

Telit deviceWISE deviceWISE VIEW Cookbook and User Guide

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1. INTRODUCTION

1.1. What is deviceWISE VIEW?

deviceWISE VIEW provides a user-friendly way of collecting and visualizing realtime machine data using only a few clicks. Transform your data and calculate your KPIs with the deviceWISE Gateway visual edge logic engine. Create custom dashboards and HMIs that can be displayed on-premises or in the cloud easily using drag-and-drop widgets. Visualizing your factory data can help you make smarter business decisions by noticing patterns and trends, analyzing data, and interpreting the data you receive.

1.2. Cookbook Requirements

The following items are required for successful use of deviceWISE VIEW following the steps provided in this guide.

- deviceWISE Gateway
- deviceWISE Workbench
- deviceWISE VIEW Licenses

For instructions on how to install the deviceWISE Workbench and Gateway, visit:

http://docs.devicewise.com

1.3. Audience

This document is intended for deviceWISE VIEW users who desire to build their first display and understand the various widgets it has to offer. This guide also provides more advanced or ambitious users with numerous tricks and tools involving subtriggers, database tables, animation, and creating range-based data trends, all while utilizing the extensive in-depth customization options included with deviceWISE VIEW.

1.4. Contact Information, Support

For general contact, technical support services, technical questions, and report documentation errors, contact Telit Technical Support at:

- TS-EMEA@telit.com
- TS-AMERICAS@telit.com
- TS-APAC@telit.com



Alternatively, use: http://www.telit.com/support

For detailed information about where you can buy Telit modules or for recommendations on accessories and components visit: <u>http://www.telit.com</u>

Our aim is to make this guide as helpful as possible. Keep us informed of your comments and suggestions for improvements.

Telit appreciates feedback from the users of our information.



1.5. Text Conventions



Danger – This information MUST be followed or catastrophic equipment failure or bodily injury may occur.



Caution or Warning – Alerts the user to important points about working with the solution, if these points are not followed, the solution may fail or malfunction.



Tip or Information – Provides advice and suggestions that may be useful when working with the software.

All dates are in ISO 8601 format, i.e. YYYY-MM-DD



2. PREPARING FOR DEVICEWISE VIEW

Before being able to access deviceWISE VIEW, you must first download the required package from the Telit IoT Portal. While VIEW works on a variety of supported gateways and operating systems, a Windows 64-bit computer will be used for the sake of this guide.

2.1. Downloading the Required Package

2.1.1. To install the deviceWISE VIEW package, log into the Telit IoT Portal and navigate to the 'Developer' tab. Select 'Resources' from the left side bar.

GENERAL
API log
API tester
The Applications
Campaigns
▲ Error codes
Event log
Files
🗎 Resources
☆ Triggers

2.1.2. Navigate to the package by opening the build version your gateway is running -> selecting your gateway or operating system -> Packages. Within the 'Pilot_Ready/' folder, download the package containing 'dw.dwview'.

This guide assumes the reader has the deviceWISE Asset or Enterprise Gateway already installed on their system and it has been added as a node within the deviceWISE Workbench. This guide utilizes deviceWISE VIEW version 1.3.0 and may contain features that are unavailable in previous releases.



For more information regarding the installation of the deviceWISE Gateway, the deviceWISE Workbench, or for further reference content and up-to-date information regarding deviceWISE VIEW, please visit:

http://docs.devicewise.com

For Windows 64-bit, this package will be called 'dw.dwview.Windows-x64.<VERSION>.pkg'.

∨ Today (1)

dw.dwview.Windows-x64.1_1_0.pkg

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Telit

2.2. Adding a Package

2.2.1. In the deviceWISE Workbench, select the 'Administration' drop-down from the left side panel of your node and navigate to the 'Packages' tab. To add the deviceWISE VIEW package, click 'Add' near the bottom of the window and locate where you saved the package on your computer. Select the package and click 'Add'. The node will restart.

dw.dwvie	w.Windows-x64.1_1_0.pkg	
File name:	dw.dwview.Windows-x64.1_1_0.pkg	Add
Files of type:	Package Files (*.pkg)	Cancel

2.2.2. After the node has finishing restarting, navigate back to the 'Packages' tab within the Workbench and ensure that 'deviceWISE View' listed with an 'OK' status.

Hash Map Variab	les HTTP S	Server License	Client Licen	se Server Lic	enses N	etwork Conf	iguration	Node Ad	dministration
Alert Manageme	ent Atte	ention Bit	Automated L	og Export	Databas	se Deployme	ent Dia	gnostics	FTP Server
Notifications P	ackages	Persistence	Security	Staging Br	owser	System V	ariables	Time	Management
Name		Туре		Version			Status		
Advanced Feature	es	Feature		21.07.02	(2021-07	-30 20:1	ОК		~
deviceWISE View		Extension		1.1.0 (20)	21-07-30	20:18:22)	ОК		
FileWatcher Exter	nsion	Extension		1.0.4 (20)	21-07-30	20:18:22)	ОК		
Generic Serial Dri	ver	Driver		1.2.0 (20)	21-07-30	20:18:22)	ОК		
Industrial Driver F	Pack	Multiple Drive	ers	21.07.02	(2021-07	-30 20:1	ОК		
Lua Extension		Extension		1.1.2 (20)	21-07-30	20:18:22)	ОК		
Mitsubishi Driver		Driver		3.3.6 (20)	21-07-30	20:18:22)	ОК		
Modbus Driver		Driver		2.10.4 (2	021-07-3	0 20:18:	ОК		
MQTT Extension		Extension		2.0.5 (20)	21-07-30	20:18:22)	ОК		
Omron Driver		Driver		3.7.5 (20)	21-07-30	20:18:22)	ОК		
Rockwell Driver		Driver		2.19.0 (2	021-07-3	0 20:18:	ОК		
Sandbox		Extension		1.1.2 (20)	21-07-30	20:18:22)	ОК		
Siemens Driver		Driver		2.11.1 (2	021-07-3	0 20:18:	ОК		
TR50 Extension		Extension		2.5.2 (20)	21-07-30	20:18:22)	ОК		
Virtual Device Driv	ver	Driver		1.3.0 (20)	21-07-30	20:18:22)	ОК		~
deviceWISE	View								
Version: 1.1.0 URL: https: Phone: 1-866	(2021-07- //docs.dev -425-6172	30 20:18:22) /icewise.com		Type: Publisi Fmail:	Extener: Telit sup	ension : IoT Platfor port-device	ms wise@teli	t.com	
	Add			Remove			F	Refresh	
									(?

2.3. Creating Variables

In the deviceWISE Workbench, we will be creating several global variables for deviceWISE VIEW to later interact with. The variable types we will be using are BOOL, INT4, INT8, FLOAT4, and STRING.

2.3.1. Navigate to the 'Devices' panel on the left side bar of the Workbench. To create a set of global variables, we must create a new device by clicking 'New' near the bottom of the window. Name the device "Cookbook" and choose 'Global Variables' as the 'Type'.

/pe: Global Varia	bles	~			
Configuration					
Variables:		Confi	gure		
Structures:		Confi	gure		
Default Value:	0x00				
Persist Values:	False				~
Sort Variables:	False				~
	-				
			Use Adv	anced Pro	perties
Additional Properti	es	0	Use Adv	anced Pro	perties
Additional Properti Property	es	Value	Use Adv	anced Pro	perties
Additional Properti Property	es	Value	Use Adv	anced Pro	perties
Additional Properti Property	es	Value	Use Adv	anced Pro	perties
Additional Properti Property	es	Value	Use Adv	anced Pro	perties
Additional Properti Property	es	Value	Use Adv	anced Pro	perties



2.3.2. Click 'Configure...' next to 'Variables' to begin configuring variables. Define five (5) variables as shown below.

Name	Туре	x	Y	z	Description	
ARRAY	INT8	5	2			
BOOL	BOOL					
FLOAT	FLOAT4					
INTEGER	INT4					
STRING	STRING(64)					

2.3.3. Click 'OK', then 'Validate' and 'Save' the device. To access these variables using deviceWISE VIEW, we must start it by right clicking on the newly created 'Cookbook' device and clicking 'Start'. Once started, verify that the variables can be seen under the 'Variables' tab at the top of the window.

Cookb	ook / D)evices		
Devices	Variables	Data Mapping	Variable Groups	
Name			Туре	
🗆 🕥 🕻	Cookbook		Global Va	ariables
4	🌮 BOOL		BOOL	
4	🔊 FLOAT		FLOAT4	
<	🦻 INTEGE	R	INT4	
<	🌮 STRING	i i i i i i i i i i i i i i i i i i i	STRING(64)
🛨 🄇	🖏 ARRAY		INT8[5,2	2]

2.3.4. Write to the first four (4) variables by right clicking them and selecting 'Write'. deviceWISE VIEW will be able to read these values later. Example values are shown below.

