

Getting Started with "Enterprise Management Layer for SAP S/4HANA Cloud Private Edition 2023 FPS00" on SAP Cloud Appliance Library



Table of Contents

1	Appliance Template Information	4
1.1	Overview	4
1.1.1	General Overview – Enterprise Management Layer for SAP S/4HANA Cloud Private Edition 2023	4
1.1.2	Enterprise Management Layer - Solution Overview	6
1.2	Installed Products	7
1.3	Hardware Requirement	8
1.4	About the appliance template - Scenario Description	9
1.4.1	Basic Business Process Scope	9
1.4.2	Optional Business Process Scope	12
2	Appliance Template Provisioning in SAP Cloud Appliance Library	16
2.1	Prerequisite: Possess a cloud provider account	16
2.2	Access SAP Cloud Appliance Library	16
2.3	Create your appliance within the SAP Cloud Appliance Library console	17
3	Accessing appliance template	18
3.1	Option 1: Usage of Windows Remote Desktop	18
3.2	Option 2: Preparatory activities on your local PC	18
3.2.1	Mapping local /etc/hosts file	18
3.2.2	Enable Certificates	19
3.2.3	Configure ",*.dummy.nodomain" for Web Browser	20
3.2.3.1	Install SAP Client Software Locally	21
3.2.3.2	SAP GUI for S/4HANA	21
3.2.3.3	ABAP Development Tools (ADT) (optional)	21
3.3	Connecting to enterprise management layer for SAP S/4HANA	22
3.3.1	Accessing Fiori Launchpad	22
3.3.2	Connecting to SAP S/4HANA M23 via SAP GUI	22
3.3.3	Connecting to HANA via SAP HANA Studio	23
3.3.4	Connecting to SAP JAVA Administrator Portal (Adobe Document Server ADS)	23
3.4	System Details – Delivery Clients, User & Roles	24
3.4.1	SAP S/4 HANA M23 – Client Structure	24
3.4.2	Users	24
3.4.2.1	Assigning Roles to the Users	25
3.4.2.2	Workflow Users	26
3.4.2.3	Technical Users	26
3.4.3	SAP Adobe Document Services System J2E: Java Application Server	27
3.4.4	SAP HANA Database System H23: Database Server Details	27
3.4.5	OS Users and Groups	28
3.5	Essential OSS Notes	28
3.6	Post deployment activities	28
3.6.1	Reinitialize Connections to SAP Support Portal	28
4	Appliance Template Usage and Licenses	29
4.1	Running the appliance as a trial for a 30-day period Licenses	29
4.2	Running the appliance with a product license key	29
4.2.1	SAP CAL subscription package	29
4.3	SAP Product Licenses Agreement	29
4.3.1	SAP Product License Keys Installation	33

5	Security Aspects	34
5.1	SAP S/4HANA System M23: ABAP Application Server Details	34
5.2	SAP Adobe Document Services based on NetWeaver Java (ADS)	35
5.3	Windows Remote Desktop (optional)	35
6	Appendix	36
6.1	SAP NetWeaver 7.58 application server ABAP incl. SAP S/4HANA 2023	36
6.2	SAP NetWeaver 7.50 application server JAVA with Adobe Document Services installed	38

1 Appliance Template Information

1.1 Overview

1.1.1 General Overview – Enterprise Management Layer for SAP S/4HANA Cloud Private Edition 2023

This appliance provides a preview for the offering available as “Enterprise management layer for SAP S/4HANA Cloud Private Edition 2023” ([KBA 3423346: EML 2023](#)).

The enterprise management layer for SAP S/4HANA Cloud Private Edition offers a ready-to-run, pre-configured, localized core template based on pre-activated SAP Best Practices on-premise country versions covering 43 countries.

With the offering of a pre-configured business template usable by customers and partners as a foundation to jumpstart their implementation project, SAP significantly contributes to the key cloud principles:

1. Reduce Time-to-Value
2. Reduce Total Cost of Ownership by reducing cost for implementation
3. Contribute to the speed to leverage New Innovation

The enterprise management layer for SAP S/4HANA Cloud Private Edition (in the following: EML) allows customers to execute business processes based on SAP Best Practices.

Where the standard SAP Best Practices typically focus on national companies running operations within one country only, the EML focuses towards international customers that run subsidiaries within multiple countries around the globe.

The design of the EML is built for global corporations with a global ledger structure and the need to report on corporate accounting principles but as well on local accounting principles within the individual countries. Hence, all legal entities pre-configured within EML (in SAP terminology called company codes), come with two parallel ledgers pre-defined in addition to the leading group ledger. The two parallel ledgers allow customers to reflect local accounting principles per country as well as the ability to report accounting values for deviating fiscal year variants that can be reflected within the second parallel ledger. This ledger often is referred to as “tax-ledger”.

While the main focus of the EML offering is on international customers, on request customers can receive an EML version focusing towards a national setup. This national setup is a single-country template with leading accounting principle based on the country selected. One parallel ledger will be pre-activated representing international accounting principles.

The currently available country versions pre-configured within the international setup of the EML on release 2023 are covering 43 country versions plus 6 countries where only the financial processes are localized. The system comes with 25 pre-installed system languages.

Country and Language Overview

Country Coverage [43]



Australia (AU), Austria (AT), Belgium (BE), Brazil (BR), Canada (CA), China (CN), Czechia (CZ), Denmark (DK), Finland (FI), France (FR), Hong Kong (HK), Germany (DE), Great Britain (GB), Hungary (HU), India (IN), Indonesia (ID), Ireland (IE), Italy (IT), Japan (JP), Korea South (KR), Luxembourg (LU), Malaysia (MY), Mexico (MX), New Zealand (NZ), Netherlands (NL), Norway (NO), Philippines (PH), Poland (PL), Portugal (PT), Romania (RO), Russia (RU), Saudi Arabia (SA), Singapore (SG), Slovakia (SK), Spain (ES), South Africa (ZA), Sweden (SE), Switzerland (CH), Taiwan (TW), Thailand (TH), Turkey (TR), United Arab Emirates (AE), USA (US)



System Languages [25]

Arabic, Czech, Chinese (simplified), Chinese (traditional), Danish, Dutch, English, Finnish, French, German, Hungarian, Italian, Japanese, Korean, Malay, Polish, Portuguese, Romanian, Norwegian, Russian, Slovak, Spanish, Swedish, Thai, Turkish

This guide focuses on system landscape aspects as well as the steps to get the appliance initially available in SAP Cloud Appliance Library (SAP CAL, <https://cal.sap.com>) and includes:

- Technical components and business content within the appliance template.
- System access information after you create your own appliance.
- Evaluation of business content.

The CAL solution “Enterprise Management Layer for SAP S/4HANA Cloud Private Edition 2023 FPS00” – is available to get familiar with the offering.

It can be deployed as personal appliance in a dedicated cloud provider such as Amazon Web Services, Microsoft Azure or Google Cloud Platform.

Downloading the appliance and usage out of this test and demo context is prohibited.

1.1.2 Enterprise Management Layer - Solution Overview

The enterprise management layer for SAP S/4HANA Cloud Private Edition is available in two flavors: Multi-Country edition (default) and Single-Country edition on request. In the Cloud Appliance Library EML is only available as Multi-Country.

Both editions cover all major end-to-end business processes by default. Additional scope options can be selected, based on each customer's functional requirements.

The Multi-Country edition comes preconfigured and localized for up to 49 countries with an international financial template allowing for parallel accounting:

The leading accounting principle reflects the customer-specific group accounting principle, whereas the local GAAP for each country is captured in parallel in two local ledgers for maximum flexibility. The two accounting principles and three ledgers make ad-hoc reporting available according to group or local accounting standards.

The Single-Country edition comes with one single country and this country's GAAP as the leading accounting principle (and ledger). A second accounting principle (and ledger) allows for IFRS reporting.

In both editions, the group currency and the fiscal year variant can be adapted to customer requirements.

Please note: Not all scope items are available for all countries, so please check the scope overview asset for coverage.

