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Waylay Digital Twin Salesforce App - Installation instructions

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Introduction and prerequisites

We assume you have the link to the Waylay Digital Twin App
- Either via the Salesforce AppExchange
- Either via a direct link provided by the Waylay team

We also assume you have a valid trial or production license for the Waylay Digital Twin Salesforce App users and digital twin assets. Such valid licenses will include
- A unique Waylay Engine hosted in the Waylay Cloud
- An API key and API secret that allows you to connect your App to the Waylay Engine

The installation instructions for the Waylay Digital Twin App are required to be executed by the Salesforce organisation administrator and assumes at minimum a Salesforce Professional version.

Architecture

How the Waylay Digital Twin App in your Salesforce organisation interacts with the Waylay Engine in the Waylay Cloud is depicted in the image below.
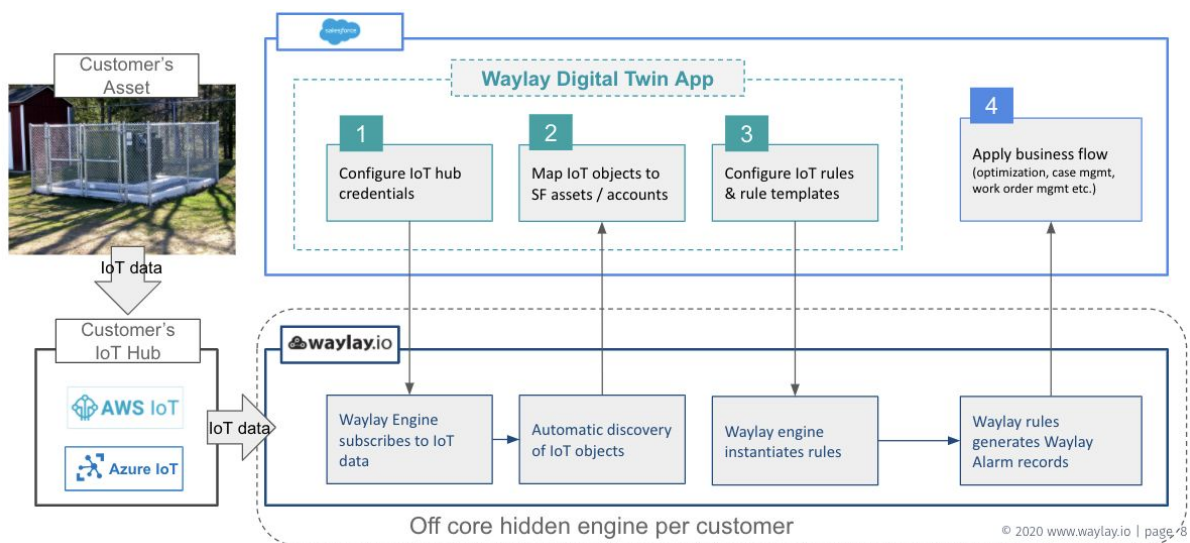
Installation

Follow the installation instructions of the App installer.

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Configuration

Step 1 - Assign permission sets to users

By assigning permissions sets the Waylay app will be available in the app navigator and your user will have access to the related Waylay app features.

Go to Setup→ Users → <select the user you want> -> Assign Permission set

At least assign Waylay Admin permission set to your System Administrator.

Step 2 - Security settings

Before any Salesforce functionality / component can call an external site, that site must be registered in the Remote Site Settings page. This is also the case for the URLs of your Waylay Engine hosted in the Waylay cloud.

Go to Setup → Security → Remote Site Settings
Click on New Remote Site
Enter a Remote Site name and fill in the Remote site Url (Remote site URL = https://yourtenantname.waylay.io).
Hit Save.

Add a second remote site by repeating previous step
 (Remote site URL = https://pubsub-yourtenant.waylay.io)

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Remote Site Details

« Back to List: Remote Site Settings

Remote Site Detail   Edit | Delete | Clone

Remote Site Name	pubsub_salesforce_waylay_io
Remote Site URL	https://pubsub-salesforce.waylay.io
Disable Protocol Security	☐
Description	
Active	✓
Created By	Tom Van Leeuwen, 26/10/2020 09:50

Modified By   Tom Van Leeuwen, 26/10/2020 09:50

Edit | Delete | Clone

Step 3 - Waylay Alarm webhook configuration

Here we will create a public website within Salesforce. This public endpoint will be used to receive Waylay Alarm json payload coming from the Waylay Engine.

