BLUE Open Studio® 2023 (23.0.0) Release Notes

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In This Document

Software Coexistence

AVEVA System Platform Coexistence

BLUE Open Studio and AVEVA System Platform both use Industrial Graphics. Because of this, BLUE Open Studio 2023 can only coexist with AVEVA System Platform 2023, AVEVA System Platform 2023 Patch 01, and AVEVA System Platform 2023 Patch 02.

BLUE Open Studio 2023 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.

BLUE Open Studio and Industrial Graphics Coexistence

BLUE Open Studio 2023 and earlier versions of BLUE Open Studio 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 either of them, and attempting to use Industrial Graphics may cause an abnormal program termination.

In order to install BLUE Open Studio 2023 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.

top of document

New Features and Enhancements

This is a summary of important features and enhancements that have been introduced in this version.

Communication Drivers

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

Driver	Description
COSYS	TCP/IP and Serial Communication using PLC Handler CodeSys Library. Driver enhancements: • Added support for communication with the Linux runtime. • Added support for UDINT and WSTRING datatypes. • Fixed implementation of DWORD datatype to be able to read and write 32 bit signed and unsigned values.
IE104	Communication with devices using the IEC 60870-5-104 protocol. Driver enhancements: • Enhanced the Station field to accept hostnames for devices.
KEYEN	Serial communication using the Keyence Protocol. • Added support for communication with the Linux runtime. • Added support for new extended protocol to resolve issue with timers and counters. • Added support for reading 16-bit signed memory areas. • Fixed communication issues for CTC and CTH registers. • Added support for the Main Driver Sheet.
MACHA	Driver for Schneider Electric Ecostruxure™ Machine Advisor Driver enhancements: • Added support for Machine Adviser Charlie Protocol • Added support for Store and Forward • Revised tag syntax to use the standard format used by all drivers
MATSU	Serial communication with Matsushita FP devices using the Mewtocol protocol. Driver enhancements: • Added support for communication with the Linux runtime.
	TCP/IP communication using the Modbus protocol.

MOTCP	Driver enhancements: • Added support for 2 new datatypes DF3SW (3x register) and DFSW (4x register) which are double precision floating point data types with word swap. They will override the word swap disabled setting on the driver.
MQTT	Communication with devices that support Message Queuing Telemetry Transport (MQTT) protocol. Driver enhancements: • Added support for unique Client ID. • Added support for simultaneous requests.
SOMAC	TCP/IP and Serial Communication using PLC Handler SoMachine Library. Driver enhancements: • Added support for UDINT and WSTRING datatypes. • Fixed implementation of DWORD datatype to be able to read and write 32 bit signed and unsigned values.
TI500	Serial communication with Texas Instruments - Series 500 using TBP or NITP protocols. Driver enhancements: • Added support for Signed and Unsigned data format suffixes. • Improved implementation of Float and Double Word data format suffixes.

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 Studio C++ 2008 redistributable, which is out of support, so 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.

Modernized Icons and Streamlined Styles

The user interface has been updated and modernized with simplified, accessible icons.

Similarly, the styles available have been simplified to a Light (default) and a Dark mode. To access these, select the **Style** menu in the upper right corner of the development interface.

Industrial Graphics Improvements

There is improved support for Industrial Graphics in this release.

Support for tags as array indexes

Tags can now be used as array indexes for all tag types, including class tags.

Support for Industrial Graphics scripting functions

- SetCustomPropertyValue() - Supported with limitations. See Known Issues and Workarounds for more information.

Support for Import of SVG as an Industrial Graphic

With this release, Industrial Graphic Editor supports import of Scalable Vector Graphics (SVG) as Industrial Graphics. You can import an SVG into the Graphic Editor and the graphic elements automatically get converted to an Industrial Graphic, which can include many primitives. A list of supported SVG elements can be found at SVG Github.

To import an SVG and insert as an Industrial Graphic:

1. In the Industrial Graphic Editor, on the **Graphic** menu, click **Import SVG**.
2. Browse for the required SVG and click **Open**.

   Note: You can import multiple SVG files at once.

3. Click anywhere on the canvas to insert the SVG file as Industrial Graphics.

OR

- Drag and drop the SVG to the canvas.

  You can drag and drop multiple SVG files at once.

Note: You can drag and drop SVG files only if User Account Control (UAC) is turned off. Before turning off UAC, be sure to check your organization's security policy, as turning it off could cause a security issue. If you try to drag and drop an SVG file to the canvas with UAC turned on, a forbidden icon is displayed.

