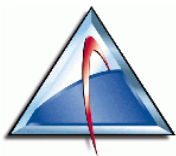


# STK Installation Guide



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# Section 1: Installing STK

Instructions for installing the Satellite Tool Kit (STK) follow. If you have questions that are not addressed in this document, please check the [AGI Web site](#) for more information or contact technical support.

## System and Hardware Requirements

**Notes:** In order to install STK, you must be an administrator or have elevated install permission for the machine on which STK is being installed.

You must also have read permissions for the HKEY\_CLASSES\_ROOT setting in the system registry. To check the registry setting:

1. Run regedit from Start→Run... or the command line to access the system registry.
2. Right-click HKEY\_CLASSES\_ROOT and select **Permissions....**
3. Select **Users** and ensure that **Allow** for Read permissions is checked.

Component	Minimum Requirements	Recommended Requirements
<b>System and Hardware Requirements</b>		
CPU	1 GHz <b>Note:</b> Not supported on CPUs that do not support Streaming SIMD Extensions 2 (SSE2). Some older AMD CPUs do not support SSE2. Check the CPU specifications.	2+ GHz
RAM	1 GB	2 GB
Operating System	Windows XP/ XP Professional x64/Vista/7	Windows XP/ XP Professional x64/Vista/7
Web Browser	Internet Explorer 5.5	Internet Explorer 7.0
<b>3D Visualization Requirements</b>		
Video Card	OpenGL-compatible card (128 MB memory)	High-end OpenGL-compatible card (512+ MB memory)
OpenGL Version	1.2	2.0+
Disk Space	1.5 GB	1.5 GB

**Notes: Windows x64 Operating Systems**

STK will run as a 32-bit application in a 64-bit Windows environment.

**Video Cards**

Video cards based on chipsets from ATI and nVIDIA have shown excellent performance and compatibility with STK when using recent drivers in desktop or laptop computers.

Graphics integrated on the motherboard in value desktop or laptop computers may have insufficient levels of 3D performance and will compete with STK and other applications for CPU resources which can create an unacceptable STK user experience.

Matrox Gxxx and 3Dlabs cards should be avoided due to various incompatibilities with STK and/or OpenGL.

**OpenGL**

STK will automatically use OpenGL 1.1 with remote access applications (such as Microsoft Remote Desktop) and virtual PC applications (such as VMWare and Microsoft Virtual PC) that do not support OpenGL 1.2 extensions.

Using OpenGL 1.1 with these applications will display the central body surface in the STK 3D Graphics window, with the following limitations:

- You can add only the base texture to the globe. Additional textures will be rejected.
- PDTT files will not work.

## Installing STK

To install STK:

1. Insert the STK DVD into your DVD drive. If AutoRun is enabled, the installation automatically starts.

**Note:** If AutoRun is not enabled, run install.exe on the STK DVD.

2. Select the software you want to install and click **Start Installation**. (It is recommended that you accept the default selections.) The Welcome screen for your first selection is displayed.
3. The install program will step you through installing the software applications you selected. In addition, Microsoft .NET framework, License Manager, MathPlayer, and the STK/2525B Symbol Server will be installed, if they do not already exist on your system.
4. When all the applications are installed, click **Next**.

5. If you selected **Run License Manager**, the License Manager Wizard dialog box appears. This wizard will help you request licenses files or install license files you already have. Continue to the next section to install your license file.

## Requesting and Installing an STK License

The AGI License Manager helps you install your license file quickly and easily.

**Note:** Do not remove your old licenses if you want to continue to use a version of STK older than STK 8. STK 9 licenses will not work with releases of STK older than STK 8. You can remove the old licenses after you have removed the old STK version.

If you close the License Manager without choosing one of the options, you can re-open it at any time by clicking **Start, Programs, AGI Support Tools, License Manager**. You cannot run STK without licensing it through the License Manager first.

## Resetting Your Current User Area

When you run STK for the first time, STK prompts you for the following:

- Define a user area for your scenario files. By default your user area is C:\Documents and Settings\\My Documents\STK <version number>, which you can change by clicking the Browse button
- Select the default source for the SGP4 and GPS Propagators.
- Select the types of files in the STK 8 user directory that you want to copy to the STK 9 user directory.

If at any time you want to set your user area to another folder location or your folder was inadvertently removed or corrupted, you can recreate the folder by using the Start menu option **Reset Current User Settings** and running STK. When you run STK, you will see the same prompts that were presented to you when you ran STK for the first time.

## Installation Notes for Systems using Windows XP Service Pack 2 and Windows Vista

If the Windows Firewall application is enabled, you may need to adjust the settings to allow the newly installed STK Application to run properly with your network configuration.

Upon starting an AGI Application, the Windows Firewall may display a Windows Security Alert dialog box prompting you to choose one of the following regarding the new application you started:

**Keep Blocking.** If you choose to "Keep Blocking" the application, you will not be able to access the features on the associated ports via unsolicited incoming network traffic.

**Unblock.** If you choose to "Unblock" the application, you will be able to access the features on the associated ports, including unsolicited incoming network traffic.

**Ask Me Later.** If you choose to "Ask Me Later", the Windows Security Alert dialog box will prompt you later if you want to "Block" or "Unblock" the application.

For more information on the Windows Firewall, go to [Deploying Windows Firewall Settings for Microsoft Windows XP with Service Pack 2 Website](#).

The following tables list the ports each AGI Application uses. You may need to make some adjustments while using the Windows Service Pack 2 Firewall Utility.

#### **AgUiApplication.exe (STK)**

Feature	Port	Protocol	Description
MPI	Random	TCP	Message Passing Interface for parallel application processing
DIS	3000	UDP	Default port( BroadCast, Multicast ) used for Distributed processing, it is configurable
Connect	5001	TCP	Default port used for STK/Connect commands, it is configurable

#### **AgUiApplication.exe (STK with Node Lock License)**

Feature	Port	Protocol	Description
License Messaging	2342	TCP	Only with Node Lock Licenses, Multiple instantiations of the application communicate about licenses via this port

#### **STKD.exe (STK License Manager)**

Feature	Port	Protocol	Description
Client Connections	Random	TCP	Listens for client communications
License Messaging	Random	UDP	Broadcast / Multicast license messaging
Imgrd.exe	27000	TCP	Listening for License Messaging

#### **AGIViewer.exe (AGIViewer)**

Feature	Port	Protocol	Description
MPI	Random	TCP	Message Passing Interface for parallel application processing

# Appendix A: Configuring Dongles

A dongle is a physical device that allows you to utilize flex licensing with STK and its modules. These instructions will take you through the process of installing a dongle for use with STK.

**Note:** Dongle drivers for I-Button dongles are not supported on Vista because I-Button dongles are being discontinued by the manufacturer.

Before installing a dongle, you must first have the following:

1. A license file supplied by AGI.
2. The dongle itself, a device that attaches to a computer's parallel or USB port.
3. Your STK Installation DVD.

## Attaching the Dongle

Note the Flex-ID number of your dongle, which will appear on parallel port dongles as a twelve digit number preceded by either an "8-", in the case of AGI dongles or a "7-", in the case of third-party produced dongles. The Flex-ID number of a USB dongle is an eight character string preceded by a "9-".

**Warnings:** Contact AGI technical support before making any attempt to install a third-party dongle.

Do not tamper with the dongle's construction. If you damage the device by handling it inappropriately, you will be charged for a replacement.

## Installing Dongle Drivers

1. Insert the STK Installation DVD.
2. Open Windows Explorer, to the x:/DongleDriver Folder directory, where x is the letter of the drive containing the STK installation DVD.
3. Select one of the following to install the Dongle Drivers:
  - For a standard Windows operating system, click **flexid.exe**.
  - For a 64-bit Windows operating system, open the **HASP4\_driver\_cmdline** folder in the DongleDriver\HASP\_FLEXID9 folder and click **haspdinst.exe**.
4. Restart your computer, if instructed.
5. Install STK licenses as you normally would.

## Troubleshooting Dongle Installation

If you have followed the installation instructions carefully and still cannot utilize the dongle, take the following steps:

1. Browse to <STK install directory>\AGI\LicenseManager\Bin and launch **LmTools.exe**.



2. On the System Settings page, in the Flex-ID field, the dongle ID should be displayed. If the dongle ID is not present, then either the dongle is not connected properly, or the dongle driver is not functioning.
  - Verify the physical seating of the dongle and reinstall the driver.
  - If the problem persists, contact technical support.
3. If the FLEXID field is properly populated, then the problem is likely related to the license file. Verify that:
  - The license file HostID matches the dongle ID.
  - The license file is in the correct directory.
  - The license file version is equal to or higher than the version of STK installed on the computer.
  - If after verifying the settings, the problem persists, contact technical support.

# Appendix B: Configuring a UNIX or Windows Network License Server

**Note:** STK utilizes Flexlm licensing. For more information on license management strategies, refer to the FLEXlm End Users Guide.

A network license server is an area on a network where you can house and manage STK licenses for multiple users. You can configure any machine on your network to act as the network license server, provided the directory path to licenses on the server machine is shared, and that all of the clients that will be accessing licenses from the server can see it.

It is recommended that you to have just one network license server, and that each instance of STK be configured to request all licenses from the same server. You may not be able to access some licenses if one client is attempting to get licenses from multiple network license servers. For example, if you are pointing to one server for your STK license, and you try to point to a different server for your STK/Astrogator license, one of the licenses may not be fully functional.

**Note:** A network fileserver is a good choice for a network license server installation, although any machine usually available on the network is acceptable.

If you purchased a UNIX or Windows network license server for STK, your system administrator needs to perform the following tasks:

1. Install the network license server software on the server.
2. Obtain and install server licenses and client licenses.
3. Start the License Daemon.

Procedures for performing these tasks for Windows and UNIX license servers follow.

## Installing a Windows Network License Server

To install the network license server software:

1. Insert the DVD into the DVD drive.
2. Browse to <DVD drive>:\AGI\_License\_Server\<version>\Windows\ and click **setup.exe**.
3. Continue to the License Agreement window, where you will need to read the AGI Desktop Software Licensing Agreement. Accept the license agreement and click **Next**.
4. At the AGI License Server Destination Folder window, specify the location where your license server files will be stored on the server. Click **Next**.

**Note:** The installation process results in creation of a license folder to store your network license files. By default, the license folder is created in C:\Documents and Settings\All Users\Application Data\AGI\LicenseData on Windows XP and C:\ProgramData\AGI\LicenseData on Windows Vista.

5. At the Ready to Install the Program window, select **Install**.

6. After the installation has finished, identify the AGI License Server Host ID and IP address for the machine. Do this by running LMTTools.exe in the AGI License Server folder, selecting the System Settings tab. The value for Ethernet Address is the Host ID.
7. When you finish, e-mail or telephone AGI with the Host ID and IP address of network license server machine to request server licenses. A Technical Support Engineer will provide you with license files generated for your License Server.

When you request server licenses, you will receive two license files—a server license and a client license. Save the server licenses in the licenses directory created during the network license server installation (in step 4). The client license will be used to direct individual workstations to the network license server to get their licenses.

After you have installed licenses on the network license server machine, you will need to start the License Daemon to enable the licenses.

## Starting the License Daemon

You can configure the license server machine so that the license daemon starts automatically at boot by changing the services settings for the AGI License Server on the machine that is acting as the network license server.

1. Log on to the network license server machine.
2. Open the Services window.

**Notes:** Windows XP users will find Services inside of their Administrative Tools in the Control Panel.

If you are running Windows XP, and working in Category View, Administrative Tools will be in the Performance & Maintenance category of your Control Panel.

3. When the Services window appears, double-click **AGI License Server** in the services list. This will open the Properties page for the AGI License Server Service.
4. On the General tab, change the **Startup Type** to Automatic, if it is not already.
5. Click the **Start** button in the Services Status area.
6. Click **OK** to dismiss the Properties page.

**Warnings:** If you are using network licenses and you are prompted to register when you run STK after a client workstation install, either all of your network licenses are in use, or your workstation does not have access to licenses on the network license server.

If STK starts up and cannot find the network license server it will attempt to connect to the network license server multiple times. This process will be repeated for each STK license. This process may take a significant amount of time, and STK may appear to stop responding when actually it is searching for licenses.

## Installing a UNIX Network License Server

To install a Network License Server on UNIX:

1. Log in as root.
2. Insert the DVD into your DVD drive.
3. Mount the DVD drive.
4. Change directories so that you are in the AGI\_License\_Server/unix directory on the DVD (e.g., `cd /cdrom/AGI_License_Server/unix`).
5. At the user prompt, type `./install.Flexlm` and press RETURN.
6. Choose whether to also view these installation instructions on the UNIX machine by pressing **Y** or **N**.

**Note:** The install instructions are in HTML format, and can be displayed on any platform on which an AGI application runs. To properly view them you'll need a Browser that is Java-capable and can support frames. Although this requires a HTML Browser such as Netscape Navigator 4.x or Internet Explorer 4.x, it does not require that the computer have access to the Internet. The Browser is used in this case to display HTML files and not to connect to the internet.

7. At the prompt, enter the directory path of the machine that will act as the License Server.

**Warning:** If you are installing the License Server on a machine other than the one that will actually act as the server, you will need to copy the License Server files from the `<InstallDir>/NetworkDaemon` directory onto the hard drive of the machine that will act as the License Server.

8. At the prompt, choose the operating system for the machine on which you are performing the installation.

**Note:** This is not necessarily the same operating system on which your AGI Application will be running.

9. Allow the installation to continue. The on-screen instructions will guide you through the rest of the installation process.

## Obtaining and Installing Licenses

1. After the installation has finished, identify the Host ID and IP address for the machine that will act as the Network License Server. From the UNIX directory on the DVD, enter `hostid.sh` to return the host ID of the machine from which this command was entered.
2. E-mail, FAX or telephone AGI support with the Host ID and IP address of the machine that will act as the Network License Server to request server licenses.

- When you request server licenses, you will receive two license files--a server license and a client license.

Save the server license in the AGI License Server directory created during the Network License Server installation: <install directory>/NetworkDaemon/Flexllm/V9.2/<operating system>/licenses.

The client license will be used to direct individual workstations (clients) to the Network License Server to get their licenses.

- Start the License Daemon to enable the new licenses.

## Starting the License Daemon Manually

If you do not want the license daemon to run automatically, use the following steps to start it manually.

- Log onto the License Server machine.
- Change directories to the directory where you installed the Network Daemon files and type:  
**./lmgrd -c <LicenseDir>**

For more information about License Daemon options for various UNIX platforms, consult the FLEXlm End Users Manual.

## Starting the License Daemon Automatically

To configure the system so that the license daemon starts automatically at boot, place the following command in the appropriate file:

```
<PathToDaemon>/lmgrd -c <LicenseDirectory>
```

Check the table following for instructions on automating this process on various platforms.

Platform	Instructions
Digital UNIX	CD to the init.d directory and type <b>ls</b> to list the files contained in this directory. Create a file beginning with <b>Sxxxlmgrd</b> (scripts are run in numerical order, so xxx should be one of the last files run). Place the command in that file. You may need to enter additional commands or structure the file accordingly (check other S files to see the format used on your system). Now create a symbolic link to the newly created file in <b>/sbin/rc2</b> .directory.
HP-UX	Place the command in the localrc() function of the /etc/rc file.
AIX	Place the command at the bottom of the /etc/rc file (before the exit command).
SGI IRIX/ Sun Solaris	CD to the init.d directory and type <b>ls</b> to list the files contained in this directory. Create a file beginning with <b>Sxxx</b> (scripts are run in numerical order, so xxx should be one of the last

Platform	Instructions
	<p>files run). Place the command in that file. You may need to enter additional commands or structure the file accordingly (check other S files to see the format used on your system). Now create a symbolic link to the newly created file in the <b>/sbin/rc2.d</b> directory.</p>
Linux	<p>Create a file called <code>/etc/rc.d/init.d/lmgrd</code>. The contents of the file should read:</p> <pre>#!/bin/sh ./etc/rc.d/init.d/functions  case "\$1" in start)  echo -n "Starting lmgrd license daemon: " &lt;PathToDaemon&gt; /lmgrd -c &lt;PathToLicenseFile&gt;  stop)  echo -n "Stopping lmgrd license daemon" &lt;PathToExecutable&gt;/lmdown -c &lt;PathToLicenseFile&gt;  *)  echo "Usage: lmgrd {start stop}" exit 1  esac exit 0</pre> <p>Be sure <code>lmgrd</code>, <code>lmdown</code> and the full path of your license file is in this script. Make this script world executable using the following command:</p> <pre>chmod 0755 /etc/rc.d/init.d/lmgrd</pre> <p>CD to the <code>/etc/rc.d/rc3.d</code> directory and type <b>ls -al</b> to see the files in that directory.</p> <p>Create a link to <code>../init.d/lmgrd</code> by typing the following:</p> <pre>ln -s ../init.d/lmgrd Sxxxlmgrd</pre> <p>where <code>xxx</code> is the number you have chosen. You may need to enter additional commands or structure the file accordingly (check other S files to see the format used on your system).</p> <p>If you use your RHLinux workstation in X mode all of the time (i.e., your login screen is graphical) be sure to make the previous symlink in <code>/etc/rc.d/rc5.d</code> as well. Change runlevels, or reboot to have the license daemon start at boot.</p>

## Appendix C: Performing Remote Installations

This section describes how to remotely install STK and STK modules, either using a software distribution system or the Windows command line.

### Using a Software Distribution System to Install STK and STK Modules

Install packages for STK and associated STK Modules are fully compatible with most commercially available software distribution systems. All AGI install packages are Windows Installer-based.

Consult the documentation of your specific distribution system on how to prepare the installs for distribution with site-specific options. Most systems handle both .msi files and setup.exe files.

Product-specific information on the STK install package follows.

#### Install prerequisites:

Package	Location on Install Media	Comments
.net 2.0	\Prerequisites\Microsoft\Framework.net\v2.0.50727.42\<.exe per operating system – 32-bit or 64-bit>	Redistributable from Microsoft. Install when .net is less than 2.0. Select appropriate one for your operating system.
Msiexec 3.1	\Prerequisites\Microsoft\Msiexec\v3.1.0.0\instmsi30.exe  \Prerequisites\Microsoft\Msiexec\v3.1.0.0\WindowsInstaller-KB893803-v2-x86.exe	Redistributables from Microsoft. Install when msiexec is less than 3.0.
MS Visual C++ 2008 Support Files	\Prerequisites\Microsoft\VCRedist\v2008\vc_redist_x86.exe	Redistributables from Microsoft.
MS Visual C++ 2005 SP1 Support Files	\Prerequisites\Microsoft\VCRedist\v2005\vc_redist_x86.exe	Redistributables from Microsoft.
Microsoft XML 6.0 Parser	\Prerequisites\Microsoft\msxml6\v6.0.0.0\msxml6.msi	Run msxml6.msi.
AGI License Manager	\AGI_License_Manager\v3.0.1\setup.exe	Run setup.exe. This is not a single executable install.
MathPlayer	\Prerequisites\DesignScience\MathPlayer\v2.11.15.0\MathPlayerSetup.exe	Used to display equations in the Help file. Single executable install.
2525B Symbol Server	\Prerequisites\ObjectRaku\2525B_Symbol_Server\v3.00.2008\RSS3028Full.exe	Optional. Install if you plan to use 2525B symbols. Single executable install.

**STK install:**

Package	Location on Install Media	Comments
STK	\STK\Setup.exe or \STK\STK 9.msi	Not a single executable install. Inputs: License Agreement; File Location.
Planetary Data	\AGI_Planetary_Data_Supplement\v9.0.0\setup.exe	Optional. Install for extended planetary data. Run setup.exe
STK Engine Resources	\STK_Engine_Resources\v9.0.0\setup.exe	Optional. Run setup.exe. For application development.

**Add-on modules:**

Package	Location on Install Media	Comments
STK/Analyzer	\STKAnalyzer\setup.exe	Optional. Separate CD. Install if you plan to use STK/Analyzer. Single executable install.
STK/Scheduler	\STKScheduler\setup.exe	Optional. Separate CD. Install if you plan to use STK/Scheduler. Single executable install. Inputs: user folder.
STK/Radar Advanced Environment	\STKRAE\setup.exe	Optional. Separate CD. Inputs: database location

**GIS Analyst Extension CD:**

Package	Location on Install Media	Comments
Msiexec 3.1	\Prerequisites\Microsoft\Msiexec\v3.1.0.0\instmsi30.exe  \Prerequisites\Microsoft\Msiexec\v3.1.0.0\WindowsInstaller-KB893803-v2-x86.exe	Redistributables from Microsoft. Install when msiexec is less than 3.0.
ArcGIS 9.0.0	\ArcgisInstall\arcgis\setup.exe \ArcgisInstall\arcgis\ ArcGISEngine93sp1.msp	Installs ArcGIS Run-time 9.3. Installs ArcGIS Run-time 9.3 service pack 1.

**Installing STK and STK Modules Unattended (or Silently)**

An unattended installation is one that does not require user interaction, and a silent (or quiet) installation is one that does not display any indication of its progress. However, most people use these terms interchangeably.

Information on how to perform unattended installations for STK follows. You will need to perform this for each desired install described in the tables above.

**Basic MSI Silent Installations**

To run a Basic MSI setup silently, the end user needs to type the following at the command line:

```
msiexec /i Product.msi /qn
```



Note: /q [n|b|r|f]

The /q option is used to set the user interface level in conjunction with the following flags:

- q or qn creates no user interface
- qb creates a basic user interface

These user interface settings display a modal dialog box at the end of installation:

- qr displays a reduced user interface
- qf displays a full user interface
- qn+ displays no user interface
- qb+ displays a basic user interface

Basic MSI projects do not create or read response files. To set installation properties for a Basic MSI project, run a command line such as:

```
msiexec /i Product.msi /qn INSTALLDIR=D:\ProductFolder USERNAME="Valued Customer"
```

To run a setup.exe, users can run the command:

```
Setup.exe /s /v"/qn".
```

## Appendix D: AGI Desktop Product Architecture

