



# PGI® Visual Fortran 2012 Installation Guide

Version 12.1

**The Portland Group®**

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## PVF<sup>®</sup> Installation Guide

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# Chapter 1. Introduction

Welcome to PGI Visual Fortran<sup>®</sup>, a set of Fortran compilers and development tools for 32-bit and 64-bit Windows integrated with Microsoft<sup>®</sup> Visual Studio<sup>®</sup>.

PGI Visual Fortran (PVF<sup>®</sup>) is licensed using FLEXnet, the flexible license management system from Flexera Software\*. Instructions for obtaining a permanent license are included in your order confirmation. More information on licensing is available in [“Licensing,” on page 7](#).

## Product Overview

There are two products in the PVF product family. Each product is integrated with a particular version of Microsoft Visual Studio:

- PGI Visual Fortran 2010 - This product is integrated with Microsoft Visual Studio 2010 (VS 2010).
- PGI Visual Fortran 2008 - This product is integrated with Microsoft Visual Studio 2008 (VS 2008).

Throughout this document, "PGI Visual Fortran" refers to both PVF products collectively. Similarly, "Microsoft Visual Studio" refers to both VS 2008 and VS 2010. When it is necessary to distinguish between the products, the document uses the full product name.

Single-user node-locked and multi-user network floating license options are available for both products. When a node-locked license is used, one user at a time can use PVF on the single system where it is installed. When a network floating license is used, a system is selected as the server and it controls the licensing, and users from any of the client machines connected to the license server can use PVF. Thus multiple users can simultaneously use PVF, up to the maximum number of users allowed by the license.

PVF provides a complete Fortran development environment fully integrated with Microsoft Visual Studio. It includes a custom Fortran Build Engine that automatically derives build dependencies, Fortran extensions to the Visual Studio editor, a custom PGI Debug Engine integrated with the Visual Studio debugger, PGI Fortran compilers, and PVF-specific property pages to control the configuration of all of these.

Release 2012 of PGI Visual Fortran includes the following components:

- PGFORTRAN OpenMP and auto-parallelizing Fortran 90/95 compiler.
- PGF77 OpenMP and auto-parallelizing FORTRAN 77 compiler.

- PVF Visual Studio integration components.
- AMD Core Math Library 4.4-0 (ACML).
- PVF documentation.

If you do not already have Microsoft Visual Studio on your system, be sure to get the PVF 2010 installation package that contains the Visual Studio Shell. Both PVF 2010 and PVF 2008 are also available without the Shell.

## Microsoft Open Tools

PGI Visual Fortran includes the Microsoft Open Tools, the essential tools and libraries required to compile, link, and execute programs on 32-bit Windows or Windows x64. No additional Microsoft tools or libraries are needed. The Microsoft Open Tools includes a subset of the Microsoft Windows SDK. In general, users should not need the entire Windows SDK for PVF unless they are using specific hardware or operating system features released after the version of PVF that they are running. PVF can compile and link against the complete Windows SDK, which is available for download from Microsoft.

## Terms and Definitions

This Installation Guide contains a number of terms and definitions with which you may or may not be familiar. If you encounter a term in these notes with which you are not familiar, please refer to the online glossary at

[www.pgroup.com/support/definitions.htm](http://www.pgroup.com/support/definitions.htm)

These two terms are used throughout the documentation to reflect groups of processors:

- **AMD64** – a 64-bit processor from AMD™ designed to be binary compatible with 32-bit x86 processors, and incorporating new features such as additional registers and 64-bit addressing support for improved performance and greatly increased memory range. This term includes the AMD Athlon64™, AMD Opteron™, AMD Turion™, AMD Barcelona, AMD Shanghai, AMD Istanbul, and AMD Bulldozer processors.
- **Intel 64** – a 64-bit IA32 processor with Extended Memory 64-bit Technology extensions designed to be binary compatible with AMD64 processors. This includes Intel Pentium 4, Intel Xeon, Intel Core 2, Intel Core 2 Duo (Penryn), Intel Core (i3, i5, i7) both first generation (Nehalem) and second generation (Sandy Bridge) processors.

## Supported Processors

PGI Visual Fortran is supported on 32-bit and 64-bit Windows operating systems running on x86 and x64 compatible processors. [Table 1.1](#) lists the processors on which Release 2012 of PGI Visual Fortran is supported. The table also includes the CPUs available and supported in dual-core versions.

PVF uses the Fortran | Target Processors property to generate executables that utilize features and optimizations specific to a given CPU and operating system environment. You can accomplish the same results from the command line using the option `-tp <target>`.



Table 1.1. Processors Supported by PGI 2012

Brand	CPU	Target Processor -tp <target> [,target...]	
<b>AMD</b>		<b>32-bit</b>	<b>64-bit</b>
	Opteron Bulldozer	bulldozer-32	bulldozer-64
	Opteron Six-core Istanbul	istanbul-32	istanbul-64
	Opteron Quad-core Shanghai	shanghai-32	shanghai-64
	Opteron Quad-core Barcelona	barcelona-32	barcelona-64
	Opteron Quad-core	k8-32	k8-64
	Opteron Rev E/F	k8-32	k8-64e
	Turion / Turion 64	k8-32	k8-64e
	Athlon64	NA	k8-64e
	Athlon	athlon	NA
	Athlon XP/MP	athlonxp	NA
<b>Intel</b>		<b>32-bit</b>	<b>64-bit</b>
	Sandybridge	sandybridge-32	sandybridge-64
	Core i7 - Nehalem	nehalem-32	nehalem-64
	Penryn	penryn-32	penryn-64
	Core 2	core2-32	core2-64
	P4/Xeon EM64T	p7-32	p7-64
	Xeon Pentium4	p7-32	NA
	Pentium III	piii	NA
	Pentium II	p6	NA
<b>Generic</b>		<b>32-bit</b>	<b>64-bit</b>
	Generic or Generic x86 or x86-64	px-32	px-64

## Supported Operating Systems

There are several operating systems, and their equivalents, on which PVF 2012 is supported. Visual Studio 2010 has stricter installation requirements than Visual Studio 2008. To install Visual Studio 2010, some operating systems must have specific service packs installed. [Table 1.2](#) lists the operating systems supported by PVF and the minimum additional requirements for VS 2010.

