



PUBLIC

Custom Joule Skill & Agent in SAP Build SAP Joule Agent for Service Order Creation

Configuration & User Guide

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This document contains two main sections. The first section provides an overview of the SAP Joule Agent for Service Order Creation, including the business context, solution flow, and prerequisites. The



second section provides the configuration guide, covering SAP BTP destination setup, user roles, services, agent artifacts, deployment, testing, and support information.

1. **Overview:** This section provides a quick overview of the use case, the high-level components used, and how the template works in a nutshell. The prerequisites section provides information about the SAP Business Technology Platform services required to use this template.

Configuration Guide: This section explains how to set up the SAP Business Technology Platform account, configure the SAP S/4HANA destination and user roles, import the custom Joule Agent template, configure the Joule Skills and SAP Build Actions, and release, deploy, and test the agent in SAP Build.

Note:

- This agent and documentation are intended for business use. The content is designed to support real business scenarios and enterprise integrations.
- This documentation does not provide a full end-to-end setup guide for all SAP Business Technology Platform services. It assumes that the IT administrator responsible for setup has prior experience with SAP Business Technology Platform and related services. The configuration steps outlined in this document must be followed as described.
- This content is provided to accelerate enterprise solution implementation. Customers are expected to adapt and extend the agent, skills, and configurations based on their specific business requirements. Users should have a basic understanding of SAP Build Process Automation and its capabilities to effectively customize and operate the solution.

Overview

The SAP Joule Agent for Service Order Creation enables Customer Service Representatives (CSRs) to create SAP S/4HANA service orders through a guided natural-language conversation. Instead of navigating multiple SAP screens, the CSR can provide a customer phone number or service request details. The agent identifies the customer, retrieves installed equipment, guides confirmation and validation steps, creates the service order through approved SAP Build Actions, and returns the service order number, status, pricing, and confirmation details directly within the Joule conversation.

The solution reduces manual effort, improves data quality, and shortens service processing time by using reusable Joule Skills, SAP Build Actions, SAP BTP destination-based integration, and SAP S/4HANA OData APIs. It also applies human-in-the-loop confirmations before posting any transaction, helping ensure that customer, equipment, and order details are validated before creation.



Solution Flow

Figure 1 shows the SAP Joule-specific solution flow for service order creation. It highlights how the CSR interacts with the SAP Joule Agent in natural language, how the agent orchestrates Joule Skills, how each skill invokes SAP Build Actions, and how the actions securely call SAP S/4HANA OData APIs through the SAP BTP destination and authentication.



