

INT204

Extend Delivery Processes in SAP S/4HANA with SAP Internet of Things

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PUBLIC



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Agenda

Value Proposition

- Learn how delivery insights can help optimizing your sales or purchasing processes

Process Flow

- Get an overview of the whole process

Delivery Insights as part of the Intelligent Suite

- Learn how to find additional details and how to install Delivery Insights

Key Configuration

- See the key configuration steps of Delivery Insights

Value Proposition



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

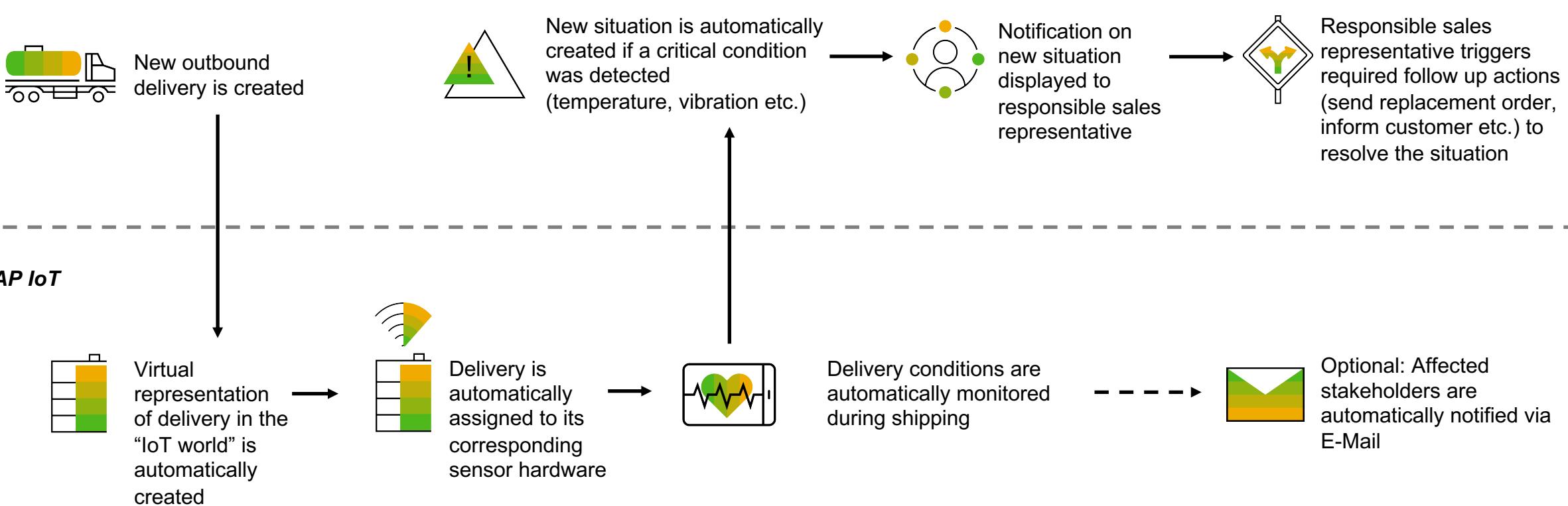
- Receive **notifications** about critical **inbound delivery situations** based on IoT data in real time
- Request express **replacement delivery** (eventually from alternative supplier) or adjust production planning
- **Automate quality management** or batch release procedures based on recorded delivery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