Setup → User Interface → Sites and Domains → Sites
if it is required to first register your domain , you can choose this domain yourself.

SETUP
Sites

Sites

What is a Site?

Salesforce sites enables you to create public websites and applications that are directly integrated with your Salesforce.com organization—without requiring users to log in with a username and password. You can publicly expose a your company's brand. Use sites to create public community sites to gather customer feedback, branded login and registration pages for your portals, Web forms for capturing leads, and so on.

Because sites are hosted on Salesforce servers, there are no data integration issues. And because sites are built on native Visualforce pages, data validation on collected information is performed automatically. You can allow users register your own branded domain or subdomain to redirect to your site.

Create multiple sites that appeal to different audiences and satisfy your company's various business needs. For example, a software company could create one site for new developers, another for customers, and a third for market

Sample Domain Name
MyCompany.force.com

Sample sites URLs
MyCompany.force.com/**customers**
MyCompany.force.com/**developers**
MyCompany.force.com/**partners**

To get started, first register your company's Salesforce site domain. Your Salesforce site domain must be unique and must consist of only alphanumeric characters. Salesforce.com recommends using your company's name or a va

⚠ You cannot modify your Salesforce site domain name after the registration process.

http://sandbox- [waylay] -developer-edition.cs96.force.com   [Check Availability]

Success: The Salesforce site domain name "waylay-developer-edition" is available.

☑ I have read and accepted the Salesforce Sites Terms of Use   [Register My Salesforce Site Domain]

Once the domain is registered, we can create a new site

Sites (sandbox-waylay-developer-edition.cs96.force.com)	New					
Site Label ↑	Site URL	Site Description	Active	Site Type	Last Modified By	
No records to display.						

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Set the Site label to for example **Waylay Webhook** and select **AnswersHome** as defined value for the Active Site Home Page.
- It could happen that Salesforce complains that the site is already in use. In this case, just use another name for the site label, but you must set the Active Site Home Page to 'AnswersHome'

Site Label	Waylay Webhook
Site Name	Waylay_Webhook
Site Description	
Site Contact	User User
Default Record Owner	User User
Default Web Address	http://sandbox-waylay-developer-edition.cs96.force.com/
Active	☑
Active Site Home Page	AnswersHome [Preview]
Inactive Site Home Page	InMaintenance [Preview]
Site Template	SiteTemplate
Site Robots.txt	
Site Favorite Icon	
Analytics Tracking Code	
URL Rewriter Class	
Enable Feeds	☐
Clickjack Protection Level	Allow framing by the same origin only (Recommended)
Require Secure Connections (HTTPS)	☑
Lightning Features for Guest Users	☑
Upgrade all requests to HTTPS	☑
Enable Content Sniffing Protection	☑
Enable Browser Cross Site Scripting Protection	☑
Referrer URL Protection	☑
Guest Access to the Payments API	☐
Guest Access to the Support API	☐

Activate the site once created by hitting the active button if you would not have checked the Active box while creating the webhook.

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The last step is now to grant public access to this webhook.
Setup → User Interface → Sites and Domains → Sites → "Click on site label :
Waylay Webhook"

Click on : Public Access Settings →Edit → Go to Section Custom Object Permissions

Checkmark on Read, Create boxes.

Click Save.
Then Go to Section Custom Field-Level Security

Hit View → Edit for Waylay Alarm and check all possible boxes. Once done hit the Save button

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Waylay Webhook Profile   Help for this Page ❓

Field Name	Field Type	Read Access	Edit Access
Account	Lookup	☑	☑
Created By	Lookup	✓	☐
Last Modified By	Lookup	✓	☐
Owner	Lookup	✓	✓
Waylay Alarm Name	Text	✓	✓
Waylay Asset	Lookup	☑	☑
Waylay Description	Long Text Area	☑	☑
Waylay Type	Picklist	☑	☑

We need to grant public access to the APEX class.
Once the page is loaded, click on Enabled Apex Class Access:

Profile
Waylay Webhook Profile   Help for this Pa
« Back to List: Custom Home Pages

Users with this profile have the permissions and page layouts listed below. Administrators can change a user's profile by editing that user's personal information.

