PTC®

Mathcad® 15.0 M020

Administrator's Guide

September 2012

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How to Read This Manual

This *Administrator's Guide* is written primarily for the system administrator — the person responsible for installing and maintaining Mathcad and any FLEXnet server administering Mathcad licenses. It assumes you have a basic familiarity with Windows and network administration.

For Mathcad installation, this *Administrator's Guide* targets the Windows XP platform. Dialog box titles, menu options, and other elements mentioned in this Guide reflect Windows XP navigation and object names.

For the System Administrator

The following sections contain important information for persons installing and administering Mathcad and FLEXnet:

Before You Install	An introduction to the concepts covered and terminology used in this manual (see page 3).
Installing Mathcad	Instructions for performing an installation of Mathcad (see page 7).
License Management	Instructions for installing and configuring a FLEXnet license server (see page 11).

For the End User

End-users of Mathcad should refer to the *User's Guide* as their primary source of information, although the following sections of this guide may be of interest as well:

Before You Install	An introduction to the concepts covered and terminology used in this manual (see page 3).
Borrowing Licenses	Using Mathcad while disconnected from a FLEXnet server (see page 22).

Other Sources of Information

The following other sources of information may prove helpful as you install, configure, and license Mathcad across your enterprise.

- The *Mathcad Customer Support Site*: contains information on obtaining and managing licenses as well as a searchable Knowledge Base.

  http://www.ptc.com/support/mathcad.htm

- The updated *Read This First* for Mathcad: last-minute changes to the product and documentation:

  http://www.ptc.com/appserver/cs/doc/refdoc.jsp

- The *Pro/ENGINEER Wildfire 5.0 Installation and Administration Guide*: additional information about installing and using FLEXnet, including information on using FLEXnet on platforms other than Windows.

  http://www.ptc.com/appserver/cs/doc/refdoc.jsp

Technical Support

Contact PTC Technical Support if you encounter problems using the software. Contact information for PTC Technical Support is available on the PTC Customer Support Site.

http://www.ptc.com/support/

You must have a Service Contract Number (SCN) to receive technical support. If you do not have an SCN, contact PTC using the instructions found in the *PTC Customer Service Guide* under "Technical Support."

http://www.ptc.com/support/cs_guide/cs_guide.pdf

Comments

We welcome your suggestions and comments on our documentation. Please submit your feedback to **mathcad-documentation@ptc.com**.

When you submit feedback, remember to include the release number and name of the documentation piece with your comments.

Before You Install

CD Contents

The Mathcad CD contains the following software for use on computers running a supported version of the Microsoft Windows operating system:

- **The installation program for Mathcad 15**. This package contains the Mathcad program; associated Help; Resource Center worksheets; the *Data Analysis*, *Image Processing*, *Signal Processing*, and *Wavelets* Extension Packs; and electronic (PDF) versions of the *Mathcad User's Guide*, this *Administrator's Guide*, *Customer Service Guide*, and *Read This First*.

- **The installation program for FLEXnet 10.8.5**. The installation package for FLEXnet contains both FLEXnet license management software from Acresso Software and a *vendor daemon* created by PTC to administer Mathcad licenses (see "Vendor Daemon" on page 6).

Types of Installations

- Graphical—Use the PTC.Setup installation utility to graphically install Mathcad resources.
- Silent—Use a customized installation package (MSI) to drive the installation automatically.

License Management

Mathcad uses a license management program called FLEXnet, provided by Acresso Software. Additionally, the *Image Processing*, *Signal Processing*, *Data Analysis*, and *Wavelets* Extension Packs are also license managed with FLEXnet. Use the **Mathcad License Setup** wizard to acquire a new license file, install an existing license file, or configure Mathcad to use a FLEXlm license server.

Mathcad is sold with either *floating*, *locked*, or *registered-user* volume licenses, which must be renewed on an annual basis. Floating licenses can be used by any workstation on your network, while locked licenses can only be used on specified workstations. Registered-users are administered from a license server, but always allocated to a particular workstation, regardless of whether the workstation is running Mathcad at the time.

If, and only if, your installation is active on Maintenance Support, you are entitled to home-use licenses. For more information refer to the PTC Maintenance Support Policies on the Customer Support Site.

To request a license, you must know the CPU ID of the computer to which you intend to assign the license. In most cases, the CPU ID will be the MAC address of the active network adapter. For more information on types of licenses and the CPU ID, see the section "Obtaining a License File" on page 11.

Licenses must be renewed on a yearly basis on the PTC Customer Support site, or by contacting your local support office.

License Management Utilities

PTC provides a suite of utilities with its FLEXnet installation, located in the **bin** folder:

lmtools	Launches the FLEXnet utility **LMTOOLS**, similar to the shortcut icon created in **Start > Programs > PTC License Management tools**. Functionality includes customer configuration of the license service, starting and stopping the lmgrd license server(s), server and licensing status, as well as diagnostic tools. **lmutil** provides the same functionality as command-line arguments.
lmutil	Provides optional arguments to check the server and licensing status. Refer to the *FLEXnet Licensing End User Guide*.
ptcflush	Releases licenses. This may be necessary if there are network problems.
ptchostid	Returns the Host ID, with required formatting, used for license requests.
ptcsetup	Allows you to reconfigure an existing installation without running the installer from the CD-ROM. Use **ptcsetup** for modifications or reconfigurations only. It cannot install FLEXnet.
ptcshutdown	Shuts down a license server process for administrative maintenance of the license server. On Windows systems, you can also use LMTOOLS to stop a license server process. See "License Administration Tools" in the *FLEXnet Licensing End User Guide*.
ptcstartserver	Starts a license server process. On Windows systems, you can also use LMTOOLS to start a license server process.
ptcstatus	Displays information on server status and the current usage and availability of licenses.