Figure 1: SAP Joule-Specific Solution Flow for Service Order Creation

SAP Joule Flow for S/4HANA Service Order Creation

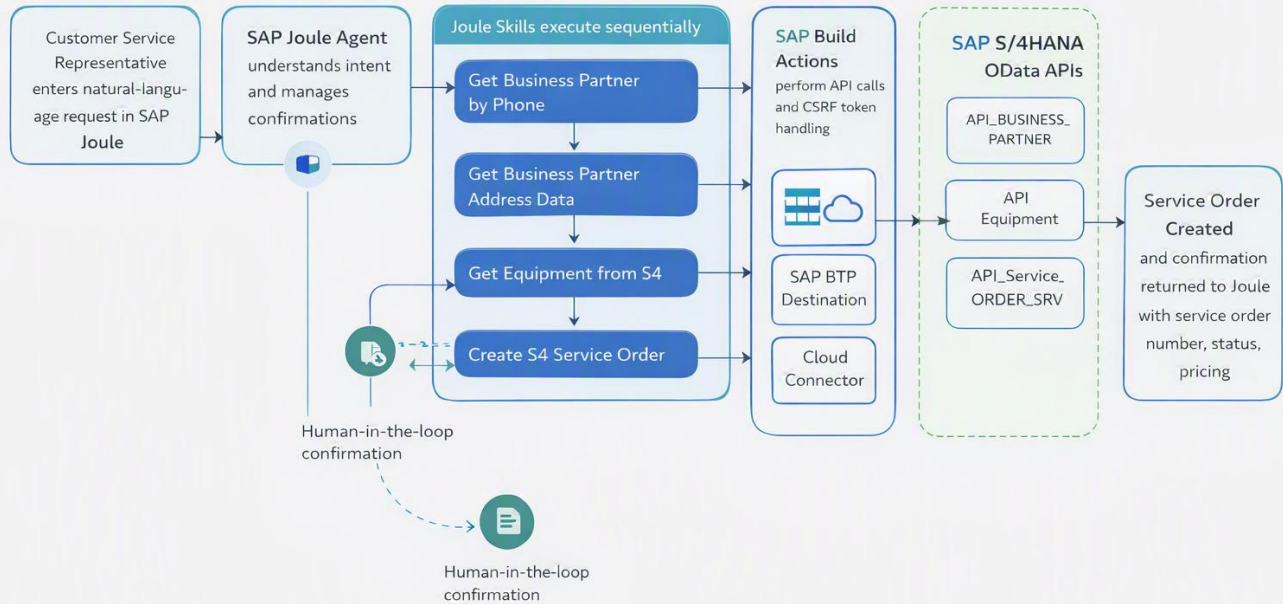


Figure 2: SAP Joule Flow for S/4HANA Service Order Creation

SAP S/4HANA Service Order Creation Agent – Agent Inflow

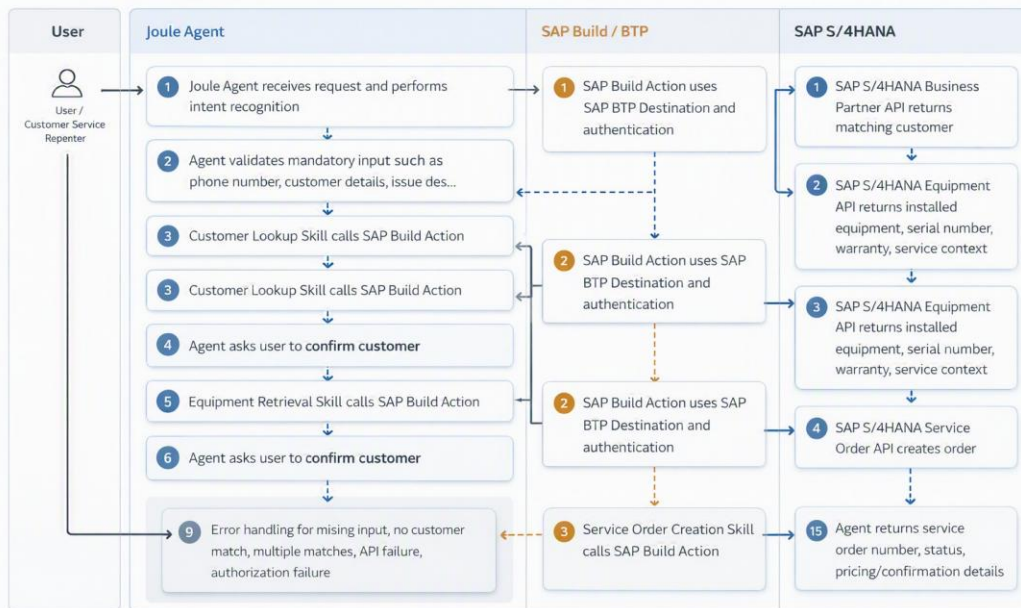


Figure 2: SAP S/4HANA Service Order Creation Agent — Agent Inflow Diagram

The end-to-end flow runs as follows:

Step 1 — Customer Identification: The CSR provides a phone number or other available customer detail. The Get Business Partner by Phone skill calls the relevant SAP Build Action to identify the address reference, and the Get Business Partner Address Data skill retrieves the Business Partner details. The agent presents the customer name and Business Partner number to the CSR and requests confirmation before proceeding.

Step 2 — Equipment Retrieval: After the Business Partner is confirmed, the Get Equipment from S4 skill retrieves installed equipment associated with the customer. The agent presents the equipment in a user-friendly numbered list, including details such as description, serial number, and location where available. The CSR selects one equipment item for the service order.

Step 3 — Pre-Creation Confirmation: The agent collects any missing service order details, such as service description or product information, and presents a summary of the customer, selected equipment, service description, product, and default values. The CSR must explicitly confirm the summary before the order creation action is executed.

