colon ":". On Windows the separator is the semicolon ";"
- ▶ Define UGII\_LICENSE\_FILE
  - ▶ On Unix

```
UGII_LICENSE_FILE=27000@serverA:27000@serverB:27000@serverC
```
  - ▶ On Windows

```
UGII_LICENSE_FILE=27000@serverA;27000@serverB;27000@serverC
```
- ▶ No changes to the FLEXlm license file
- ▶ NOTE: There are performance considerations for using the Multiple Server Configuration

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### Setup for Multiple Server Configuration

The following examples illustrate how to set the environment settings for a client node using the multiple server configuration. The list of servers includes two single configurations using the port@hostname syntax. The separator on UNIX is the colon ":". On Windows the separator is the semicolon ";".

#### **UNIX**

If using csh (C-shell), enter the following in /etc/csh.login:

```
setenv UGII_LICENSE_FILE "27000@serverA:27000@serverB"
```

If using sh (Bourne shell or Korn shell), enter the following in /etc/profile:

```
export UGII_LICENSE_FILE=27000@serverA:27000@serverB
```

#### **Windows**

Go to **Control Panel** > **System** > **Advanced (tab)** > **Environment Variables... (button)** and enter the following under "System Variables":

Variable Name: UGII\_LICENSE\_FILE

Variable Value: 27000@serverA;27000@serverB

The order in which the servers are listed in the UGII\_LICENSE\_FILE is the order in which they are checked. The first server listed should be your primary and closest server.

In this example the client would normally get all of their licenses from ServerA. In the event that ServerA did not have the license or went down, the license request would move to ServerB. You would receive a license not available message only if the license was not available on any of the two license server configurations.



## Selecting NX License Bundles



- ▶ To use an NX Bundle, you must preset the client's **UGII\_FLEX\_BUNDLE** environment variable with the package name(s).
- ▶ *NX Licensing Options* allows you to select up to two bundles at once.
- ▶ The order in which the bundle names are placed into UGII\_FLEX\_BUNDLE is the order that the application will attempt to check out any feature

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### Using the Unigraphics NX License Options Interface to Select Bundles

To use a bundle, you must preset the client's UGII\_FLEX\_BUNDLE environment variable with the package name(s). If UGII\_FLEX\_BUNDLE is set, the application will attempt to check out a bundled feature before trying to check out the floating feature.

Unigraphics NX License Options is an interactive user interface to aid in setting of the

UGII\_FLEX\_BUNDLE environment variable.



- ▶ Similar on both Unix and Windows platforms
- ▶ Started from the Uniproducts Activity Menu on Unix
- ▶ Started from the Start>Programs>Unigraphics menu on Windows
- ▶ Simple user interface for selecting license bundles
- ▶ Also allows you to see what components make up a particular license bundle

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## Using the Unigraphics NX License Options Interface to Select Bundles

To use a bundle, you must preset the client's UGII\_FLEX\_BUNDLE environment variable with the package name(s). If UGII\_FLEX\_BUNDLE is set, the application will attempt to check out a bundled feature before trying to check out the floating feature. Unigraphics NX License Options is an interactive user interface to aid in setting of the UGII\_FLEX\_BUNDLE environment variable.

### UNIX

For UNIX users click on "Options" on the toolbar of the ugmenu interface or select option 95 on the "no windows" interface of ugmenu.

### Windows

For Windows users click on Start>Programs>Unigraphics NX>FlexIm Tools>License Options. Unigraphics NX License Options allows you to select up to two bundles at once. The order in which the bundle names are placed into UGII\_FLEX\_BUNDLE is the order that the application will attempt to check out any feature.

When multiple bundles are chosen crossover licensing could occur. Crossover licensing is when one feature from each bundle is checked out. This causes two bundles to be checked out by one session of Unigraphics NX making the bundles unavailable to other users. For this reason setting more than one bundle is not recommended unless you can afford to have two bundles checked out by one session of Unigraphics NX.