Cookbook / Devices		
Devices Variables Data Mapping Va	riable Groups	
Name	Туре	Value
🖃 藰 Cookbook	Global Variables	
BOOL	BOOL	1
FLOAT	FLOAT4	10.5
INTEGER	INT4	21
I STRING	STRING(64)	Hello World

2.4. Creating a Local Database Table

deviceWISE VIEW also has the ability to interact with deviceWISE local database tables. We will be creating a database table now to work with later in the guide.

2.4.1. In the Workbench, navigate to 'Local Database' from the left panel and create a 'New Table'. Name the table "Cookbook" and click 'Add Column'. Name the new column "Data" and then 'Add' and 'Save' the database table.

olumns			
lame	Туре	Constraint	Default Value
	New Column		×
	Name: Da		
	Type: TE	XT V	
	Length: 32		
	Constraint:		~
	(Add Cancel	

2.4.2. Insert 3 rows containing different values by clicking 'Insert Row'. These rows will be seen and interacted with later in deviceWISE VIEW.

Name	St	orage		Columns	
OCKDOCK	013	•		0000 (TEXT(02))	
Row Number			Data		
			Data 1		
2			Data2		
J			Data3		

2.5. Creating SubTriggers

deviceWISE VIEW allows a user to fire triggers and subtriggers using a button widget. To do this, we must first create a new trigger and specify the input variables we want to pass from deviceWISE VIEW.

2.5.1. In the Workbench, navigate to 'Projects' from the left panel and create a 'New' project. Right click and 'Start' the project. Enter the new project and create a new trigger. Name the trigger "Update_Array" and change the 'Trigger Event Type' to 'SubTrigger'. 'Configure' the input variables and define two (2) INT variables, 'Index' and 'Value'. Navigate to the 'Local Variables' tab under the trigger title and create two STRING local variables, 'Timestamp_Variable' and 'Value_Variable'. Reference the images below.

📀 Trigger: Cookbook.	Cookbo	ok.Update_/	Array		
Name: Update_Array					
Event Local Variables S	tatic Varia	ables Setting	s Details		
Trigger Event Type:	SubTrigg	jer		~	
Input Variables:					
Output Variables:					
	🔁 Vari	ables			×
	Name	Туре	Count	Description	
Expression	Index	INT4			
Generate Random N	Value	INT8			
Set					
Wait					

	/ariables Static Variables Settings Details
Length	Туре
32	ariable STRING
32	e STRING
	e STRING

2.5.2. Build the trigger as shown. This will essentially take two (2) input variables passed from deviceWISE VIEW, an integer value and the index in which to store that value in our 'ARRAY' array created in '2.3. Creating Variables'. An associated timestamp will also be inserted along with each value to allow for the display of data over time.



29.String Builder \times 29. String Builder: LocalVariables. Value_Variable=ARRAY[E ventVariables.Index,1] 29.String Builder Format String: ARRAY[\$(Index), 1] •••• 30. String Builder: LocalVariables. Timestamp_Variable=AR RAY[EventVariables. Use Advanced Properties Input Output Routing Details Input Count Value Name Logical Туре Index ANY 1 EventVariables.Index INT4 33. Demand Write: Cookbook.LocalVariables. Value_Variable with value from 34. Demand Write: Cookbook.LocalVariables Timestamp_Variable with value from Macros. 3 📀 30.String Builder \times 29. String Builder: LocalVariables. Value_Variable=ARRAY[E ventVariables.Index,1] 30.String Builder Format String: ARRAY[\$(Index),0] 30. String Builder: LocalVariables. Timestamp_Variable=AR RAY[EventVariables. Use Advanced Properties Input Output Routing Details Input Count Value Name Logical Туре Index ANY 1 EventVariables.Index INT4 33. Demand Write: Cookbook LocalVariables, Value_Variable with value from 34. Demand Write: Cookbook .LocalVariables Timestamp_Variable with value from Macros. 0

3.Demand Write					LocalVariables.
Device Name:	\$(Devi	ce Name)			Value_Variable=ARRAY[E ventVariables.Index.1]
Variable Name:	\$(Varia	ble Name)			
	TATO				
input Data Type				Y	↓ ↓
Input Data Coun	t: 1				30. String Builder:
Input Routing De	tails				LocalVariables. Timestamp Variable=AR
Input					RAY[EventVariables.
Name	Logical	Count	Value	Туре	Y
Device Name	ANY	1	Cookbook	CONSTANT	
Variable Name	ANY	1	LocalVariables.Value_Variable	STRING(32)	
					Cookbook LocalVariables. Value_Variable with value from
				0	34. Demand Write: Cookbook .LocalVariables, Timestamp_Variable with value from Macros.
34.Demand Write	2	_			34. Demand Write: Cookbook.LocalVariables. Timestamp_Variable with value from Macros.
34.Demand Write 4.Demand Write Device Name:	\$(Devic	ce Name)		©	34. Demand Write: Cookbook.LocalVariables. Timestamp_Variable with value from Macros. 29. String Builder: LocalVariables. Value_Variables_ARRAY[E ventVariables.Index.1]
34.Demand Write 4.Demand Write Device Name: Variable Name:	\$(Devia	ce Name) ble Name)		© 	34. Demand Write: Cookbook.LocalVariables. Timestamp_Variable with value from Macros. 29. String Builder: LocalVariables. Value_Variables. Value_Variables.Index.1]
34.Demand Write 4.Demand Write Device Name: Variable Name: Input Data Type	\$(Devic \$(Varia : INT8	ce Name) ble Name)		© ×	34. Demand Write: Cookbook.LocalVariables. Timestamp_Variable with value from Macros. 29. String Builder: LocalVariables. Value_Variables. Value_Variables.Index,1]
34.Demand Write 4.Demand Write Device Name: Variable Name: Input Data Type	\$(Devia \$(Varia \$INT8	ce Name) ble Name)			34. Demand Write: Cookbook.LocalVariables. Timestamp_Variable with value from Macros. 29. String Builder: LocalVariables. Value_Variable=ARRAY[E ventVariables.Index,1]
34.Demand Write 4.Demand Write Device Name: Variable Name: Input Data Type Input Data Coun	\$(Devic \$(Varia : INT8 t: 1 taile	ce Name) ble Name)		© ×	34. Demand Write: Cookbook.LocalVariables. Timestamp_Variable with value from Macros. 29. String Builder: LocalVariables. Value_Variable=ARRAY[E ventVariables.Index,1]
34.Demand Write 4.Demand Write Device Name: Variable Name: Input Data Type Input Data Coun Input Routing Dei Input	\$(Devia \$(Varia \$(Varia INT8 t: 1 tails	te Name) ble Name)			34. Demand Write: Cookbook.LocalVariables. Timestamp_Variable with value from Macros. 29. String Builder: LocalVariables. Value_Variable=ARRAY[E ventVariables.Index,1] 30. String Builder: LocalVariables.Index,1]
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34.Demand Write 4.Demand Write Device Name: Variable Name: Input Data Type Input Data Coun Input Routing De Input Name Device Name	s (Devia \$(Varia : INT8 t: 1 Logical	ce Name) ble Name) Count	Value	Type CONSTANT	34. Demand Write: Cookbook.LocalVariables. Timestamp_Variable with value from Macros. 29. String Builder: LocalVariables. Value_Variable=ARRAY[E ventVariables.Index.1] 30. String Builder: LocalVariables. Timestamp_Variable=AR RAY[EventVariables.
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34.Demand Write 4.Demand Write Device Name: Variable Name: Input Data Type Input Routing Dei Input Routing Dei Input Name Device Name Variable Name Value	s (Devia \$(Varia : INT8 t: 1 Logical ANY ANY INT8	ce Name) ble Name) Count 1 1 1	Value Cookbook LocalVariables.Timestamp_Variable Macros.\$EVENT_TIME	CONSTANT STRING(32) TIMESTAMP	34. Demand Write: Cookbook.LocalVariables. Timestamp_Variable with value from Macros. 29. String Builder: LocalVariables. Value_Variable=ARRAY[E ventVariables.Index.1] 30. String Builder: LocalVariables. Timestamp_Variable=AR RAY[EventVariables.
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34.Demand Write 4.Demand Write Device Name: Variable Name: Input Data Type Input Data Coun Input Routing Dei Input Name Device Name Variable Name Value	\$(Devic \$(Varia : INT8 t: 1 Logical ANY ANY INT8	ce Name) ble Name) Count 1 1 1	Value Cookbook LocalVariables.Timestamp_Variable Macros.\$EVENT_TIME	CONSTANT STRING(32) TIMESTAMP	34. Demand Write: Cookbook.LocalVariables. Timestamp_Variable with value from Macros. 29. String Builder: LocalVariables. Value_Variable=ARRAY[E ventVariables.Index,1] 30. String Builder: LocalVariables.Index,1] 30. String Builder: LocalVariables. Timestamp_Variable=AR RAY[EventVariables. 33. Demand Write: Cookbook.LocalVariables. Value_Variable with value from
34.Demand Write 4.Demand Write Device Name: Variable Name: Input Data Type Input Data Coun Input Routing De Input Name Device Name Variable Name Value	\$(Devic \$(Varia : INT8 t: 1 Logical ANY ANY INT8	ce Name) ble Name) Count 1 1 1	Value Cookbook LocalVariables.Timestamp_Variable Macros.\$EVENT_TIME	CONSTANT STRING(32) TIMESTAMP	34. Demand Write: Cookbook.LocalVariables. Timestamp_Variable with value from Macros. 29. String Builder: LocalVariables. Value_Variable=ARRAY[E ventVariablesIndex,1] 30. String Builder: LocalVariables.Index,1] 30. String Builder: LocalVariables. Timestamp_Variable=AR RAY[EventVariable=AR RAY[EventVariables. 33. Demand Write: Cookbook.LocalVariables. Value_Variable with value from
34.Demand Write 4.Demand Write Device Name: Variable Name: Input Data Type Input Data Coun Input Routing Dei Input Name Device Name Variable Name Value	\$(Devic \$(Varia : INT8 t: 1 Logical ANY ANY INT8	ce Name) ble Name) Count 1 1 1	Value Cookbook LocalVariables.Timestamp_Variable Macros.\$EVENT_TIME	V Type CONSTANT STRING(32) TIMESTAMP	34. Demand Write: Cookbook.LocalVariables. Timestamp_Variable with value from Macros. 29. String Builder: LocalVariables. Value_Variable=ARRAY[E ventVariablesIndex,1] 30. String Builder: LocalVariables. Timestamp_Variable=AR RAY[EventVariables. 33. Demand Write: Cookbook.LocalVariables. Value_Variable with value from
34.Demand Write 4.Demand Write Device Name: Variable Name: Input Data Type Input Data Coun Input Routing Dei Input Name Device Name Variable Name Variable Name	\$(Devia \$(Varia : INT8 t: 1 Logical ANY ANY INT8	ce Name) ble Name) Count 1 1 1	Value Cookbook LocalVariables.Timestamp_Variable Macros. \$EVENT_TIME	Constant STRING(32) TIMESTAMP	34. Demand Write: Cookbook.LocalVariables. Timestamp_Variable with value from Macros. 29. String Builder: LocalVariables. Value_Variable=ARRAY[E ventVariablesIndex,1] 30. String Builder: LocalVariables. Timestamp_Variable=AR RAY[EventVariables. 33. Demand Write: Cookbook.LocalVariables. Value_Variable with value from
34.Demand Write 4.Demand Write Device Name: Variable Name: Input Data Type Input Data Coun Input Routing Dei Input Name Device Name Variable Name Variable Name	\$(Devic \$(Varia \$(Varia tails tails Logical ANY ANY INT8	ce Name) ble Name) Count 1 1 1	Value Cookbook LocalVariables.Timestamp_Variable Macros.\$EVENT_TIME	V Type CONSTANT STRING(32) TIMESTAMP	34. Demand Write: Cookbook.LocalVariables. Timestamp_Variable with value from Macros. 29. String Builder: LocalVariables. Value_Variable=ARRAY[E ventVariables.Index.1] 30. String Builder: LocalVariables. Timestamp_Variable=AR RAY[EventVariables. 33. Demand Write: Cookbook.LocalVariables. Value_Variable with value from