### Note

The list at [www.pgroup.com/support/install.htm](http://www.pgroup.com/support/install.htm) includes any new Windows distributions that may be explicitly supported by the PGI compilers. If your operating system is newer than any of those listed in [Table 1.2](#), the installation may still be successful.

Table 1.2. Operating Systems and Features Supported in PVF Release 2012

Microsoft OS	PVF 2008	PVF 2010
Windows 7	Any	Any
Windows Server 2008	Any	SP1
Windows Server 2008 R2	Any	Any
Windows Vista	Any	SP1
Windows Server 2003	Any	SP2
Windows Server 2003 R2	Any	SP2
Windows XP	Any	SP3
Windows XP Professional x64	Any	SP2

## Product Support

All new PGI licenses include 60 days of PGI Subscription Service.

The PGI Subscription Service provides support and other benefits including:

- Ongoing technical support by electronic mail. Support requests may be sent in a number of ways:
  - By electronic mail to [trs@pgroup.com](mailto:trs@pgroup.com)
  - Faxed to +1-503-682-2637
  - By using the online support request form available at [www.pgroup.com/support/support\\_request.php](http://www.pgroup.com/support/support_request.php)

Phone support is not currently available.

- Release upgrades for licensed Product(s) at no additional cost, except for any administrative fee that may apply.
- Full license fee credits on Product upgrades, except for any administrative fee that may apply. "Product upgrades" refer to exchanging one Product license for a more expensive Product license, and is not the same as a Version or Release upgrade previously referenced.
- Full license fee credits on user-count upgrades, except for any administrative fee that may apply.

### Important

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To continue receiving these benefits after 60 days, you can purchase an extension to your PGI Service Subscription. Extensions are available in yearly increments. For more information, contact PGI sales at [sales@pgroup.com](mailto:sales@pgroup.com).

# Chapter 2. Installation Overview

This chapter provides an overview of the steps required to successfully install PGI Visual Fortran. The remainder of the document provides the details related to these steps.

Chapter 3, “*Licensing*” describes licensing and how to successfully generate either a trial or a permanent license.

Chapter 4, “*Installing PGI Visual Fortran*” describes how to install PGI Visual Fortran using single-user, node-locked licensing.

Chapter 5, “*PVF Multi-User Installation and Licensing*” describes how to install PGI Visual Fortran using multi-user, network floating licensing.

Chapter 6, “*Use Licensing Environment Variables*” describes how to use the optional FLEX environment variables.

Chapter 7, “*PGI Visual Fortran Directory Structure*” explains the directory structure of the installed product.

Chapter 8, “*Common Installation Issues*” describes common installation issues.

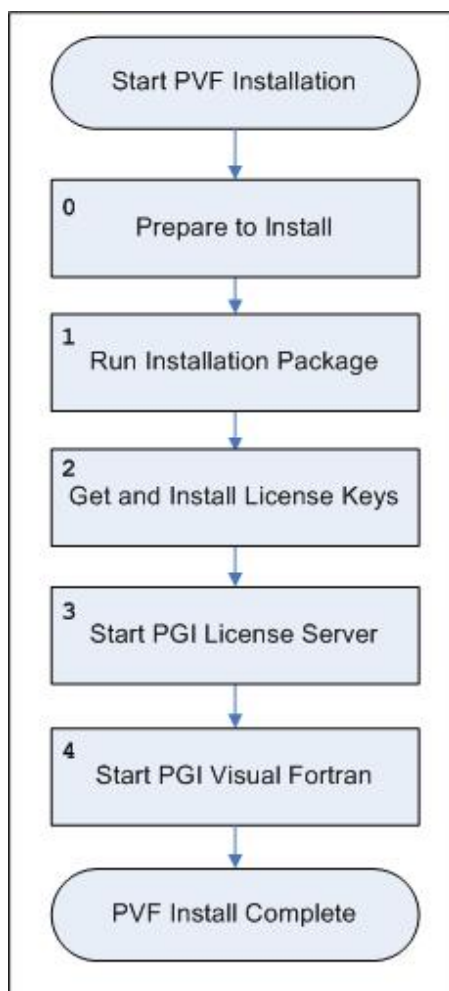
Chapter 9, “*Co-installation*” describes how to co-install PGI Visual Fortran 2010, 2008, and PGI Workstation.

Chapter 10, “*Uninstalling PVF*” describes how to uninstall PGI Visual Fortran.

## Before You Begin

Before you begin the installation, it is essential that you understand the flow of the installation process, illustrated in the following diagram.

Figure 2.1. PVF Installation Overview



For more complete information on these steps and the specific actions to take for your operating system, refer to the following chapters.

# Chapter 3. Licensing

This section provides general information about licensing PGI Visual Fortran, which is a license-managed product.

## Licensing Terminology

Before discussing licensing, it is useful to have common terminology. These two terms are often confused, so they are clarified here:

- **License** - a legal agreement between STMicroelectronics and PGI end-users to which users assent upon installation of any PGI product. The terms of the License are kept up-to-date in documents on [pgroup.com](http://pgroup.com) and in the `$PGI/<platform>/<rel_number>` directory of every PGI software installation.
- **License keys** - ASCII text strings that enable use of the PGI software and are intended to enforce the terms of the License. License keys are generated by the PGI end-user on [pgroup.com](http://pgroup.com) using a unique hostid. They are typically stored in a file called `license.dat` that is accessible to the systems for which the PGI software is licensed at a given site.