If your organization uses Record Types, use the Edit links in the Record Type Settings section below to make one or more record types available to users with this profile.

Login IP Ranges [0] | Enabled Apex Class Access [1] | Enabled Visualforce Page Access [12] | Enabled External Data Source Access [0] | Enabled Named Credential Access [0] | Enabled Custom Metadata Type Access [0] | Enabled Custom Setting Definitions Access [0] | Enabled Flow Access [0] |
Enabled Custom Permissions [0]

Click Edit and add class below by selecting it from the left column, hitting the Add button, so it appears in the right column as shown below:
- Put the wlio.WaylayWebhook in the Enabled Apex Classes column and hit save.

Enable Apex Class Access

Select the Visualforce pages that you want to make accessible at this Salesforce site.

	Save	Cancel

Available Apex Classes

```
wlio.ChangePasswordController
wlio.ChangePasswordControllerTest
wlio.CustomLookupHelper
wlio.CustomLookupHelperTest
wlio.ForgotPasswordController
wlio.ForgotPasswordControllerTest
wlio.MyProfilePageController
wlio.MyProfilePageControllerTest
wlio.RuleTemplateController
wlio.RuleTemplateControllerTest
wlio.RuleTemplateHelper
wlio.SettingsHelper
wlio.SettingsHelperTest
wlio.SiteLoginController
```

Add ▶
◀ Remove

Enabled Apex Classes

```
wlio.WaylayWebhook
```

Note on security: the WaylayWebhook Apex class will process the JSON payload of the HTTP POST message received from the Waylay Engine. This communication will be over HTTPS (see public website configuration). The Waylay Engine will add an 'X-Authorization' header to the HTTP POST. This header will be a SHA-256 hash of your Waylay Engine Credentials. The WaylayWebhook Apex class will validate this X-Authorization header against the stored credentials.
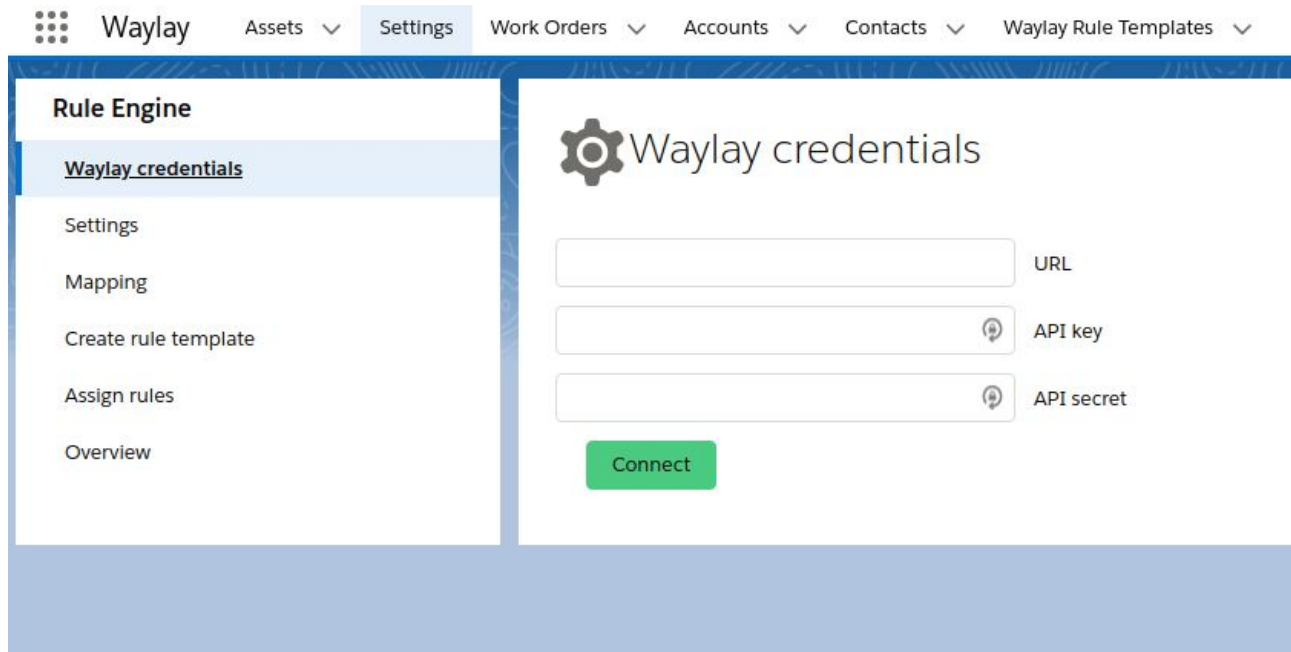
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Step 4 - Waylay App Settings

