

Cognex Designer Release Notes 4.1.0

2019 January 10

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Release Information

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

Security Requirements for VisionPro

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

Dongles supporting VisionPro releases 9.2 and older are not supported by Cognex Designer.

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.

About this Release

Cognex Designer 4.1.0 introduces multiple new or changed capabilities since the previous generally available (GA) release (4.0.0).

[Click here to launch in a separate window.](#)

- **Supports VisionPro 9.4**
- **Performance Monitoring** - Browse performance statistics relating to your Cognex Designer application's task execution time, memory usage, and garbage collection details, using the [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 using the [Block Time Visualizer](#).
- **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 [Performance Profiler and Garbage Collection topics for more information](#).
- **Performance Tuning** - Tune performance metrics by [scheduling Garbage Collection](#) and implementing processor [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 [Merge Graphics section in the VisionPro Tool Block Graphics Options](#) topic for complete details.
- **Project Types** - Drastically accelerate the development of your vision applications using [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 these [all-new Getting Started Tutorials](#) that let you learn at your own pace, with only the content that applies to your needs.

Note: See the [Release History on page 10](#) topics for a summary of major new capabilities that were introduced in the 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	Japanese	Korean	Simplified Chinese
Windows 7 Premium/Professional/Ultimate (64-bit)	SP1	✓	✓	✓	✓	✓
Windows 8.1 (64-bit)	Update 1	✓	✓	✓	✓	✓
Windows 8 Embedded (64-bit)		✓	✓	✓	✓	✓
Note: Installed on the Cognex Vision Controller						
Windows 10 (64-bit)		✓	✓	✓	✓	✓

Note: Cognex Designer is not localized and so changing the language of the OS will not affect the language in the development environment.

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

- 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

The 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 (Purple 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.

Resolved Issues

Cognex Designer 4.1.0 introduces multiple new or changed capabilities since the previous generally available (GA) release of Designer (4.0):

This section describes changes and resolved issues in Cognex Designer 4.1.0.

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

CR#	Issue
CDVP-296	The other language designer doesn't work when clicking "Save As" or "New"
CDVP-286	HMI.SetFocusOn() a missing component crashes Designer
CDVP-283	Adding User in Designer crashes when using German OS
CDVP-281	\$HMI.ShowKeypad doesn't change the decimal separator to comma in German OS
CDVP-279	Script failed to compile on startup after \${path} was changed in previous session.
CDVP-261	When a page/block is password protected in the project, the Plugin Configurator would not work
CDVP-258	Popping out script editor windows causes background color to fall back to default, making the script code difficult to read.
CDVP-255	Recipes and Persistent Tags with Array of Cognex data types do not save and load correctly.
CDVP-246	Nested grouping/ungrouping of HMI elements causing issues/crashes.
CDVP-235	SubTask Block execution ordering does not work correctly.
CDVP-232	Ability to prevent WebHMI browser from opening by default
CDVP-230	Designer crashed when the image source for File camera was removed.
CDVP-229	Images with certain resolutions are unable to be displayed in the WebHMI
CDVP-203	Fixed Localization Data Grid crashing when ease of access tools are enabled
CDVP-193	WebHMI display become blank for external browser when switching pages
CDVP-189	Allow compiling scripts with -unsafe
CDVP-145	WebHMI does not display all tags value when first opened.
CDVP-142	Binding both Visible and Blink Mode property of HMI element doesn't work correctly
CDVP-141	When starting a Test Mode of the project with the WebHMI, the Designer crashed.
CDVP-125	Designer to use Background Garbage Collection by default with new projects
CDVP-111	Obsolete Dynamic GC
CDVP-100	Auto connect camera and comm card for blank project
CDVP-95	Press F5 Key in the Test Mode, make the Designer Crash
CDVP-90	Localize alarms messages
CDVP-86	Dragging a HMI control from the toolbox freezes Designer when a property is also being edited
CDVP-83	Support camera without Serial Number.

CR#	Issue
CDVP-79	WebPage labels occasionally do not update if WebPage contains a VisionPro display
CDVP-63	Project Verification incorrectly found errors when the buttons in the WebPage contain click scripts.

