

TSC-Material-Theme

Antidoc v3.1.0, Daniel Coons

Table of Contents

1. Project description	1
2. Libraries	2
2.1. TSC Material Theme.lvlib	2
3. Classes	3
3.1. Classes overview	3
3.2. TSC Button Editor.lvclass	5
3.3. Material Theme.lvclass	7
3.4. Material-Palette.lvclass	9
3.5. Material-Scheme.lvclass	11
4. Legal Information	19
4.1. Document creation	19
4.2. Product used in the project	21

Chapter 1. Project description

No description found (add content in project description)

Chapter 2. Libraries

This section describes the libraries contained in the project.

2.1. TSC Material Theme.lvlib

Responsibility: Implement the Google Material Theme coloring to LabVIEW

<https://m3.material.io/>

Version: 1.0.0.0

Table 1. Nested libraries

Name	Type
Material Theme.lvclass	LVClass
Material-Palette.lvclass	LVClass
Material-Scheme.lvclass	LVClass

2.1.1. Functions

This library has no functions set to non private scope.

2.1.2. Library Constant VIs

NOTE No Constant VIs Found

Chapter 3. Classes

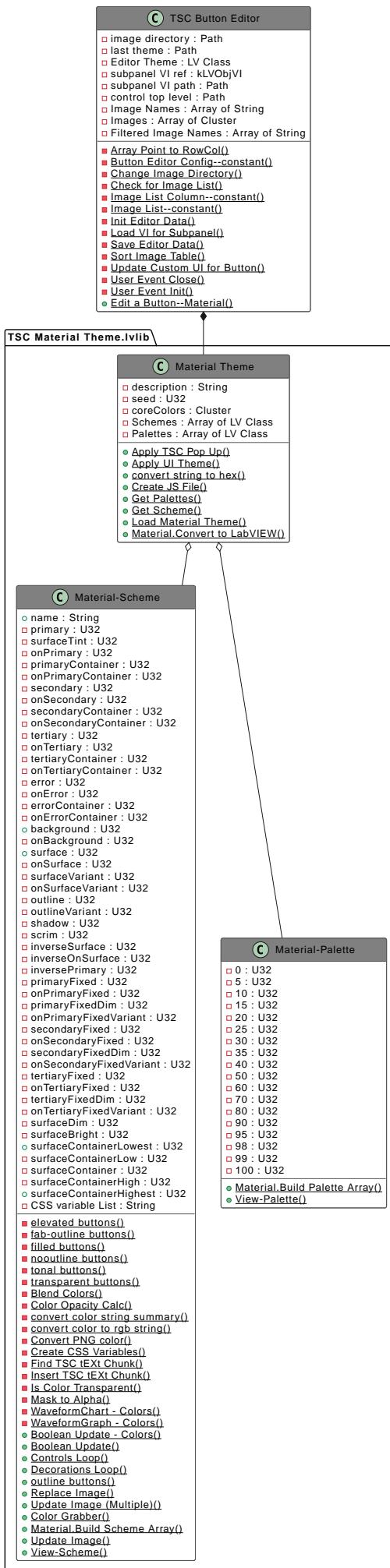
This section describes the classes contained in the project.

3.1. Classes overview

This project contains 4 classes and 0 interface.

Table 2. Classes list

Classes	Interfaces
TSC Button Editor.lvclass	
Material Theme.lvclass	
Material-Palette.lvclass	
Material-Scheme.lvclass	

