

# BLUE 3.3 Read Me

Document Revision: 03

## Table of Contents

<b>1</b>	<b>SOFTWARE DESCRIPTION</b> .....	<b>4</b>
<b>2</b>	<b>SYSTEM REQUIREMENTS (SCREEN EDITING SOFTWARE)</b> .....	<b>4</b>
<b>3</b>	<b>ACCESS RIGHTS</b> .....	<b>5</b>
<b>3.1</b>	<b>Screen Editing Software</b> .....	<b>5</b>
<b>3.2</b>	<b>Runtime (IPC Series / PC/AT)</b> .....	<b>5</b>
<b>4</b>	<b>FOR SECURE APPLICATIONS</b> .....	<b>5</b>
<b>4.1</b>	<b>Cybersecurity Best Practices</b> .....	<b>5</b>
<b>4.2</b>	<b>To build a secure network for unauthorized access prevention</b> .....	<b>5</b>
<b>4.3</b>	<b>To prevent impersonation in Display Unit</b> .....	<b>6</b>
<b>4.3.1</b>	<b>When Using SP5000 Series Open Box (Windows 10 IoT Enterprise Model), IPC Series, or PC/AT</b> 6	
<b>4.4</b>	<b>To protect information from alteration</b> .....	<b>6</b>
<b>5</b>	<b>LICENSE / REGISTRATION</b> .....	<b>7</b>
<b>6</b>	<b>TOOLS</b> .....	<b>7</b>
<b>7</b>	<b>WHAT'S NEW</b> .....	<b>7</b>
<b>7.1</b>	<b>New Features</b> .....	<b>7</b>
<b>7.2</b>	<b>Updated Drivers</b> .....	<b>7</b>
<b>7.3</b>	<b>Cybersecurity Enhancement</b> .....	<b>7</b>
<b>8</b>	<b>FIXED LIMITATIONS</b> .....	<b>8</b>
<b>8.1</b>	<b>Screen Editing</b> .....	<b>8</b>
<b>8.1.1</b>	<b>Parts / Shapes</b> .....	<b>8</b>
<b>8.1.2</b>	<b>Alarm</b> .....	<b>8</b>
<b>8.1.3</b>	<b>Converter</b> .....	<b>8</b>
<b>8.2</b>	<b>Display Unit Operation</b> .....	<b>8</b>
<b>8.2.1</b>	<b>Parts / Shapes</b> .....	<b>8</b>
<b>8.2.2</b>	<b>Trigger / Operation</b> .....	<b>9</b>
<b>8.2.3</b>	<b>Hardware Configuration Screen</b> .....	<b>9</b>
<b>8.2.4</b>	<b>Keypad</b> .....	<b>9</b>
<b>8.2.5</b>	<b>Font</b> .....	<b>9</b>
<b>8.2.6</b>	<b>Variables</b> .....	<b>9</b>
<b>8.2.7</b>	<b>OPC UA Server</b> .....	<b>9</b>
<b>8.3</b>	<b>Cybersecurity</b> .....	<b>9</b>
<b>9</b>	<b>LIMITATIONS</b> .....	<b>10</b>
<b>9.1</b>	<b>License</b> .....	<b>10</b>
<b>9.2</b>	<b>Screen Editing</b> .....	<b>10</b>
<b>9.2.1</b>	<b>Screen Editing Software</b> .....	<b>10</b>
<b>9.2.2</b>	<b>Project File Conversion</b> .....	<b>10</b>
<b>9.2.3</b>	<b>Screen / Content</b> .....	<b>11</b>
<b>9.2.4</b>	<b>Parts / Shapes</b> .....	<b>11</b>
<b>9.2.5</b>	<b>Font</b> .....	<b>11</b>
<b>9.2.6</b>	<b>Script</b> .....	<b>12</b>
<b>9.2.7</b>	<b>Trigger / Operation</b> .....	<b>13</b>
<b>9.2.8</b>	<b>Alarm</b> .....	<b>13</b>
<b>9.2.9</b>	<b>Variables</b> .....	<b>14</b>

9.2.10	Web Viewer .....	15
9.2.11	Driver .....	15
<b>9.3</b>	<b>Transfer .....</b>	<b>16</b>
9.3.1	Recovery Mode.....	16
9.3.2	ST6000 Series and STM6000 Series .....	16
9.3.3	IPC Series and PC/AT.....	16
9.3.4	External Storage (SDCard / USBStorage) .....	17
<b>9.4</b>	<b>Display Unit Operation .....</b>	<b>17</b>
9.4.1	Screen / Content.....	17
9.4.2	Hardware Configuration Screen .....	17
9.4.3	Keypad.....	18
9.4.4	Parts / Shapes .....	18
9.4.5	Trigger / Operation.....	19
9.4.6	Alarm .....	19
9.4.7	Logging.....	19
9.4.8	Recipe.....	20
9.4.9	Security.....	20
9.4.10	Variables.....	20
9.4.11	Network.....	20
9.4.12	Web Viewer .....	21
9.4.13	OPC UA Server .....	21
9.4.14	Driver .....	21
9.4.15	SP5000 Series Power Box / Open Box .....	21
9.4.16	GP-4100 Series .....	22
9.4.17	ST6000 Series.....	22
9.4.18	IPC Series and PC/AT .....	22
9.4.19	External Storage (SDCard / USBStorage) .....	22
<b>9.5</b>	<b>Cybersecurity.....</b>	<b>22</b>
<b>10</b>	<b>OPEN SOURCE SOFTWARE .....</b>	<b>23</b>
10.1	LUA Plus.....	23
10.2	SQLCipher .....	23
10.3	OpenSSL.....	24
10.4	mapm .....	26
10.5	libpng .....	26
10.6	libxml2 .....	26
10.7	ipsec-tools.....	27
10.8	ProtocolBuffers.....	28
10.9	protobufjs .....	28
10.10	deepmerge.....	29
10.11	ClosedXml .....	29
10.12	CommonServiceLocator .....	30
10.13	DbExecutor.....	30
10.14	DocumentFormat.OpenXml .....	30
10.15	Extended.Wpf.Toolkit.....	31
10.16	log4net.....	32
10.17	MessagePack .....	32
10.18	Microsoft.CodeAnalysis	
	Microsoft.CodeAnalysis.Analyzers	
	Microsoft.CodeAnalysis.Common	
	Microsoft.CodeAnalysis.CSharp	
	Microsoft.CodeAnalysis.CSharp.Workspaces	
	Microsoft.CodeAnalysis.VisualBasic	
	Microsoft.CodeAnalysis.VisualBasic.Workspaces	
	Microsoft.CodeAnalysis.Workspaces.Common	33
10.19	SharpSvn.1.9-x86.....	33
10.20	Mvp.Xml .....	34
10.21	NeoLua.....	34
10.22	Newtonsoft.Json.....	34
10.23	Nlog.....	34
10.24	Reactive Extensions(RxCore, Rx-Interfaces,Rx-Linq,Rx-Main,Rx-PlatformServices) .....	35
10.25	System.Collections.Immutable	
	System.Configuration.ConfigurationManager	
	System.Reflection.Emit	
	System.Reflection.Metadata	
	System.Threading.Tasks.Extensions	
	System.ValueTuple.....	35
10.26	Unity.....	38
10.27	GongSolutions.Wpf.DragDrop .....	38

10.28	Luac .....	38
10.29	XamlAnimatedGif.....	39
10.30	System.Data.SQLite.....	39
10.31	XAMLMarkupExtensions .....	40
10.32	Caliburn.Micro.....	40
REVISION HISTORY .....		41

## 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 4.6.2 full *1	-

\*1 When installing the screen editing software, .NET Framework Ver.4.6.2 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.