There are two types of license keys: permanent and trial.

## License Options

PGI offers licenses for either x64+GPU or x64 only platforms. *PGI Accelerator* products, the x64+GPU platform products, include support for the directive-based PGI Accelerator programming model, CUDA Fortran and PGI CUDA-x86. PGI Accelerator compilers are supported on all Intel and AMD x64 processor-based systems with CUDA-enabled NVIDIA GPUs running Linux, Mac OS X, or Windows.

## Permanent and Trial License Keys

PGI Visual Fortran includes the PGI License Setup tool to help automate your license retrieval and installation process. You use this tool to obtain either a trial or a permanent license key.

### Note

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You must install the PGI software before you obtain your license keys because the license key generation process requires information that is generated during the software installation.

- **Permanent License Keys** - When you purchase a *permanent* PGI license, the email order confirmation you receive includes complete instructions for logging on to the pgroup.com web page and generating permanent license keys.
- **Trial License Keys** - When you register for a *trial* license, you generate trial keys using the web page: [www.pgroup.com/login.php](http://www.pgroup.com/login.php).

### Note

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At the conclusion of the 15-day trial period, the PGI compilers and tools and any executable files generated prior to the installation of permanent license keys will cease to function.

Any executables, object files, or libraries created using the PGI compilers with trial license keys must be recompiled once permanent license keys are in place.

For more detailed information on how to obtain a license key, refer to Step 2 in “[Basic PVF Installation](#),” on [page 13](#).

## License Keys and System Configurations

Executable files generated with permanent license keys in place are unconstrained, and will run on any compatible system regardless of whether the PGI compilers are installed.

### Important

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If you change the configuration of your system by adding or removing hardware, your license key may become invalid. Please contact [license@pgroup.com](mailto:license@pgroup.com) if you expect to reconfigure your system to ensure that you do not temporarily lose the use of the PGI compilers and tools.

## The FLEXnet License Manager

PGI Visual Fortran is licensed using the FLEXnet software license management system from Flexera Software. As part of the installation process, you install and configure the FLEXnet license management software. There are two permanent licensing options using FLEXnet-style licensing.

- **Node-locked** allows any user on a single system to run the software, with access restricted to that pre-specified machine.
- **Network floating license** supports a more flexible licensing system.
  - There is one license server on a network and any system on that network with a properly configured version of PGI Visual Fortran installed can run the software.
  - Multiple users can use PGI Visual Fortran simultaneously from multiple systems on the network.
  - The limitation on the number of users is determined by the number of seats that were purchased with the license.

### Note

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A user continues to keep a license checked out as long as they have a PVF project open or the PVF debugger is attached to a process.

## License Support

All new PGI licenses include 60 days of PGI Subscription Service. For more information about this service and how to extend it, refer to [“Product Support ,”](#) on page 4.





# Chapter 4. Installing PGI Visual Fortran

This chapter details the process of installing PGI Visual Fortran on a Windows system. It is applicable to permanent or trial installations.

Specifically, this chapter includes these topics:

- The process of installing PVF on a single system.
- How to set up licensing on a single system.

## Note

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The instructions in this section guide you in installing PGI Visual Fortran on a single Windows system. If you are setting up PGI Visual Fortran for use with a network floating license, first refer to page 21.

## Prerequisites

- To install PGI Visual Fortran 2010, there are no prerequisites. However, if you do not already have Visual Studio 2010 installed on your system, be certain to install the version of PVF 2010 that includes the Visual Studio 2010 Shell.
- To install PGI Visual Fortran 2008, you must have Visual Studio 2008 already installed on your system. The PVF 10.9 release for VS 2008 was the last release that included the VS 2008 Shell.

## MPI Corequirements

To use PVF's built-in support for Microsoft MPI (MSMPI), you need additional software. These components can be installed after PVF is installed.

There are two types of MPI support in PVF: local MPI and cluster MPI. The type of support you need determines your system requirements.

## Local MPI Requirements

This section describes the installation requirements for using PVF's MPI capabilities locally, such as on a laptop or workstation.

### Microsoft MPI

To use PVF's MPI capabilities, the Microsoft HPC Pack 2008 SDK must be installed on your system. The HPC Pack 2008 SDK contains the MSMPI headers and libraries. It also contains mpiexec, which PVF uses to launch MPI applications. The HPC Pack 2008 SDK is available for download directly from Microsoft.

On some systems, a patch to the HPC Pack 2008 SDK is required to use MSMPI. If you encounter difficulties with running MPI applications, refer to the HPC Pack 2008 SDK Fix for the "Procedure entry point could not be located" issue described online by Microsoft. This patch resolves dependencies in tools used to run MPI programs locally.

### VS 2010 Updates

Although PVF supports VS 2010 SP1, no updates to VS 2010 are required to use the MPI features of PVE.

### VS 2008 Updates

Several updates to VS 2008 are required to use the MPI features of PVE.

- VS 2008 SP1 - Visual Studio 2008 must be upgraded to release SP1 before using PVF's MPI features. You can determine which version of VS you are using in the About Microsoft Visual Studio dialog accessible from the Help menu. If VS 2008 SP1 is installed, you see entries in the Installed products box that look similar to this:

Microsoft Visual Studio 2008 Professional Edition - ENV Service Pack 1 (KB945140)

- KB960075 - VS Dev Environment crash after undocking windows or changing layouts.

This patch fixes a problem with Visual Studios' windowing which may crash VS during debugging. Install this patch after upgrading to VS 2008 SP1.

Download this patch from [code.msdn.microsoft.com/KB960075](http://code.msdn.microsoft.com/KB960075)

- KB971932 - VS 2008: VS Debugger hangs when guid is used to ID a process.

