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Getting Started with the SAP S/4HANA 2020 (FPS01) Fully-Activated Appliance



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1 Solution Information

1.1 Introduction

This guide provides information about the “SAP S/4HANA 2020 FPS01 Fully Activated Appliance” on SAP Cloud Appliance Library (SAP CAL, <https://cal.sap.com>).

The appliance contains an SAP S/4HANA 2020 (FPS01) system with pre-configured SAP Best Practices and demo scenarios.

It can be rapidly brought up as your personal instance with administrative rights either hosted in dedicated cloud providers such as Amazon, MS Azure or Google Cloud Platform (in ~2 hours) or on-premise on your own hardware (in ~2-3 days).

Typical use cases are trial system, sandboxing, proof-of-concept, or scoping exercises.

The usage as a development system in implementation projects is not recommended since the appliance might contain components and configuration settings (some with a separate license) that are conflicting with the later deployment in a quality or production system.

A general introduction into the appliance and the usage as trial or sandbox system can be found on <https://blogs.sap.com/?p=727457>

Known issues will be continuously updated in this blog: <https://blogs.sap.com/?p=1215356>

Post-installation steps and extensive demo guides with sample walkthrough scenarios can be found here: <https://blogs.sap.com/2019/04/23/sap-s4hana-fully-activated-appliance-demo-guides/>.

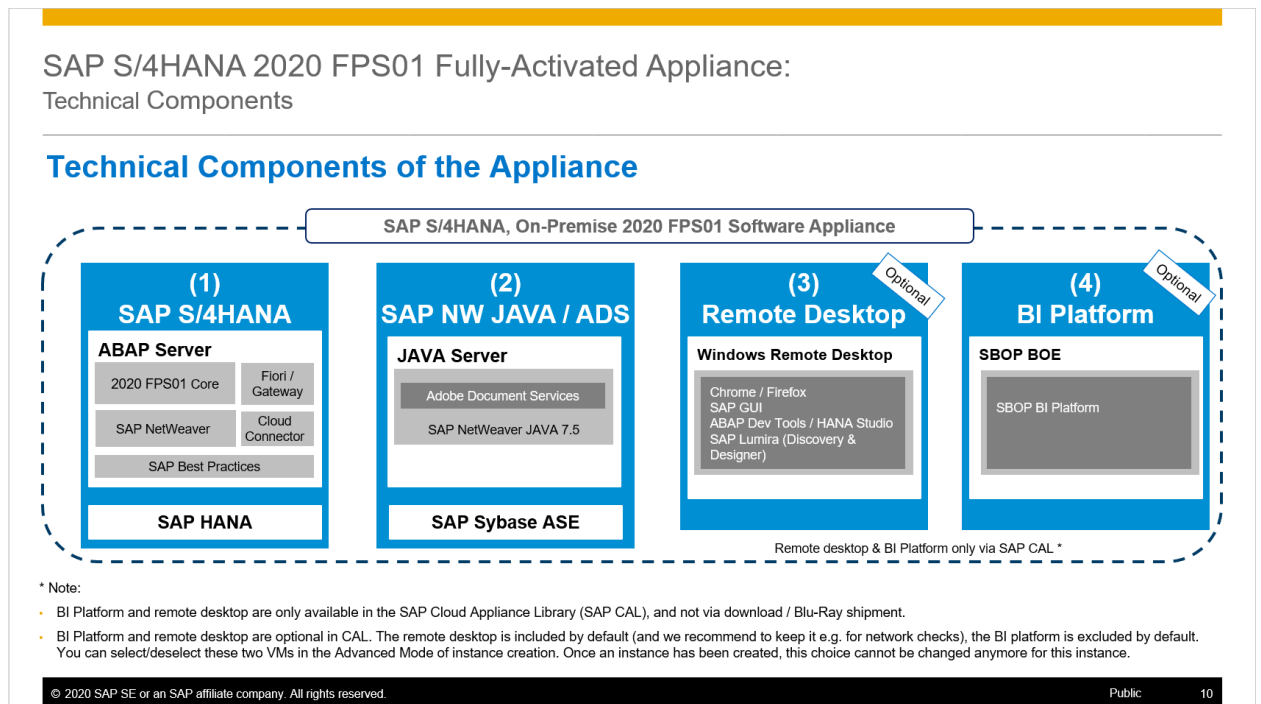
Video tutorials how to create an AWS account and how to launch the appliance can be found [here](#).

