

VisionPro

Quick Reference

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Installing VisionPro

Download and extract the latest VisionPro installer from the [VisionPro Support site](#), and refer to the [VisionPro Documentation Support site](#) for release notes with information on minimum computer requirements, supported Visual Studio releases, and supported Microsoft Windows operating systems for the latest release. Your installed VisionPro software includes more user documentation available from the Start menu.

Perform the following steps to install this VisionPro release:

1. Uninstall any existing VisionPro software.

Use the **Add or Remove Programs** feature of the Windows Control Panel to remove any of the following programs if they are present:

- **Cognex VisionPro**
- **Cognex Drivers**
- **Cognex Japanese Documentation**
- **Cognex Software Licensing Center**

Restart your computer if prompted.

2. Turn off the computer and install the vision hardware necessary for your vision application.

For non-Cognex hardware, follow the installation instructions from the manufacturer.

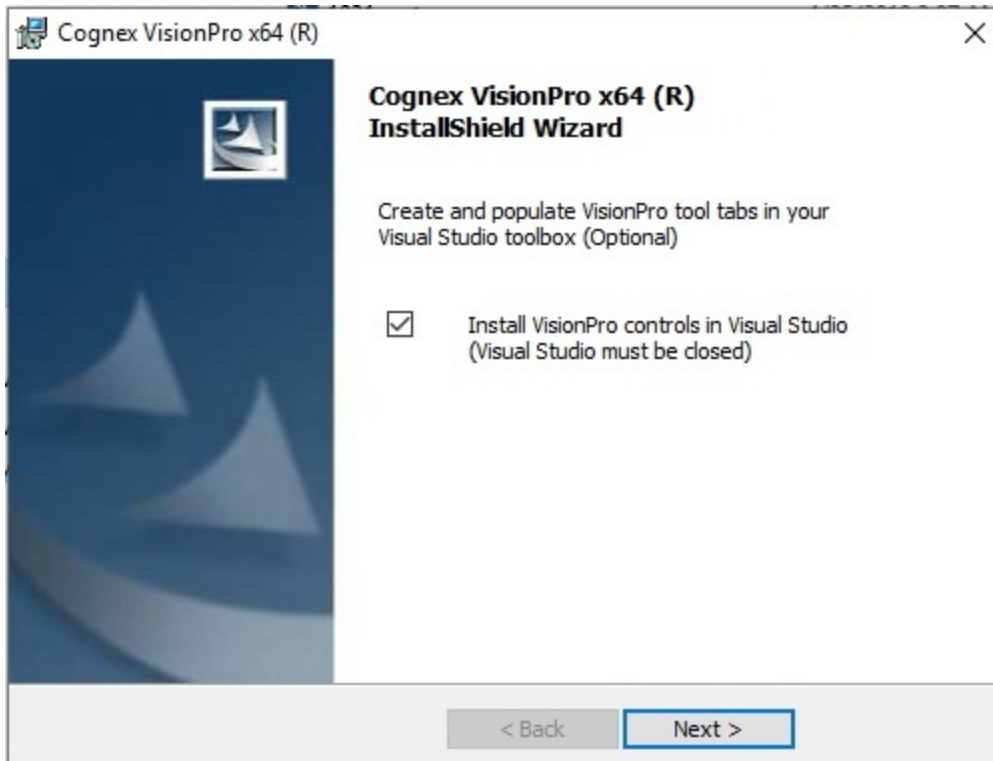
3. Attach the necessary cameras, I/O devices and Cognex Security Key, and turn on the computer.

Microsoft might display the **Found New Hardware Wizard**. Select **Cancel**.

4. Launch the *setup.exe* application. Be aware of the following:

- You must have Administrator privileges to install VisionPro.
- If your computer does not already have the necessary Microsoft Visual Studio Redistributables installed, the installer installs them automatically.
- If your computer requires an update to the Windows Installer, the installer updates it automatically. Depending on how your system is configured, you might see a message about this update taking place.

