

ADXL362-ATWINC1500-ExoSense

User Guide For-RA-MCU Ver 1.03

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Requirement

- IDE: e2 Studio v2021-01 FSP v2.3.0 or above

<https://github.com/renesas/fsp/releases>



















Assets 8	
 fsp_documentation_v2.3.0.zip	12.3 MB
 FSP_Packs_v2.3.0.exe	53.9 MB
 FSP_Packs_v2.3.0.zip	41.9 MB
 MDK_Device_Packs_v2.3.0.zip	1.85 MB
 setup_fsp_v2_3_0_e2s_v2021-01.exe	1.21 GB
 setup_fsp_v2_3_0_rasc_v2021-01.exe	547 MB
 Source code (zip)	
 Source code (tar.gz)	

- Debug Tool (SEGGER J-link v9 or above)

<https://www.segger.com/products/debug-probes/j-link/models/j-link-edu-mini/>

- Download ADXL362-ATWINC1500-Exosense--For-RA-MCU Project From [Github](#).

- Download Schematic You Need From [Github](#).

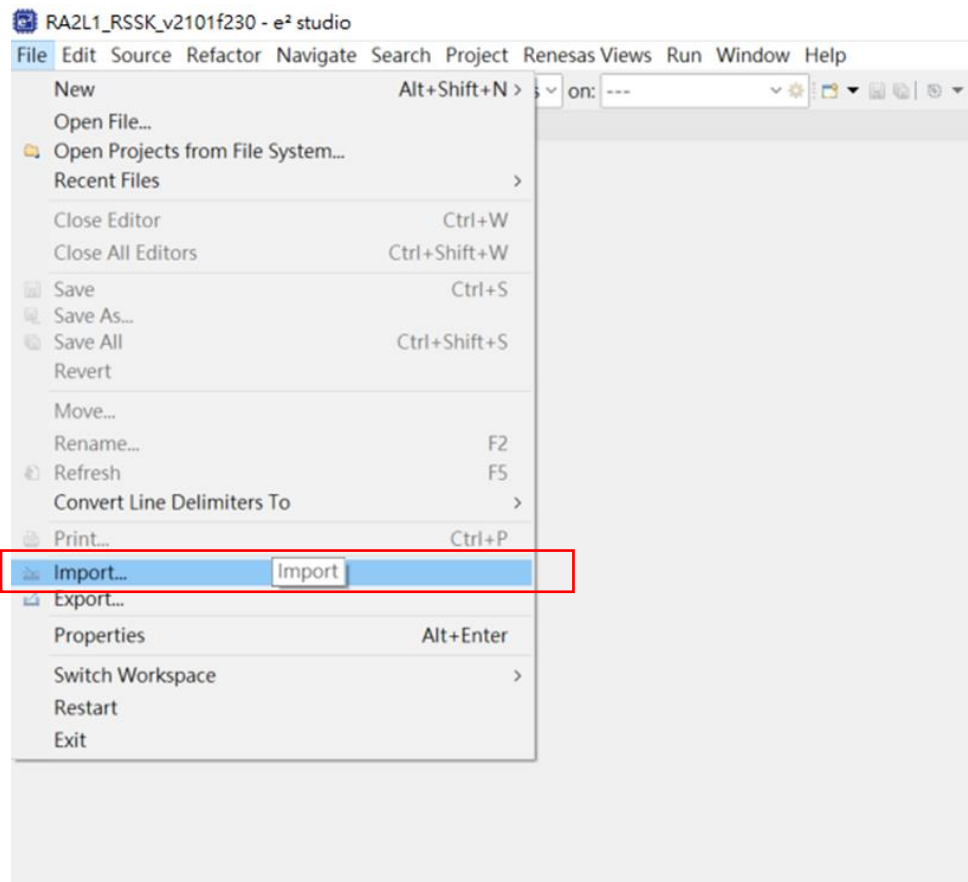
macnica-Erich Add files via upload		c7e5110 28 days ago	45 commits
 ADI ADXL362 Sensor	Add files via upload	last month	
 Cypress PSOC6 MCU	Add files via upload	last month	
 Dialog DA14531 RF	Add files via upload	last month	
 Dialog DA16200 RF	Add files via upload	last month	
 IDT HS3001 Sensor	Add files via upload	last month	
 IDT ZMOD4401 Sensor	Add files via upload	last month	
 Infineon DPS365 Sensor	Add files via upload	last month	
 Microchip SAML21G18B MCU	Add files via upload	28 days ago	
 Microchip WIFI 1510 RF	Add files via upload	last month	
 ON LV0104CS Sensor	Add files via upload	last month	
 ON NCT375 Sensor	Add files via upload	last month	
 Renesas ISL29023 Sensor	Add files via upload	28 days ago	
 Renesas RA MCU	Add files via upload	28 days ago	
 Renesas RX MCU	Add files via upload	last month	
 USI BM22 RF	Add files via upload	last month	
 Base board Schematic_C.DSN	Add files via upload	last month	
 Base board Schematic_C.pdf	Add files via upload	last month	
 ToGo Board Kit Guide.pdf	Add files via upload	8 months ago	