2.5.3. Once completed, 'Validate' and 'Save' the subtrigger. Start the subtrigger by right clicking on 'Update_Array' and clicking 'Start'.

Projects 📀 Cookbook 🗙		
Name	Туре	State Status
Update_Array	SubTrigger	🔮 Started 🛛 Loaded

2.5.4. Within the same project, create a another subtrigger and title it "Insert_Row." Specify one input variable called "Data" of type STRING.

🛟 Trig	gger: Cookbool	.Cookbook.[N	lew]					
Name:	Insert_Row							
Event	Local Variables	Static Variables	Settings	Details				
Trigg	er Event Type:	SubTrigger			\sim			
Inpu	ıt Variables:							
Outp	out Variables:							
		🔁 Variables	;					×
		Name		Туре		Count	Description	
Exp	ression	Data		STRING(32)				
Set	ierate Random N							
Wai	it							

2.5.5. Build the subtrigger as shown. This subtrigger will take an input from deviceWISE VIEW and insert a new row within the 'Cookbook' database table that we created in '2.4. Creating a Local Database Table'. Be sure to select the correct 'Table Name' and use the event variable "Data" as the value being inserted. 'Validate', 'Save', and 'Start' the subtrigger.

able N	ame: Cook	book		Use Advanced Prop	v C	
nput O	output Routin	g Detail	s			T T
Name	Logical STRING(32)	Count	Value EventVariables Data		Type	
Jata	511(110(52)		Eventvanabiestbata		511410(52)	1. Local DB Insert: Into
						Table Cookbook

3. LOGGING INTO DEVICEWISE VIEW

For further reference content and up-to-date information regarding deviceWISE VIEW, please access our online deviceWISE help site at:

http://docs.devicewise.com

3.1. Accessing the Home Screen

Now that the required deviceWISE VIEW package has been installed on your gateway and the necessary variables and triggers have been created, you may now log in via your web browser and create your first display.

3.1.1. Open your web browser and navigate to your gateway's IP followed by ":8080/dwview". If you are running deviceWISE on your local computer, use the IP 127.0.0.1 or localhost.

If you are remotely connected to your gateway via the Telit IoT Portal, you must first launch a tunnel manager containing HTTP port 8080 to access deviceWISE VIEW. After opening the tunnel, input "127.0.0.1:8080/dwview" as the URL in your web browser.

3.1.2. When met with a login screen, enter the default 'admin' for both credentials and log in.

Login		
Use your deviceWISE account		
Username *		
admin		
Password *		
	Ê	
Node*		
http://localhost:8080	Ţ	
deviceWISE Node Address		
Login		

Π



← → C © localhost8000/deview/build/galleries	🖈 👩 Incognito (3) 🚦
Telit deviceWISE	Galleries Displays 🚱 🧑 💄
Galleries	+ Create Gallery
① Create Gallery	

4. CREATING YOUR FIRST DISPLAY

Now that you are logged into deviceWISE VIEW, we can start building displays and utilizing widgets to visualize data.

For further reference content and up-to-date information regarding deviceWISE VIEW, please access our online deviceWISE help site at:

http://docs.devicewise.com

4.1. Entering a Display

To create a new display, we must first make a new gallery. Galleries are essentially folders that house a collection of displays.

4.1.1. Click on 'Create Gallery' and name it. For the sake of this guide, we will be naming it 'Cookbook'. 'Create' and enter the new gallery. Create a new display by clicking 'Create Display'. Name the new display "My First Display".



4.1.2. Entering the display brings up the deviceWISE VIEW workspace where you can interact with various widgets and tools.

Telit device	WISE			Gallerie	s Dis	plays	æ	0	•
Cookbook		toipiny My First Dioplay -	⊞	۰	{}	Ł	0	<	ii.
Vidgets Select									
wine Telit	^								
0 / B									
F) 🗖 🗹	۲								
~ 🖬 🕫	$\langle \rangle$								
🕲 😑	80								
0		No widgets yet							
ApexCharts	^	Add the first widget to this display by diagging or clicking the widgets in the left solebar							
O ~ ılı	¢								
÷	9								
0									
Smoothie	^								
~									
🔿 Gaune is	^								
6		Page 21 of 60						202	2-0



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4.2. Reading Data in deviceWISE VIEW

Since we have already created variables on the Workbench that deviceWISE VIEW can access, we can start visualizing them using widgets.

4.2.1. Click or drag four (4) 'Value Card' widgets onto the display. These value cards will be reading from the variables created in section '2.3. Creating Variables'.

Telit deviceWISE					Galleries Di	splays	æ	0	±
Gallery Cookbook	My First Display			⊞	\$ {}	÷	0	<	Î
Widgets Select									
Yealt ^	1.0	1.0	1.0	1.0					
0 / 8 🖪									
c7 • • •									
× ≣ ⇔ ↔									
••• 🕒 😑 📴									
•									

4.2.2. To configure the value card widgets, click on them so the configuration panel appears from the right of the screen. Here you can assign the variable that each value card will read from by locating the 'Variables' tab and clicking 'Add Variable'. Specify the 'Cookbook' global variable device and select a variable. Do this for each of the variables we created, excluding the array. The data should immediately populate the value cards.