Known Issues and Changes In Behavior

- As of release 4.1.0, Cognex Designer employs a background Garbage Collection technique by default for all new projects. See [Scheduling Garbage Collection for a complete description of the feature.](#)
- Auto Camera Detection only functions when [Creating a New Project with Project Types.](#)
- When migrating to another deployment system, you must recompile your Cognex Designer scripts before they can execute again.
- Cognex Designer abnormally terminates with an exception reporting a missing component (`HMI.SetFocusOn()`). A related message is found in the stack trace referencing a call to `HmiFunctions.SetFocusOn`
- 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 `Array dimensions exceeded supported range results.`
- As of release 4.0.0, 2.x Cognex Designer project sequences are replaced with a sub task.
- In release 4.0.0, tasks will take a longer time to execute in Test Mode than in release 2.x. This is due to increased Garbage Collection time in the development environment. As a result, always benchmark using a deployed application.

- Anti-Virus Software**

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.

- The Expression Builder 'ItemAt(\$index, \$array) ' Function Does Not Update the Returned Value When Items in the Collection Change**

When an "ItemAt(\$index, \$array)" function is constructed in the Expression Builder, it will only update the returned value when the value of the "\$index" tag changes, or a new array is assigned to the "\$array" tag.

The following C# script statements illustrate how to trigger a value change event:

```
$index++;
$array = { "one", "two", "three" };
```

The following C# script statement will not trigger a value change event:

```
$array[1] = "new value";
```

- VisionPro Tool Editor and ToolBlock Editor Controls Modifications While a Task is Running**

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.

- **Unable to Load Microsoft® SQL Server® Database That Contains decimal, money or smallmoney Column Data Types**

Designer does not support the *decimal*, *geography*, *hierarchyid*, *image*, *money*, *numeric*, *smallmoney*, *sql_variant*, *time*, *timestamp* and *xml* 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.

Designer only supports a sub-set of data types: *bigint*, *binarybit*, *char*, *date*, *datetime*, *datetime2*, *datetimeoffset*, *float*, *int*, *nchar*, *ntext*, *nvarchar*, *real*, *smalldatetime*, *smallint*, *text*, *tinyint*, *uniqueidentifier*, *varbinary*, *varchar*. Use Microsoft® SQL Server® 2008 Management Studio or later to create and edit SQL Server databases.

- **Modifications to Page Elements During Test Mode Persist**

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 OnStartup Script 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:

```
$Pages.Page.TextBox.Text = string.Empty;
```

- **Return Statements in Designer Script Editor**

When wanting to use a return statement to exit a script function, use the "return null;" statement, instead of the "return;" statement. In the Designer Script Editor, scripts must always return an object, even though the signature of the script function returns void.

- **Designer User Authentication and Authorization**

Designer offers a simple mode for user authentication and authorization, and is not intended to be used in environments that require high security. For a more secure authentication and authorization model, please use Active Directory.

- **FFP Offline Requested Task Triggers for "Online" and "Offline" Status**

When implementing Factory Floor Protocol communications, it is important to note that within Designer, the OfflineRequested event is mapped into both a scriptable point called *FFP Offline Requested* and a Task Trigger called *Devices.{CommCardName}.FfpOfflineRequested*. During execution, if the OfflineRequested event is fired, it will run the script registered to the scriptable point called *FFP Offline Requested*. At this point, the user can access the ReturnToPreviousState member of the argument, and determine the state of the device (False = Offline and True = Online). After this has occurred, the event triggers the FfpOfflineRequested 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.

- **Uninstalling/Reinstalling Software on a Cognex Vision Controller**

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.

- **Changing the Primary Language of the Operating System on a Cognex Vision Controller**

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.

- **Factory Floor Protocol to Output Mappings**

A startup issue whereby if the mapping is set to falling-edge trigger, and the bit state is low, and another signal transition causes the factory protocol to push an update through the logic, the mapping will false-trigger one time and incorrectly fire 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.