- Device ID & Token

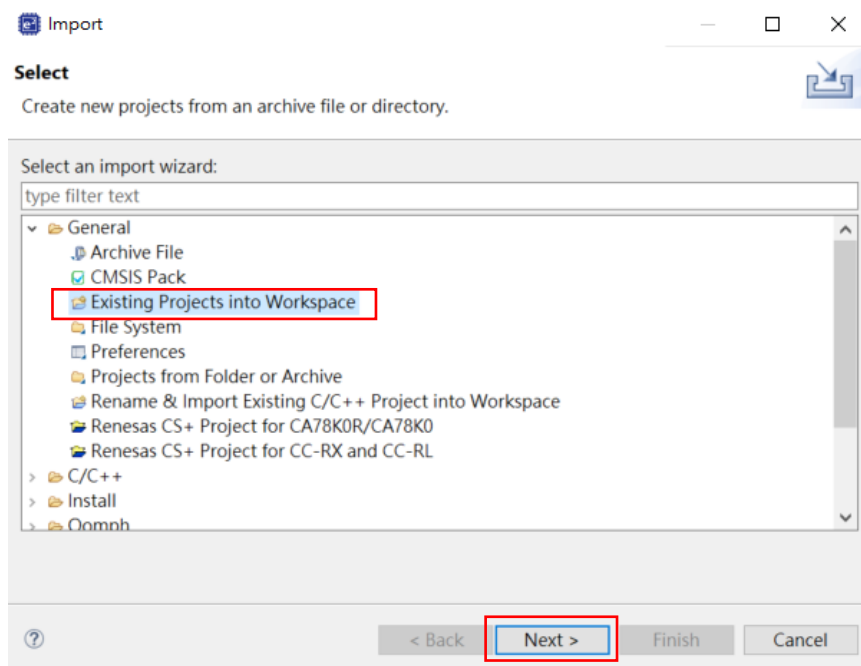
Device ID	Credentials(Token)
TOGO_00[REDACTED]	3b2b065b7[REDACTED]0f2bbc0