Download this patch from [code.msdn.microsoft.com/KB971932](http://code.msdn.microsoft.com/KB971932)

### Operating Systems

PVF's local MPI capabilities can be used on any system that supports PGI Visual Fortran and Microsoft MPI.

### Cluster MPI Requirements

This section describes the installation requirements for using PVF's MPI capabilities on a cluster.

To use PVF's cluster MPI capabilities:

- Both the HPC Pack 2008 SDK and the HPC Pack must be installed on your system.

- The HPC Pack 2008 SDK contains the MSMPI headers and libraries. It also contains mpiexec, which PVF uses to launch MPI applications.
- The HPC Pack contains, among other things, the HPC Job Manager, which is used to launch MPI applications on a cluster.
- You must be running on a Windows HPC Server 2008 cluster. Both 32-bit Windows and Windows x64 versions are supported.
- Your PGI license must be enabled to run and debug on remote nodes.
- If you are using PVF 2008, you must install the updates to VS 2008 as listed in the previous section.

For information on upgrading your current license to a cluster license, please contact sales@pgroup.com.

## Basic PVF Installation

Once you have completed the prerequisites, you are ready to install. Follow these steps:

### 1. Run the PVF installation package as Administrator.

Administrative privileges are required to install PVF.

- Run the PVF installation executable on the target machine.
- Follow the directions printed to your screen.

#### Note

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Be sure to download the right package for your target platform. The 64-bit package will not install on 32-bit systems, and vice versa.

The name of the PVF executable depends on several factors. The following list shows the different package names, where 'xxx' refers to the release number, such as 121 for release 12.1.

#### For 32-bit Windows Systems:

PVF 2010	pgivf-vs2010-xxx.exe
PVF 2010 With VS Shell	pgivf-vs2010all-xxx.exe
PVF 2008	pgivf-vs2008-xxx.exe

#### For 64-bit Windows Systems:

PVF 2010	pgivfx64-vs2010-xxx.exe
PVF 2010 With VS Shell	pgivfx64-vs2010all-xxx.exe
PVF 2008	pgivfx64-vs2008-xxx.exe

### 2. Run PGI Licensing.

At the conclusion of the installation process, the PVF installer runs the PGI License Setup tool. This tool automates Basic PVF Licensing, described in [“Manual PVF Licensing,” on page 14](#). To use the tool, your computer must meet these prerequisites:

- Be connected to the Internet.
- Have Microsoft .NET Framework 2.0 or higher installed.
- Have Internet Explorer Version 6.0 or higher installed and configured.

If your computer is not connected to the Internet or does not meet these minimum prerequisites, then click the tool's Cancel button and run the PGI License Setup tool later. You can locate this tool in the PGI Visual Fortran folder under the Start menu:

Start | PGI Visual Fortran | Licensing | Generate License

When you run the program, the PGI License Setup tool walks you through the license installation process. It prompts you for your PGI web account, which is your email address, your password, and the type of license you wish to install, such as a two-week trial license or a permanent license. The tool also informs you of any problems it experiences with installation and instructs you how to proceed.

### 3. **Optionally, install a Visual Studio Service Pack.**

Service Pack 1 (SP1) for Visual Studio 2010 is now available. PVF 2010 is compatible with VS 2010 SP1; however, you are not required to upgrade.

Service Pack 1 (SP1) for Visual Studio 2008 is also available. PVF 2008 is compatible with VS 2008 SP1; however, you are not required to upgrade unless you plan to use PVF's MPI features.

You can obtain Visual Studio updates from the Microsoft web page: [www.microsoft.com/downloads](http://www.microsoft.com/downloads).

### 4. **Start PGI Visual Fortran.**

Your installation is now complete and you should be able to start up PVF from the Start menu.

- For PGI Visual Fortran 2010: Start | All Programs | PGI Visual Fortran | PGI Visual Fortran 2010.
- For PGI Visual Fortran 2008: Start | All Programs | PGI Visual Fortran | PGI Visual Fortran 2008.

## Manual PVF Licensing

If you did not successfully run the PGI License Setup tool as described in step 2 of Basic PVF Installation, you can manually install PVF licensing.

The instructions in this section help you obtain a license, put it on your system, and start the PGI License Server so you can use PVE. Manual PVF Licensing requires four basic tasks:

1. Get a PVF License.
2. File your license key.
3. Start the PGI License Server.
4. Start PGI Visual Fortran.

The following sections describe how to perform these tasks.

## Step 1. Get a PVF License

The PGI Visual Fortran compilers and tools on Windows are license-managed using FLEXnet licensing. This system requires that you possess a valid license for the licensed product. You get the license from the PGI website.

To obtain a license, you first need to gather the following information:

- The username and password required to connect to the pgroup.com website.
  - For a permanent license, this information is in your order confirmation email.
  - For a trial license, this is the username (email address) and password you used to download the installation software from the web site. You obtain a trial license using the web page at [www.pgroup.com/login](http://www.pgroup.com/login).
- The FLEXlm hostid and hostname of the computer on which PGI Visual Fortran is installed.

### Note

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It is easy to get the hostid and hostname of your system once you have installed the products.