Telit dev	ice∀	VISE							Galleries	Displ	ays 🚱	0	*
Gallery Cookbool	ĸ	÷	Display My First Display					⊞	¢	{}	J @	<	î
Widgets Select							Val	lue Card					ô
wink Telit		^	true	21	10.5	Hello World	<	Variables 1	/alue Card	Style T	itle States	Triggers	Securit; >
0 /	Ð							Cookbook STR	INC				<u>^</u>
•	~	۲						Type: STRING	140				
~ m	Ð	\diamond						Length: 64					
🛛	=	00°										Remove	Edit
•							_						

It is that simple to read live data from any device using deviceWISE VIEW. Any device that enumerates variables such as a PLC, Modbus device, the System Monitor, or a global variable group can be seen and interacted with. This also means any trigger logic that writes to a global variable can be read. deviceWISE VIEW cannot access local or static trigger variables.

f

4.3. Writing Data in deviceWISE VIEW

While it is easy to read data using deviceWISE VIEW, it is also important to be able to write to variables, enabling the ability to toggle outputs on a controller or write to a specific Modbus register.

4.3.1. Click or drag three (3) 'Write Value' widgets on to the display. Assign the widgets to the same variables, excluding the BOOL variable, and organize them neatly under the value cards they are "writing" to.

elit de	vice	WISE				
Gallery Cookb	ook	,	My First Display			
Widgets Select						
164 Telit		^	true	21	10.5	Hello World
1 /	B					
- 77 -	~	۲		21	value 10.5	Hello World
· 10	Θ	$\langle \rangle$				
•	=	00°				
•						

4.3.2. Save any changes and click on the eye icon near the top right of the screen labeled 'View Live' to enter the live display. Write to the global variables using the write value widgets by typing in the 'value' field. The value cards above them should update instantly as they read from the same variables being written to.

true	11	9.99	Test
	value 11	value 9.99	Test

4.3.3. Visit the 'Variables' tab within the 'Devices' section of the Workbench and read the variables after writing to them.

Cookbook / Devices		
Devices Variables Data Mapping	Variable Groups	
Name	Туре	Value
🖃 🚮 Cookbook	Global Variables	
BOOL	BOOL	1
FLOAT	FLOAT4	9.99
INTEGER	INT4	11
STRING	STRING(64)	Test



4.4. Styling Widgets

You will probably notice that it is a little hard to see the widget boxes over a light background. Luckily enough, deviceWISE VIEW has a suite of styling features that allow a user to completely personalize their displays and widgets. These styling features are available on every widget.

- 4.4.1. Enter edit mode again by clicking the 'X' at the top right of your live display and selecting 'Edit My First Display'.
- 4.4.2. Click on any widget you would like to edit to open the widget configuration panel. Navigate to the 'Style' tab. Here you can style the widget by adding backgrounds, borders, animations, and more.

Value Card							ð
< Variables	Value Card	Style	Title	States	Triggers	Securit	>
Layout							~
Spacing							~
Typography							~
Background							~
Border							~
Animation							~
Effects							~
CSS							~

The example below shows the widgets configured with a bolded Helvetica font from under 'Typography', a white font color, several preset gradient backgrounds from under 'Background', and a 3 px solid black border from under 'Border'.





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	B	-
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		^

4.4.3. You can also add a title to the widgets to make displays easier to read and navigate. Click on the 'Title' tab within the widget configuration panel and give each widget a title based on the variable they are reading. Adjust the settings to your preference.

Teli	t de	vice∖	NISE					Galleries Displays 😰 🕜 💄
8	Cookbo	ok		- My First Display -				▦ ✿ () ৬ ◙ < ▮
Widgets	Select							Value Card 🖯
Tele To	elit		^	BOOL true	INT4 11	FLOAT4 9.99	string Test	
	/	B	-		value	value	value	Style
C 27	۰	\checkmark	۲		11	9.99	Test	Title Font Size (ps) Width (kuto)
~	Π	Θ	<>					15 px auto auto
	•	=	60					Title Redding (pa) 15 px 0 custom
0								Backgound Tope
A A	pexChart	5	^					

4.5. Using States

Another useful feature within deviceWISE VIEW is the ability to define 'States', allowing a user to alter a widget's styling, security, and trigger settings when a userdefined variable satisfies an expression. For this guide, we will be defining a state that changes the BOOL value card color when the BOOL variable becomes true or false. This is useful for displaying alarms when variable values change. It can also be used for animating, which will be covered later in the guide.

4.5.1. Select your BOOL value card widget to enter the widget configuration panel. Navigate to the 'States' tab and create a new state by clicking 'Create State'.

			Value Card
74	FLOAT4	STRING	Default
1	9.99	Test	Variables Value Card Style Title States Triggers Securit >
	- value	value	+ Create State
	9.99	Test	Unnamed State =
			Name
			Variable
			Widest Vedeble

🗌 Value

Custom

4.5.2. Name the state "False" and check the 'Custom' checkbox. Enter "0" for 'Condition Value'. This will cause the widget to change state whenever the widget variable, which in this case is the BOOL variable that it is reading, is equal to zero (0), or 'false'. Reference the image below.

Value Caro	b					ô						
Default						•						
< Variable	es Value Card	Style	Title	States	Triggers	Securit >						
	+ Create State											
False	= ()										
Name False												
Variable Widget Vari	able					•						
<	≤	=		!=	2	>						
Value												
						Custom						
						Î						

4.5.3. Navigate back to the 'Style' tab within the same widget and select our newly created state 'False' from the 'State' drop-down menu at the top. Any styling edits made when a state is selected will only show when that state is triggered, or in this case when the widget value becomes zero (0). For this guide, we will be changing the background color of the widget to a red gradient whenever the state is triggered.



State	
False	•
Value Card Style Title Triggers Security	Advanced
Layout	~
Spacing	~
Typography	~
Background	^
Background Type Gradient	•
Gradient Direction Right Top	•
•	
Color 0 #d64c7f	
•	Î
Color 1	

4.5.4. Save any changes and click the eye near the top right of deviceWISE VIEW to enter the live display. If we now write the value zero (0) to the BOOL global variable on deviceWISE, the BOOL value card widget will turn red as the state is triggered. When the value is not equal to zero (0), the widget will return to its 'Default' styling.



Cookbook / Devices		
Devices Variables Variable Groups D	ata Mapping	
Name	Туре	Value
🖃 藰 Cookbook	Global Variables	
BOOL	BOOL	0
FLOAT	FLOAT4	
INTEGER	INT4	
STRING	STRING(64)	

4.6. Uploading Custom Images

To completely personalize your display, deviceWISE VIEW allows a user to upload images directly to the deviceWISE Staging Browser for immediate access.

4.6.1. On the Workbench, navigate to 'Administration' from the left panel of your node. Click on the 'Staging Browser' tab and navigate to the 'img' folder within the 'www' directory. This is where images can be uploaded and accessed via deviceWISE VIEW. To upload an image, simply right click on the 'img' folder and select 'Put'. Upload at least two (2) custom images to work with. For this guide, I will be working with a generator image and animating it on and off.

HTTP Server	License Clien	t License	e Server	License	es Network	Configuration	Node	e Administration
Alert Management	Attention Bit	t Automated Log Export		Database Deployment		Diagnostics	FTP Server	Hash Map Variables
Notifications	Packages	Persistence Security		Staging Browser		System Variables		Time Management
Name		Size		C	Created		Modified	
🗄 🚞 scripts					2022-	01-03 10:57:38		2022-01-03 10:57:3
± 📒 system					2022-	01-03 10:57:38		2022-01-03 10:57:3
🗄 📒 tmp					2022-	01-14 12:00:50		2022-01-14 12:00:5
🗉 🚞 www					2022-	01-03 10:57:39		2022-01-03 12:18:4
🕀 💼 dwview					2022-	01-03 12:18:44	ł	2022-01-03 12:18:4
🔲 🚞 img					2022-	01-03 11:04:26		2022-01-14 14:22:3
🗋 gene	eratoroff.png		1	149,202	2022-	01-14 14:22:35		2022-01-14 14:22:3
gene	eratoron.png		1	148,212	2022·	01-14 14:22:35		2022-01-14 14:22:3

Cookbook / Administration

4.6.2. In deviceWISE VIEW, drag the 'Image' widget onto your display. Image widgets are dedicated to encapsulating images and do not require an assigned variable.