Order of Installation

You can elect to perform *either* the Mathcad install or the FLEXnet install first. In addition, you can specify a license file or server as part of a silent install.

System Requirements

FLEXnet Server Requirements

- Windows 2000 SP4, or Windows XP Home or Professional Edition
- 16 MB free memory (for license management processes)
- 9 MB of hard disk space (not including log file)
- CD-ROM or DVD drive
- SVGA or higher graphics card and monitor
- Mouse or compatible pointing device

To serve floating and registered-user licenses, you must use FLEXnet 10.8.5 or later. FLEXnet 10.8.5 for Windows is available on the Mathcad CD.

Note You can also use the FLEXnet executable for Linux, Solaris, or 64-bit Windows provided with other PTC products. You cannot use a FLEXnet executable provided by another vendor, as it does not include PTC's vendor daemon.

Under regular usage, license administration places little load on your server or network. The FLEXnet license daemon and PTC vendor daemon both require approximately 3 MB of memory when running. Additionally, aside from license check-out and check-in, and periodic *heartbeats* sent out to verify the continued presence of the license server, Mathcad generates no network traffic to the FLEXnet server when running. However, as more workstations access the license server, network traffic may become an issue, and your log file will grow more quickly.

Mathcad Requirements

- Pentium-compatible 32-bit (x86) or 64-bit (x86-64, EM64T) processor, 400 MHz or higher; 700+ MHz recommended
- Windows XP Home SP2 or Professional Edition SP2, Windows XP Professional x64 Edition SP2, Windows Vista, or Windows 7; Windows XP SP3, XP-x64 SP3, Vista, or Windows 7 recommended
- Windows Installer 3.0 or later
- Microsoft .NET Framework® 3.5 SP1 or later
- MSXML 4.0 SP3 (this exact version of MSXML is required)
- 256 MB of RAM; 512 MB or more recommended
- 1.75 GB of hard disk space (350 MB for Mathcad, 1.4 GB for temporary space during installation)
- CD-ROM or DVD drive (not required for silent installations)
- SVGA or higher graphics card and monitor
- Keyboard and mouse or compatible pointing device

MSXML and the .NET Framework are available for download from the Microsoft Web site at **http://www.microsoft.com/downloads/**.

Internet Explorer 5.0 and Adobe Reader 5.0 or later are required for full functionality of the Help system. Download the software from Microsoft or Adobe respectively:

- **http://www.microsoft.com/windows/products/winfamily/ie/default.mspx**
- **http://www.adobe.com/products/acrobat/**

Upgrading from a Previous Version of Mathcad

Installing Mathcad Alongside Previous Versions

Mathcad 15 cannot be installed on a workstation currently running Mathcad 14. You must uninstall Mathcad 14 before proceeding to install Mathcad 15. If you do not uninstall Mathcad 14, the Mathcad 15 installation process saves your user-defined settings, removes Mathcad 14, and then installs Mathcad 15.You can however install Mathcad 15 alongside Mathcad 11, 12, and 13. You do not need to uninstall *these* versions of Mathcad before you install Mathcad 15, nor does installing Mathcad 15 automatically remove these Mathcad installations.

FLEXnet and Upgrading from Earlier Versions of Mathcad

If you are upgrading from an earlier version of Mathcad Enterprise Edition, you *must* install FLEXnet from your Mathcad CD. Both FLEXlm and the vendor daemon provided with previous versions of Mathcad are not compatible with Mathcad 15.

Previous versions of Mathcad are compatible with the version of FLEXnet provided with Mathcad 15. Additionally, multiple versions of FLEXnet can exist on the same server or network. This allows you to use the current version of FLEXnet to manage Mathcad 15 licenses, and an existing installation of FLEXlm to manage licenses for earlier versions of Mathcad.

More information on running multiple license services is available in the *FLEXnet Licensing End User Guide*.

Vendor Daemon

In addition to a license file, FLEXnet also requires a *vendor daemon* to properly serve Mathcad licenses. This vendor daemon actually dispenses a license to your machine when you start Mathcad. Without it, Mathcad cannot check out a license at start up.

The vendor daemon is provided as part of the FLEXnet install, available on the Mathcad CD. The vendor daemon is included on the CD.

Installing Mathcad

♦ Using PTC.Setup for Installation

♦ Before You Proceed

♦ Installing Mathcad with a New License

♦ Installing Mathcad with an Existing License Server

Using PTC.Setup for Installation

You install Mathcad and its software components, including PTC License Server, using PTC.Setup. PTC.Setup is a graphical installation utility with Help. Navigation in PTC.Setup is easy. Click **Next** to start the installation. Select the product resources you want and proceed to the next screen. Use **Back** to return to previous screens to make changes. To exit the installation utility, click **Cancel**.