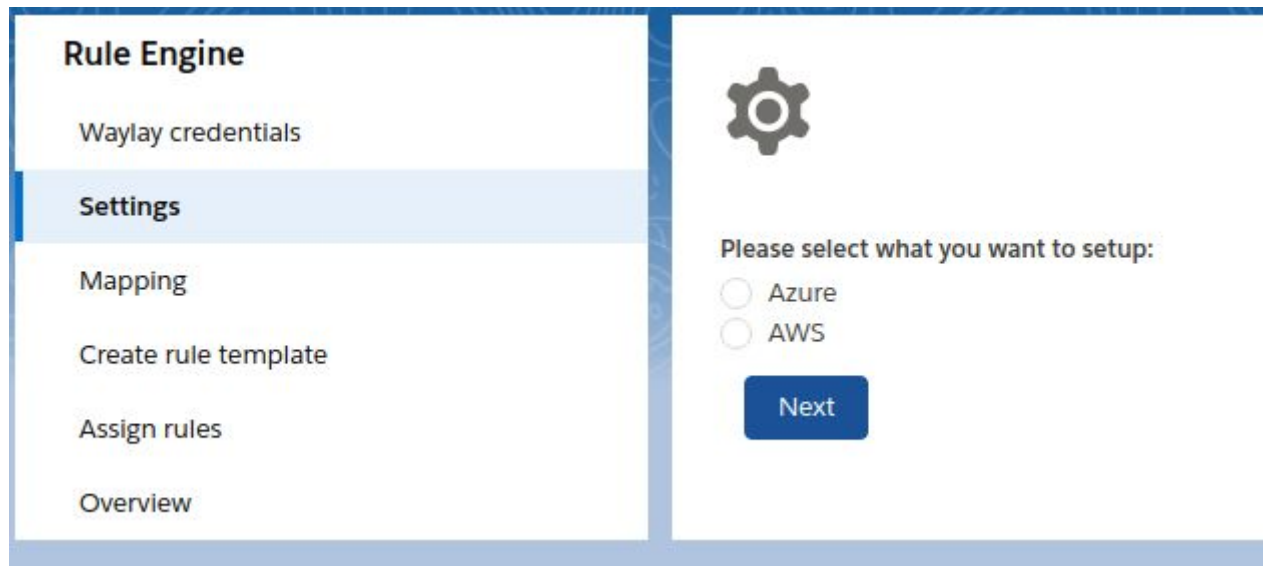Go to App launcher and open Waylay App.
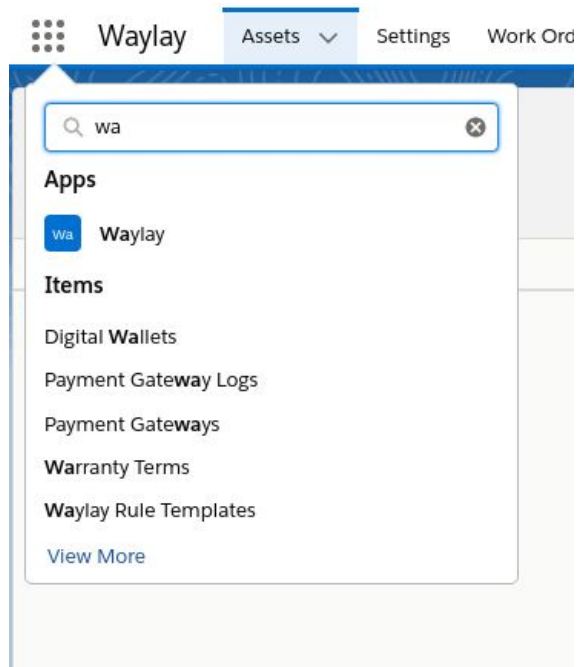
Go to Settings tab → Waylay Credentials and enter the URL of your Waylay Engine and your API key and API secret. Click Connect to validate your settings.