Enterprise Management Layer

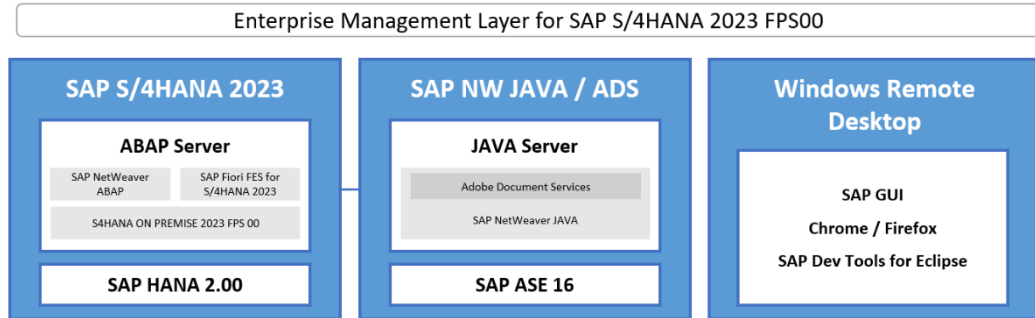
Multi-Country Edition (Standard)		Single-Country Edition (on-request)	
Max 43 countries based on pre-activated SAP Best Practices		Activation of SAP Best Practices country version XX	
Focus	Customers with international footprint with need of parallel accounting capabilities to cover group and local reporting requirements.	Focus	Customers with single country footprint with need of country-specific localization content
Scope	Basic scope in Finance, Manufacturing, Asset Management, Sales, Procurement and HR Optional scope (with additional cloud package(s)) for Cash & Credit Management, Advanced Compliance Reporting, Advanced ATP and more	Scope	Basic scope in Finance, Manufacturing, Asset Management, Sales, Procurement and HR Optional scope (with additional cloud package(s)) for Cash & Credit Management, Advanced Compliance Reporting, Advanced ATP and more
Effort	country scope as result of a removal process, group currency to be adapted, fiscal year variant to be adapted	Effort	customer-specific activation
Use Case	immediate consumption (out-of-the-box) as implementation accelerator for international corporations	Use Case	immediate consumption (out-of-the-box) as implementation accelerator for national companies

The appliance template reflects the “Enterprise Management Layer for SAP S/4HANA Cloud Private Edition 2023” with the following selections:

- Multi-Country edition with 43 countries
- 25 system languages
- All basic scope items as well as all optional scope items except decentralized Warehouse Management [13] . See chapter 1.4 below for detailed list of scope items.

1.2 Installed Products

The SAP Enterprise Management Layer on Cloud Appliance Library consists of up to 3 virtual machines that are bundled into one appliance template:



1. SAP S/4HANA Cloud Private Edition 2023 FPS00 (M23)
SAP NetWeaver 7.58 application server ABAP incl. embedded Fiori Gateway and multiple integration addons:

SAP Product
SAP S/4HANA 2023, FPS00
ABAP PLATFORM 2023, FPS00
SAP S/4HANA FOUNDATION 2023, FPS00
SAP FIORI FOR SAP S/4HANA 2023, FPS00
SAP FIORI FES FOR S/4HANA 2023, FPS00

Database:

SAP HANA Database (H23), Release: 2.00.072.00.1690304772

DB Plug-Ins: LCAPPS (SAP HANA LiveCache), SAP VCH AFL 2023

2. Adobe Document Services (J2E)

SAP NetWeaver 7.50 (SP16) application server JAVA

SAP Product
SAP NetWeaver 7.50, SP16 application server JAVA with installed Adobe Document Services

Database:

SAP ASE 16.0.04.00

3. Windows Remote Desktop (optional)

SAP GUI

Google Chrome

Firefox

SAP Dev Tools for Eclipse

1.3 Hardware Requirement

The appliance “Enterprise management layer for SAP S/4HANA Cloud Private Edition 2023” consist out of up to 3 virtual machines. See chapter 1.2 above.

Minimum hardware requirements for the appliance depends on the installed SAP Products.

The below hardware requirements are showing the minimum hardware requirement for a reference system / sandbox system.

“Enterprise Management Layer for SAP S/4HANA Cloud Private Edition 2023” – Minimum Appliance Hardware Requirements

Virtual Machine	CPU (cores)	RAM (GB)	Storage (GB)	OS	DB
SAP S/4HANA Cloud Private Edition 2023	32	244	550	Linux x86_64	SAP HANA
SAP NetWeaver 7.50 application server JAVA with installed Adobe Document Services (ADS)	4	30	180	Linux x86_64	SAP ASE
Windows Terminal Server	4	16	40	Windows	

Depending on your preferred cloud provider (Infrastructure as a Service (IAAS) providers) the packaged sizing might slightly differ.

SAP CAL appliance for “Enterprise Management Layer for SAP S/4HANA Cloud Private Edition 2023 FPS00” – is available for Amazon Web Services, Microsoft Azure and Google Cloud Platform.

BEG	Standard Cost Calculation
BEV	Internal Order Actual
J54	Overhead Cost Accounting
J55	Profitability and Cost Analysis

IC40	Intercompany Reconciliation (* replaces 40Y)
LOC01	Country-Specific Functionality

Localization reflects standard SAP content based on SAP Best Practices
 Note: Not all scope items are available for all countries
 ** only for EU

AC01 Parallel Accounting replaces

1GA	Accounting and Financial Close Group Ledger IFRS
1GB	Asset Accounting Group Ledger IFRS
1GF	Asset Under Construction Group Ledger IFRS

MANUFACTURING and ASSET MGMT

Production Engineering

3LO	Change Manufacturing Bill of Material for Production
3LP	Mass Change Manufacturing Bill of Material for Production

Production Planning

31L	Production Capacity Evaluation
3LQ	Production Capacity Leveling (requires Live-Cache)
J44	Material Requirements Planning
2QI	Demand-Driven Replenishment Planning and Execution

Production Operations

1BM	Make to Order Production Semi finished Goods Planning and Assembly
1E3	Manufacturing with Kanban Supply into Production
2QW	Analytics for Production Unit : Plan/Actual Production Cost
2UG	Make-to-Stock - Process Manufacturing Based on Production Order
3L7	Make-to-Stock with Co- and By-Products - Process Manufacturing
3OK	Make-to-Order Production - Process Manufacturing
3UK	Inbound Storage Tank Management - Process Manufacturing
3UL	Make-to-Stock with Silo Material - Process Manufacturing
42N	Tank Trailer Filling with Residuals
4B3	Material Replenishment with Kanban - In-House Production
4B4	Material Replenishment with Kanban - Stock Transfer
BJ5	Make to Stock Production Discrete Manufacturing
BJ8	Make-to-Stock - Process Manufacturing Based on Process Order
BJE	Make to Order Production Finished Goods Sales and Final Assembly
BJH	Make to Stock Production Repetitive Manufacturing
BJK	Production Subcontracting External Processing
BJN	Rework Processing - Stock-Manufactured Material
BJQ	Rework Processing - Work-in-Process
BMY	Subcontracting

Quality Management

1E1	Quality Management in Discrete Manufacturing
1FM	Quality Management in Procurement
1MP	Quality Management in Sales
1MR	Quality Management in Stock Handling
2F9	Quality Management for Complaints against Suppliers
2FA	Quality Management for Complaints from Customers
2QN	Nonconformance Management
2QP	Quality Management of Internal Problems
2V0	SAP Fiori Analytical Apps for Quality Management

Maintenance Management

BH1	Corrective Maintenance
BH2	Emergency Maintenance
BJ2	Preventive Maintenance
4HH	Reactive Maintenance
4HI	Proactive Maintenance

Localization reflects standard SAP content based on SAP Best Practices
 Note: Not all scope items are available for all countries
 ** only for EU

ENGINEERING, SALES and SERVICE

Product Engineering

1NR	Engineering Bill of Material Versions Management
22P	Manage Documents

Order and Contract Management

2TT	Sales Commissions - External Sales Representative
31Q	Sales Order Processing for Sales Kits
3TE	Return Order Processing for Non-Stock Material
BD3	Sales Processing using Third-Party with Shipping Notification
BD9	Sell from Stock
BDA	Free of Charge Delivery

Product Lifecycle Management

1ZI	Basic Handover of Bill of Material
5QC	Product Change Management with Change Records - Process Industries

BMD	Purchase Contract	2LG	Supplier Consignment
		2TW	Complementary Procurement Functions
Service Operations & Processes		2TX	Direct Procurement with Inbound Delivery
19C	Activity Management in Procurement	2UU	Returnable Packaging to Vendor
19E	Supplier Classification and Segmentation	BNX	Consumable Purchasing
SL4	Supplier Evaluation and Performance Monitoring	J45	Procurement of Direct Materials

Procurement Analytics		Order Promising	
1JI	Realtime Reporting and Monitoring for Procurement	6LJ	Available-to-Promise Processing
2QU	Purchase Order Visibility and Procurement Spend		<i>Localization reflects standard SAP content based on SAP Best Practices Note: Not all scope items are available for all countries</i>

CROSS TOPICS			
Database and Data Management		Application Platform and Infrastructure	
1I9	Master Data Catalog for SAP S/4HANA On premise	1LQ	Output Management *
2Q2	Data Migration to SAP S/4HANA from Staging	1NJ	Responsibility Management
		1NN	Business Event Handling
Human Resources		31N	Situation Handling
1FD	Employee Integration SAP S/4 HANA Enablement		

Localization reflects standard SAP content based on SAP Best Practices
Note: Not all scope items are available for all countries
* requires client installation of Adobe LifeCycle Designer
** only for EU

1.4.2 Optional Business Process Scope

The following business processes with the included scope items are in EML optional, because most of them require an additional, dedicated software license (see chapter 4.3). As the CAL appliance template should allow to explore as many of them as possible, all scope items which are not mutually exclusive are activated except decentralized Warehouse Management [13] which cannot be combined with embedded Warehouse Management [11] + [12].