---

## 3 ACCESS RIGHTS

### 3.1 Screen Editing Software

---

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

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

---

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

---

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

---

- 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.

---

## 4.3 To prevent impersonation in Display Unit

---

- 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.

---

## 4.4 To protect information from alteration

---

- 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 New Features

---

- Text-based Script Authoring  
A text-based authoring environment is now supported for experienced users. You can program how the panel reacts to real-time events such as a touch, screen change, or change in value.
- Set Keypad Width of the String Keypad  
You can now specify the width of the system string keypad.

### 7.2 Updated Drivers

---

New CPUs supported by the following driver.

- Fuji Electric Co., Ltd. - MICREX-SX Series Ethernet

Support External Equipment firmware version (STEP7 V11-V17)

- Siemens AG - TIA Portal Ethernet

### 7.3 Cybersecurity Enhancement

---

To protect passwords from anyone trying to steal a peek, when asterisks are displayed for input values, system keypad keys do not invert their display when the key is pressed.

---

## 8 FIXED LIMITATIONS

---

### 8.1 Screen Editing

#### 8.1.1 Parts / Shapes

##### 8.1.1.1 Picture Display

- Fixed an issue where images did not appear on Picture Display objects in a Uniform Grid.

#### 8.1.2 Alarm

- Fixed an issue with IntelliSense so you can use it to select a variable's alarm message with a string from the Language Table Text.

#### 8.1.3 Converter

- Fixed an issue on operating systems that used a comma as the decimal point, where the decimal point did not display correctly in the result from an expression converter that used decimal places.

---

### 8.2 Display Unit Operation

#### 8.2.1 Parts / Shapes

##### 8.2.1.1 N-State Lamp

- Fixed an issue where an N-State Lamp part did not work properly on the display unit when it met all of the following conditions:
  - [Type] was set to [Bit].
  - In the [Variable] property for the display state of the lamp, the element number of an array variable was specified indirectly.
  - An equipment's device address was associated with an element in the array variable.
- The display performance of an N-state Lamp part with many states has been improved.

##### 8.2.1.2 Numeric Display

- Fixed an issue where a Numeric Display part sometimes displayed the wrong color when it met all of the following conditions:
  - [Alarm Colors] was set to [None] or [Use Alarm Range].
  - An external variable was used as a source property for either [Min Input] or [Max Input] in the [Overwrite Input Range].



---

## 8.2.2 Trigger / Operation

- Fixed an issue that if the backlight turned off in the middle of touch calibration, the backlight did not turn back on when you touched the screen.
- Fixed an issue where the runtime stopped executing operations after an error occurred while executing an [Array] operation.
- Fixed an issue where the runtime did not log a record in the Operation Log when execution of an operation failed. Now, when the execution of an operation fails, the runtime logs a common failure record in the Operation Log.

## 8.2.3 Hardware Configuration Screen

- Fixed an issue where [Auto Negotiation], [Speed Setting], and [Duplex Setting] properties could not be set from the display unit's hardware configuration screen when the DHCP function was enabled.

## 8.2.4 Keypad

- Fixed an issue that occurred when using [Portrait] screen orientation, where the system keypad size was smaller than in version 3.2 Service Pack 1 or earlier.

## 8.2.5 Font

- Fixed an issue where ligature characters did not display correctly when using Hindi or Thai language fonts.

## 8.2.6 Variables

### 8.2.6.1 Symbol Link

- Fixed an issue where the screen editing software incorrectly detected an error after importing a symbol file with BOOL variables for the following drivers.
  - Schneider Electric SA - Modbus SIO Master
  - Schneider Electric SA - Modbus TCP Master

## 8.2.7 OPC UA Server

- Fixed an issue where a retentive variable value was not retained when using the OPC UA function for the variable.

---

## 8.3 Cybersecurity

- Fixed the FlexNet Licensing Service with elevated privilege in the Windows directory management by using a discretionary access control list (DACL).

## 9 LIMITATIONS

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

### 9.1 License

---

- In the Schneider Electric License Manager, if a version 3.0 trial license is still active, please remove it.

### 9.2 Screen Editing

---

#### 9.2.1 Screen Editing Software

- You cannot search for a variable in an array variable element by its full variable name. Search for either the name of the array variable or the variable used in the array element. For example, if the search target is "Var1[Var2.Value].Value", search "Var1.Value" (name of array variable) or "Var2.Value" (name of variable used in element). Search will not work with "Var1[Var2.Value].Value".
- If there are a large number of variables (for example 20000) and you perform many filter actions in the Variable Editor columns, the mouse may show the busy icon in the Variable Editor. On relaunching the application, the mouse will return to its normal icon.
- You cannot use the comma "," as a decimal separator in the screen editing software.
- If you install the screen editing software on a PC with SoMachine or EcoStruxure Machine Expert already installed, some USB drivers may not be recognized.
- In the screen editing software, if you open a project file in a read-only folder, the screen editing software may crash when you try to save the project file to a writable folder.
- Do not install the screen editing software in a path with Unicode characters. Select a path without any Unicode characters.
- When deleting triggers in the [Event] tab, the scripts that use the triggers are also deleted from the Script editor without displaying a confirmation dialog box.

#### 9.2.2 Project File Conversion

- When using the screen editing software with a project converted from a previous version, an error is incorrectly shown for an N-State Lamp object's [Variable] property during validation.  
Double click the error and the error will disappear.
- 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].

<https://www.pro-face.com/manual/blue/history/en/index.htm>

### 9.2.3 Screen / Content

- If you add a screen with [Screen Type] set to [View Box], the screen may not draw correctly if the following conditions occur.
  - A script does one of the following:
    - ✧ Change language using the Target source property (<target name>.Preferences.LanguageID)
    - ✧ Perform a [Security] - [Login] operation
    - ✧ Change visibility using Content Display source property (<object name>.Visibility)
  - After executing the above, screen change or content change operation occurs.
- Although you can copy screens or content from screen editing software version 3.3, to screen editing software version 3.2, 3.2 service pack 1, or 3.2 service pack 2, it may result in some unexpected behavior.