The Automatic Bundle Consolidation mechanism reduces crossover licensing.



## Manually Setting License Bundles



### UNIX

- ▶ Edit the file `$UGII_BASE_DIR/ugii/.ugii_env` and change the line:

```
#UGII_FLEX_BUNDLE=
```

- ▶ For example

```
UGII_FLEX_BUNDLE=ADVDES
```

```
UGII_FLEX_BUNDLE=ADVDES:P1
```

### Windows

- ▶ Edit the file `%UGII_BASE_DIR%\ugii\ugii_env.dat` and change the line:

```
#UGII_FLEX_BUNDLE=
```

- ▶ For example

```
UGII_FLEX_BUNDLE=ADVDES
```

```
UGII_FLEX_BUNDLE=ADVDES;P1
```

Notes:



- ▶ NX License bundles have the following differences from non-suite packages:
  - ▶ The OPTIONS=SUITE is in the package line
  - ▶ The features in the COMPONENTS list are prefixed with the package name and an underscore
  - ▶ When one feature is checked out, one license of all the other features is reserved for that session of the application

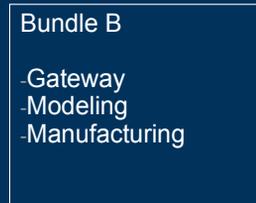
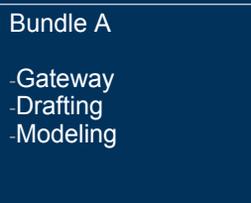
Notes:



## License Bundle Consolidation



- ▶ NX4 introduced the concept of Bundle Consolidation
- ▶ This mechanism is always on, and automatic
- ▶ The goal of this mechanism is to consolidate licensed modules to a single bundle to maximize the number of licensed modules that are available for use.



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### Automatic Bundle Consolidation

Automatic Bundle Consolidation is a NX Licensing mechanism that is initiated when you check out a licensed module from a bundle for the first time. The goal of this mechanism is to consolidate licensed modules to a single bundle to maximize the number of licensed modules that are available for use. The mechanism is always on and can't be turned off.

While this mechanism will reduce crossover licensing, it will not eliminate it because some applications don't release their license until the new application's license has been checked out. In these situations, returning to Gateway before entering a new application will further reduce crossover licensing.

The following scenarios demonstrate how the Automatic Bundle Consolidation mechanism would work in two situations.

#### Bundle Checkout Protocol – Scenario One

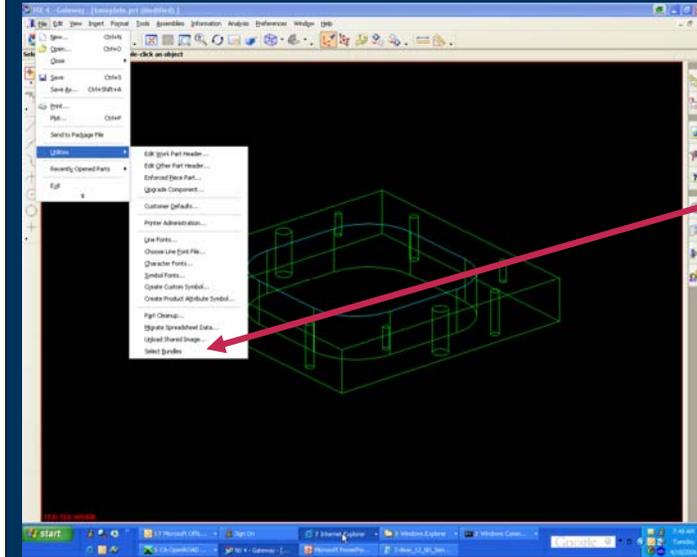
You start the NX Gateway module, but the bundle that you selected is not currently available. At that time, NX Licensing checks out a non-bundled license module from the license server to your session. When a bundled version of the same module (Gateway) becomes available during the session and you check out another licensed module within that bundle, NX Licensing checks out the bundled version of Gateway and checks in the non-bundled version, making it available for another user.