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Step 5 - IoT platform connection

Go to Settings tab
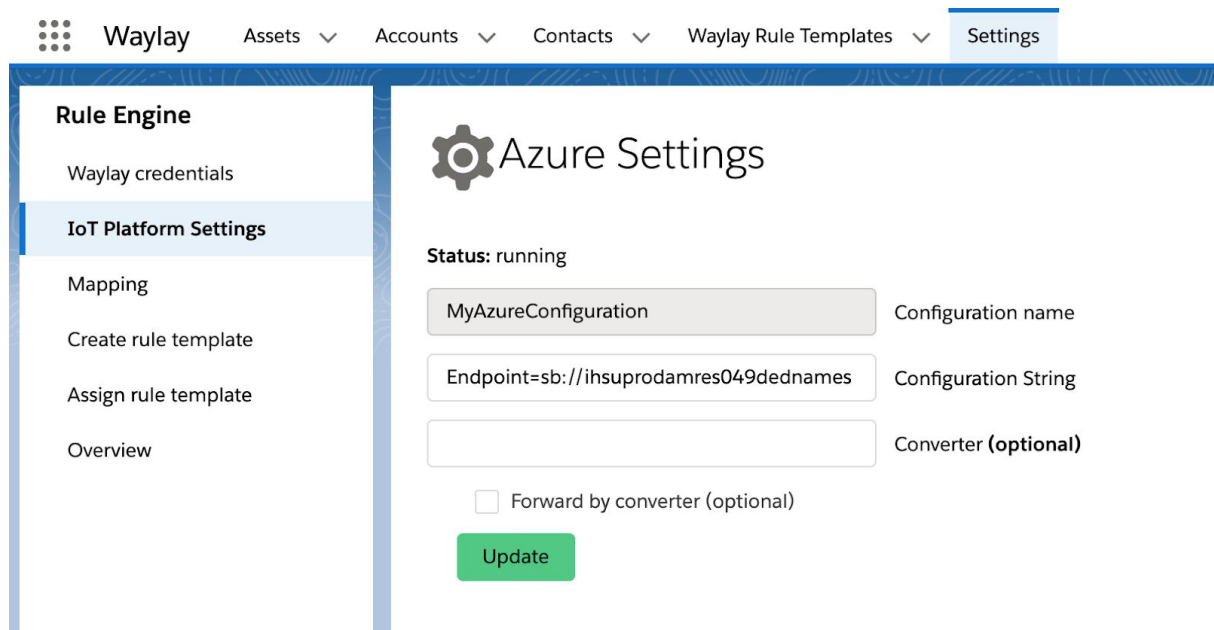

Select your IoT platform of choice and configure the necessary settings.

In case of Azure, you can configure the Azure IoT Hub EventHub Endpoint connection string:

See also

https://docs.microsoft.com/en-us/azure/iot-hub/iot-hub-devguide-messages-read-builtin

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In case of AWS, you can configure the AWS IoT Core settings:
- Topics, e.g. '$/aws/things/+/shadow/update'
- Endpoint
- Key
- Secret
- Region

See also
https://docs.aws.amazon.com/iot/latest/developerguide/device-shadow-mqtt.html

Step 6 - Apply a new Asset page layout

Waylay Digital Twin Assets have additional custom fields and related custom objects (e.g. Waylay Digital Twin Params). This information could be made visible using our custom Asset page layout ("Waylay Asset Layout").

Navigate to Setup > Object Manager > Asset > Page Layouts > Page Layout Assignment

Next you assign the Waylay Asset Layout to the Waylay Digital Twin record type:
- Select the entire Waylay Digital Twin column
- In the dropdown, select Waylay Asset Layout
- Click Save

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Edit Page Layout Assignment
Asset

The table below shows the page layout assignments for different record type and profile combinations. Use SHIFT + click or click and drag to select a range of adjacen multiple cells that are not adjacent. Then choose a new page layout from the dropdown.