### 9.2.4 Parts / Shapes

- If you use the [Ctrl] key and mouse to copy a part or shape, it may be unintentionally duplicated in the same position.
- When configuring a string type touch operation in an object ([Function] tab - [Touch] tab), do not set a large numeric value in the [Source]. Otherwise, the string set to the destination will be incorrect.  
Use a script instead of the above.

#### 9.2.4.1 Alarm Summary

- In an Alarm Summary part, when you change column items or change their order from the default, you cannot reference the "Columns[\*].Title" property from other properties. If you do make this reference, errors may arise or the application may not run properly.

#### 9.2.4.2 Web Browser

- The Web browser part does not support Serbian fonts. In the Screen Editing software, even though you can set the [Font Type] to [Serbian\_Gothic], the Serbian font will not appear on the display unit.

#### 9.2.4.3 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.

### 9.2.5 Font

- Chinese\_Simplified\_GB2312\_Gothic will not be supported in the next version, nor in later versions. Project files that use this font from previous versions will be converted to Chinese\_Simplified\_GB18030\_Gothic.

## 9.2.6 Script

- After deleting a variable used in a script, even though you rename another variable name to the same name as the deleted variable, the variable block produces a validation error and indicates the variable is Undefined. These errors in the variable block are not resolved.  
Clear the error by moving the target block.
- When using an [Equipment] value in scripts, do not leave the setting field blank. If you leave the setting field blank, the screen editing software may exit unexpectedly.
- The screen editing software may show a variable validation error even though the variable is not used in the block mode script.
- If the variable name contains characters from any of the following languages, the Intellisense function will not work even while entering the variable name in Text mode of the script editing screen.
  - Japanese
  - Korean
  - Chinese
- When using Search and Replace in Text mode of the script editing screen, word searches containing some special characters ('\$','^','\*', etc.) may not work properly.
- When using IME in Text mode of the script editing screen, IME inputs may not work properly. To resolve, display the Search and Replace dialog box.
- When using strings that include the following characters as part of a literal, the screen editing software will show syntax errors when the script is in Text mode.
  - /u
  - /x

If these characters are used as a part of a file pathname, consider specifying the file path using a batch file.

- 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.
- In the text script editor, when using an alarm property bound to a structure array variable (for example, Var1.WORD1.HiHi.Message) and you change the alarm type (for example HiHi to LoLo), the reference to the alarm property in the script is not updated. A validation error will appear and the reference to the alarm property in the script will have to be updated manually.
- In the text script editor, the replace function may not work properly if you use Find and Replace to continually replace text.
- In addition to the naming convention, block mode scripts cannot use variables with names that match the keywords in the following table. In addition to variables, text mode scripts cannot use object names that match the keywords in the following table.  
User manual will be revised in later version.

For information on the naming convention, refer to the "Naming Conventions" of the user manual.

Keyword				
as	break	checked	const	continue
default	do	explicit	extern	finally
fixed	for	foreach	goto	lock
namespace	operator	readonly	return	static
switch	throw	try	unchecked	unsafe
using	volatile	while		

- When using a variable with the same name as one of the following keywords in the Text mode script, prefix with "\$Global".  
User manual will be revised in later version.

Keyword				
debugger	delete	export	extends	function
import	instanceof	super	var	with

- Scripts using \$Math.E() or \$Math.Random() with an assignment operator (=) will not work. Instead, use the changeValue() function.

## 9.2.7 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
- [Alarm Group] operations do not support system errors. In the Screen Editing software, even though you can set [Alarm Group] operation to [SystemErrorGroup], it will not run on the display unit.

## 9.2.8 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.

- In a single variable, you cannot use real data type numbers with the same integral value in multiple alarm fields. The screen editing software will show a validation error.

## 9.2.9 Variables

- In the array editor, if you change array dimensions while narrowing the search criteria in the search function, the search may not update correctly.
- Do not import a variable file with a variable named "Structure".
- Do not use a comparison ( $\leq$ ,  $<$ ,  $>$ ,  $\geq$ ) between a 64-bit variable and constant value. The runtime will not work. Instead of a constant value, use an internal variable.
- After you change the data type of a variable, the screen editing software may not show an error even though the data types for the variable and the device address do not match.

### 9.2.9.1 Symbol Link

- After importing a symbol file, do NOT delete the associated driver and then add it again. If you need to delete and add the driver, first delete the symbol file and then delete the driver.
- 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
- NamedBasicType in Rockwell L5K File is imported as String type in Symbol Link.
- Non-IEC formatted addresses in Unity-Pro File are imported in Symbol Link, however the addresses for these variables become blank. Please delete these variables.
- When importing a SoMachine Basic Modbus Symbol file (.SMBP), variables associated with registers %IWS and %QWS do not import correctly.
- After importing variables in Symbol Link, you can create variables with a user data type based on the Symbol Link. If you delete the Symbol Link, the Screen Editing Software does not display an error message to identify there is no reference for the created variable. You need to manually delete these variables or create the user data type.

- After importing a TIA Symbol file, do NOT rename the folder for the imported symbol file. If you need to rename the folder, first close the project and exit the screen editing software.
- Changing the input range of variables imported using Symbol Link cannot be saved.
- Do not import L5K symbol files that include Arrays or Structures as pre-defined tags.
- The display unit may not work properly if you use more than one symbol link.
- The symbol link variable value cannot be stored in backup memory (SRAM), but the [Retentive] property might display in the property window. Even if you enable the [Retentive] property, symbol link variable value is not preserved. Also, if you reopen the project file, the setting becomes invalid.
- 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.
- You cannot delete variables created from an imported symbol file and then import another symbol file. All symbol files must be imported first. Otherwise, the variable database may become corrupted.  
If you want to import another symbol file after deleting the variables, first delete all the symbol files and import the symbol files again. After that, you can delete individual variables.
- Do not change the [Dimension] setting of an array variable imported from a symbol file. Changing the [Dimension] setting may result in unexpected behavior in the screen editing software.

### 9.2.10 Web Viewer

- If you use Web Viewer in a project that has a folder without a screen in the [Project Explorer]'s [Screen Design] - [Screen] node, you may not be able to operate the screen from a Web Viewer client.

### 9.2.11 Driver

- When using the following drivers, after importing the Symbol File, remove all unused variables.
  - CoDeSys Automation Alliance - CoDeSys V3 Ethernet
  - CoDeSys Automation Alliance - CoDeSys V2 Ethernet
  - Schneider Electric - PacDrive
  - Schneider Electric - SoMachine Network
- You can change the [Series] from the equipment property window with the following drivers.
  - Siemens AG - SIMATIC S7 MPI Direct
  - Siemens AG - SIMATIC S7 Ethernet

If there is a variable associated with the device address of one of these equipment, an error may occur after changing the [Series] because supported variable data types depend on the series.

- Even though a project has not reached the maximum number of equipment, the error message "Reached maximum number of \*\*\* equipment" could occur on the screen editing software.