Step 4 — Service Order Creation: The Create S4 Service Order skill calls the CreateServiceOrder SAP Build Action using the approved SAP S/4HANA service order API. The confirmed Business Partner is mapped to the required partner roles, and the selected equipment is passed as the service reference equipment. Required defaults and validations are applied before posting.

Step 5 — Confirmation Return: After successful creation, the agent returns the service order number, status, pricing details where available, and any backend confirmation message to the CSR within the Joule conversation. No additional SAP navigation is required to obtain the confirmation.

Business Value and Benefits

Key business value delivered by the SAP Joule Agent for Service Order Creation:

- Eliminates multi-screen SAP navigation — the entire service order creation process runs within the Joule conversation, starting from a customer phone number.

- Automated partner role mapping (SoldToParty, BillToParty, ShipToParty, PayerParty, ContactPerson) and organisational default application remove manual configuration errors.
- Immediate confirmation — serviceOrderNumber, status, and pricing returned within Joule after order creation, with no need to navigate back into SAP.
- CSRF-protected write operations and mandatory human-in-the-loop confirmation steps ensure data integrity before any SAP transaction is posted.
- Reusable SAP Build Actions and Joule Skills pattern — easily extendable to additional service automation scenarios beyond service order creation.
- Reduces CSR onboarding and training time — natural language interaction removes dependency on deep SAP transaction and screen knowledge.
- Single-equipment, single-line-item constraint enforcement prevents accidental multi-item or multi-equipment orders.

Prerequisites

For this agent to run successfully, the following prerequisites are required:

- Joule Studio in SAP Build

Follow the setup guide [here](#) based on your tenant configuration.

Note: If you need additional help with these prerequisites, such as setting up SAP Build Process Automation and SAP Build Work Zone, you can run the Discovery Center mission: [Set Up Joule Studio for a BTP Enterprise Account](#).

- SAP S/4HANA system (on-premise) accessible from SAP BTP
- Communication Scenario SAP_COM_0008 (Business Partner, Customer and Supplier Integration) configured for the technical communication user to grant access to API_BUSINESS_PARTNER, API_Equipment, and API_Service_ORDER_SRV.
- SAP Build with Joule Studio enabled
- SAP Business Technology Platform (BTP) account with destination configuration permissions
- SAP Cloud Connector configured for on-premise connectivity where the SAP S/4HANA backend is not directly accessible from SAP BTP.
- Required user roles and authorizations for Business Partner lookup, equipment retrieval, service order creation, SAP Build Action execution, and Joule Skills usage.

Configuration Guide

This section describes the configuration steps required to set up the SAP Joule Agent for Service Order Creation. It includes SAP BTP cockpit setup, SAP S/4HANA destination configuration, user role configuration, SAP Build Actions, Joule Skills, content package import, deployment, and testing.

The configuration ensures secure connectivity between SAP Build Joule Studio and SAP S/4HANA using destination-based OData authentication. All write operations (service order creation) use CSRF token handling. The Joule Agent does not communicate directly with SAP S/4HANA; all backend calls are executed through SAP Build Actions exposed as Joule Skills.

Setup Business Technology Platform Cockpit

Configure SAP S/4HANA Destination

The SAP Joule Agent for Service Order Creation connects to SAP S/4HANA using the following SAP BTP destination. This destination is used by all four SAP Build Actions: GetBusinessPartnerByPhone, GetBusinessPartnerAddressData, GetEquipmentFromS4, and CreateServiceOrder.

Destination Property	Value
Name	<Destination Name>
Type	HTTP
URL	
Proxy Type Internet	OnPremise
Authentication	Basic Authentication
Username	<Username>
Password	<Password>

- Additional Properties:

Parameter	Value
HTML5.DynamicDestination	true
WebIDEEnabled	false
HTML5.Timeout	6000
WebIDESystem	E4H
sap.applicationdevelopment.actions.enabled	true

sap.processautomation.enabled	true
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Note: All destination values shown above are placeholders. Actual system-specific values must be maintained in the SAP BTP cockpit.