4.6.3. Select one of the images uploaded to the Staging Browser by opening 'Background' within the widget configuration panel and choosing 'Image' as the 'Background Type'. To select your image, click on the find image icon next to 'Image' and select the image you want to be displayed within the image widget.

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Cookbook	÷	Dinglay My First Display 👻				⊞ ≎	{} 🕁 🛛	<
idgets Select						Image		
an Telit	~	BOOL	INT4	Style Title States Tr	iggers Security Advanced			
	_	false	0	0		Layout		
						Spacing		
7 - 	۲		value	value	value	Typography		
/ II ©	$\langle \rangle$					Background		
• • =	50°		7			Background Type		
		.C				Image		
	_					Image		~
ApexCharts	^	-	-			/img/generatoron.png		^
) ~ ili	C					Size	Position	
å) : •								

4.6.4. Set the 'Size' to 'Contain' to contain the image within the widget boundaries. You can resize the image by clicking and dragging one of the corners.

elit de	vice	WISE						Gallerie	s Dis	plays	ø	0	:
Cookbo	ook	÷	Dinglay My First Display				⊞	٥	{}	Ł	0	<	1
gets Select													
Telit		^	BOOL false	INT4 O	FLOAT4	STRING							
) /	Ð												
a 🛥	\checkmark	۲		value	value	value							
Π	Θ	$\langle \rangle$											
•	:=	200 001											
)				-									
ApexChar	ts	^	·····										
~ ~	ւհ	c											
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i.													
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Smoothie													
		_											
		~			- A								

4.6.5. If you would like, continue modifying the image by selecting its position within the widget, the background color, or any of the other styling options available.

5. USEFUL DEVICEWISE VIEW TOOLS

For further reference content and up-to-date information regarding deviceWISE VIEW, please access our online deviceWISE help site at:

http://docs.devicewise.com

5.1. Using Animation

Using states, different images can be displayed within the same image widget due to the fact that everything is changed within the styling section. This can allow for animation. Recall in '4.5 Using States' that states allow a user to change components of a widget's configuration when a user-defined variable satisfies an expression. For this we will be using a 'Toggle' widget to toggle the BOOL global variable we defined earlier in '2.3. Creating Variables'. This will serve as an on/off switch for the "generator".

5.1.1. Drag a 'Toggle' widget onto the display next to your image and click on it to open the widget configuration panel. Specify the BOOL variable from the 'Cookbook' device to toggle on or off, or '1' and '0'.

Telit de	vice	VISE					Galleries Disp	alays 🚱
Cookb	ook		Display +				■ ≎ {}	1
dgets Select							Toggle	
aa Telit		~	BOOL		FLOAT4	STRING	Variables Style Title States Trig	pgers Security A
	B		false	0	0		+ Add Cookbook BOOL	Variable
-7) (~	۲		value	value	value		
- m	ଚ	$\langle \rangle$						
•	=	600						
9								
ApexCha	ts	^		т				
0 ~	ıh.	c	· () , human h					
•		9						
~			•					

5.1.2. Enter the configuration for the image widget and navigate to the 'States' tab. Here we will define a new state called "On" that reads the same BOOL variable and will be enabled once it is equal to 1.

Telit device	NISE*						Galleries	Displays	æ	0	±
Gallery Cookbook	* N	isplay Ay First Display 👻				E	•	{} 🕁	0	<	î.
Widgets Select	^	BOOL	INT4	FLOAT4	STRING	State Default					÷
0 / 8		false	0	0		Style Title	States Trigge	s Security	Advanced		
c7) 🛥 🗹	۲		value	value	value	On					
~ II ©	\diamond			1		Custom Varia	able				•
🗢 =	90°										
•						Cookbook.B	OOL				
	_		-			deviceWISE					-
ApexCharts	Â	· []·	т			Cookbook					×
O ~ II	¢					Variable * BOOL					×
• •	9					Count 1		Data Typ BOOL	e		-
0										c	
Smoothie	^					<	5	= !:		2	>
~						Value					
Cauna le	^]] Custom

5.1.3. To animate the image, navigate to the 'Style' tab from within the image widget configuration. From the 'State' drop-down above it, select our newly created 'On' state. Select a new image within the 'Background' section using the same method previously described in '4.6. Uploading Custom Images'. You will notice that the displayed image does not immediately change, and that is because the state has not been triggered yet.

Image	Ô
State On	•
Style Title Triggers Security Advanced	
Layout	~
Spacing	~
Typography	~
Background	^
Background Type Image	•
/image /img/generatoron.png	×
Size	
Repeat	•
Background Color default	

5.1.4. Save and enter the live display. When the toggle widget is switched, the image should now change from the original image you selected to the new image set within the 'On' state styling options. When I toggle the BOOL variable, the generator turns 'on' or 'off'. You will also notice that the BOOL value card widget also changes state because it is reading from the same BOOL variable being toggled.

	Default State	
воог false	inta O	FLOAT4 O
	value	value

Triggered State





5.2. Using Navigation

In a situation that requires multiple displays, each display can access another via navigation. There are two (2) ways of implementing navigation: the 'Navigation' widget, or 'Button' widgets.

5.2.1. Create a new display by clicking the display drop-down near the top left of the window and selecting 'Create New Display'. Name this new display "My Second Display."



5.2.2. In the new display, drag a 'Navigation' widget to the top of the screen. The widget will discover any available displays within the gallery and automatically populate the widget.

Teli	t de	vice	VISE				Gallerie	s Dit	plays	æ	0	±
	Gallery Cookbo	ok		Inipity My Second Display •		⊞	¢	{}	₼	0	<	Î
Widgets	Select			The Eine Mindow The Passed Ricelau	Navigati	on						ô
Telle T	elit		^	му гізц ларіаў — му асскік і ларіаў	Navigation	Style	Title	States	Triggers	Security	Advanced	1
		_	_		Routes							
٣	/	B	-		Routing T	/pe						*
9		\checkmark	۲		Style							
~	Π	Ð	$\langle \rangle$		Navigation T	pe						
	•	=	00°		Toolbar							•
					Enable T	itle						
ø					Enable I	nage						

- 5.2.3. Go back to 'My First Display' and drag a 'Button' widget onto the workspace. Click on it to enter the widget configuration and set the 'Button Text' to "My Second Display."
- 5.2.4. Navigate to the 'Triggers' tab and create a new trigger by clicking 'Create Trigger'. Open the trigger, click 'Create Action', and from the drop-down select the 'Navigate' action. Select 'My Second Display' as the display destination.

	Button	ô
	Button Style Title States Triggers Security Advanced	
SIRING	🖌 Create Trigger	
	Trigger 1 Click	^
value	Event	
	Click	•
	Events on container	
	1 Navigate	
My Second Display	Navigation Type	•
	My Second Display	•
	Open in New Tab	
	C Parameter Handling	
	Normal	•
	+ Create Action	

5.2.5. Save and enter the live display. Navigate between the two displays using the newly-created navigation widgets.

5.3. Implementing a Trend Chart

deviceWISE VIEW uses ApexCharts for configuring and displaying line charts. Trend charts can be implemented using an array defined within the Workbench to display data over time.

5.3.1. In 'My Second Display', drag and drop a 'Line Chart' widget from under 'ApexCharts' onto the display. In the configuration panel and select the global variable 'ARRAY' created in '2.3. Creating Variables' at the [0,0] index. Enter the variable settings by clicking 'Edit' and ensure that the array 'Count' is equal to ten (10) and the 'Data Type' is 'INT8'. The 'Count' will always equal the xdim multiplied by the ydim of the array. In our 'ARRAY' array, the 'Count' is demonstrated as 5 x 2 = 10.

				Line Chart				
				Variables Apex Cha	rt Style Tit	e States	Triggers	Se
		-			+ Add Va	riable		
book.AR	RAY[0,0]	- 1		Cookbook.ARRAY[0,0]				
/ariable	Settings	_		Type: INT8				
	-			Count: 10				
e* k		- 1						
a *							Remove	
,0]		_ 1						_
	Data Type	_						
	INT8	· ·						
		_						
t value then ignore for s	pecified duration							
/e Cancel								

5.3.2. Under the 'Apex Chart' tab, navigate to the 'X Axis' section and 'Enable X Axis Settings'. Change the 'Type' to 'Date Time' to the timestamp data of the array is displayed on the x axis. Navigate to the 'Y Axis' section and 'Enable Y Axis Settings'. Scroll down and click 'Add Axis Title Settings' and enter a title for the array in the 'Text' field.

	My First Display	My Second Display			
	5				=
Here	4				
ay Title I	2				
Ar	1				
	0 Dec	31 Dec	Jan '70	02 Jan	

5.3.3. You will notice no data is present within the line chart widget. The following sections will demonstrate how to call our previously created 'Update_Array' subtrigger while passing inputs from deviceWISE VIEW into the line chart.

