



SAP S/4HANA Delivery Insights enabled by SAP Internet of Things

SAP
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INTERNAL

Delivery Insights enabled by IoT

Value Proposition

As a supplier (Sales)

Provide superb customer experience by ensuring in-time and in-quality goods delivery

- Receive **notifications** about critical **outbound delivery situations** based on IoT data in real time
- Request delivery **safeguarding measures** from logistics provider (e.g. re-route truck) while shipped goods are still “on the road”
- Trigger express **replacement delivery** to catch up lost time
- **Proactively communicate** possible deviation from planned delivery time or quality to goods receiver

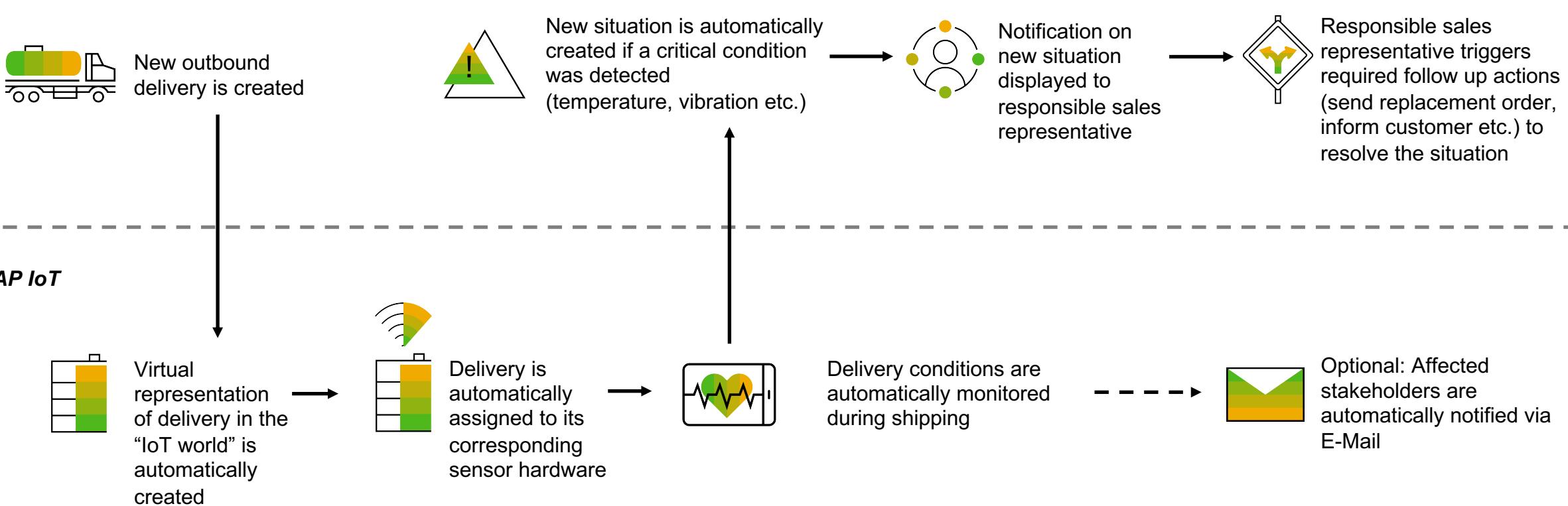
As a purchaser (Procurement)

Improve supply chain continuity & production quality by receiving required goods in-time and quality

- Receive **notifications** about critical **inbound delivery situations** based on IoT data in real time
- Request express **replacement delivery** (eventually from alternative supplier) or adjust production planning
- **Automate quality management** or batch release procedures based on recorded delivery conditions