Open a PVF Command Prompt window; from the Start menu, select All Programs | PGI Visual Fortran Command Shells | PVF Cmd

To get the hostid, enter this command at the prompt:

**CMD> lmutil lmhostid**

You see output similar to the following in which 12345678abcd is unique to your system.

```
lmutil - Copyright (c) 1989-2009 Acresto Software, Inc.
All Rights Reserved.
The FLEXnet host ID of this machine is "12345678abcd"
```

To get the hostname, enter this command at the prompt:

**CMD> lmutil lmhostid -hostname**

You see output similar to the following:

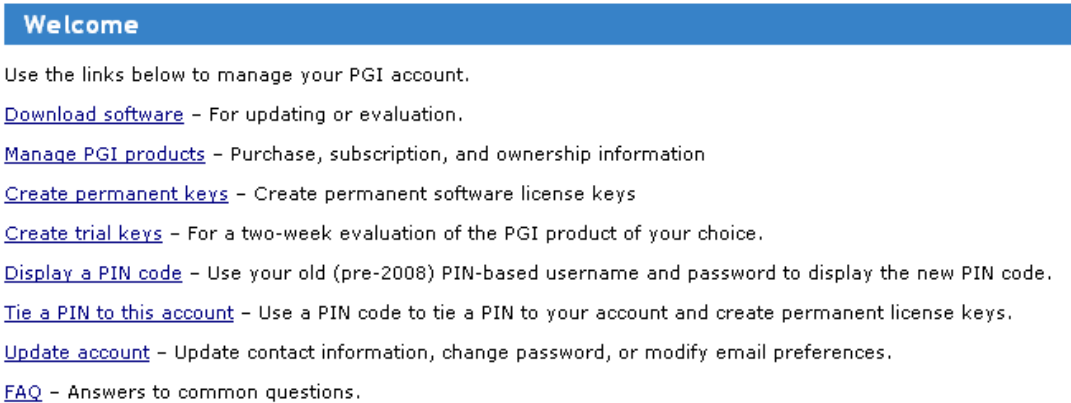
```
lmutil - Copyright (c) 1989-2009 Acresto Software, Inc.
All Rights Reserved.
The FLEXnet host ID of this machine is
"HOSTNAME=yourHostName"
```

Though the above command returns output in the form: `HOSTNAME=yourHostName`, when you create a license, use only the actual hostname, that is `yourHostName` in the hostname field. For example, if the information displayed is `HOSTNAME=abcd1234`, then use only `abcd1234`.

Using this information, go to the PGI license generation website, log in using your username and password, and generate your license.

## Generate License Keys

Once you have logged on at [www.pgroup.com/login](http://www.pgroup.com/login) using your registered PGI web-user email and password, you will see a screen similar to the following one:



**Welcome**

Use the links below to manage your PGI account.

- [Download software](#) - For updating or evaluation.
- [Manage PGI products](#) - Purchase, subscription, and ownership information
- [Create permanent keys](#) - Create permanent software license keys
- [Create trial keys](#) - For a two-week evaluation of the PGI product of your choice.
- [Display a PIN code](#) - Use your old (pre-2008) PIN-based username and password to display the new PIN code.
- [Tie a PIN to this account](#) - Use a PIN code to tie a PIN to your account and create permanent license keys.
- [Update account](#) - Update contact information, change password, or modify email preferences.
- [FAQ](#) - Answers to common questions.

### Generate a Permanent License key:

1. Click **Create permanent keys**.
2. Click the PIN associated with the product for which you wish to generate license keys. If you don't see any PINs listed, you first need to tie one to your account:
  - a. Obtain your PIN code from your original PGI order confirmation email.
  - b. Click the link: Tie a PIN to this account.
  - c. Follow the instructions provided.
3. Click **License keys** to generate the keys.

### Generate a Trial License key:

1. Click **Create trial keys**.
2. Accept the terms of the agreement.
3. Enter the FLEXnet hostid exactly as it appears in the message that is displayed during installation or when you issue the command:

**CMD> lmutil lmhostid**

If multiple host ids are displayed, select any *one* of them to use as the hostid.

4. Click the **Generate license key** button.

## Step 2. File Your License Key

Once you have a PVF license, you must put it in the license file on your system, a file called `license.dat`. In a typical installation configuration, where C: is the system drive, put the license in this file:

```
C:\Program Files\PGI\license.dat
```

- If you have not previously received a license from PGI, you must create this file.
- If your `license.dat` file already exists and contains PGI license keys, such as PGI Workstation keys, then append the PVF keys to the keys already in this file.

### Step 3. Start the PGI License Server

The PVF installation creates a Windows Service called PGI License Server. The actions related to this service depend on the type of license you are using:

- Trial - If you have obtained a trial license, then no action is required.
- Permanent - If you have obtained a permanent license, the FLEX license system requires that a license server be running. Thus you must now start the PGI License Server.

As soon as a valid `license.dat` is in place, as described in “[Step 2. File Your License Key](#)”, you can start the PGI License Server.

1. Open the Services dialog from the Start menu:

Start | Control Panel | Administrative Tools | Services

2. Scroll through the list and select "PGI License Server".
3. Click **Start**.

#### Note

---

The PGI License Server service starts automatically on system reboot provided that the `license.dat` file contains a valid license.

### Step 4. Start PGI Visual Fortran

Your installation is now complete and you should be able to start up PVF from the Start menu.

- For PGI Visual Fortran 2010: Start | All Programs | PGI Visual Fortran | PGI Visual Fortran 2010.
- For PGI Visual Fortran 2008: Start | All Programs | PGI Visual Fortran | PGI Visual Fortran 2008.





# Chapter 5. PVF Multi-User Installation and Licensing

If you are installing PGI Visual Fortran for multiple users, you set up one system as a license server and one or more different systems as clients. As you see in scenario A that follows, the license server can also be a client.

When PVF is invoked on one of the client systems, it contacts the license server to check out a network floating PVF license. The steps you take to set up the license server are different than the steps you take to set up the clients. This section describes the entire process.

## Server Designation

When you are installing PGI Visual Fortran with the intention of using a multi-user network floating license, you must designate a machine to be the system that serves PGI Visual Fortran licenses. Let's call this machine the FLEX license server.

There are a number of different ways to set up the FLEX license server, and how you choose to proceed depends on your needs. Before you begin the installation, select the scenario that best matches the configuration that you want for your FLEX license server.

