

# BLUE Open Studio® 2023.1 (23.1.000) Release Notes

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## Software Coexistence

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### Industrial Graphics Coexistence

BLUE Open Studio 2023.1 and earlier versions of BLUE Open Studio (back to BLUE Open Studio 2020) use different versions of Industrial Graphics that cannot coexist. If more than one version of BLUE Open Studio with Industrial Graphics is installed on the same computer, Industrial Graphics won't work for any of them, and attempting to use Industrial Graphics may cause an abnormal program termination.

To install BLUE Open Studio 2023.1 with Industrial Graphics on a computer that already has an earlier version of BLUE Open Studio installed, first uninstall the earlier version of BLUE Open Studio or use the installer (**setup.exe**) to modify the previous installation to remove Industrial Graphics.

### AVEVA System Platform Coexistence

BLUE Open Studio and AVEVA System Platform both use Industrial Graphics. Because of this, BLUE Open Studio 2023.1 can only coexist with AVEVA System Platform 2023 R2.

BLUE Open Studio 2023.1 is compatible with AVEVA Historian Server 2023 and later. If you are using an older version of AVEVA Historian Server, upgrade to AVEVA Historian Server 2023 or a later version.

## New Features and Enhancements

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# Communication Drivers

We added or significantly improved the following communication drivers in this release:

Driver	Description
ABBTF	ABB Totalflow devices that support the native DB2 serial protocol using the TCI (Totalflow Communication Interface) library over TCP/IP. Driver restored in this release.
ABKE	Serial Communication with Allen Bradley devices Using DF1 protocol. Driver restored in this release.
BACSL	Communication with master stations using the BACnet/IP or BACnet MS/TP protocol. Driver restored in this release.
DNP	Communication with slave devices (outstations) using the DNP3 protocol. Driver restored in this release.
HIEHV	Ethernet (TCP/UDP) communication with HITACHI EHV devices. New driver that is installed with the Legacy Drivers selectable feature.
MSLMP	Ethernet communication with MITSUBISHI iQ-R Series devices. New driver that is installed with the Legacy Drivers selectable feature.
XVGU	USB Communication between Studio and Schneider Electric Harmony XVGU Tower Light devices. Driver restored in this release.

For more information, see [Issues Resolved for Specific Communication Drivers](#) below.

## Legacy Drivers

In addition to the standard driver package installed with this software, you can choose to install a package of legacy drivers for the purpose of backward compatibility. See [Selectable Features](#) for more information. These drivers use the Microsoft Visual C++ 2008 and 2012 Redistributable packages, which are out of support. Ensure that these drivers are compliant with your company software policies.

For a complete list of the legacy drivers, see [List of Legacy Drivers](#) at the end of this document.

## Industrial Graphics Improvements

There is improved support for Industrial Graphics in this release.

### Support for Import of SVG as an Industrial Graphic

The Industrial Graphic Editor supports import of Scalable Vector Graphics (SVG) as Industrial Graphics. A list of supported SVG elements can be found at [SVG Github](#). You can perform the following:

- Import an SVG into the Industrial Graphic Editor. The graphic elements are automatically converted to an Industrial Graphic, which can include many primitives.
- Insert the SVG while using the **Image** icon from the **Tools** panel of the Industrial Graphic Editor.
- Use SVG for the **UpImage** and **DownImage** on a button.
- Use SVG for the **Quality & Status** display icons under **Styles** configuration.

## Limitations of SVG Support at the time of this release

The following features are not supported at the time of this release:

- SVG animations are not yet supported, and any animation configured on a SVG element will not be imported.
- SVG Marker and Clip elements

## Mobile Access Improvements

### Grid Object Improvements

- Faster performance, for scrolling and for interacting with cells
- Faster performance for large data sets using pagination
- Page scrolling using the scroll bar

### TreeView Custom Widget Improvements

The TreeView custom widget, which is included as part of the Custom Widget Library, has been improved as follows:

- Users can filter the nodes that will be displayed at runtime.
- Users can set node icons dynamically during runtime:

## Linux Runtime Improvements

There are several improvements to the Linux runtime.

### Alarm, Event, and Trend History

- The history lifetime feature is now supported for Alarms, Events, and Trends.
- This feature allows better control of disk usage.

### Standard Driver Sheet Support

In addition to the MAIN DRIVER SHEET (MDS), you can create several standard driver sheets (SDS) for each driver. The standard driver sheets provide additional fields, which you can use to control communication.

### Tag Integration

You can browse the following Tag Integration sources to import device registers or server items directly into your project.

- RSLogix 5000 Family (ABCIP)
- Allen-Bradley PLC5, SLC500 (ABTCP)
- CoDeSys (COSYS)
- OPC UA servers

## Python Editor and Runtime

Global Procedures, Startup Scripts, and Background Scripts can now be written in Python using the new Python editor, in addition to the existing VBScript functionality. Features of the Python editor are:

- Implements and hosts Python 3.11.8.
- Unified namespace and support for specific Built-In Language functions.
- Support for external Python modules on all platforms based on architecture:
  - 32-bit on Windows and Windows IoT Enterprise.
  - 32-bit on Linux on arm.
  - 64-bit on Linux on arm64 or x86\_64.
- Python Runtime as a background task.
- Support for Windows and Linux runtimes.

### Limitations of Python Support in this Release

- Does not support graphic scripts.
- Does not support the local Viewer, the Studio Mobile Access (SMA) viewer, or Thin Clients.

## Deprecated or Removed Features

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This is a summary of features that have been deprecated or removed from this version.

### OPC DA Client (legacy)

BLUE Open Studio has supported two OPC DA interfaces: OPC DA Client (legacy) and OPC XML/DA. OPC XML/DA is a newer and more powerful OPC DA Client interface that is compatible with the older OPC DA Client (legacy) interface. Starting with this release, OPC DA Client (legacy) is disabled by default in new projects, though projects created in previous versions that use OPC DA Client (legacy) will function. OPC DA Client (legacy) will be fully deprecated in a future release of BLUE Open Studio. To prepare for the upcoming full deprecation, convert OPC DA Client (legacy) to OPC XML/DA.

### Global Procedures Import Function

The **Import** option for all Global Procedures worksheets (accessed on the context menu) has been removed.