Note:
- If there are any unsupported characters in the name of the SVG or primitive, it will be converted to “_”.
- The SVG element name is used to name the corresponding primitive. If a SVG element does not have a name, then Industrial Graphic primitive type is used to name the primitive. For example, if the SVG group name is "Header", the primitive name in Graphic Editor after import will also be Header. If the SVG group has no name, the same will be named as <primitive type>_<number>, that is group_01.
- Only three colors are supported in gradients. If the SVG file has more than three colors for primitive, the first, last, and middle colors are considered. The middle color is calculated by the formula middle color = (int)((colors.Length) / 2). That is, if there are four colors, then it will consider the second color as middle color.

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
- Inserting the SVG using the **Image** icon from the **Tools** panel of the Graphic Editor.

Built-in Azure IoT Hub connection management and functions

Azure IoT Hub Connections are set up in the **Tasks** tab of the **Project Explorer**. The new Internet of Things functions manage connections and interact with Microsoft Azure IoT Hub. These features work only in the Windows SCADA runtime, not in any Embedded runtime.

Internet of Things (IoT) funtions:

- AzureIoTHubClearQueue() - clears messages from the Azure IoT Hub queue
- AzureIoTHubClose() - closes an Azure IoT Hub connection
- AzureIoTHubGetMsgId() - gets an Azure IoT Hub message ID from an index of the queue
- AzureIoTHubGetQueueSize() - gets the size of the Azure IoT Hub message queue
- AzureIoTHubGetStatus() - gets an Azure IoT Hub connection or message status
- AzureIoTHubOpen() - opens an Azure IoT Hub connection
- AzureIoTHubSendMsg() - sends a message to the Azure IoT Hub

Cybersecurity Enhancement

We continue to improve our product security posture. In particular, we have done the following:

- The following security vulnerability has been addressed in this release:

  CWE-427: Uncontrolled Search Path Element

  For information please refer to: https://cwe.mitre.org/data/definitions/427.html
- OpenSSL library is now updated to resolve security vulnerabilities.

Localization Improvement

Updated Japanese-language messages and menus, improving readability.

Mobile Access Improvements

- Performance improvements
- Custom Keypad - There is now a custom keypad included with Mobile Access that can be used for systems that lack a keypad. It is enabled through the Mobile Access Configuration worksheet.
- Supports custom IIS locations.

Linux Runtime Improvements

There are several improvements to the Linux runtime.

Remote Agent

- Performance improvements – Download speed of project and runtime files has improved.
- Encryption – Remote agent network communication is encrypted.
- Authentication and Authorization – Remote agent network communication implements authentication and authorization.

Tag values for Driver Sheet Station fields

- Driver Sheets now support the use of expressions or tag values in **Station** fields, using curly brackets around the tag. For example: {*myTag*}.

High Speed Logging Improvements

- Improved scheduler consistency.
- Improved CPU utilization.
- Improved throughput to file storage.

Support for new toolchains

The list of new toolchains supported is:

- arm-linux-gnueabihf-2.23-6.0.21
- aarch64-2.23-6.0.21
- x86_64-2.23-6.0.21

top of document

Deprecated or Removed Features

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

Deprecated Operating Systems

In accordance with the Microsoft Product Lifecycle, the following operating systems are no longer supported as of this release.

- Windows CE
- Windows 8.1
- Windows Embedded 8.1 Industry Pro
- Windows Server 2012 R2

BDE for PanelMate™ Import Wizard

BDE for PanelMate™ has been removed from the product setup. It is available as a standalone setup. Please contact customer support for more information.

Linux Toolchains

The following toolchains are no longer supported in this release:

- x86-2.12.2-6.0.14
- arm-gnueabihf-2.13-6.0.17
- armv4t-gnueabi-2.12.2-6.0.14
- armv7a-gnueabi-2.12.2-6.0.14

top of document

Issues Resolved in This Release

This is a list of important issues that have been resolved in this version.

Issues Reported by Our Users

These are issues that were reported by our users and then logged in our customer relationship management system. 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.

Please note that 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.

