

# BLUE 3.5

## Read Me

Document Revision: 01

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## 1 SOFTWARE DESCRIPTION

This software provides an integrated development environment that enables you to use a personal computer to create a Human Machine Interface (HMI) user application. The HMI user application, used by the runtime software, can run on multiple platforms.

## 2 SYSTEM REQUIREMENTS (SCREEN EDITING SOFTWARE)

	Minimum specifications	Comments
PC	Windows PC/AT compatible machine	-
CPU	8th Generation Intel(R) Core™ i3/i5 Processors or faster	-
Memory	8 GB or more	-
Available Disk Space	30 GB or more	-
Operating System	Windows 10 Pro (64-bit) with latest update	-
Other non-operating-system programs	.NET Framework 4.7.2 full *1	-

\*1 When installing the screen editing software, .NET Framework Ver.4.7.2 full is automatically installed. For disk space requirements, visit the Microsoft website.

Note:

- This product must be installed and configured by qualified software installation personnel with administrator rights.
- The software installation file is configured with a digital signature. If any issue regarding the digital signature arises during installation, cancel the installation and contact customer support.

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## 3 ACCESS RIGHTS

### 3.1 Screen Editing Software

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You can install or uninstall the screen editing software with administrator privileges.

### 3.2 Runtime (IPC Series / PC/AT)

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You can install or uninstall the run time with administrator privileges.

When transferring project files, launch the run time with administrator privileges before transferring.

## 4 FOR SECURE APPLICATIONS

This section explains some points to securely configure applications.

Note: Security related messages appear in the Feedback Zone's [Security Warnings] tab. Review messages and take required corrective action to reduce your cybersecurity risk.

### 4.1 Cybersecurity Best Practices

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To help keep your Pro-face products secure and protected, we recommend that you implement the cybersecurity best practices.

Following the recommendations may help significantly reduce your company's cybersecurity risk.

For the recommendations, refer to the following URL:

<https://www.pro-face.com/trans/en/manual/1087.html>

### 4.2 To build a secure network for unauthorized access prevention

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- Build a communication environment using encrypted communications (ex. VPN).
- Check that the network is secured before communication is established and data is transferred through the Ethernet.
- Select a transfer option that is not based on Ethernet communication (ex. USB Cable or FileSystem). If you need transfer option based on Ethernet communication, we recommend to use IPsec.
- Open the port for data communication only when you use the communication service.
- Protect your PC with a firewall and make sure it is used on a trusted secure network.
- Install the display unit on a trusted secure network and protect the display unit with a firewall.

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## 4.3 To prevent impersonation in Display Unit

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- Use the Security features.
  - Use the auto logout feature.
  - Give an appropriate security level for unlocking to limited users (allow only users with administrator rights to unlock, and so on).
- Password is not asked for the below operations:
  - External Device operation block - Upload (USB Storage/SD Card)
  - External Device operation block - Download (USB Storage/SD Card)
  - Display the Hardware Configuration

Set the security level for the Switches which are used for above operations.

- When using Web Viewer to connect to the display unit, do not touch the [\*\*\*] button to display the password. The displayed password will become visible to all connected display units and Web Viewer clients.

### 4.3.1 When Using SP5000 Series Open Box (Windows 10 IoT Enterprise Model), IPC Series, or PC/AT

- Use runtime only on a trusted PC.
- Do not log in to Windows with an account that has administrator rights, except when transferring project files or performing other operations that specifically require administrator rights.
- Use the security features in Windows (set a password, use the auto-logout feature, etc.).
- Set secure passwords and security for the administrator account for your project.

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## 4.4 To protect information from alteration

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- Harden your PC following the best cybersecurity practices (antivirus, updated operating systems, strong password policies, Application Allow Listing software, etc.) using the following guideline:  
<https://www.pro-face.com/trans/en/manual/1087.html>
- Carefully manage your own data.
- Protect your project by adding a project password.
- Preventing Unauthorized Changes to a Project
- When using transfer option based on USB Cable or Ethernet Cable, enable [Security Setting] in [Transfer Method].
- Do not execute screen editing software with Windows administrator rights.

- Use screen editing software only on a trusted PC.

## 5 LICENSE / REGISTRATION

Please refer to Help from the Schneider Electric License Manager.

## 6 TOOLS

You can distribute the following tools installed in the [Tools] folder.