# Issues Resolved in This Release

This release resolves the following issues reported by our users. If you reported an issue to us, you should have been given a case number at that time. You can look for your case number in the list below.

Documentation changes are not counted as resolved issues, so if you reported an issue and it was resolved by a documentation change (such as by clarifying a step in a procedure), then it might not be included in this list.

## Issues Reported by Our Users

Case No.	ID	Description
960126845	1616311	GetUserPwdAging() function Return Values were not completely documented.
960148620 960149050	1721779 1899490	The Symbol Object Properties dialog "Use linked size" feature and special considerations for resizing linked symbols were not properly documented.
960167245	2061373	The Industrial Graphics graphics refresh rate was not documented.
960188673	1974501	Industrial Graphics editor was freezing when saving certain symbols.
960193543	1981211	Custom zoom property was not working on iOS thin clients. This item was resolved in a previous release.
960195902	1969637	Executing SetPassword() on Embedded HMI generated unexpected characters in Event Logger events.
960210402	2044600	The limit of 999 Standard Driver Sheets for each project was incorrectly documented.
960210897	2044748	Hardkey license was not recognized if another USB dongle for licensing of 3rd party software was attached to the USB hub/port replicator.
960216850	2070393	The DBCursorOpenSQL and DBExecute interaction with SQL Stored Procedures was not documented.
960218655	2133076	Industrial Graphics editor was freezing when saving certain symbols used in multiple screens.
960220573	2145930	Rectangle object caption was not aligning correctly on Mobile Access. This item was resolved in a previous release.
960220573	2149151	The zoom action was not working correctly on Mobile Access. This item was resolved in a previous release.
960222794	2149174	MS SQL Server 2019 Express timestamps were incorrect.
960226126	2172147	On Mobile Access, the Alarm Control Object (set to History) did not refresh the alarm list if using a tag as dynamic filter.
960246843	2261531	Event log was recording incorrect previous value on tag changes received from an OPC UA client.
960250352	2270051	Simultaneous Requests were no longer working.
960257526	2307786	Momentary Pushbutton events were not correctly blocked by security level.

960257939	2306538	Closed Polygon objects were changing shape and size when dragged from one place to another on a screen.
960259629	2312147	Using Trend worksheet Save On Trigger -> Second and Save On Tag Change at the same time generated redundant records.
960259790	2314194	Projects with several screens with background images caused abnormal program termination.
960263713	2329033	Momentary button was launching E-Sign feature when the user did not have permissions to display this feature.
960267281	2354232	On Touch, On Touch Start, On Touch Delta, and On Touch Completed Command animation options were not available for Windows Embedded applications and were not properly documented.
960278144	2391954	Corrupted HST files were preventing normal startup and operation.
960279156	2400336	HTML5Render.exe was not able to process 3D image rendering as well as Google Chrome or Microsoft Edge could.
960280975	2407175	The Studio hardkey was conflicting with a third-party hardkey, causing Studio not to recognize the hardkey license.
960287427	2441271	VBScript variables used in Command animations were logging false positive errors.
960288515	2471217	E-Signature Time-out feature of the security system was not working as documented.
960289940	2486513	Linked symbols appeared larger in Mobile Access than in the runtime, changing the look of grouped polygons.
960292366	2464074	When adding tags to an OPC UA Client worksheet using the UA browser, FLOAT/REAL types from the OPC UA server were not supported.
960298019	2486476	On Double Click Command animation was not working properly when applied to a Text Box object.
960300547	2493189	OPC UA client write commands were returning Bad Type Mismatch and resetting the tag to the old value.
960303387	2504795	OPC UA client write commands were timing out.
960307522	2517119	The TreeView custom widget did not refresh without trigger, and it did not include the ability to search for specific nodes using a search bar.
960309252	2538426	Startup value of class tag was missing on thin clients when the Scope was set to Local.
960315071	2550599	Linux runtime was logging Windows error messages during startup.
960315402	2554314	Combo Box Object was showing incorrect values and incorrect formatting when the values of the array tag data source changed.
960316637	2564118	Alarm message colors were not updating correctly when the tag value changed from alarm at the same time as it was acknowledged.
960316737	2558581	Simultaneous Requests were no longer working on Windows Embedded.
960317463	2559666	HTML tags were not being removed properly from URL screen parameters.
960317592	2582578	When extending the LDAP schema to allow saving security rights, writing to the "proprietarySCADAInfo" attribute did not work correctly and generated an error stating "Warning! Security rights data from LDAP server is corrupted."
960319515	2572470	Trend data output with HST2TXT included 00:00:00 data from the day following the specified date range.
960320795	2591305	Studio Database Gateway errors occurred on Turkish OS.

960327206	2603727	Saving and closing certain Industrial Graphics screens was slow because of tag validation.
960331853	2626378	The failure of the Open() function to work correctly if passed incorrect data type parameters was not fully documented.
960333263	2634114	Reload LDAP settings upon LogOn feature was not updating user information as designed.
960338903	2811965	OPC UA Advanced setting Status tag was updated with WriteResponse > ResponseHeader > ServiceResult, but not with each individual Results StatusCode.
960338934	2758270	.NET controls created in previous releases were not loading properly.
960339640	2787574	As a Web Thin Client enhancement, a user can now disable screen reloading when tags are updated or when changes are made to the application. The screens will reload after the application is restarted, allowing the updates to be delayed until a downtime period.
960342121	2832078	Screen performance slowdown due to many Smart Message objects was not documented.
960342874	2841767	When security was configured with LDAP in an application running as a service, the application would not run on Mobile Access.
960345533	2895571	LDAP Server Status tag values "7" and "8" were not documented in the Help Manual Security chapter.
960345776	2863211	The built-in function FTPGet() return value "-9" was not documented.
960346459	2857275	The Azure IoT Hub Connections folder was not visible in the Project Explorer Tasks tab when the language was not set to English.
960348461	2869957	Alarm History objects stopped updating with new records after 3:00 pm in the Japan time zone (UTC+9).
960351092	2874437	In applications created in previous versions of Studio, embedded images were not displayed on Industrial Graphics screens.
960351445	2881960	Historical trend data Min and Max values were not displaying properly at single-day periods.
960352001	2901314	During application development, the local viewer was not always able to open Industrial Graphics startup screens.
960354729	2966350	In a Windows Embedded application, simultaneous viewing of Trend objects on local Viewer and Mobile Access, caused the Trend object to stop updating.
960355262	2899485	Industrial Graphics AddItem function was not working properly.
960355695	2896682	In trend objects on Mobile Access, the start time string tag did not update when changed during runtime by using a pointing device (such as a mouse).
960356766	2918563	OPC UA Client did not support several security policies.
960356879	2906287	Linux runtime Trend object store and forward operation to AVEVA Insight was not deleting files after forwarding data as documented.
960359982	2916114	Using '\$' in screen animation Tag/Expression fields was no longer supported.
960360389	2925120	OPC UA connections were causing abnormal program termination.
960362398	2927252	OPC DA structures accessed through tag integration were being shown in the Studio tags database as string tags with no members.
960368891	3054410	Studio Database Gateway was not closing the Excel file when the Studio runtime was stopped.
960369466	2981510	Pushbutton objects were not consistently updating the button state image when pressed and released quickly.