#### Bundle Checkout Protocol – Scenario Two

You start the NX Gateway module and it is available in the first bundle. NX Licensing checks out a bundled license module from the first bundle to your session. You then check out another NX module, such as Solid Modeling, but it is only available in the second bundle. Again, NX Licensing checks out a bundled license module from the second bundle to your session. Rather than tie up two bundles, NX Licensing checks out the Gateway module from the second bundle and returns the initially checked out Gateway module to the first bundle, making it available to another user. NX Licensing also changes the configuration settings of the current session to reflect a new primary bundle. For example, if you had P1[;:]ADVDES set, your session would now run as if you had set it to ADVDES[;:]P1. This does not change the value of UGII\_FLEX\_BUNDLE.



# Dynamic Bundle Selection



- ▶ NX4 allows you to select a license bundle AFTER the application has started

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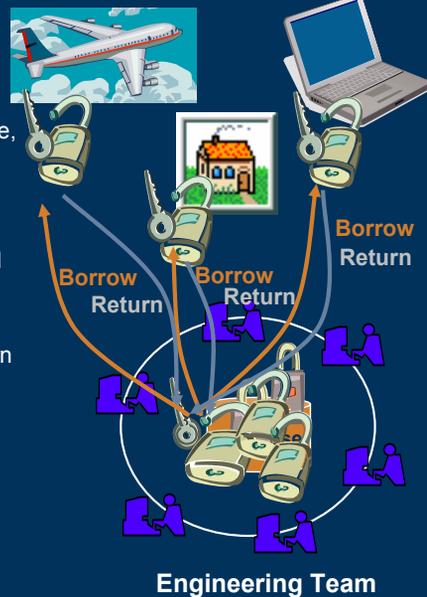
Notes:



## License Borrowing



- ▶ License Borrowing
  - ▶ “Borrow” and “Return” licenses from server and use licenses locally
  - ▶ Local use includes travel, on-site service, and home use scenarios
  - ▶ Windows clients only, any server
- ▶ NX Borrow Tool
  - ▶ Permits borrowing license selection and duration
  - ▶ Duration is maximum of 3 months
  - ▶ Eventually will permit early license return
- ▶ Borrowing is an optional product
  - ▶ Orderable product, UG21001, with no license charge
  - ▶ Same for NX and I-deas NX Series
  - ▶ **New for NX 4.0.1 and I-deas 12 M1 ??**
  - ▶ Replaces I-deas Take Home A200



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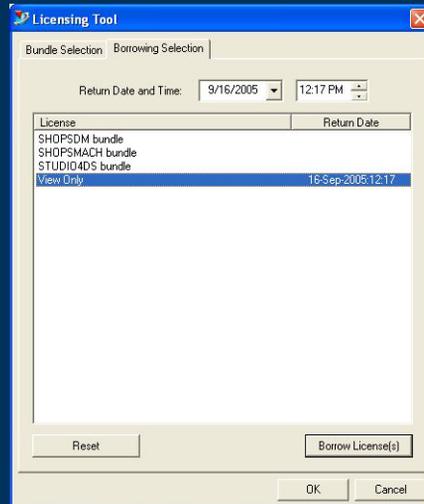
If the license file does not have Borrowing enabled, the Licensing Options tool will only show Bundle selection. If borrowing is enabled, you get the new tab with a that offers the borrowing selection capability.

There are some limitations with the initial release of the NX borrowing tool related to returning borrowed licenses, the main limitation is that borrowed licenses for packaged license bundles cannot be returned early. Most of the NX products, especially the new NX Mach products, are packaged license bundles.