Product and Upgrade Codes

- **API Version: 4.2.0**
- **Upgrade codes**
 - x64 - 84F14F46-58D4-4B7C-A963-4C7F1D57D1DB
- **Product Codes**
 - x64 - 7B2BB7F0-BE71-4ECE-922C-90EF9E2281D6

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
- 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 Cognex Designer Launch Page - 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.

- i** 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 previous releases of Cognex Designer.

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 4.0 Release

- **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.

i Note: See the Release History topics for a summary of major new capabilities that were introduced in the previous releases of Cognex Designer.

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

Cognex Designer 2.6 Release

Cognex Designer 2.6 introduces multiple new or changed capabilities since the previous generally available (GA) release of Designer (2.5):

- Supports VisionPro 9.1
- Supports .NET Framework 4.6

Note: This primarily affects plugin developers.

Resolved Issues in Designer 2.6

CR#	Issue
41629	Fixed an issue, where a tag exposed in a VisionPro ToolBlock got into an invalid state and caused start up error.
40523	Fixed an issue with obfuscation that prevented custom Plugins being developed using Visual Studio 2015.

Cognex Designer 2.5 PR5 Release

Cognex Designer 2.5 PR5 introduces multiple new or changed capabilities since the previous generally available (GA) release of Designer (2.1):

- **Update Properties of RS232 and TCP/IP Devices**

The right-click menu for [RS232](#) and [TCP/IPDevices](#) has been updated and now includes a *Reconnect* option, which allows you to reconfigure the properties of a previously connected device.

In addition, the properties of RS232 devices can be updated programmatically, while at runtime.

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

The [VisionPro Display 3D](#) has been updated with the new control introduced in VisionPro version 9.0, and the [VisionPro Display Status Bar 3D](#) element has been added as a new control in Designer 2.5.

- **Find/Replace Dialog for the Script Editor**

A *Find and Replace* dialog has been added to the [Script Editor](#), using the [Script Editor Keyboard Shortcuts](#).

- **Minimize the Window of Deployed Applications**

The *Windowed Mode* parameter has been added to the [Deployment Options](#) dialog, which determines whether or not the deployed application window can be minimized.

- **Add External Assemblies to Designer Projects**

The ability to add custom or 3rd party DLL/.NET assembly references to your project, which allows you to create tags of any data type, through the [External Assemblies](#) tab of the [Project Settings](#) dialog, and the *Script References* dialog (see the [Adding References](#) topic for more information).

- **Longer Security Operation**

The Designer security mechanism has been modified to last 8 hours when using a Cognex USB Development Dongle.

- **New Database Sample**

A new sample project has been added to the Cognex Designer Launcher - Samples tab, showing examples for implementing and using databases in Designer.

- **The Cognex Designer User Guide Improvements**

The Cognex Designer User Guide has been overhauled, with a new Table of Contents and numerous new topics, including new How To... topics.

- **Resolved Issues in Designer 2.5 PR4**

CR#	Issue
41339	Fixed an issue when loading an older project whose PropertyDefinition is set to null. Now, when loading a project with a ConfigurableBlock that has a PropertyDefinitions property set to null, it will be converted to an empty array.
41311	Fixed an issue present in Designer 2.5 PR1, PR2 and PR3 that affected custom plugins, in which a published property in an abstract class would not be detected.
39276	Fixed an issue when loading projects in Designer 2.5 that were created in Designer 2.0, which resulted in Designer 2.5 closing unexpectedly.
38936	Fixed an issue with the Format PLC Output Data block throwing a "Specified cast is not valid" error, when migrating a project from Designer 2.0 to 2.5.
39283	Fixed an issue when a Cog3DPlane value was saved as a persistent tag. The value is now saved and restored correctly.
39528	Fixed an issue with Data Change scripts which could cause a "The data change script is no longer connected to a tag." error message.
38292	Fixed an issue when loading large projects; the Designer application could take additional time to startup while the project was loaded.
36625	Fixed an issue with an Out of Memory - Value of an input and output pin in a Sub Sequence block was saved in a project file.
36505	Fixed an issue where an Unhandled Exception was encountered when logging in via Remote Desktop to a Vision Controller while a Designer project was running.
36510	Fixed an issue with a possible deadlock on long running image inspection tasks.
36507	Fixed an issue with a Parallel region Task 'InvokeAsync' error.
35185	Fixed an issue with deployed applications, which showed script compile errors at startup: "Could not write to output file 'C:\%TMP%\z13st3bc.dll', The process cannot access the file because it is being used by another process."
35503	Fixed an issue with a project freezing when a Sequence was run, and a VisionPro Tool Block is open.
35568	Fixed an issue where changing the SelectedItem property in one SelectionBox would change the SelectedItem property in an unrelated SelectionBox.
35723	Fixed an issue where Designer would crash when using a CogPMAAlignTool on the Vision Controller.
36168	Fixed an issue where the Tag Browser would open slowly if there were more than 1000 tags.
36165	Fixed an issue where disconnecting a camera would cause any links to the associated Camera block to be broken.