Note When you begin an installation by clicking on the required component, an error message is displayed if the required security privileges are not satisfied.

Selecting Product Features

In the Define Installation Components screen, click before each of the product components to choose the following commands from the list:

- Install this feature — Install the component.
- Do not install this feature — Do not install the component. changes to if a component is not installed.
- Install all sub-features — If a product component has subcomponents, you can install them by selecting this option. The icon changes to to indicate that the components will be installed.

Starting PTC.Setup

If PTC.Setup does not start automatically, use one of the following procedures:

- Start Windows Explorer, browse to the folder that contains the installation program, and double-click the setup.exe icon.
- At an MS-DOS prompt, type the following command:

  `<cdrom>:\setup.exe`

- From the task bar, select **Start** > **Run**, and enter the following command:

  `<cdrom>:\setup.exe`

Before You Proceed

Before installing Mathcad, make sure that all of the <u>required system components</u> are installed. (See "Mathcad Requirements" on page 5.)

If all of the required system components have been installed, proceed to install Mathcad.

Note Only persons with administrative privileges can install Mathcad onto a workstation. If you lack administrator privileges for the workstation onto which you are installing, or are not sure you have administrator privileges, contact your system administrator.

Installing Mathcad with a New License

1. Start the installation utility.
2. Click **Next**. The Accept License Agreement screen appears.
3. Accept the License Agreement and click **Next**. The Select Product to be Installed screen appears.
4. Click **Mathcad**. The Mathcad License Type screen appears.
5. Click **Acquire a new license** and **Next**. The Mathcad Installation Type screen appears.

Note In order to run the software as a trial, you must obtain a license from the PTC Web site. When the installation is complete, the License Wizard guides you through the trial licensing process.

6. Click **Next**. The Define Installation Components screen appears.
7. Click one of the following options to select the installation type:
   – **Typical** — Installs all the application resources in the language of the installer.
   – **Custom** — Installs only the selected application resources and languages.
   – **Silent** — Generates a customized installation package for future installation.

Note The Custom installation option requires access to all Mathcad 15 installation CDs.

8. Click **Next**. The Define Installation Components screen appears.
9. Keep the default installation directory, or click 📁 to specify a different directory. In the Features to Install list, select the resources and languages to install. The following resources are available for installation:
   – **Mathcad** — Installs Mathcad in the selected language.
   – **Help** — Installs the Online Help in English (other languages can be selected).
   – **Resource Center** — Installs the the Mathcad Resource Center in the selected languages.
   – **Documentation** — Installs the User Guide, Administrator's Guide, and Customer Service Guide in the selected language(s).

- **Extension Pack Handbooks** — Installs the selected Extension Packs (available in English only).

10. Click **Next**. The Mathcad Reference Paths screen appears.

11. Keep the default resource directories, or specify alternate directories.

12. Click **XMCD** or **XMCDZ** to set the default format of saved files and click **Next**. The Windows Preferences screen appears.

13. Click one or more locations to create a shortcut to Mathcad and then click **Install**. The installation starts and the **Mathcad License Setup** wizard opens.

Note In order to run the software as a trial, you must obtain a license from the PTC Web site. The Mathcad License Setup wizard guides you through the trial licensing process.

14. Follow the instructions on the screen to complete the license acquisition process.

Installing Mathcad with an Existing License Server

If you elected to use an existing FlexLM license server, the FLEXnet license servers screen appears. PTC.Setup accesses your license information either on a remote license server or on your local machine.

1. In the FLEXnet license servers screen, click **Add**. The **Specify License Server** dialog box opens.

2. Click one of the following options:

   - **Single license server —** Specifies a single server for the licenses.
   - **Triad license server (fault tolerant)** — Specifies a Triad configuration of three Triad partners.
   - **Locked license file (no server running)** — Specify the path to the license file in the License file path box or browse to the required license file.

Note For a single and triad license server, enter the server hostname and port number and click **OK**.

Finalizing the Installation

1. Click **Install**.

Note	If the installation is silent, an MSI file is created when you click **Install**.

2. When the installation is complete, click **Exit**.

Note	You can register Mathcad 15 with the Workgroup Manager.

Silently Installing Mathcad

The Mathcad installation utility allows you to save your installation settings and create a customized installation package (MSI) for future installations. With this option you predefine installation variables normally set by users during installation. Use silent installations to standardize the deployment of Mathcad across your enterprise without the need for user input.

Note	All prerequisite software must be installed before performing a silent installation.

Creating and Executing a Silent Installation Package

1. In the Installation Type screen, click **Silent**.

2. Customize your installation settings and exit the installation utility. The silent installation package is created in the specified installation directory. By default the package is created in **C:\Program Files\Mathcad\Mathcad 15\uninstall**.

Note	The installation instructions are also found in the README_MSI file that is generated in the installation package directory.

3. Confirm that the workstation satisfies the system requirements outlined on page 5. This includes the installation of prerequisite software.

4. Copy the contents of the customized installation package directory created in Step 2 to a shared network directory (for example, **H:\silent**).

5. Open a command prompt window and navigate to the directory created in Step 4.

6. Run the installation using the following command:

   - **msiexec.exe /I "H:\silent\Mathcad15WixInstaller.msi"**

   - The customized installation takes several minutes and quits without notification.

