

# **Cognex Designer**

## **Release Notes 4.2**

**2019 August 24**  
**Revision: 4.2.0.3**

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# Release Information

This section contains information about the current release of Cognex Designer and its release history.

## Security Requirements for VisionPro

The latest release of VisionPro and Cognex Designer requires the latest VisionPro drivers and the latest supported VisionPro dongles, made by Wibu-Systems.

Always consult the Cognex VisionPro web page or installation documentation for up-to-date information on what dongle to use with your current version of VisionPro.

**Note:** Cognex Designer 4.2 works best with VisionPro 9.5 SR1.

## About this Release

Cognex Designer 4.2 introduces multiple new or changed capabilities since the previous generally available (GA) release (4.1 PR2). See the below list for more information.

- **Supports VisionPro 9.5 SR1**
- **Optional Communications Plugins** - Enhance the industrial communications capabilities of your vision project with the following optional industrial communications protocols:
  - *Modbus* - With a set of new Devices, Task Blocks and \$ functions, the Modbus plugin adds support for the general-purpose Modbus communications protocol in Cognex Designer.
  - *OPC UA Server* - Represented in the Devices node of the Project Explorer, the OPC UA Server functionality brings support for the OPC UA cross-platform machine to machine communication protocol, allowing you to read and write exposed project Tags and \$ Functions through OPC UA client applications on the network.
  - *TwinCAT* - Interact with Beckhoff® TwinCAT® 2 or 3 software systems through the ADS/AMS protocol by setting up a TwinCAT client device in Cognex Designer, and performing synchronous or asynchronous read/write operations through TwinCAT tags and \$ functions.
- **FTP Client Support** - Avoid local storage limitations by setting up an authenticated FTP connection in the Project Explorer, and uploading acquired images to a remote FTP server with the enhanced Image Recorder task block.
- **Image File Device Enhancements** - Get a better picture of simulated image acquisition by utilizing the enhancements of the Image File device. Use the new device tags in tandem with the Watch list window to get up-to-date information on the number of images used for emulation, the currently loaded image, and more.

**Note:** See [Release History on page 8](#) for a complete list of all the major capabilities that were introduced in previous releases of Cognex Designer.

## PC Requirements

Cognex Designer shares the same PC configuration requirements that VisionPro supports. Please see the *PC Configuration Guide*, which is accessible from the *Windows Start Menu (Cognex > VisionPro > Documentation > English > Hardware Manuals)*.

**Note:** For a complete list of compatible versions of Cognex Designer and VisionPro, please visit the [Cognex Designer Support](#) Website.

## Operating System Requirements

Microsoft Windows Operating System	Service Pack	English	German	Spanish	French	Japanese	Korean	Simplified Chinese
Windows 7 Premium/Professional/Ultimate (64-bit)	SP1	✓	✓	✓	✓	✓	✓	✓
Windows 8.1 (64-bit)	Update 1	✓	✓	✓	✓	✓	✓	✓
Windows 8 Embedded (64-bit)		✓	✓	✓	✓	✓	✓	✓
<b>Note:</b> Installed on the Cognex Vision Controller								
Windows 10 (64-bit)		✓	✓	✓	✓	✓	✓	✓

## Plugin Development Requirements

The following requirements are necessary for developing plugins for Designer:

- Microsoft Visual Studio 2017
- Microsoft .NET Framework 4.7.1

**Note:** Microsoft Visual Studio 2013 is **NOT** supported on the Windows Embedded 8.0 OS used on the Vision Controller.

For detailed information about working with plug-ins, see the topic How To... Plugins.

## Cognex Vision Controller Requirements

For information regarding the Cognex Vision Controller requirements, please consult the [Cognex Designer Support Website](#). The Technical Bulletins contain additional information about updating the Vision Controller to the latest release of both Cognex Designer and VisionPro.

