

Interfaces and integration

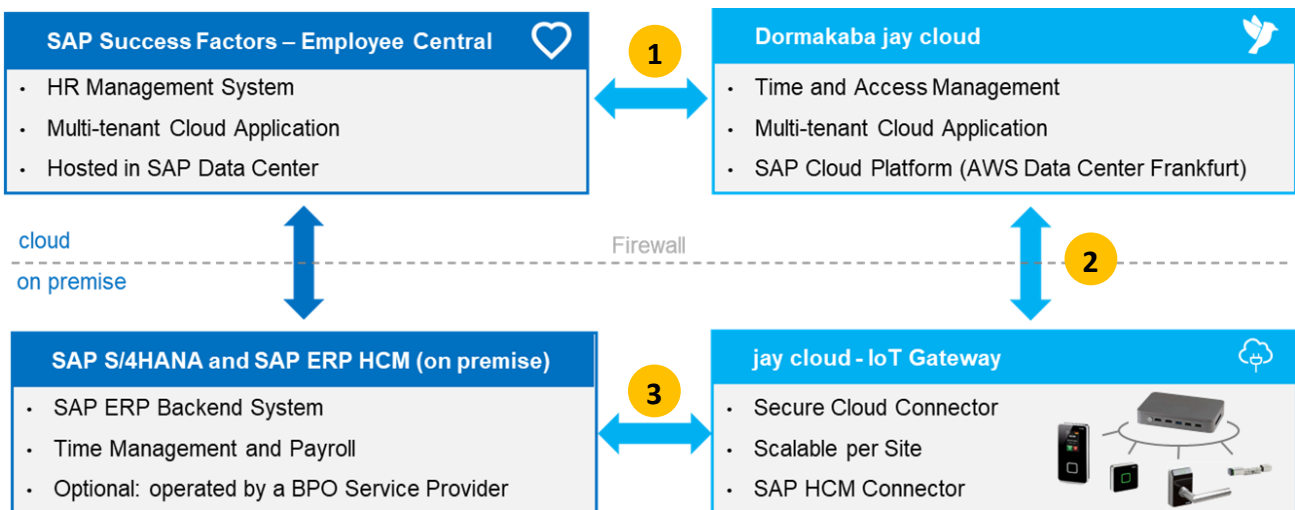
With jay cloud, dormakaba provides its SAP customers with an innovative and open platform for time, access and security applications based on the SAP Cloud Platform and supports them on their way to digitalization.

Jay cloud integrates seamlessly with SAP SuccessFactors EC and SAP HCM / S/4HANA and thus enables convenient and direct control of time

recording processes and access authorizations based on the role and function of the employee in the company.