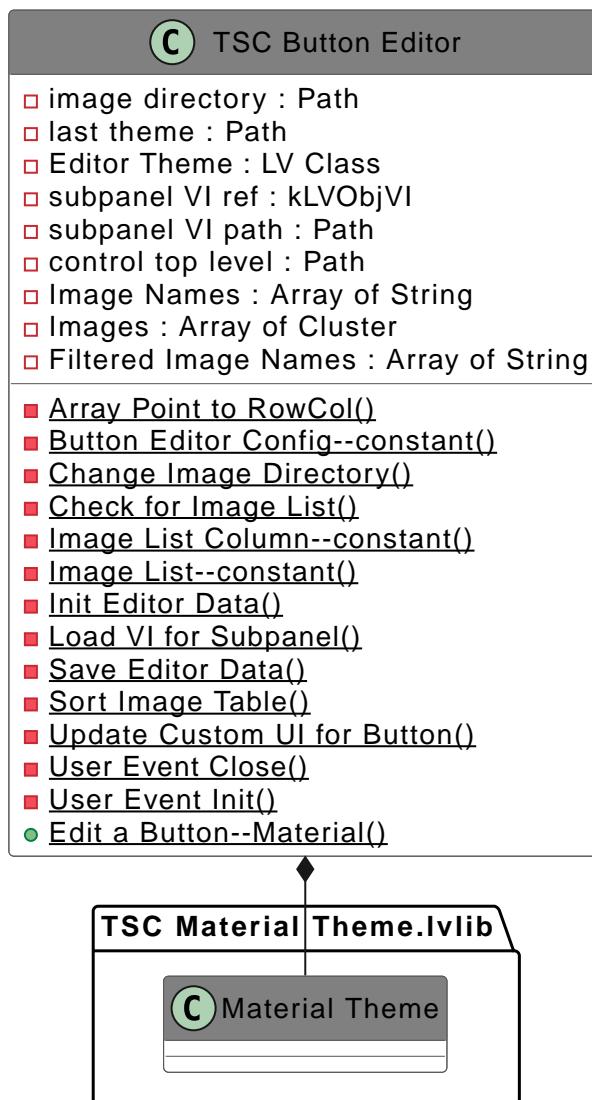


3.2. TSC Button Editor.lvclass

Responsibility: The button editor class to keep track of helper functions and shared data

Version: 1.0.0.10

3.2.1. Diagram



3.2.2. Methods

Table 3. Functions

Name	Connector pane	Description	S.	R.	I.
Array Point to RowCol		<p>Converts a pixel coordinate to an index into the array. Returns an array of indices with a length equal to the number of dimensions in the array. This method also returns whether the point is inside the bounds of the content rectangle.</p> <p>Downloaded from forum post to adapt to this application.</p> <p>Written by J. David Saunders https://forums.ni.com/t5/LabVIEW/get-index-of-an-element-from-an-array-on-mouse-click/td-p/1310143/page/2</p>			
Change Image Directory		<p>This VI will change the image directory and load the images from that location.</p> <p>Code Developed By: Technology Service Corporation</p>			
Check for Image List		<p>This VI will look to see if an image directory binary file exists.</p> <p>Code Developed By: Technology Service Corporation</p>			
Init Editor Data		<p>This VI will load the initial information from the configuration for the button editor if it exists to initialize the class.</p> <p>Code Developed By: Technology Service Corporation</p>			
Load VI for Subpanel		<p>This VI loads in the subpanel VI at program start which contains a sample Boolean control.</p> <p>Code Developed By: Technology Service Corporation</p>			
Save Editor Data		<p>This VI is called when the button editor finishes to write the object-data to an XML file for loading on next launch.</p> <p>Code Developed By: Technology Service Corporation</p>			

Name	Connector pane	Description	S.	R.	I.
Sort Image Table		This VI reshapes the array of images into the display for the button editor UI. Code Developed By: Technology Service Corporation			
Update Custom UI for Button		Remove the existing control and replace with the selected custom button. Code Developed By: Technology Service Corporation			
User Event Close		close all user events Code Developed By: Technology Service Corporation			
User Event Init		create user events for the button editor. Code Developed By: Technology Service Corporation			
Edit a Button—Material		Edit/create buttons based on a few built-in templates. Code Developed By: Technology Service Corporation			