960371544	2984616	Grid objects were not updating SQL source table when values were entered on Mobile Access.
960371873	2988257	Database access was not working for Windows Embedded applications.
960380583	3044737	On Mobile Access, clicking a checkbox object caused the screen to move with the cursor.
960383961	3058751	The License Server feature stopped working on 20.0.3.1 and 23.0.0.
960387544	3055452	The built-in function LookupLoad numColKey parameter was interpreted differently on Mobile Access screens.
960389148	3081294	Trend object was not displaying correctly when the History Format was Historian.
960392668	3111301	If the project security system Security Mode was configured as "Distributed – Server" or "Distributed – Client," Mobile Access did not start.
960394484	3198401 3267858	An abnormal program termination occurred when more than one client accessed a Mobile Access screen containing objects with invalid database connections.
960394797	3236833	Create User dialog box cut off information on the right if the language was French.
960399858	3239438	Trend Control objects were not displaying data correctly on Mobile Access.
960403291	3258244	Symbols using polygons could not be enlarged even if "Use linked size" was unchecked.
960413346	3305218	The file paths for Remote Agent were not updated in the documentation.
960423229	3360115	The OPC UA server security setting tag integration limitation was not documented.
960424041	3359142	The built-in language Database/ERP function limitation of 16000 rows per operation was not documented.
N/A	2269924	DataProtect.exe utility was not working with the "INIT" option.
N/A	2320902	Hidden characters in class member descriptions corrupted the application folder.
N/A	2351662	The OPC UA Client had a latency when sending write commands.
N/A	2651413	Input enabled grid object cells were not working on Mobile Access.
N/A	2832105	There was no documentation explaining the translation requirements for Alarm/Event Control object filtered Message values that include string expressions.
N/A	2836720	Linked picture object properties were changed to lowercase.
N/A	2869187	The Studio Database Gateway stopped responding to requests and required a restart.
N/A	2893638	There was no documentation explaining how to open native screens as screens from Industrial Graphics screens.
N/A	2972882	Tag datatype and unit changes in Historian were not being updated in Studio.
N/A	3007092	Studio license evaluation time was not being tracked correctly.

## Issues Resolved for Specific Communication Drivers

Case No.	ID	Description
960321155	2582531	In the MELSE driver, hexadecimal addresses were not reading values correctly.
960340962	2837118	In the MQTT driver, parallel processing of legacy MQTT and Sparkplug I/O addresses was not working correctly.
960343079	2842327	The ABBTF driver was unable to get data from multiple devices that are connected to a single controller.
960343858	2855351	The OMRON driver stopped working when trying to read tags that were not present on the device.
960371580 960393308	3009505 3186658	The SCHNE driver did not communicate with tag names with a Station that included an XSY file parameter.
960372142	3001223	Drivers do not support serial encapsulation on the Linux runtime. This was not documented clearly.
960375350	3001818	The MODSL driver manual was not updated to the latest version.
960377805	3079576	After a network connection failure and recovery, SIETH driver communication did not resume.
960380543	3034912	The OMDIR driver failed to write string or float values correctly to the device using the Standard Driver Sheet.
960389238	3061236	The OMDIR driver failed to read blocks with an invalid address on the Main Driver Sheet.
960396369	3196930	The MQTT driver was unable to publish more than 82 characters when the Main Driver Sheet tag Action was set to Read+Write.
960403163	3314675	The MOTCP driver was unable to write an odd number of characters when using the Header STS.
960409236	3283162	The OMDIR driver communication failed when there were structured tags with incorrect syntax on a driver sheet.

## Known Issues and Workarounds

This is a list of known issues that remain in this version, with appropriate contingencies and workarounds.

ID	Description
1135583	<p>Issue: Only the first 512 characters of a String tag are saved when selecting the Retentive Value string tag property for projects running in the Embedded HMI runtime edition on Windows Embedded.</p> <p>Workaround: Limit String tags to 512 characters when running projects in the Embedded HMI runtime edition on Windows Embedded.</p>
1631020	<p>Issue: Some communication drivers (e.g., MODBU) have not yet been improved to support long strings, which means they are limited to 81 characters per read operation.</p> <p>Workaround: Divide long strings into shorter strings of 81 or fewer characters per string, and then store those shorter strings in multiple device registers.</p>
1788460	<p>Issue: Screen viewer performance suffers if SetTagDisplayUnit function is called more than 21 times by a screen.</p>