This installation guide covers the following situations:

**Scenario A:** The FLEX license server is a Windows system. You want to install PGI Visual Fortran on it as well as on the client systems.

**Scenario B:** The FLEX license server is a Windows system. However, you do not want to install PGI Visual Fortran on it.

**Scenario C:** The FLEX license server is a Linux system.

Once you have determined the scenario that fits your needs, move on to the section that provides the specific steps for your licensing server scenario.

## Scenario A - License Server (Windows) with PVF Installed

Use these steps if your FLEX license server is a Windows system and you want to install PGI Visual Fortran on it as well as on the client systems.

1. Install PVF on the license server.

To do this, follow the instructions in [“Basic PVF Installation,”](#) on page 13.

2. Enable licensing on the license server.

To do this, follow the instructions in [“Manual PVF Licensing,”](#) on page 14.

3. Install PVF on each client.

To do this, follow the instructions in [“PVF Installation on Client,”](#) on page 21.

## Scenario B - License Server (Windows) without PVF Installed

Use these steps if your FLEX license server is a Windows system but you do not want to install PGI Visual Fortran on it.

1. Install the PGI License Server on the license server.

To use a Windows system as the FLEX license server for PVE, the system must have the PGI License Server components installed on it. These components are included in all PGI products, but they are also available in a standalone installation package.

First, use the system's Add or Remove Programs Dialog to check for the presence of PGI FLEXlm License Server components:

- If the PGI FLEXlm License Server 11.10 is installed, proceed to Step 2.
- If any PGI product is installed that is version 2012 or newer, the system already has the components that it needs. Proceed to Step 2.
- If any previous version of PGI FLEXlm License Server is installed, use the Add or Remove Programs dialog to uninstall this product. A PVF license requires a newer version of the FLEX tools. Proceed with this step.

Next, download the PGI License Server 11.10 installation package from

[www.pgroup.com/support/download\\_licensing.php](http://www.pgroup.com/support/download_licensing.php)

- If your system is running a 32-bit OS, choose the 32-bit package.
- If your system is running a 64-bit OS, choose the 64-bit package.

Finally, log on to the system as Administrator and run the PGI License Server 11.10 installer.

2. Enable licensing on the license server.

To do this, follow the instructions in [“Manual PVF Licensing,”](#) on page 14.

3. Install PVF on each client.

To do this, follow the instructions in [“PVF Installation on Client,”](#) on page 21.

## Scenario C - License Server (Linux)

Use these steps if you use a Linux system as your FLEX license server.

### Note

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This scenario is only recommended for users already familiar with using FLEX on Linux.

1. Install the 11.10 FLEX Tools on the Linux license server.

To use a Linux system as the FLEXnet license server for PGI Visual Fortran, FLEXnet tools must be installed on the Linux system. Further, these FLEXnet tools must be version 11.10 or newer.

To download a version of FLEXnet tools for Linux that will support PGI Visual Fortran network floating license keys, go to [www.pgroup.com/support/download\\_licensing.php](http://www.pgroup.com/support/download_licensing.php).

2. Obtain a PVF license from PGI.

Using the information in your order confirmation, and the hostid and hostname of the Linux FLEX license server system, obtain PVF license keys from [www.pgroup.com/login](http://www.pgroup.com/login).

3. Add the PVF license to `license.dat`.

Add the PVF license to the `license.dat` file used by the FLEXnet Tools on the Linux FLEX license server.

If necessary, restart the FLEX license server, typically `lmgrd`.

4. Install PVF on each client.

To do this, follow the instructions in the next section.

## PVF Installation on Client

Use the following steps to install PVF on a client system. You should have already completed the steps listed for setting up the FLEX license server. Your actions, outlined in the previous sections of this chapter, depend on whether you chose Scenario A, B, or C.

1. Install PVF on the client.

To do this, follow the instructions in [“Basic PVF Installation,” on page 13](#).

2. Fix the `license.dat` file on the client.

This step involves these actions:

- Put the `license.dat` file from the FLEX license server on each client. If a `license.dat` file already exists on the client, then replace it with the one from the server.
- Change the Startup Type for the PGI License Server on the client from "Automatic" to "Manual".

This change stops the PGI License Server from automatically starting when the client is rebooted.

To set the startup type to Manual, do this:

1. Open the Services dialog from the Start menu:  
Start | Control Panel | Administrative Tools | Services
2. Scroll through the list and select "PGI License Server."
3. Select "Properties."
4. In the Properties dialog, from the Startup Type drop-down list, select "Manual."
5. Click OK.

#### Note

---

The default action after a PVF installation is for this service to automatically start after a reboot. The client is obtaining a license from the system on the network that contains the licenses. Setting the client PGI License Server startup type to Manual is an important step.

Test the licensing setup by starting Visual Studio on the client system and verify that you can create a PVF project.

3. Repeat both steps 1 and 2 *for each client*.

# Chapter 6. Use Licensing Environment Variables

This section describes two environment variables that you can use with FLEXnet:

LM\_LICENSE\_FILE  
FLEXLM\_BATCH

## LM\_LICENSE\_FILE

The system environment variable `LM_LICENSE_FILE` is not required by PVF, but you can use it to override the default location that is searched for the `license.dat` file.

To use the system environment variable `LM_LICENSE_FILE`, set it to the full path of the license key file. To do this, follow these steps:

1. Open the System Properties dialog (Start | Control Panel | System).
2. Select the 'Advanced' tab.
3. Click the 'Environment Variables' button.
  - If `LM_LICENSE_FILE` is not already an environment variable, create a new system variable for it. Set its value to the full path, including the name of the file, for the license key file, `license.dat`.
  - If `LM_LICENSE_FILE` already exists as an environment variable, append the path to the license file to the variable's current value using a semi-colon to separate entries.