## 9.3 Transfer

---

- In broken mode, you cannot use File System transfer to upgrade the run time before version 3.1.100.
- When transferring a project file that exceeds the maximum size limit, the Screen Editing software will sometimes show an incorrect error message. The project size limit depends on the display unit.  
When transferring via USB cable or Ethernet, the Screen Editing software displays the message "Download Failed".  
On the other hand, when transferring via File System, even if you press the [Transfer] button, the display unit shows no indication of an error. However, if you review the system error log, you can see a record that indicates the display unit does not have enough space.
- Do not press the [ALT] key during a transfer operation. Pressing [ALT] will sometimes cause the transfer operation to fail.
- Transferring a project with many image files to the display unit may take a considerable amount of time.
- The first time you download to a display unit with GP-Pro EX installed, if [Download Ethernet Settings] is enabled in the project file, at the end of the download operation the screen editing software shows a download error even if download is successful.

### 9.3.1 Recovery Mode

- When transferring a project with [Download Ethernet Settings] enabled over a USB cable, depending on your transfer settings, a timeout may occur and transfer may not be possible. If that happens, transfer over Ethernet or File system, or transfer with the [Download Ethernet Settings] disabled.

### 9.3.2 ST6000 Series and STM6000 Series

- Even if a dialog box appears asking whether to keep or overwrite the data on Local Storage, the cancel transfer button continues to be enabled. But, even if you click the transfer cancel button, nothing will happen.

### 9.3.3 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.]  
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"

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 destination unit is restarted.

When installing the run time, there is no need to uninstall the previously installed run time.

### 9.3.4 External Storage (SDCard / USBStorage)

- For the following data, when using USB storage as the save destination, and following the initial transfer you remove USB storage and delete the data, after the next transfer you may not be able to save the data to USB storage.
  - Alarms
  - Recipes
  - Logging

When this occurs, use File System transfer.

## 9.4 Display Unit Operation

---

### 9.4.1 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.
- Changes in values may not be reflected in screen drawings while there are frequent system errors, you are continually accessing back up memory, and there are many changes to variable values.

### 9.4.2 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.
- 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.
- 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.
- 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.

### 9.4.3 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.

### 9.4.4 Parts / Shapes

#### 9.4.4.1 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.
- When implementing a filter in the filter setup screen [Filter Simplified] with the Alarm Summary part, sometimes items do not display correctly.

#### 9.4.4.2 Date/Time Display and Time Display

- Do not associate a [LanguageTable Text] source property with the [Format] property. The [Format] will not change even though there is a change in the Language ID. Use the following features to change the format indirectly.
  - Range converter
  - Language Table ID associated with an internal variable

#### 9.4.4.3 Numeric Display

- Using a Numeric Display, you cannot enter values after the decimal point for recipe ingredients set up with float values. Please use the Ingredient Viewer to modify these ingredient values.
- 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.
  - Unit
  - Scale
  - Expression

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.

- 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.

#### 9.4.4.4 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.

#### 9.4.4.5 Trend Graph

- When displaying historical data in a Trend Graph part, the display may flicker.

#### 9.4.4.6 Web Browser

- The Web browser part no longer supports TIFF and MNG image file formats.

### 9.4.5 **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.
- The more [Array] Operations with the [All] check box selected, the longer it will take for the first screen change.
- 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.
- While external storage is not recognized by the display unit and an [External Storage] operation is run, there is no system error.
- When a [Value Change] trigger, set up with a Hold Delay, is associated with an object property, a change in any of that object's properties caused the timer for the Hold Delay to reset even though there was no change in the actual object property selected for the trigger.
- If an external variable is set as the [Condition] trigger, sometimes the trigger will not occur even though the condition is met.
- When using the "Change Previous Screen" operation or script in a Part or Shape and you touch and release the Part or Shape quickly, it sometimes goes back two screens.

### 9.4.6 **Alarm**

- When starting up the run time, the more Active state alarms you have in the project the longer the start up time.
- When associating [Language Table Text] in an alarm message, the filter function of Alarm Summary objects does not work correctly.

### 9.4.7 **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.
- SQL reserved words may not be used for the names of logging groups.
- Exporting logging data may sometimes take an excessive amount of time, depending on the logging group settings below, the structure of the current screen when export is executed, and the model of the display unit.
  - Maximum number of records
  - Number of registered variables

- Available storage of export destination
- 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.
  - Number of channels
  - Unit
- When using the Logging function, you can configure the following.
  - Logging Group: The number of maximum records, external storage of exported data, and the number of assigned variables
  - Trend Graph object: The number of channels and number of display points
 Processing the following could take a lot of time depending on the combination of the above settings, the screen configuration when the process is executed, and the display unit.
  - Exporting logging data
  - Displaying trend graph
  - Starting display unit

#### 9.4.8 Recipe

- Even though you configure the [Max Input] and [Min Input] of ingredients in the screen editing software, the [Max Input] and [Min Input] do not display on the display unit when changing ingredient values.
- When you import a recipe CSV file that contains multiple recipe data associated with the same variable, import may fail.

#### 9.4.9 Security

- When you use the Auto Logout function and set the default value in the [Screen ID after Auto Logout] property, after automatically logging out from the display unit, the specified screen does not display.  
To avoid this issue, set any value other than the default value in the [Screen ID after Auto Logout] property.

#### 9.4.10 Variables

- When you use a REAL variable in the input range of a variable or Numeric Display object, sometimes entering an out of range value is allowed and sometimes entering a value within range is rejected.  
Instead of a REAL variable, if you use an LREAL variable, it will work correctly.

#### 9.4.11 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 display unit to the local network, you cannot detect duplicating IP addresses.  
Only at runtime startup, the runtime check the IP address of the device on the local

network and a system error occurs if there is duplication with the display unit. After changing the IP address of the display unit, the runtime will be rebooted, so please check whether system error has occurred after rebooting.

### 9.4.12 Web Viewer

- When using a graphical object under one of the following conditions, there may be a display difference between the display unit and Web Viewer.
  - 'Animation.RotationAngle' and 'Animation.Rotation Center(X)/(Y)' are set, and the object is part of a grouped object.
  - 'Animation.RotationAngle' and 'Animation.Rotation Center(X)/(Y)' are set, and [Height] or [Width] property is associated with a source property such as a variable value.
- 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.

### 9.4.13 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 may have to check the server certificate again.
  - In the Hardware Configuration screen, from the [OPC UA Server] menu the command [Regenerate Certificate] is selected.
  - Transfer via File System (This issue does not arise with Ethernet and USB cable transfer.)
- When using OPC UA Server node ID with Structure and Array variables, a duplicate of the Structure or Array name will appear.  
For example, the node ID for [Target1] in [Str.WORD1] becomes "[Target1.Str.Str.WORD1]".