License Management

 ♦ License Management
 ♦ Using the License Service
 ♦ Borrowing Licenses

License Management

About License Management

When launched, Mathcad searches for an available license. If available, this license is allocated to the workstation, and Mathcad opens for use. If a license is not available, Mathcad opens the license wizard, so you can configure your license setting.

You can use the **Mathcad License Setup** wizard to acquire a new license file, install an existing license file, or configure Mathcad to use a FlexLM license server.

Note You do not need to reinstall Mathcad to reconfigure your license. Use the license wizard to update your license information.

To start the license wizard, at a command prompt, navigate to your Mathcad installation directory and type **mathcad.exe /license**.

Note You can also run the **Mathcad License Setup** wizard by starting the **mclicens.exe** program in the **mclicense** folder of your installation directory.

Mathcad requires use of a license server for *floating* and *registered-user* licenses. *Locked* license files reside on the workstation, and do not require a license server.

If users with server-based licenses wish to run Mathcad while disconnected from your network — for example, on a laptop while out of the office — they can *borrow* a license from the server for a limited amount of time. This borrowed license is stored on the workstation, so Mathcad does not need to access the license server at start up. More information on borrowing licenses is available in "Borrowing Licenses" on page 22.

Note If you have a locked or home-use license file, you do not need to install and configure FLEXnet. Save the license file generated for you to the **LICENSES** folder of the Mathcad installation on the appropriate workstation. Specify the location and name of this file when prompted by the **Mathcad License Setup** wizard.

Obtaining a License File

Four types of Mathcad licenses are available:

 • **A floating license (server)** — for administering floating licenses *only* from a license server. Licenses are allocated to workstations from a common pool, on a first-come, first-serve basis.

 • **A locked license (workstation)** — for use on a workstation, without a license server. Locked licenses must be reallocated from one workstation to another through the PTC Customer Support Web site.

- **A registered-user license (server)** — for administering locked licenses from a server, rather than individual workstations. Registered-user licenses are allocated to workstations with an options file, provided by the FLEXnet installer. For instructions on how to edit the options file, see "Editing the Options File" on page 16.

- **A home-use license (workstation)** — for use on a workstation, without a license server. If, and only if, your installation is active on Maintenance Support, you are entitled to the number of home-use licenses as indicated below, as long as those home-use licenses are for use within the homes of employees and/or contractors who are intended users of the seats and provided that use otherwise complies with all of the following terms and conditions:

(a) the number of home-use licenses is less than or equal to the number of node-locked license seats within your installation; or

(b) the number of home-use licenses is less than or equal to two-times the number of floating license seats within your installation.

(c) Academic institutions using Software identified as "Priced for Education" or "Professor's Edition/Version" or "Academic Edition/Version" or students (part-time or full-time) enrolled at that institution are not eligible for home-use licenses.

Note The use of non-ASCII characters in the path of your license file may cause an error. When saving your license file, use only ASCII characters in folder names.

To obtain your license files, use your PTC user account to log on to the PTC Customer Support site at **http://www.ptc.com/support/mathcad.htm**. If you do not have a PTC user account, follow the instructions on the Web site to create one. Once you log in, click the **Licensing** tab and then click "Configure New Software". Enter the Sales Order Number to process your request. You must provide the CPU ID for each server or workstation in your request.

To determine the CPU ID for a server or workstation:

1. Type **ipconfig /all** at a command prompt, and press **[Enter]**.

2. Find the 12-digit number labelled "Physical Address," in the form XX-XX-XX-XX-XX-XX. Enter this number as the CPU ID.

Note The CPU ID, or MAC address, identifies the active network adapter on a workstation. Mathcad attempts to match the CPU ID in a locked or home-use license file against **all** detected MAC addresses at startup. As long as *any* available address matches, Mathcad launches.

After you complete your request, your licenses will arrive by email, as attachment files. To use your licenses:

- If you ordered floating or registered-user licenses, save the license file to your server. Then, install FLEXnet from the Mathcad CD, following the instructions in the section "Installing the License Service" on page 13.

- If you ordered locked or home-use licenses, distribute the license files to the corresponding workstations. Launch Mathcad on each workstation, and point the application to the license file in the **Mathcad License Setup** wizard.

If you intend to serve licenses from multiple servers, see "Using Multiple License Servers" on page 18 before you obtain your license files.

Transferring a License File to Another Server or Workstation

To transfer a license file to another computer, you must de-allocate a current license, then request the license file for the new computer. To do so, use the "Recon Software Licenses" option available at the PTC Customer Support Web site.

Using the License Service

Installing the License Service

The FLEXnet installer is available from the Product to be Installed screen as a separate install process. Perform this installation to a server on your network accessible by Mathcad users. Otherwise, Mathcad cannot obtain a license from the server.

Note   Obtain a license file **before** you install FLEXnet, as the installer validates your license file.

To install the license service:

1. Start the Mathcad installation utility.
2. Click **Next**. The PTC License Agreement screen appears.
3. Accept the License Agreement and click **Next**. The Select Product to be Installed screen appears.
4. Click **PTC License Server**. The Define Installation Components screen appears.
5. Either accept the default installation location, or specify a new location by clicking the folder button to the right of the "Destination Folder" drop-down, then specifying the location of your license in the "License File" text field. You can instead click the folder button next to the text field to browse to the license file. Do not specify a license file containing licenses from both PTC and other software vendors, as the installer considers combined licenses to be invalid.