Case No.	ID	Description
0001886320	574604	AVEVA Insight Publisher could not be used over Windows Server 2019.
960046091	946886	When using Tag Integration, non-imported tags were not differentiated by color (displayed in gray color) in **Object Finder**.
960047489	960662	StADOSvr.exe was not installed when AVEVA Historian Selectable Feature was not selected.
960054551	1056440	Mobile Access installation did not allow a custom IIS folder location.
960134402	1667736	Historian trend worksheets were losing store and forward data when the runtime restarted.
960171766	1869189	Problem with min-max values in Trend control object.
960182252	1894770	When a tag was deleted by a script, an empty line was created in the tag database by the $TagsDBRemoveTag function.
960184389	1906212	DBCursorGetValue() was unable to detect and report errors at execution.
960205278	2024455	Wrong behavior observed on alarm and trend sheets when a simple tag is changed to array
960206247	2026511	Studio was unable to correctly draw WMF files with transparency when are used inside Linked Symbols.
960206247	2026990	Studio showed artifacts of transparent color specified by Transparency Tracker on bmp files.
960220246	2101635	Saving a copy of an Alarm, Trend or Math worksheet did not make a new worksheet available.

960220499	2095123	Mobile Access skipped shapes with command animations while navigating with the keyboard Tab key.
960223394	2205354	Security access was not applied correctly when using Industrial Graphics screens with Mobile Access.
960223404	2137586	Stopping the Linux runtime service caused an abnormal termination.
960223600	2112961	Mobile Access Client returned an error message regarding app_en-US.js file when used on a Linux machine.
960223604	2112712	[Mobile Access] Comments were present in visible source code in the debugger tab.
960230034	2145614	Studio Manager was hanging when calling TagsDBEndEdit().
960232071	2157531	PanelBuilder32 Import Wizard was not importing the Alarms worksheets to a project.
960233607	2176370	Auto Log Off was not working if the cursor left the screen where Logon() was called.
960234571	2169309	Project verify was causing an abnormal program termination.
960238056	2202536	TCP/IP Server stopped responding after running for several days.
960244267	2216821	TagsDBSetTrend() was adding tags to the wrong worksheet.
960245916 960261575	2220897	Editing the colors of a Grid Object was causing an abnormal program termination.
960256430	2317005	Data could not be inserted into Alarm table in Oracle Database.
960257967	2316313	Customer was getting delay using LogIn function and E-sign feature with LDAP Security System.
960259791	2314076	Projects were unable to send emails addressed to multiple recipients.
960265634	2334843	SMA installer was not detecting a non-default port during installation.
960269304	2353102	Custom Widget objects were not loading in the Secure Viewer client.
960269828	2400574	Ubuntu 22.04 required adding a user to Group www-data manually.
960274886	2390547	Project symbols were not in the correct location when the system language was Spanish.
960281429	2228026 2409067	After updating Studio, tags with Retentive values were unreadable.
960282303	2434984	Projects were unable to send emails to multiple recipients.
960282618	2414312	Custom properties referencing tag names in quotes not transferring in Viewer or Mobile Access. CustomPropertyValuePair() function referencing tag names was failing in Viewer for multiple scenarios.
960283951	2421202	The **Save On Tag Change** option in Trend worksheets was causing an error when logging data to AVEVA Insight from Linux runtime.
960290045	2445856	There was no indication that a project was running as a service, and no message when attempting to start a project if the project was

		already running as a service.
960295416	2472448	Industrial Graphics symbols exported from System Platform could not be imported.
960299532	2487672	Industrial Graphics would not save the Smoothing Property value if the value was False.
N/A	2131748 2382768	Maximum insert buffer size was exceeded warning when using StADOSvr and Historian Server.
N/A	2178669	Secure Viewer redundancy was not working as expected when updates were done to the project on a secondary server.
N/A	2218968	An error message appeared when opening an APP project file if the previous project opened did not exist anymore.
N/A	2218990	Setting negative numbers on the resize animation caused an error message.
N/A	2348630	Projects running as a service were not logging only errors to the Windows Event Viewer as documented.
N/A	2351662	OPC UA Client had a latency when sending write commands.

Issues Resolved for Specific Communication Drivers

These are the issues that were resolved for specific communication drivers.