IoT enabled Delivery Insights (Sales) – Process Flow

S/4HANA



Intelligent Suite – Delivery Insights enabled by IoT

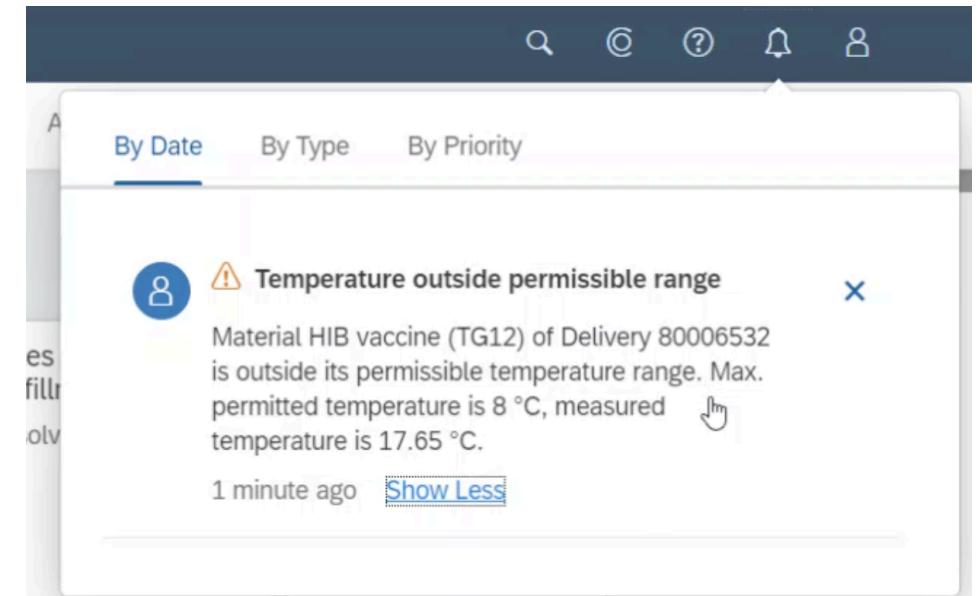
Available with S/4HANA Cloud 2002

Detailed information about the scenario and relevant scope item can be found on the S/4HANA Best Practices Explorer:

[Delivery Insights enabled by IoT \(4IH\)](#)

Leverage **SAP IoT** to enable IoT-supported business scenarios with **S/4HANA**:

- Big Data Storage
- Digital Twin Representation
- Rules on streaming and persisted data
- Actions to integrate to business systems
(e.g. Receive IoT-triggered Notifications & Situations)
- Analytics on sensor data (SAC integration)



Key Configuration Steps in SAP IoT – Thing Model

Thing Model

IoT Rules

IoT Actions

Embedded IoT Data

The Thing Modeler

Example: Haemophilus influenzae type B (HIB) vaccine deliveries

The IoT administrator creates manually

- A thing type for deliveries per material master (e.g. HIB vaccine) with basic data fields for material master attributes, sales order, handling unit ID and measured values reflecting the sensor capabilities such as temperature, acceleration etc.
- A device model for each sensor with sensor alternateID matching the handling unit IDs being used for deliveries

Once an outbound delivery has been created in S/4HANA for one of the materials maintained in SAP IoT as Thing Type an SAP Cloud Platform custom application (code sample available on [GitHub](#))

- automatically creates a thing representing the new delivery of the respective material and
- associates the correct sensor to the thing using the handling unit ID

The screenshot shows the SAP Thing Modeler interface. On the left, there's a sidebar with 's4.delivery.insights' and a search bar. Below it are buttons for 'Thing Types (1)' and 'Things (3)'. The main area displays three entries under 'Things':

- 80006532**: IoT enabled Delivery 80006532 comprising ...
Type: TG12
- 80000350**: Alternate Name: 80000350
IoT enabled Delivery 80000350 comprising ...
Type: TG12
- 8005973**: Alternate Name: 8005973
IoT enabled Delivery 8005973 comprising M...
Type: TG12

On the right, the details for the first thing (80006532) are shown in a table:

Property Sets / Pro...	Description	Value	Unit of Measure	Type	Length	Sensitivity Level
DELIVERY_IT_EM	10			String	127	
HU_ID	1000000279			String	127	
MATERIAL	TG12			String	127	
MATERIAL_DESCRIPTION	HIB vaccine			String	127	

At the bottom are buttons for 'Save', 'Cancel', 'Delete', 'Copy', and 'Thing Properties Catalog'.