- (Optional) By default, the installer launches a VisionPro Edit Control extension to populate the tool palette in Visual Studio with the latest VisionPro edit controls. The extension detects which versions of Visual Studio you have installed and populates the tool palette for all installed versions:



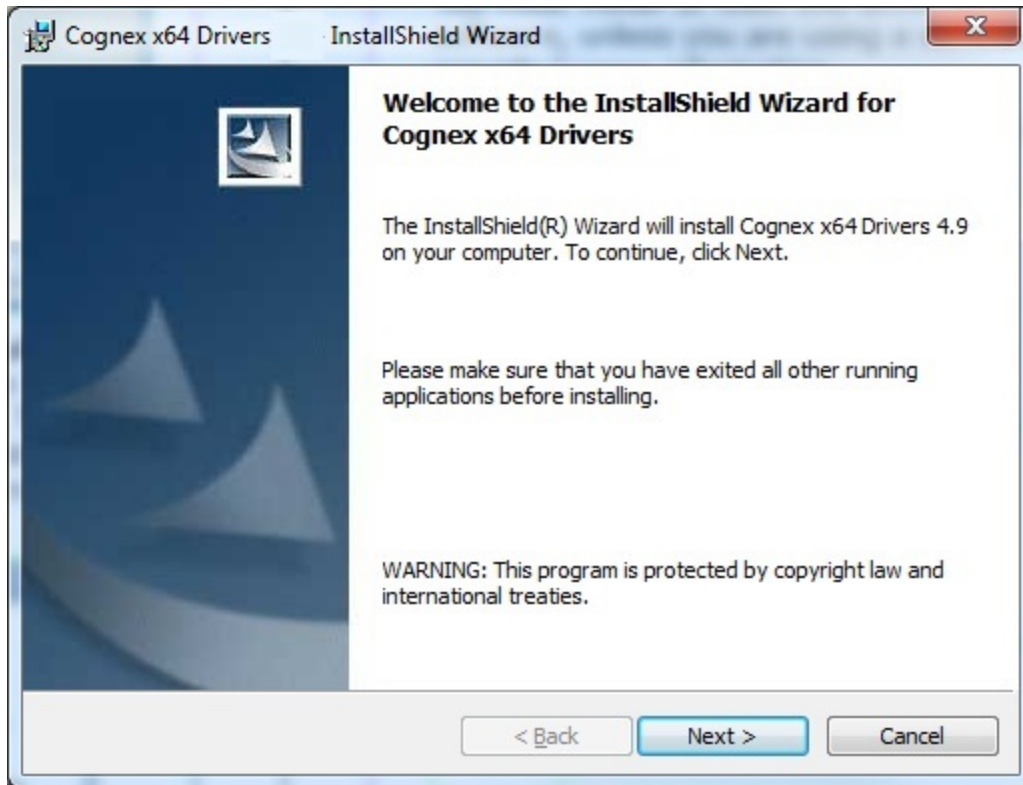
Be aware the extension does not support automated population of VisionPro edit controls with Visual Studio Express.

- (Optional) Install the Asian language versions of the documentation.

By default the VisionPro installation utility will not install Asian language versions of VisionPro documentation.

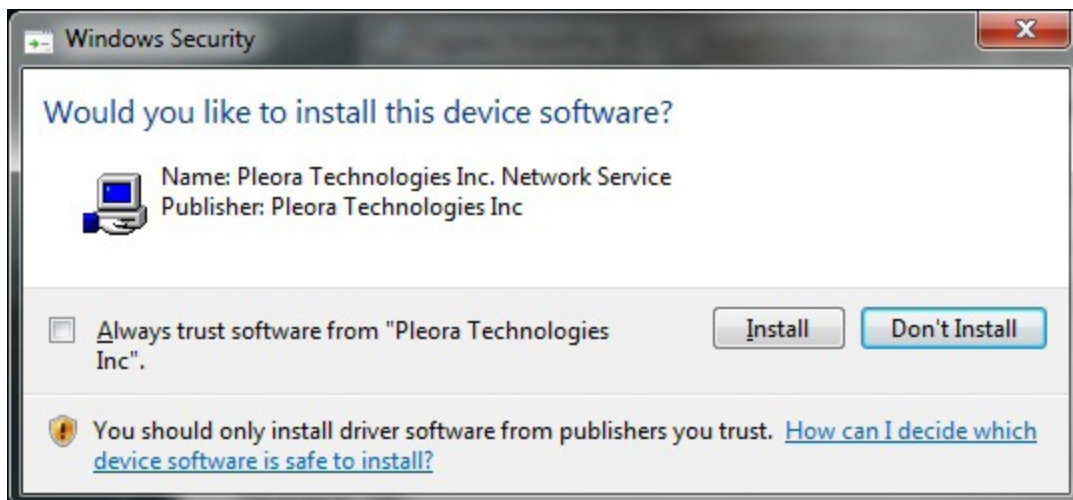
7. Install the VisionPro Hardware Drivers

The **Cognex Drivers** installer launches once the VisionPro software is installed:



The **Cognex Drivers** installer installs the necessary GigE Vision drivers and all supported frame grabber drivers. The installer allows you, as an option, to select **Custom** in the **Setup Type** dialog and pick the specific drivers you want installed. All VisionPro drivers are Authenticode signed with a Cognex certificate.