- Export Validation Tool
- User Management Tool

## 7 WHAT'S NEW

### 7.1 Hardware Support

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PS6000 Series Basic Box

- PS6000 Series Basic Box is now supported.

### 7.2 Updated Drivers

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The following drivers are now supported.

- IAI Corporation - X-SEL Controller
- Shenzhen Inovance Technology Co., Ltd. - Modbus TCP Master
- Shenzhen Inovance Technology Co., Ltd. - Modbus SIO Master

New version of L5K file (Studio 5000 (former RSLogix5000) V35) is now support by the following driver.

- Rockwell Automation, Inc. - EtherNet/IP

### 7.3 New Features

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One-time Setting for Multiple Selections

- When you select multiple objects or variables, common properties are automatically filtered and you can now set them at one time for all the objects or variables. This reduces the time and effort required to set objects and variables when editing screens.

Support information improvement

The following functions are now supported in the Application Toolbar of screen editing software.

- Cut
- "?" menu
  - Offline Help
  - Online Help
  - HMI Design Studio
  - Readme

## 8 FIXED LIMITATIONS

### 8.1 Screen Editing

HMIIMG-194	(Symbol Link) Fixed an issue where non-IEC formatted addresses in Unity-Pro File became blank after importing into Symbol Link.
HMIIMG-15887	(Uniform Grid) Fixed an issue where a graphical object with its [Visibility] property set to [Hidden] or [Collapsed] did not display properly when placed in a Uniform Grid.
HMIIMG-15938	(Symbol Link) Fixed an issue where some tags were not imported when importing a L5K file into Symbol Link.
HMIIMG-16240	(Layout Object) Fixed an issue with the behavior of a layout object inside another layout object: when the parent layout object included a Graphic Object with its [Visibility] property set to [Collapsed], resizing the child layout object was not possible.
HMIIMG-16326	(Picture Display) Fixed an issue in simulation where the error message "Images not found. There are no files with .png in the specified folder." displayed for the Picture Display even though the correct path to the image file was specified.
HMIIMG-16337	(Symbol Link) Fixed an issue where the screen editing software could not import a SoMachine Basic File only Modbus (.SMBP) file if it contained a Time or Counter tag.
HMIIMG-16374	(Parts / Shapes) Fixed an issue where nodes of the following objects did not snap when editing nodes and angles even though [Snap Objects] was enabled. <ul style="list-style-type: none"> <li>-Arc</li> <li>-Arch</li> <li>-Bezier</li> <li>-Doughnut</li> <li>-Line</li> <li>-Path</li> <li>-Pie</li> </ul>

	-Polyline -Polygon
HMIIMG-16409	(Trigger / Operation) Fixed an issue where the screen editing software exited abruptly when a touch operation with binding was changed to a different operation type that did not require binding and the binding source for the original touch operation was deleted.
HMIIMG-16577	(Project File Conversion) Fixed an issue where the screen editing software could not open a project file created in a previous version if there were multiple symbol links with variables using the same structure definition.
HMIIMG-16789	(Project File Conversion) Fixed an issue in the screen editing software where the error "Property cannot be assigned to this block. Assign an Object" displayed erroneously on opening a previous version of the project.
HMIIMG-16899	(Screen Editing Software) Fixed an issue where copying and pasting objects did not work when logged into Windows with a long user name.
HMIIMG-16987	(Screen Editing Software) Fixed an issue where some script errors did not display in the error window and caused errors in simulation. Now all script errors display in the error window.
HMIIMG-17382	(Screen Editing Software) Fixed an error in the screen editing software where incorrect text displayed for the binding source of Alarms when the display language was German.
HMIIMG-17503	(Symbol Link) Fixed an issue where the incorrect number of bytes/words displayed for variables of all the drivers during symbol link import.
HMIIMG-17647	(Screen Editing Software) Fixed an issue where content with a missing binding source was not detected, leading to content that was not displayed. Now the missing binding source is detected and an error is displayed.
HMIIMG-17663	(Driver) Fixed an issue where the following display units could not communicate with Fuji Electric Co., Ltd. - MICREX-SX Series Ethernet equipment. - ST6000 Series - STM6000 Series - GP-4100 Series - SP5000 Series Power Box - SP5000X Series

## 8.2 Display Unit Operation

HMIIMG-16071	(Screen / Content) Fixed an issue where changing to the previous screen did not work when the [Screen ID] was associated with a variable in the [Target01] property window.
HMIIMG-16714	(Script) Fixed an issue where periodic triggers did not work on the runtime after 50 days in the following cases: - The trigger was used in a global script.