Import Project

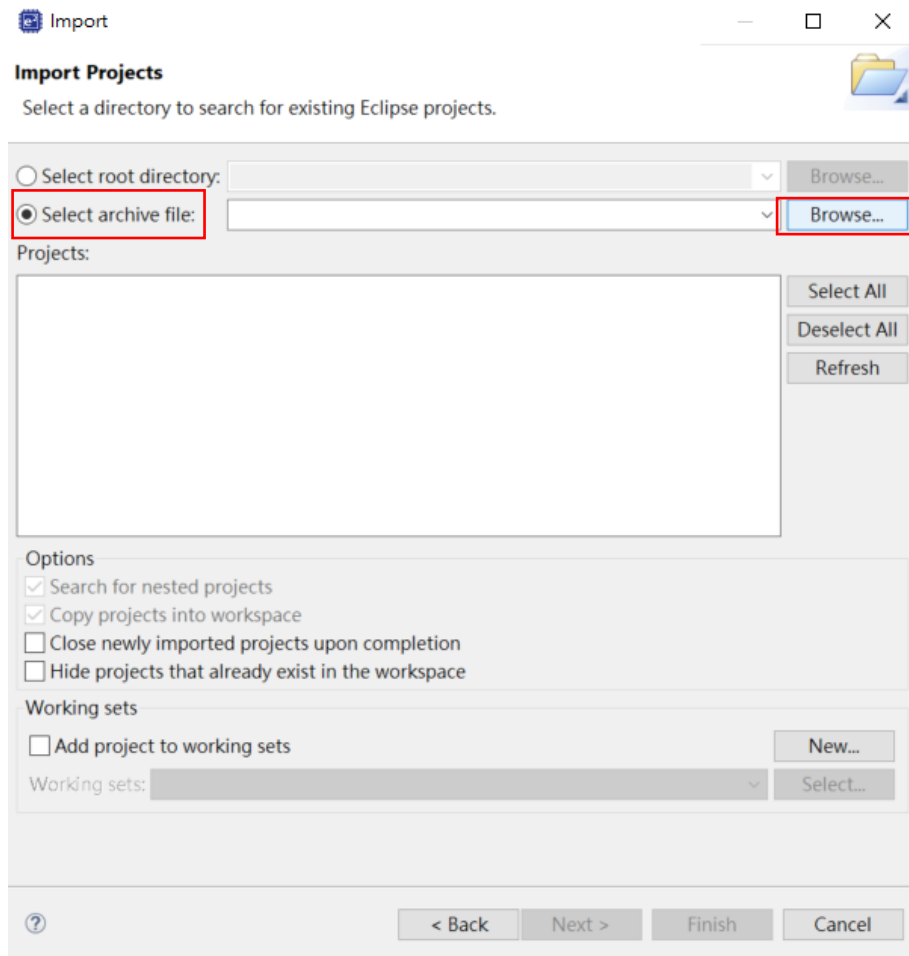
1. File -> Import



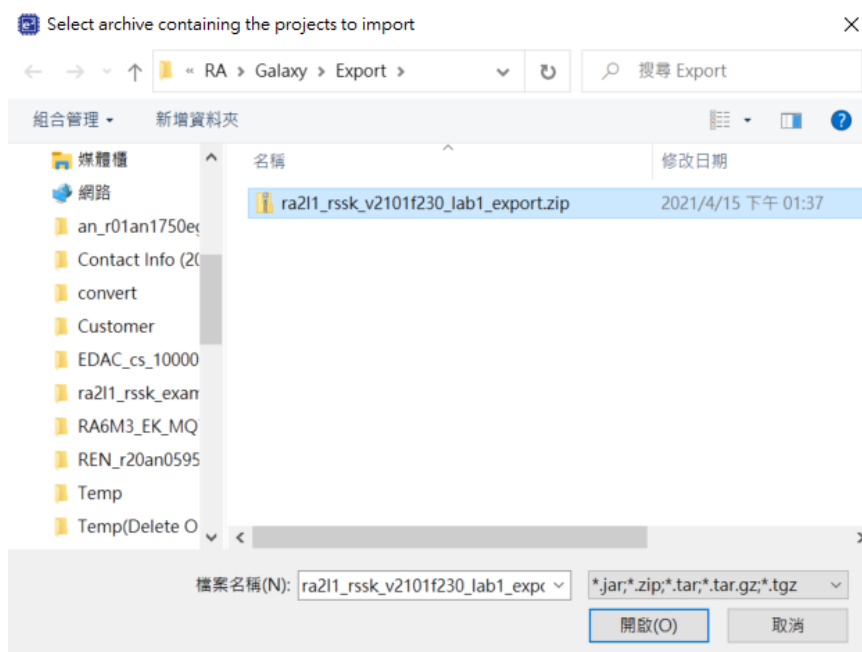
2. Choose "Existing Projects into Workspace".
3. Click "Next".