UGS does not support using LMTOOLS for borrowing NX or I-deas NX Series product licenses



- ▶ Licensing Tool
  - ▶ New “Borrowing Selection” tab appears when customer activated for borrowing product
- ▶ NX Borrow Tool
  - ▶ Permits borrowing license selection and duration
  - ▶ Duration is maximum of 3 months
  - ▶ Eventually will permit early license return



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The following administration tools are available for Unigraphics NX FLEXlm:

<b>lmcksum</b>	Prints license checksums. To be used when a license file is manually entered.
<b>lmdiag</b>	Diagnoses license checkout problems.
<b>lmdown</b>	Gracefully shuts down all license daemons (both <i>lmgrd</i> and <i>uglmd</i> ) on the license server node(s).
<b>lmhostid</b>	Reports the hostid of a system.
<b>lmremove</b>	Removes a single user's license for a specified feature.
<b>lmreread</b>	Causes the license daemon to reread the license file and start any new vendor daemons.
<b>lmstat</b>	Helps you monitor the status of all network licensing activities.
<b>lmswitchr</b>	Switches the report writer log file.
<b>lmver</b>	Reports the Unigraphics NX FLEXlm version of a library or binary file.

Notes:



## Location of FLEXlm Tools for NX



The 'standard' location for these tools is:

▶ **UNIX**

`/usr/ugs*/ugflexlm`

▶ **Windows**

On the license server

`C:\Program Files\EDS\License Servers\UGNXFLEXlm`

On the license client

`C:\Program Files\EDS\Unigraphics NX*\UGFLEXLM`

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### Executing Tool Commands

All administration tool commands are packaged as one executable called *lmutil*. To execute an administration tool command, enter the following:

*lmutil command*

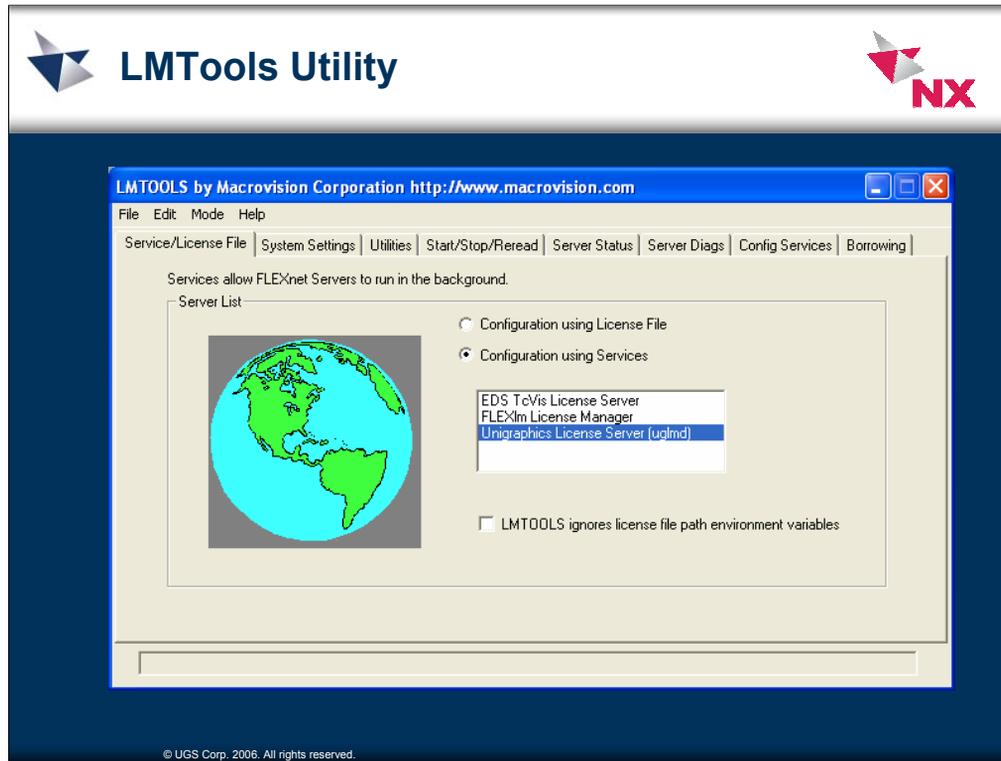
For example, to execute the *lmstat* command, enter:

`lmutil lmstat -c 27000@license_server`

### LMTTOOLS for Windows Platforms

For the Windows platforms, the LMTTOOLS.EXE program is provided under **Start->Program->NX Licensing->LMTTOOLS**.