Scope Option	Scope Items	Comment
[01] Actual Costing	Actual Costing (33Q)	<i>[no additional software license required]</i>
		[NOT available for: BR, CZ, SK]
[02a] Advanced Compliance Reporting - Basic Scope	Compliance Formats - Support Preparation (1J2)	[NOT available for: HK, NZ]
[02b] Advanced Compliance Reporting - Advanced Scope	Compliance Formats - Support Preparation (1J2)	[1J2 NOT available for: HK, NZ] [5XU NOT available for: NO, SE]
	Document and Reporting Compliance (5XU)	
[03] Advanced Receivables Management	Advanced Credit Management (1QM)	[all countries]
	Collections and Dispute Management (BFC)	[NOT available for: BR]
[04] Advanced Cash Management	Advanced Bank Account Management (J77)	[all countries] [4X8 NOT available in BR]
	Advanced Cash Operations (J78)	
	Advanced Bank Statement Automation (4X8)	
	Bank Fee Management (2O0)	
	Advanced Cash Management Test Cycle (CLM01*)	

	Cash Concentration (CLM02*)	
[05] Real Estate Management	Lease-In Accounting (LA01*)	[NOT available for: BR; availability of scope items varies in countries]
	<i>[replacing: Lease-In Accounting (1T6) + Lease-In Accounting - Group Ledger IFRS (21P)]</i>	
	Lease-Out Accounting (21Q)	
	Lease-Out for Sublease Accounting (LA02*)	
	<i>[replacing: Lease-Lease-Out for Sublease Accounting - Group Ledger IFRS (2SA) + Lease-Out for Sublease Accounting (2SB)]</i>	
	Service Contract (21R)	
	Sales-Based Rent (3F4)	
	Manage Invoice for Rent (LA03*)	
[06] Group Reporting	Group Reporting - Financial Consolidation (1SG)	[1SG NOT available for: RU]
	Group Reporting - Plan Consolidation (28B)	[all countries]
	Group Reporting - Matrix Consolidation (3LX)	[3LX NOT available for: BR, PT]
	Group Reporting - Consolidation with Multiple Group Currencies (4VB)	[NOT available for: BR]
[08] Treasury & Risk Management	Market Rates Management - Manually via Upload (1XN)	[only available for DE and US]
	Letter of Credit Management (49D)	
	Letter of Credit Management - Group Ledger IFRS (49E)	
	SAP Fiori Analytical Apps for Treasury and Risk Management (1MN)	
	Debt and Investment Management (1WV)	
	Debt and Investment Management - Group Ledger IFRS (1X7)	
	Foreign Currency Risk Management (1X1)	
	Foreign Currency Risk Management - Group Ledger IFRS (1X9)	
	Hedge Accounting for FX Forward - Local GAAP (3X1)	
	Hedge Accounting for FX Forward - Group Ledger IFRS (1XD)	
	Hedge Accounting for FX Option - Local GAAP (3X2)	
	Hedge Accounting for FX Option - Group Ledger IFRS (2RW)	
	Hedge Accounting for FX Swap - Group Ledger IFRS (2UF)	
	Intercompany Foreign Exchange Management (2F2)	
	Intercompany Foreign Exchange - Group Ledger IFRS (2HU)	
	Intercompany Process for Debt and Investment Mgmt (1YI)	
	Intercompany Debt and Investment Mgmt - Group Ledger IFRS (2OI)	
	Bank Guarantee Management (2NZ)	
	Bank Guarantee Management - Group Ledger IFRS (2O2)	
	Money Market Mutual Fund Management (2UN)	
	Money Market Mutual Fund Management - Group Ledger IFRS (2UO)	
	Interest Rate Derivatives Management (1X3)	
	Interest Rate Derivatives Management - Group Ledger IFRS (1XB)	
	Bond Management (3WY)	
	Bond Management - Group Ledger IFRS (3WZ)	
	Stock Management (5OD)	
	Stock Management - Group Ledger IFRS (5OE)	
	Shareholding Management (5WF)	
Shareholding Management - Group Ledger IFRS (5WG)		

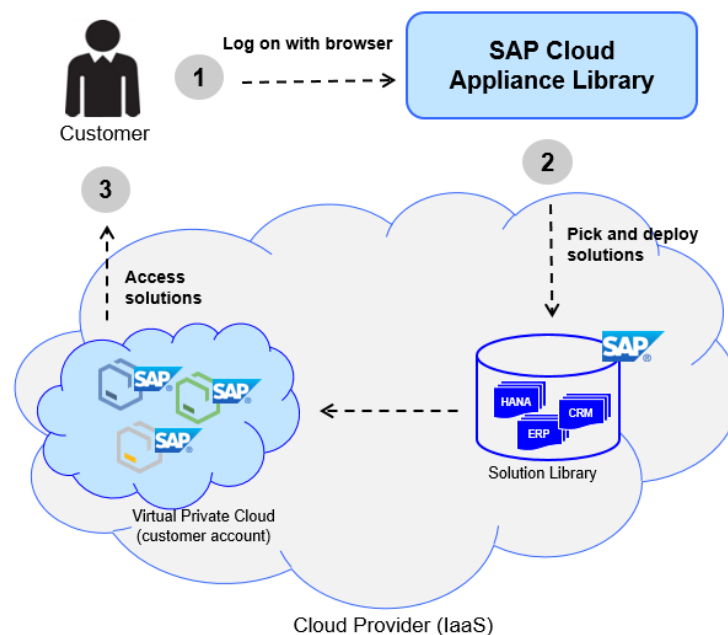
	Asset-Backed Securities Management (6B5)	
	Asset-Backed Securities Management - Group Ledger IFRS (6B6)	
	Securities Option Management (6ND)	
	Securities Option Management - Group Ledger IFRS (6NE)	
[09] Localization Canary Islands	General Indirect Tax in the Canary Islands (3SS)	[only available for ES]
[11] Extended Warehouse Management (Embedded)	Basic Warehouse Inbound Processing from Supplier (1FS)	[no additional software license required] [NOT available for: AT,BR,CZ,DK,FI,ID,IN,KR,MX,NO,PL,PT,RO,RU,SA,SK,TH,TR]
	Initial Stock Upload for Warehouse (1FU)	
	Physical Inventory in Warehouse (1FW)	
	Replenishment in Warehouse (1FY)	
	Scrapping in Warehouse (1G0)	
	Basic Warehouse Outbound Processing to Customer (1G2)	
	Warehouse Inbound Processing from Supplier with Batch Management (1V5)	
	Warehouse Outbound Processing to Customer with Batch Management (1V7)	
	Basic Warehouse Inbound Processing from Supplier with Quality Management (1V9)	
	Production Integration - Component Consumption and Receipt in Warehouse (1VB)	
[12] Advanced Warehouse Outbound Processing	Advanced Warehouse Outbound Processing to Customer (1VD)	[NOT available for: AT,BR,CZ,DK,FI,ID,IN,KR,MX,NO,PL,PT,RO,RU,SA,SK,TH,TR]
[13] Decentralized Warehouse Management - Technical Integration	Decentralized EWM - Technical Integration ERP (4UA)	[only DE and US]
[15] Advanced ATP	Advanced Available to Promise Processing (1JW)	all countries
[21] Maintenance Resource Scheduling	Maintenance Resource Scheduling (43R)	[only for DE and US]
[22] Advanced Variant Configuration	Make-to-Order Production with Variant Configuration (1YT)	[2XU, 4OC NOT available for BR]
	Engineer-to-Order Production with Variant Configuration (4R8)	1YT NOT available for PT
	Make-to-Stock Production with Variant Configuration (21D)	4R6 and 4R8 ONLY available for DE, US]
	Set up Configurable Bill of Material using Variant Configuration (22T)	
	Procurement of Materials with Variant Configuration (2XU)	
	Make-to-Order Production for Sales Kits with Variant Configuration (4OC)	
	Sales Processing using Third-Party with Variant Configuration (4R6)	
[23] Enterprise Contract Management	SAP S/4HANA for Enterprise Contract Management (1XV)	[NOT available for: RU]
[24] Product Compliance	Chemical Compliance Approval for Purchased Material and Supplier (31G)	[not available for BR]
	Assess Marketability of a Product (31H)	[31G and 31J NOT available for CZ, PL, PT, SK]
	Chemical Compliance in the Value Chain (31J)	[4OL and 5OJ ONLY available for DE and US]
	Assess Dangerous Goods for a Product (3FC)	
	Dangerous Goods in the Value Chain (3G8)	
	Safety Data Sheets in the Value Chain (3VQ)	
	Manage Safety Data Sheets for Products (3VR)	
	Substance Volume Tracking (4OL)	
	Supplier Compliance in the Value Chain (5OJ)	
[25] R&D for Enterprise Product Formulation	Specification Management for Recipes (1QA)	
	Formulation - Recipe Development (1QC)	
	Recipe Handover to Production - Bill of Material (1QG)	
	Advanced Ingredient Replacement for Recipes (22R)	
[26] R&D for Enterprise Product Engineering	Product Change Management with Change Records - Process Industries (5QC)	only available for AE, DE, IT, PT and US