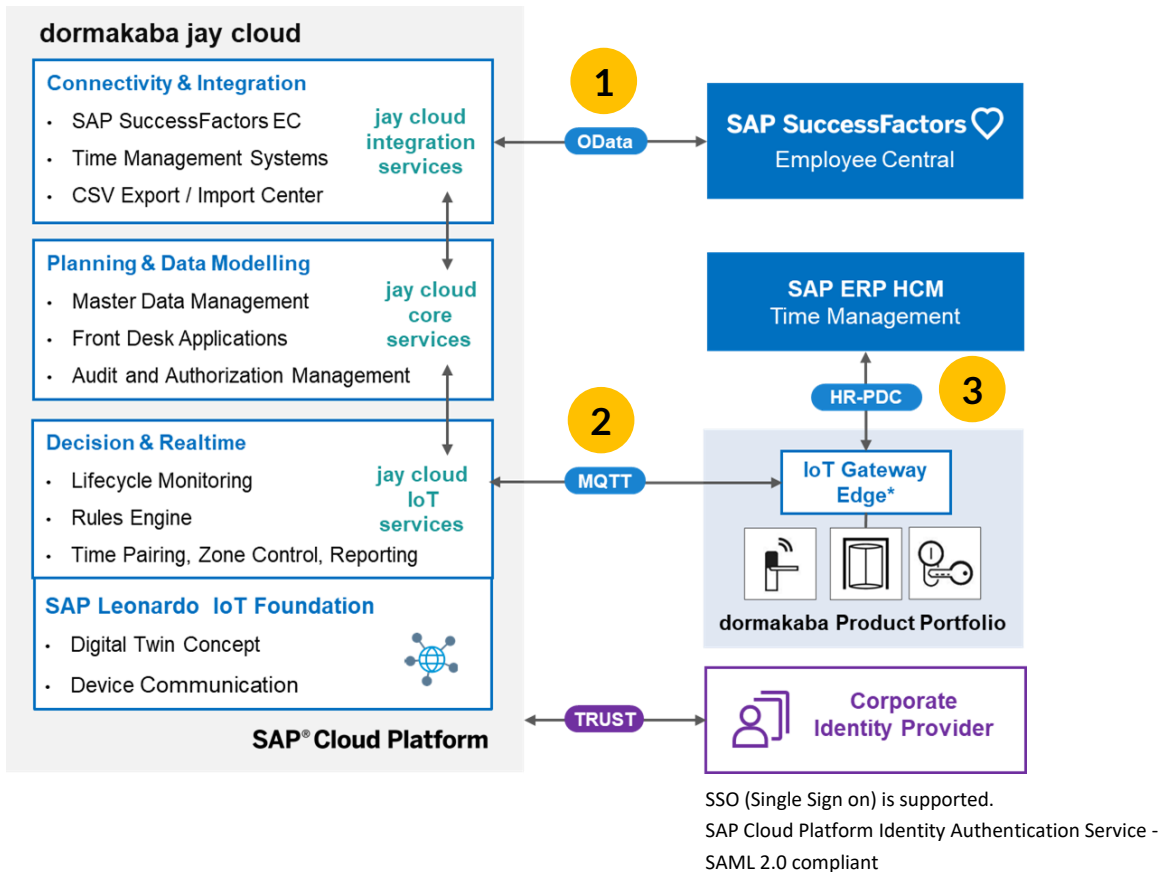
This document describes the technical interfaces for integrating the dormakaba jay cloud solution with the customer's SAP systems as well as with the installed time and access hardware.

Overview system landscape and infrastructure



- 1** Integration with SAP SuccessFactors – oData interface
- 2** Integration with IoT Gateway (Hardware) – MQTT interface
- 3** Integration SAP HCM (on Premise) – RFC interface

Overview of architecture and interfaces



Detailed description of the interfaces (data flow and technical implementation)

1 SAP SuccessFactors

Data exchange

- Synchronization of master data (employee data and organizational data)
- Transfer of time bookings for display and further processing in the employee's SuccessFactors Time Sheet.

Technology

- oData interface
- Definition SF End Point, user and password (example: `https://<sf-address/datacenter>/odata/v2/`)

Security

- OAuth Basic Authentication
- IP-Range of jay cloud application (firewall settings):
 - 3.122.209.241, 3.124.222.77, 3.124.208.223, 52.59.128.222, 52.28.241.88, 18.184.81.94

2**IoT-Gateway (dormakaba periphery)****Data exchange**

- Supplying the devices with authorizations and person master records
- Providing the devices with time and access profiles, media
- Transfer of time events, access events, status information, alarms

jay cloud Connector – technical interface and ports

- Administration / setting up – installation of device certificates (X.509 for Public-Key-Certificates)
 - HTTPS (Port 443/TCP)
 - Endpoint: `https://<sapiot-global-account-ID> eu10.cp.iot.sap/iot/core/api/v1`
- Data communication - SAP IoT Service 4.0
 - MQTT over SSL (Port 8883/TCP)
 - Endpoint: `ssl://<sapiot-global-account-ID> eu10.cp.iot.sap:8883`
- IP-Range of the jay cloud application (firewall settings):
 - 3.122.209.241, 3.124.22.77, 3.124.208.223, 52.59.128.222, 52.28.241.88, 18.184.81.94

Further interfaces of the IoT Gateway

- Remote support
 - SSH over Port 18722 / TCP
 - `iotbox-support.besisoft.de`
- Software updates
 - HTTPS over Port 443 /TCP and Port 80 /TCP
 - `https://download.besisoft.de`
- NTP server – time synchronization (public or local NTP-server)
 - Port 123 / UDP
 - example: `0.centos.pool.ntp.org`

3**SAP S/4HANA and SAP ERP HCM - backend-system (on premise)**

The connection to a local SAP HCM system is made using the standard SAP HR-PDC interface.