## Web Browser HMI Requirements

Cognex recommends opening Web Pages developed in Cognex Designer with the following browsers:

- Google Chrome™ browser, version 54 or greater
- Internet Explorer version 11

**Note:**

- For the best performance, Cognex recommends using Google Chrome version 54 or greater to view and interact with your Web-based HMI.
- Due to issues in Internet Explorer and Google Chrome, displaying HMIs in Web Browsers for a long period of time (multiple days) can result in the browser window being non-responsive or the browser crashing. Cognex recommends periodically restarting the Web Browser in this scenario.

## About the Cognex ViDi Suite of Tools

Cognex ViDi Suite uses deep learning to accomplish tasks not previously possible using traditional machine vision software libraries.

The Cognex ViDi Suite tools share a common engine, but each tool has a distinct focus:

- Localization (Blue Locate tool)
- Cosmetic inspection (Red Analyze tool),
- Classification (Green Classify tool)
- Hard-to-read OCR (Blue Read tool)

By using the ViDi plug-in, you enable deep learning integration capabilities with Cognex Designer.

See the ViDi documentation for complete information about the ViDi and Cognex Designer integration.

## Migrating to this Release

This topic contains information about changes that may affect existing projects when migrating projects from the previous release of Cognex Designer (Cognex Designer 4.1) to the current release of Cognex Designer (4.2).

**Note:** For more information about migrating from earlier releases, see [Release History on page 8](#).

- **Handling Components that were created and saved while using Cognex Designer with a different language.**

In case you are using a project that was created and saved with an earlier version of Cognex Designer (3.0 to 4.1) and with a different language setting than what you are using now, then any Components you have configured for the project will not be loaded in Cognex Designer 4.2. Instead, you have to re-add the missing Components manually.

## Resolved Issues

Cognex Designer 4.2 introduces multiple new or changed capabilities since 4.1 PR2.

This section describes changes and resolved issues.

**Note:** Change Request numbers (CR#) have been included (where applicable) to improve the tracking of issues reported via Cognex Technical Support.

CR#	Issue
CDVP-801	Fixed an issue where component items were missing when loading a project that had been saved in a different language.
CDVP-598	Added support for overlaying HMI pages that disables the pages below it.
CDVP-582	Modified the Alarms <code>OnMessage</code> and <code>OffMessage</code> tags so that they are writable again.
CDVP-538	Modified Recipes configurations so that they now load the ingredients of VisionPro Tool Blocks in parallel to improve Recipe loading times.
CDVP-360	Updated the Image File Device to allow users access to the name and index of the currently loaded image.

## Known Issues and Changes In Behavior

Cognex Designer 4.2 introduces multiple new or changed capabilities since 4.1 PR2.

This section describes all known issues and notable changes in Cognex Designer behavior.

Changed Behavior	Description
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<b>New Garbage Collection Method</b>	As of release 4.1, Cognex Designer employs a background Garbage Collection technique by default for all new projects. This may result in longer task execution time in Test Mode than in earlier versions, such as 2.x. Therefore, always benchmark using a deployed application.  See the Scheduling Garbage Collection topic for more information.
<b>Legacy project sequences replaced with Sub Tasks</b>	As of release 4.0, legacy Cognex Designer 2.x project sequences are replaced with a Sub Task.