	Product Change Mgmt with Change Records - Discrete Industries (64E)	only available for AE, AU, CA, CH, CN, DE, FI, FR, GB, IT, JP, NL, PT, RO, TH, TR, US, ZA
	Bill of Material Management Professional (60T)	only available for AE, BE, DE, FR, GB, IT, TR, US, ZA

2 Appliance Template Provisioning in SAP Cloud Appliance Library

The "enterprise management layer for SAP S/4HANA 2023 Cloud Private Edition FPS00" appliance template can be delivered via Cloud Appliance Library into your AWS, Azure or GCP Account.

This Getting Started Guide describes how you can access the EML via Cloud Appliance Library. Prerequisite for this is an own AWS (Amazon Web Service), Azure (Microsoft Azure) or GCP (Google Cloud Platform) Account.



2.1 Prerequisite: Possess a cloud provider account

You need to have a valid account in one of the cloud providers supported by SAP Cloud Appliance Library including the corresponding secret keys for this account.

If you already have an active cloud provider account, you can proceed directly with the next section. Otherwise, navigate to the cloud provider home page and sign up.

For more information about the supported cloud providers, see the [FAQ page](#).

2.2 Access SAP Cloud Appliance Library


Open the SAP Cloud Appliance Library in your Web browser using the following link: <https://cal.sap.com>.

If you don't have an account in SAP Cloud Appliance Library (this is different from the cloud provider account), please register.

2.3 Create your appliance within the SAP Cloud Appliance Library console

Once the SAP Cloud Appliance Library console is displayed, go to Appliance Templates (list of available system templates) and search for “enterprise management layer for SAP S/4HANA 2023 Cloud Private Edition FPS00”.

Click on Create Appliance (this will become your personal system) and follow the steps on the screen. When switching to the “Advanced Mode”, you can unselect optional VMs and do some further settings.

For general information on how to create an appliance (i.e. your personal system) from any appliance template (i.e. a template) in the SAP Cloud Appliance Library, see the official documentation of SAP Cloud Appliance Library (choose the [Support → Documentation](#) link and select the Expand All button  to see all documents in the structure). You can also use the context help in SAP Cloud Appliance Library by choosing the [Help](#) panel from the right side.

3 Accessing appliance template

After the appliance is up and running in your own AWS, Azure or GCP Account you can access it either via the Windows Remote Desktop (if selected; option 1) or with client tools on your local PC (option 2).

3.1 Option 1: Usage of Windows Remote Desktop

1. When the deployment of your own CAL appliance is finished, you will have a connect button:



2. In the pop-up, click [Connect](#) in the RDP Virtual Machine: Windows Remote Desktop line:

Connect to the Appliance

Select an access point to connect to the appliance template.
You can find the corresponding user credentials in: [Getting Started Guide](#)

Service	Target	Operation
RDP	Virtual Machine: Windows Remote Desktop	Connect

3. Confirm the pop-up windows. Please use the user “Administrator” together with your <Masterpassword> which you defined when creating the appliance.
4. You will now see a pre-configured Windows Frontend and a Welcome Page which will give you an overview how to connect to the systems either with SAP GUI or Fiori.
5. Further remarks:
 - a. The embedded Windows Remoted Desktop license allows 2 concurrent sessions. Installing a license for Windows Remote Desktop Services is an option to allow more users in parallel.
 - b. If your cloud provider infrastructure has restricted Internet access (e.g. it is a fenced environment), the remote desktop might not be fully provisioned, e.g. Chrome will not be installed automatically and need to be installed manually.

3.2 Option 2: Preparatory activities on your local PC

3.2.1 Mapping local /etc/hosts file

To logon to web access, as for example the Fiori Launchpad from your local PC, you need to ensure that you have mapped the IP address to the Hosts file on your local PC.

Step	Description
Adjust your hosts file	Open the Notepad app as Administrator (right click, Run as Administrator). Select File – Open... and navigate C:\Windows\System32\drivers\etc . Select the hosts file.

> OSDisk (C:) > Windows > System32 > drivers > etc

Name	Date modified	Type
hosts	30.04.2019 09:34	File

At the End of the file, add the following lines and choose save (the IP addresses for the servers are displayed in the SAP Cloud Appliance Library console in the appliance properties):

```
# M23 Appliance
<IP Address M23> vhcalth23db vhcalth23db.dummy.nodomain
vhcalm23ci vhcalm23ci.dummy.nodomain vhcalm23cs
vhcalm23cs.dummy.nodomain
# ADS/J2E Appliance
<IP Address J2E/ADS> vhcals2edb.vhcals2edb.dummy.nodomain
vhcalj2edb vhcals2eci.vhcals2eci.dummy.nodomain vhcals2eci
vhcalj2ecs.vhcals2ecs.dummy.nodomain vhcals2ecs
```

Disclaimer

Altering the /etc/hosts file on your local machine could lead to a security vulnerability and should therefore be used with caution.

3.2.2 Enable Certificates

If you call any web-based transaction via a transaction from the ABAP layer an error or blank browser page will show up.

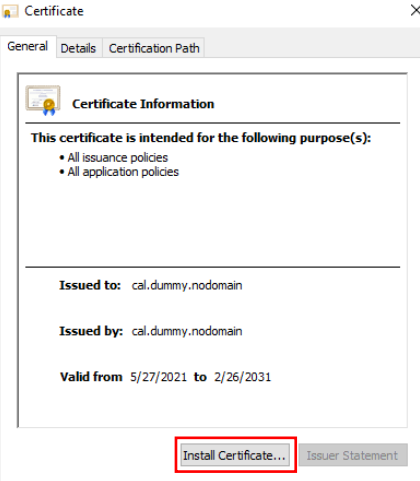
The root cause of this behavior are the self-signed certificates and trust relationship between your browser and the server called when running the transaction.

You need to enable your own certificates on backend and frontend server or you can use for your sandboxes a public certificate (Dummy Certificate) from SAP CAL.

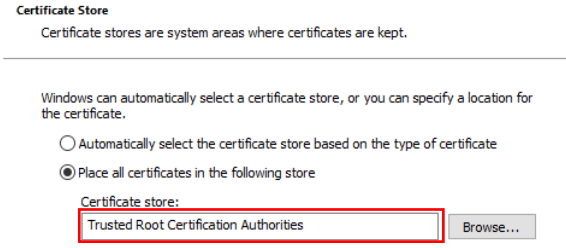
When you are using the predelivered Windows Remote Desktop you don't have to do this step, as the certificates are already preinstalled.

Step	Description
Download and install certificate	<ol style="list-style-type: none"> 1. Logon to SAP GUI using following chapter 3.3.2 2. Go into transaction <i>STRUST</i> 3. Change the mode to from <i>Display</i> to <i>Change</i> 4. Double-click on the issuing certificate 5. Click at the bottom at Download certificate and save it as a base64 certificate with a name like e.g. <i>CA.crt</i>

6. Open the certificate and click on "Install Certificate..."



7. Install the certificate either on current user or local machine in certificate store: Trusted Root Certification Authorities:



8. Finish certificate installation

Important note:

The provided certificate is for sandbox usage in the Cloud Appliance Library (CAL) only. It must never be used in any development and/or productive environment.