Key Configuration Steps in SAP IoT – IoT Rules

Thing Model

IoT Rules

IoT Actions

Embedded IoT Data

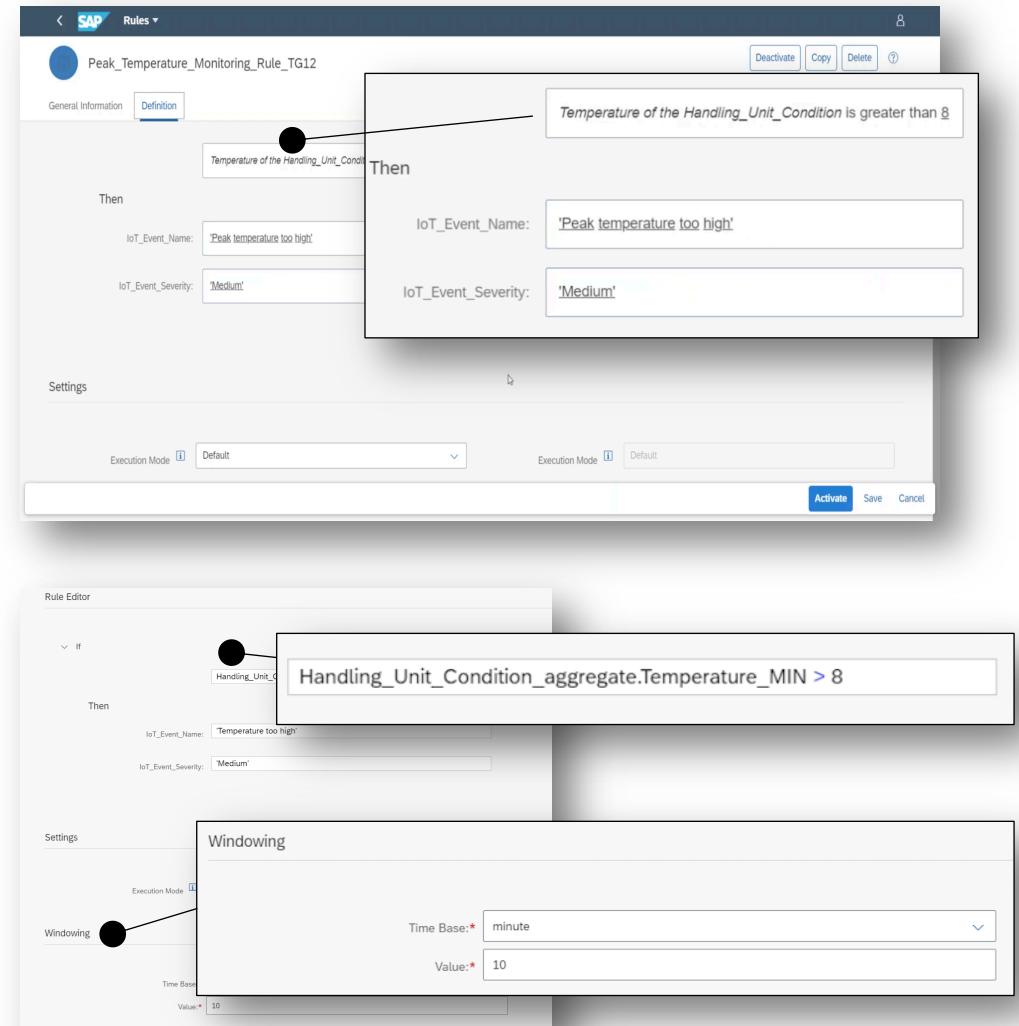
IoT Rules

The IoT administrator creates rules per material (thing type) reflecting its required delivery conditions.

Example: Streaming rule to monitor temperature for HIB vaccine deliveries:

- Rule condition: Temperature > 8°Celsius
- Rule triggered event:
 - Name: Peak temperature too high
 - Severity: Medium

Alternatively, a scheduled rule over a configurable time window can be defined. In this case, the rule would only trigger, if all sensor values are consistently beyond the threshold during that time window. Such rules tolerate outlier values from sensors and are therefore more robust.



Key Configuration Steps in SAP IoT – IoT Actions

Thing Model

IoT Rules

IoT Actions

Embedded IoT Data

IoT Actions

Events triggered by rules can trigger different types of IoT actions.

The IoT administrator creates actions to generate a notification and situation for the sales order in S/4HANA belonging to the delivery, which the sensor detected high temperature values for:

- Action Type: Service Integration
- API: Calls a service in S/4HANA to create a S/4HANA Situation embedded into the impacted sales order
- Payload include attributes of respective delivery, e.g. customer, material description, sales order, handling unit ID such that the situation is created for the sales order matching the thing representing the delivery that triggered the event

The screenshot shows the SAP Actions interface for creating a new IoT Action named "Peak_Temperature_Monitoring_Action_for_Situation_TG12". The action is triggered by an event from a rule, specifically the "Action - Peak_Temperature_Monitoring_Action_TG12". It is associated with a thing type "iot.s4int.s4.delivery.insights:TG12" and uses "Service Integration" as the action type. The "HTTP Information" section shows the destination as "Situation_CC8" and the URL as "https://my300470-api.s4hana.ondemand.com/sapbc/http/sapimm_pur...". The "Invocation Type" is set to "Auto" with "POST" as the method. A "Sample Payload" button is expanded, showing a JSON payload template:

```
"alias": "IOT_S4_SIT_SO",
"guid": "${RecommendationServiceGuid}",
"data": {
  "device": {
    "customerid": "${S4_References.CUSTOMERID}",
    "customer_name": "${S4_References.CUSTOMER_NAME}",
    "material": "${S4_References.MATERIAL}",
    "material_description": "${S4_References.MATERIAL_DESCRIPTION}",
    "delivery": "${S4_References.DELIVERY}",
    "delivery_item": "${S4_References.DELIVERY_ITEM}",
    "hu_id": "${S4_References.HU_ID}"}
```