5.4. Calling SubTriggers with Parameters

deviceWISE VIEW allows users to fire triggers using a button widget, but local variables must be utilized in order to forward parameters or inputs directly from a display into a defined subtrigger. deviceWISE VIEW local variables are available across every display within the same gallery.

5.4.1. In deviceWISE VIEW, drag a 'Write Value' widget onto the display. Directly below it, place a 'Button' widget and set the button text to "Fire SubTrigger." Resize or move the widgets to consolidate space.

Ny First Display Ny Socood Display		Button	Ô
wy First Display wy Second Display		Button Style Title States Triggers Security Advanced	
5 5 7	Value Fire SubTrigger	Content Butto Test Fire SubTrigger Use loon Style Button Type Button Type Raised Button Wath (N) Primary Button Wath (N) %	•

5.4.2. To access the deviceWISE VIEW local variables, click on the curly brackets near the top right of the window labeled 'Local Variables'. Create two (2) local variables by naming them and clicking 'Add Variable'. Ensure these match the input variables that were configured for the subtrigger in '2.5. Creating SubTriggers'. Reference the image below.

		Search variat	oles	
Name	Value			
Index				
Value			Î	
Variables per pa	age 5 🔻	1 – 2 of 2	< >	
Variable Name	+ Add Va	ariable		

5.4.3. 'Save' the local variables. Set the 'Write Value' widget to write to the 'Value' local variable. You can specify the local variables in the 'Variables' tab by changing the 'Datasource' to 'Local'.

	Write Value				
	Variables Input Field Style Title States Triggers Security	>			
	+ Add Variable				
	Value	,			
value					
Fire SubTrigger					

5.4.4. To pass the local variable values when firing the 'Update_Array' subtrigger created in '2.5. Creating SubTriggers', enter the widget configuration for the button below the 'Write Value' widgets. Navigate to the 'Triggers' tab and create a new trigger that performs a 'Fire Subtrigger' action when clicked. Select the 'Update_Array' subtrigger as the trigger to be fired. For each of the parameters, a deviceWISE VIEW local variable must be specified by entering "\${variablename}" for the value. Using that format, specify the two local variables created in '5.4.2'. This will take a user's inputs from deviceWISE VIEW and pass them through the input variables defined when creating the 'Update_Array' subtrigger. Reference the image below.

	Button	ð
	Button Style Title States Triggers Security Advanced	
	🖌 Create Trigger	
value	Trigger 1 Click Event Click Events on container	~ •
Fire SubTrigger	Fire Subtrigger	
	Project Trigger Cookbook Update_Array Value for Index \${Index} Value for Value \${Value for Value \${Value for Value \${Value for Value \${Value for Value	•

Value parameters in widget configurations are completely dynamic using the \${variablename} format. This allows a user to pull values from both deviceWISE device variables and deviceWISE VIEW local variables. Please note if using deviceWISE device variables, the full name of the variable including the device name and any indexes must be included within the \${variablename} format.

5.4.5. While this handles a user's input for value, the next section, '5.5 Implementing Drop-down Menus', will handle the selection of an index in which to write that value.

5.5. Implementing Drop-down Menus

5.5.1. Drag a 'Dropdown' widget onto the 'My Second Display' display above your 'Write Value' widget. In the widget configuration panel, add a new variable and assign the drop-down widget to write to the 'Index' local variable. Under 'Dropdown', ensure the 'Options Type' is set to 'Static Options' and enter "Index" for the 'Label'. Use the 'Options' menu to add five (5) different options, one for each index of the array. The 'Name' and 'Value' should match. These options will start at zero (0) rather than one (1) because we are dealing with an array.

	Dro	pdown							ð
	<	Variables	Dropdown	Options	Query	Style	Title	States	>
Inday —			-	+ Add	Variable				
index .	Ir	ndex							~
value									
Fire SubTrigger									
	Droj <	odown ^{'ariables} [Dropdown (Options (Query S	tyle T	itle S	itates T	ð ri >
Index -	Name 0			Value 0					
	Name 1			1					
value	Name 2			Value 2					
Fire SubTrigger	Name 3 Name 4	· Add Option	n	Value 3 Value 4					

5.5.2. Save and enter the live display. In order to update the line chart to show user inputted data over time, select index zero (0) from the dropdown widget menu and input any value into the 'Write Value' widget. Once both fields are populated, click on the 'Fire SubTrigger' button to fire the 'Update_Array' subtrigger while passing those values. Do this for all five (5) of the indexes while trying to input a different value for each. After all five (5) indexes have been populated with data, the line chart should show the user inputted values along with a time and date. Enable 'Data Labels' within the line chart widget configuration to show the integer values at each point without having to hover over the chart.



Cookbook / Devices

Devices Variables Data Mapping Variab	ble Groups	
Name	Туре	Value
🔳 🤣 Cookbook	Global Variables	
BOOL	BOOL	
FLOAT	FLOAT4	
INTEGER.	INT4	
STRING 🖉	STRING(64)	
🖃 🦪 ARRAY	INT8[5,2]	
[0,0]	INT8	1642431313367
[0,1]	INT8	1
[1,0]	INT8	1642431317419
[1,1]	INT8	2
🥟 [2,0]	INT8	1642431319976
[2,1]	INT8	3
🥔 [3,0]	INT8	1642431322808
[3,1]	INT8	4
[4,0]	INT8	1642431325795
[4,1]	INT8	5

5.6. Viewing Database Content

5.6.1. In deviceWISE VIEW, drag a 'SQL Table' widget onto 'My Second Display' below the trend chart. Enter the widget configuration and navigate to the 'Query' tab. Under 'Select', select the 'Cookbook' table created in '2.4. Creating a Local Database Table'. The SQL table widget will populate with the column and row data of the selected table. If it does not, enter and then exit live display VIEW or click the refresh button at the top right of the widget to force an update.

My First Display My Second Display	
50	d The state of the
90 40 B	value 5
ž 20 10 1455 14 1455 16 1455 18 1455 20 1455 22 1455 24	Fire SubTrigger
Filter	c
Data	
Data1	
Data2	
Data3	
Variables per page S 👻 1 - 3	of 3 < < >>
L	

5.7. Inserting Database Content

Utilizing the same methods demonstrated in '5.4. Calling SubTriggers with Parameters', we can deploy our 'Insert_Row' subtrigger created in '2.5. Creating SubTriggers' to insert user inputs directly into a local database table.

5.7.1. Create a deviceWISE VIEW local variable to handle this new input called "Table_Data" and 'Save'.

Cookbook Variables			
		Search variables	
Name	Value		
Table_Data			
 r	2222 40 of 60		2022 01 17

5.7.2. Drag a 'Write Value' and 'Button' widget onto your display. The user will input the desired row data into the 'Write Value' widget, which will then be passed to the 'Table_Data' local variable. The button will then fire our 'Insert_Row' subtrigger, pass the local variable, and insert its value directly into the 'Cookbook' database table. Configure the widgets as shown below. 'Text' widgets can also be deployed for organization.

	Write Value	ô
	Variables Input Field Style Title States Triggers Sec.	curity 🗲
lindate Array	+ Add Variable	
opolic Andy	Table_Data	~
C Index		
4		
value 5		
Fire SubTrigger		
Insert Row		
value		

Telit

	Button
	Button Style Title States Triggers Security Advanced
Update Array	🖌 Create Trigger
C Index	Trigger 1 Click ^
4	Event Click
5	Events on container
	Fire Subtrigger
Update Array	Project Cookbook
Insert Row	Value for Data \${Table_Data}
value	+ Create Action
Insert Row	Test Action Sequence
	Delete Trigger

5.7.3. Save and enter the live display. Input a value into the new 'Write Value' widget that you want inserted into our local database table and click on the button to fire the 'Insert_Row' subtrigger. After refreshing the 'SQL Table' widget by clicking the refresh icon at the top right of the widget, you should see the new value inserted in the bottom row. We can also check our 'Cookbook' database table on the Workbench to verify that the subtrigger executed correctly.

Filter		G	Insert Row
Data 🛧			value
Data 1			Hello World!
Data2			
Data3			Insert Row
Hello World!			
	Variables per page 5 ▼ 1 - 4 of 4 < <	> >	

Cookbook / Local Database

Tables Management Execute	SQL	
Name	Storage	Columns
Cookbook	Disk	Data (TEXT(32))
Row Number		Data
1		Data1
2		Data2
3		Data3
4		Hello World!

5.8. Implementing Security

deviceWISE VIEW uses the built-in security features of deviceWISE to permit or prevent access to specific pages and widgets. When a widget is set to block a specific role, the widget will not be visible to any user in that role.