## FLEXLM\_BATCH

By default, on Windows, the license server creates interactive pop-up messages to issue warnings and errors. This behavior is controlled by the environment variable `FLEXLM_BATCH`.

Although it is not recommended, you can prevent interactive pop-ups from appearing. To do this, set the environment variable `FLEXLM_BATCH` to 1.



# Chapter 7. PGI Visual Fortran Directory Structure

This chapter shows the location of the contents of PGI Visual Fortran. The 32-bit Windows and Windows x64 platform structures vary.

Throughout this chapter, we assume that the Windows system drive is C.

On Windows x64 platforms, the default installation directories are

```
C:\Program Files\PGI\win64\12.1  
C:\Program Files (x86)\PGI\win32\12.1
```

On 32-bit Windows platforms, the default installation directory is

```
C:\Program Files\PGI\win32\12.1
```

In addition to these product directories, the Microsoft Open Tools and FLEXnet license management tools are installed in

```
C:\Program Files\PGI\Microsoft Open Tools 10  
C:\Program Files\PGI\flexlm
```

## Windows x64 Platform

The PVF Installation Package creates the following directory structure during installation on a Windows x64 platform:

### PGI Visual Fortran Integration Components

Directory	Contents
C:\Program Files (x86)\Microsoft Visual Studio 10.0\ PGI Visual Fortran	PGI Visual Fortran 2012
C:\Program Files (x86)\Microsoft Visual Studio 9.0\ PGI Visual Fortran	PGI Visual Fortran 2008

## PGI Visual Fortran Installation on Windows x64 Platform

Directory	Contents
C:\Program Files\PGI\win64\12.1\bin	PVF 12.1 64-bit compilers and tools binaries
C:\Program Files\PGI\win64\12.1\lib	PVF 12.1 64-bit runtime and support libraries
C:\Program Files\PGI\win64\12.1\include	PVF 12.1 64-bit module and include files
C:\Program Files\PGI\win64\12.1\REDIST	Redistributable 64-bit runtime libraries
C:\Program Files\PGI\win64\12.1\doc	Documentation
C:\Program Files\PGI\win64\12.1\src	Source code for PVF-supplied modules
C:\Program Files (x86)\PGI\win32\12.1\bin	PVF 12.1 32-bit compilers and tools binaries
C:\Program Files (x86)\PGI\win32\12.1\lib	PVF 12.1 32-bit runtime and support libraries
C:\Program Files (x86)\PGI\win32\12.1\include	PVF 12.1 32-bit module and include files
C:\Program Files (x86)\PGI\win32\12.1\REDIST	Redistributable 32-bit runtime libraries
C:\Program Files (x86)\PGI\win32\12.1\doc	Documentation
C:\Program Files (x86)\PGI\win32\12.1\src	Source code for PVF-supplied modules

**32-bit Windows Platform**

The PVF Installation Package creates the following directory structure during installation on a 32-bit Windows platform:

## PGI Visual Fortran Integration Components

Directory	Contents
C:\Program Files\Microsoft Visual Studio 10.0\PGI Visual Fortran	PGI Visual Fortran 2010
C:\Program Files\Microsoft Visual Studio 9.0\PGI Visual Fortran	PGI Visual Fortran 2008

## PGI Visual Fortran Installation on 32-bit Windows Platform:

Directory	Contents
C:\Program Files\PGI\win32\12.1\bin	PVF 12.1 32-bit compilers and tools binaries
C:\Program Files\PGI\win32\12.1\lib	PVF 12.1 32-bit runtime and support libraries
C:\Program Files\PGI\win32\12.1\include	PVF 12.1 32-bit module and include files
C:\Program Files\PGI\win32\12.1\REDIST	Redistributable 32-bit runtime libraries
C:\Program Files\PGI\win32\12.1\doc	Documentation
C:\Program Files\PGI\win32\12.1\src	Source code for PVF-supplied modules



# Chapter 8. Common Installation Issues

This section contains information about problems that may occur during the installation process as well as tips on setup information.

## Windows Firewall and PVF Debugging

Microsoft Windows Firewall runs by default on some types of systems, such as Windows XP and Windows Vista. Suppose this application is running on your system. Unless the PVF debug engine components are included in the Windows Firewall Exceptions list, Windows Firewall may try to block the PVF debug engine when you debug a program.

### Automatic Additions to Windows Firewall Exceptions List

#### When PVF is installed

If Windows Firewall is enabled when PVF is installed, certain components are automatically added to the Exceptions list. For PGI Visual Fortran 2010/2008, these components appear as follows:

Microsoft Visual Studio 2010/2008 (respectively)

PGI Debugger 2012 (32-bit)

PGI Debugger 2012 (64-bit) - not added to the Exceptions list on 32-bit systems.

#### When PVF is uninstalled

If Windows Firewall is enabled when PVF is uninstalled, the components previously listed are automatically removed from the Exceptions list.

#### When using PVF to Debug

If the PVF Debug Engine components are not listed in the Exceptions list and Windows Firewall is enabled when you use PVF to debug, the Firewall displays a dialog that allows you to Unblock the PVF debug engine components. If you choose the Unblock option, Windows Firewall adds the component to its list of Exceptions and you do not see the pop-up dialog again unless you reinstall.

### Tip

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On rare occasions, this pop-up may prevent the debug session from starting correctly. If this occurs, use the Task Manager to end the debug session.

### Note

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You can manually add these components to the Windows Firewall list of Exceptions.

## Troubleshooting

The most common installation problems are related to licensing.

To troubleshoot your installation, first check that the license.dat file you are using contains a valid license. Second, if you are using permanent node-locked licensing, check that the PGI License Server, a Windows Service, is started on the system that is providing the licensing.