	- The script was in a Screen or Content that displayed continuously for 50 days.
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## 9 LIMITATIONS

This section lists the limitations that are applicable to both the Screen Editing Software and Runtime.

### 9.1 License

HMI-44117	(License) In the Schneider Electric License Manager, if a version 3.0 trial license is still active, please remove it.
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### 9.2 Installer

HMIIMG-9134	(Screen Editing Software) Do not install the screen editing software in a path with Unicode characters. Select a path without any Unicode characters.
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### 9.3 Screen Editing

HMIIMG-13566	(Screen Editing Software) There are multiple issues in tab management when the project is closed and opened again: - If you have multiple tabs in a single docking section, the order of tabs is not retained. - If a layout item is closed (for example, Cross Reference Window), it will be opened again when the project is opened.
HMIIMG-14578	(Screen Editing Software) Windows 8.1 and Windows Server 2012 R2 are not a supported operating system for the screen editing software. The screen editing software can be still installed, but it will not launch successfully.
-	(Screen Editing Software) In a screen, when there is an error in a navigation switch property, the screen editing software shows an error. In this scenario, the error window cannot direct you to the location of the error. Please check the [Source], [Path] and [Property] in the error window and find it manually.
HMIIMG-14754	(Screen Editing Software) The error message count in the error window may be different between the Block mode and Text mode for scripts.
-	(Project File Conversion) Before opening a project file in this version, refer to the user documents.

	From the Manual top page, click the [Feature Guide] icon and in the table of contents select [Before Use] and then [Notes of Project File Conversion].
HMIIMG-3101	(Content Display) The width and height of a content display and referenced content may not be correct when the values are referenced from other properties or script.
HMIIMG-337	(Font) Chinese_Simplified_GB2312_Gothic will not be supported in next version, nor in later versions. Project files that use this font from previous versions will be converted to Chinese_Simplified_GB18030_Gothic
HMIIMG-10595	(Script) When using Search and Replace in Text mode of the script editing screen, word searches containing some special characters ('\$','^','*', etc.) may not work properly.
HMIIMG-9909	(Script) When the script editing screen is in Text mode, the replace operation on text mode scripts from the [References] window does not work. Instead, use the find and replace operation in the script editing screen.
HMIIMG-3391	(Trigger / Operation) An error does not occur even if you set one of the following unsupported objects on a Touch trigger. -Alarm Summary -Hardware Configuration -Ingredient Viewer -Picture Display -Web Browser -All Layout Objects -Screen / Content -Group Object
HMIIMG-8160	(Alarm) Script cannot change the alarm message. On the screen editing software, an error occurs when you create a script that changes the alarm message.
HMIIMG-6850	(Variables) Do not import a variable file with a variable named "Structure" .
-	(Symbol Link) The following data types are either not supported or they are converted to another data type during Symbol Link import: Not Supported -ENUM -INTERFACE Converted to a primitive type of the source -SUBRANGE -POINTER TO -REFERENCE Converted to Structure -UNION -FUNCTION_BLOCK
-	(Symbol Link) NamedBasicType in Rockwell L5K File is imported as String type in Symbol Link.
-	(Symbol Link) When importing a SoMachine Basic Modbus Symbol file (.SMBP), variables associated with registers %IWS and %QWS do not import correctly.