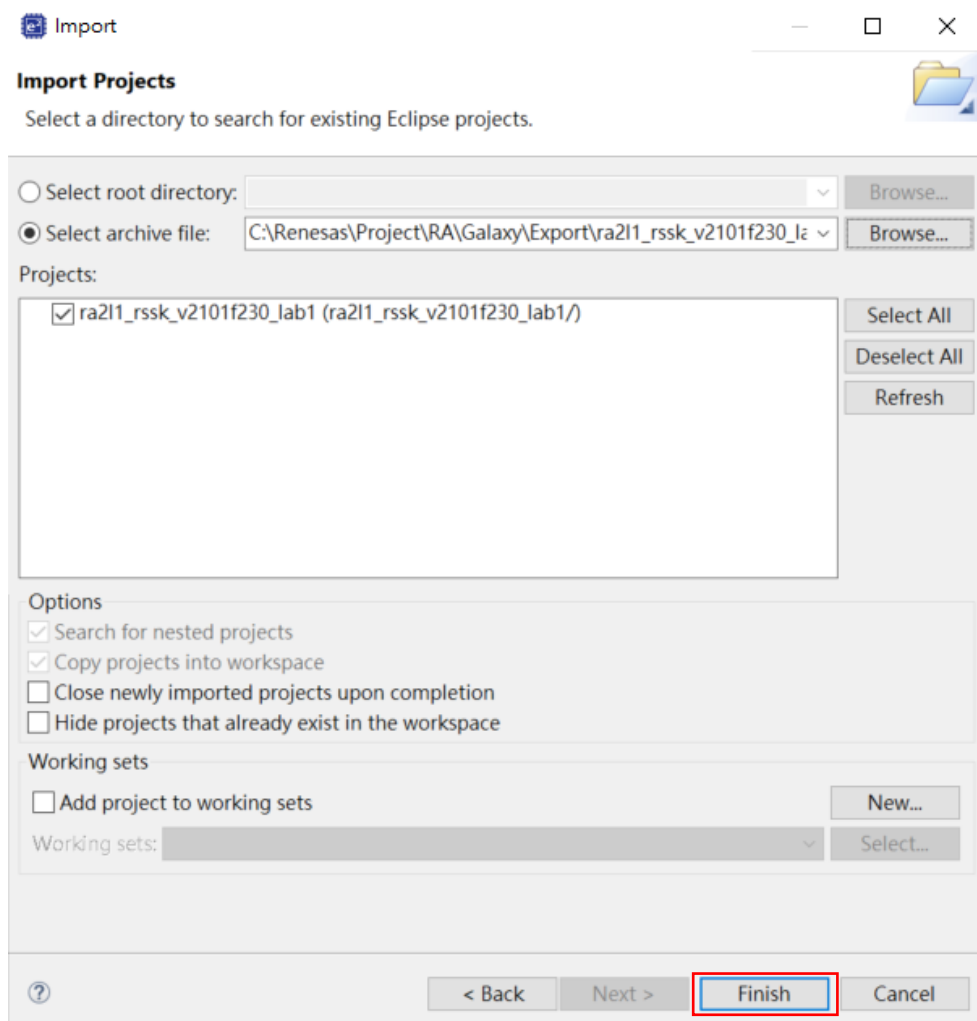
4. Choose "Select archive file".
5. Click "Browse".



6. Select Archive Project.



7. Click "Finish".
8. Done.



Modify Project

1. Modify **DEVICE_TOKEN** & **DEVICE_ID** in *winc1500_exosite_exosense.c*
2. Modify **WLAN_SSID** & **WLAN_PSK** in *winc1500_exosite_exosense.c*

```
@ winc1500_exosite_exosense.c
46 #include "errno_local.h"
47 #include "http_client.h"
48 #include "json.h"
49
50 #define EXOSITE_PROVISION_URL "https://m21d2g4j50cu80000.m2.exosite.io/provision/activate"
51 #define EXOSITE_POST_URL "https://m21d2g4j50cu80000.m2.exosite.io/onep:v1/stack/alias"
52 #define EXOSITE_GET_URL "https://m21d2g4j50cu80000.m2.exosite.io/timestamp"
53 #define EXOSITE_EXAMPLE_HTTP_CIK_EXT_HEADER "X-Exosite-CIK:%s\r\n"
54 #define EXOSITE_EXAMPLE_HTTP_CONTENT_TYPE "application/x-www-form-urlencoded; charset=utf-8"
55 #define WLAN_AUTH M2M_WIFI_SEC_WPA_PSK // AP Security
56
57 // User need to modify 1.device token 2.device id 3.ssid 4.password
58 // #define DEVICE_TOKEN "MACNICA_TOKEN"
59 // #define DEVICE_ID "id=MACNICA_ID"
60 // #define WLAN_SSID "MACNICA_SSID"
61 // #define WLAN_PSK "MACNICA_PSW"
62
63 #define DEVICE_TOKEN "3b2b065b[REDACTED]3f220f2bbc0"
64 #define DEVICE_ID "id=TOGO_00[REDACTED]"
65 #define WLAN_SSID "F[REDACTED]"
66 #define WLAN_PSK "F[REDACTED]32200"
67
68
```