Scope: → Protected | → Community | → Private

Reentrancy: → Preallocated reentrancy | → Shared reentrancy

Inlining: → Inlined

3.2.3. Class Constant VIs

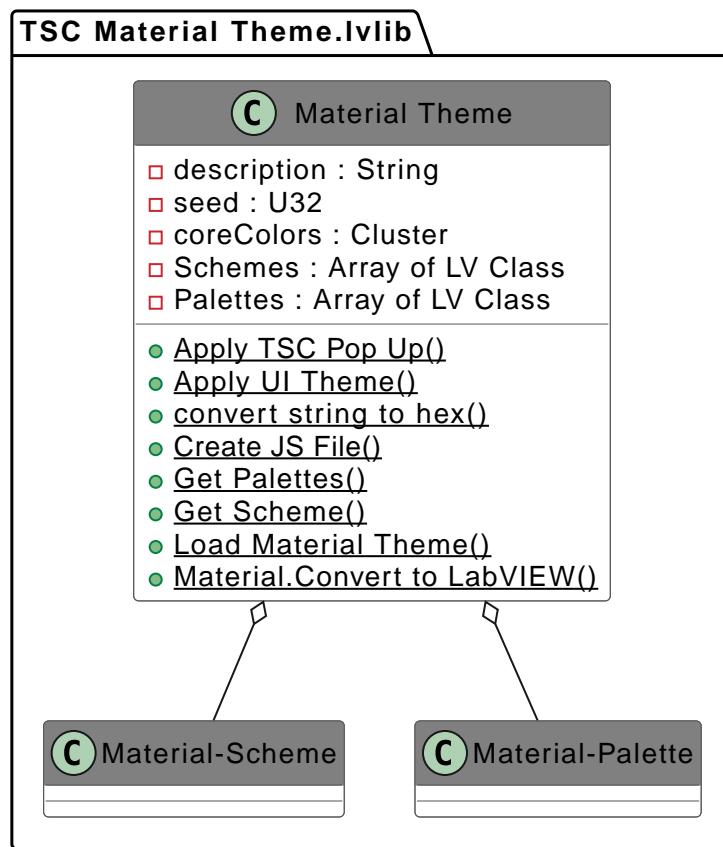
Table 4. Constant VIs Found

VI Name	Data Type	Value
Button Editor Config—constant.vi	Path	tsc\button-editor.xml
Image List Column—constant.vi	I32	8
Image List—constant.vi	Path	tsc\image-list.bin

3.3. Material Theme.lvclass

Responsibility: No description found (add content in lvclass description)

3.3.1. Diagram



3.3.2. Methods

Table 5. Functions (non private scope only)

Name	Connector pane	Description	S.	R.	I.
Apply TSC Pop Up	<p>Material Theme in [1] Theme [10] Material.Details in [9] error in [8]</p> <p>[2] Material.Scheme out [1] Material.Details out [0] error out</p>	<p>Apply a loaded theme to the TSC Pop Up Library</p> <p>Code Developed By: Technology Service Corporation</p>			
Apply UI Theme	<p>VI Refnum [7] Material Theme in [1] Theme [10] error in (no error) [8] save? [6] close ref? [4]</p> <p>[3] Material Theme out [0] error out [4] close ref?</p>	<p>Apply a loaded theme to a VI - will update the panel and the controls/indicators</p> <p>Code Developed By: Technology Service Corporation</p>			
convert string to hex	<p>string [1]</p> <p>[0] hex</p>	<p>convert an ARGB text string to the equivalent hex value</p> <p>Code Developed By: Technology Service Corporation</p>			

Name	Connector pane	Description	S.	R.	I.
Create JS File		I have no recollection of why I made this or what its purpose is. I am just going to leave it in case it is important..... Code Developed By: Technology Service Corporation			
Get Palettes		Get the defined scheme from the loaded theme Code Developed By: Technology Service Corporation			
Get Scheme		Get the defined scheme from the loaded theme Code Developed By: Technology Service Corporation			
Load Material Theme		load a material theme from disk Code Developed By: Technology Service Corporation			
Material.Convert to LabVIEW		populate the material theme from the original Material JSON that was exported Code Developed By: Technology Service Corporation			