Note   When the license service (**lmgrd.exe**) runs, it uses **C:\FLEXlm** to store temp files related to the licensing services. To avoid possible errors, *do not* install to this folder.

6. To configure the license service to start automatically the next time you reboot the server, click **FLEXnet Server Options** and enable Start on Reboot. Use the **Command Line Arguments** box to specify any desired startup parameters. For information on the allowed parameters, click **Command Line Arguments** to open the *FLEXnet Licensing End User Guide*.
7. Click **Install** to begin installation. You can click **Cancel** to terminate installation, if necessary. If installation fails, check the log file **ptcsetup.log**, located in the temp directory, for errors.
8. When installation completes, the License Service launches automatically. Click **Exit** to end installation.

Using the License Service Utilities

The FLEXnet installer automatically configures the license server; no additional configuration is required to begin serving Mathcad licenses. However, as your needs change, you may need to perform maintenance or configuration tasks on the FLEXnet server. PTC provides a set of utilities in the **bin** folder of your FLEXnet installation, for this purpose.

Note If your organization already uses FLEXnet or FLEXlm to meter another application, read "Licensing Both Mathcad and Other Applications" on page 18 before proceeding.

Changing Your License File

If you receive a new license file, run the **ptcsetup** utility (**ptcsetup.bat**). When prompted, specify the new license file. The utility stops the current license server process, replaces the existing license file with the new one, and restarts the license server. This utility does *not* reinstall FLEXnet.

Checking the HOSTID of A Computer

To check the HOSTID of a computer, run the **ptchostid** utility (**ptchostid.bat**). This utility determines the HOSTID for a computer and returns it in the desired format. Use this HOSTID when you request a license file.

Releasing Licenses

If you experience network disruptions, you may need to reclaim all licenses on the server, and then allow users to re-obtain them. If you need to reclaim any licenses in-use, run the **ptcflush** utility (**ptcflush.bat**). You can run **ptcflush** only once every twelve minutes.

For a list of arguments allowed by **ptcflush**, run the utility from a command prompt. Values for all of the arguments can be obtained with the **ptcstatus** utility.

Stopping and Restarting the License Server Process

Occasionally, you may need to stop the license server process for administrative maintenance. To do so, run the **ptcshutdown** utility (**ptcshutdown.bat**). Once you have completed the maintenance operation, you can restart the license server process with the **ptcstartserver** utility (**ptcstartserver.bat**).

Checking the Status of Your Licenses

To check the number of floating or registered-user licenses in use, run the **ptcstatus** utility (**ptcstatus.bat**). You can execute this utility in either normal or *verbose* mode (**ptcstatus -v**). Verbose mode provides additional information about your licenses, such as their version number and expiration date.

If you require more detailed information about the status of your licenses or license server, you can perform a *status enquiry*, using the **PTC License Server tools** (**lmtools.exe**):

1. Start the **PTC License Server tools** from **Programs > PTC > PTC License Server** in the **Start** menu.

2. On the Service/License File tab, select **FLEXlm server for PTC** (see Figure 1).
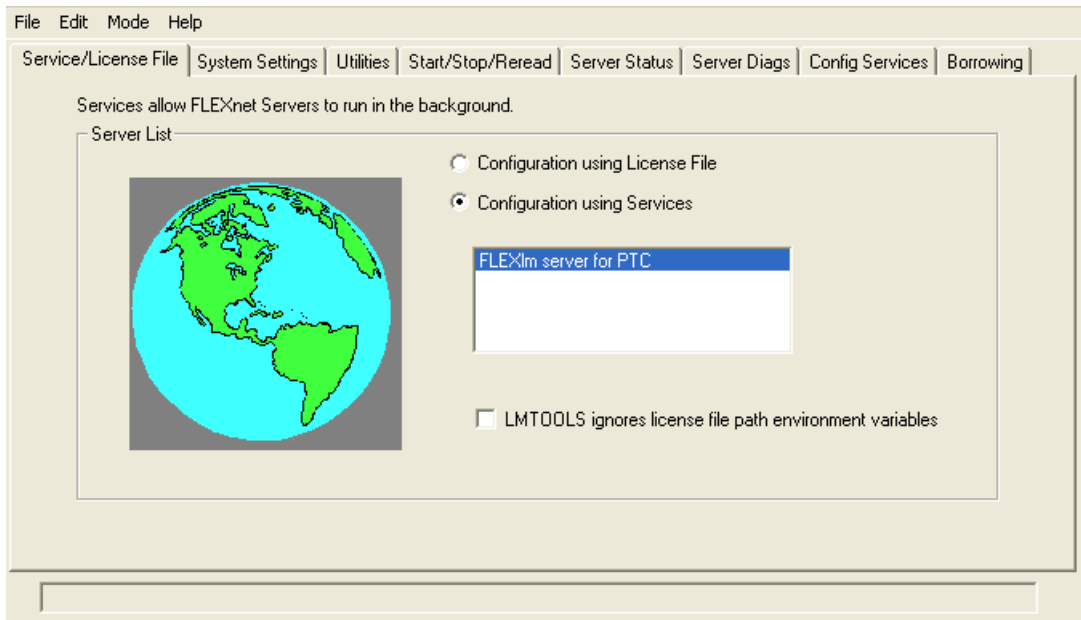
Figure 1: Select the FLEXlm server for PTC service to check the status of Mathcad licenses.