They might not necessarily show the creation of the SAP S/4HANA 2020 appliance (but another SAP solution appliance), however, the concepts are the same.

1.2 Installed Products

When you deploy the appliance (either in CAL or your own on-premise hardware), you get access to a system landscape that has been built using the following components (see picture below).

1. SAP S/4HANA 2020 FPS01 (on SAP HANA database)
2. SAP NetWeaver 7.50 JAVA with Adobe Document Services (on Sybase ASE database)
3. Optional: Microsoft Windows Server 2016 (as remote desktop) for easy frontend access.
4. Optional: SAP BusinessObjects BI Platform 4.2 SP7



Notes:

- The virtual machines (VMs) for the BI Platform and the remote desktop (RDP) are optional in CAL. You can deselect these two VMs in the Advanced Mode of the instance creation. Once an instance has been created, this choice cannot be changed anymore for this instance.
- The BI Platform and the remote desktop are only available when using SAP CAL as described in this document. However, you can also receive the appliance for installation on your own on-premise hardware but in that case BI platform and remote desktop are not included. Please see SAP Note [2041140](#) for the option to install the appliance on your own hardware.

A detailed component list of the appliance can be found in the appendix of this guide.

1.3 Business Scenarios & Localizations

The appliance uses SAP Best Practices as main business content.

The charts below summarize the Best Practices scope for SAP S/4HANA 2020 (details can be found on https://rapid.sap.com/bp/BP_OP_ENTPR).

SAP Best Practices for SAP S/4HANA (on premise)

Business Area in Line of Business

Operational ERP

Manufacturing	R&D / Engineering	Supply Chain	Asset Management	Sourcing and Procurement
Extended Production Planning and Scheduling	Enterprise Portfolio and Project Management	Order Promising	Maintenance Management	Supplier Management
Production Engineering	Product Compliance	Advanced Order Promising		Sourcing and Contract Management
Production Operations	Product Engineering	Inventory		Central Procurement
Production Planning	Product Lifecycle Management	Warehousing		Operational Procurement
Quality Management		Advanced Warehousing		Invoice Management
		Delivery and Transportation		Procurement Analytics
		Advanced Transportation		
Sales	Sales Force Support	Sales Performance Management	Order and Contract Management	
Service	Service Master Data & Agreement Management	Service Operations & Processes		

Direct procurement

Line of Business
Business Area

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SAP Best Practices for SAP S/4HANA (on premise)

Business Area in Line of Business / Technology

Administrative ERP

Finance	Human Resources	Sourcing and Procurement
Accounting and Financial Close	Core HR and Time Recording	Supplier Management
Advanced Accounting and Financial Close		Sourcing and Contract Management
Financial Operations		Central Procurement
Advanced Financial Operations		Operational Procurement
Cost Management and Profitability Analysis		Invoice Management
Enterprise Risk and Compliance		Procurement Analytics
Real Estate Management		
Treasury Management		

Indirect procurement

Real-time foundation

Database and Data Management	Enterprise Information Management
Application Platform and Infrastructure	Process Management and Integration
IT Management	Administration and Usability