HMIIMG-9036	(Symbol Link) When importing a symbol file that contains PLC variable names that use characters that are not supported by the screen editing software, the [Invalid unicode character] error may display. If possible, rename variables in the PLC software.
HMIIMG-13268	(Symbol Link) The equipment name and variable folder name must be unique in the project. Check for uniqueness before using the symbol import functionality.
-	(Transfer) In broken mode, you cannot use File System transfer to upgrade the run time before version 3.1.100.
HMIIMG-3294	(Transfer) Do not press [ALT] key during a transfer operation. Pressing the [ALT] will sometimes cause the transfer operation to fail.
-	<p>(IPC Series and PC/AT) When using run time version 3.1 or earlier, you cannot transfer project files from version 3.1 Service Pack 1 or later. If you transfer the project file in the above condition, the following error message appears in the screen editing software. [Unable to update using download operation. Use the installer to update run time to the latest version.]</p> <p>In order to transfer, the run time must be re-installed with the same version, or later, as the screen editing software. Install the run time from the following path on the installation DVD. "BLUE_Setup\BLUERuntime\BLUERuntime.exe"</p> <p>Installing the run time erases any previously transferred project files. After installation, transfer the project files again. If .NET Framework is not already installed in the run time installation destination, or its version is older, .NET Framework is also installed. After .NET Framework is installed, the installation destination is restarted. When installing the run time, there is no need to uninstall the previously installed run time.</p>
HMIIMG-16476	<p>(Parts) In some cases, the binding associated with the Visibility property is lost for objects configured with states. If you encounter this issue, use the following workaround.</p> <ol style="list-style-type: none"> <li>1) Open the screen editing software and copy and paste the screen that experienced this issue.</li> <li>2) Delete the original screen and set the original screen ID to the copied screen.</li> <li>3) Set binding again to the visibility property where the issue had occurred.</li> <li>4) Save and reopen the screen editing software. The binding should now be retained.</li> </ol>
HMIIMG-17148	(Project File Conversion) After converting projects from a previous version of the screen editing software, the Display Color ID of some of the objects may change. Check the Display Color ID of objects after conversion.
HMIIMG-17373	(N-State Lamp) When you configure display images for every state of an N-State Lamp, and then increase the number of states and configure images for the new states, sometimes the previously configured states may become invalid. If this issue occurs, please configure again to retain the states.
HMIIMG-17813	(Script) When using the script Text mode, the import operation for a recipe may not work correctly. To import recipes, use the script Block mode.

## 9.4 Display Unit Operation

HMIIMG-14539	(Display Unit) When using the following features, in certain settings the display unit may not work correctly. <ul style="list-style-type: none"> <li>- Configure many alarm records with a string variable set with a long string.</li> <li>- Configure many logging data records with a 64-bit variable set with a large value.</li> </ul>
HMIIMG-1773	(Screen / Content) If the Scroll Grid Content is smaller than the Content Display object, the Scroll Grid Content is magnified to the Content Display object.
HMIIMG-11913	(Screen / Content) If communication between the display unit and external device is unstable, the screen on the display unit may freeze for several seconds on a screen change.
HMIIMG-1198	(Hardware Configuration Screen) When restarting the run time by using an operation in the Hardware Configuration screen, the status of external storage may not be updated. When that happens, cycle the power on the display unit.
HMIIMG-5458	(Hardware Configuration Screen) In the Hardware Configuration screen, when you configure Pro-face Connect parameters for the first time, [Save & Restart] will not restart the display unit. Use some other method to restart, such as powering OFF/ON.
HMIIMG-3272	(Hardware Configuration Screen) When implementing a filter in the filter setup screen [Filter Simplified] with the Operation Log Screen in a Hardware Configuration, sometimes items do not display correctly.
HMIIMG-9202	(Hardware Configuration Screen) In the Hardware Configuration screen, the Scan Control menu for up to 32 devices is displayed for each driver. If you cannot change the scan control from the Hardware Configuration screen, use the equipment source property '.ScanOffControl' to change the scan control.
HMIIMG-2768	(Keypad) While the keypad is displayed, reverse display may not show properly for rapid touches. This is only a display issue and values are written properly.
HMIIMG-10937	(Text Box) When using the Bold attribute in a Text Box object, the thickness of text may differ between the screen editing software and the display unit.
HMIIMG-3157	(Alarm Summary) You can display up to 146 items in the Alarm Summary part's filter setup screen [Filter Simplified]. When there are more than 146 items, narrow down the list by either using the [Search] field or the [Filter Detailed] settings.
HMIIMG-3272	(Alarm Summary) When implementing a filter in the filter setup screen [Filter Simplified] with the Alarm Summary part, sometimes items do not display correctly.