### 9.4.14 Driver

- When you use the driver of Schneider Electric, and [Unlocated Variable], Runtime may not show valid errors. In this case, please enable [IEC61131 Syntax].
- 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.

### 9.4.15 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.

## 9.4.16 GP-4100 Series

### 9.4.16.1 CoDeSys Automation Alliance - CoDeSys V2 Ethernet / Schneider Electric - PacDrive

- When using GP-4100 Series with the following driver, sometimes connection system errors will occur.
  - CoDeSys Automation Alliance - CoDeSys V2 Ethernet
  - Schneider Electric - PacDrive

## 9.4.17 ST6000 Series

- Flow control XON/XOFF is not available.

## 9.4.18 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.
- 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.
- When the group name for general users is not "Users", such as "utilisateurs" on a French operating system, add full control access rights to C:\ProgramData\Pro-face\BLUE Runtime\data to the user group.
- 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.
- Do not install the runtime in a path with Unicode characters. Select a path without any Unicode characters.

## 9.4.19 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.

## 9.5 Cybersecurity

---

- Perform authenticity and content verification of exported files (.csv, .txt) before executing any scripts embedded in the file. Unless the user intentionally develops or creates the script, exported files will not contain any scripting.
- Open only trusted project files in the screen editing software.

---

## 10 OPEN SOURCE SOFTWARE

Open source software used in this product is protected by the copyright described below.

### 10.1 LUA Plus

---

Copyright (c) 1994-2016 Lua.org, PUC-Rio.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

### 10.2 SQLCIPHER

---

Copyright (c) 2008-2020 Zetetic LLC

All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

- \* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
- \* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
- \* Neither the name of the ZETETIC LLC nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY ZETETIC LLC "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL ZETETIC LLC BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN

---

ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

## 10.3 OpenSSL

---

Copyright (c) 1998-2019 The OpenSSL Project. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. All advertising materials mentioning features or use of this software must display the following acknowledgment:

"This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit. (<http://www.openssl.org/>)"

4. The names "OpenSSL Toolkit" and "OpenSSL Project" must not be used to endorse or promote products derived from this software without prior written permission. For written permission, please contact

[openssl-core@openssl.org](mailto:openssl-core@openssl.org).

5. Products derived from this software may not be called "OpenSSL" nor may "OpenSSL" appear in their names without prior written permission of the OpenSSL Project.

6. Redistributions of any form whatsoever must retain the following acknowledgment:

"This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit (<http://www.openssl.org/>)"

THIS SOFTWARE IS PROVIDED BY THE OpenSSL PROJECT ``AS IS" AND ANY EXPRESSED OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE OpenSSL PROJECT OR ITS CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

This product includes cryptographic software written by Eric Young ([eay@cryptsoft.com](mailto:eay@cryptsoft.com)).  
This product includes software written by Tim Hudson ([tjh@cryptsoft.com](mailto:tjh@cryptsoft.com)).



Copyright (C) 1995-1998 Eric Young ([eay@cryptsoft.com](mailto:eay@cryptsoft.com)) All rights reserved.

This package is an SSL implementation written by Eric Young ([eay@cryptsoft.com](mailto:eay@cryptsoft.com)). The implementation was written so as to conform with Netscapes SSL.

This library is free for commercial and non-commercial use as long as the following conditions are aheared to. The following conditions apply to all code found in this distribution, be it the RC4, RSA, lhash, DES, etc., code; not just the SSL code. The SSL documentation included with this distribution is covered by the same copyright terms except that the holder is Tim Hudson ([tjh@cryptsoft.com](mailto:tjh@cryptsoft.com)).

Copyright remains Eric Young's, and as such any Copyright notices in the code are not to be removed. If this package is used in a product, Eric Young should be given attribution as the author of the parts of the library used. This can be in the form of a textual message at program startup or in documentation (online or textual) provided with the package.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. All advertising materials mentioning features or use of this software must display the following acknowledgement:

"This product includes cryptographic software written by Eric Young ([eay@cryptsoft.com](mailto:eay@cryptsoft.com))"  
The word 'cryptographic' can be left out if the rouines from the library being used are not cryptographic related :-).

4. If you include any Windows specific code (or a derivative thereof) from the apps directory (application code) you must include an acknowledgement:

"This product includes software written by Tim Hudson ([tjh@cryptsoft.com](mailto:tjh@cryptsoft.com))"

THIS SOFTWARE IS PROVIDED BY ERIC YOUNG ``AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION)HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

The license and distribution terms for any publically available version or derivative of this code cannot be changed. i.e. this code cannot simply be copied and put under another distribution license

[including the GNU Public Licence.]

## 10.4 mapm

---

Copyright (C) 1999 - 2010 Michael C. Ring

This software is Freeware.

Permission to use, copy, and distribute this software and its documentation for any purpose with or without fee is hereby granted, provided that the above copyright notice appear in all copies and that both that copyright notice and this permission notice appear in supporting documentation.

Permission to modify the software is granted. Permission to distribute the modified code is granted. Modifications are to be distributed by using the file 'license.txt' as a template to modify the file header.

'license.txt' is available in the official MAPM distribution.

To distribute modified source code, insert the file 'license.txt' at the top of all modified source code files and edit accordingly. This software is provided "as is" without express or implied warranty.

## 10.5 libpng

---

libpng is used in this product.

## 10.6 libxml2

---

Except where otherwise noted in the source code (e.g. the files hash.c,list.c and the trio files, which are covered by a similar license but with different Copyright notices) all the files are:

Copyright (C) 1998-2012 Daniel Veillard. All Rights Reserved.

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FIT-NESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

## 10.7 ipsec-tools

The code is copyright 1995, 1996, 1997, 1998, and 1999 by the WIDE Project and licensed under the BSD license.

Copyright (c) The Regents of the University of California.  
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. Neither the name of the University nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE REGENTS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE REGENTS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

The GSSAPI code is copyright 2000 Wasabi Systems, Inc and licensed under the following license:

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. All advertising materials mentioning features or use of this software must display the following acknowledgement:

This product includes software developed by Wasabi Systems for Zembu Labs, Inc.

<http://www.zembu.com/>

4. The name of Wasabi Systems, Inc. may not be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY WASABI SYSTEMS, INC. "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL WASABI SYSTEMS, INC BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)

ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

## 10.8 ProtocolBuffers

---

Copyright 2008, Google Inc.  
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

- \* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
- \* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
- \* Neither the name of Google Inc. nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Code generated by the Protocol Buffer compiler is owned by the owner of the input file used when generating it.

This code is not standalone and requires a support library to be linked with it. This support library is itself covered by the above license.

## 10.9 protobufjs

---

This license applies to all parts of protobuf.js except those files either explicitly including or referencing a different license or located in a directory containing a different LICENSE file.

---

Copyright (c) 2016, Daniel Wirtz All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

- \* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
- \* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
- \* Neither the name of its author, nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS

OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

---

Code generated by the command line utilities is owned by the owner of the input file used when generating it.