Line of Business / Technology
Business Area

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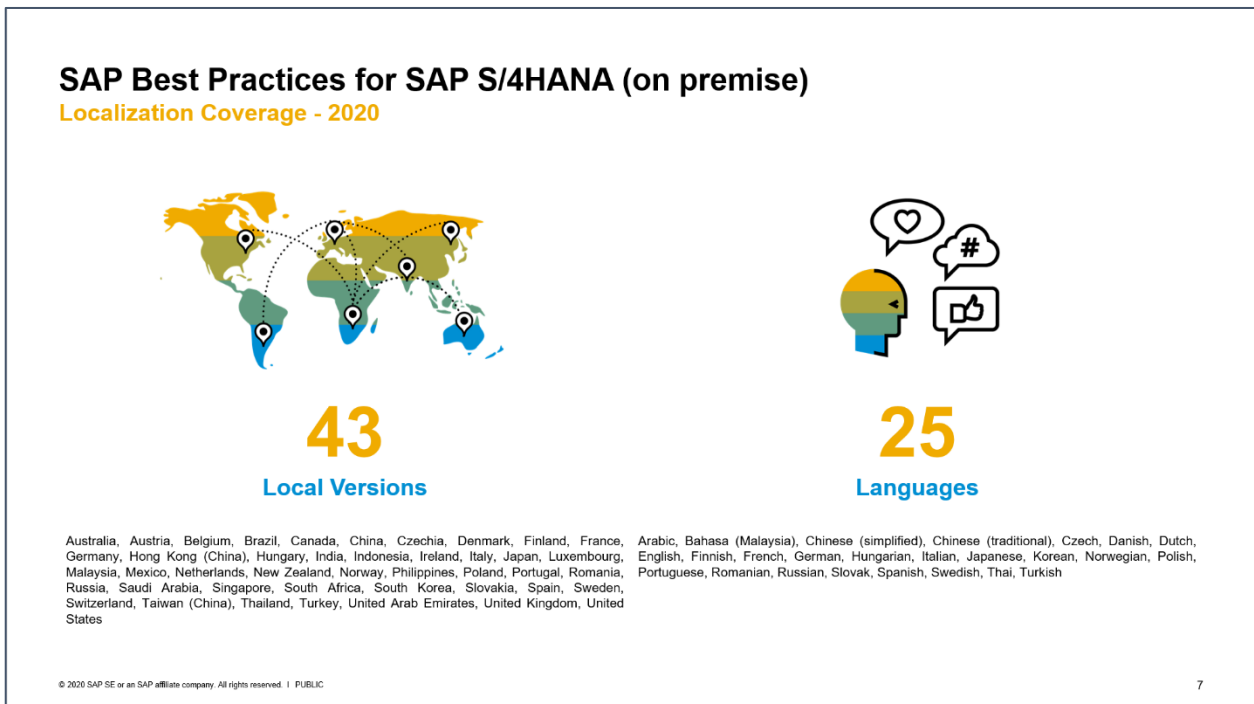
In the appliance, the Best Practices have been fully activated, however, there are still areas that require additional configuration to be fully functional.

The integration into other SAP products or 3rd party software is such an example where you need to specify at least the credentials (tenant, account, etc.) of the integration target.

The SAP Best Practices configuration content of SAP S/4HANA 2020 is available for 43 local versions and 25 languages (see below slide).

In the appliance, all available localizations are activated in client 400 (see the section *ABAP client structure & business users* later in this guide), however, the suggested demo walkthroughs incl. demo data in the appliance are configured for USA only, using the company code 1710.

Besides the languages for SAP Best Practices, further language packages are installed in the system, but the configuration content might not be fully translated into those.



1.4 ABAP client structure & business users

Multiple ABAP clients are configured in the appliance:

- 000 serves as standard delivery client (as usual in on-premise deployments)
- 100 is the primary demo client that contains the pre-configured scenarios and sample data.
- 200 can be used for activating the SAP Best Practices on your own.
Please see the [SAP Best Practices implementation guide](#) for details. Be aware that some of the SAP Notes and settings mentioned in the guide still need to be applied depending on what country or scope you activate (e.g. the parameter `rdisp/scheduler/prio_high/max_runtime` is not set accordingly yet as required by the guide).
- 400 contains the activated Best Practices based on the white-list approach