3. **AXIS_X_float**, **AXIS_Y_float**, **AXIS_Z_float** & **ADXL362_Alert** will be uploaded to Exosense via WiFi.

```
@ winc1500_exosite_exosense.c
215
216 case APP_STATE_WORKING:
217     if (m2m_get_elapsed_time(startTime) > 5000)
218     {
219         startTime = m2mStub_GetOneMsTimer();
220
221         if (provisioned)
222         {
223             if (io_configed) // alvin 20210514
224             {
225                 if (httpResponded & httpRequested) // alvin 20210514
226                 {
227                     #passing argument 1 of 'sprintf' discards 'volatile' qualifier from pointer target type [-Wdiscarded-qualifiers]
228                     sprintf(ext_header, EXOSITE_EXAMPLE_HTTP_CIK_EXT_HEADER, DEVICE_TOKEN);
229                     #passing argument 1 of 'sprintf' discards 'volatile' qualifier from pointer target type [-Wdiscarded-qualifiers]
230                     sprintf(data, "data_in={\"g_x\":%.3f,\"g_y\":%.3f,\"g_z\":%.3f,\"alert\":%u}", AXIS_X_float, AXIS_Y_float, AXIS_Z_float, ADXL362_Alert);
231                     #passing argument 5 of 'http_client_send_request' discards 'volatile' qualifier from pointer target type [-Wdiscarded-qualifiers]
232                     http_client_send_request(&http_client_module_inst, EXOSITE_POST_URL, HTTP_METHOD_POST, entity, ext_header);
233                     httpRequested = httpResponded = false;
234                     sent_count++;
235                     printf("debug: send request %u\r\n", sent_count); // alvin 20210504 debug
236                 }
237             }
238             else
239             {
240                 io_configed = true;
241
242                 #passing argument 1 of 'sprintf' discards 'volatile' qualifier from pointer target type [-Wdiscarded-qualifiers]
243                 sprintf(ext_header, EXOSITE_EXAMPLE_HTTP_CIK_EXT_HEADER, DEVICE_TOKEN);
244                 #passing argument 1 of 'sprintf' discards 'volatile' qualifier from pointer target type [-Wdiscarded-qualifiers]
245                 sprintf(provision_data, "config_io=%s", "{\"channels\":{\"g_x\":{\"display_name\": \"Gsensor_X\", \"description\": \"Acceleration X\"}, \"prc
246                     entity->priv_data = (void*)provision_data;
247                     #passing argument 5 of 'http_client_send_request' discards 'volatile' qualifier from pointer target type [-Wdiscarded-qualifiers]
248                     http_client_send_request(&http_client_module_inst, EXOSITE_POST_URL, HTTP_METHOD_POST, entity, ext_header);
249                     httpRequested = httpResponded = false;
250                     sent_count++;
251                 }
252             }
253         }
254     }
255 }
```

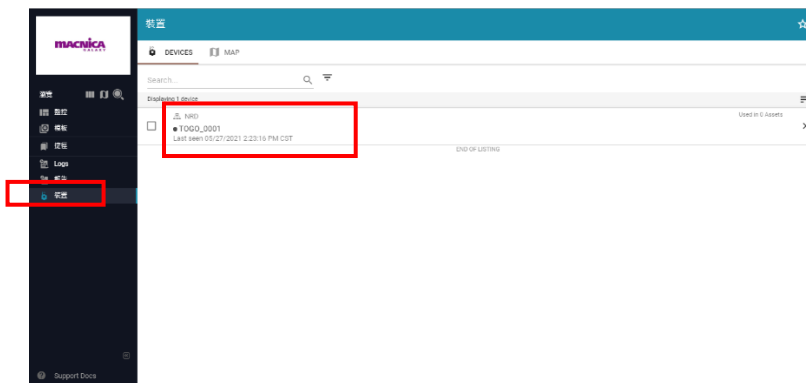
4. Compile & Download FW to MCU.

ExoSense Starter Guide

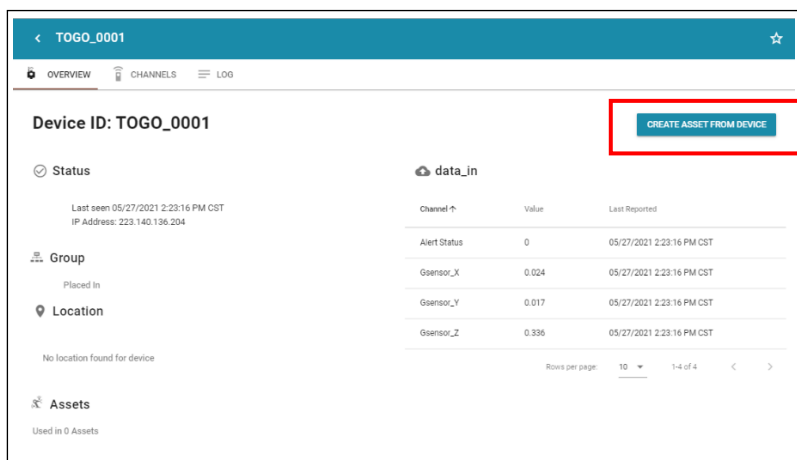
1. We will send an invitation email to you as below, please follow the instruction to register and log in.