	Workaround: Limit the number of times a screen calls to function SetTagDisplayUnit to 21 or fewer.
2376863	<p>Issue: If your Windows <b>Display</b> settings the <b>Scale and layout</b> scale is set to a value other than 100%, the Industrial Graphics editor dialog controls may not display properly.</p> <p>This might be due to scaling of the user interface. As computer displays have achieved higher resolutions, operating systems have implemented UI scaling to ensure that text, apps, and other items are displayed large enough to be usable. This UI scaling can affect the behavior of some apps, especially those that include drawing or rendering functions.</p> <p>Workaround:</p> <ol style="list-style-type: none"> <li>1. Exit the development environment.</li> <li>2. Go to the <b>Display</b> control panel in Windows, and then make sure the <b>Scale and layout</b> scale is set to 100%. (In Windows 10, right-click on your monitor screen and select <b>Display settings</b> from the context menu.)</li> <li>3. Run the Studio development environment.</li> <li>4. If the issue persists, restart your computer to make sure the scale is applied correctly.</li> </ol>
2400387	<p>Issue: On Mobile Access, when Zoom Mode is set to Custom Zoom, the user can use touch gestures on the screen to zoom in, zoom out, or navigate over the screen content. On iOS devices, if you do this and your finger touches an object that has a command assigned to it, this command will be executed.</p>
2487802	<p>Issue: Verify project can end up taking more than an hour if there are unused tags in the project.</p> <p>Workaround: Use the <b>Remove unused tags</b> tool before using <b>Verify</b>.</p> <ol style="list-style-type: none"> <li>1. In the <b>Tags</b> group of the <b>Home</b> tab of the ribbon, select <b>Remove unused tags</b>. (Alternately, right-click the <b>Project Tags</b> folder in the <b>Global</b> tab of the <b>Project Explorer</b>.)</li> <li>2. See the <i>Help Manual</i> for more information, including instructions to use <b>Verify</b> again after using the <b>Remove unused tags</b> tool.</li> </ol>
N/A	<p>Issue: If you install Studio without a license, you can open a project in evaluation mode or demo mode. If you try to open another project, the project will not be opened. Depending on the method used to open the project, you may see an evaluation or demo mode notification, or an error message may be generated.</p> <p>Workaround: Close and restart Studio and open the project. Studio will open with the last opened project in evaluation mode or demo mode.</p>
N/A	<p>Issue: Text Box objects are drawn incorrectly in project screens that are viewed through Mobile Access.</p> <p>This might be due to scaling of the user interface. As computer displays have achieved higher resolutions, operating systems have implemented UI scaling to ensure that text, apps, and other items are displayed large enough to be usable. This UI scaling can affect the behavior of some apps, especially those that include drawing or rendering functions.</p> <p>Workaround:</p> <ol style="list-style-type: none"> <li>1. Exit the development environment.</li> <li>2. Go to the <b>Display</b> control panel in Windows, and then make sure the <b>Scale and layout</b> scale is set to 100%. (In Windows 10, right-click on your</li> </ol>

	<p>monitor screen and select <b>Display settings</b> from the context menu.)</p> <ol style="list-style-type: none"> <li>3. Run the Studio development environment.</li> <li>4. Save your project screens as HTML, and then test your project again.</li> <li>5. If the issue persists, restart your computer to make sure the scale is applied correctly.</li> </ol>
N/A	<p>Issue and Workaround: Industrial Graphic function <code>SetCustomPropertyValue (name, "value", isConstant)</code>: If the second parameter (<i>value</i>) is an array with an array index tag, the function will not work unless you format the parameter as a constant by enclosing it in quotes.</p>
N/A	<p>Issue: Industrial Graphic function <code>SetCustomPropertyValue (name, "value", isConstant)</code>: If the second parameter (<i>value</i>) is an array with an array index tag, the function will not work if either the array or the array index has the prefix HMI : .</p> <p>Workaround: Because the prefix HMI : is optional, do not use it for these tags. As noted above, you may also need to enclose the parameter in quotes.</p>
N/A	<p>Issue: If a screen containing a custom widget is opened simultaneously in the Windows Viewer and in a web thin client browser on the same machine, the custom widget will work only in first viewer opened.</p> <p>Workaround: Do not open a screen containing a custom widget simultaneously in the Windows Viewer and in a web thin client browser on the same machine.</p>

## Installation Guide

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### Upgrading from a Previous Version and Licensing

#### Removing Previous Versions or Previous Versions of Industrial Graphics

Different versions of BLUE Open Studio can coexist on the same machine, but some components cannot coexist. See [Software Coexistence](#) for more information. Because of this, one of the following actions is recommended before installing the new version:

- Use the installer of all previous versions of BLUE Open Studio to remove Industrial Graphics.
- Remove any previous versions of BLUE Open Studio.

#### Licensing

When upgrading from a previous major version to the latest major version, you also need to upgrade your software license(s). To purchase a license upgrade, contact your software distributor.

- To apply a legacy (softkey or hardkey) license upgrade to the software, use the Protection Manager utility that is installed with the software (Start > BLUE Open Studio 2023.1 > BLUE Open Studio 2023.1 Register). For more information about legacy licensing, see the Help Manual.

If you do not upgrade your software license(s), it will still run in its full-featured Evaluation Mode for up to 40 hours. After that time expires, however, you can only run the software in its limited Demo Mode.

When you update a major version (such as BLUE Open Studio 2023) to its latest minor version (such as BLUE Open Studio 2023.1), you do not need to update your software license(s). The license is for the major version, so it includes all the subsequent updates, patches, and hot fixes for that major version.

## Existing Studio Projects

Finally, when you open an existing project for the first time in a new version, that project is automatically and permanently updated to the new version. This is true regardless of whether you have upgraded your software license(s). Therefore, you should back up your existing projects before you open them in the new version. Each major version of the software creates a corresponding projects folder (for example, "BLUE Open Studio 2023 Projects") in your user directory, so you can copy (not move) your projects from the old projects folder to the new projects folder.

# System Requirements

This section describes the system requirements and additional considerations for installation to develop projects, or to use the computer as a project runtime server and/or thin client.

## Hardware Requirements

### Standard Requirements

- A Windows-compatible computer with a standard keyboard, a pointer input (mouse, trackpad, or touchscreen. etc.), and an SVGA-minimum display.
- Minimum 12 GB available storage (hard drive or non-volatile).
- Minimum 1 GB available memory (RAM).
- An Ethernet or Wi-Fi network adapter.

### Optional Items

- A USB port or memory card slot, to be used for hardkey licensing of the software.  
This item is optional because softkey licensing is also available.
- Serial COM ports and adapters, to be used for direct communication with PLCs and other devices.  
This item is optional because many newer device protocols use Ethernet communication (TCP or UDP) instead of serial communication.
- More storage and/or memory, depending on the size of the project.