Make sure the APIs used in this template are exposed to the communication user through the correct communication scenario. Refer to the sections below for the API names.

Communication scenario: Business Partner, Customer and Supplier Integration (SAP_COM_0008)

SAP Cloud Connector Details

Cloud Connector Required: Yes

Reason: The backend system (E4H) is on-premise, and the destination uses the proxy type "OnPremise".

SAP Cloud Connector with the specified Location ID is required.

User Roles Configuration

To access and use the SAP Joule Agent for Service Order Creation, users must be assigned the required SAP Build Process Automation, Joule Studio, and Action execution role collections as described [here](#).

Services Used

The following SAP Build Actions are used by this agent:

Action Project Name	Service Used	Purpose
GetBusinessPartnerByPhone	API_BUSINESS_PARTNER/A_AddressPhoneNumber (GET)	Identify the customer Business Partner from the CSR-provided phone number.
GetBusinessPartnerAddressData	API_BUSINESS_PARTNER/A_BusinessPartnerAddress (GET)	Retrieve full Business Partner details and customer name after phone lookup.
GetEquipmentFromS4	API_Equipment (GET)	Retrieve installed equipment list for the confirmed Business Partner.
CreateServiceOrder	API_Service_ORDER_SRV (POST, CSRF token enabled)	Create service order. BP mapped to all partner roles. Equipment as ServiceReferenceEquipment. Returns serviceOrderNumber, status, pricing.

Artifacts in the Agent

Type	Name	Description
Joule Skill	Get Business Partner by Phone; Get Business Partner Address Data; Get Equipment from S4; Create S4 Service Order	Four sequential Joule Skills backed by SAP Build Actions. Parameters: phoneNumber (skill 1), businessPartner (skills 2-4), equipment, serviceDescription, product (skill 4). The Create skill maps BusinessPartner to all partner roles and passes equipment as ServiceReferenceEquipment.
Joule Agent	SAP Joule Agent for Service Order Creation	Conversational orchestration agent that guides CSRs from phone number input through customer confirmation, equipment selection, pre-creation summary with defaults, and service order posting. Enforces single-equipment/single-line-item constraint. Applies SoldToParty, BillToParty, ShipToParty, PayerParty, ContactPerson mapping and Sales Org/Distribution Channel/Division/Service Org defaults.

Setup Content Package

Import the Custom Joule Agent

All imported custom agents are available in the SAP Build Store. To learn more about the SAP Build Store, visit [SAP Build Process Automation Store](#).

This template can be downloaded from the SAP Build Store:

1. Navigate to the **Store** option in your SAP Build Lobby.
2. Select the **Project Type** filter as “Joule Agent and Skill”.
3. In the search bar, type “**SAP S/4HANA Service Order Creation Agent**”.
4. Select the **Create from Template** button to add the template to your lobby.
5. Once creation is complete, navigate to the lobby and confirm that the **SAP Joule Agent for Service Order Creation** project is available for use.

Configuration and Modification

After the Joule Skill and Agent project is added to the SAP Build lobby, review the agent instructions, skills, action mappings, destination names, default values, validation rules, and response fields before release and deployment.



If modifications are required, update the Joule Skills, SAP Build Actions, agent instructions, additional context, prompt wording, default handling, and business validations so they match the target service process and SAP S/4HANA system configuration.

To understand the capabilities of Joule Studio and how to work with them, refer to: [Create AI Capabilities | SAP Help Portal](#)

Release and Deploy the Project

After the agent is reviewed and validated, release the project and deploy it to the appropriate shared SAP Build environment so authorized users can test and use the capability.

- Refer to the link below to create or share an environment:
[Environments | SAP Help Portal](#)
- Refer to the link below to release a project:
[Release a Project | SAP Help Portal](#)
- Refer to the link below to deploy a project:
[Deploy a Project | SAP Help Portal](#)

Test the Joule Skills and Agent in SAP Build

1. To access your projects, navigate to **Control Tower > Tenant Configuration > Environments**.
2. Select your environment.
3. After deployment, the project should appear in the shared environment.
4. Select the **Joule** tab.
5. Select the **Launch** button.

This opens the Joule launchpad, where you can enter the prompts below to test the agent.