- 5.8.1. In the Workbench, select the 'Administration' dropdown from the left side panel of your node and locate the 'Security' tab. Here you can add new roles, users, and adjust the policies that each role must follow. By default, there is an 'admin' and 'user' role.
- 5.8.2. Navigate to the 'Policies' tab and double click the 'Default Policy' to begin adjusting the user policy settings. Ensure that 'Devices', 'Local Database', 'Triggers', and 'deviceWISE View' are checked. Click 'Save' and 'Yes' to apply.

Telit

🔁 Policy

Policy: Default Policy	Priority: 50
Resource	Users
Administration	S
Devices	×
Elevate	ж Х
Local Database	¥
Mapper	¥
Projects	x
System Logs	*
1 TR50	x
Triggers	
VariableGroup	x
deviceWISE View	×

5.8.3. On deviceWISE VIEW, drag a new 'Button' widget onto the 'My First Display' display. Name the button 'Admin Only Button' as we are going to specify security settings that only allow administrators to interact with or view the button. In the widget configuration panel, navigate to the 'Security' tab and change the 'Role' to '- Custom -'. Input 'Users' into the 'Role' field and click 'Block'. This will block normal users from interacting with the button or even being able to see it.

	Button	ô
STRING	Button Style Title States Triggers Security Advanced	•
value	Role Users Workbench > Admin > Security > Roles Allow Block	
My Second Display	Block List	Î
, Admin Only Button		

5.8.4. Log out of deviceWISE VIEW by clicking the user icon in the top right and selecting 'Log Out'. Save any changes if prompted to do so. Log back into deviceWISE VIEW using the username 'user' and password 'user' to log in as a normal user. These credentials can be changed in the 'Users' section of the Workbench 'Security' tab when editing a user. In the 'My First Display' display, the 'Admin Only Button' will no longer be visible to normal users, while remaining visible when logged in as an administrator.



5.8.5. Every widget includes security settings that can prevent specific users from navigating to a certain page or viewing specific widgets. This can allow for deployments requiring administrator permissions to perform certain actions.

5.9. Implementing Pop-Up Displays and Text

Within the widget configuration panel, there is a trigger action that allows a specified display to pop up on the screen without navigating to the display. This occurs when a certain event happens, such as clicking or hovering over a widget.

5.9.1. Drag another button widget onto 'My Second Display' and enter "Hover" for the displayed text. From the 'Triggers' tab, create a new trigger using the 'Mouse Over' event.

5.9.2. Create a new 'Open Modal' action and specify 'My First Display' as the display destination. Check 'Show close button'. Save and enter the live display. Whenever a user hovers over the button, the 'My First Display' display will pop up on the screen, essentially "seeing" into the display without navigating to it. Click the close button or click outside of the modal to close it. Reference the images below.

	Button	ô
	Button Style Title States Triggers Security Advanced	
r Hover	Create Trigger	
, <u> </u>	Trigger 1 Mouse Over	*
	Cipen Modal	•
	Width (%)	%
	198	
	Modal Title Disable close modal	
	 Show close button + Create Action 	

After Hovering

My First Display My Second Display						
50			≡. .0	fladada Avenu	×	Hover
40	BOOL	INT4	FLOAT4	STRING		
30	false	value	value	value		
2.0						
1.0 14.55.16 14.55.15 14.55		т		My Second Display		
Filter	' C '			Admin Only Button		
Data1				Aunan only dualan		
Data2 Data3						
Hello Worldt						
					_	
	Variables per pa	ge 5 ★ 1-4 of 4 ¢	< > >1			

5.9.3. A text pop-up is performed in a similar fashion. Instead of an 'Open Modal' action, we will be using the 'Info Bar' trigger action. Create another button labeled "Text Pop-Up". Within the 'Triggers' section of the widget configuration, add a click event that performs an 'Info Bar' action. Enter the message that will pop up on the screen and save. Enter the live display and click on the 'Text Pop-Up' button to trigger the pop-up text. Reference the screen shots below.

	Button			Ô
	Button Style Title	States Triggers	Security Advanced	
		🖌 Create T	rigger	
	Trigger 1	Click		^
	Click			•
Hover	Events on containe	er		
	1 Info Bar			:
Text Pop-Up	Message This Is a Text	Pop-Up		
			C Duration	
	Dismiss Text		5	
	Horizontal Position	n	Seconds Vertical Position	
	Center	*	Bottom	-

After Clicking

		value 5		Hover
23 14:55:24	14:55:25	Update Array		Text Pop-Up
	G	Insert Row		
		value Hello World!		
		Insert Row		
This Is a Tex	d Pop-Up	DISMISS		
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5.10. Using Layers

Layers are a useful tool that allows a user to place widgets on top or behind each other, rather than each widget having its own designated space within the display grid.

5.10.1. Create another display titled "My Third Display". Add a navigation widget to the top of the display. Drag an 'Image' widget onto the display and resize it so it covers the remainder of the screen. Navigate to the 'Style' tab of the widget configuration and set a background under 'Background'. For this example, I will set the background to a 'Sleek' gradient.

Telit device	/ISE [*]	Galleries Displays 🔗 🧑 .	1
Gallery Cookbook	cruster • My Third Display •	▦�{}±◙<।	
Widgets Select	1 kr. Fan Ninden - 1 kr. Swand Ninden - 1 kr. Wird Ninden	Image	0
Telit	му так сларану му зослан сларану му так сларану ту так сларану как на сларану как на сларану как на сларану как	Style Title States Triggers Security Advanced	
0 / B		Layout	~
		Spacing	,
CT) 💿 🔽		Typography	~
× 🖬 😔	•	Background	
@ ≔	26	Background Type	
•		Gradient	*
ApexCharts		Gradeen Direction	
O 📈 ılı		7 Right Top	*
• • ا	8		_
0		Color 0 rgba(74,98,110,1)	
Smoothie	*	I	
~		Color 1 rgba(30.33.48,1)	
1.21.		+ Add Gradient Color	

5.10.2. Click the cog wheel at the top right of the display labeled 'Display Settings' to allow layering. Under 'Grid', check 'Allow Multi-Layer'. Set the max layers to two (2). Press 'Save'.

Тор	Right	
16	16	
Bottom	Left	
16	16	
ŝize		
Min Columns	Min Rows	
10	10	
Max Columns	Max Rows	
Mobile Breakpoint V	Vidth (px)	
The current width of your a	creen is 1920px wide	
ayers		
Allow Multi-Layer		
Max Layers		
2		
The maximum number of	layers	

5.10.3. Right click the image widget and select 'Layer' -> 'Send Backward'. Click and drag any widget onto the display, and you will notice that widgets are now able to be placed on top of the background image widget. Layering is available for every widget in deviceWISE VIEW.



My First Display	My Second Display	My Third Display	Value Card	ð
			Layout	~
			Spacing	~
			Typography	~
	1.0		Background	^
			Beckground Type Default	•

5.11. Using Widget Groups

Several widgets can be inserted into a widget group in order to move, apply security settings, or perform any another configuration to a group of widgets at a time rather than each one individually.

5.11.1. In the 'My Third Display' display, drag a 'Widget Group' widget onto the workspace. Next, drag several widgets over the 'Widget Group' widget to insert them into the group.





5.11.2. Any security configuration performed on the widget group applies to the entire group of widgets. You can also add background colors and utilize other styling options.

5.12. Using Gauges

deviceWISE VIEW has a collection of configurable gauge widgets that allow a user to completely customize the minimum and maximum values, create zones that correspond to color codes, and apply labels at specified values.

5.12.1. Navigate to the 'My First Display' display. From under the 'Gauge.js' widget section, drag a 'Gauge' widget onto the display. Specify the 'INTEGER' variable from the 'Cookbook' device by clicking 'Add Variable' from within the gauge widget configuration panel.

	Variable	Settings	
Datasour device	wise 👻	(C
~	Cookbook		
	> ARRAY		
	BOOL		
	FLOAT		
	INTEGER		
	STRING		
R	System Monitor		
Save	Cancel		

5.12.2. Under the 'Gauge' tab in the widget configuration, set the 'Minimum' value to 0 and the 'Maximum' value to 50. Scroll down, check 'Enable Zones', and add a zone. Set the 'Zone Min' to 25 and the 'Zone Max' to 50. Leave the 'Stroke Color' as the default red.