Cognex Designer 2.1 PR1 Release

- **Updated 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.

- **Sub Sequence Blocks now Allow Input/Output Pins**

The Sub Sequence block has been updated and modified, and now contains internal and external input and output pins to help configure a Sequence.

- **Updated Data Type Selector**

The [Data Type Selector](#) has been updated and modified, and now also contains the ability to create data type arrays and/or generic data types with the [Complex Type Selector](#).

- **Create Arrays**

The ability to create single-dimensional and multi-dimensional arrays of data has been added, through both the [Complex Type Selector](#) and in the [Expression Builder](#). This allows Designer to pass groups of related data around a project. For example, transferring arrays of integers, doubles or CogBlobResults from one Sequence block to another.

- **Updated Template File Format**

The file extension for the template files has been updated, from .cdt to .cdtx. Please see the [Templates](#) and [Migrating to This Release](#) topics for more information about the file format change.

- **Updated Recipe File Format**

The file format for [Recipes](#) has been modified. Please see the [Migrating to This Release](#) topic for more information about the file format change.

- **Updated Keyboard Shortcuts**

The following keyboard shortcuts have been introduced:

- CTRL+S: Saves a project.
- F1: Opens the Cognex Designer User Guide.
- F2: Used to rename a node in the Application Explorer treeview.
- F5: Used to start and stop Test Mode.
- F6: Executes the current Sequence, or compiles the current script (depending on which editor is active, e.g. the Sequence Editor or the [Script Editor](#)).

• Resolved Issues in Designer 2.1

CR#	Issue
	Added the ability to create arrays of data using the Complex Type Selector, and basic functions to handle arrays in the Expression Builder.
33190	Added keyboard shortcuts to Designer for saving a project (CTRL+S), opening the Cognex Designer User Guide (F1), renaming a node in the Application Explorer treeview (F2), starting and stopping Test Mode (F5) and executing the current Sequence or compiling the current script (F6).
34614	Added "String.FormatNumber(value, decimals)" for formatting a double value data type in the Expression Builder.
34432	Added the RunAsync(...) function to the Task functions, which allows a Task to be run asynchronously from a script, using the following format: <code>\$Tasks.Task.RunAsync(. .) ;</code>
34416	Added the ability to publish the recent query results from a database query, through a tag, using a script.
34410	Added the ProductVersionString tag, which retrieves the project version information so it can be used programmatically or displayed on the HMI.
32640	Fixed an issue where a memory leak was possible during development when a mouse hovered over a pin storing an image.
32709	Fixed an issue where a 2D Image Display would be resized when going into Test Mode.
32814	Fixed an issue where custom splash screens were not displayed.
34389	Fixed an issue where two Script blocks, pointing to the same script, changes in one block were seen by the other block.
34395	Fixed an issue where the Tag Manager would not detect a circular tag reference.
34407	Fixed an issue where importing tags using CSV files caused an error in some cases due to a missing default value. Tags that were exported with null values will not be able to be imported in Designer 2.1 and later.
34458	Fixed an issue where having two tags written to by different Tasks, and binding their sum to a Label, could cause Designer to not respond.
34470	Fixed an issue where a TCP/IP Client device would not reconnect after the server shuts down and reopened the connection.
34809	Fixed an issue where VisionPro Tool Blocks that share the same input image tag may have crashed when executed in parallel.
34901	Fixed an issue where the Expression Builder bitwise operators do not work.