Key Configuration Steps in SAP IoT – Embedded IoT Data

Thing Model

IoT Rules

IoT Actions

Embedded IoT Data

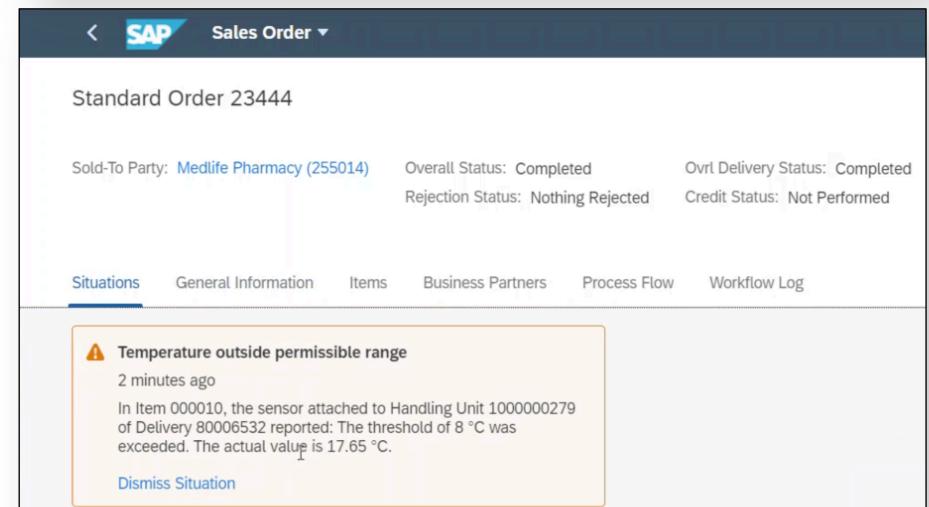
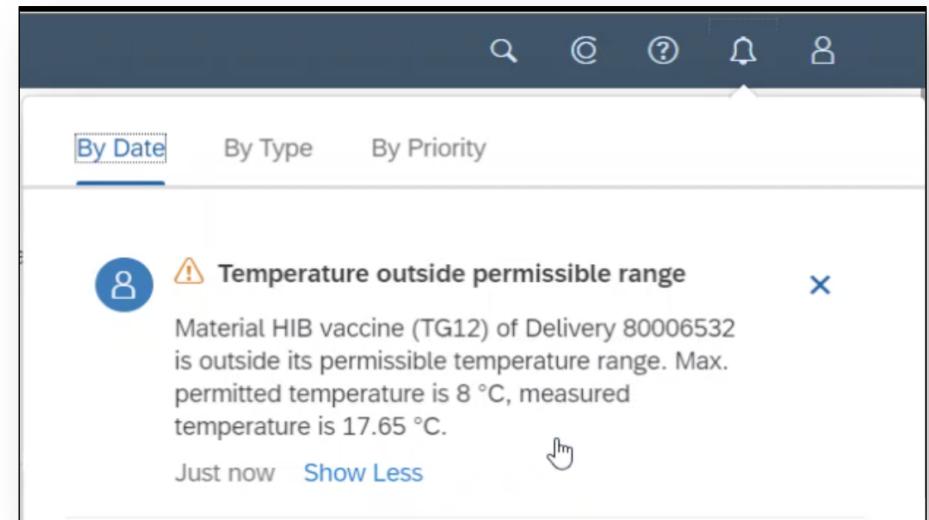
Embedded IoT Data

If the rule is triggered, the actions create:

- A notification about a new Situation in S/4HANA including IoT data, e.g. measured temperature value, and the details of the impacted delivery.
- A new situation embedded into the S/4HANA Manage Sales Order app for the impacted sales order including IoT data (temperature) and details such as handling unit ID and delivery number.

Business outcomes:

- Increased transparency in deliveries,
- Improved customer satisfaction by guaranteeing deliveries in quality
- Improved operational efficiency through proactive decision making



Thank you.