<b>Issue</b>	<b>Description</b>
<b>Auto-Camera detection limitation</b>	Auto-Camera Detection only functions when Creating a New Project with Project Types.
<b>Errors when handling large recipe configurations</b>	In Recipes, when loading a large configuration (for example, the file size of the corresponding .json file is greater than 550M), an error such as <code>Array dimensions exceeded supported range results</code> .
<b>Anti-Virus Software</b>	If anti-virus software is enabled for real-time protection it may also perform disk scans at a user-specified time. The disk scans may interfere with busy vision software applications. If so, consider disabling anti-virus software, or managing behavior in a manner appropriate for the application.
<b>Expression Builder function does not get updated.</b>	When an <code>ItemAt(\$index, \$array)</code> function is constructed in the Expression Builder, it will only update the returned value when the value of the <code>\$index</code> tag changes, or a new array is assigned to the <code>\$array</code> tag. The following C# script statements illustrate how to trigger a value change event:  <pre>\$index++; \$array = { "one", "two", "three" };</pre> The following C# script statement will not trigger a value change event:  <pre>\$array[1] = "new value";</pre>
<b>Test Mode changes on Pages persist in Program Mode.</b>	If an element on a Page (e.g. CheckBox, TextBox, etc.) is modified while in Test Mode, after exiting Test Mode, the element will not return to its state prior to entering Test Mode. To do so, the Designer <i>OnStartup Script</i> must be used to explicitly set the default values of Page elements. For example, if a Page contained a TextBox which should be blank at startup, the script would be:  <pre>\$Pages.Page.TextBox.Text = string.Empty;</pre>
<b>Uninstalling/Reinstalling Software on a Cognex Vision Controller</b>	In the event that the default installations of VisionPro or Designer need to be uninstalled and then newer versions installed, if a black desktop (no Cognex wallpaper) and a blank, blue Taskbar is encountered after the initial reboot after uninstalling/reinstalling, press the Windows Logo key to return to the Start screen, and then select the Desktop tile/icon to return to the correct Desktop.
<b>Changing the Primary Language of the Operating System on a Cognex Vision Controller</b>	If the primary language of the Operating System on a Cognex Vision Controller is changed (e.g. from English, the default language, to Simplified Chinese), the Vision Controller will need to be restarted. In the event that the desktop appears without the Cognex wallpaper and a blank, blue Taskbar is encountered after the reboot, press the Windows Logo key on your keyboard to return to the Start screen. Next, select the Desktop tile/icon to return to the correct Desktop.

<b>Startup Issue resulting in incorrectly firing Precision I/O Events</b>	<p>A startup issue incorrectly firing Precision I/O Events can occur in Industrial Communications if the following conditions are met:</p> <ul style="list-style-type: none"> <li>• The output mapping of the configured industrial communications connection is set to falling-edge trigger.</li> <li>• The bit state is low.</li> <li>• Another signal transition causes the industrial communications protocol to push an update through the logic.</li> </ul> <p>In such cases, the mapping will false-trigger one time and incorrectly fires the discrete event. This only occurs when the bit state starts low, and the mapping is set to falling-edge trigger, or the bit state starts high, and the mapping is set to rising-edge trigger.</p>
<b>Modifying VisionPro and Tool Block Editor Page Controls while a Task is running</b>	<p>If a Page contains a VisionPro Tool Editor or VisionPro ToolBlock Editor element, they should be configured to not allow user interaction while the application sequence is running. Changes to these two types of controls can be made when the application is being modified at design time in the development environment, or in a deployed application, but only when the sequence using the tools is not running.</p>
<b>Unsupported database data types</b>	<p>Cognex Designer does not support the <i>decimal</i>, <i>geography</i>, <i>hierarchyid</i>, <i>image</i>, <i>money</i>, <i>numeric</i>, <i>smallmoney</i>, <i>sql_variant</i>, <i>time</i>, <i>timestamp</i> and <i>xml</i> data type parameters. When creating a database, ensure that these types are not used for columns, otherwise Designer will be unable to connect to the database.</p> <p>Cognex Designer only supports a sub-set of data types: <i>bigint</i>, <i>binarybit</i>, <i>char</i>, <i>date</i>, <i>datetime</i>, <i>datetime2</i>, <i>datetimeoffset</i>, <i>float</i>, <i>int</i>, <i>nchar</i>, <i>ntext</i>, <i>nvarchar</i>, <i>real</i>, <i>smalldatetime</i>, <i>smallint</i>, <i>text</i>, <i>tinyint</i>, <i>uniqueidentifier</i>, <i>varbinary</i>, <i>varchar</i>. Use Microsoft® SQL Server® 2008 Management Studio or later to create and edit SQL Server databases.</p>
<b>Return Statements in Script Editor</b>	<p>When wanting to use a return statement to exit a script function, use the <code>return null;</code> statement, instead of the <code>return;</code> statement. In the Script Editor, scripts must always return an object, even though the signature of the script function returns void.</p>
<b>FFP Offline Requested Task Triggers for "Online" and "Offline" Status</b>	<p>When implementing industrial communications protocols, consider that within Cognex Designer, the <i>OfflineRequested</i> event is mapped into both a scriptable point called <i>FFP Offline Requested</i> and a Task Trigger called <i>Devices</i>. <i>{CommCardName}.FfpOfflineRequested</i>. During execution, if the <i>OfflineRequested</i> event is fired, it will run the script registered to the scriptable point called <i>FFP Offline Requested</i>.</p> <p>At this point, the user can access the <i>ReturnToPreviousState</i> member of the argument, and determine the state of the device (False = Offline and True = Online). After this has occurred, the event triggers the <i>FfpOfflineRequested</i> Task Trigger. However, in this case, there is no way to determine the requested state, so any Task registered to run as a result of this trigger will be executed, regardless of the state.</p>
<b>OPC UA Plugin Compatibility with Older Windows Versions</b>	<p>If Cognex Designer 4.2 is used on a machine running <i>Windows 7</i> or <i>Windows Embedded 8</i>, the OPC UA Plugin works only if the <a href="#">.NET Framework 4.7.2 Runtime</a> package has been installed for the operating system. This limitation does not impact machines running on <i>Windows 8.1</i> or <i>Windows 10</i>.</p>