Case No.	ID	Description
960129901	1731438	TI500 did not allow for signed and unsigned values within the same channel.
960197269	1973327	SITIA driver did not have support for using script to create STFC file containing PLC I/P, username, and password.
960212570	2072125	COSYS driver was giving status OK when using **Write Trigger** without a real PLC connection.
960216756	2067499	KEYEN driver was unable to correctly read timer and counter parameters values.
960216793	2087928	IE104 driver did not allow use of DNS in **Station** field.
960217460 960217461	2072306	Tags were not updating as expected after making a modification on the PLC when using more than 50 Standard Driver Sheets.
960218827	2088565	MELSE driver failed to write two consecutive PLC addresses
960218844	2099465	MELSE OI Server could not read all items with a message: Poll operation failed. Error code: -39. Message: Invalid block size.
960221257	2112410	TI500 OI Server abnormally terminated when poking multiple PID Loop Items, such as LTD1, LTI1, LKC1.
960226503	2141679	DOMOR driver was unable to read Memory Blocks created from User Data Types
960230642	2158239	OMETH driver did not support Chinese GB2312 encoding.
960233379	2160992	KEYEN driver was not able to read negative values.

960263065		
960233478	2160750	MOTCP driver did not have the capability to read Double Precision Floating point value with word swap.
960235475	2176422	SITIA driver was unable to read values of PLC tags with names containing Chinese characters.
960235636	2173600 2219318	COSYS driver was not reading Wstring data types correctly. COSYS driver was not reading UInt32, DWORD, and UDINT data types correctly when they were imported using Tag Integration.
960241290	2204046	MACHA driver generated unexpected messages in Machine Advisor.
960242841	2204164	OMETH driver could not advise Auxiliary Relay (HR) on a C200 controller.
960250352 960285873	2335335 2445853	SNMP driver group tag reading failed when there were invalid OIDs in the group, and the invalid OIDs did not trigger the BAD quality for the tags.
960260179	2314062	Space between characters was not allowed in the **Station** field in COSYS driver authentication window.
960266296	2339170	MQTT driver was not able to read more than 50 items from AWS IoT Core.
960266296	2345899	MQTT driver simultaneous Requests feature was not working as expected.
960258926	2312560	OMRON driver ignored the Start Message Timeout value during runtime.
960267549	2345841	MQTT driver failed to connect with the broker if the ClientID was required.
960273973	2373945	Known limitation that the MQTT Driver does not support MQTT brokers that require more than one certificate was not documented.
960276561	2388789	SOMAC driver needed COSYS driver to make authentication work.
960283364	2425750	COSYS caused the runtime to abnormally terminate immediately if an SDS was configured to point to an incorrect I/O address.
960298787	2482767	OMDIR driver was unable to perform blocking writing to PLC using the **Write Trigger** feature.
N/A	2103775	MODSL wrote BAD quality to a tag used in the Driver Sheet body.

top of document

Known Issues and Workarounds

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

ID	Description
1135583	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. Workaround: Limit String tags to 512 characters when running projects in the Embedded HMI runtime edition on Windows Embedded.

1631020	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. Workaround: Divide long strings into shorter strings of 81 or fewer characters per string, and then store those shorter strings in multiple device registers.
1788460	Issue: Screen viewer performance suffers if SetTagDisplayUnit function is called more than 21 times by a screen. Workaround: Limit the number of times a screen calls to function SetTagDisplayUnit to 21 or fewer.
2376863	Issue: If your Windows **Display** settings the **Scale and layout** scale is set to a value other than 100%, the Industrial Graphics editor dialog controls may not display properly. 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. Workaround: 1. Exit the development environment. 2. Go to the **Display** control panel in Windows, and then make sure the **Scale and layout** scale is set to 100%. (In Windows 10, right-click in your monitor screen and select **Display setting**s from the context menu.) 3. Run the Studio development environment. 4. If the issue persists, restart your computer to make sure the scale is applied correctly.
2400387	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.
2487802	Issue: Verify project can end up taking more than an hour if there unused tags in the project. Workaround: Use the **Remove unused tags** tool before using **Verify**. 1. In the **Tags** group of the **Home** tab of the ribbon, select **Remove unused tags**. (Alternately, right-click the **Project Tags** folder in the **Global** tab of the **Project Explorer**.) 2. See the *Help Manual* for more information, including instructions to use **Verify** again after using the **Remove unused tags** tool.
N/A	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. Workaround: Close and restart Studio and open the project. Studio will open with the last opened project in evaluation mode or demo mode.
N/A	Issue: Text Box objects are drawn incorrectly in project screens that are viewed through Mobile Access. 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. Workaround: 1. Exit the development environment. 2. Go to the **Display** control panel in Windows, and then make sure the **Scale and layout** scale is set to 100%. (In Windows 10, right-click in your monitor screen and select **Display setting**s from the context menu.) 3. Run the Studio development environment. 4. Save your project screens as HTML, and then test your project again. 5. If the issue persists, restart your computer to make sure the scale is applied correctly.
N/A	Issue and Workaround: Industrial Graphic function `SetCustomPropertyValue(`*name*`, "`*value*`", `*isConstant*): If the second parameter (*value*) 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.
N/A	Issue: Industrial Graphic function `SetCustomPropertyValue(`*name*`, "`*value*`", `*isConstant*): If the second parameter (*value*) is an array with a array index tag, the function will not work if either the array or the array index has the prefix `HMI:`. Workaround: Because the preifx `HMI:` is optional, do not use it for these tags. As noted above, you may also need to enclose the parameter in quotes.