## Software Requirements

One of the following operating systems:

- Windows:
  - Windows 11
  - Windows 10, version 1909 or later (including LTSC/LTSB versions)
- Windows Server:
  - Windows Server 2022

- Windows Server 2019
- Windows Server 2016
- Windows Embedded:
  - Windows 11 IoT Enterprise
  - Windows 10 IoT Enterprise (LTSC/LTSB version only)

Use the "Pro" or "Enterprise" editions of Windows because they include Internet Information Services (IIS) as a pre-installed feature that can be turned on. Do not use the "Home" and "Education" editions of Windows, because many features are hidden or disabled in these editions.

You can install the full software on a Windows Embedded device if it meets the system requirements listed above. If you do not plan to develop projects on that device, install Embedded HMI instead. For more information, see the Help Manual.

Update Windows before you install the software so that you have the latest security fixes and system components.

## .NET Framework

This software requires .NET Framework 4.8 (or later) installed and enabled.

If Windows is fully updated on your computer, the latest versions of .NET Framework should be installed, but they might not be enabled. Use either the **Windows Features** control panel in Windows or the **Server Manager** console in Windows Server to confirm that .NET Framework 4.8 is enabled.

In some cases, it might not be possible to update Windows through normal means. For example, if your computer is on a private network without access to the Internet, it might not be able to contact the Windows Update service. You can use another computer to download an offline installer for .NET Framework and then transfer it.

## Optional Software

- Internet Information Services (IIS) installed and turned on. IIS is the default web server for Windows.

This item is optional because it is not required to develop a basic project and then run it on a standalone device, but it is required to use more advanced features.

- In most cases, IIS is required to install and use Mobile Access. You may choose not to install the Mobile Access Runtime feature at this time. You can install it at a later time, for either IIS or CGI. For more information, see the "Mobile Access Runtime" feature in the "Selectable Features" section below.
- IIS is required to run projects that include Industrial Graphics symbols.

- Either Microsoft Edge or Google Chrome, to be used for viewing project screens in Mobile Access.

This item is optional because you can always use the built-in Viewer program to view project screens.

- Internet Explorer 11, to be used for viewing project screens in Web Thin Client.

This item is optional because you can always use the built-in Viewer program to view project screens.

Previous versions of Internet Explorer are no longer supported. In some cases, you can use Microsoft Edge in Internet Explorer (IE) mode, which enables backward compatibility for legacy websites and applications like Web Thin Client. It is supported with limitations, however, and you might see unexpected behavior while viewing project screens. For more information, go to: <https://www.microsoft.com/en-us/edge/business/ie-mode>

## System Sizing

The operating system, storage, and memory requirements will necessarily increase for larger projects; the minimum requirements listed above are only for projects of up to 4,000 tags. The following table shows the complete requirements:

Project Size	Operating System	Storage	Memory
up to 4,000 tags	Windows, Windows Server, Windows Embedded Standard	2 GB available	1 GB available
up to 64,000 tags	Windows, Windows Server	4 GB available	2 GB available
up to 10 million tags	Windows Server only (multi-core)	8 GB available	4 GB available

Your computer needs to meet only the minimum requirements when you first install the software and begin to develop your project, but the requirements will increase as your project grows. Every computer or device that you plan to use as a runtime station is subject to the same requirements.

## Industrial Graphics

If you are using Industrial Graphics screens, the project should be hosted on a dedicated Windows system with IIS installed. The additional system recommendations for this dedicated system are:

- CPU PassMark® > 5200 pts
- 16 GB available RAM memory (Each client session requires ~200 MB of memory, depending upon graphics complexity.)

These recommended requirements are suitable for a system with ten clients, browsing pages with approximately 40 dashboard/charting components with ~250 I/O tags on the page. Pages may take a longer time to display on the first visit. The display time depends on graphics and script complexity. Additional clients can be supported by increasing the number of CPU's, CPU speed, and Memory.

## User Privileges

You need to have administrator privileges on your computer to install Studio. If you are not already signed on as a user with administrator privileges when you run the software installer, you can choose to run the installer as an administrator. To do this, right-click the installer program file (setup.exe), and then on the shortcut menu, click **Run as administrator**. You will be asked for the appropriate username and password.

## Selectable Features

On the Select Features page of the installation wizard, you can select which features and software components to install. If you deselect features that you know you will not use, you will decrease the amount of hard drive space required for installation.

Feature	Description
Program Files	The main program files for the project development application, project runtime server, and project runtime client. This feature cannot be deselected.
Custom Widget Framework	Installs files for the Custom Widget Framework, which is used to create HTML5-based widgets and use them in project screens. This feature cannot be deselected.

Database Gateway and Historian Integration	<p>Installs Studio Database Gateway, AVEVA Historian integration, and AVEVA Insight integration. This feature is required for any database communication.</p> <p>This feature requires .NET Framework 4.8 (or later) installed and turned on.</p>
Demo Projects	Sample projects that demonstrate the capabilities of the software.
Industrial Graphics	Industrial Graphics is a powerful modern graphic editor that enables creation of portable graphic libraries that can be reused in products that use this platform-agnostic solution. It acts as a companion to our native graphics tools.
Legacy Drivers	<p>Installs legacy communication drivers that use the Microsoft Visual C++ 2008 and 2012 Redistributable packages, which are out of support. These redistributables are also installed. These drivers provide backward compatibility, and are not installed by default. Ensure that these drivers are compliant with your company software policies.</p> <p><b>Note:</b> Because of possible software compliance issues, you will be asked to confirm that you would like to install this feature. The legacy drivers will be installed after you confirm. If the legacy drivers are not installed, applications will not work with devices that use those drivers, causing those applications to fail. The <a href="#">List of Legacy Drivers</a> can be found at the end of this document.</p>
Mobile Access Runtime	<p>Additional software to make the project runtime accessible to mobile devices such as tablets and smartphones, using HTML5-compatible browsers to view the project screens.</p> <p>This feature requires Microsoft .NET Framework 4.8 and Microsoft IIS--with ASP, ASP.NET, and ISAPI Extensions enabled--installed and turned on. This required software will be installed if necessary.</p> <p>Whether or not this feature is selected during installation, a separate Mobile Access Runtime software installer (<b>MobileAccessSetup.exe</b>) will be copied to the program folder. This installer can be run at a later time.</p>
PDF Printing	Additional software for printing runtime reports directly to PDF files.
Python	Installs required files for the Python editor, and for the Windows and Linux runtimes.
Security System Device Driver	Installs device driver for security system to lock the keyboard (kbdlock).
Symbol Library	A library of premade but configurable screen objects such as pushbuttons, toggle switches, gauges, dials, and indicator lights.