Typical FLEX errors encountered may include the following:

- **Error:** When starting the PGI License Server, a system message appears that states 'The PGI License Server service on Local Computer started and then stopped. Some services stop automatically if they have no work to do, for example, the Performance Logs and Alerts service.'

**Possible Solution:** This message may appear because the license.dat file accessed by the FLEX License Manager does not contain a valid license or the license you have does not allow PGI License Server to run. Verify your PVF license is valid.

- **Error:** When starting PGI Visual Fortran, a FLEXible License Manager dialog appears that states 'pvf: LICENSE MANAGER PROBLEM: No such feature exists.'

**Possible Solution:** This message may appear because the license.dat file accessed by the FLEX License Manager does not contain a valid license. Verify your PVF license is valid.

- **Error:** When starting PGI Visual Fortran, a FLEXible License Manager dialog appears that states 'pvf: LICENSE MANAGER PROBLEM: Cannot connect to license server system.'

**Possible Solution:** This message may appear because the PGI License Server has not been started. Start the server manually, if necessary.

- **Error:** When using a compiler or tool from the PVF command line, a message stating 'LICENSE MANAGER PROBLEM: Failed to checkout license' appears.

**Possible Solution:** This message may appear because the PGI License Server has not been started. Start the server manually, if necessary.

## Installation Errors to Ignore

Occasionally an installation produces one of the following error messages, or something similar. These errors do not interfere with proper installation and can safely be ignored.



DeleteDir(C:\Program Files\PGI\win64\12.1\pvf) failed in InstallPVF Compilers



DeleteFile("C:\Program Files\PGI\win64\12.1\pvf\pgivfx64-ct.exe") failed because the specified file was not found.



# Chapter 9. Co-installation

This chapter describes how to co-install PVF 2010 and PVF 2008 as well as how to co-install PGI Workstation with PGI Visual Fortran.

## Co-installation of PVF 2010 and PVF 2008

PGI Visual Fortran 2010 and PGI Visual Fortran 2008 are designed such that they can be installed side-by-side. There is only one restriction on PGI Visual Fortran co-installation: the version number of each installation must be kept the same. For example, if you install PGI Visual Fortran 2008 version 12.1 and you want to use PGI Visual Fortran 2010 on the same system, you must install version 12.1 of PVF 2010 as well.

If you must compile a project with a compiler of a different version, refer to "Selecting an Alternate Compiler Release" in the PVF Release Notes.

## Co-installation of PGI Workstation and PGI Visual Fortran

PGI Workstation compilers and tools can be co-installed with PGI Visual Fortran as long as the version of PGI Workstation being installed has the same or newer version than the version of PGI Visual Fortran.

### Note

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If it is necessary to install an older version of PGI Workstation on a system where PVF 12.1 has already been installed, uninstall PVF 12.1, install PGI Workstation, then re-install PVE.

Any version of PVF can be installed on a system where PGI Workstation has been installed.



# Chapter 10. Uninstalling PVF

To uninstall PVF, use the following guidelines:

- Administrative privileges are required to uninstall.
- Make sure that Visual Studio and Visual Studio Help are not running when uninstalling PVF.
- There are two components to PVF:
  - the compilers, tools, and libraries
  - the Visual Studio integration components.

These components may be uninstalled separately, allowing users to maintain multiple versions of the compilers on their system.

- PGI Visual Fortran 2010 and PGI Visual Fortran 2008 share the same installation of the compilers. The components appear in the Control Panel | Add or Remove Programs dialog as follows:

PGI Visual Fortran (compilers only) 12.1  
PGI Visual Fortran 2008  
PGI Visual Fortran 2010

- If your installation of PGI Visual Fortran included installation of the Microsoft Visual Studio Shell, then several other components appear in the Add or Remove Programs dialog. The names of these components may appear slightly different on your system than they appear in the following list, depending on localization settings and whether the system is running a 64-bit operating system, and are similar to these:

Microsoft Visual Studio 2010 Shell (Integrated) - ENU  
Microsoft Visual C++ 2010 x86 Runtime - 10.0.30319  
Microsoft Visual C++ 2008 Redistributable - x86 9.0.30729.4974  
Microsoft Help Viewer 1.0  
Microsoft SQL Server 2008 R2 Management Objects  
Microsoft SQL Server System CLR Types  
Microsoft .NET Framework 4 Client Profile  
Microsoft .NET Framework 4 Extended  
Microsoft .NET Framework 4 Multi-Targeting Pack

## Note

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Take care when uninstalling these components to ensure that no other software on the system depends on them. Further, always uninstall the Microsoft .NET Framework components last.

If there are problems while uninstalling PVF, try reinstalling the product, then uninstall again.



# Chapter 11. Contact Information

You can contact The Portland Group at:

The Portland Group  
STMicroelectronics, Inc.  
Two Centerpointe Drive  
Lake Oswego, OR 97035 USA

Or electronically using any of the following means:

Fax	+1-503-682-2637
Sales	sales@pgroup.com
Support	trs@pgroup.com
WWW	www.pgroup.com

The PGI User Forum is monitored by members of the PGI engineering and support teams as well as other PGI customers. The forum newsgroups may contain answers to commonly asked questions. Log in to the PGI website to access the forum:

[www.pgroup.com/userforum/index.php](http://www.pgroup.com/userforum/index.php)

Many questions and problems can be resolved by following instructions and the information available at our frequently asked questions (FAQ) site:

[www.pgroup.com/support/faq.htm](http://www.pgroup.com/support/faq.htm)

All technical support is by e-mail or submissions using an online form at [www.pgroup.com/support](http://www.pgroup.com/support). Phone support is not currently available.

PGI documentation is available at [www.pgroup.com/resources/docs.htm](http://www.pgroup.com/resources/docs.htm) or in your local copy of the documentation in the release directory [doc/index.htm](http://doc/index.htm).