Gauge	Ô
 Variables Gauge Format Style Title States Triggers Limit Minimum Limit Maximum Enable Labels 	Se >
Enable Zones 🔽	
Stroke Color rgb(255,0,0) Zone 0 Min 25 Zone 0 Max 50 Zone 0 Height 0 Add Zone	
Enable Ticks	*

5.12.3. Add another zone by clicking 'Add Zone'. This time, set the 'Zone Min' to 0 and the 'Zone Max' to 25. Set the zone's 'Stroke Color' to a shade of green. For the sake of this guide, use #38e78b as the 'Stroke Color'.

		Gauge	3
OAT4		Variables Gauge Style Title States Triggers Security Advance	d
0	STRING	Enable Labels	
		Enable Zones 🔽	
	value	Zones Stroke Color rgb(255,0,0)	
		C Zone 0 Min	
		25	
	My Second Display	- Zone D Max	
		50	
	Admin Only Button		
		Zone 0 Height	
		Stroke Color #38e78b	
		C Zone 1 Min	
		0	
		- 7ee 1 Max	
		25	
		Zone 1 Height	
		Add Zone	
		Enable Ticks	
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5.12.4. Save and enter the live display. Write to the 'INTEGER' variable using the write value widget created in '4.3. Writing Data in deviceWISE VIEW'. If you write a number greater than or equal to 25 and less than 50, you will notice the gauge pointer enter the red zone.



5.13. Widget Formatting

Every widget available within deviceWISE VIEW has a suite of formatting options allowing a user to add prefixes and suffixes to variable values, specify decimal places, and even perform math at the display level.

5.13.1. Navigate to the 'My First Display' display. Enter the widget configuration for the 'FLOAT4' value card. From within the 'Format' tab, add a new 'Decimal' formatter by clicking 'Add Formatter'. You will notice that the default decimal settings now allow 2 decimal places to be displayed on the value card.

Value Card ð STRING Variables Value Card Format Style Title States Triggers > 10.50 Greetings + Add Formatter 10.5 Greetings! Decimal 123 Formats a value according to digit options and locale rules Minimum Integer Digits 1 My Second Displ The minimum number of integer digits before the decimal point Minimum Fraction Digits 2 The minimum number of digits after the decimal point Admin Only Butto Max Fraction Digits 2 The maximum number of digits after the decimal point 📋 Delete

5.13.2. Add another 'Suffix' formatter. This applies a suffix after the value which is useful for specifying the unit of the value being displayed. For this example, enter "Mins" as the suffix.

FLOAT4		Value Card
10.50	Greetings	Variables Value Card Format Style Title States Triggers
Mins value 10.5	Value Greetings!	The minimum number of integer digits before the decimal point Minimum Fraction Digits 2 The minimum number of digits after the decimal point Max Fraction Digits
	My Second Displ	2 The maximum number of digits after the decimal point Delete
	Admin Only Butto	Suffix Appends text at the end Suffix Mins
		add (something) at the end as a suffix

5.14. Customizing the Login Page

Within deviceWISE VIEW, you have the ability to customize nearly everything your user will have access to, including the login page. If you would like to change the login screen from the default Telit background, proceed with the steps below.

5.14.1. In the Workbench, select the 'Administration' dropdown from the left side panel of your node and navigate to the 'Staging Browser'.

🍇 Database Deployment	nses	Network Configuration	Node Administration	Notification	ns Packages	Persistence	Security	Staging Browser
Siagnostics	Nam	20	Sizo		Created		Modif	
Server FTP Server	H I	modbus	5126		2021-(05-18 16:03:0	08	2021-05-18 16:03
ash Map Variables	Œ	scripts			2021-0	05-18 15:57:	15	2021-05-18 15:57
ATTP Server	Œ	_ tmp			2021-0	05-21 10:43:0	07	2021-05-21 10:43
License Client		WWW			2021-0	05-18 15:57:.	15	2021-05-18 10:03
License Server								
alicenses								
Setwork Configuration								
Sole Administration								
Solutions								
🚑 Packages								
Sersistence								
Security								
Staging Browser								

5.14.2. Navigate to the 'www' directory and open the folder titled 'dwview'. Within this folder, right click on the file containing 'background-telitportal-circuit' and select 'Get' to download the file.

Name

V Today (1)

background-telit-portal-circuit.ff9d525946ec2790d1d2.jpg

5.14.3. To replace the background of the default login screen, use any 1920x1080.jpg image and rename it to exactly the file you downloaded in the previous step. You may overwrite this file to allow for easy renaming. For the sake of this guide, I will be using the image below.

If you would like to return to the default login page, create a copy of original .jpg downloaded from the Staging Browser to revert back to at any time.

1



<u> </u>	www\dwview\background-telit-porta	l-circuit.ff9d525946e	c2790d1d2.jpg: The file a	already exists. Overwrite?
	Yes	No Yes To	All No To All	
1	8.960c1a69e0c5	213,948	2021-05-18 16:03:08	2021-05-18 16:03:08
	🗋 background-telit	287,867	2021-05-18 16:03:08	2021-05-18 16:03:08
og Export	DIN-Black.c5495	17,812	2021-05-18 16:03:08	2021-05-18 16:03:08
	DIN-Bold.406a32	18,192	2021-05-18 16:03:08	2021-05-18 16:03:08
pioyment	DIN-Light.dc6753	17,444	2021-05-18 16:03:08	2021-05-18 16:03:08
	DIN-Medium.e16	17,860	2021-05-18 16:03:08	2021-05-18 16:03:08
	DIN-Rogular df0	17 79/	2021-05-19 16-02-09	2021-05-19 16:02:00
riables	Create Directory Copy	Move	Delete Put	Get Refresh

5.14.5. View your new login page by logging out of deviceWISE VIEW. If you do not see your new login page, close your web browser and open deviceWISE VIEW again.

Telit deviceWISE		
	device WISE	
	Sign in Use your deviceWISE Account	
	Username	8
	Password	â
	Node http://127.0.0.1:8080 deviceWISE Node Address	Ţ
	Sign In	

5.15. Extracting Display Links

When deploying your displays, it is important that a user should be able to access the screens without having to enter edit mode first. To do this, you must enter a live display and copy the URL of your web browser. When using the live display URL, it will prompt the user to log in and take them directly to the live display, bypassing the edit display screen. Sign out of deviceWISE VIEW first or open a new incognito tab to test.

	Copied URL		
	Gallery/My%20Second%20Display		
My First Display My Second Display			æ
	=	Update Array value	Insert Row
,	After Pasting in New Incogr	nito Window	
deviceWISE View × +	ct=%2Flive%2FMz%2528Flivs%2520Gallery%2FMz%2520Secone%2520Dlaplay		 → □ × ★ ★ ★ ★
	devîce Wise		
	Sign in Use your deviceWISE Account		
	Username		
	Password		
	Node http://127.0.0.1:8080 devicem02ENde Address		
	Sign in	1	
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5.16.1. When updating deviceWISE VIEW to a newer version, any galleries that were previously on the system will be considered out of date and may be incompatible. However, when entering an outdated gallery, VIEW will prompt the user to update the displays with the click of a button. Click 'Update Gallery' to automatically migrate any outdated displays to the newest installed version of deviceWISE VIEW.

A Your gallery is out of date. No version vs 1.1.0

Update Gallery

6. GLOSSARY AND ACRONYMS

Description

KPI	Key Performance Indicator
HMI	Human-Machine Interface
Variable	Container with an associated symbolic name that stores different types of data
BOOL	Data type that has two possible values representing truth in logic
INT	Data type that stores a number value written without a fractional component
FLOAT	Data type that stores double-precision floating-point numbers with up to 17 significant digits
STRING	Data type the stores a sequence of characters
Array	Data structure consisting of a collection of values each identified by at least one array index or key
Database	Organized collection of data, generally stored and accessed from a computer system
SubTrigger	A trigger event type that is executed when called upon by another trigger or deviceWISE VIEW, allowing for the passing of parameters.
IP	Internet Protocol
IP Address	Unique address that identifies a device on the internet or a local network
HTTP	Hypertext Transfer Protocol
URL	Uniform Resource Locator
Gallery	Folder that contains a collection of displays
PLC	Programmable Logic Controller
X-Axis	Horizontal axis of a system of coordinates
Y-Axis	Vertical axis of a system of coordinates
SQL	Structured Query Language



7. DOCUMENT HISTORY

Revision	Date	Changes
1	2021-05-18	Initial Draft
2	2021-06-17	deviceWISE VIEW Migration Tool
3	2021-08-04	21.07 Update, Security Features
4	2021-08-12	Modals, Layering
5	2021-09-09	deviceWISE VIEW 1.2.1, Drop-down Options, Gauge Widget, Formatting
6	2022-01-17	deviceWISE VIEW 1.3.0, Trend Charts, Widget Grouping

SUPPORT INQUIRIES

Link to www.telit.com and contact our technical support team for any questions related to technical issues.

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