Scope: → Protected | → Community

Reentrancy: → Preallocated reentrancy | → Shared reentrancy

Inlining: → Inlined

3.3.3. Class Constant VIs

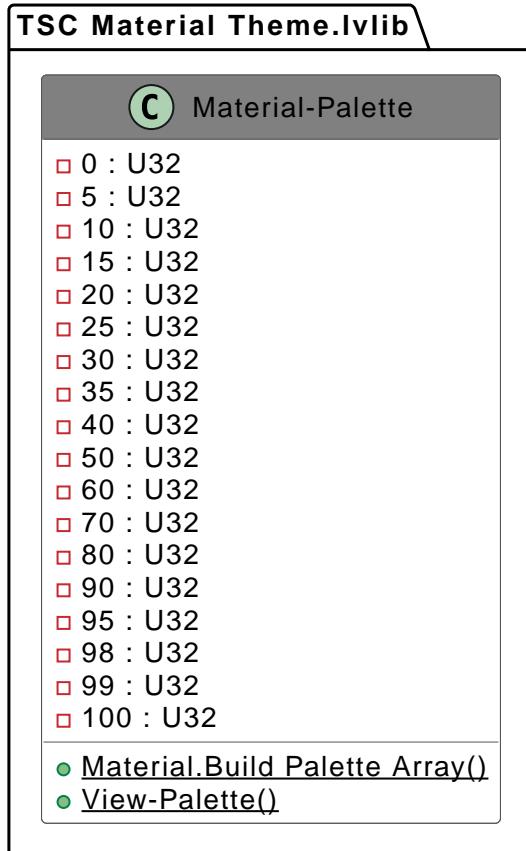
NOTE No Constant VIs Found

3.4. Material-Palette.lvclass

Responsibility: The Material-Palette class defines the gradients of colors

Version: 1.0.0.0

3.4.1. Diagram



3.4.2. Methods

Table 6. Functions (non private scope only)

Name	Connector pane	Description	S.	R.	I.
Material.Buil d Palette Array	palettes [11]	Convert the json representation of the palette colors into array of class palettes. Code Developed By: Technology Service Corporation			
View-Palette	Array [11]	read material palette data Code Developed By: Technology Service Corporation			

Scope: → Protected | → Community

Reentrancy: → Preallocated reentrancy | → Shared reentrancy

Inlining: → Inlined

3.4.3. Class Constant VIs

NOTE No Constant VIs Found

3.5. Material-Scheme.lvclass

Responsibility: The Material-Scheme class defines the coloring categories for a given theme

Version: 1.0.0.3

3.5.1. Diagram

TSC Material Theme.lvlib

C Material-Scheme

- o name : String
- o primary : U32
- o surfaceTint : U32
- o onPrimary : U32
- o primaryContainer : U32
- o onPrimaryContainer : U32
- o secondary : U32
- o onSecondary : U32
- o secondaryContainer : U32
- o onSecondaryContainer : U32
- o tertiary : U32
- o onTertiary : U32
- o tertiaryContainer : U32
- o onTertiaryContainer : U32
- o error : U32
- o onError : U32
- o errorContainer : U32
- o onErrorContainer : U32
- o background : U32
- o onBackground : U32
- o surface : U32
- o onSurface : U32
- o surfaceVariant : U32
- o onSurfaceVariant : U32
- o outline : U32
- o outlineVariant : U32
- o shadow : U32
- o scrim : U32
- o inverseSurface : U32
- o inverseOnSurface : U32
- o inversePrimary : U32
- o primaryFixed : U32
- o onPrimaryFixed : U32
- o primaryFixedDim : U32
- o onPrimaryFixedVariant : U32
- o secondaryFixed : U32
- o onSecondaryFixed : U32
- o secondaryFixedDim : U32
- o onSecondaryFixedVariant : U32
- o tertiaryFixed : U32
- o onTertiaryFixed : U32
- o tertiaryFixedDim : U32
- o onTertiaryFixedVariant : U32
- o surfaceDim : U32
- o surfaceBright : U32
- o surfaceContainerLowest : U32
- o surfaceContainerLow : U32
- o surfaceContainer : U32
- o surfaceContainerHigh : U32
- o surfaceContainerHighest : U32
- o CSS variable List : String

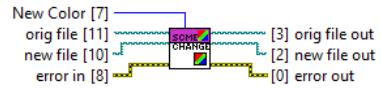
- [elevated_buttons\(\)](#)
- [fab-outline_buttons\(\)](#)
- [filled_buttons\(\)](#)
- [nooutline_buttons\(\)](#)
- [tonal_buttons\(\)](#)
- [transparent_buttons\(\)](#)
- [Blend Colors\(\)](#)
- [Color Opacity Calc\(\)](#)
- [convert_color_string_summary\(\)](#)
- [convert_color_to_rgb_string\(\)](#)
- [Convert PNG color\(\)](#)
- [Create CSS Variables\(\)](#)
- [Find TSC tEXt Chunk\(\)](#)
- [Insert TSC tEXt Chunk\(\)](#)
- [Is Color Transparent\(\)](#)
- [Mask to Alpha\(\)](#)
- [WaveformChart - Colors\(\)](#)
- [WaveformGraph - Colors\(\)](#)
- [Boolean Update - Colors\(\)](#)
- [Boolean Update\(\)](#)
- [Controls Loop\(\)](#)
- [Decorations Loop\(\)](#)
- [outline_buttons\(\)](#)
- [Replace Image\(\)](#)
- [Update Image \(Multiple\)\(\)](#)
- [Color_Grabber\(\)](#)
- [Material.Build Scheme Array\(\)](#)
- [Update Image\(\)](#)
- [View-Scheme\(\)](#)