2. After login, you will enter the own page. You can see the TOGO_XXXX on the Device page and click it.



3. Click the button "CREATE ASSET FROM DEVICE" on the right top of the OVERVIEW page to create the digital twin asset.



4. You can modify the asset's name and description here before click CREATE.

Create New Asset

New Asset Name
TOGO_0001 Asset

Description

Place Asset in Group: NRD

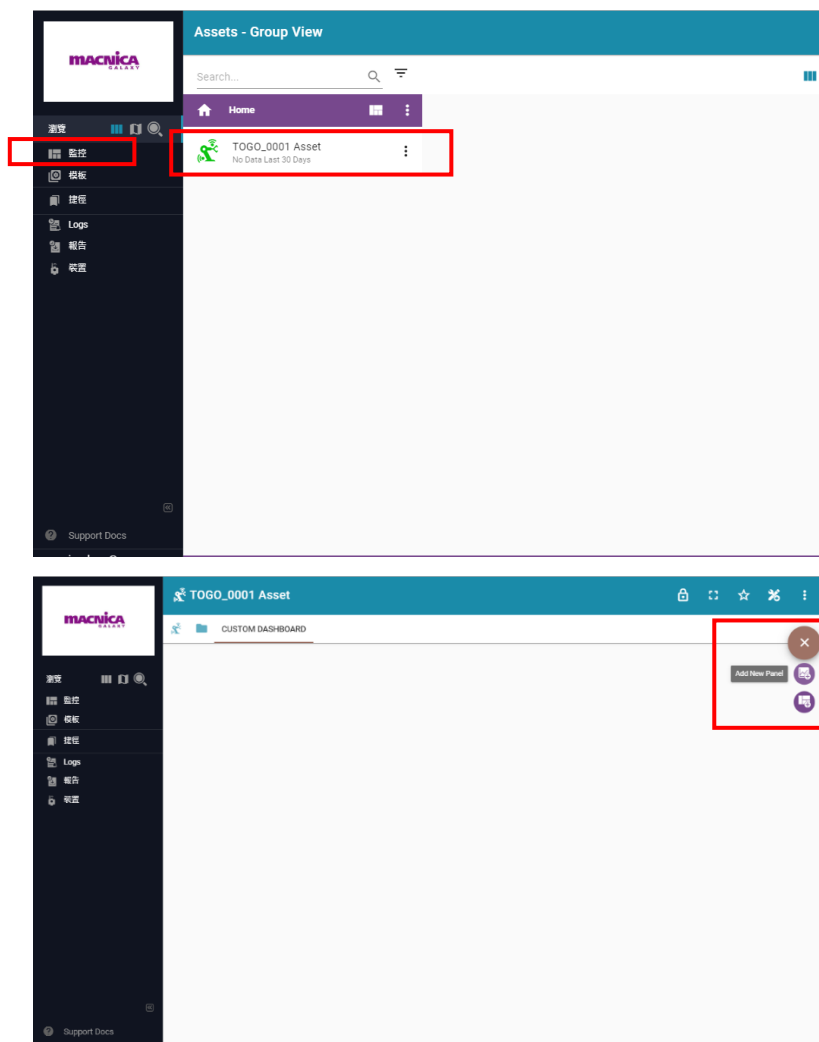
Template: Automatically create signals from the channels on your device.