3. Click **Perform Status Enquiry**, located on the Server Status tab. If the service has been configured properly, you should see a status report that shows:

   - The name of the license server.
   - The port number used by the license service.
   - The license file in use.
   - The status of the server and the PTC vendor daemon.
   - The number of licenses in use, and the workstation to which they are assigned. The report indicates borrowed licenses with the word linger, followed by the length of the borrow period, in seconds, in parentheses after the workstation information.

4. If your status report does not return the correct information, verify that the server has been configured properly. On the Config Services tab (see Figure 2):

   - Click **FLEXlm server for PTC** in the **Service Name** list.
   - Confirm the path to the licensing service daemon (**lmgrd.exe**, located in the **i486_nt\obj** folder of your FLEXnet installation).
   - Confirm the path to the license file (**license.dat**, located in the **licensing** folder of your FLEXnet installation). If this information is incorrect, run the **ptcsetup** utility to point the license service to the proper license file.

- Confirm the path to the log file used by the PTC license management service. The default is **ptclmgrd.log**, located in the **licensing** folder of your FLEXnet installation. If your license server hosts multiple services, you should create an individual log for each service.
- Verify that **Use Services** is selected.
- Double-check that paths to files are absolute and include the name of the file.
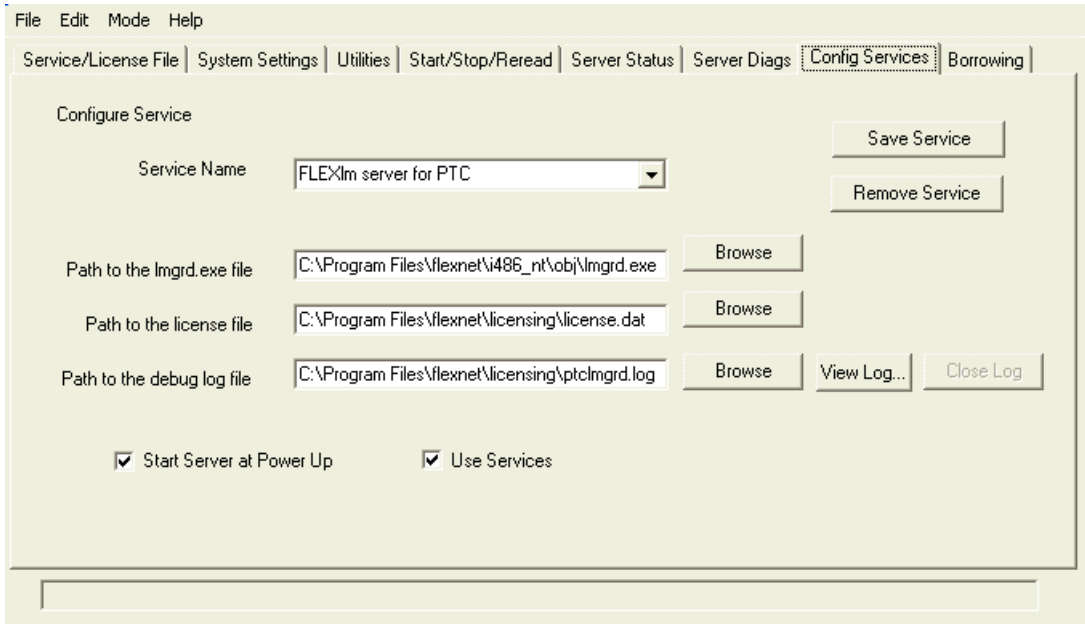
Figure 2: Use the Config Services tab to confirm the license service daemon, license, and log file used by the "FLEXlm server for PTC" service.

Editing the Options File

The options file created during installation allows you to tailor the installation to your particular environment. The default options file contains two lines that read:

```
REPORTLOG +"C:\Program
Files\flexnet\licensing\ptcreport.log"
TIMEOUTALL 7200
```

If you purchased a 5-seat floating Mathcad license, you could edit the options file to add the lines:

```
INCLUDE MATHCAD HOST Eng1
INCLUDE MATHCAD HOST Eng2
INCLUDE MATHCAD HOST Eng3
INCLUDE MATHCAD HOST Eng4
INCLUDE MATHCAD HOST Eng5
```

where **MATHCAD** is the metered application, or *feature*, and *Eng1*, *Eng2*, ... are the specific workstations allowed to use Mathcad. If you purchased two licenses for the *Signal Processing Extension Pack*, and wanted to deny them specifically to *Eng2* and *Eng3*, you would add the following lines to the options file:

```
EXCLUDE 256 HOST Eng2
EXCLUDE 256 HOST Eng3
```

where 256 is the feature name for the *Signal Processing Extension Pack*. Both the workstation and feature names are case-sensitive.