## Items Added to the Start Menu

The installer creates a shortcut on your desktop and adds the following items to the Windows **Start** menu:

Item (BLUE Open Studio 2023.1 folder)	Description
BLUE Open Studio 2023.1 Help Manual	A comprehensive technical reference and user guide.

BLUE Open Studio 2023.1 Quick Start Guide	A brief, printable guide to the project development environment, including a step-by-step tutorial for how to develop and deploy a simple project.
BLUE Open Studio 2023.1 Register	A utility program that you can use to view and change your software license settings.
BLUE Open Studio 2023.1 Release Notes	The document that you are reading now.
BLUE Open Studio 2023.1 Remote Agent	A utility program that lets other stations remotely manage the project runtime when it is running.
BLUE Open Studio 2023.1 SCADA	A shortcut that automatically runs the most recently opened project.
BLUE Open Studio 2023.1 Studio	The project development environment, project runtime and/or project viewer. Its actual capabilities are determined by your software license settings.

## Third-Party Software Components

These third-party software components are installed along with the software, most of which are added to the Windows Apps & Features list. Do not uninstall these components unless this software has been uninstalled already; see the table below for more details.

Component	Description and notes
Microsoft Visual C++ Redistributable (multiple versions)	<p>These components are required to run C++ applications that were developed using Visual Studio. Several different versions (2015–2022) may be installed. Do not uninstall these components; they may be used by other applications.</p> <p><b>Note:</b> When selecting the Legacy Drivers option in <a href="#">Selectable Features</a>, the Microsoft Visual C++ 2008 and 2012 Redistributable packages, which are out of support, will also be installed.</p>
novaPDF SDK 10 Printer Driver novaPDF SDK 10 COM (x64) novaPDF SDK 10 COM (x86) Studio PDF3	<p>These components let projects save runtime reports as PDF files. They are installed when you select the PDF Printing feature for installation; for more information, see <a href="#">Selectable Features</a> above. These components will be uninstalled when this software is uninstalled unless they are being used by another installed software package.</p>
Sentinel Protection Installer 7.7.1	<p>This component supports the use of Sentinel-type hardkeys (also called dongles). It is installed automatically. This component is not uninstalled when you uninstall the software, but it can be uninstalled manually.</p>
CodeMeter Runtime Server	<p>Wibu Systems' CodeMeter Runtime is installed on your computer automatically. It supports the use of Wibu-type hardkeys (also called dongles), which are offered as alternatives to Sentinel-type hardkeys. For more information about the differences between Sentinel and Wibu, ask your software distributor.</p> <p>Unlike the other components described above, the CodeMeter Runtime Server is not added to the Windows Apps &amp;</p>

Features list. It runs as a background process named CodeMeter Runtime Server, which is found in the Windows Task Manager. When you uninstall this software, the CodeMeter Runtime Server is also uninstalled automatically.

## Possible Issues During Installation

This section describes issues that might occur during installation.

### "Failed to complete script based install"

You might receive the following message during installation: "Error 1628: Failed to complete script based install." For more information about this issue and how to resolve it, go to: <https://community.flexera.com/t5/InstallShield-Knowledge-Base/Error-1628-Failed-To-Complete-Script-Based-Install/ta-p/4014>

### "CodeMeter Development Kit is already installed"

If you try to install an earlier version on a computer that already has a later version installed, you might receive the following message during installation: "Version x.x.x.x of CodeMeter Development Kit is already installed. Downgrading to Version x.x.x.x is not possible, installation will be aborted." CodeMeter is supplemental software used to manage hardkey licenses. To resolve this issue, use Task Manager in Windows to stop CodeMeter Runtime Server (CodeMeter.exe) before you install the earlier version.

### "The local print spooler service is not running"

If you select the PDF Printing feature for installation but the Print Spooler service is not running on your computer, you might receive the following message during installation: "The local print spooler service is not running. Please restart the spooler or restart the machine." You can click OK to acknowledge the message and finish the installation, but the PDF Printing feature will not be installed correctly. To resolve this issue, do the following:

1. Use the Services app in Windows to make sure the Print Spooler service is running. If not, start the Print Spooler service.
2. Run the software setup again and then use the Repair command to repair the installation on your computer.

## Restore from a System Restore Point

If the installation fails for any reason, you can use the System Restore feature in Windows to revert your computer to a previous restore point.

## Documentation Installed with the Software

The following documentation is installed in the program folder, which means you do not need an Internet connection to access it:

Document	Description and Location / Access
Release Notes ( <a href="#">Readme.html</a> )	The release notes document summarizes product news and installation information. To access this document: <ul style="list-style-type: none"><li>• From the Windows Start menu: go to <b>Start &gt; BLUE Open Studio 2023.1 &gt; BLUE Open Studio 2023.1 Release Notes</b>.</li><li>• From within the project development environment: go to the Help tab of the ribbon and then click Release Notes.</li><li>• From the file: assuming default installation location on the hard drive, the file is located at <b>C:\Program Files (x86)\Pro-face\BLUE Open Studio 2023\ReadMe.html</b></li></ul>
Help Manual	The help manual provides comprehensive and searchable help for the project development environment, instructions for how to develop and deploy projects, and complete descriptions of all of our built-in functions. To access this document:

(TechRef.chm)	<ul style="list-style-type: none"> <li>From the Windows Start menu: go to <b>Start &gt; BLUE Open Studio 2023.1 &gt; BLUE Open Studio 2023.1 Help Manual</b>.</li> <li>From within the project development environment: go to the Help tab of the ribbon and then click Help.</li> <li>From the file: assuming default installation location on the hard drive, the file is located at: <b>C:\Program Files (x86)\Pro-face\BLUE Open Studio 2023\Bin\TechRef.chm</b></li> </ul>
Quick Start Guide (QuickStart.pdf)	<p>The Quick Start Guide provides a tour of the project development environment, descriptions of essential concepts, and a simple project development tutorial. All of this information is also included in the Help Manual. To access this document:</p> <ul style="list-style-type: none"> <li>From the Windows Start menu: go to <b>Start &gt; BLUE Open Studio 2023.1 &gt; BLUE Open Studio 2023.1 Quick Start Guide</b>.</li> <li>From the file: assuming default installation location on the hard drive, the file is located at: <b>C:\Program Files (x86)\Pro-face\BLUE Open Studio 2023\Bin\QuickStart.pdf</b></li> </ul>
Driver documents (<driver name>.pdf)	<p>Each communication driver has its own document that describes the protocol used by the driver, how to configure the communication settings for the driver, how to format station IDs and I/O addresses in driver worksheets, and any other technical requirements for connected devices. If you download an updated driver package from our website, that package should include an updated driver document.</p> <p>Each driver has its own separate &lt;driver name&gt;.pdf document. For example, the driver document for the basic Modbus driver (MODBU) is <b>MODBU.pdf</b>. To access there documents:</p> <ul style="list-style-type: none"> <li>From within the project development environment: go to the <b>Help</b> tab of the ribbon and then select <b>Communication Drivers</b>.</li> <li>From the file: assuming default installation location on the hard drive, the files are located at: <b>C:\Program Files (x86)\Pro-face\BLUE Open Studio 2023\Drv\&lt;driver name&gt;.pdf</b></li> </ul>
License document (License.pdf)	<p>The License document provides legal information regarding your license to use BLUE Open Studio. You are asked to agree to this document when you install the software. To access this document:</p> <ul style="list-style-type: none"> <li>From within the project development environment: go to the <b>Help</b> tab of the ribbon and select <b>License Agreement</b>.</li> <li>From the file: assuming default installation location on the hard drive, the file is located at: <b>C:\Program Files (x86)\Pro-face\BLUE Open Studio 2023\License.pdf</b></li> </ul>
Copyright document (Copyright.pdf)	<p>The Copyright document provides legal information regarding the copyrights of the incorporated third-party software. You are asked to agree to this document when you install the software. To access this document:</p> <ul style="list-style-type: none"> <li>From within the project development environment: go to the <b>Help</b> tab of the ribbon, select <b>About</b>, and then select the <b>More</b> button.</li> <li>From the file: assuming default installation location on the hard drive, the file is located at: <b>C:\Program Files (x86)\Pro-face\BLUE Open Studio 2023\Copyright.pdf</b></li> </ul>

## List of Legacy Drivers

The complete list of these legacy drivers in alphabetical order is:

Driver	Description

9154	9154 - Controller 9154, Toledo Balance [v1.00]
A2420	ALTUS, ALNET I Protocol with AL2420 [v1.04]
ABENI	Allen Bradley, AB-1761-NET-ENI Gateway interface (CE) [v1.11]
ADAM	ADVANTECH - Old ADAM 4000 driver version [v1.11]
ADAM2	ADVANTECH - Series 4000/5000 and compatibles (CE) [v1.04]
AGRI	Agri-Datalog, EAP Protocol (CS950, AC2500, EC200 and CPM8) [1.04]
ALFA	ALFA - Scale / Family 3000 (CE) [v1.11]
ALNE2	ALTUS, ALNET II Protocol - AL-3405 (CE) [v2.5]
ALNET	ALTUS, ALNET I Protocol - AL-1000 / AI-2000 / AL-3130 Families [v1.68]
AS511	SIEMENS - S5 with PG Port (CE) [v11.05]
ATOS	ATOS, APR03 Protocol - MPC506 [v1.10]
AWID	AWID, Applied Wireless ID [1.01]
AXIOM	AXIOM, I/O Board [v1.04]
BERK	Communication driver with Berkeley Bxi controller (CE) [v1.1]
BUEP	BOSCH, BUEP19E Protocol - CL200 / CL300 / CL500 [v1.20]
CAN	CAN / CANOpen CiA 301 Specification (CE) [1.3]
CATIU	CATIU (CE) [v1.00]
CD600	SMAR - CD600 [v2.0]
CFW	WEG - CFW [v1.10]
CNS	ALLEN-BRADLEY, ControlNet Protocol - PLC5 / PLC5000 Families (CE) [v1.10]
COWAF	OMRON CompoWay Communication Protocol (CE) [v1.1]
CSTAS	AS400 Warehouse (CE) [v1.00]
CTC	CTC, CTC Serial Data Comunication (CE) [v1.02]
CUTL	CUTLER-HAMMER - D50 / D300 (CE) [v2.01]
CYLON	Cylon, UCU and UC32.xx devices [v2.0]
DAKOT	Dakota Fluid Power RTU via TCP/IP [v1.2]
DEVN	Hilscher/Synergetic board - DeviceNet Slave [v1.00]

DEVNM	Hilscher/Synergetic board - DeviceNet Master (CE) [v1.00]
DSC	DSC - Reader DSC (CE) [v1.01]
EUROM	EuroMap 17 Protocol [v1.01]
EXFO	EXFO, WA-5900 device [1.03]
FANUC	GE FANUC, SNP Serial Protocol - Series 90 / 90/30 CPU 341 (CE) [v10.4]
FATEK	FATEK, FALCON PLC (CE) [2.00]
FERT	FERTRON - Fertron PLC (CE)[v1.04]
FLK	Communication driver for 2640A/2645A/2680A/2686A Fluke devices [v1.00]
FPACE	FlashPoint - Interface with Flash Control (CE) [1.03]
FPACV	Flash Point PC Based Control (CE) [1.01]
GARMI	Garmin, P000/L001/A010 Protocol, GPS V Devices (CE) [1.00]
GAUGE	Leybold Inficon, Vacuum Gauges devices [1.0]
GFLUX	GammaFlux, Auxiliary Communication Protocol, TTC Devices (CE) [1.00]
GPIBN	NATIONAL, IEE 488.1 Protocol - GPIB [v1.20]
HDPS	Siemens - ProfiBus DP Slave Compatible (CE)[1.03]
HI	HI Tecnologia, SCP-HI Protocol [1.02]
HIEHV	Ethernet (TCP/UDP) communication with HITACHI EHV devices.
HILDP	Siemens - ProfiBus DP Master Compatible (CE)[1.13]
HITCH	HITACHI - H Series (CE) [v2.03]
HMF01	RFID, Transponder Omron (Only CE) [1.00]
IDEC	IDEC Serial Protocol - MicroSmart(CE) [1.5]
IZCL	Solidyne - IZAC/Clipper Network Protocol [v1.01]
JETTE	Jetter - Jetter devices using the Jet32.dll API [v1.1]
KAWR	Kawasaki Robotics [v1.3]
KEBCO	KEB-DIN 66019 Protocol (CE) [v1.01]
KLOCK	KLOCKNER-MOELLER, SUCOM 1 Protocol - PS316/PS32/PS4-201-MM1/LPC42/PS416 [v1.07]
LAMIX	LAMIX - Display Lamix (CE) [v1.08]