It is not allowed to distribute and/or use the provided sandbox certificate in any other system environment other than the provided CAL image.

SAP assumes no responsibility for any potential security issues caused by the usage of the provided sandbox certificate.

3.2.3 Configure ";*.dummy.nodomain" for Web Browser

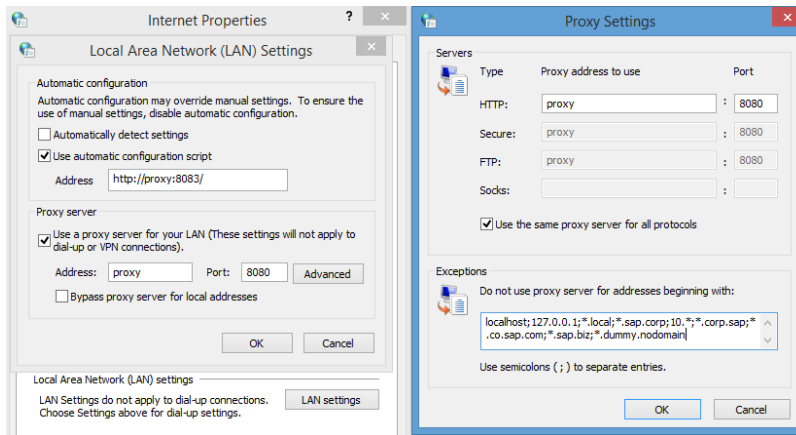
Working with the <dummy.nodomain> might require changes in your web browser, in case there is a web proxy defined (if you are unsure or detect connectivity issues, please contact your network administrator):

When you are using the predelivered Windows Remote Desktop you don't have to do this step.

1. If you are using Google Chrome as web browser, follow these steps:
 1. Logon to Chrome → Settings → Show Advanced Settings → Network → Change proxy settings → LAN Settings → Proxy Server → Advanced
 2. In the **Exceptions**, add ;*.dummy.nodomain directly at the end of the existing entry.
 3. Click OK.
2. If you are using Internet Explorer as web browser, follow these steps:
 1. Logon to Internet Explorer → Internet Options → Connections → LAN Settings → Proxy Server → Advanced
 2. In the **Exceptions**, add ;*.dummy.nodomain direct at the end of the existing entry.

3. Click OK.

See an example in the screenshot below:



3.2.3.1 Install SAP Client Software Locally

Note:

The path to download SAP software might change after publication of this document so please search on the SAP support portal also in other places if these paths do not work.

We recommend having SAP GUI and SAP HANA Studio installed (the latter potentially in combination with the ABAP Development tools).

3.2.3.2 SAP GUI for S/4HANA

If not already installed on your PC, download SAP GUI 7.70 or higher.

Open the SAP Support Portal Software Download page <https://support.sap.com/swdc> and search for SAP GUI.

3.2.3.3 ABAP Development Tools (ADT) (optional)

You can find the installation package for the ABAP Development Tools (ADT) at <https://tools.hana.ondemand.com>.

Note:

The remote desktop has the ADT tools incl. a defined connection to your SAP S/4HANA Cloud Private Edition system already installed.

3.3 Connecting to enterprise management layer for SAP S/4HANA

3.3.1 Accessing Fiori Launchpad

The M23 uses an embedded Gateway. The Fiori Launchpad follows the standard address format:

<https://<hostname>.<domain name>:<port>/sap/bc/ui2/flp>

Following access possibilities are available:

1. Logon to M23 with the **Business User** and use transaction: /n/ui2/flp
2. Open Google chrome or Internet Explorer and use following link:
<https://vhcalm23ci.dummy.nodomain:4300/sap/bc/ui2/flp?sap-client=100&sap-language=EN>

When you get the warning "Your connection is not private" (or similar as this depends on the browser), click "Advanced", click "Proceed to vhcalm23ci.dummy.nodomain (unsafe)", and then proceed with the user/client below. To avoid certificate issues, please follow the instructions in chapter 3.2.2

Please see chapter 3.4.2 for users and passwords.

3.3.2 Connecting to SAP S/4HANA M23 via SAP GUI

Procedure

1. Start the SAP Logon.
2. Choose **New entry** → **User defined**.
3. In the System wizard, specify the following parameters:

Parameter ID	Parameter Value	Note
Application Server	<IP Address of SAP S/4HANA ABAB Virtual Machine> or alternatively, a mapped host name from your hosts file e.g. vhcalm23ci (see 3.2.1)	The IP address of the S4HANA appliance from the SAP Cloud Appliance Library
Instance Number	00	ABAP instance number used by the appliance.
System-ID	M23	ABAP system id used by the appliance.

4. For details on the used system / client see chapter System Details.
5. Please see chapter 3.4.2 for users and passwords.

3.3.3 Connecting to HANA via SAP HANA Studio

Procedure

1. Start the installed SAP HANA Studio
6. Open the Navigator view and right click on this view. Then choose Add System.

In the System wizard, specify the following parameters:

Parameter ID	Parameter Value	Note
Hostname	<IP Address of SAP S/4HANA ABAP Virtual Machine> or alternatively, a mapped host name from your hosts file e.g. vhcalth23ci (see 3.2.1)	The IP address of the S4H/HANA instance from the SAP Cloud Appliance Library since the SAP HANA DB runs on the same host.
Instance Number	02	HANA instance number used for the appliance.
HANA SYSTEM User	SYSTEM	Default administrator user for HANA access to HANA
Password of SYSTEM User	<Master Password>	The password is the same as the master password provided during appliance creation in the SAP Cloud Appliance Library.

The system ID of the database is H23. It is recognized automatically via the host name.

3.3.4 Connecting to SAP JAVA Administrator Portal (Adobe Document Server ADS)

Enter the URL <http://vhcalj2eci.dummy.nodomain:50000/> into your browser (this works only if you have maintained your host file).

If you haven't maintained the hosts file yet the URL <http://<IP address of NW JAVA>:50000/> will also work. Administrator user and password are described in the next chapter.

3.4 System Details – Delivery Clients, User & Roles

The “enterprise management layer for SAP S/4HANA Cloud Private Edition” on SAP Cloud Appliance Library provides you with a pre-configured SAP S/4HANA Cloud Private Edition, including the following business content in dedicated areas within the SAP appliance template e.g. ABAP clients, tenants.

The following chapter provide an overview about the delivered content setup and Business / Technical User with passwords.

3.4.1 SAP S/4 HANA M23 – Client Structure

The S/4 Hana System with **System ID: M23** has following preconfigured clients:

Client	Business Content
000 Standard delivery client	<ul style="list-style-type: none">○ None (standard customizing only)
010 BW Admin Client	<ul style="list-style-type: none">○ BW client
050 EML Reference	<ul style="list-style-type: none">○ Reference client for EML○ Includes open transports from content activation. Those can be used if the scope is to be extended.
100 EML Trial & Exploration client	<ul style="list-style-type: none">○ Fully configured enterprise management layer for SAP S/4HANA Cloud Private Edition○ SAP Fiori Apps○ Based on the white-list-client approach – S/4HANA Best Practice activated

For more information about SAP Best Practices for SAP S/4HANA 2023, please visit:

[SAP Signavio Process Navigator](#)

For information on the ‘white-list’ and ‘merged-client’ approach, please see [here](#).

For the Administrator Guide of SAP Best Practices for SAP S/4HANA, please visit:


[SAP S/4HANA Admin Guide 2023](#)

(2) **Financial Services Network (FSN)** is not configured / connected.

3.4.2 Users

The following users are available to the project team:

System	User	Password	Comment / Purpose
S/4HANA [M23]	TEST01 through TEST20	welcome1	These users have all authorizations (Profile SAP_ALL). You may adapt decimal notation and date format.

System	User	Password	Comment / Purpose
			<p>These users have one mandatory role that <u>should not be deleted</u>:</p> <ul style="list-style-type: none"> • Z_FIORI_FOUNDATION_USER • Z_FLP_USER  <p>In addition, please assign the business roles (naming convention: SAP_BR_*) listed in the respective test scripts. Please see below.</p>
S/4HANA [M23]	TEST_EMPL_FI TEST_EMPL_MM TEST_EMPL_PM TEST_EMPL_SD TEST_EMPL_QM	welcome1	Users for workflow with the necessary roles assigned and the necessary settings for workflow done (see chapter: Settings for Workflow Users).