This code is not standalone and requires a support library to be linked with it. This support library is itself covered by the above license.

---

## 10.10 deepmerge

---

The MIT License (MIT)

Copyright (c) 2012 James Halliday, Josh Duff, and other contributors

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

---

## 10.11 ClosedXml

---

MIT License

Copyright (c) 2016 ClosedXML

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

---

## 10.12 CommonServiceLocator

---

### Microsoft Public License (MS-PL)

This license governs use of the accompanying software. If you use the software, you accept this license. If you do not accept the license, do not use the software.

#### 1. Definitions

The terms "reproduce," "reproduction," "derivative works," and "distribution" have the same meaning here as under U.S. copyright law.

A "contribution" is the original software, or any additions or changes to the software.

A "contributor" is any person that distributes its contribution under this license.

"Licensed patents" are a contributor's patent claims that read directly on its contribution.

#### 2. Grant of Rights

(A) Copyright Grant- Subject to the terms of this license, including the license conditions and limitations in section 3, each contributor grants you a non-exclusive, worldwide, royalty-free copyright license to reproduce its contribution, prepare derivative works of its contribution, and distribute its contribution or any derivative works that you create.

(B) Patent Grant- Subject to the terms of this license, including the license conditions and limitations in section 3, each contributor grants you a non-exclusive, worldwide, royalty-free license under its licensed patents to make, have made, use, sell, offer for sale, import, and/or otherwise dispose of its contribution in the software or derivative works of the contribution in the software.

#### 3. Conditions and Limitations

(A) No Trademark License- This license does not grant you rights to use any contributors' name, logo, or trademarks.

(B) If you bring a patent claim against any contributor over patents that you claim are infringed by the software, your patent license from such contributor to the software ends automatically.

(C) If you distribute any portion of the software, you must retain all copyright, patent, trademark, and attribution notices that are present in the software.

(D) If you distribute any portion of the software in source code form, you may do so only under this license by including a complete copy of this license with your distribution. If you distribute any portion of the software in compiled or object code form, you may only do so under a license that complies with this license.

(E) The software is licensed "as-is." You bear the risk of using it. The contributors give no express warranties, guarantees or conditions. You may have additional consumer rights under your local laws which this license cannot change. To the extent permitted under your local laws, the contributors exclude the implied warranties of merchantability, fitness for a particular purpose and non-infringement.

---

## 10.13 DbExecutor

---

DbExecutor is used in this product.

---

## 10.14 DocumentFormat.OpenXml

---

### The MIT License (MIT)

Copyright (c) Microsoft Corporation

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

## 10.15 Extended.Wpf.Toolkit

---

### Microsoft Public License (Ms-PL)

This license governs use of the accompanying software. If you use the software, you accept this license. If you do not accept the license, do not use the software.

#### 1. Definitions

The terms "reproduce," "reproduction," "derivative works," and "distribution" have the same meaning here as under U.S. copyright law. A "contribution" is the original software, or any additions or changes to the software. A "contributor" is any person that distributes its contribution under this license. "Licensed patents" are a contributor's patent claims that read directly on its contribution.

#### 2. Grant of Rights

(A) Copyright Grant- Subject to the terms of this license, including the license conditions and limitations in section 3, each contributor grants you a non-exclusive, worldwide, royalty-free copyright license to reproduce its contribution, prepare derivative works of its contribution, and distribute its contribution or any derivative works that you create.

(B) Patent Grant- Subject to the terms of this license, including the license conditions and limitations in section 3, each contributor grants you a non-exclusive, worldwide, royalty-free license under its licensed patents to make, have made, use, sell, offer for sale, import, and/or otherwise dispose of its contribution in the software or derivative works of the contribution in the software.

#### 3. Conditions and Limitations

(A) No Trademark License- This license does not grant you rights to use any contributors' name, logo, or trademarks.

(B) If you bring a patent claim against any contributor over patents that you claim are infringed by the software, your patent license from such contributor to the software ends automatically.

(C) If you distribute any portion of the software, you must retain all copyright, patent, trademark, and attribution notices that are present in the software.

(D) If you distribute any portion of the software in source code form, you may do so only under this license by including a complete copy of this license with your distribution. If you distribute any portion of the software in compiled or object code form, you may only do so under a license that complies with this license.

(E) The software is licensed "as-is." You bear the risk of using it. The contributors give no express warranties, guarantees, or conditions. You may have additional consumer rights under your local laws which this license cannot change. To the extent permitted under your local laws, the contributors exclude the implied warranties of merchantability, fitness for a particular purpose and non-infringement.

---

## 10.16 log4net

---

Copyright 2004-2021 The Apache Software Foundation

Licensed under the Apache License, Version 2.0 (the "License");  
you may not use this file except in compliance with the License.  
You may obtain a copy of the License at

<http://www.apache.org/licenses/LICENSE-2.0>

Unless required by applicable law or agreed to in writing, software  
distributed under the License is distributed on an "AS IS" BASIS,  
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.  
See the License for the specific language governing permissions and  
limitations under the License.

---

## 10.17 MessagePack

---

MessagePack for C#

MIT License

Copyright (c) 2017 Yoshifumi Kawai and contributors

Permission is hereby granted, free of charge, to any person obtaining a copy  
of this software and associated documentation files (the "Software"), to deal  
in the Software without restriction, including without limitation the rights  
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell  
copies of the Software, and to permit persons to whom the Software is  
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all  
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR  
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,  
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE  
AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER  
LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM,  
OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE  
SOFTWARE.

---

lz4net

Copyright (c) 2013-2017, Milosz Krajewski

All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that  
the following conditions are met:

Redistributions of source code must retain the above copyright notice, this list of conditions and the following  
disclaimer.

Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the  
following disclaimer in the documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND  
ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED



WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

## 10.18 Microsoft.CodeAnalysis

Microsoft.CodeAnalysis.Analyzers

Microsoft.CodeAnalysis.Common

Microsoft.CodeAnalysis.CSharp

Microsoft.CodeAnalysis.CSharp.Workspaces

Microsoft.CodeAnalysis.VisualBasic

Microsoft.CodeAnalysis.VisualBasic.Workspaces

Microsoft.CodeAnalysis.Workspaces.Common

---

The MIT License (MIT)

Copyright (c) .NET Foundation and Contributors

All rights reserved.

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

## 10.19 SharpSvn.1.9-x86

---

Copyright 2006-2015 The SharpSvn Project

Licensed under the Apache License, Version 2.0 (the "License");  
you may not use this file except in compliance with the License.  
You may obtain a copy of the License at

<http://www.apache.org/licenses/LICENSE-2.0>

Unless required by applicable law or agreed to in writing, software distributed under the License is distributed on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the License for the specific language governing permissions and

limitations under the License.

---

## 10.20 Mvp.Xml

---

Mvp.Xml is used in this product.