top of document

Installation Guide

Upgrading from a Previous Version and 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 that upgrade to the software, use the Protection Manager utility that is installed with the software (**Start > BLUE Open Studio 2023 >BLUE Open Studio 2023 Register**). For more information about 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 SP1), 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.

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 simply 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 2 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.

Linux Runtime Requirements

If you are using IoT View on a Linux target station, here are the software and hardware requirements. For more information on installing, running, and using IoT View, see the Help Manual.

- A computer or device (referred to as a *target station*) running an embedded and/or real-time operating system, such as Linux (kernel 4.4 or higher). IoT View has been compiled for and validated on the following architectures:

Processor	**Minimum Versions of Required Libraries**	**Location of Redistributable Software**
aarch64 arm64	libc: 2.23 libstdc++: 6.0.21	**<***program folder***>\Redist\IoTView\Linux\aarch64-2.23-6.0.21**
armv7l armhf	libc: 2.23 libstdc++: 6.0.21	**<***program folder***>\Redist\IoTView\Linux\armv7l-2.23-6.0.21**
x86_64 amd64	libc: 2.23 libstdc++: 6.0.21	**<***program folder***>\Redist\IoTView\Linux\x86_64-2.23-6.0.21**

  If your architecture is not covered by the table above, contact your software distributor. IoT View can be compiled for most modern operating systems.

- To use Mobile Access to visualize run-time data and open project screens, the target station needs to have a properly configured web server that supports CGI. Apache is the preferred web server in most cases, and it is required if you plan to use Custom Widgets in your project screens. Otherwise, NGINX and Lighttpd are good alternatives to Apache.
- 75 MB of free storage (hard drive or non-volatile) for the runtime software. More storage might be required, depending on your project size.
- 10 MB of free memory (RAM) minimum, but 32 MB recommended (or more). More memory might be required, depending on your project size.
- An Ethernet or Wi-Fi network adapter, for TCP/IP networking.
- A USB flash drive or a network connection, to facilitate copying files to the target station from the computer with the full installation of the AVEVA Edge software.

.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 any software. 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	Installs Studio Database Gateway, AVEVA Historian integration, and AVEVA Insight integration. This feature is required for any database communication. This feature requires .NET Framework 4.8 (or later) installed and turned on.
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	Installs legacy communication drivers that use the Microsoft Visual Studio C++ 2008 redistributable, which is out of support. These drivers provide backward compatibility, and are not installed by default. Ensure that these drivers are compliant with your company software policies. **Note:** 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 List of Legacy Drivers can be found at the end of this document.
Mobile Access Runtime	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. 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.

	Whether or not this feature is selected during installation, a separate Mobile Access Runtime software installer (**MobileAccessSetup.exe**) will be copied to the program folder. This installer can be run at a later time.
PDF Printing	Additional software for printing runtime reports directly to PDF files.
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 Start menu:

Item	**Description**
BLUE Open Studio 2023	The Start menu program folder.
BLUE Open Studio 2023 Help Manual	A complete technical reference and user guide.
BLUE Open Studio 2023 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 Register	A utility program that you can use to view and change your software license settings.
BLUE Open Studio 2023 Release Notes	The document that you are reading now.
BLUE Open Studio 2023 Remote Agent	A utility program that lets other stations remotely manage the project runtime when it is running.
BLUE Open Studio 2023 SCADA	A shortcut that automatically runs the most recently opened project.
BLUE Open Studio 2023 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)	These components are required to run C++ applications that were developed using Visual Studio. Several different versions (2015–2019) may be installed. Do not uninstall these components; they may be used by other applications. **Note:** When selecting the Legacy Drivers option in Selectable Features, the Microsoft Visiual Studio C++ 2008 Redistributable, which is out of support, will also be installed.
novaPDF SDK 10 Printer Driver novaPDF SDK 10 COM (x64) novaPDF SDK 10 COM (x86) Studio PDF3	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 Selectable Features above. These components will be uninstalled when this software is uninstalled unless they are being used by another installed software package.
Sentinel Protection Installer 7.6.9	This component supports the use of Sentinel-type hardkeys (a.k.a. dongles). It is always installed regardless of whether you select the *Hardkey Support* feature for installation. This component is not uninstalled when you uninstall the software, but it can be uninstalled manually.
CodeMeter Runtime Server	Wibu Systems' CodeMeter Runtime is installed on your computer when you select the *Hardkey Support* feature for installation. It supports the use of Wibu-type hardkeys (a.k.a. dongles), which are offered as alternatives to Sentinel-type hardkeys. For more information about the differences between Sentinel and Wibu, ask your software distributor. Unlike the other components described above, the CodeMeter Runtime Server is not added to the Windows Apps & 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.

top of document

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 (**Readme.html**)	The release notes document summarizes product news and installation information. To access this document: • From the Windows Start menu: go to **Start > BLUE Open Studio 2023 > BLUE Open Studio 2023 Release Notes**. • From within the project development environment: go to the Help tab of the ribbon and then click Release Notes. • From the file: assuming default installation location on the hard drive, the file is located at **C:\Program Files (x86)\Pro-face\BLUE Open Studio 2023\ReadMe.html**
Help Manual (**TechRef.chm**)	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: • From the Windows Start menu: go to **Start > BLUE Open Studio 2023 > BLUE Open Studio 2023 Help Manual**. • From within the project development environment: go to the Help tab of the ribbon and then click Help. • From the file: assuming default installation location on the hard drive, the file is located at: **C:\Program Files (x86)\Pro-face\BLUE Open Studio 2023\Bin\TechRef.chm**
Quick Start Guide (**QuickStart.pdf**)	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: • From the Windows Start menu: go to **Start > BLUE Open Studio 2023 > BLUE Open Studio 2023 Quick Start Guide**. • From the file: assuming default installation location on the hard drive, the file is located at: **C:\Program Files (x86)\Pro-face\BLUE Open Studio 2023\Bin\QuickStart.pdf**
Driver documents (**<***driver name***>.pdf**)	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. Each driver has its own separate **<***driver name***>.pdf** document. For example, the driver document for the basic Modbus driver (MODBU) is **MODBU.pdf**. To access there documents: • From within the project development environment: go to the **Help** tab of the ribbon and then select **Communication Drivers**. • From the file: assuming default installation location on the hard drive, the files are located at: **C:\Program Files (x86)\Pro-face\BLUE Open Studio 2023\Drv\<***driver name***>.pdf**

License document (**License.pdf**)	The License document provides legal information regarding your license to use BLUE Open Studio 2023. You are asked to agree to this document when you install the software. To access this document: • From within the project development environment: go to the **Help** tab of the ribbon and select **License Agreement**. • From the file: assuming default installation location on the hard drive, the file is located at: **C:\Program Files (x86)\Pro-face\BLUE Open Studio 2023\License.pdf**
Copyright document (**Copyright.pdf**)	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: • From within the project development environment: go to the **Help** tab of the ribbon, select **About**, and then select the **More** button. • From the file: assuming default installation location on the hard drive, the file is located at: **C:\Program Files (x86)\Pro-face\BLUE Open Studio 2023\Copyright.pdf**

top of document

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]
ABBTF	Driver for ABBT TotalFlow [1.0]
ABENI	Allen Bradley, AB-1761-NET-ENI Gateway interface (CE) [v1.11]
ABKE	Allen Bradley DF1 Protocol (PLC2, PLC5 and SLC500) Families (CE) [v10.6]
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 / Al-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]
BACSL	BACNet Slave [v3.5]
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]
DNP	DNP3 Protocol (CE) [v1.5]
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]
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]
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 Complient Slave Protocol (CE) [v1.10]

XRCM	MOTOMAN - XRCM BSC Complient Master Protocol (CE) [v1.1]
XVGU	Schneider Electric Harmony XVGU TowerLight [v1.0]
YOMX	YOKOGAWA, MX100 devices (NT/2k/XP) [1.01]
YU35	YOKOGAWA, PC Link Comm. Protocol - UT35 [1.00]

top of document