LLINK	Communication driver for Enersafe LifeLink Device (CE) [v1.1]
LOPER	LOPER -Protocolo de comunica??o CTB-100/QA-NEC/CELESC [v1.0]
MBLAU	MICROBLAU, TD3000 (CE) [2.00]
MCTRL	Motion Control protocol (CE) [v1.03]
MEMP	MEMP, CEMIG [v1.00]
MERID	MODBUS MERID Protocol RTU/ASCII (CE) [v1.4.0]
MESSU	MESSUNG, Proprietary Protocol (PLC Messung) - [v1.00]
MISTC	OPTO22, MISTIC Protocol - OPTO22 Controller (CE) [v1.03]
MITSA	MITSUBISHI Protocol, Melsec-A (CE) [v10.3]
MODPL	MODBUS PLUS Protocol [v1.11]
MOLOW	MOLOW Protocol RTU/ASCII [v1.1]
MPI	SIEMENS, MPI Protocol - S7 [v1.30]
MPIAD	SIEMENS, MPI Green Cable Protocol - 3964R (CE) [v1.0]
MPMPI	SIEMENS, MPI Protocol (HMI MP370) - S7-200, S7-300, S7-400 (only CE) [v1.04]
MSLMP	Ethernet communication with MITSUBISHI iQ-R Series devices.
MTCON	MTConnect Driver [v1.0.0]
MTRAC	SEW - Movitrac31 [1.00]
N2JC	N2, Johnson Control - N2 Protocol(CE) [1.03]
NAPCO	HI Tecnologia, SCP-HI Protocol [1.0]
NLMPI	Hilscher, NetLink-MPI Protocol, Siemens S7-300/400 Family (CE) [1.3]
OC	Nematron - Interface with OpenControl PC Base Control [v1.01]
OMEIP	OMRON (STI) Safety Relays via Ethernet/DeviceNET Router Protocol (CE) [v1.0]
OMPLC	OMRON, Host Link Protocol - C Series/Sysmac Way/Host Link Units (CE) [v3.01]
OPMMP	OPTO22, OPTO-MMP Protocol (CE) [v1.1]
OPTO	OPTO22, OPT-MUX Protocol - Analog/Digital Boards [v1.03]
PAC3K	Automation Direct PAC Devices (Legacy, use ADPRO instead) (CE) [v1.4]
PAGER	Send pager messages using TAP protocol (CE) [v1.00]

PIDAT	OSI Software, Protocol TCP/IP - PI Data Archive Interface Driver [v1.02]
PNOZ	PILZ, PNOZmulti Safety System (CE) [v1.03]
PPCBR	SCP, BOSCH REXROTH [1.01]
PROT1	TOSHIBA, Computer Link Protocol - Prosec-T1 / Prosec-T2 (Only CE) [v2.01]
RK512	SIEMENS, RK512 Protocol - S5 / S7 / 3964R [v1.09]
RLC	RLC Arm (CE Only) [v1.00]
RTP	RTP 2000/2300 Protocol [v1.02]
SAGE	Communication with SAGE using IEC-60870-5-101 - [v1.1]
SAIA	SAIA, P8 Protocol - PCD2 [1.00]
SATCH	Satchwell, SatchNet Protocol, IAC200/400 IAC600 Devices (CE) [1.00]
SIEME	SIEMENS, S7 PLC communicating via Serial interface (CE) [v10.8]
SIPPI	SIEMENS, S7-200 PLC communicating via PPI interface (CE) [v10.8]
SISTE	Sistema, CP-3000 (Mono and Multiprocessor) [v1.00]
SL2DP	SIEMENS - ProfBus DP Sinec L2 - Board 5412-A2 [v1.00]
SNPP	SNPP [1.01]
SPA	SPA, SPA-bus [v1.01]
SPIIM	SPI, SPI protocol for Injection Molding Equipment [1.01]
SPO52	Send and receive data using a serial port (CE) [v1.5]
SSTDH	SST DHP Protocol, Interface Cards for Allen-Bradley [v1.8]
SSUE	Serial Output of User E Protocol [v1.01]
STRAT	Straton - Interface with STRATON PC Base Control [v1.00]
STRIO	SST, RIO Protocol, Interface Cards for Allen-Bradley [1.2]
SYMAX	AEG SCHNEIDER (SQUARE D), Symax [1.06]
T9091	TOLEDO - Module 9091 [1.04]
TAGW	TAGWELL SoftPLC v[1.3]
TFLUX	TOLEDO, TLP2 Protocol-TOLFLUX 9300 [v1.01]
THERM	THERMA, TH2131 [v1.01]

TOYOP	TOYOPUC Devices [v1.0]
TSTCP	Test Driver for TCP/IP(CE) [1.0]
UNITE	UNI-TELWAY, UNI-TELWAY Protocol - TSX (CE) [1.04]
USB4D	USB4D Driver for Communication with US Digital USB4 Devices [1.0]
VILL	VILLARES - Dedicated equipment (CE) [v2.0]
VIRGO	Altersys - Interface with Virgo PC Based Control (CE) [1.03]
VMASC	VMASC, Visual Motion ASCII protocol (Rexroth) [1.01]
VPCE	VIPA, MPI and Industrial Ethernet (S7COMM library) (CE only) [v1.4]
WA982	WATLOW CONTROLS, Series 981 / 984 [v2.00]
WTP2	WEG - TP02 [v1.00]
XRC	MOTOMAN - XRC BSC Compliant Slave Protocol (CE) [v1.10]
XRCM	MOTOMAN - XRCM BSC Compliant Master Protocol (CE) [v1.1]
YOMX	YOKOGAWA, MX100 devices (NT/2k/XP) [1.01]
YU35	YOKOGAWA, PC Link Comm. Protocol - UT35 [1.00]