---

## 10.21 NeoLua

---

Copyright 2013-2021 Neolithos

Licensed under the Apache License, Version 2.0 (the "License");  
you may not use this file except in compliance with the License.  
You may obtain a copy of the License at

<http://www.apache.org/licenses/LICENSE-2.0>

Unless required by applicable law or agreed to in writing, software  
distributed under the License is distributed on an "AS IS" BASIS,  
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.  
See the License for the specific language governing permissions and  
limitations under the License.

---

## 10.22 Newtonsoft.Json

---

The MIT License (MIT)

Copyright (c) 2007 James Newton-King

Permission is hereby granted, free of charge, to any person obtaining a copy of  
this software and associated documentation files (the "Software"), to deal in  
the Software without restriction, including without limitation the rights to  
use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of  
the Software, and to permit persons to whom the Software is furnished to do so,  
subject to the following conditions:

The above copyright notice and this permission notice shall be included in all  
copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR  
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS  
FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR  
COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER  
IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN  
CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

---

## 10.23 Nlog

---

Copyright (c) 2004-2021 Jaroslaw Kowalski <jaak@jkowalski.net>, Kim Christensen, Julian Verdurmen

All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

- \* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
- \* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
- \* Neither the name of Jaroslaw Kowalski nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

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

---

The MIT License (MIT)

Copyright (c) .NET Foundation and Contributors

All rights reserved.

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

## 10.25 System.Collections.Immutable System.Configuration.ConfigurationManager System.Reflection.Emit

---

System.Reflection.Metadata  
System.Threading.Tasks.Extensions  
System.ValueTuple

---

## MICROSOFT SOFTWARE LICENSE TERMS

### MICROSOFT .NET LIBRARY

These license terms are an agreement between you and Microsoft Corporation (or based on where you live, one of its affiliates). They apply to the software named above. The terms also apply to any Microsoft services or updates for the software, except to the extent those have different terms.

IF YOU COMPLY WITH THESE LICENSE TERMS, YOU HAVE THE RIGHTS BELOW.

#### 1. INSTALLATION AND USE RIGHTS.

You may install and use any number of copies of the software to develop and test your applications.

2. THIRD PARTY COMPONENTS. The software may include third party components with separate legal notices or governed by other agreements, as may be described in the ThirdPartyNotices file(s) accompanying the software.

#### 3. ADDITIONAL LICENSING REQUIREMENTS AND/OR USE RIGHTS.

a. DISTRIBUTABLE CODE. The software is comprised of Distributable Code. "Distributable Code" is code that you are permitted to distribute in applications you develop if you comply with the terms below.

i. Right to Use and Distribute.

· You may copy and distribute the object code form of the software.

· Third Party Distribution. You may permit distributors of your applications to copy and distribute the Distributable Code as part of those applications.

ii. Distribution Requirements. For any Distributable Code you distribute, you must

· use the Distributable Code in your applications and not as a standalone distribution;

· require distributors and external end users to agree to terms that protect it at least as much as this agreement; and

· indemnify, defend, and hold harmless Microsoft from any claims, including attorneys' fees, related to the distribution or use of your applications, except to the extent that any claim is based solely on the unmodified Distributable Code.

iii. Distribution Restrictions. You may not

· use Microsoft's trademarks in your applications' names or in a way that suggests your applications come from or are endorsed by Microsoft; or

· modify or distribute the source code of any Distributable Code so that any part of it becomes subject to an Excluded License. An "Excluded License" is one that requires, as a condition of use, modification or distribution of code, that (i) it be disclosed or distributed in source code form; or (ii) others have the right to modify it.

#### 4. DATA.

a. Data Collection. The software may collect information about you and your use of the software, and send that to Microsoft. Microsoft may use this information to provide services and improve our products and services. You may opt-out of many of these scenarios, but not all, as described in the software documentation. There are also some features in the software that may enable you and Microsoft to collect data from users of your applications. If you use these features, you must comply with applicable law, including providing appropriate notices to users of your applications together with Microsoft's privacy statement. Our privacy statement is located at <https://go.microsoft.com/fwlink/?LinkID=824704>. You can learn more about data collection and its use from the software documentation and our privacy statement. Your use of the software operates as your consent to these practices.

b. Processing of Personal Data. To the extent Microsoft is a processor or subprocessor of personal data in connection with the software, Microsoft makes the commitments in the European Union General Data

Protection Regulation Terms of the Online Services Terms to all customers effective May 25, 2018, at <https://docs.microsoft.com/en-us/legal/gdpr>.

5. **SCOPE OF LICENSE.** The software is licensed, not sold. This agreement only gives you some rights to use the software. Microsoft reserves all other rights. Unless applicable law gives you more rights despite this limitation, you may use the software only as expressly permitted in this agreement. In doing so, you must comply with any technical limitations in the software that only allow you to use it in certain ways. You may not

- work around any technical limitations in the software;
- reverse engineer, decompile or disassemble the software, or otherwise attempt to derive the source code for the software, except and to the extent required by third party licensing terms governing use of certain open source components that may be included in the software;
- remove, minimize, block or modify any notices of Microsoft or its suppliers in the software;
- use the software in any way that is against the law; or
- share, publish, rent or lease the software, provide the software as a stand-alone offering for others to use, or transfer the software or this agreement to any third party.

6. **EXPORT RESTRICTIONS.** You must comply with all domestic and international export laws and regulations that apply to the software, which include restrictions on destinations, end users, and end use. For further information on export restrictions, visit [www.microsoft.com/exporting](http://www.microsoft.com/exporting).

7. **SUPPORT SERVICES.** Because this software is “as is,” we may not provide support services for it.

8. **ENTIRE AGREEMENT.** This agreement, and the terms for supplements, updates, Internet-based services and support services that you use, are the entire agreement for the software and support services.

9. **APPLICABLE LAW.** If you acquired the software in the United States, Washington law applies to interpretation of and claims for breach of this agreement, and the laws of the state where you live apply to all other claims. If you acquired the software in any other country, its laws apply.

10. **CONSUMER RIGHTS; REGIONAL VARIATIONS.** This agreement describes certain legal rights. You may have other rights, including consumer rights, under the laws of your state or country. Separate and apart from your relationship with Microsoft, you may also have rights with respect to the party from which you acquired the software. This agreement does not change those other rights if the laws of your state or country do not permit it to do so. For example, if you acquired the software in one of the below regions, or mandatory country law applies, then the following provisions apply to you:

a) **Australia.** You have statutory guarantees under the Australian Consumer Law and nothing in this agreement is intended to affect those rights.

b) **Canada.** If you acquired this software in Canada, you may stop receiving updates by turning off the automatic update feature, disconnecting your device from the Internet (if and when you re-connect to the Internet, however, the software will resume checking for and installing updates), or uninstalling the software. The product documentation, if any, may also specify how to turn off updates for your specific device or software.

c) **Germany and Austria.**

(i) **Warranty.** The software will perform substantially as described in any Microsoft materials that accompany it. However, Microsoft gives no contractual guarantee in relation to the software.