Save | Cancel

Page Layout To Use: | Waylay Asset Layout v | 39 Selected *39 Changed*

Record Types

Profiles	Master	DefaultAssetType	Waylay Digital Twin
Analytics Cloud Integration User	Asset Layout	Asset Layout	*Waylay Asset Layout*
Analytics Cloud Security User	Asset Layout	Asset Layout	*Waylay Asset Layout*
Authenticated Website	Asset Layout	Asset Layout	*Waylay Asset Layout*
Authenticated Website	Asset Layout	Asset Layout	*Waylay Asset Layout*
Chatter External User	Asset Layout	Asset Layout	*Waylay Asset Layout*
Chatter Free User	Asset Layout	Asset Layout	*Waylay Asset Layout*
Chatter Moderator User	Asset Layout	Asset Layout	*Waylay Asset Layout*
Company Communities User	Asset Layout	Asset Layout	*Waylay Asset Layout*
Contract Manager	Asset Layout	Asset Layout	*Waylay Asset Layout*
CPQ Integration User	Asset Layout	Asset Layout	*Waylay Asset Layout*
Cross Org Data Proxy User	Asset Layout	Asset Layout	*Waylay Asset Layout*

Step 7 - Create Waylay Digital Twin Assets

We leverage the dataloader.io tool to create Waylay Digital Twin child assets under existing Salesforce assets as parent.

In order for the Waylay Digital Twin App to function properly, the following are mandatory prerequisites during the mapping process:
- The account name mentioned in the mapping file must pre-exist in Salesforce
- The parent asset must pre-exist in Salesforce

First we are going to create Waylay Digital Twin Child assets:
Go to Setup > Integrations > dataloader.io and click 'launch dataloader.io' button
- Environment: production
    - do NOT enable 'I have a custom salesforce domain'
- click login and enter your salesforce environment credentials
- Operations: Select Insert, Upsert or Update
    - Insert: will only create new asset records in SF
    - Upsert: Insert new asset records or update existing asset records
    - Update: Only update existing asset records
- Object: select '**Asset**'
- Select the csv file from your local hard drive
- Map csv fields (see screenshot below)
- Save and Run

An example mapping CSV file could be the following:

```
AccountID,SF_Asset_Name,Azure_device_id,SF_Child_Asset_Type,SF_Ch
```

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```
ild_Asset_Name,SF_ Record_Type_Name

SmartFactoryInc,EngineY, SFDemoIoTDevice, EngineSensorType,
EngineSensor, Waylay_Digital_Twin
```

This example assumes that you have an existing Account 'SmartFactoryInc' and an existing Asset 'EngineY'

Taking this example, leads to the following view in the Waylay Digital Twin App:

Secondly we are going to add parameter mappings to the Waylay Digital Twin Child Assets:

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Go to Setup > Integrations > dataloader.io and click 'launch dataloader.io' button
- Environment: production
  - do NOT enable 'I have a custom salesforce domain'
- click login and enter your salesforce environment credentials
- Operations: Select Insert, Upsert or Update
  - Insert: will only create new asset records in SF
  - Upsert: Insert new asset records or update existing asset records
  - Update: Only update existing asset records
- Object: select '**Waylay Digital Twin Param**'
- Select the csv file from your local hard drive
- Map csv fields (see screenshot below)
- Save and Run

An example mapping CSV file could be the following:

```
SF_Child_Asset_Name,SF_Child_Asset_parameter,Payload_Parameter
EngineSensor, Temperature,temperature
EngineSensor, Pressure,pressure
EngineSensor, UsageHours,device_hours
EngineSensor, ErrorCode,error_code
```

This example assumes that you have an existing Digital Twin Asset 'EngineSensor'.

Taking this example, leads to the following related list view in the Waylay Digital Twin App:
- Note: this view depends on step 6

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Limitations in modeling Waylay digital twin assets

- Do not create multiple Waylay digital twin child assets with the same name. Their names should be unique

Step 8 - Create additional Waylay Alarm types (OPTIONAL)

By default, the Waylay Digital Twin app ships with a limited set of Waylay alarm types. You can extend the values in the picklist: go to Setup>Object Manager > Waylay Alarm > Fields & Relationships > Values

Uninstallation

In Setup > Apps > Packaging > Installed Packages. Click on Uninstall for the Waylay Digital Twin package.

- Note: If there are lingering dependencies, the Uninstaller will flag those. They need to be resolved before you can remove the package.
  - For example if you get an error message related to assets that are using the Waylay Digital Twin (parent) asset record type, you can get around this by
    - 1. De-activating this asset record type
    - 2. Deleting this asset record type and assign a default asset record type to the assets

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