Device: TOGO_0001

Icon: Default Asset icon

CANCEL CREATE

5. Now you can create and edit DASHBOARD on your asset.

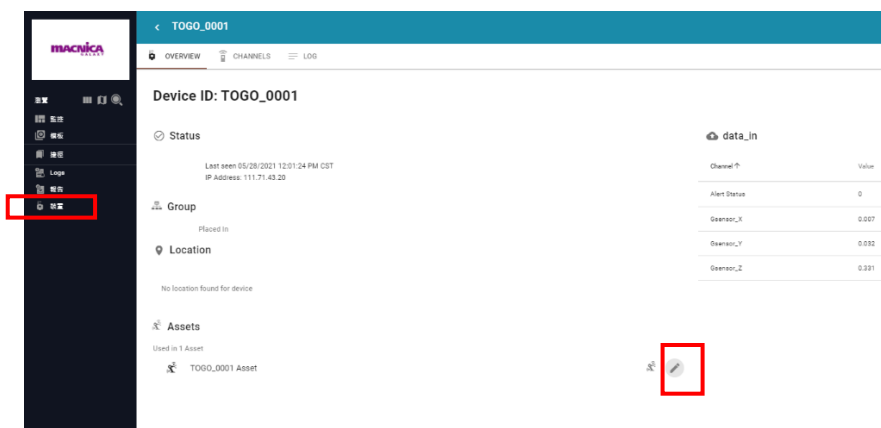


6. Now you can create and edit DASHBOARD on your asset.

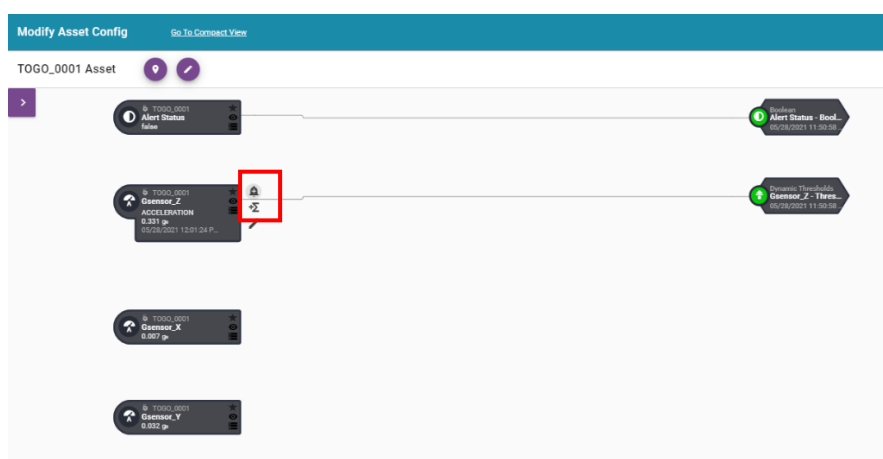
Document: <https://docs.exosite.io/exosense/dashboards/dashboards-overview/>

How to Add Rule

1. Go to Device OVERVIEW page, click the edit icon of Asset.



2. The options of Rule, Transform, and Edit signal pop up while the cursor move onto the signal item.



3. Example of threshold setting.

X
Edit Rule Gsensor_Z - Threshold (Updated)

Insight Modules
Standard
The Signal Data Transforming Service
Rule
Threshold (Updated)

Function Description
This rule uses the last value for the selected input signal and che or ok. Critical thresholds take precedence over warning threshold

Name
Gsensor_Z - Threshold (Updated)

Inputs
Input
TOGO_0001/Gsensor_Z

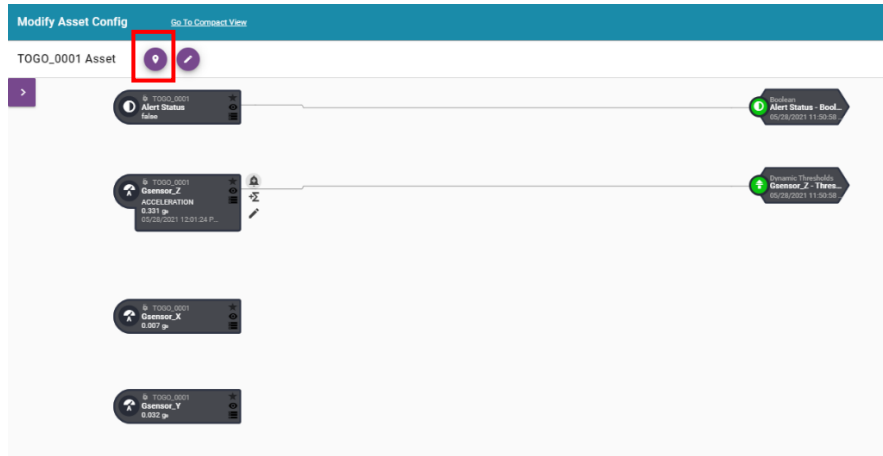
Parameters
Extra details for when value does not match

Multiple Parameters
operation
≥
A value to compare to
0.36
The alert level when equal
Warning
Sustained Duration
Duration
1
Units
seconds

Extra details for when value does match
operation
≤
A value to compare to
0.2
The alert level when equal
Warning
Sustained Duration
Duration
1
Units
seconds