Process Flow



IoT enabled Delivery Insights (Sales) – Process Flow

S/4HANA



**Delivery Insights as
part of the
Intelligent Suite**



Intelligent Suite – Delivery Insights enabled by IoT

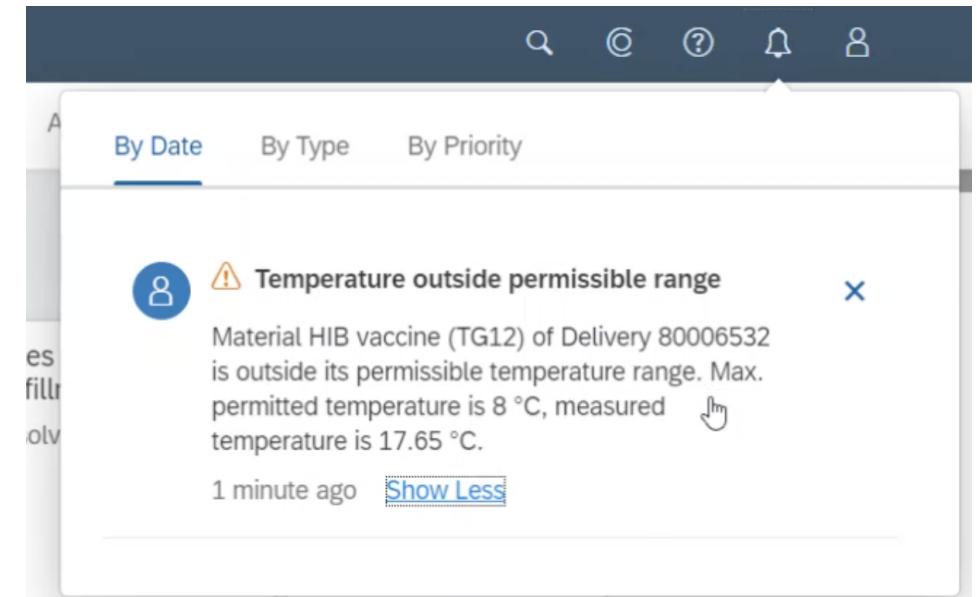
Available with S/4HANA Cloud 2002

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



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 Thing 80006532 are shown:

- Basic Data (16): Shows Organization, Thing Type (TG12), Location (Latitude, Longitude), and Authorization Group (TENANT_ROOT_saint).
- Measured Values (5): Shows properties like DELIVERY_IT_EM (Value: 10), HU_ID (Value: 1000000279), MATERIAL (Value: TG12), MATERIAL_DESCRIPTION (Value: HIB vaccine), and D_ID (Value: 1).
- Calculated Values (0): None.
- Images (0): None.
- Connectivity (4): None.