## Product and Upgrade Codes

- API Version: 4.3.0
- Upgrade codes
  - x64 - 84F14F46-58D4-4B7C-A963-4C7F1D57D1DB
- Product Codes
  - X64 - D1135FD9-8AC8-4B62-8DD4-29EF7F3881D2

## Supported Hardware

The following acquisition platforms, communication cards, cameras and sensors are supported by Cognex Designer.

## Supported Acquisition Platforms and Communication Cards


- Cognex Vision Controller
- Cognex CC24 I/O Communication Card
- Cognex CFG-8704e Frame Grabber Card
- Cognex CFG-8724 Frame Grabber Card
- GigE Vision
- MVS-8602e CameraLink
- Acquisition Interface Kit (AIK)

## Supported Cameras and Sensors

- Cognex 2D Industrial Cameras (CIC cameras)
- Cognex 3D Displacement Sensors (DS900 series and DS1000 series)
- As well as those supported by VisionPro for the Acquisition Platforms listed above.


## Designer Sample Projects

Designer includes a sample project to help illustrate how to use the program, and how different elements of Designer fit together to create modern machine vision application solutions. For more information on opening the sample project, see the [Sample Projects](#) topic.

 **Tip:** For additional information and sample codes and projects, please visit the [Cognex Designer Support Site](#). A link to the Cognex Designer Support Site is also included in the Help menu.

### Note:


Subject to Cognex Corporations terms and conditions and license agreement, you are authorized to use and modify this source project in any way you find useful, provided the Software and/or the modified Software is used solely in conjunction with a Cognex Machine Vision System. Furthermore you acknowledge and agree that Cognex has no warranty, obligations or liability for your use of the Software.

 This sample program is designed to illustrate certain Cognex Designer features or techniques in the simplest way possible. It is not intended as the framework for a complete application. In particular, the sample program may not provide proper error handling, event handling, cleanup, repeatability, and other mechanisms that a commercial quality application requires.

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## Release History

The following topic lists the features and resolved issues in the previous three releases of Cognex Designer. For the full list of features and resolved issues covering all earlier releases of the product, see the *Release History* topic of the *Cognex Designer User Guide*.

 **Note:** Cognex Designer is *backward compatible*, which means that projects created with earlier Designer versions can be opened and edited. Designer does not support loading projects created by a newer version of Designer in an earlier version.