Note: The business roles are provided as standard roles by SAP. If required, you can use these roles as templates to create your own roles.

Further users for special services are available in the UserGuide provided in the [SAP Signavio Process Navigator documentation](#) or on the Windows Terminal Server.

3.4.2.1 Assigning Roles to the Users

The users TEST01 through TEST20 are available and ready to be used by the project teams. However, you still need to assign business roles to the users in order to see the required Fiori apps on your Launchpad.

Which apps you need on your Launchpad depends on the scope items you are testing. In each test script, you find a list of business roles that you need to assign to your TEST** user. The roles determine which apps you can access and see on the Launchpad.

Please note that we are using standard roles and standard Fiori apps.

Detailed information for all Fiori apps can be found here:

<https://fioriappslibrary.hana.ondemand.com/sap/fix/externalViewer/#>

These roles typically add more apps to your Launchpad than are actually in scope and described in the test scripts.

The apps that are listed in the test scripts are considered **in scope** and the underlying functionality has been configured and tested.

Apps that are NOT included in the test scripts are considered out of scope. They might not work if the underlying functionality is considered **out of scope** and has not been configured.

Procedure:

Logon via SAP GUI to system M23 (client 100) and use **transaction SU01** to edit role assignment for your test user. Add the SAP_BR_* roles to your user as listed in the test script you are testing. Please remember to also assign country-specific roles if relevant.

3.4.2.2 Workflow Users

Workflow Users have been configured according to the Admin guide chapter: Creating Approvers:

https://help.sap.com/viewer/S4HANA2023_AdminGuide → Implementation → Activating your solution → Carrying out post-activation configuration → Creating approvers

In the original enterprise management layer system, the following employees have been created with transaction PA30 for Infotype 105 and Sty 0001. The Business Partner synchronization has been carried out. Furthermore the employees have been assigned to the position 'PO Release' in order to enable the workflow release (transaction PPOME).

Personnel Nr.	Last Name / First Name	User ID	Business Partner	Comment
00000001	TEST_EMPLOYEE_ / FI	TEST_EMPL _FI	9980000000	User with Business Partner Assignment (Business Partner: 9980000000) Use as approver in all test scripts related to Finance, such as General Ledger (J58) or Cash Management (J77, J78)
00000002	TEST_EMPLOYEE_ / SD	TEST_EMPL _SD	9980000001	User with Business Partner Assignment (Business Partner: 9980000001) Use as approver in all test scripts related to purchasing (use instead of User ID <i>purchasing_manager</i>). In addition, used in Scope Item SL4, 22Z, 19C, J44, 18J
00000003	TEST_EMPLOYEE_ / MM	TEST_EMPL _MM	9980000002	User with Business Partner Assignment (Business Partner: 9980000002) Use as approver in all test scripts related to sales, if the optional workflow process for Sales is in scope for the customer project.
00000004	TEST_EMPLOYEE_ / PM	TEST_EMPL _PM	9980000003	User with Business Partner Assignment (Business Partner: 9980000003) Use as approver or test user in all test scripts related to plant maintenance, such as Emergency Maintenance (BH2), Preventive Maintenance (BJ2) and especially as second user for Corrective Maintenance (BH1),
00000005	TEST_EMPL_ / QM	TEST_EMPL _QM	9980000004	User with Business Partner Assignment (Business Partner: 9980000004) Use as approver in all test scripts related to Quality Management, such as 2QN.

3.4.2.3 Technical Users

The following users are set up for technical reasons only:

Purpose	User	Password	Comment / Purpose
Admin user	BWADMIN	welcome1	Client 010, User for BW Admin tasks
System Users	SAP_WFRT	<internal PW>	Workflow
System Users	SAP_WSRT	<internal PW>	Case Management
System Users	SAP_SERVICE	<internal PW>	Services for advanced scope, e.g. ACR
Master user	BPINST	<internal PW>	Reserved
Master user	BTEAM	<internal PW>	Reserved
Master user	FTEAM	<internal PW>	Reserved

3.4.3 SAP Adobe Document Services System J2E: Java Application Server

The administration users on operating system level are defined as follows:

System	Type	User	Password	Roles	Description
J2E	Technical	Administrator	<Master Password*>	NetWeaver JAVA Administrator	Admin user having admin rights to NetWeaver Java system.
J2E	Technical	ADSUSER	Sapcoe06	ADS user	
J2E	Technical	Bpinst	Welcome1	Backup user	Initial password

* The password is the same as the master password provided during appliance creation in the SAP Cloud Appliance Library.

3.4.4 SAP HANA Database System H23: Database Server Details

If you need OS access, you must use SSH connectivity.

Use the default user root and the private key for the appliance that is automatically generated while the SAP Cloud Appliance Library activates your appliance. You can either store the key file within SAP Cloud Appliance Library as attachment to your appliance or download it to a local secure file share on your computer.

Information how to connect using PuTTY can be found [here](#).

The root user on Linux operating system level is defined as follows:

System	Type	User	Password	Roles	Description
H23	Schema user	SAPHANADB	<Master Password*>	Admin Role	Schema user for SAP System
H23	Admin User	SYSTEM	<Master Password*>	Admin Role	Superuser with irrevocable system privileges

* The password is the same as the master password provided during appliance creation in the SAP Cloud Appliance Library.

3.4.5 OS Users and Groups

Additional users on operating system level are listed below:

OS User	Parameter Value	Note
root		private key
<SID>adm	sapsys	access via root

3.5 Essential OSS Notes

No additional notes are needed.

3.6 Post deployment activities

3.6.1 Reinitialize Connections to SAP Support Portal

To be able to download and implement SAP notes, you have to add a technical S-User to the following RFC connections:

- SAP-SUPPORT_NOTE_DOWNLOAD
- SAP-SUPPORT_PARCELBOX
- SAP-SUPPORT_PORTAL

If you need more information, how to create a technical S-User, please see KBA [2174416](#). If it's not working nevertheless, please see chapter Troubleshooting in KBA [2714210](#).

4 Appliance Template Usage and Licenses

The “enterprise management layer for SAP S/4HANA 2023 FPS00” is available to get familiar with the offering.

4.1 Running the appliance as a trial for a 30-day period Licenses

This appliance template can be used with a 30-day free trial license agreement (during this period, you only need to bear the hosting fees for your cloud provider). You will be asked to agree to the agreement during the instantiation steps.

During the instantiation, the SAP system, will generate a temporary license key that is enough for exploration purposes. After the expiration of the pre-installed temporary license a valid license is required to keep using the appliance.

Note that you are not allowed to install license keys under the free trial license agreement. You can continue the appliance template with the Product License Agreement any time prior to the end of the free period by unlocking it.

4.2 Running the appliance with a product license key

If you want to run the appliance template beyond the free 30-day trial period (i. e. unlock the appliance template in SAP CAL), you need to obtain two SAP Licenses:

1. The SAP Cloud Appliance Library (SAP CAL) subscription package
2. The SAP S/4HANA product license(s)

Once you unlock the solution in CAL, you can re-activate an existing instance in the same state it was left prior to unlocking the appliance template.

4.2.1 SAP CAL subscription package

You can purchase the subscription package via the SAP Store on

<https://www.sapstore.com/solutions/99007/SAP-Cloud-Appliance-Library>.

In SAP Store, you will need a user that has the “SAP Store buyer role” assigned. Please make sure that the SAP Store user and the SAP CAL user belong to the same organization, otherwise the mapping between the license and the to-be-unlocked appliance is not possible.

4.3 SAP Product Licenses Agreement

To use an appliance under your own SAP Product License Agreements, you need to possess at least a license for the SAP HANA DB (application runtime) and for SAP S/4HANA Enterprise Management professional use.

If you don't possess these licenses already, you can either obtain them via your SAP account executive, or online as self-service by licensing the [free SAP S/4HANA 90-day trial in SAP Store](#).

The CAL infrastructure checks whether the customer/partner organization of the S-user who created the appliance in SAP CAL possesses these licenses. Only if this check is passed, the instance can be activated in SAP CAL.

The licenses entitle your organization to use the appliance, however, since technically you will still be running under the 90-day temporary license key, we recommend generating your own license key and apply it to your system as soon as possible. 90 days after the initial appliance creation, the system will stop working without these technical license keys (see the next chapter for details).