SAP S/4HANA 2020 Fully-Activated Appliance	
What client is used for what ?	
ABAP Client	Description
100 Trial & exploration client (merged-000-client setup **)	<ul style="list-style-type: none"> • Pre-activated SAP Best Practices for SAP S/4HANA 2020 (Germany & US, demo flow localized for US) • Additional configuration for end-to-end sample business process • Customizing and transactional data in US company code (1710) • SAP Fiori Apps • Based on the merged-000-client approach
200 Ready-to-Activate client (Best Practice client setup **)	<ul style="list-style-type: none"> • Technical preparation activities prior to Best Practices content activation done • No SAP Best Practices activations done yet • Use case: sandbox for activating customer-specific SAP Best Practices scope
400 SAP Best Practices reference client (Best Practice client setup**)	<ul style="list-style-type: none"> • SAP S/4HANA 2020 Best Practices activation (43 localizations*) • This is the standard delivery state of Best Practices (no additional configuration, no corrections applied) • Use case: Explore/compare customizing for specific countries

(*) There are 43 localizations contained in the SAP S/4HANA 2020 Best Practices:
Australia, Austria, Belgium, Brazil, Canada, China, Czechia, Denmark, Finland, France, Germany, Hong Kong, Hungary, India, Indonesia, Ireland, Italy, Japan, Luxembourg, Malaysia, Mexico, Netherlands, New Zealand, Norway, Philippines, Poland, Portugal, Romania, Russia, Saudi Arabia, Singapore, Slovakia, South Africa, South Korea, Spain, Sweden, Switzerland, Taiwan, Thailand, Turkey, United Arab Emirates, United Kingdom, United States

(**) For information on the Best Practice and merged-000 client approach, please see [here](#)

Client 300 is not delivered in the SAP S/4HANA 2020 Fully-Activated Appliance.

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Please see chapter 2 for default users and logon procedures.

(*) For the US localization, SAP Best Practices are delivered with internal tax calculation. This includes sample jurisdiction codes and sample rates so that you can execute the best practices test scripts. The organizational structure and chart of accounts are activated with SAP Best Practices sample content. Client 200 does not contain these settings.

(**) An explanation of Best Practice client and merged client can be found in the [Implementation Guide](#) → *Prerequisite Settings* → *Setting up a new Best Practices Client - Client Setup Alternatives*.

1.5 Sample Demo Walkthroughs

Once you have created a system instance in SAP CAL you will have a principally working S/4HANA system that you can explore and change on your own.

To give you a jump-start into the contained scenarios, we have documented a wide range of example scenarios that we recommend as starting point to get more familiar with the system.

Please see this blog (<https://blogs.sap.com/2019/04/23/sap-s4hana-fully-activated-appliance-demo-guides/>) for the available demo guides (choose the applicable release).

1.6 Recommended Post-Installation Steps

As said above, your system instance will be a working system, however, there are certain settings that you might need to adapt depending on your use case, for example:

1. Open the MM inventory management period for the current month if you intend to post goods movements.
The above [blog with the sample demo scenarios](#) explains how to do this in section C) .
2. Check your customer/partner specific licenses and apply license keys.
Please see chapter 3 of this guide for details, in summary you will need to consider two timelines:
 - If you intend to use the system beyond 30 days, you will need to possess licenses for SAP S/4HANA and the SAP CAL
 - If you intend to use the system beyond 90 days, you will need to generate and apply your own license keys to the HANA DB, S/4HANA, and JAVA
3. Check further time-dependent settings if you face issues (this could be certain finance periods or tasks, time-dependent production windows, and so on).