(ii) **Limitation of Liability.** In case of intentional conduct, gross negligence, claims based on the Product Liability Act, as well as in case of death or personal or physical injury, Microsoft is liable according to the statutory law.

Subject to the foregoing clause (ii), Microsoft will only be liable for slight negligence if Microsoft is in breach of such material contractual obligations, the fulfillment of which facilitate the due performance of this agreement, the breach of which would endanger the purpose of this agreement and the compliance with which a party may constantly trust in (so-called “cardinal obligations”). In other cases of slight negligence, Microsoft will not be liable for slight negligence

11. **DISCLAIMER OF WARRANTY.** THE SOFTWARE IS LICENSED “AS-IS.” YOU BEAR THE RISK OF USING IT. MICROSOFT GIVES NO EXPRESS WARRANTIES, GUARANTEES OR CONDITIONS. TO THE EXTENT PERMITTED UNDER YOUR LOCAL LAWS, MICROSOFT EXCLUDES THE IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NON-INFRINGEMENT.

12. **LIMITATION ON AND EXCLUSION OF REMEDIES AND DAMAGES.** YOU CAN RECOVER FROM MICROSOFT AND ITS SUPPLIERS ONLY DIRECT DAMAGES UP TO U.S. \$5.00. YOU CANNOT

RECOVER ANY OTHER DAMAGES, INCLUDING CONSEQUENTIAL, LOST PROFITS, SPECIAL, INDIRECT OR INCIDENTAL DAMAGES.

This limitation applies to (a) anything related to the software, services, content (including code) on third party Internet sites, or third party applications; and (b) claims for breach of contract, breach of warranty, guarantee or condition, strict liability, negligence, or other tort to the extent permitted by applicable law.

It also applies even if Microsoft knew or should have known about the possibility of the damages. The above limitation or exclusion may not apply to you because your state or country may not allow the exclusion or limitation of incidental, consequential or other damages.

---

## 10.26 Unity

---

Unity is used in this product.

---

## 10.27 GongSolutions.Wpf.DragDrop

---

BSD 3-Clause License

Copyright (c) Jan Karger, Steven Kirk and Contributors. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

- \* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
- \* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
- \* Neither the name of gong-wpf-dragdrop nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

---

## 10.28 Luac

---

Kopi Lua License

-----

Kopi Lua is licensed under the terms of the MIT license. Both the MIT license and the original Lua copyright notice are reproduced below.

---

Please see <http://www.ppl-pilot.com/KopiLua> for details.

=====  
Lua License  
-----

Lua is licensed under the terms of the MIT license reproduced below.  
This means that Lua is free software and can be used for both academic  
and commercial purposes at absolutely no cost.

For details and rationale, see <http://www.lua.org/license.html> .

=====

Copyright (C) 1994-2008 Lua.org, PUC-Rio.

Permission is hereby granted, free of charge, to any person obtaining a copy  
of this software and associated documentation files (the "Software"), to deal  
in the Software without restriction, including without limitation the rights  
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell  
copies of the Software, and to permit persons to whom the Software is  
furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in  
all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR  
IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,  
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE  
AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER  
LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM,  
OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN  
THE SOFTWARE.

=====

## 10.29 XamlAnimatedGif

---

Copyright Thomas Levesque

Licensed under the Apache License, Version 2.0 (the "License");  
you may not use this file except in compliance with the License.  
You may obtain a copy of the License at

<http://www.apache.org/licenses/LICENSE-2.0>

Unless required by applicable law or agreed to in writing, software  
distributed under the License is distributed on an "AS IS" BASIS,  
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.  
See the License for the specific language governing permissions and  
limitations under the License.

## 10.30 System.Data.SQLite

---

All files in the "System.Data.SQLite.Linq/SQL Generation" directory (within the source tree) are covered by  
the Microsoft Public License (MS-PL). These files end up being compiled into both the  
"System.Data.SQLite.Linq" and "System.Data.SQLite.EF6" assemblies.

All other code and documentation in System.Data.SQLite has been dedicated to the public domain by the authors. All code authors, and representatives of the companies they work for, have signed affidavits dedicating their contributions to the public domain and originals of those signed affidavits are stored in a firesafe at the main offices of Hwaci. Anyone is free to copy, modify, publish, use, compile, sell, or distribute the original System.Data.SQLite code, either in source code form or as a compiled binary, for any purpose, commercial or non-commercial, and by any means.

## 10.31 XAMLMarkupExtensions

---

### Microsoft Public License (Ms-PL)

This license governs use of the accompanying software. If you use the software, you accept this license. If you do not accept the license, do not use the software.

#### 1. Definitions

The terms "reproduce," "reproduction," "derivative works," and "distribution" have the same meaning here as under U.S. copyright law.

A "contribution" is the original software, or any additions or changes to the software.

A "contributor" is any person that distributes its contribution under this license.

"Licensed patents" are a contributor's patent claims that read directly on its contribution.

#### 2. Grant of Rights

(A) Copyright Grant- Subject to the terms of this license, including the license conditions and limitations in section 3, each contributor grants you a non-exclusive, worldwide, royalty-free copyright license to reproduce its contribution, prepare derivative works of its contribution, and distribute its contribution or any derivative works that you create.

(B) Patent Grant- Subject to the terms of this license, including the license conditions and limitations in section 3, each contributor grants you a non-exclusive, worldwide, royalty-free license under its licensed patents to make, have made, use, sell, offer for sale, import, and/or otherwise dispose of its contribution in the software or derivative works of the contribution in the software.

#### 3. Conditions and Limitations

(A) No Trademark License- This license does not grant you rights to use any contributors' name, logo, or trademarks.

(B) If you bring a patent claim against any contributor over patents that you claim are infringed by the software, your patent license from such contributor to the software ends automatically.

(C) If you distribute any portion of the software, you must retain all copyright, patent, trademark, and attribution notices that are present in the software.

(D) If you distribute any portion of the software in source code form, you may do so only under this license by including a complete copy of this license with your distribution. If you distribute any portion of the software in compiled or object code form, you may only do so under a license that complies with this license.

(E) The software is licensed "as-is." You bear the risk of using it. The contributors give no express warranties, guarantees or conditions. You may have additional consumer rights under your local laws which this license cannot change. To the extent permitted under your local laws, the contributors exclude the implied warranties of merchantability, fitness for a particular purpose and non-infringement.

## 10.32 Caliburn.Micro

---

### The MIT License

Copyright (c) 2010 Blue Spire Consulting, Inc.

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights



to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

## REVISION HISTORY

### **Document Revision: 01 (01/2022)**

Document was created.

### **Document Revision: 02 (04/2022)**

Limitations and fixed limitations were updated.

### **Document Revision: 03 (04/2022)**

Limitations were updated.