To use an appliance under your own SAP Product License Agreements, you need to apply license keys for the following components a:

Description
S/4HANA System M23
SAP S/4HANA 2023
SAP FIORI FOR SAP S/4HANA 2023
SAP FIORI FES 2023 FOR S/4HANA
ABAP PLATFORM 2023
SAP S/4HANA FOUNDATION 2023
Database: HDB, Release 2.00.072.00.1690304772
Adobe Document Services ADS
SAP NetWeaver 7.50
Database: SAP ASE 16.0.04.00

Furthermore, there are separately licensed SAP S/4HANA capabilities configured in the system M23. These capabilities are listed below.

Scope Items	Software License Requirement in addition to Enterprise Mgt
Document and Reporting Compliance (Advanced Functionality) <i>Compliance Formats - Support Preparation (1J2)</i> <i>Document and Reporting Compliance (5XU)</i>	Document and Reporting Compliance
Advanced Receivables Management <i>Advanced Credit Management (1QM)</i> <i>Collections and Dispute Management (BFC)</i>	Finance for receivables management
Advanced Cash Management <i>Advanced Bank Account Management (J77)</i> <i>Advanced Cash Operations (J78)</i> <i>Bank Fee Management (2O0)</i> <i>Advanced Bank Statement Automation (4X8)</i>	Cash Management
Real Estate Management (Lease Accounting) <i>Lease-Out Accounting (21Q)</i> <i>Service Contract (21R)</i> <i>Sales-Based Rent (4F4)</i>	Contract, Lease and Real Estate Management
Group Reporting <i>Group Reporting - Financial Consolidation (1SG)</i> <i>Group Reporting - Plan Consolidation (28B); Group Reporting - Matrix Consolidation (3LX)</i> <i>Group Reporting - Consolidation with Multiple Group Currencies (4VB)</i>	Group Reporting
Treasury and Risk Management <i>Market Rates Management - Manually via Upload (1XN)</i> <i>SAP Fiori Analytical Apps for Treasury and Risk Management (1MN)</i> <i>Letter of Credit Management (49D) + Letter of Credit Management - Group Ledger IFRS (49E)</i> <i>Letter of Credit Management - Integration with Sales Order Management (TRM10*)</i> <i>Debt and Investment Management (1WV) + Debt and Investment Mgmt-Group Ledger IFRS (1X7)</i> <i>Foreign Currency Risk Management (1X1) + Foreign Currency Risk Mgmt-Grp Ledger IFRS (1X9)</i> <i>Hedge Accounting for FX Forward - Local GAAP (3X1) + Hedge Accounting for FX Forward - Group Ledger IFRS (1XD)</i> <i>Hedge Accounting for FX Option - Local GAAP (3X2) + Hedge Accounting for FX Option - Group Ledger IFRS (2RW)</i> <i>Hedge Accounting for FX Swap - Group Ledger IFRS (2UF)</i> <i>Intercompany Foreign Exchange Management (2F2) + I/C Foreign Exchange-Grp Ledger IFRS (2HU)</i> <i>Intercompany Process for Debt and Investment Mgmt (1YI) + I/C Debt and Investment Mgmt - Group Ledger IFRS (2OI)</i> <i>Bank Guarantee Management (2NZ) + Bank Guarantee Management - Group Ledger IFRS (2O2)</i> <i>Bank Guarantee Mgt - Integration with Sales Order Mgt (TRM11*)</i> <i>Money Market Mutual Fund Management (2UN) + Money Market Mutual Fund Mgmt - Group Ledger IFRS (2UO)</i> <i>Interest Rate Derivatives Management (1X3) + Interest Rate Derivatives Mgmt-Grp Ledger IFRS (1XB)</i>	Treasury and Risk Management

Scope Items	Software License Requirement in addition to Enterprise Mgt
<i>Bond Management (3WY) + Bond Management - Group Ledger IFRS (3WZ)</i> <i>Stock Management (5OD and 5OE)</i> <i>Shareholding Management (5WF and 5WG)</i> <i>Asset-Backed Securities Management (6B5) + Asset-Backed Securities Management - IFRS (6B6) (NEW)</i> <i>Securities Option Management (6ND) + Securities Option Management – IFRS (6NE) (NEW)</i>	
Advanced Warehouse Outbound Processing <i>Advanced Warehouse Outbound Processing to Customer (1VD)</i>	Supply Chain for extended warehouse mgt
Advanced ATP <i>Advanced Available to Promise Processing (1JW)</i>	Advanced Available-to-Promise
Maintenance Resource Scheduling <i>Maintenance Resource Scheduling (43R)</i>	Asset Mgt for resource scheduling
Advanced Variant Configuration <i>Make-to-Order Production with Variant Configuration (1YT)</i> <i>Make-to-Stock Production with Variant Configuration (21D)</i> <i>Set up Configurable Bill of Material using Variant Configuration (22T)</i> <i>Procurement of Materials with Variant Configuration (2XU)</i> <i>Make-to-Order Production for Sales Kits with Variant Configuration (4OC)</i> <i>Engineer-to-Order Production with Variant Configuration (4R8)</i> <i>Sales Processing using Third-Party with Variant Configuration (4R6)</i>	Advanced Variant Configuration
Enterprise Contract Management <i>SAP S/4HANA for Enterprise Contract Management (1XV)</i>	Enterprise Contract Management
Product Compliance <i>Chemical Compliance Approval for Purchased Material and Supplier (31G)</i> <i>Assess Marketability of a Product (31H)</i> <i>Chemical Compliance in the Value Chain (31J)</i> <i>Assess Dangerous Goods for a Product (3FC)</i> <i>Dangerous Goods in the Value Chain (3G8)</i> <i>Safety Data Sheets in the Value Chain (3VQ)</i> <i>Manage Safety Data Sheets for Products (3VR)</i> <i>Substance Volume Tracking (4OL)</i> <i>Supplier Compliance in the Value Chain (5OJ)</i>	Product Compliance
PLM - R&D for Enterprise Product Formulation <i>Specification Management for Recipes (1QA)</i> <i>Formulation - Recipe Development (1QC)</i> <i>Recipe Handover to Production - Bill of Material (1QG)</i> <i>Advanced Ingredient Replacement for Recipes (22R)</i>	R&D for Enterprise Product Formulation
PLM - R&D for Enterprise Product Engineering <i>Product Change Management with Change Records - Process Industries (5QC)</i> <i>Product Change Mgmt with Change Records - Discrete Industries (64E)</i>	R&D for Enterprise Product Engineering

Scope Items	Software License Requirement in addition to Enterprise Mgt
<i>Bill of Material Management Professional (60T) (NEW)</i>	

4.3.1 SAP Product License Keys Installation

After unlocking the appliance template, you need to apply a valid license key to the system components using the below parameters. These parameters need to be entered in the SAP license key application (<https://support.sap.com/licensekey>).

If you want to use the appliance template under an SAP Product License Agreement (e.g. beyond the SAP-Test license), you should install the following relevant SAP product license keys:

1. SAP HANA license keys, to be installed via SAP HANA Studio or hdbsql (command line tool)
2. SAP S/4HANA 2023 license key, to be installed via SAP Logon (transaction code SLICENSE)
3. SAP NetWeaver 7.5 J2EE, to be installed via SAP NetWeaver Administrator

SID	Product	Version	DB	OS
M23	SAP S/4HANA	SAP S/4HANA 2023	SAP HANA	Linux
H23	SAP HANA, platform edition	SAP HANA 2.0, platform edition	n/a	Linux
J2E	SAP NetWeaver	SAP NetWeaver 7.5	SAP ASE	Linux

For more information on how to request and install product license keys, see [this document](#).

5 Security Aspects

By default, some ports are opened for the security group formed by the server components of your appliance. The access from your local computer to your appliance happens via the ports listed below.

If you deploy “enterprise management layer for SAP S/4HANA 2023” in the CAL these ports can be changed according to your company guidelines.

You can edit/add/remove ports manually in the instance details (click on the instance link in the SAP Cloud Appliance Library console → Edit → Virtual Machine → Access Points).

Be aware that creating your appliances in the public zone of your cloud computing platform is convenient, but less secure. We recommend that in this case, you only open port 22 (SSH) when working with Linux-based appliance templates. In addition, we also recommend that you limit the access to your appliances by defining a specific IP range in the Access Points settings, using [CIDR notation](#). The more complex but secure alternative is to set up a virtual private cloud (VPC) with VPN access, which is described in [this tutorial on SCN](#).

Note that when using HANA-based appliances, HANA systems are not installed individually, but cloned from a template system. Consequently, the existing root keys are cloned. For more information, see this [SAP Note 2134846 - HANA encryption key handling during system cloning](#).