The installer might display a Windows Security warning for the Gige Vision driver from Pleora Technologies:



You must click **Install** to use the correct GigE Vision drivers for best performance.

If you do not install any drivers during the initial software installation and want to install one or more drivers later, navigate to the directory where you extracted the VisionPro installation files and double-click on *setup.exe* in the *drivers* directory to launch the **Cognex Drivers** utility.

Reboot the computer if prompted. If you install additional image acquisition hardware later, use the Windows Control Panel to select the **Cognex Drivers** software for repair and modifications.

Configure the Gigabit Ethernet Network

If you installed one or more GigE Vision network adapters, you must use the GigE Vision Configuration Tool to assign an IP address to each adapter port and each camera connected to it. Each port of a network adapter must have its own IP address on its own subnet. Each camera must have its own IP address on the same subnet as its network adapter, otherwise the camera and the adapter will not be able to communicate.

See the **GigE Vision Cameras User's Guide**, available from the **Start** menu, for more information about configuring your computer to use GigE Vision cameras.

Configure Your Cognex Communication Card

If you installed a Cognex Communication Card for use in network communication for your production environment, launch the **Cognex Comm Card Configurator** from the **Start** menu and provide the Ethernet settings the hardware will need.

See your VisionPro documentation for more information on how to use a Cognex Communication Card.

Working with Third-Party Imaging Devices

Manufacturers of cameras, frame grabbers, and other devices that generate digital images can make these images available to the VisionPro Imaging Device interface. Refer to the manufacturer's web site for specific support information.

VisionPro Overview

VisionPro provides an interactive development environment that you can use to assemble tools, configure acquisition and I/O, and deploy complete vision applications with customer user-interfaces. VisionPro provides a full-featured toolkit that you can program in .NET using C#, VB.NET or managed C++.

VisionPro consists of a set of development tools:

- QuickBuild offers an interactive environment for experimenting with acquisition methods, vision tools, and I/O capabilities in order to develop the tool chain your final vision application requires. Once your QuickBuild application generates the desired results for a sufficient amount of test images, you can migrate this framework to a Visual Studio solution.
- The Cognex GigE Vision Configuration Tool allows you to assign an IP address to each GigE Vision network adapter on your computer and the camera connected to it.
- Use the IDB Editor to create and modify images in an image-database file. The development of many vision applications often start with an image-database file of sample images you want your application to process.
- Use the 3D HandEye Field Calibrator to create a rigid transformation that maps points from a Cognex sensor to the 3D space defined by a robot-coordinate system.
- Use the Image Font Extractor to create an image font file from an existing image.
- Use the Image Grading Utility to create a library of records for a set of existing images, assigning them grades of Accept, Reject or Unknown based on the features they exhibit.

Advanced Development Capabilities

Start with QuickBuild to configure the acquisition sources your vision application needs, along with the vision tool chain to process and analyze your acquired images. Later, migrate this configuration to an application using C#, managed C++ or VB.NET and the underlying VisionPro application programming interface (API) ultimately stored in a Visual Studio solution.

Creating a customized, deployable application typically involves either of the following methods:

- QuickBuild Development plus a Custom-Written Operator Interface

The VisionPro API includes functions to load and use saved QuickBuild application components. Save QuickBuild tools or whole tool chains and import them directly into your Visual Studio application.

- Custom application using the VisionPro API

The VisionPro API allows you to start with a new Visual Studio solution and construct as well as define all the acquisition and vision tool objects your application requires, along with the tool chain connecting them, providing low-level control of image acquisition and analysis.


Getting Started

Your VisionPro installation includes several features to help you develop your vision application.

Develop Your Application with QuickBuild

QuickBuild offers a development environment supporting all the vision tools that VisionPro supports, and allows you to create and manage multiple *Jobs*, each of which contains multiple tools and has the ability to run automatically whenever an image is available:

Double-click job in Job Manager to edit job


Click  to configure image acquisition


Link ImageSource's OutputImage terminal to other tools to supply image


Click and drag tool properties to link


Double click tools to edit properties

Drag vision tools from Toolbox to Job Editor

In Job Editor, click  to run the job once

 to run the job continuously

In QuickBuild, click  to run all jobs once

 to run all jobs continuously

Configure the Communications Explorer

Once your job is working properly, use the Communications Explorer to configure the signals carried by your discrete I/O hardware and establish any TCP/IP links you need to exchange data with other network hardware:

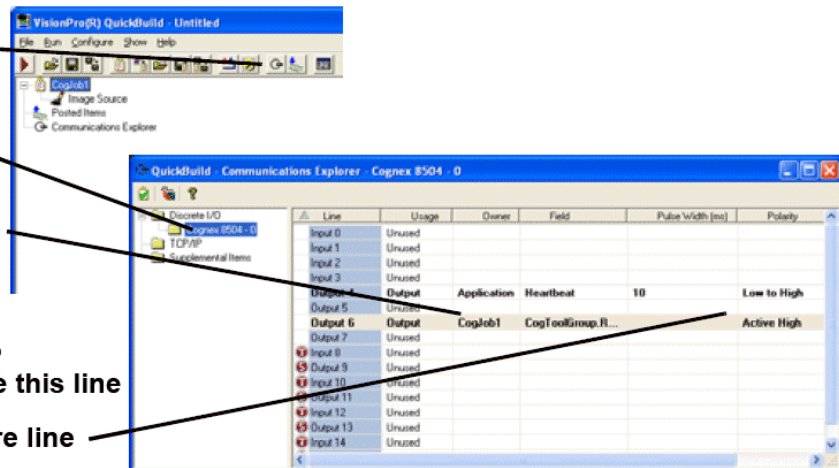
Click Communications Explorer icon 

Select the I/O device to configure

To link an output pin to job data, click in the Owner column and select the job

Click in the Field column to select the data item to drive this line

Use other fields to configure line properties



Sample Solutions

Your VisionPro installation includes a large set of Visual Studio programming samples for a variety of tools. Each sample solves a specific vision task, and were created using C# or VB.NET.

The installation utility installs a set of programming samples, which are located by default in `%VPRO_ROOT%\samples` and `%VPRO_ROOT%\samples3d`.

QuickBuild also includes a set of sample Jobs that demonstrate a variety of vision tasks, and can be accessed through the QuickBuild interface.

Reference

VisionPro offers a set of standard user interfaces for most functionality

QuickBuild Window

Run all jobs continuously

Create and manage jobs

Run all jobs once

Open job editor

Configure acquisition

Configure discrete input/output

Sample Jobs

Job Editor

Configure image acquisition

Run this job continuously

Toggle floating/local display

Run this job once

Toolbox

Image source

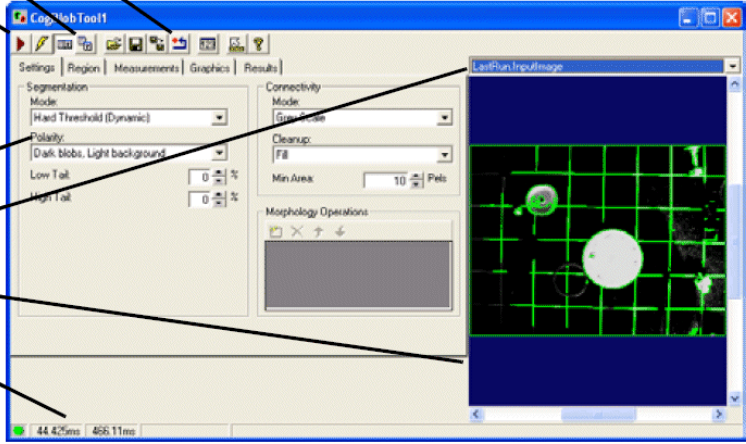
Vision tool

Tool inputs and outputs

Job execution time

Tool Edit Control

- Reset tool
- Toggle floating/local display
- Run this tool once
- Tool parameters
- Image selector
- Local display
- Tool execution time



Communications Explorer

- Validate current config
- I/O devices
- Individual output line
- Associated job
- Linked data field

Line	Usage	Owner	Field	Pulse Width (ms)	Polarity
Input 0	Unused				
Input 1	Unused				
Input 2	Unused				
Input 3	Unused				
Output 4	Output	Application	Heartbeat	10	Low to High
Output 5	Unused				
Output 6	Output	CogJob1	CogToolGroup.R...		Active High
Output 7	Unused				
Input 8	Unused				
Output 9	Unused				
Input 10	Unused				
Output 11	Unused				
Input 12	Unused				
Output 13	Unused				
Input 14	Unused				

For More Information

VisionPro software supports a volume of documentation related to application development and hardware accessories.

In QuickBuild

Click the question mark in any window to display a pop-up menu of options for displaying information related to the current vision tool or QuickBuild component.

From Microsoft Windows

Access various sources of VisionPro documentation from the **Start** menu.