Supported FLEXnet Keywords

The *vendor daemon* used by Mathcad supports the full set of FLEXnet options file keywords. The following keywords may prove useful in administering licenses:

- BORROW_LOWWATER — specifies the number of licenses that *cannot* be borrowed.
- DEBUGLOG — the log file used by the vendor daemon for debug information.
- EXCLUDE — prevents access to the specified feature.
- EXCLUDE_BORROW — prevents the borrowing of a license for the specified feature.
- EXCLUDEALL — prevents access to all features served by the vendor daemon.
- GROUP — defines a group of users for use with any options.
- HOST_GROUP — defines a group of hosts for use with any options.
- INCLUDE — allows use of the specified feature, if a valid license is available.
- INCLUDE_BORROW — allows a user to borrow licenses.
- INCLUDEALL — allows a user to use all features served by the vendor daemon.
- MAX — limits usage for a particular feature or group, prioritizing usage among users.
- NOLOG — turns off logging of certain items in the debug log file.
- REPORTLOG — specifies the report log file to be written. This file can be read by SAM*report*, available from Acresso Software.
- RESERVE — reserves licenses for the specified feature for the specified user or group.
- TIMEOUTALL — allows the server to reclaim inactive licenses after a specified number of seconds.

More information on using these and other keywords is available in the FLEXnet documentation; see "End-users of Mathcad should refer to the User's Guide as their primary source of information, although the following sections of this guide may be of interest as well:" on page 1.

Customizing a Registered-user License

If you purchased a registered-user license, you are bound by the license agreement to restrict Mathcad usage to the proper number of workstations. One way to do this is with the RESERVE keyword:

```
RESERVE 1 MATHCAD HOST Eng1
```

This would reserve one Mathcad license exclusively for the workstation *Eng1*. You can also create a group of user names or host names, using the GROUP or HOST_GROUP keywords.

Licensing Both Mathcad and Other Applications

If you are already serving licenses for other applications with FLEXlm or FLEXnet for Windows, you can manage licenses for all your applications from one server. Install FLEXnet from the Mathcad CD to the server. Once installation completes, FLEXnet displays all licenses served from the server. When configuring FLEXnet to meter Mathcad, make sure the Mathcad license service is selected on the Config Services tab (see Step 4 on page 15).

Tip To prevent name conflicts between Mathcad license files and those for other applications, save your Mathcad license files to a folder named "Mathcad" within your existing license folder.

Note Do **not** merge your Mathcad license with licenses of other software vendors into a combined license file for use on the same license server. Although the server can handle combined license files, license files from PTC use a vendor-specific HOSTID, which makes them incompatible with license files using a FLEXnet HOSTID.

Using Multiple License Servers

FLEXnet supports the usage of multiple servers to administer licenses. Multiple server usage tends to fall into one of two scenarios, either *load-balancing* or *triad servers*. Mathcad works in either scenario; however, you will need to provide extra information when requesting licenses for use in multiple-server environments.

Load-balancing allows you to split your licenses between any number of servers located anywhere on your network. Triad servers are three servers located on the same subnet and physically close to each other. Proximity reduces the chance for delays due to network traffic, as the servers must exchange periodic *heartbeats* with each other; as long as the FLEXnet service is running on two of the servers, it has achieved *quorum* and will administer licenses.

When generating either type of license, you need to provide information for each server that will be administering licenses. In addition, when attempting to load-balance your licenses, you must specify how many licenses will be allocated to each server.

To administer licenses on a **load-balanced** system:

1. Request license files for each server, using the PTC Customer Support Web site. Allocate the desired number of licenses to each server.

2. Install FLEXnet on each license server. When prompted for the license file, use the file that corresponds to that server.

3. When you install Mathcad, point each installation to the proper license server. If you install Mathcad silently, create a version of **SilentInstall.bat** customized for each license server.

You can instead configure each workstation to query each server in a predetermined order, until Mathcad obtains a license; see "Configuring Workstations to Query Multiple Servers" on page 19.

To administer licenses on a **triad server**:

1. Request your license file, following the instructions in "Obtaining a License File" on page 11. Provide information for each server in the triad and designate which server will act as the "master."

2. When your license files arrive, copy them to the appropriate server. Edit the license file before you install each of the license servers, specifying the hostname of each of the triad partners. If this is not done, the license files will be different on each of the three triad partners, and the license server will not start.

3. Install FLEXnet on each triad server.

4. When prompted for a server name during Mathcad installation (or editing **SilentInstall.bat**), use the same server you designated as the "master" in Step 1.

Configuring Workstations to Query Multiple Servers

On each workstation, define an environment variable (using either the **set** or **setenv** commands, or the **System** control panel) called **LM_LICENSE_FILE**, listing the servers in the order they should be queried. For example:

    7788@Server1;7788@Server2[; ...], or

    7788@Server2;7788@Server1[; ...].

where *Server1* and *Server2* are your license servers, and *7788* is the port the server uses to administer Mathcad licenses. The port specified in **LM_LICENSE_FILE** must be the same one listed in your license file.

Each workstation queries servers in the order listed when checking out a license. If a server is unavailable, the workstation queries the next server on the list, until it either checks out a license or runs out of servers.

If you are serving licenses for multiple applications from the same server, you can use the environment variable **[VENDOR]_LICENSE_FILE** instead of **LM_LICENSE_FILE**. By doing so, you can specify exactly which servers each application should query, rather than forcing each application to query each server, regardless of whether that

server has the appropriate license. For example, if you wanted to use two servers to serve licenses for another application, but only one of those servers would serve Mathcad licenses, you would set the following two environment variables:

```
PTC_LICENSE_FILE=7788@Server1

[OTHERAPP]_LICENSE_FILE=27000@Server1;27000@Server2
```

This prevents Mathcad from querying *Server2* for a license, since *Server2* has no Mathcad licenses.