General Security Guidelines

To access the latest version of the SAP system Security Guide, please refer to http://help.sap.com/s4hana_op_2023 → Implement → Security Guide

5.1 SAP S/4HANA System M23: ABAP Application Server Details

Protocol	Port (open by default)
SSH	22
SAP Host Agent	1128
SAP Dispatcher	3200
HTTPS	44300
HTTP	8000
RFC Gateway	3300
Message Server HTTP	8101
SMTP	8025
HANA DB	30215

5.2 SAP Adobe Document Services based on NetWeaver Java (ADS)

Protocol	Port (open by default)
SSH	22
SAP Host Agent	1128
HTTP	50000
sapcontrol http	50013
sapcontrol HTTPS	50014

5.3 Windows Remote Desktop (optional)

Protocol	Port (open by default)
RDP	3389

6 Appendix

6.1 SAP NetWeaver 7.58 application server ABAP incl. SAP S/4HANA 2023

Installed Software Components

Component	Release	SP Level	Support Package	Short Description of Component
SAP_BASIS	758	0000	-	SAP Basis Component
SAP_ABA	751	0000	-	Cross-Application Component
SAP_GWFND	758	0000	-	SAP Gateway Foundation
SAP_UI	758	0000	-	User Interface Technology
ST-PI	740	0024	SAPK-74024INSTPI	SAP Solution Tools Plug-In
SAP_BW	758	0000	-	SAP Business Warehouse
UIBAS001	758	0000	-	UI for Basis Applications
MDG_FND	808	0000	-	S/4HANA MDG Foundation
S4FND	108	0000	-	S/4HANA Foundation
MDG_APPL	808	0000	-	S/4HANA MDG Applications
S4CEXT	108	0000	-	S/4HANA Applications EXT
S4CORE	108	0000	-	S/4HANA Core Applications 1
S4HCM	101	0000	-	Human Resources
S4HCMCAE	101	0000	-	Subcomponent S4HCMCAE of S4HCM
S4HCMCAR	101	0000	-	Subcomponent S4HCMCAR of S4HCM
S4HCMCAT	101	0000	-	Subcomponent S4HCMCAT of S4HCM
S4HCMCAU	101	0000	-	Subcomponent S4HCMCAU of S4HCM
S4HCMCBE	101	0000	-	Subcomponent S4HCMCBE of S4HCM
S4HCMCBG	101	0000	-	Subcomponent S4HCMCBG of S4HCM
S4HCMCBR	101	0000	-	Subcomponent S4HCMCBR of S4HCM
S4HCMCCA	101	0000	-	Subcomponent S4HCMCCA of S4HCM
S4HCMCCH	101	0000	-	Subcomponent S4HCMCCH of S4HCM
S4HCMCCL	101	0000	-	Subcomponent S4HCMCCL of S4HCM
S4HCMCCN	101	0000	-	Subcomponent S4HCMCCN of S4HCM
S4HCMCCO	101	0000	-	Subcomponent S4HCMCCO of S4HCM
S4HCMCCZ	101	0000	-	Subcomponent S4HCMCCZ of S4HCM
S4HCMCDE	101	0000	-	Subcomponent S4HCMCDE of S4HCM
S4HCMCDK	101	0000	-	Subcomponent S4HCMCDK of S4HCM
S4HCMCEG	101	0000	-	Subcomponent S4HCMCEG of S4HCM
S4HCMCES	101	0000	-	Subcomponent S4HCMCES of S4HCM
S4HCMCFI	101	0000	-	Subcomponent S4HCMCFI of S4HCM
S4HCMCFR	101	0000	-	Subcomponent S4HCMCFR of S4HCM

S4HCMCGB	101	0000	-	Subcomponent S4HCMCGB of S4HCM
S4HCMCGR	101	0000	-	Subcomponent S4HCMCGR of S4HCM
S4HCMCHK	101	0000	-	Subcomponent S4HCMCHK of S4HCM
S4HCMCHR	101	0000	-	Subcomponent S4HCMCHR of S4HCM
S4HCMCHU	101	0000	-	Subcomponent S4HCMCHU of S4HCM
S4HCMCID	101	0000	-	Subcomponent S4HCMCID of S4HCM
S4HCMCIE	101	0000	-	Subcomponent S4HCMCIE of S4HCM
S4HCMCIN	101	0000	-	Subcomponent S4HCMCIN of S4HCM
S4HCMCIT	101	0000	-	Subcomponent S4HCMCIT of S4HCM
S4HCMCJP	101	0000	-	Subcomponent S4HCMCJP of S4HCM
S4HCMCKR	101	0000	-	Subcomponent S4HCMCKR of S4HCM
S4HCMCKW	101	0000	-	Subcomponent S4HCMCKW of S4HCM
S4HCMCKZ	101	0000	-	Subcomponent S4HCMCKZ of S4HCM
S4HCMCMX	101	0000	-	Subcomponent S4HCMCMX of S4HCM
S4HCMCMY	101	0000	-	Subcomponent S4HCMCMY of S4HCM
S4HCMCNL	101	0000	-	Subcomponent S4HCMCNL of S4HCM
S4HCMCNO	101	0000	-	Subcomponent S4HCMCNO of S4HCM
S4HCMCNZ	101	0000	-	Subcomponent S4HCMCNZ of S4HCM
S4HCMCOM	101	0000	-	Subcomponent S4HCMCOM of S4HCM
S4HCMCPH	101	0000	-	Subcomponent S4HCMCPH of S4HCM
S4HCMCPL	101	0000	-	Subcomponent S4HCMCPL of S4HCM
S4HCMCPT	101	0000	-	Subcomponent S4HCMCPT of S4HCM
S4HCMCQA	101	0000	-	Subcomponent S4HCMCQA of S4HCM
S4HCMCRO	101	0000	-	Subcomponent S4HCMCRO of S4HCM
S4HCMCRU	101	0000	-	Subcomponent S4HCMCRU of S4HCM
S4HCMCSA	101	0000	-	Subcomponent S4HCMCSA of S4HCM
S4HCMCSE	101	0000	-	Subcomponent S4HCMCSE of S4HCM
S4HCMCSG	101	0000	-	Subcomponent S4HCMCSG of S4HCM
S4HCMCSI	101	0000	-	Subcomponent S4HCMCSI of S4HCM
S4HCMCSK	101	0000	-	Subcomponent S4HCMCSK of S4HCM
S4HCMCTH	101	0000	-	Subcomponent S4HCMCTH of S4HCM
S4HCMCTR	101	0000	-	Subcomponent S4HCMCTR of S4HCM
S4HCMCTW	101	0000	-	Subcomponent S4HCMCTW of S4HCM
S4HCMCUA	101	0000	-	Subcomponent S4HCMCUA of S4HCM
S4HCMCUN	101	0000	-	Subcomponent S4HCMCUN of S4HCM
S4HCMCUS	101	0000	-	Subcomponent S4HCMCUS of S4HCM
S4HCMCVE	101	0000	-	Subcomponent S4HCMCVE of S4HCM
S4HCMCZA	101	0000	-	Subcomponent S4HCMCZA of S4HCM
S4HCMGXX	101	0000	-	Subcomponent S4HCMGXX of S4HCM
S4HCMRXX	101	0000	-	Subcomponent S4HCMRXX of S4HCM
EA-DFPS	808	0000	-	S/4HANA DFPS
EA-PS	808	0000	-	S/4HANA PS

FI-CAX	808	0000	-	S/4HANA FI-CA Extended
IS-OIL	808	0000	-	S/4HANA IS-OIL
IS-PRA	808	0000	-	S/4HANA IS-PRA
IS-PS-CA	808	0000	-	S/4HANA IS-PS-CA
IS-UT	808	0000	-	S/4HANA IS-UT
S4COREOP	108	0000	-	S/4HANA Core Applications 2
S4DEPREC	108	0000	-	S/4HANA Core Applications 3
GBX01HR5	605	0025	SAPK-60525INGBX01HR5	GBX01HR5 605
UIAPFI70	902	0000	-	UI SFIN
UIS4HOP1	900	0000	-	UI for S/4HANA On Premise
ST-A/PI	01V_731	0003	SAPKITABC6	Servicetools for SAP Basis 731 and higher
HOME	DEV	0000	-	Customer Development (Standard)
LOCAL	DEV	0000	-	System Local Development (Standard)

6.2 SAP NetWeaver 7.50 application server JAVA with Adobe Document Services installed

Product Name	Release	SP Level	Description
SAP NetWeaver JAVA	7.5	16	SAP NETWEAVER 7.5: Adobe Document Services

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