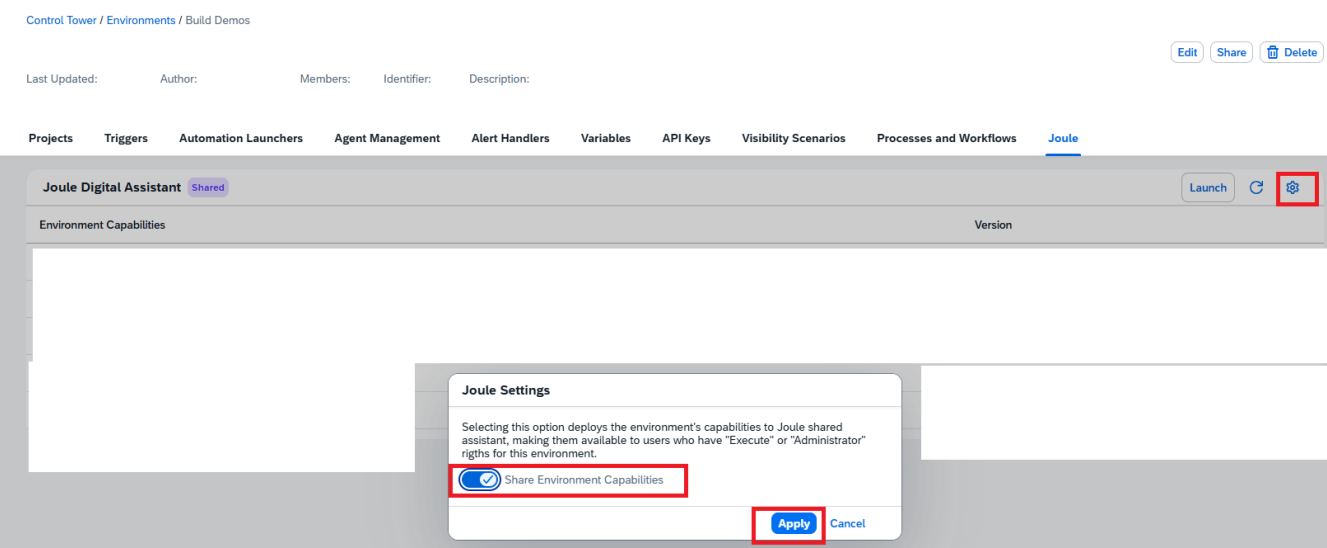
Prompt	Expected Result
Find the customer from phone number 0412345678 and show their equipment.	Agent calls Get Business Partner by Phone (GetBusinessPartnerByPhone, phoneNumber=0412345678) -> retrieves address reference -> calls Get Business Partner Address Data (GetBusinessPartnerAddressData) -> presents customer name and businessPartner to CSR for confirmation -> calls Get Equipment from S4 (GetEquipmentFromS4) -> displays numbered equipment list with description, serial number, and location.

Create a service order for the selected equipment with description "Cooling unit not functioning". Use the default installation product.	Agent collects serviceDescription and confirms default product. Presents pre-creation summary (customer, businessPartner, equipment, description, product, Sales Org defaults). On CSR confirmation, calls Create S4 Service Order (CreateServiceOrder POST to API_Service_ORDER_SRV, CSRF token enabled, BP mapped to all partner roles, equipment as ServiceReferenceEquipment). Returns serviceOrderNumber, status, and pricing.
Create a service order without selecting equipment first.	Agent enforces single-equipment constraint. Stops and prompts CSR to select one equipment item from the retrieved list before proceeding. Does not invoke CreateServiceOrder action.

Note:

1: The agent is deployed and tested from the SAP Build environment. If the capability must be activated in another channel, such as SAP S/4HANA or SAP Build Work Zone, open Control Tower > Tenant Configuration > Environments > your shared environment > Joule, and review the environment sharing settings.

Switch on the relevant environment capability-sharing option only after confirming the deployment, authorizations, and target channel readiness.



Support

If you experience any issues or require support for the SAP Joule Agent for Service Order Creation, please contact:

SAP_BTP_AI_AUTO@infosys.com