Cognex Designer 2.0 Release

• Tasks, Sequences and Blocks

The following enhancements have been implemented. For more information on them, see the Sequence Blocks topic.

- New Sequence Blocks have been created to make byte array handling easier. These can be used when using the UserData from the FFP on the Cognex Communications Card:
 - [Format PLC Input Buffer](#)
 - [Format PLC Output Buffer](#)
- New Sequence Blocks have been created for composing and decomposing arrays, and for retrieving an element of an array, to make the handling of general arrays easier:
 - [Compose Collection](#)
 - [Decompose Collection](#)
 - [Get by Index](#)

- New String Encoder and Decoder (to/from byte array) Sequence Blocks:
 - [Decode Byte Stream Data](#)
 - [Encode Byte Stream Data](#)
- The [Notify PLC](#) has been improved to allow setting up the input values directly on the Configuration UI and add a graphical interface to setup complex input values.
- New Sequence Blocks have been created to “manually” schedule and cancel a (scheduled) PrecisionIO event:
 - [Cancel Event](#)
 - [Schedule Event](#)

• Communications

New Sequence Blocks have been created to make possible using COM port and TCP/IP communication without scripting:

- [Decode Byte Stream Data](#)
- [Encode Byte Stream Data](#)
- [Receive Data](#)
- [Send Data](#)

Support for SLMP Protocol, similar to existing EIP and PROFINET support, has been added. For more information, see the [SLMP PLC Configuration](#) topic.

Added a UI to be able to configure Precision IO events (causes and responses) for the Cognex Communications Card. For more information, see the [Precision IO Configuration Editor](#) topic.

• Templates

It is now possible to import and export components from a project into a user library and that can be easily re-used in another project. For more information, see the [Templates](#) topic.

• 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.

Known differences since v1.0:

- Equality comparison between an object and a string used to perform string comparison (e.g. converting the object to string first), allowing expressions like: `$myBoolTag="True"`. This is no longer allowed.
- Numeric values were compared as integers, e.g. `3.14 = 3` evaluated to true. This has been fixed.
- The old expression builder was culture-dependent (for example, decimal separators). The new one uses culture-agnostic parser.

For more information, see the [Expression Builder](#) topic.

• Updated Plugins and Projects

It is now possible to automatically update a project to a newer version of a plugin it depends on. For more information, see the [Updating a Designer Project To a Newer Version Of The Plugin It Uses](#) topic.

• Designer Launcher Enhancements

The Designer Launcher has been enhanced with two tabs, Samples and Utilities. For more information on them, see the [The Cognex Designer Launcher](#) topic.

- **Opto and Differential Trigger Signals**

Switching between trigger signals no longer requires scripting. See the [Switching Between Opto- and Differential Trigger Signals](#) topic.

- **Resolved Issues in Designer 2.0**

Issue	Description
Designer gives an error about the SQLite database	Third-party applications may install (against SQLite guidelines) the <code>System.Data.SQLite.dll</code> into the Global Assembly Cache (GAC). This could cause Designer to show the "Visual C++ Runtime Error" message.
Memory error while saving	This occurred while working with unusually big images and objects.
Changing the name of a Tag assigned to a Pin is not updated in Sequence Editor	When a Tag assigned to a Pin was renamed, the displayed Tag name in Sequence Editor was not updated/renamed.
HMI builder hangs when using an ungroup command	The HMI builder hanged when two or more HMI elements were grouped, and an additional element (type already existent in the group as well) was created and then the grouped elements were ungrouped.
DS1100: The laser does not shut down when the user exits from Designer	It was possible to enable the laser in Acquisition Wizard and then exit Designer with the laser on.
Project file is corrupt and asks for a password when loading	The saving process had to be enhanced to prevent accidental effects on the project file.
Unhandled exception when closing Designer and a connected device is being renamed	When Designer was closed while a connected device was being renamed the application threw an unhandled exception.
Replacing and renaming tags stop working after saving and reopening the project	Replacing and renaming tags in scripts did not work after saving and reloading the project until the scripts were recompiled.
The Save As functionality does not transfer necessary files	When Save As was used to save an existing project under another name/path, only the <code>.cdp</code> file was copied/renamed to the new location. This function has been enhanced to copy all files and subdirectories from the original project path as well.