The LMTTOOLS interface combines the license administration tools previously available from the Windows *Control Panel*, *FLEXlm License Manager* and the utilities in the *lmutil* executable.



## License Administration Tools—LMTOOLS for Windows

For the 32-bit Windows platforms, a graphical user interface to the license manager tools is provided called LMTOOLS. Always use the newest version of LMTOOLS as possible; it is available for download from [www.macrovision.com](http://www.macrovision.com).

Some of the functions LMTOOLS performs include:

- starting, stopping, and configuring FLEXlm license servers
- getting system information, including hostids
- getting server status

LMTOOLS has two modes in which to configure a license server:

- Configuration using a license file
- Configuration using services

### Configuration Using License File

•Operations are performed on a particular license file. The file can be either local or remote. In this mode, you cannot start the `lmgrd` process, but you can do everything else. To configure this mode, perform the following:

- 1.Invoke LMTOOLS.
- 2.Click the Configuration using License File radio button.
- 3.Enter one or more the license file names or `port@host` specifications.

### Configuration Using Services

•Operations are performed on a service, which allows starting `lmgrd` processes local to the system on which LMTOOLS is running.



## Common Problems and Pitfalls



1. Incorrectly editing the FLEXlm license file
  - ▶ Wrong hostname, NO hostname, or wrong case
2. Conflicting TCP/IP port numbers for license servers
  - ▶ Other applications using default port numbers (27000-27009)
3. TCP/IP port blocking applications that prevent license communication
  - ▶ Firewalls (either WAN or personal)
  - ▶ Virus protection programs
4. FLEXlm –18 errors

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Notes:



# Licensing Terms



<b>Bundle Consolidation</b>	The act of taking checked out license modules consisting of bundled and floating features and replacing their licensing check outs with licensing check outs from one single bundle.
<b>Client</b>	Any node on the network that requests a license from the license server.
<b>Concurrent Licensing</b>	A software license that specifies a maximum number of users who can use the software at the same time. Pricing is usually by seat or user. As software is used, a license is verified and checked out through Unigraphics NX FLEXlm. When the user is finished with the software, the license is checked in for use by another user.
<b>Feature</b>	FEATURE represents any functionality that needs to be licensed.
<b>Floating Feature</b>	Feature that is defined on a INCREMENT / FEATURE line or within a non-suite package.
<b>Hostid</b>	Used to uniquely identify a specific machine, if the license is to be bound to a particular host. You can run the "lmutil lmhostid" command to obtain the hostid of a machine.
<b>Increment</b>	An INCREMENT line can be used in place of a FEATURE line. It can also be used to incrementally add licenses to a previous FEATURE or INCREMENT line in the license file.
<b>License</b>	The right to use a specific version of a software module. The license specifies what version of the software can be used and how many users can use that software. A license can also have a time period associated with it.
<b>License File</b>	A text file that stores the licensing data. This file contains information about the server nodes and vendor daemons, and at least one line of data for each licensed product.

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Notes:



- ▶ *Unigraphics FLEXIm User's Manual, UGS PLM*
- ▶ *FLEXIm End User's Guide, Macrovision*
  - ▶ <http://www.macrovision.com/services/support/flexIm/enduser.pdf>
- ▶ *Sentinel SuperPRO Medic Utility, SafeNet Inc.*
  - ▶ <http://www.safenet-inc.com/support/files/SuperproMedic.exe>

Notes:



## Review and Questions

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Notes: