



**NVIDIA®**

Workstation Applications

# ***NVIDIA POWERdraft User's Guide***

**Version 2.0**

**NVIDIA Corporation  
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# NVIDIA POWERDRAFT OVERVIEW

## What Is NVIDIA POWERdraft?

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### Integrated Driver

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NVIDIA POWERdraft is a Quadro workstation application utility.

The driver software is integrated into the AutoCAD environment. 32-bit display list technology and knowledge of the NVIDIA graphics adapter are combined to provide significant improvements over existing driver technology.

**Note:** The AutoCAD display driver (*WHIP!*) is part of the AutoCAD plotting engine, which is a new feature in AutoCAD 2000. NVIDIA POWERdraft replaces the “*WHIP!*” display pipeline, but does not replace the “plotting” pipeline or affect the AutoCAD plotting functionality.

### Utilities

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The NVIDIA POWERdraft driver includes the **MagniView**, **MultiView**, and **Cockpit** utilities that enhance the AutoCAD drafting environment without interfering with its functionality. Fully dynamic and integrated through the NVIDIA **SmartFocus**<sup>1</sup> technology, each utility is transparent to AutoCAD and available during any AutoCAD command.

---

1. The NVIDIA SmartFocus technology is used in all NVIDIA POWERdraft windows to eliminate switching of Windows input focus between NVIDIA POWERdraft utilities and the AutoCAD drafting window.

After you use a function in an NVIDIA POWERdraft utility, keyboard input or cross hair movements will immediately make the AutoCAD window the active window; you don’t need to click the mouse as with other drivers.

## Key Features

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### Cockpit

Cockpit lets you use your pointing device to dynamically pan and zoom the AutoCAD view. Fully integrated into the AutoCAD **MDI (multiple document interface)** environment through the NVIDIA SmartFocus technology, Cockpit has an easy-to-use graphical interface that lets you take full advantage of the enhanced NVIDIA POWERdraft performance.

### MultiView

Also fully integrated into the AutoCAD MDI environment, the MultiView utility provides a visual history of previous views, where each view is represented on a button face. Instant access to previous views allows you to record and playback selected views in a consistent manner. Using MultiView, you can also efficiently manage AutoCAD Named Views.

### MagniView

The MagniView utility functions as a graphical magnifying glass for detailed viewing.

### Toolbar

The NVIDIA POWERdraft toolbar provides convenient access to several NVIDIA POWERdraft commands.

### Hot Keys

For common actions—such as **Pan**, **Zoom**, and **Redraw All**—NVIDIA POWERdraft provides configurable key combinations called **Hot Keys**. Hot Keys work transparently and are always accessible within AutoCAD.

### 3D Hardware Renderer

To support AutoCAD 3D functionality, the 3D Hardware Renderer accelerates AutoCAD 3D viewing modes such as 3D Orbit or Gouraud Shaded.

### Drawing Optimization

NVIDIA POWERdraft provides a configurable **Display Update** cache to accelerate the execution of Lisp scripts.

### Online Help

When you have any Workstation Applications window open, press **F1** to display online Help, which provides detailed user information about the application. You can also view the Help outside the application.

For additional information about online Help installation and access, see [“Software Components” on page 4](#) and [“Installing NVIDIA POWERdraft” on page 8](#).

## System Requirements

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Before you install and use NVIDIA POWERdraft, make sure you have the following prerequisites as explained in these sections:

- “Operating System & Disk Space” on page 3
- “NVIDIA Quadro Graphics Processor” on page 4
- “NVIDIA Driver Software” on page 3
- “Software Components” on page 4
- “AutoCAD Application” on page 5

### Operating System & Disk Space

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This release requires 3 MB of disk space and includes drivers for each of the following operating systems:

- Windows XP
- Windows 2000
- Windows NT® 4.0 (*at least*, Service Pack 4)

### NVIDIA Driver Software

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You need one of the following NVIDIA Drivers:

- NVIDIA Windows XP Display Driver *or*
- NVIDIA Windows NT 4.0 Display Driver (*at least* Version 6.46) *or*
- NVIDIA Windows 2000 Display Driver (*at least* Version 6.46)

## NVIDIA Quadro Graphics Processor

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You need a workstation graphics card based on the NVIDIA Quadro™, Quadro 2, or Quadro 4 **graphics processing unit (GPU)**; listed in [Table 1.1](#).

**Table 1.1** GPUs Supported by NVIDIA POWERdraft

NVIDIA GPU
Quadro™4 500 GoGL
Quadro4 900 XGL
Quadro4 750 XGL
Quadro4 700 XGL
Quadro4 550 XGL
Quadro™ DCC
Quadro™2 Go
Quadro2 Pro
Quadro2 MXR
Quadro2 EX™
Quadro™

## Software Components

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The NVIDIA POWERdraft Setup directory contains the following files:

- **Readme.txt** file
- **Setup.exe** installation program for Windows
- **Other files** required by the Setup program

**Note:** The NVIDIA POWERdraft **online Help file** (Lang15\*.hlp) is installed in the AutoCAD directory that is specified during installation.

## AutoCAD Application

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You must have AutoCAD installed *before* you install NVIDIA POWERdraft. NVIDIA POWERdraft will work with any one of the following applications:

- AutoCAD 2002
- AutoCAD 2000
- AutoCAD 2000i
- AutoCAD Architectural Desktop Release 3.3
- AutoCAD Architectural Desktop Release 2
- AutoCAD Architectural Desktop Release 2i
- Mechanical Desktop Release 6
- Mechanical Desktop Release 5
- Mechanical Desktop Release 4

**Note:** You need to install AutoCAD to run Mechanical Desktop or Architectural Desktop applications.



# INSTALLING AND CONFIGURING NVIDIA POWERDRAFT

This chapter contains the following sections:

- “Setting Directory Access Rights” on page 6
- “Installing NVIDIA POWERdraft” on page 8
- “Starting NVIDIA POWERdraft” on page 12
- “Confirming NVIDIA POWERdraft Version Number” on page 12
- “Modifying, Repairing, and Uninstalling NVIDIA POWERdraft” on page 13

## Setting Directory Access Rights

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Directory access is required during setup, configuration, and operation of NVIDIA POWERdraft. Make sure write access is enabled for the directories listed in this section.

### Directories Accessed during Setup

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The Setup program requires Write access to the following directories:

- **AutoCAD directory:** Setup generates the file `pd15path.ini`, which holds the driver path in this directory.
- **AutoCAD “DRV” directory:** Setup copies the NVIDIA POWERdraft Hardware Renderer (\*.hdi file) to this directory.
- **Driver directory:** Setup copies most of the NVIDIA POWERdraft files to the driver directory.
- **Windows System directory:** Setup may replace the system .dll files `msvcrt.dll` and/or `mfcd42.dll` with actual versions in this directory.

- **Windows directory:** Setup generates the file `nvds15.ini`, which holds the NVIDIA POWERdraft settings in this directory.

## Directories Accessed during Configuration

---

The configuration utility requires Write access to the AutoCAD directory.

During configuration, the original AutoCAD display driver configuration is modified.

## Directories Accessed during Normal Operation

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During **execution**, NVIDIA POWERdraft requires Write access to the following directories:

- **Driver directory**
- **Windows directory:** NVIDIA POWERdraft updates its settings in the file `nvds15.ini` when it finishes execution.

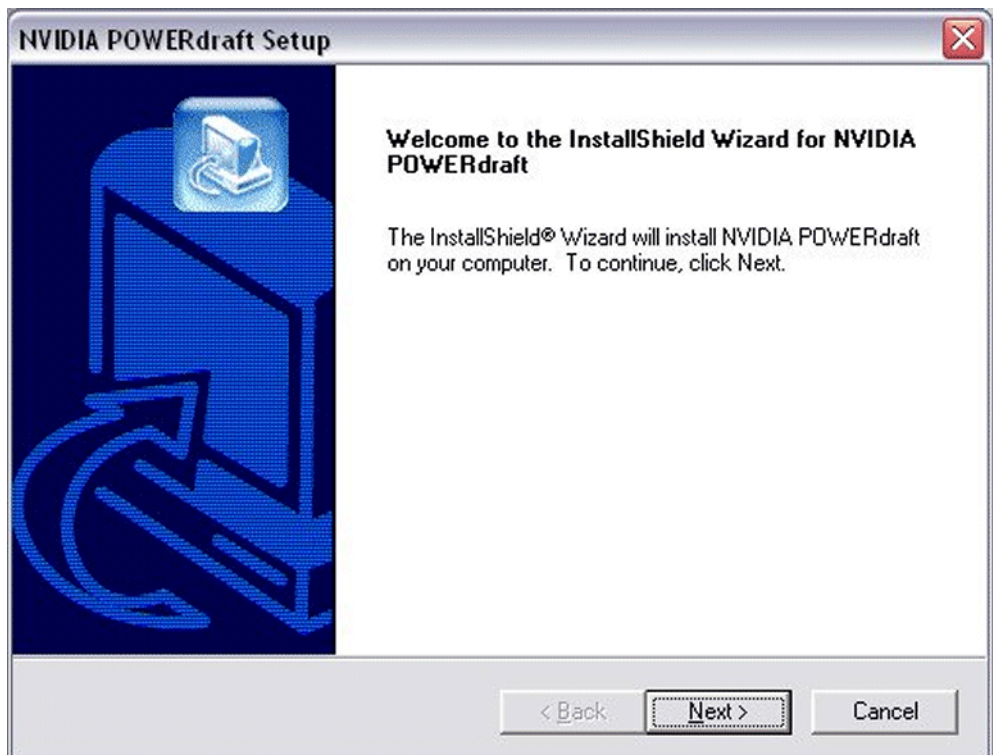
## Installing NVIDIA POWERdraft

- 1 Make sure that AutoCAD is installed but *not* running.
- 2 Start the Setup program: Click the Setup icon from the installation directory.

The Choose Setup Language dialog box appears.

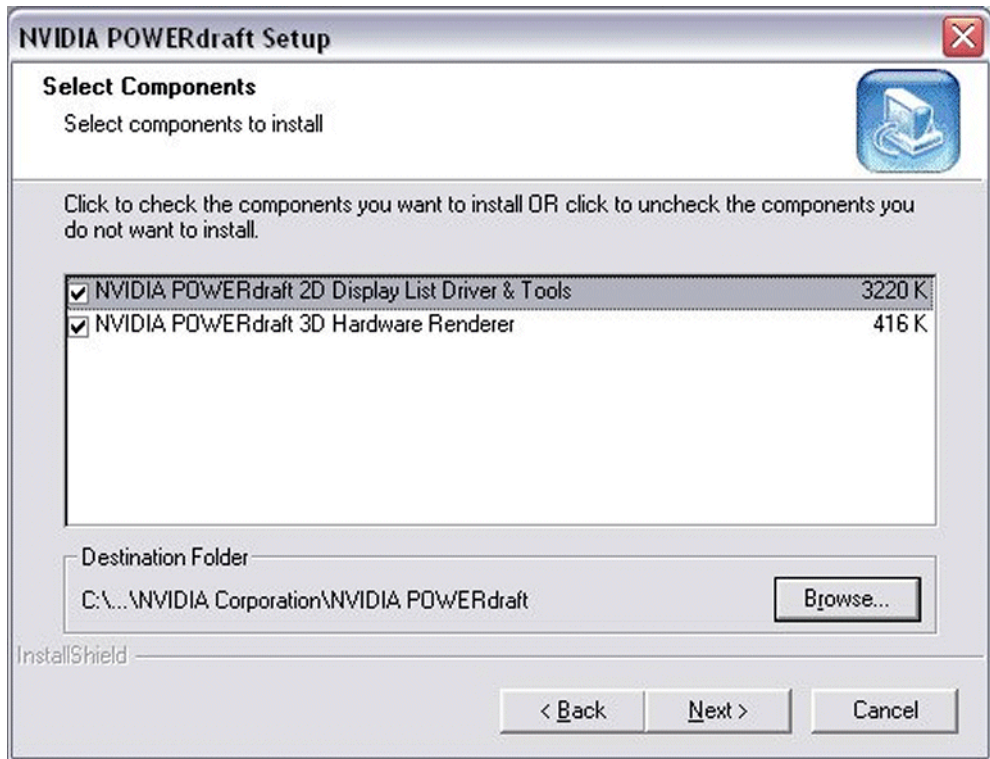


- 3 Choose the Setup Language  
Click the list box arrow, then click the appropriate language from the list and click OK.
- 4 Launch the InstallShield Wizard  
Click Next at the NVIDIA POWERdraft Setup welcome window.



A series of windows appears with further instructions:

### Select Components Window



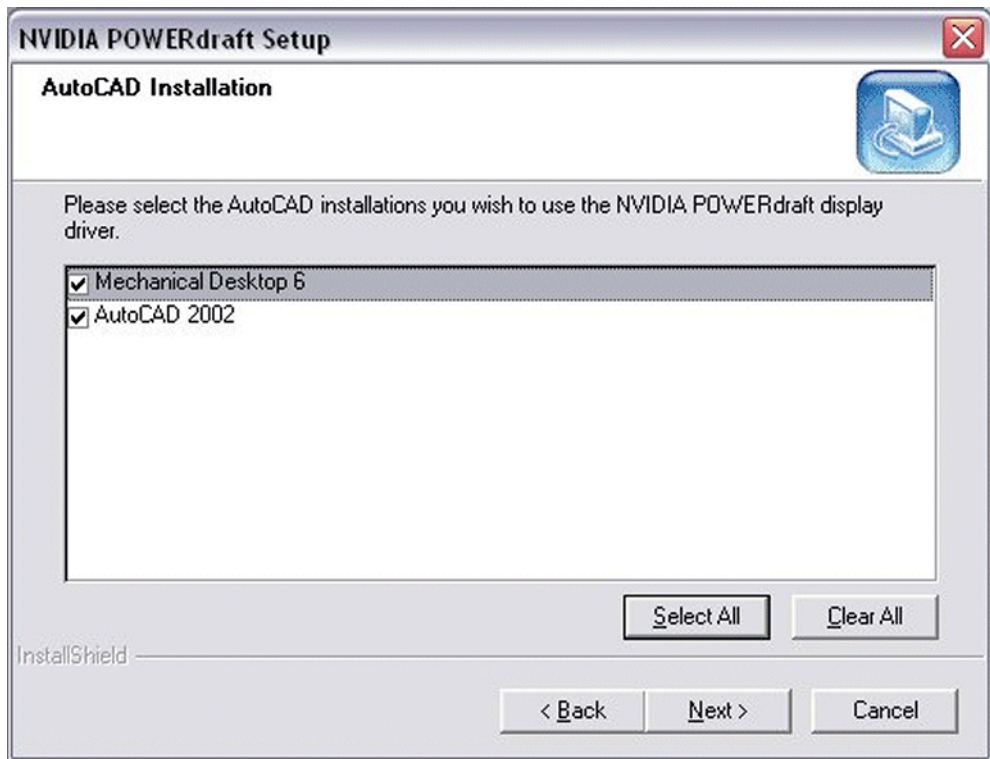
- a Select the POWERdraft components to install  
Use the check boxes to choose which of the POWERdraft components you want to install.
- b Choose the Destination Folder  
The destination folder is where the application files are copied. To specify a different folder, click Browse, then browse to a different folder.
- c Click Next to proceed to the next window.

### Select Program Folder Window



- d Select the folder to add program shortcuts.  
Either use the default folder already in the Program Folder box, enter a new folder, or select a folder from the Existing Folders list.
- e Click Next to proceed to the next window.

## AutoCAD Installation



The AutoCAD Installation box lists the AutoCAD applications that the setup program has found on your computer.

- f Use the check boxes to choose which AutoCAD applications you want to use the NVIDIA POWERdraft driver as the display driver.

You can also click Select All to choose all of the applications, or Clear All to make sure none of the application are chosen.

Any applications that are not checked will use AutoCAD's built-in driver as the display driver.

- g Click Next to proceed to the next window.

The driver is installed in a separate driver directory, and Setup creates a program group that contains the following icons:

- **NVIDIA POWERdraft Help** opens the online Help file.
- **NVIDIA POWERdraft Maintenance** lets you reconfigure the display drivers for each AutoCAD application, as well as reinstall or uninstall NVIDIA POWERdraft software components.

This icon works only when AutoCAD is *not* running.

If the POWERdraft program folder appears, close the folder.

- 5 Click Finish in the InstallShield Wizard Complete window.

The Readme file dialog box appears.

- 6 Click Yes or No, depending on whether you want to view the readme file, then click OK.

After Setup has completed successfully, POWERdraft is automatically configured as specified in the installation process.

## Starting NVIDIA POWERdraft

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NVIDIA POWERdraft launches whenever the AutoCAD application starts.

**Note:** If AutoCAD does not start after NVIDIA POWERdraft installation, re-install NVIDIA POWERdraft.

## Confirming NVIDIA POWERdraft Version Number

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You can use *one* of the following methods to determine the version number of the NVIDIA POWERdraft driver you are about to install.

- Use the Windows Explorer to open the properties of the file named `nvds15.dll` in your driver directory.
- While AutoCAD is running with NVIDIA POWERdraft configured, type the command `PdVer` in the AutoCAD command line.
- Open the **AutoCAD Tools > Options** dialog box. The “NVIDIA POWERdraft” tab contains the current driver version.

## Modifying, Repairing, and Uninstalling NVIDIA POWERdraft

---

The NVIDIA POWERdraft Maintenance option allows you to

- Add or remove selected POWERdraft program components,
- Reinstall program components that were previously installed, or
- Uninstall NVIDIA POWERdraft.

### Accessing the POWERdraft Maintenance Option

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Make sure AutoCAD is not running before accessing the POWERdraft Maintenance option.

**1** To access the Maintenance option, either

- Click Start>Programs>NVIDIA Corporation>NVIDIA POWERdraft Maintenance, or
- Double click the Add/Remove Programs icon from the Windows Control Panel, then locate the NVIDIA POWERdraft item and click Change/Remove.

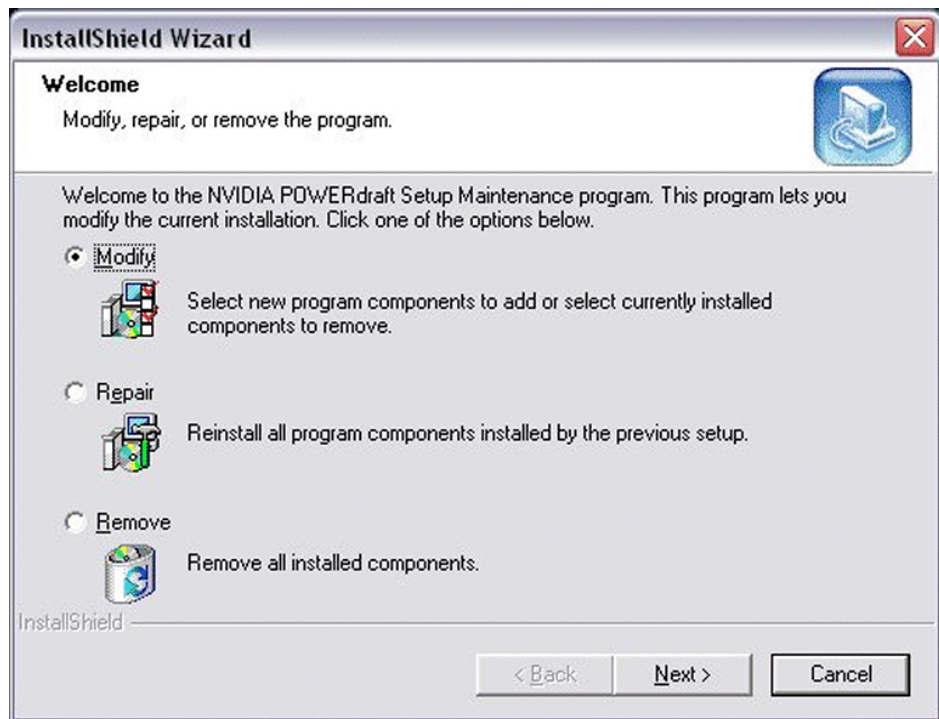
The Choose Setup Language dialog box appears.

**2** Choose the Setup Language

Click the list box arrow, then click the appropriate language from the list and click OK.



The NVIDIA POWERdraft Maintenance Wizard welcome window appears.



**3** Click one of the options according to what you want to do:

- **Modify:**

To add or remove POWERdraft program components, click Modify, then follow the instructions under the section [Modifying the POWERdraft Installation](#).

- **Repair:**

To reinstall all program components that were previously installed, click Repair, then follow the instructions under the section [Reinstalling POWERdraft](#).

- **Remove:**

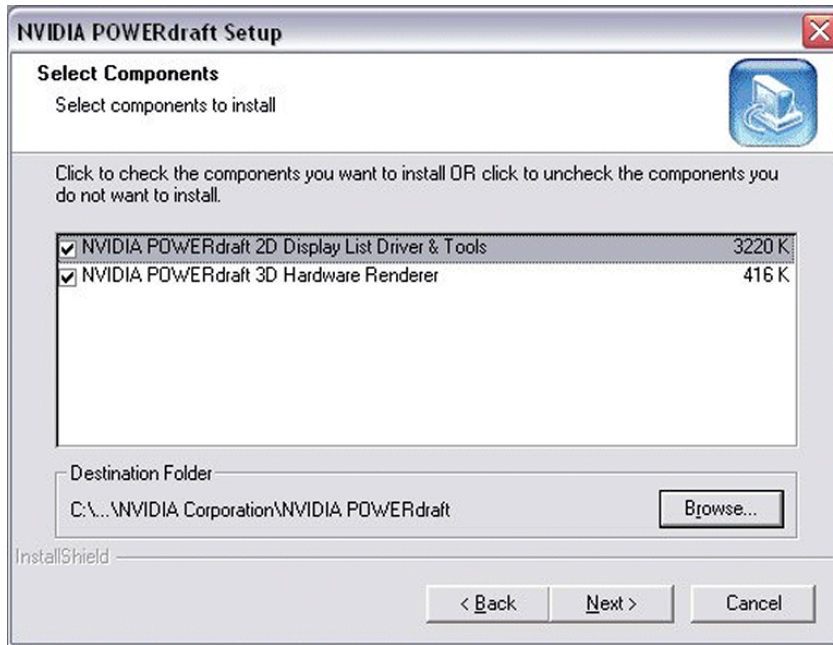
To uninstall POWERdraft, click Remove, then follow the instruction under the section [Uninstalling POWERdraft](#).

## Modifying the POWERdraft Installation

Perform the steps listed in the section [Accessing the POWERdraft Maintenance Option](#) before proceeding with the instructions in this section.

- 1 After clicking Modify in the Welcome window, click Next.

The Select Components windows appears.



- 2 Select the POWERdraft components to install or remove

Use the check boxes to choose which of the POWERdraft components you want to install or remove.

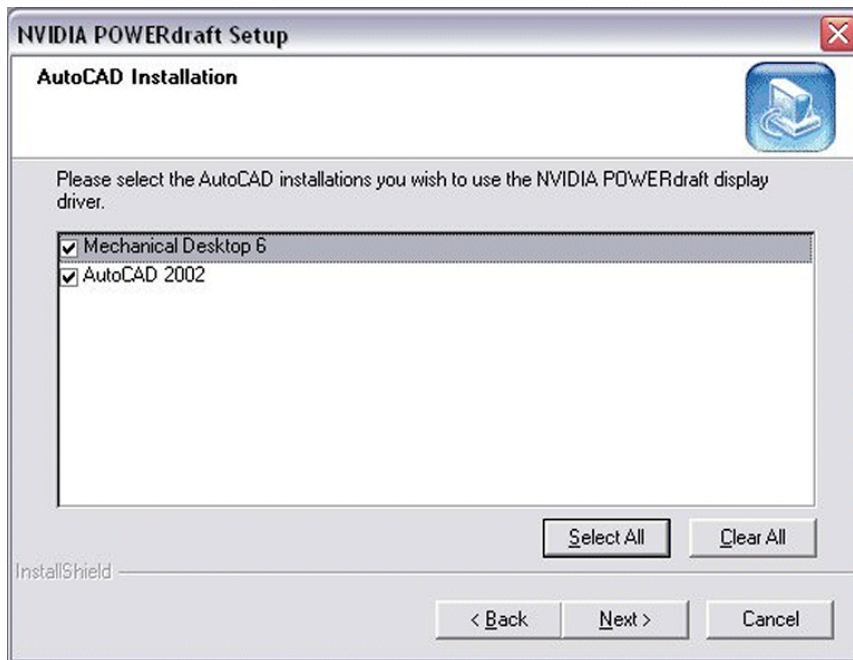
***If none of the boxes are checked, POWERdraft will not run.***

- 3 Choose the Destination Folder

The destination folder is where the application files are copied. To specify a different folder, click Browse, then browse to a different folder.

- 4 Click Next.

The AutoCAD Installation windows appears.



The AutoCAD Installation box lists the AutoCAD applications that the setup program has found on your computer.

- 5 Use the check boxes to choose which AutoCAD applications you want to use the NVIDIA POWERdraft driver as the display driver.

You can also click Select All to choose all of the applications, or Clear All to make sure none of the application are chosen.

Any applications that are not checked will use AutoCAD's built-in driver as the display driver.

- 6 Click Next to proceed to the next window.

The InstallShield Wizard Maintenance Complete window appears.

- 7 Click Finish to complete the maintenance process.

## Reinstalling POWERdraft

Perform the steps listed in the section [Accessing the POWERdraft Maintenance Option](#) before proceeding with the instructions in this section.

- 1 After clicking Repair in the Welcome window, click Next.

The program runs through the reinstallation process. When it has completed, the InstallShield Wizard Maintenance Complete window appears.

- 2 Click Finish to complete the maintenance process.

## Uninstalling POWERdraft

---

Perform the steps listed in the section [Accessing the POWERdraft Maintenance Option](#) before proceeding with the instructions in this section.

- 1** After clicking Remove in the Welcome window, click Next.  
The Confirm File Deletion dialog box appears.
- 2** Click OK in the Confirm File Deletion dialog box.  
The InstallShield Wizard Maintenance Complete window appears.
- 3** Click Finish to complete the uninstall process.

# USING NVIDIA POWERDRAFT

This chapter explains the following sections:

- “Controlling POWERdraft Functions” on page 18
- “Dynamic Pan and Zoom with Cockpit” on page 20
- “Multiple Views with MultiView” on page 24
- “Magnifying the View with MagniView” on page 29
- “Accelerating 3D Viewing with Hardware Renderer” on page 31
- “Accelerating Lisp Scripts with Drawing Optimization” on page 32

## Controlling POWERdraft Functions

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There are three basic ways to access NVIDIA POWERdraft functions—the AutoCAD command line, the hot keys, and the Toolbar.

### Using the AutoCAD Command Line

---

You can enter POWERdraft commands right into the AutoCAD command line.

See “[NVIDIA POWERdraft Commands](#)” on page 33 for a complete description of all NVIDIA POWERdraft commands.

### Using the Hot Keys

---

For common actions such as Pan, Zoom, and Redraw All, you can use configurable key combinations called Hot Keys. Hot Keys work transparently and are accessible within AutoCAD.

See “NVIDIA POWERdraft Hot Keys” on page 34 for a complete description of all NVIDIA POWERdraft hot keys, as well as instructions on how to customize the hot keys.

## Using the Toolbar

The NVIDIA POWERdraft toolbar provides convenient access to several NVIDIA POWERdraft commands. The toolbar opens automatically when NVIDIA POWERdraft is started for the first time.

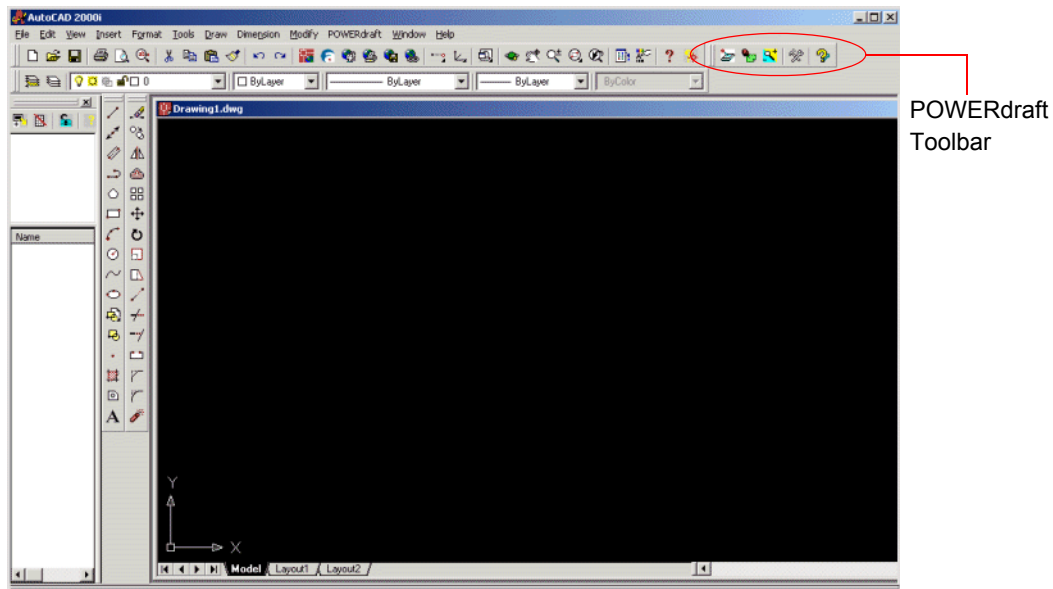







Figure 3.1 POWERdraft Toolbar

**Note:** If the NVIDIA POWERdraft toolbar is closed, you can open it with the PdMenu command. If you encounter problems with PdMenu, use the PdMenuOn command. The toolbar contains the following buttons:

Button	Function	Equivalent Command
	Opens/Closes (toggle) Cockpit feature.	PdCockpit
	Opens/Closes (toggle) MultiView feature.	PdMultiView
	Opens/Closes (toggle) MagniView feature.	PdMagniView
	Opens the NVIDIA POWERdraft Settings dialog box, which is integrated in the AutoCAD Options dialog box.	PdConfig
	Opens Help for NVIDIA POWERdraft.	PdHelp

## Dynamic Pan and Zoom with Cockpit

Cockpit is an intuitive, easy-to-use graphical interface that lets you pan and zoom the current AutoCAD view simply by using your pointing device. Quick access to Cockpit controls is also available through **Remote Control**, which you can use while your pointing device is inside the AutoCAD drawing area.

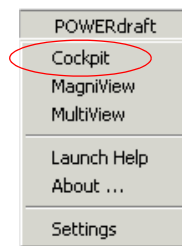
### Accessing and Manipulating the Cockpit Window

#### Starting Cockpit

When AutoCAD starts the first time with NVIDIA POWERdraft configured, Cockpit starts up automatically with the Cockpit window docked to the left side of the AutoCAD drawing area.

Toggle Start and Close Cockpit using any of the following methods:

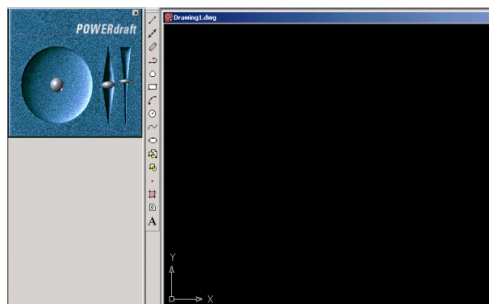
- **Menu bar**—Click **NVIDIA POWERdraft -> Cockpit**.
- **Toolbar**—Press the  button.
- **AutoCAD Command Line**—Type **PDCOCKPIT**.



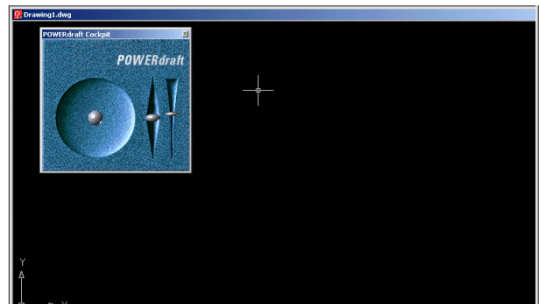
#### Docking and Floating the Cockpit Window

Depending on its previous state, the Cockpit window appears either as a floating window or docked to the AutoCAD drawing area. After starting Cockpit, toggle between docking and floating as follows:

- **If the window appears as floating,**
  - Right click the mouse inside the Cockpit window and make sure the **Allow Docking** option is checked. If it isn't, check it.
  - Double-click the title bar to immediately dock the floating window.
- **If the window appears docked,** double-click the grip of the docked window to immediately float the window.



Cockpit Docked



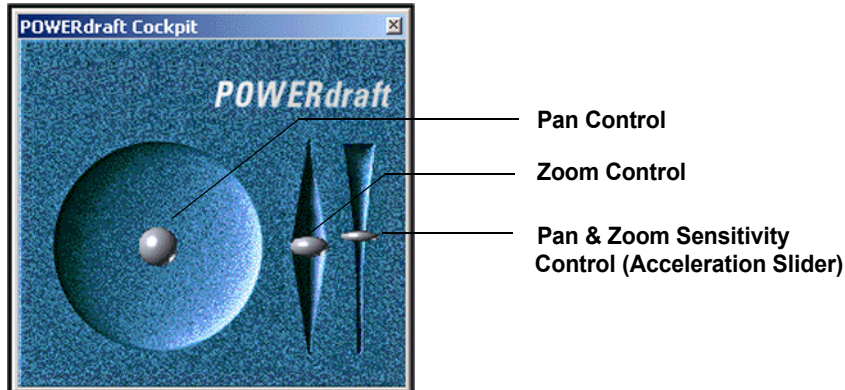
Cockpit Floating



## Using Cockpit

---

Use the Zoom and Pan controls to dynamically zoom and pan the current view.



**Figure 3.2** POWERdraft Cockpit Controls

## Zooming the AutoCAD Drawing

### Using the Graphical Interface

- Move the mouse pointer over the zoom control, then press and hold down the left mouse button while moving the zoom control knob.
- Move the knob upwards to zoom into the current view, or move the knob downwards to zoom out of the current view. The zoom speed increases the more you move the knob up or down.

**Note:** The view center is the zoom point.

### Using Remote Control

With Remote Control, you can navigate through your drawing more effectively by staying within the drawing area while panning and zooming, and also benefit from all the Cockpit features without using extra space in your drafting environment

- Press the configured **Hot Keys** together with the **configured mouse button** while AutoCAD owns input focus.

For example, when using the default settings, start a zoom operation on the current view by pressing **Ctrl+Shift** and clicking the right mouse button.

- Once the remote access for a particular Cockpit control is started, you can adjust the control by moving the mouse while holding down the mouse button—you don't need to hold down the hot key.

**Note:** The cursor position is the zoom point.



## Panning the AutoCAD Drawing

### Using the Graphical Interface

Move the mouse pointer over the pan control, then press and hold down the left mouse button while you move the pan control knob to dynamically pan the current view.

### Using Remote Control

With Remote Control, you can navigate through your drawing more effectively by staying within the drawing area while panning and zooming, and also benefit from all the Cockpit features without using extra space in your drafting environment

- Press the configured **Hot Keys** together with the **configured mouse button** while AutoCAD owns input focus.

For example, when using the default settings, start a zoom operation on the current view by pressing **Ctrl+Shift** and clicking the left mouse button.

- Once the remote access for a particular Cockpit control is started, you can adjust the control by moving the mouse while holding down the mouse button—you don't need to hold down the hot key.

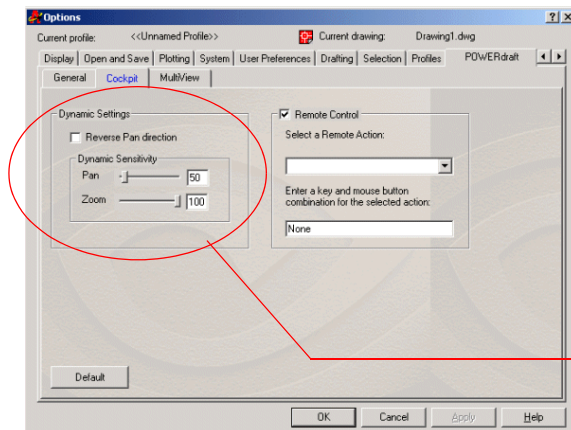
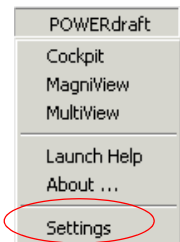
## Adjusting Pan and Zoom Sensitivity

### Using the Graphical Interface

To adjust the overall sensitivity of the controls, move the acceleration slider down to decrease sensitivity, or move it up to increase sensitivity.

### Using the Settings->Configuration Page

- 1 From the menu bar, click **NVIDIA POWERdraft ->Settings**, then click the Cockpit tab to access the configurable Cockpit Settings.
- 2 Adjust the Pan and Zoom sensitivity by moving the respective slide bars under the Dynamic Settings section.



Pan and Zoom  
Sensitivity Adjustment

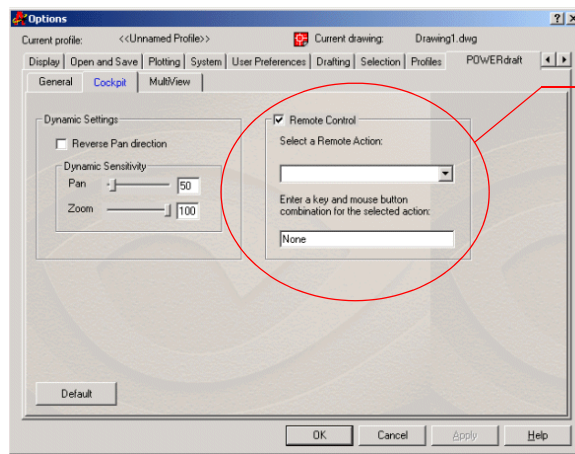
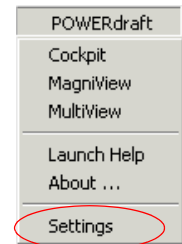
**Figure 3.3** Pan and Zoom Sensitivity Adjustment Controls

## Configuring Remote Control

Remote Control is enabled by default. Once Cockpit has started, Remote Control is available, even for a hidden Cockpit window.

To custom configure Remote Control keystrokes,

- 1 From the menu bar, click **NVIDIA POWERdraft - >Settings**, then click the Cockpit tab to access the configurable Cockpit Settings.
- 2 Make sure the Remote Control check box is checked, then select a remote action from the drop down menu and enter the key and mouse button combination for the desired action.



Remote Control  
Configuration

**Figure 3.4** Cockpit Remote Control Configuration Section

## Multiple Views with MultiView


The MultiView utility provides a visual History of previous zooms and Named Views. Instant access to these views allows you to record and playback selected views in a consistent manner. MultiView is transparent to AutoCAD and available during any AutoCAD command.

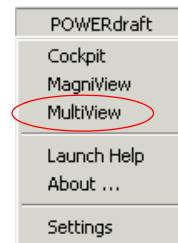
### Accessing and Manipulating the MultiView Window

#### Starting MultiView

When AutoCAD starts the first time with NVIDIA POWERdraft configured, MultiView starts up automatically with the MultiView window docked to the left of the AutoCAD drawing area.

Toggle Start and Close MultiView using any of the following methods:

- **Menu bar**—Click **NVIDIA POWERdraft -> MultiView**.
- **Toolbar**—Press the  button.
- **AutoCAD Command Line**—Type **PDMULTIVIEW**.

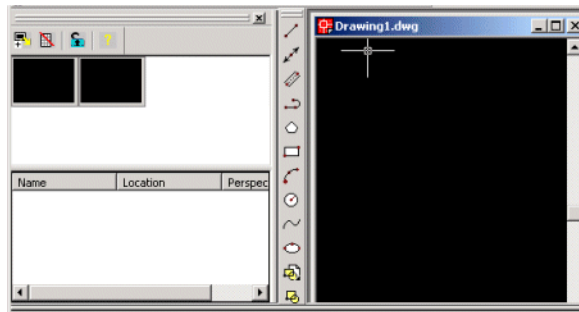


#### Docking and Floating the MultiView Window

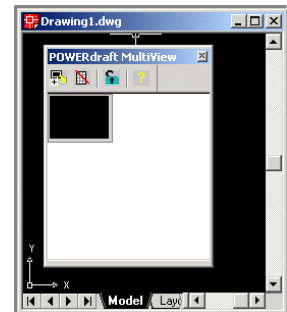
Depending on its previous state, the MultiView window appears either as a floating window or docked to the AutoCAD drawing area. After starting MultiView, toggle between docking and floating as follows:

- **If the window appears as floating,**
  - a** Right click the mouse on an unused area of the MultiView window and click **Allow Docking** to check the option.
  - b** Double-click the title bar to immediately dock the floating window.

- If the window appears docked, double-click the grip of the docked window to immediately float the window.



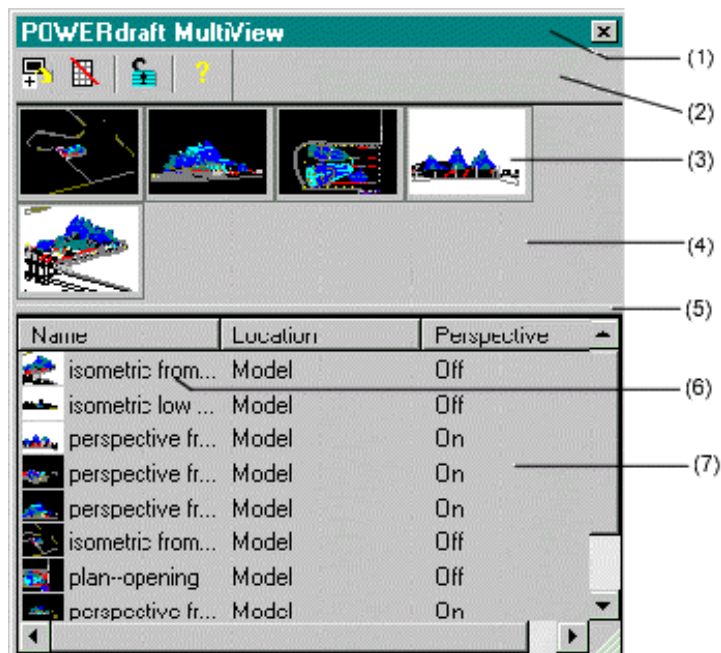
MultiView Docked



MultiView Floating






## Using MultiView

### Understanding the MultiView Window



- The **MultiView title bar (1)** is visible only if the window is floating.

- The MultiView toolbar (2) provides easy access to multiple MultiView operations.

Button	Description / Function	Equivalent Command
	<b>Add current view</b>	Adds the current view to the History view; PdAddView
	<b>Clear History view</b>	Immediately clears the History view; there is no Undo feature for this action.
	<b>Lock History view</b>	Suppresses the default functionality (automatic adding of previous zooms) PdLockHistory
	<b>Unlock History view</b>	Unlocks the History view. PdLockHistory
	<b>Open Help file</b>	Launches MultiView help.



- A previous zoom to be added to MultiView is stored with a **History button (3)**, which is then added to the **History view (4)**.
- All **Named Views** stored with the drawing are represented by an entry (6) in the **list of Named Views (7)**.
- A **splitter bar (5)** separates the History view and the list of Named Views.

## Adding and Restoring Views with the History View


Each stored viewed is indicated by a History button in the History view area.

### Controlling Automatic Action

If a view to the current drawing changes, MultiView automatically stores the previous view.

- **To prevent MultiView from adding views automatically**, lock the History view by clicking the  button from the MultiView toolbar.
- **To allow MultiView to add views automatically**, unlock the History view by clicking the  button from the MultiView toolbar.

### Adding Views Manually

- **To manually add views** to the History view, click the  button from the MultiView toolbar.

### Restoring a Previous View

Click the History button for the desired view. When using multiple viewports, model space views are restored to the last active viewport.

### Composing a Layout or Print Preview

By dragging and dropping the History button to an arbitrary viewport, you can restore a model space view to a floating viewport in paper space, or compose layouts, print previews, and so on.

## Adding and Restoring Views with the List of Named Views

AutoCAD allows you to store views as Named Views. Named Views stored with your drawing are listed in the MultiView List of Named Views.

**Note:** Additional information about Named Views in a drawing is available when MultiView is enabled.

### Defining a Previous View as a Named View

- 1 Drag and drop a view from the History view to the list of Named Views. A new entry is generated in the Named Views and the name field of the new entry immediately gains the input focus
- 2 Type the name of the view.

**Note:** If you do not name the view, it will not be saved with the drawing and you will lose the view when you exit AutoCAD.

### Restoring a Named View

Click the appropriate entry in the list of Named Views. If you currently use multiple viewports, the view will be restored to the last active view.

### Renaming a Named View

- 1 Click the Named View that you want in order to highlight it.
- 2 Click the Name field a second time. The Name field immediately gains input focus.
- 3 Type a new name for the view.

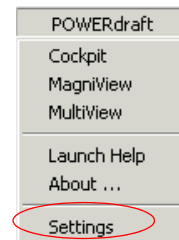
## Configuring MultiView

The following MultiView options are available:

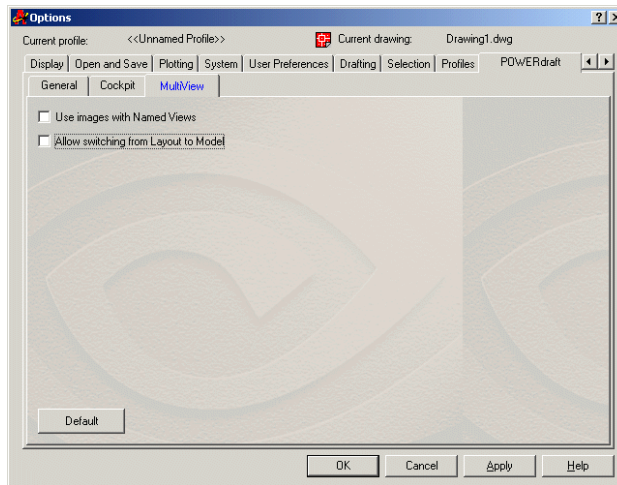
- **Use Images with Named Views**
- **Allow Switching from Layout to Model**

To configure these options:

- 1 From the Menu bar, click **NVIDIA POWERdraft -> Settings**.



2 Click the **MultiView** tab.



**Figure 3.5** MultiView Configuration Page

**Use Images with Named Views:**

**If checked**, the list of Named Views includes an icon on the left of the view label. The icon reflects the view that is stored with that item.

**Note:** Storing views (images) takes up more disk space.

**Allow Switching from Layout to Model:**

Model space views are restored to the last active viewport.

- **If unchecked**, restoring a model space view from a Layout tab leaves that Layout tab as the active tab. In this case, model space views will be restored to a floating viewport.
- **If checked**, model space views are restored to the last active “model space capable” viewport, which may imply a previous switch from a Layout to Model tab.


## Magnifying the View with MagniView

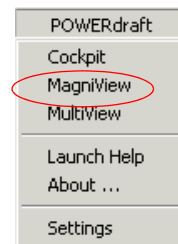
The MagniView utility acts as a graphical magnifying glass providing a more detailed look to your drawing.

### Accessing and Manipulating the MagniView Window

#### Starting MagniView

Toggle Start and Close MagniView using any one of the following methods:

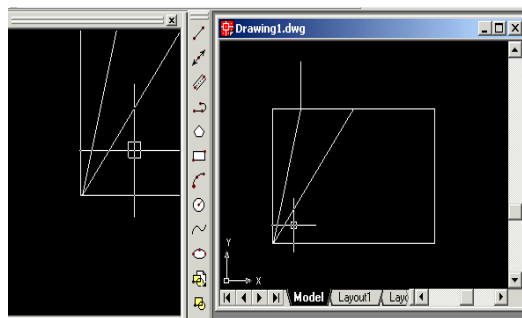
- **Menu Bar**—Click NVIDIA POWERdraft > MagniView.
- **NVIDIA POWERdraft toolbar**—Press the  button.
- **AutoCAD Command Line**—Type “PDMAGNIVIEW”.



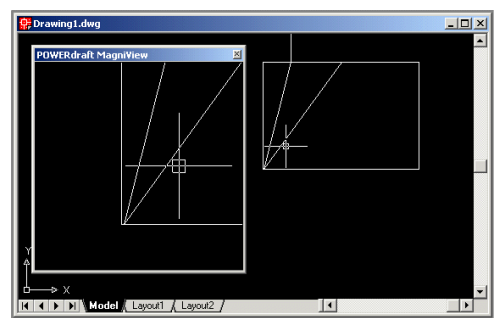
#### Docking and Floating the MagniView window

The first time you open the MagniView window, it appears docked to the left of the drawing area.

- To float the window, double-click the grip of the docked window.
- To return to docking the window, right click on the MagniView window title bar.



MagniView Docked



MagniView Floating



## Using MagniView

### What MagniView Shows

The MagniView window magnifies the view of the area around the crosshair position.

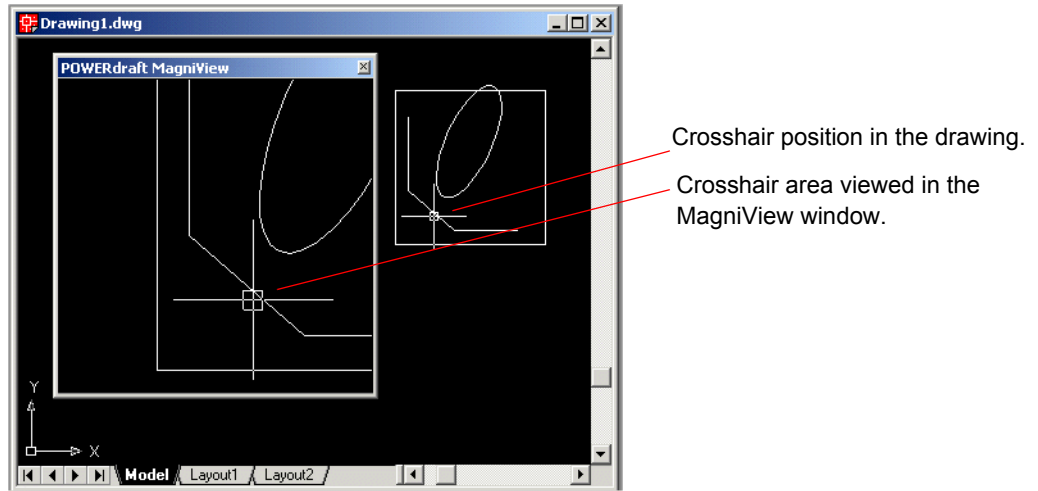


Figure 3.6 MagniView Example

### Controlling the Magnification

The degree of magnification can be controlled using the slider control panel.

- **To display this slider**, move the cursor across the bottom of the MagniView window. The small slider panel pops up immediately.
- **To hide the slider**, move the cursor outside the slider panel. The slider panel pops down out of view.
- **To keep the slider in view at all times**, while the slider is displayed, double-click on an empty area of the slider panel. Double-click in the panel again to re-enable the auto-hide feature.

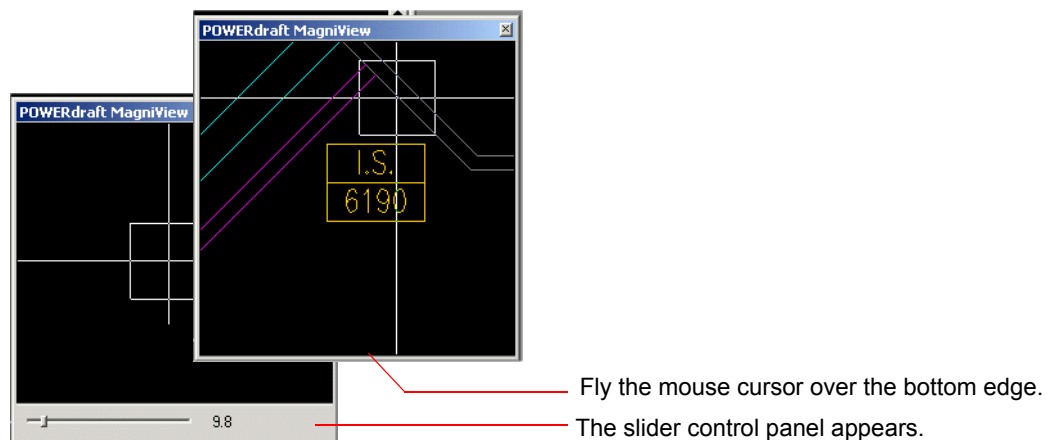


Figure 3.7 MagniView Magnification Control

## Accelerating 3D Viewing with Hardware Renderer

### Accelerated 3D Viewing Modes

AutoCAD 2000 uses the NVIDIA POWERdraft 3D Hardware Renderer to accelerate the following 3D viewing modes:

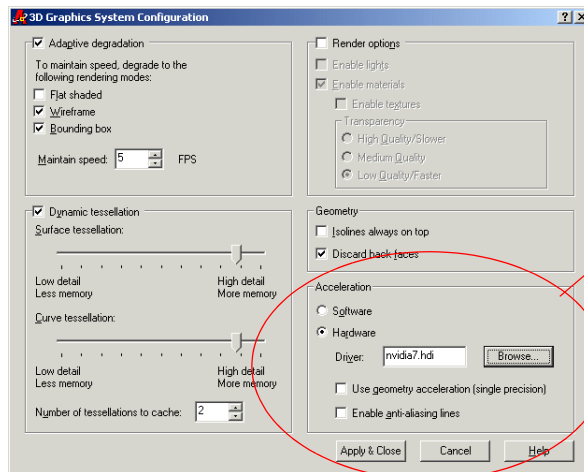
- 3D Orbit
- 3D Wireframe
- Hidden-line
- Flat Shaded
- Gouraud Shaded (with Edges On and Off)

### Configuring the 3D Hardware Renderer

After NVIDIA POWERdraft is successfully installed, the 3D Hardware Renderer is already configured for use with AutoCAD 2000.

To change the AutoCAD 3D graphics configuration

- 1 Click the **Tools** menu, then click **Options** to open the AutoCAD Options dialog box.
- 2 Click the **System** tab.
- 3 Click **Properties** in the Current 3D Graphics Display group box. The 3D Graphics System Configuration window opens.



Acceleration configuration section.

- 4 Select the driver you want in the Acceleration box, and then click **Apply** and **Close**.

The original configuration of AutoCAD is **Software**. The NVIDIA POWERdraft configuration is **Hardware** with driver file **NVIDIA6.HDI** for AutoCAD 2000 based applications, or **Hardware** with driver file **NVIDIA7.HDI** for AutoCAD 2000i and AutoCAD 2002 based applications.

## Accelerating Lisp Scripts with Drawing Optimization

### Accelerating in Non-Interactive Mode

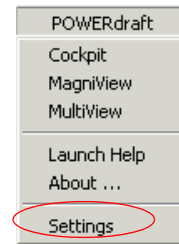
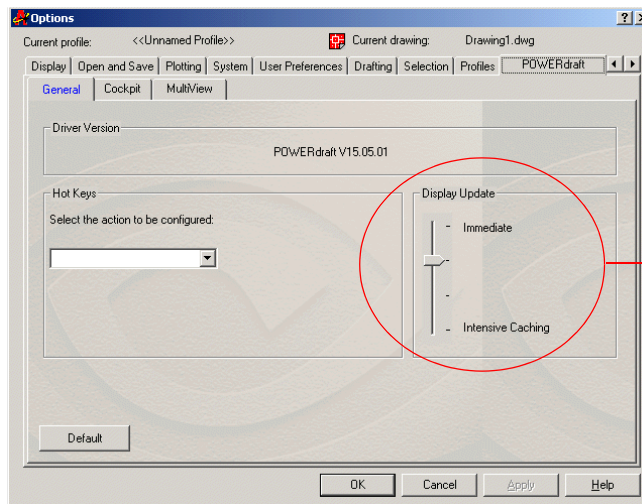
When Drawing Optimization is enabled, POWERdraft caches the graphics output while AutoCAD is in non-interactive mode.

The configurable Display Update cache accelerates Lisp scripts and, depending on the Lisp script, may significantly accelerate the execution of AutoCAD.

### Configuring Drawing Optimization

To configure Drawing Optimization:

- 1 From the Menu bar, click **NVIDIA POWERdraft -> Settings**.
- 2 Click the **General** tab.



Adjust slider to select the degree of caching.

- 3 Inside the Display Update group, adjust the slider to one of four positions.
  - **Immediate Update:** No caching—the display is updated immediately.
  - **Intensive Caching:** Maximum display caching. The display is updated approximately every 2 seconds.
  - The two intermediate settings provide progressively lower levels of caching from the maximum.

*The degrees of caching apply when running scripts (such as a Lisp scripts), and do not apply in interactive mode. When AutoCAD enters interactive mode, no caching is performed and the display is updated immediately.*



# COMMANDS AND HOT KEYS

## NVIDIA POWERdraft Commands

Table [Table A.1](#) lists the POWERdraft commands that can be entered in the AutoCAD command line.

**Table A.1** POWERdraft Commands

Command	Description
<b>PdAddView</b> (MultiView command <sup>i</sup> )	If the view has not already been saved, this command saves the current view to the MultiView History array.
<b>PdConfig</b>	Opens the NVIDIA POWERdraft Settings section of the AutoCAD Options dialog box.
<b>PdHelp</b>	Opens NVIDIA POWERdraft Help.
<b>PdLockHistory</b> (MultiView command <sup>i</sup> )	Toggles (Locks/Unlocks) the MultiView History.
<b>PdLockHistory0</b> (MultiView command <sup>i</sup> )	Unlocks MultiView History, if currently locked.
<b>PdLockHistory1</b> (MultiView command <sup>i</sup> )	Locks MultiView History, if currently unlocked.
<b>PdMagniView0</b>	Closes MagniView, if currently open.
<b>PdMagniView1</b>	Opens MagniView, if currently closed.
<b>PdMenu</b>	Opens the NVIDIA POWERdraft toolbar.
<b>PdMenuOn</b>	Similar to <b>PdMenu</b> , except the NVIDIA POWERdraft toolbar is positioned to the center of the AutoCAD drawing area. This command is useful when the toolbar has shifted out of the visible area due to docking other toolbars.
<b>PdMultiView</b>	Toggles (Opens/Closes) MultiView.
<b>PdMultiView0</b>	Closes MultiView, if currently open.
<b>PdMultiView1</b>	Opens MultiView, if currently closed.
<b>PdVer</b>	Prints the NVIDIA POWERdraft version number in the AutoCAD text window.

i. These commands are only available if the corresponding tool is open.

## NVIDIA POWERdraft Hot Keys

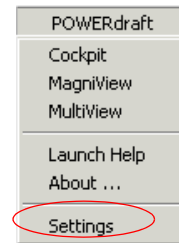
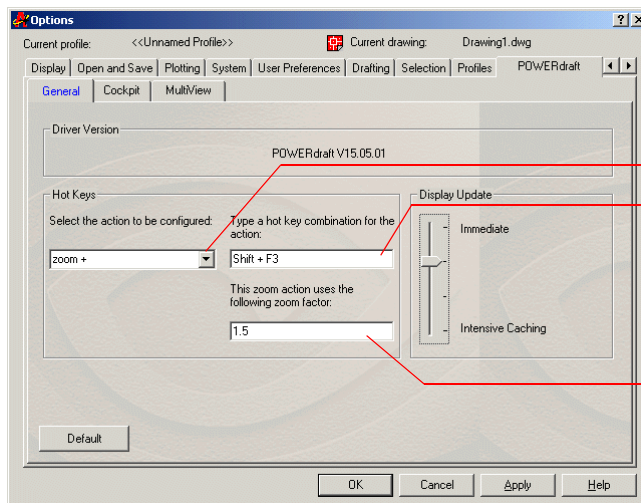
POWERdraft Hot Keys are key combinations you can configure and assign to common actions such as navigating or zooming. The Hot Keys are always accessible and work transparently inside AutoCAD.

The default hot keys are listed in [Table A.2, “POWERdraft Default Hot Keys”](#) on page 35.

### Configuring the Hot Keys

You can custom configure the hot keys as follows:

- 1 From the Menu bar, click **NVIDIA POWERdraft -> Settings**.
- 2 Click the **General** tab.



Select POWERdraft action

Enter hot key keystroke combination.

Enter parameter as appropriate.

- 3 Inside the **Hot Keys** group, select the appropriate **Action** from the action list.
- 4 Click in the **Hot Key** field and type the desired key combination for the action.
  - For certain zoom and pan actions, an additional **Parameter** is required. Refer to [Table A.2](#) for a description of parameters to enter in the edit fields.
  - If a selected hot key combination already has a function in AutoCAD, that function will no longer be accessible

## Default Hot Keys.

**Table A.2** POWERdraft Default Hot Keys

Action	Description	Default Hot Key	Parameter
<b>Pan down</b>	Shifts the drawing downward by pan offset.	<b>ALT+DOWN ARROW</b>	Pan Offset = 0.25 <sup>i</sup>
<b>Pan left</b>	Shifts drawing to the left by pan offset.	<b>ALT+LEFT ARROW</b>	Pan Offset = 0.25 <sup>i</sup>
<b>Pan right</b>	Shifts drawing to the left by pan offset.	<b>ALT+RIGHT ARROW</b>	Pan Offset = 0.25 <sup>i</sup>
<b>Pan up</b>	Shifts drawing upward by pan offset.	<b>ALT+UP</b>	Pan Offset = 0.25 <sup>i</sup>
<b>Pan to center</b>	The current cursor position becomes the new view center.	<b>SHIFT+F1</b>	-
<b>Redraw all</b>	Force a redraw all. <sup>ii</sup>	<b>SHIFT+F2</b>	-
<b>Zoom +</b>	Zoom-in by zoom factor. The current cursor position serves as zoom center.	<b>SHIFT+F3</b>	Zoom Factor = 1.5 <sup>iii</sup>
<b>Zoom + center</b>	Zoom-in by zoom factor. The current view center serves as zoom center.	<b>None</b>	Zoom Factor = 1.5 <sup>iii</sup>
<b>Zoom -</b>	Zoom-out by zoom factor. The current cursor position serves as zoom center	<b>SHIFT+F4</b>	Zoom Factor = 1.5 <sup>iii</sup>
<b>Zoom - center</b>	Zoom-out by zoom factor. The current view center serves as zoom center.	<b>None</b>	Zoom Factor = 1.5 <sup>iii</sup>
<b>Wireframe now!</b>	Displays the Wireframe of a shaded view.	<b>SHIFT+CTRL+Mouse button</b>	-

i. A **Pan Offset** of **1.0** corresponds to the current view size.

ii. A **Redraw All** may be very useful to quickly correct display errors, such as a wrong entity display order after an edit operation.

iii. The given **Zoom Factor** is used for **Zoom+**. **Zoom -** uses **1 / Zoom Factor**.