Cognex Designer 1.0 PR1 Release

The Cognex Designer 1.0 Patch Release 1 did not contain any new features compared to version 1.0, only enhancements to existing features and resolved issues.

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**

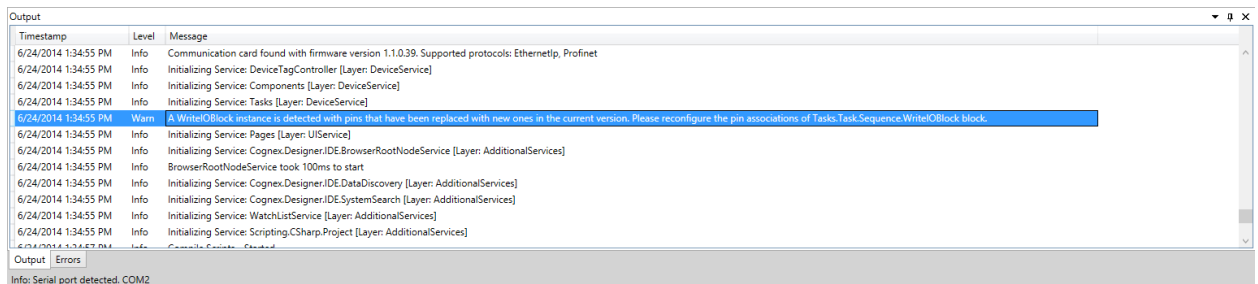
A new pin has been added to the [Read IO](#) Block: **PrioState**.

- **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.

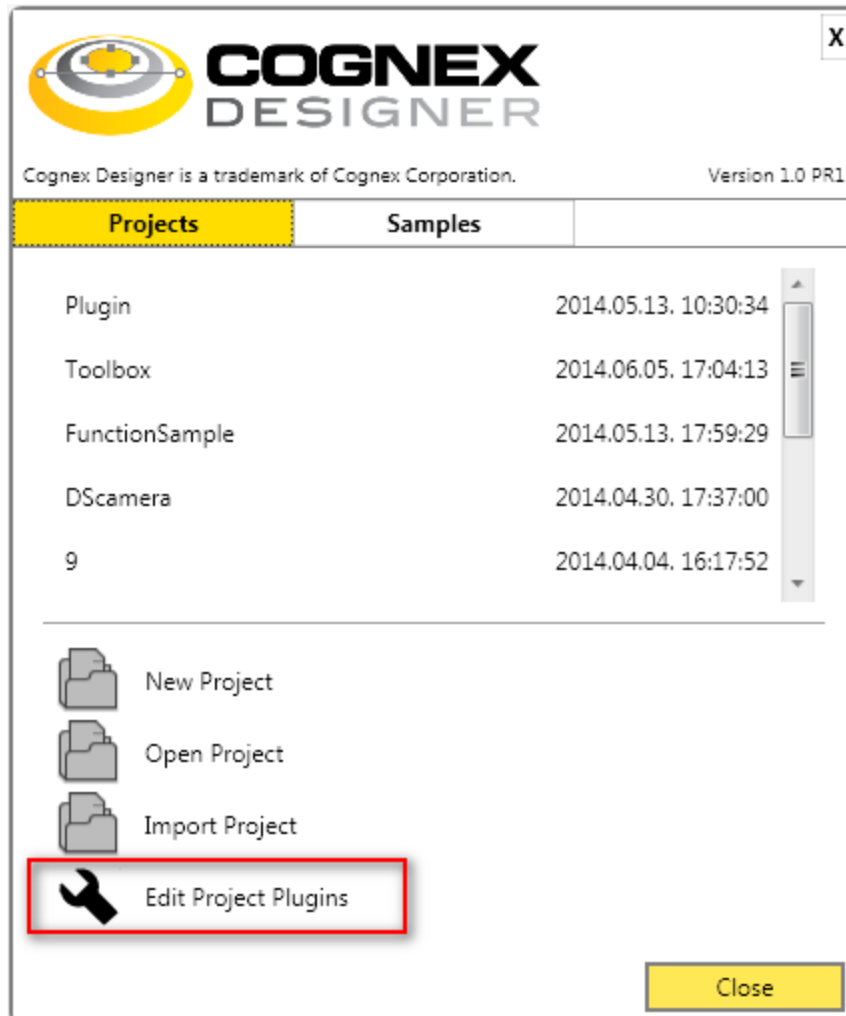
- **Opening 1.0 projects that have WriteIOBlock with pins**

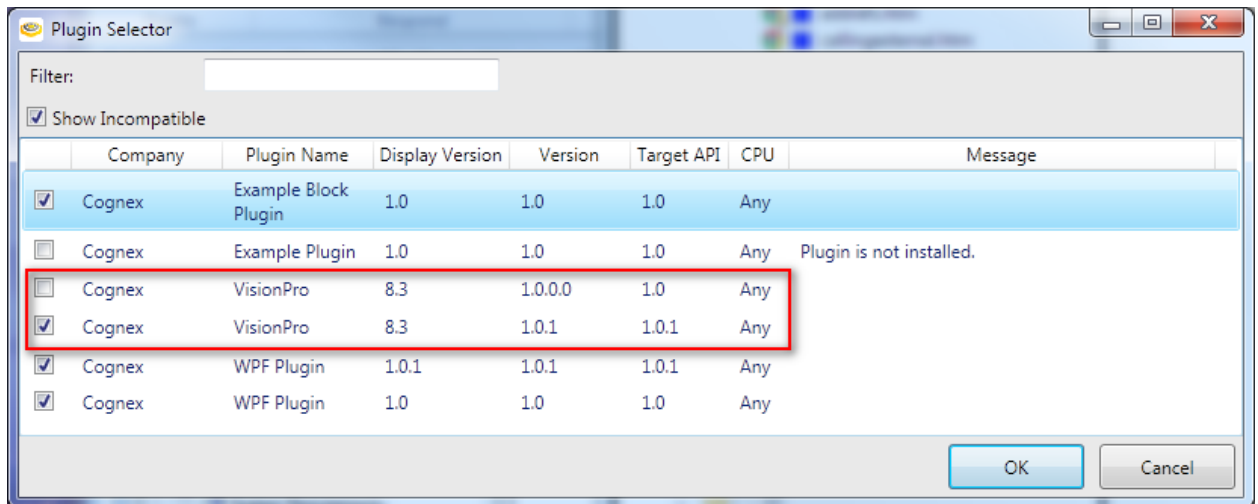
When an 1.0 project is opened in version 1.0 PR1, the existing "DS1000OutputBank0Line0" "DS1000OutputBank0Line1" pins of a `WriteIOBlock` will be replaced with new empty pins. If the pins were assigned to tags, the connection to the tags will be no longer available. This means that the user has to reassign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

Cognex Designer 4.0

- **API Version: 4.0.0**
- **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

Cognex Designer 2.6

- **API Version: 3.5.0**
- **Upgrade Codes**
 - x86 - A667A24A-4053-46DB-9F21-08C7C1AAF225
 - x64 - 09463BE5-A8A1-4A11-B5F4-1FB103045FFD
- **Product Codes**
 - x86 - 20314593-0303-4894-8971-4449E16DC793
 - x64 - E2951431-1CD9-4B62-ADF4-43A5FD71C387

Cognex Designer 2.5 PR5

- **API Version: 3.4.2**
- **Upgrade Codes**
 - x64 Upgrade Code : {05535DD2-B5CE-43AC-8A6F-B3E6F688152D}
 - x86 Upgrade Code: {6F5CE606-BF9D-49C0-AF35-A0D640DCB7EC}

- **Product Codes**

- x64 Product Code: {BE5CEE3F-827E-46B6-B5FF-B1367B2CF87C}
- x86 Product Code: {E58141E1-53E6-4B45-9CD1-11E6D4D42857}

Cognex Designer 2.5 PR4

- **API Version: 3.4.1**

- **Upgrade Codes**

- x64 Upgrade Code : {05E4ECBF-F7DD-4A0B-B89A-1DE7AF62EDCE}
- x86 Upgrade Code: {3AF8F441-3C09-407B-9D3A-32043FC71139}

- **Product Codes**

- x64 Product Code: {088A01D1-C55D-40E4-8564-979121053E0E}
- x86 Product Code: {A4CF8B0B-7291-462E-A402-77E1A1863566}

Cognex Designer 2.5 PR3

- **API Version: 3.4.0**

- **Upgrade Codes**

- x64 Upgrade Code : {2A5E6455-3836-4355-AF7F-38756089B7E1}
- x86 Upgrade Code: {4BC0E777-A9FD-4D5C-9D9D-16D9602F8BCA}

- **Product Codes**

- x64 Product Code: {700FEF35-30BD-4CD2-90EE-4BD07AE68EED}
- x86 Product Code: {F05AD810-2439-43E2-84DB-7455C01E2EE6}

Cognex Designer 2.5 PR2

- **API Version: 3.3.0**

- **Upgrade Codes**

- x64 Upgrade Code : {0DDB9972-5984-40B0-9C66-CC1FBD7FBF7A}
- x86 Upgrade Code: {8F99785D-6FB4-4338-A4FD-14A404846DD5}

- **Product Codes**

- x64 Product Code: {7362BAC2-5DEF-4442-B60B-B1F409437762}
- x86 Product Code: {620CA0D5-F890-4B52-B422-4391BB662BC1}

Cognex Designer 2.5 PR1

- **API Version: 3.2.0**

- **Upgrade Codes**

- x64 Upgrade Code : {23113A5C-4075-49AA-8810-7C4A3EAD3987}
- x86 Upgrade Code: {E53089F6-C513-4833-BD35-F359C356BFEC}

- **Product Codes**

- X64 Product Code: {AEA08E15-7752-4BD1-A914-A23C9D575147}
- X86 Product Code: {81C5F404-0820-449C-968A-2FA3FD666C6B}

Cognex Designer 2.5

- **API Version: 3.1.0**
- **Upgrade Codes**
 - x64 Upgrade Code : {E2C81BA6-E13A-4A4E-85D2-D95D15FF228E}
 - x86 Upgrade Code: {FC3C5831-C296-4D05-8103-C21072024C31}
- **Product Codes**
 - X64 Product Code: {263D442E-D9F2-43CE-9360-0DD4F50CCE4E}
 - X86 Product Code: {480E41FB-CE00-4ED1-A0EB-A7D958A8A84E}

Cognex Designer 2.1

- **API Version: 3.0.0**
- **Upgrade Codes**
 - x64 Upgrade Code : {97F0B719-546F-4AA6-BC55-815FCA69EC23}
 - x86 Upgrade Code: {5F63548C-8FD0-4989-8DC5-9461DDD1C151}
- **Product Codes**
 - X64 Product Code: {588BE36C-5F7E-440D-BEA3-B443FC39A9FF}
 - X86 Product Code: {C898076C-30E1-4614-A126-A69112EE32C7}

Cognex Designer 2.0

- **API Version: 2.0.0**
- **Upgrade Codes**
 - x64 Upgrade Code : {02DBDD85-75DB-42A9-AC6C-F489779D3C6B}
 - x86 Upgrade Code: {FDA5A797-AB67-47F3-98E4-A1D6BFB7462B}
- **Product Codes**
 - X64 Product Code: {62FE9614-45D0-4CFB-A0C5-FF30B5C96E62}
 - X86 Product Code: {7712CB00-516B-412D-A60D-60F070E12352}

Cognex Designer 1.0 PR1

- **API Version: 1.0.1**
- **Product Codes**
 - X64 Product Code: {0DE9D772-01F8-4CE9-A3A5-20F03C8F710E}
 - X86 Product Code: {63293020-9AFE-4125-A08D-90934DE68935}

Cognex Designer 1.0

- **API Version: 1.0.0**
- **Product Codes**
 - X64 Product Code: {B5F274C9-A833-46C8-A479-BBC9DC7FE016}
 - X86 Product Code: {7984E600-9901-4B0D-82B6-8997B0E97B40}