At the bottom, there 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

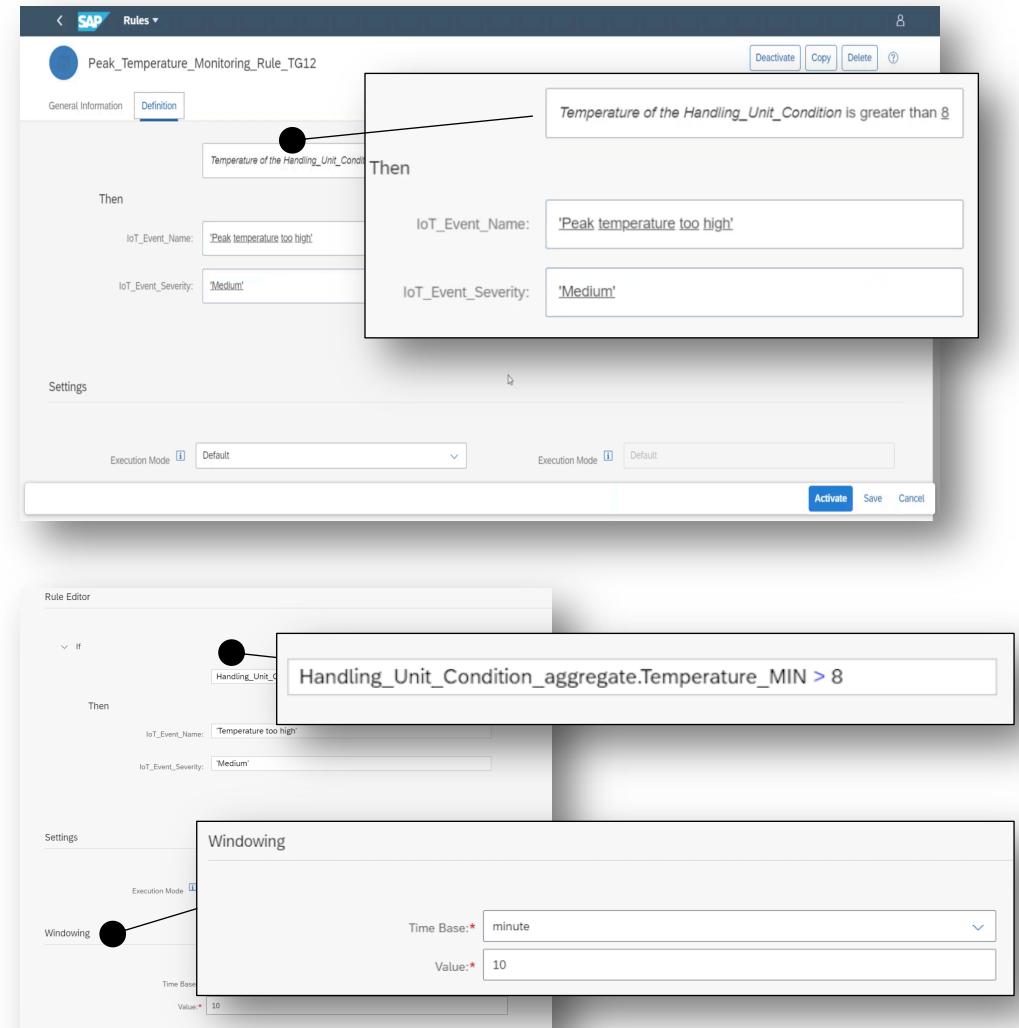
IoT Rules

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 IoT Actions configuration interface. A modal window is open, titled 'Peak_Temperature_Monitoring_Action_for_Situation_TG12'. The 'Basic Information' tab is selected, displaying details like Action Id, Name, Description, and Status. The 'HTTP Information' tab 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 'Method' as 'POST'. A 'Trigger subsequent event' checkbox is unchecked. A callout points from the 'Request body' dropdown to the expanded 'Sample Payload' JSON code in the modal below. The JSON payload includes attributes like 'alias', 'guid', 'data' (with 'device' and various reference keys), and 'material_description'.

```
{"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

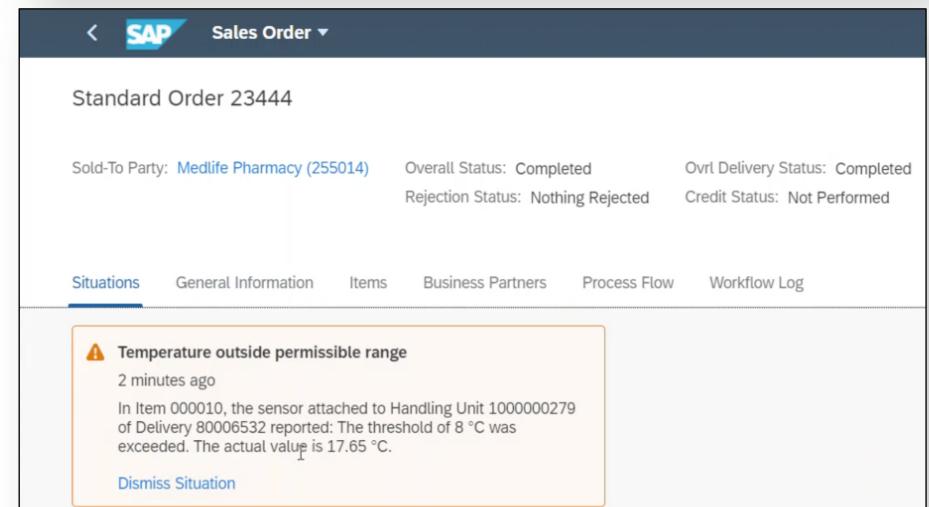
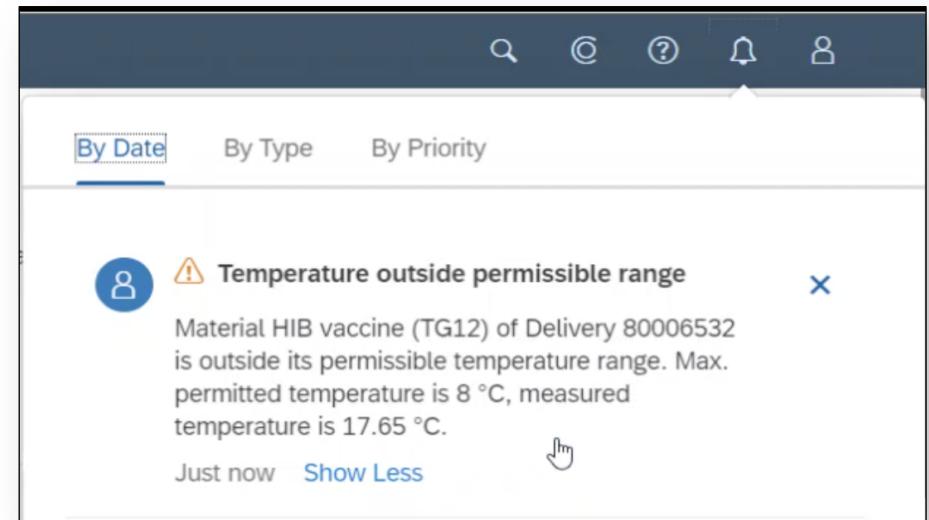
Embedded IoT Data

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:

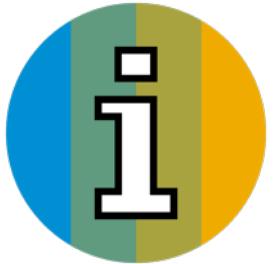
- Increased transparency in deliveries,
- Improved customer satisfaction by guaranteeing deliveries in quality
- Improved operational efficiency through proactive decision making



Appendix



More information



Related SAP TechEd sessions

- INT824 – Road Map: SAP Internet of Things and SAP Edge Services
 - INT121 – Enabling an Industry 4.0 Scenario for Smart Warehousing with SAP IoT
 - INT938 – SAP Internet of Things: Enabling the Intelligent Enterprise
 - INT116 – Architecture Blueprint for SAP Internet of Things and SAP Edge Services
-

Public SAP Web sites

- SAP Best Practices Explorer: <https://rapid.sap.com/bp/#/browse/scopeitems/4IH>
- SAP Products: <https://www.sap.com/germany/products/intelligent-technologies/iot.html>

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Contact for further topic inquiries

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