HMIIMG-7465	<p>(Numeric Display) In a Numeric Display part, if you use a source property together with a converter for the [Current Value], the [Format] and [Decimal Places] properties of the Numeric Display part are not applied even though you can set these properties. Instead of these properties, the settings in the converter properties apply. The target converters are as follows.</p> <ul style="list-style-type: none"> <li>- Unit</li> <li>- Scale</li> <li>- Expression</li> </ul> <p>The above operation is correct. In future versions, in the above case the [Format] and [Decimal Places] properties of the Numeric Display part will be disabled.</p>
HMIIMG-9007	<p>(Numeric Display) When setting the Prefix or Suffix in [Arabic_Gothic] or [Hebrew_Gothic] font, the Prefix or Suffix characters display in the wrong order in the display unit.</p>
HMIIMG-9613	<p>(String Display) Do not enable [Display text as *] on a String Display part with IME Japanese input. The currently stored string is displayed while typing characters. If you want to use the [Display text as *] feature, design a mechanism to clear the string before starting input.</p>
-	<p>(Web Browser) The Web browser part no longer supports TIFF and MNG image file formats.</p>
HMIIMG-14581	<p>(Web Browser) Web Browser parts may not display correctly when viewing dynamic content defined using paths.</p>
HMIIMG-439	<p>(Trigger / Operation) When animation or change in visibility hides a pressing object, Touch trigger (Release or Click) does not occur during that. The triggers operate as if the object is not hidden.</p>
-	<p>(Trigger / Operation) When using the [File Management] Operation, if the file or folder name uses non-ASCII characters, the file or folder name will not display correctly in the [Confirmation Message] displayed by the [File Management] Operation.</p>
HMIIMG-14432	<p>(Trigger / Operation) When using the [Operation Result] operation, you may not get the correct result if the specified operation fails.</p>
HMIIMG-3316	<p>(Logging) If a data logging operation occurs while a [File Management] Operation is in progress, sometimes data may not be logged depending on the logging frequency.</p>
HMIIMG-7560	<p>(Logging) The display of a Trend Graph part could be very slow depending on the number of Trend Graph part display points, the maximum number of records in the logging group, and the model of the display unit. The number of display points on the Trend Graph part increases or decreases depending on the following settings.</p> <ul style="list-style-type: none"> <li>- Number of channels</li> <li>- Unit</li> </ul>
-	<p>(Network) If you set an IP address that duplicates another device on the local network in operation, or if you connect a device with an IP address that duplicates the panel to the local network, you cannot detect duplicating IP addresses.</p> <p>Only at runtime startup, the runtime check the IP address of the device on the</p>

	local network and a system error occurs if there is duplication with the panel. After changing the IP address of the panel, the runtime will be rebooted, so please check whether system error has occurred after rebooting.
HMIIMG-9614	(Web Viewer) If a project transfer operation fails, the Web Viewer license is removed. Activate Web Viewer again on the display unit with the same license keycode.
HMIIMG-15921	(Web Viewer) Pipe objects with [Shadow] enabled and either completely horizontal or completely vertical may not display correctly in the Web Viewer when run on iOS and iPadOS.
HMIIMG-438	(IPC Series and PC/AT) When using multibyte characters for file or folder names for logging, operation log, and alarm export destinations, the system locale for the operating system must be set appropriately.
HMIIMG-438	(IPC Series and PC/AT) When using multibyte characters for the file or folder name for an Image Display part's image save destination, the system locale for the operating system must be set appropriately.
HMIIMG-7325	(IPC Series and PC/AT) Use [Run as administrator] the first time you start the run time after installing it. From the Start menu, right-click the [BLUE Runtime] icon and from the shortcut menu select [Run as administrator]. If you do not run as administrator, the Welcome Screen may not appear.
HMIIMG-9134	(IPC Series and PC/AT) Do not install the runtime in a path with Unicode characters. Select a path without any Unicode characters.
HMIIMG-16228	(IPC Series and PC/AT) If a display device with touch capability is turned on after the Runtime application is launched, touch operations may not work correctly. Turn on the display device before launching the Runtime application.
HMIIMG-3178	(External Storage (SDCard / USBStorage)) While USB storage is being continuously accessed, even though you eject the USB device, it may not work. Provide a function to either interrupt access to USB storage or change the storage destination.
HMIIMG-16671	(Barcode Reader) The USB barcode reader reads only "Japanese keyboard 106" and "English keyboard 101" character codes.
HMIIMG-17723	(Security) After being locked out, the message that displays when the user attempts to log in again does not indicate that they are locked out. Use the System Error window or Operation Log to check if the user is locked out.