For this purpose, a certified RFC/BAPI connector is provided on the IoT Gateway, which synchronizes the data of the HR-PDC interface directly with jay cloud, independent of other functions of the IoT Gateway.

The following application scenarios are possible:

- Combination of SAP SuccessFactors and SAP HCM
 - The personal and organizational data is delivered by SAP SuccessFactors.
 - The time management takes place in SAP ERP HCM / S/4HANA (on premise).
 - Time recording and access control is done in jay cloud.
 - The master data of SAP SuccessFactors can be enriched with SAP HCM data, such as badge numbers.

- Stand-Alone mode SAP HCM (without SAP SuccessFactors)
 - SAP ERP HCM / S/4HANA delivers all master data and personal data
 - Time recording and access control is done in jay cloud

Data exchange

- Synchronization of master data (employee data and organizational data)
- Transfer of time bookings to SAP HCM / S/HANA
- Transfer of balances and employee information (time report, I-mail indicator) from SAP HCM

SAP ERP HCM Connector – SAP HR-PDC interface

- SAP-certified HR-PDC interface. BAPI via RFC – registered service, multi-tenant capability
- TCP/IP Port 3300 + instance (SAP Gateway security maintenance)
- Options:
 - Separate IoT Gateway for SAP ERP HCM connection, without terminal communication
 - Connection with several SAP ERP HCM tenants
- SAP ERP customizing (see SAP documentation)
 - Set up logical system (BD54)
 - RFC destination (SM59)
 - create system user (SU01) - S_A.USER, B_ALE_ALL, C_PDC_ALL, S_A.CPIC, S_IDOC_ALL
 - Set up a customer distribution model (SD64) – create and distribute (WE20, WE21)
 - Distribution of data (PT80)

IoT Gateway – Hardware

AAEON Boxer-6404-A2-1010

Operating system: CentOS 7
Processor: Intel Celeron J1900
Memory: 4 GB.DDR 3L
Memory card: 64 GB CFast (mit CF-Adapter)
Connections: 1 HDMI. 2 LAN. 1 COM. 3 USB



Annex

List of SAP SuccessFactors data objects that are synchronized with jay cloud

SuccessFactors Entity	description
Person data	
PerPerson	Personnel number and biographical data
PerPersonal	Other personal data, such as name of the employee
PerAddressDEFLT	List of postal addresses of the employee
PerEmail	List of the employee's e-mail addresses
PerPhone	List of telephone numbers of the employee
PersonEmpTerminationInfo	Date of termination of employment
Photo	Employee photo
User	Employee user account: - e.g. E-mail-address → required for sending notifications → User login name required for Single Sign On
Job data	
EmpEmployment	Employments of the employee
EmpEmploymentTermination	Termination date of employment
EmpJob	Data on employment, such as organizational data, payroll-relevant data
EmpJobRelationships	Relations and line managers
Organizational data	

Country	Country
FOCompany	Legal entities / company of the employee
FOLocation	Locations of the legal entities (company) / location of the employee
FOCorporateAddressDEFLT	Address of the legal entities (companies)
FOBusinessUnit	Business unit of the employee
FODivision	Division of the employee
FODepartment	Department of the employee
Position	Position of the employee
Further master data	
TimeTypeProfile TimeType	Time profiles: - Time recording relevant data and settings such as time types
EmpTimeAccountBalance TimeAccountType TimeAccount	Time types for balance display at the terminals
WorkSchedule WorkScheduleDayModel WorkScheduleDayModelAssignment WorkScheduleDayModelSegment	Work schedules: - Required to control dynamic access permissions based on the shift model - Checking of time bookings (clock-in / clock-out) against shift schedules
HolidayCalendar HolidayAssignment Holiday	Special day calendar: - Control of access authorizations on holiday days - Checking of time bookings (clock-in / clock-out) against shift schedules
Transfer of time pairs to SF Time Sheet	
Upsert	Transfer of time pairs (clock-in / clock-out) in SF Time Sheet (Entity External Time Data)

Note:

Only those SF data and attributes are synchronized with jay cloud that are necessary according to the use case and customer requirements.

Any further questions?

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