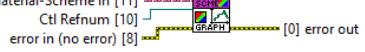
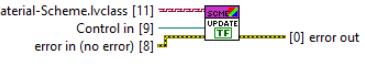
3.5.2. Methods

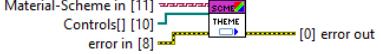
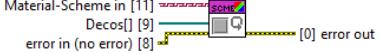
Table 7. Functions

Name	Connector pane	Description	S.	R.	I.
Read background		<p>Data member access method that provides the background color from the Scheme.</p> <p>Code Developed By: Technology Service Corporation</p>			
Read CSS Variables		<p>Data member access method to read the CSS Variables from the scheme.</p> <p>Code Developed By: Technology Service Corporation</p>			
Read name		<p>Data member access method to read the name for the Scheme.</p> <p>Code Developed By: Technology Service Corporation</p>			
Read surfaceContainerHighest		<p>Data member access method to read the surfaceContainerHighest color from the scheme.</p> <p>Code Developed By: Technology Service Corporation</p>			
Read surfaceContainerLowest		<p>Data member access method to read the surfaceContainerLowest color from the scheme.</p> <p>Code Developed By: Technology Service Corporation</p>			
Read surface		<p>Data member access method to read the surface color from the scheme.</p> <p>Code Developed By: Technology Service Corporation</p>			

Name	Connector pane	Description	S.	R.	I.
elevated buttons		<p>application of the floating action button transparent buttons (text buttons) rules</p> <p>https://m3.material.io/components/buttons/specs#9c12a1a1-9a74-499c-8139-5cff551afe4f</p> <p>Code Developed By: Technology Service Corporation</p>			
fab-outline buttons		<p>application of the floating action button (FAB) buttons coloring rules</p> <p>https://m3.material.io/components/floating-action-button/specs</p> <p>Code Developed By: Technology Service Corporation</p>			
filled buttons		<p>application of the FILLED buttons coloring rules</p> <p>https://m3.material.io/components/buttons/specs#7b9ba06e-d393-491b-830e-ae3fe0816d4b</p> <p>Code Developed By: Technology Service Corporation</p>			
nooutline buttons		<p>application of the NO OUTLINE buttons coloring rules</p> <p>https://m3.material.io/components/buttons/specs#9c12a1a1-9a74-499c-8139-5cff551afe4f</p> <p>Code Developed By: Technology Service Corporation</p>			
tonal buttons		<p>application of the TONAL buttons coloring rules</p> <p>https://m3.material.io/components/buttons/specs#31a04913-d070-49c5-9c36-41d551f20096</p> <p>Code Developed By: Technology Service Corporation</p>			

Name	Connector pane	Description	S.	R.	I.
transparent buttons		application of the floating action button transparent buttons (text buttons) rules https://m3.material.io/components/buttons/specs#9c12a1a1-9a74-499c-8139-5cff551afe4f Code Developed By: Technology Service Corporation			
Blend Colors		blend the colors together with a blend ratio Code Developed By: Technology Service Corporation			
Color Opacity Calc		apply an opacity percentage to a color Note: opacity input expected to be decimal of the percentage Code Developed By: Technology Service Corporation			
convert color string summary		Define the tip strip info for the Scheme → adds the hex and RGB info to the string Code Developed By: Technology Service Corporation			
convert color to rgb string		get the RGB string from the color box Code Developed By: Technology Service Corporation			
Convert PNG color		Change the colors of the png file using .net functions Note: Assumes a single color PNG file - replace old primary with new primary Code Developed By: Technology Service Corporation			
Create CSS Variables		for when new browser plugins get implemented, apply variables for CSS from the color scheme Code Developed By: Technology Service Corporation			