Tip   When using **[VENDOR]_LICENSE_FILE**, remember that FLEXnet checks **LM_LICENSE_FILE** before checking **[VENDOR]_LICENSE_FILE**. If you use both variables, **LM_LICENSE_FILE** should only list servers with licenses for *all* metered applications. Querying extraneous servers listed in **LM_LICENSE_FILE** slows Mathcad down at startup.

Troubleshooting your Installation

The following are common issues with installing, configuring, and running FLEXnet. If your problem is not listed, consult the Knowledge Base on the PTC Support site; see "End-users of Mathcad should refer to the User's Guide as their primary source of information, although the following sections of this guide may be of interest as well:" on page 1.

If you want to point Mathcad at a different license server or file, run the **Mathcad License Setup** wizard. Type **mathcad.exe /license** at a command prompt, and supply the name of the new license server or location of the new license file to use.

License server machine is down or not running (-96, 7)

Causes: The license server or file name was most likely misspelled when specified or has changed, or the registry key containing this information is corrupt. Mathcad waits for a license until the request times out and returns this error.

Solution: Run the **Mathcad License Setup** wizard and enter the correctly-spelled license server or file name. Restart Mathcad without using the license switch.

Cannot write data to license server (-17, 13)

Cause: The FLEXnet server is not accessible.

Solution: Confirm that the server is running and available by pinging it from the workstation, and that the server can ping the workstation as well; if necessary, check that hostnames are resolving properly on your network with the Windows utility **nslookup.exe**. Verify that the server name is correct in the license file, and the hostnames are correct in any options file. Check that the port number specified in the license file (or any environment variable) corresponds to the server port used by FLEXnet.

Cannot connect to license server (-15, 570)

Causes: The license server process (**lmgrd.exe**) is stopped or disabled, or you are using the wrong license file for the Mathcad service.

Solution: Check the **Services** control panel for the license server process (indicated by the name specified in Step 4 of "Using the License Service Utilities" on page 14);

if necessary, re-enable or restart the service. If the service is running, verify that it is using the license file supplied by PTC.

You may also have multiple license server processes running on the server. Consolidate all services under one license server process, or move the Mathcad license service to another server.

Desired vendor daemon is down (-97, 121)

Causes: The vendor daemon is missing or in the wrong location, or you made a change to a Cadence license dongle on the server metering Mathcad.

Solution: Check that the vendor daemon is located in the same folder as the FLEXnet daemon, **lmgrd.exe**; if it is not, find the file on the server and move it to this folder. If you made a change to a Cadence license dongle, reboot the server.

Note This error may also occur if the FLEXnet daemon cannot create its temporary directory (**C:\FLEXlm**), or any of the files within it.

Invalid host (-9)

Cause: The volume serial number in your single-user license file is incorrect.

Solution: Request a replacement license file.

USER/HOST on EXCLUDE list for feature (-38, 147)

Cause: There are comment lines in the options file (**ptc.opt**), which are erroneously being interpreted as commands.

Solution: Delete the comment lines.

User based license has no specified users (-84)

Causes: The options file is missing, the hostname in the options file is not set properly, or you have more allowed users than licenses for a particular feature.

Solution: Confirm that the options file is in the same folder as your license file and that the hostname is set to the server metering Mathcad.

If you have more allowed users than available licenses, either delete the appropriate number of INCLUDE lines in the options file, or contact PTC or your distributor to purchase extra licenses.

Unable to obtain a license on Windows XP

Cause: Mathcad was unable to locate the FLEXnet server. If you are running Mathcad on Windows XP, you may have a firewall enabled, which is interfering with communication to and from the server.

Solution: Disable the firewall, or allow an exception for the Mathcad executable (**mathcad.exe**). If this does not resolve the issue, see "License server machine is down or not running (-96, 7)" on page 20 for additional guidance.

Borrowing Licenses

If you normally access a FLEXnet server for a license when you run Mathcad, but occasionally need to use Mathcad without network access, you can *borrow* a license from the server for use while disconnected from the network. Your license file specifies the maximum allowed borrowing period.

Note A license can only be borrowed from within Mathcad. To borrow a license, you use your FLEXlm floating license to open Mathcad and then click **Tools > License > Borrow**.

Borrowed licenses are checked out from the available pool until they expire, regardless of whether the workstation using the borrowed license is running Mathcad. If you have a pool of 25 floating licenses and borrow one, the workstations on your network can only use the remaining 24 licenses until the borrowed license returns to the pool.

Note Borrowing a registered-user license also reduces the overall number of licenses. However, since the license is already allocated to the workstation, it does *not* reduce the number of licenses available to *other* users.

Mathcad automatically selects the maximum borrow period. To borrow a license for a shorter duration, select a different return date. Click "OK" to borrow the license.

Borrowed licenses appear in the status report with the text (linger: xxxxxx) appended to the end, where the six-digit number xxxxxx indicates the duration of the borrowing period, in seconds. To generate a status report, read the section "Using the License Service Utilities" on page 14.