## 9.5 Communication Driver

HMIIMG-3263	(OPC UA Server) When using the OPC UA server function, on first starting up the display unit generates a server certificate. On first connecting to the server, the OPC UA client verifies the server's certificate. As the server certificate is renewed in the following cases, the OPC UA client
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	<p>may have to check the server certificate again.</p> <ul style="list-style-type: none"> <li>-In the Hardware Configuration screen, from the [OPC UA Server] menu the command [Regenerate Certificate] is selected.</li> <li>-Transfer via File System (This issue does not arise with Ethernet and USB cable transfer.)</li> </ul>
HMIIMG-8765	(Driver) When you use the Modbus driver from Schneider Electric and then create a Symbol link with TM devices, the screen editing software can successfully import that device. But, because TM devices are not supported, the associated variable will not work correctly.
HMIIMG-15528	(Driver) When using the Schneider Electric - Machine Expert Network driver, if an array structure has elements with variable names such as 'X' or 'Y', the runtime may not communicate properly when using these variables.
HMIIMG-7247	(SP5000X Series and SP5000 Series Power Box / Open Box) When using CANopen Slave and TIA Portal Ethernet drivers at the same time, do not add any more drivers. Additional drivers could interfere with CANopen Slave communication.
HMIIMG-1065	(ST6000 Series) Flow control XON/XOFF is not available.
HMIIMG-17492	(Schneider Electric - Machine Expert Network) When using the Schneider Electric - Machine Expert Network driver, the runtime may not communicate properly if "Encrypted Communication" is enabled.
HMIIMG-17634	<p>(Driver) When importing a symbol file that contains nested structure tags and was created under the following conditions, the symbol file will not import correctly in the screen editing software:</p> <ul style="list-style-type: none"> <li>- Rockwell Automation Micro 800 series</li> <li>- Symbol file created with Connected Component Workbench (CCW)</li> </ul>

## 9.6 Cybersecurity

-	(Cybersecurity) Open only trusted project files in the screen editing software.
-	<p>(Cybersecurity) BLUE Runtime uses an older Schneider Electric License Manager component that may have potential Cybersecurity vulnerabilities.</p> <p>CWE-74 : Improper Neutralization of Special Elements in Output Used by a Downstream Component ('Injection')</p> <p>For more details, refer to the following website.  <a href="https://cwe.mitre.org/data/definitions/74.html">https://cwe.mitre.org/data/definitions/74.html</a></p>

## 10 INSTALLER INTEGRITY VERIFICATION

When you download the installer from our web site or Schneider Electric Software Update, you can get the SHA256 of the installer. To validate, follow the steps below.

Step 1 : Go to Windows Start menu command box and type 'PowerShell', it opens the Windows PowerShell prompt.

Step 2 : Use 'Get-FileHash' command followed by the file path to calculate the Hash of a file.

```
Get-FileHash 'C:\Users\Public\Downloads\Schneider Electric\Software
Update\Downloads\<installer executable file name>' (e.g. Soft_BLUE64_V34.exe)
```

Step 3 : Press Enter

This results in output similar to the example below:

```
Get-FileHash 'C:\Users\Public\Downloads\Schneider Electric\Software
Update\Downloads\<installer executable file name>'
```

```
Algorithm      Hash
Path
```

```
-----      ----
```

```
SHA256
BCE70FCF3AA21663F828CF9244102533592F5721B10D6ABA1C050A5B815076EB
C:\Users\Public\Downloads\...
```

Step 4 : Compare the calculated SHA256 hash value with the original hash value shown in the software updates.

## 11 OPEN SOURCE SOFTWARE

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### 11.1 LUA Plus

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## 11.23 Nlog

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## 11.24

### Reactive Extensions(RxCore, Rx-Interfaces,Rx-Linq,Rx-Main,Rx-PlatformServices)

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## 11.25

System.Collections.Immutable  
System.Configuration.ConfigurationManager  
System.Reflection.Emit  
System.Reflection.Metadata  
System.Threading.Tasks.Extensions  
System.ValueTuple

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## 11.26 Unity

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## 11.27 GongSolutions.Wpf.DragDrop

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## 11.28 XamlAnimatedGif

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## 11.29 System.Data.SQLite

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## 11.30 XAMLMarkupExtensions

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## 11.33 Webkit

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## 11.35 JavaScriptCore

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```

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---

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/* * inclusion of support for JNG and Full-Color-Management respectively.  */
/* *                                                                           */
/* * This library's function is primarily to read and display MNG          */
/* * animations. It is not meant as a full-featured image-editing         */
/* * component! It does however offer creation and editing functionality    */
/* * at the chunk level.                                                   */
/* * (future modifications may include some more support for creation     */
/* * and or editing)                                                       */
/* *                                                                           */
/* * ***** */

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## 11.45 LuaFileSystem

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