Name	Connector pane	Description	S.	R.	I.
Find TSC tEXt Chunk		Look to see if the TSC author tag has been embedded into the PNG Code Developed By: Technology Service Corporation			
Insert TSC tEXt Chunk		embed the png author text chunk into the image Code Developed By: Technology Service Corporation			
Is Color Transparent		check if original was transparent, if so, don't change it, if it isn't though, pass out the new color Code Developed By: Technology Service Corporation	  		
Mask to Alpha		convert mask data to alpha layer Code Developed By: Technology Service Corporation			
PNG Write with Alpha		Write png file with alpha layer Code Developed By: Technology Service Corporation			
WaveformChart - Colors		Sets the colors of the waveform chart. Code Developed By: Technology Service Corporation	 		
WaveformGraph - Colors		Set the colors for a waveform graph type. Code Developed By: Technology Service Corporation	 		
Boolean Update - Colors		update boolean control colors Code Developed By: Technology Service Corporation			
Boolean Update		Set the boolean scheme - will be the most involved of the control types Code Developed By: Technology Service Corporation			

Name	Connector pane	Description	S.	R.	I.
Controls Loop		<p>loop through all the controls on a panel in order to change the appearance</p> <p>-this is a re-entrant VI because it is called recursively when there is a tab control</p> <p>Code Developed By: Technology Service Corporation</p>			
Decorations Loop		<p>Change the coloring on decorations → If it is a text decoration, change the background color only when it wasn't transparent before AND change the text color; otherwise, normal decoration just change background/foreground</p> <p>Code Developed By: Technology Service Corporation</p>			
outline buttons		<p>application of the OUTLINE buttons coloring rules</p> <p>-→ this VI is <i>public</i> because it is used in the Button Editor UI</p> <p>https://m3.material.io/components/buttons/specs#6757c97e-0ae6-4802-a2d5-9e3b134a7231</p> <p>Code Developed By: Technology Service Corporation</p>			
Replace Image		<p>This example VI was obtained from this post:</p> <p>https://forums.ni.com/t5/LabVIEW-APIs-Discussions/Set-TRUE-FALSE-Image-of-a-boolean-control-automatically-using/m-p/3419083/highlight/true#M868</p> <p>WARNING This VI uses a dll call to the resource file for a LabVIEW VI/CTL - it is searching the binary data for the PNG images that the VI or CTL contains</p> <p>Code Developed By: Technology Service Corporation</p>			

Name	Connector pane	Description	S.	R.	I.
Update Image (Multiple)	Material-Scheme.lvclass [1] New Control [10] New Color [9] error in [8] Replace Image [6] [3] Material-Scheme.lvclass out	Update the image of the buttons Code Developed By: Technology Service Corporation			
Color Grabber	Material-Scheme in [1] control-level [10] outline [5] color [3] onColor [2] surface [1] onSurface [0] colorContainer [4] onColorContainer [6]	get the colorset for the application and the color-level Code Developed By: Technology Service Corporation			
Material.Build Scheme Array	schemes [11] SCHEME [11] [2] scheme	build the array of scheme objects from the original data Code Developed By: Technology Service Corporation			
Update Image	Material-Scheme.lvclass [1] New Control [10] New Color [9] error in [8] Replace Image [6] [3] Material-Scheme.lvclass out	Update the image of the buttons Code Developed By: Technology Service Corporation			
View-Scheme	Material-Scheme.lvclass [1] SCHEME [11] SCHEME [1]	scheme view UI set up like the material theme display Code Developed By: Technology Service Corporation			

Scope: → Protected | → Community | → Private

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Inlining: → Inlined

3.5.3. Class Constant VIs

NOTE No Constant VIs Found

Chapter 4. Legal Information

4.1. Document creation

This document has been generated using the following tools.

4.1.1. Antidoc

Project website: [Antidoc](#)

Maintainer website: [Wovalab](#)

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4.1.2. Asciidoc for LabVIEW™

Project website: [Asciidoc toolkit](#)

Maintainer website: [Wovalab](#)

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4.1.3. *classy* Diagram Viewer

Project website: [classy Diagram Viewer](#)

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4.2. Product used in the project

Antidoc hasn't been able to detect third party products in the project. This is the author's responsibility to list any of the missing product used.