## Cognex Designer 4.1 PR2 Release

- **Supports VisionPro 9.5**
- **Performance Monitoring** - Browse performance statistics relating to your Cognex Designer application's task execution time, memory usage, and garbage collection details, using the Analyzing Application Performance with Performance Profiler, which runs and monitors tasks in a project and produces a report and CSV file. See a breakdown of block execution times in a succinct bar-graph format by Displaying Block Time Performance Data.
- **Efficient, Less Disruptive Garbage Collection** - The Resource-intensive Dynamic Garbage Collection present in releases 4.0.0 and before has been deprecated. Settings have been changed to allow Background Garbage Collection which can lessen performance impact. This new Garbage Collection setting is enabled by default for all new projects. See the Scheduling Garbage Collection topic for more information.
- **Performance Tuning** - Tune performance metrics by Scheduling Garbage Collection and implementing processor Load Balancing Using Core Assignments.
- **Graphics Consolidation** - Combine multiple supported graphics and image formats into a single CogRecord for convenient and efficient processing in Cognex applications. See the VisionPro Tool Block Graphics Options topic for complete details.
- **Project Types** - Cognex Designer now supports drastically Accelerating Development With Predefined Project Types. With a single click, launch a fully defined project template that can be quickly customized. Project Types enable you to spend more time developing vision applications and less time creating HMIs or writing scripts.
- **Getting Started Tutorials** - Walk through every phase of creating a standalone Vision Application with the new Getting Started documentation section that lets you learn at your own pace, with only the content that applies to your needs.

## Cognex Designer 4.0 Release

Cognex Designer 4.0.0 introduces multiple new or changed capabilities since the previous generally available (GA) release (2.7).

- **Supports VisionPro 9.3**
- **Supports Cognex ViDi Suite** - Supports Cognex ViDi Suite, which enables Deep Learning programming within Cognex Designer. The ViDi Suite is a separate product and requires an additional license and installation. Please see the Cognex Deep Learning-based Image Analysis page or contact your sales representative for more information about the ViDi Suite optional plug-in for Cognex Designer.
- **WebHMI** - With WebHMI, access your deployed application through a standard browser, enhancing user productivity. Run your remotely hosted applications, free from the constraints of local sites and domains. Drag and drop a display or viewer object on customizable Web Pages and bind objects to any tag, function, or query. Create your own scripts to add advanced functionality to your WebHMI applications. Deliver your vision application securely with support for Web authentication and set timeout values for your WebHMI log-ins. For more information, see WebHMI: A Functional Overview.
- **Improved IDE and New Graphical Editing Shortcuts** - Featuring a high-resolution rich-text interface, ability to add multi-line text to labels, and other convenient graphical shortcuts for Working With Task Blocks and Working With Script Blocks.
- **Localization** - Manage multiple-language translations from a single interface with Project Localization.
- **Launch Page** - Use the Cognex Designer Launch Page to quickly open new projects, saved projects or sample projects with a few mouse clicks.

## Cognex Designer 2.7 Release

Cognex Designer 2.7 introduced multiple new or changed capabilities since the previous generally available (GA) release of Designer (2.6):

- Supports VisionPro 9.2
- No longer supports x86 (32-bit)

### Resolved Issues in Designer 2.7

CR#	Issue
44464	Serial device not correctly processing byte data

## Release Migration History

### Migrating projects from Cognex Designer 2.1 to Designer 2.5

This topic contains information about changes that may affect existing projects when migrating projects from Cognex Designer 2.1 to Designer 2.5 PR5.

- **Using the Updated VisionPro Display 3D and New VisionPro Display 3D Status Bar**

The VisionPro Display 3D control has been updated with the new control introduced in VisionPro version 9.0, and VisionPro Display Status Bar 3D is a new control in Designer 2.5. This will affect projects that were using the VisionPro Display 3D control in their HMI.