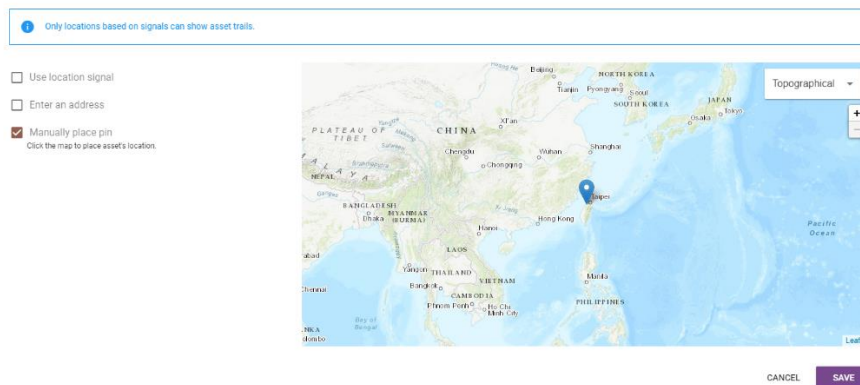
Set Asset Location

1. If you want to use the MAP to show the location of asset but the device does not provide the location data, here can set it manually.

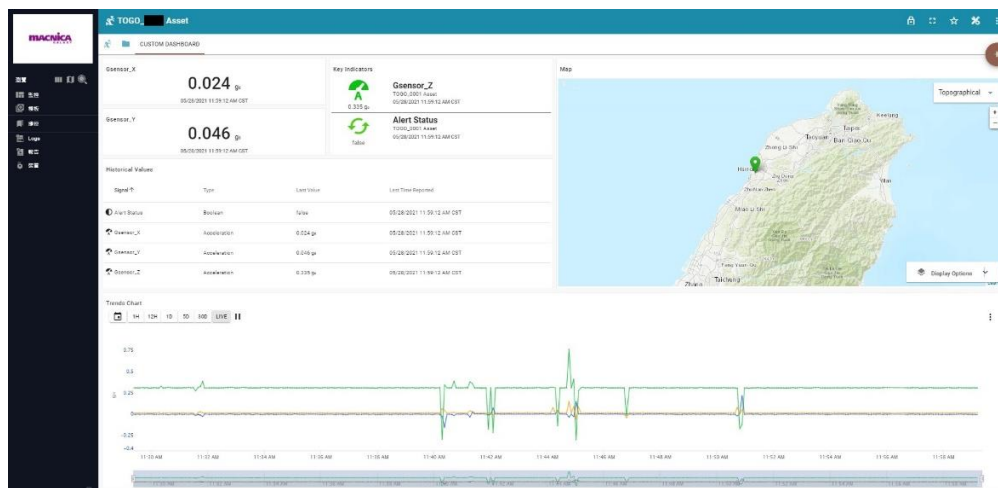


2. Here have the 3 options to add location to the asset. The easy way is Manually place pin on the MAP.

Edit Asset Location

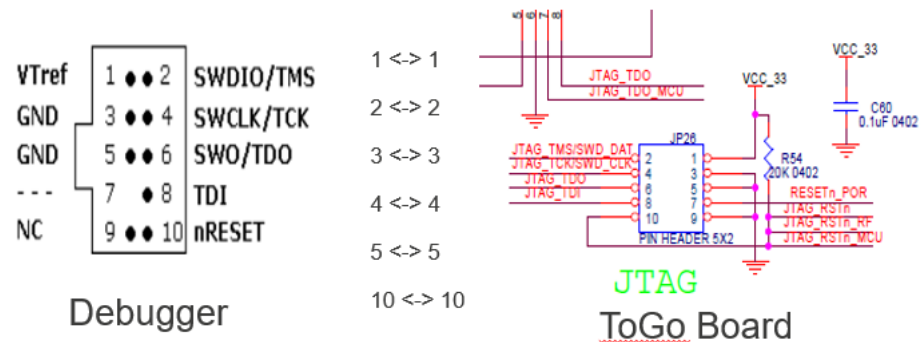


This example uses the MAP panel to display the asset location on DASHBOARD.



Appendix

- Debugger Connection



- E2 Studio User Guide (Click on the picture).



History

Data	FAE	Version	Content
2021/05/26	Alvin	Ver1.01	Create document.
2021/05/28	Jay	Ver1.02	Add “How to Add Rule”.
2021/05/28	Jay	Ver1.02	Add “Set Asset Location”.
2021/06/01	Alvin	Ver1.03	Add “History”.