The following considerations apply to the new controls:

- The previous VisionPro Display 3D included a right-click context menu which could be used to display the X, Y and Z coordinates either on the display itself, or in a built-in status bar (or both). These options have been removed from the new VisionPro Display 3D control. Now, in order to display the coordinates, you must add a VisionPro Display 3D Status Bar and configure the *Subject* property to the VisionPro Display 3D.
- The VisionPro Display 3D does not support displaying 2D images as height maps; these types of images will not be displayed and a warning will be shown, instead.
- The VisionPro Display 3D does not work when using a Windows Remote Desktop Connection. Third party options, such as VNC® or TeamViewer, may be used.
- The VisionPro Display 3D requires a VisionPro security bit; therefore, previously created Designer projects will need to be updated with this security bit to continue to work correctly.
- The VisionPro Display 3D will not work on virtual machines.

### Migrating projects from Cognex Designer 2.0 to Designer 2.1

- **New Project File Format**

The file format of Designer projects has been modified, and when projects developed in previous versions of Designer are opened and loaded in Designer 2.1, they will automatically be converted to the new format. Projects saved in Designer 2.1 cannot be opened in previous versions of Designer. For more information, see the Cognex Designer Version Compatibility topic.

- **Recipes Folder Location**

For Designer 2.1, the folder location of Recipes will no longer be editable, and must be located in the following directory: <ProjectName>\Recipes\<RecipeName>

**Note:** If you had edited the Recipe directory location in 2.0, you must manually move your Recipe folder into the new directory location.

- **Recipes File Format Conversion**

Recipes will only be converted from XML to [JSON](#) format when they are being loaded through the System.Recipes.{RecipeName}.Load and the System.Recipes.{RecipeName}.LoadFile methods.

- **New Template File Extension in Designer 2.1**

For the Designer 2.1 release, the Template file extension was updated from .cdt to .cdtx. The first time that you start Designer 2.1, all of your .cdt template files will be automatically converted to .cdtx files, with the same name. Both files will exist in the *Templates* directory (C:\Users\<username>\Documents\Cognex Designer\Templates).

If you delete a .cdtx file, you will also need to delete the .cdt file. Otherwise, when you start Designer 2.1 again, or refresh the tree view in the Template Browser, Designer will automatically perform the conversion process again and recreate another .cdtx file, based on the .cdt file.

- **Read IO and Write IO Block Visible Pins State Change**

In Designer 2.0, it was possible to add and configure Read IO and Write IO blocks with *Visible Pins*, even though they did not have the *Selected Device* property set to a supported device (Cognex Communication Card or Vision Controller). If a project is loaded in Designer 2.1 which has these types of Read IO and Write IO block configurations, the pins will not be visible until the *Selected Device* property is set, and any links between the pins will be disconnected and have to be reset.

## Migrating projects from Cognex Designer 1.0 to Designer 2.0

- **MessageID Pin Type Changed**

The *MessageID* pin of the Notify PLC block in `AsyncSoftEventComplete` has been changed from a `int (Int32)` data type to a `long (Int64)` data type.

**Note:** This does not cause any issue with existing projects.

- **Opening 1.0 or 1.0 PR1 Projects in Designer 2.0**

When a Designer 1.0/1.0 PR1 project is opened in version 2.0, the `UsedAcquisitionIDCollection` pin of the **Notify PLC** block in `InspectionCompleteMode` will be replaced with two other pins: `AcquisitionID0` and `CameraIndex0`. If you have more than one cameras, you can set it in the block's Configuration UI.

- **"Assign New Tag" Option**

Starting with Designer 2.0 the **Assign to New Tag** option on a pin does not initialize the created tag with the data-type's default value.

- **Read IO Block New Pin**

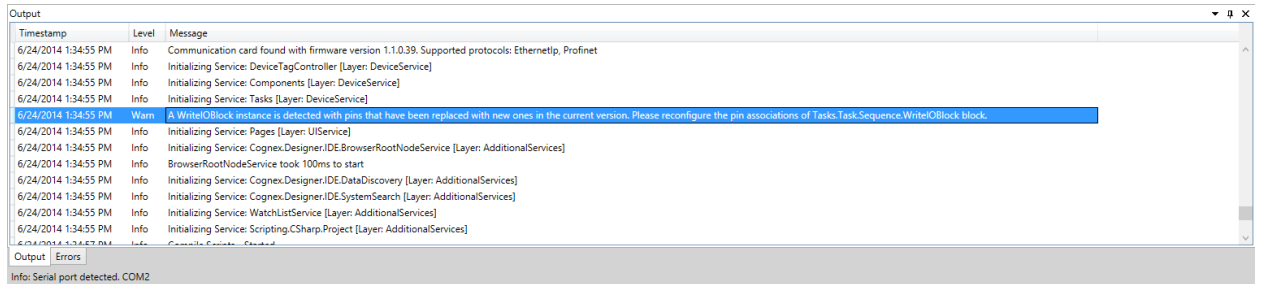
A new pin has been added to the Read IO Block: **PrioState**.

- **Expression Builder**

The Expression Builder has been revamped. It is recommended to run a project verification that should identify any expressions that are no longer compatible.

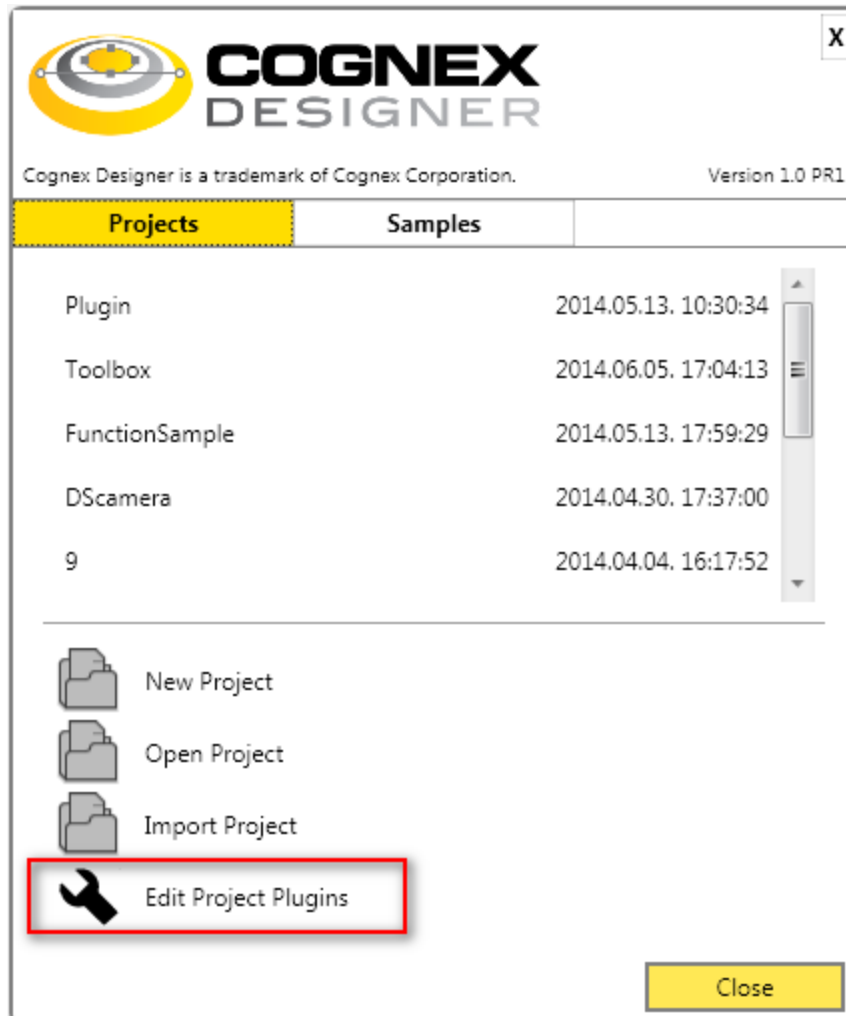
- **Opening 1.0 projects that have WriteIOBlock with pins**

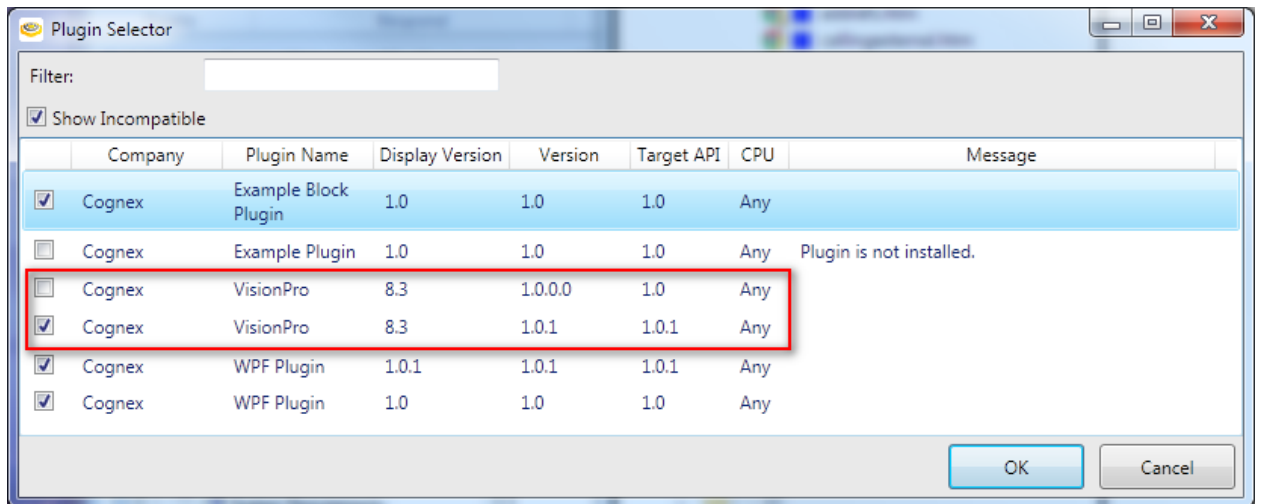
When an 1.0 project is opened in version 1.0 PR1, the existing "DS1000OutputBank0Line0" "DS1000OutputBank0Line1" pins of a WriteIOBlock will be replaced with new empty pins. If the pins were assigned to tags, the connection to the tags will be no longer available. This means that the user has to reassign the pins to the tags (since they are still available in Tag Manager).



- **Migrating Plugins From Designer 1.0 to 1.0 PR1**

After Designer 1.0 PR1 is installed, all new projects created using either 1.0 or 1.0 PR1, will use the 1.0.1 VisionPro Plugin. Old projects that use VisionPro Plugin 1.0.0.0 will need to be updated to VisionPro Plugin 1.0.1, using the **Edit Project Plugins** option from the Launcher. **Click Edit Project Plugins**, select the desired .cdp project file in the **Open file** dialog box, and check/uncheck the desired plugins.





## Previous Product and Upgrade Codes

This topic lists the product and upgrade codes for the previous three Cognex Designer release. For the full list of codes covering all earlier product versions, see the Previous Product and Upgrade Codes topic of the *Cognex Designer User Guide*.

### Cognex Designer 4.1 PR2

- **API Version: 4.2.1**
- **Upgrade codes**
  - x64 - 84F14F46-58D4-4B7C-A963-4C7F1D57D1DB
- **Product Codes**
  - X64 - 40ED1DFC-4320-4E5F-AB29-E2FE589C376C

### Cognex Designer 4.0

- **API Version: 4.1.0**
- **Upgrade Codes**
  - x64 - 84F14F46-58D4-4B7C-A963-4C7F1D57D1DB
- **Product Codes**
  - x64 - 21B3FB72-8EEE-4B76-9D37-26EE0ED5F464

### Cognex Designer 2.7

- **API Version: 3.5.1**
- **Upgrade Codes**
  - x64 - 9DBBCE96-D0AB-482E-B207-730F83879934
- **Product Codes**
  - x64 - 54A2FBEA-3ADE-4749-A6D9-CF8A711739C

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