1.7 More Information & Support

1.7.1 More Information

Overview blog in SAP Community: <https://blogs.sap.com/?p=727457>

Known issues blog in SAP Community: <https://blogs.sap.com/?p=1215356>

Post installation steps and sample demo walkthroughs:

(<https://blogs.sap.com/2019/04/23/sap-s4hana-fully-activated-appliance-demo-guides/>)

SAP S/4HANA Trial Landing Page (also containing a “Quick Start Guide” how to set up the appliance)
<https://www.sap.com/cmp/oth/crm-s4hana/s4hana-on-premise.html>

YouTube playlist (how to create Cloud Provider accounts, start an SAP S/4HANA appliance instance, etc):
<https://www.youtube.com/playlist?list=PLWV533hWWvDmww3OX9YPhjjS1I1n6o-H2>

1.7.2 Support

If you run a 30-day trial (i.e. no SAP CAL subscription license), please use the SAP Community (preferably take SAP CAL as it's closely monitored):

- SAP CAL (for CAL usage, access, etc.): <https://answers.sap.com/questions/metadata/24005/sap-cloud-appliance-library.html>
- SAP S/4HANA (for S/4 specific functional questions):
<https://answers.sap.com/questions/metadata/22943/sap-s4hana.html>

If you have an SAP CAL subscription license acquired, you can also [report an incident](#) (component BC-VCM-CAL).

2 Accessing the Solution

2.1 Overview

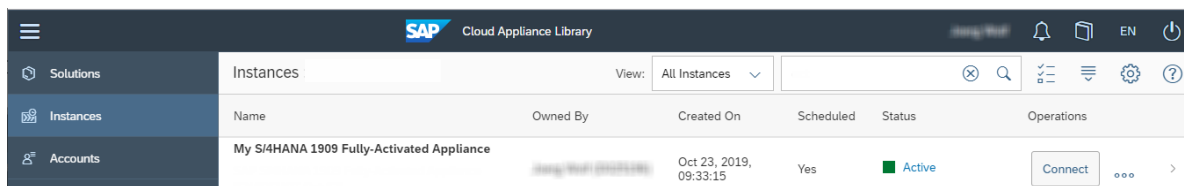
The appliance can be accessed via a preconfigured Windows remote desktop (option 1) or via client tools on your local PC (option 2).

For first steps with the appliance, we recommend access via the remote desktop since you only need to have the Windows remote desktop client installed on your PC which in most cases will be the case,

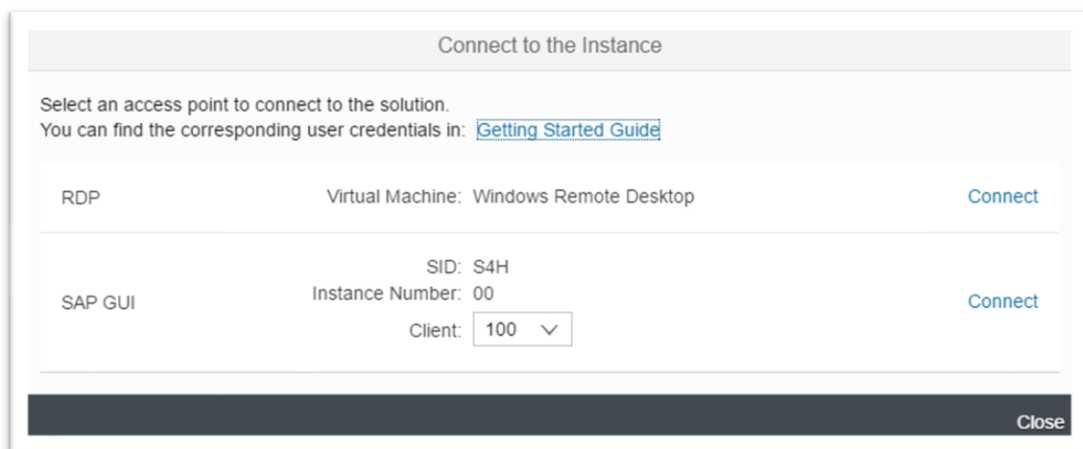
Since UI performance are usually better via access from your local PC, please evaluate if you can use this method as standard access. It requires administrator access on your PC and 5 minutes of effort.

2.2 Option 1: System access via embedded Windows Remote Desktop frontend server

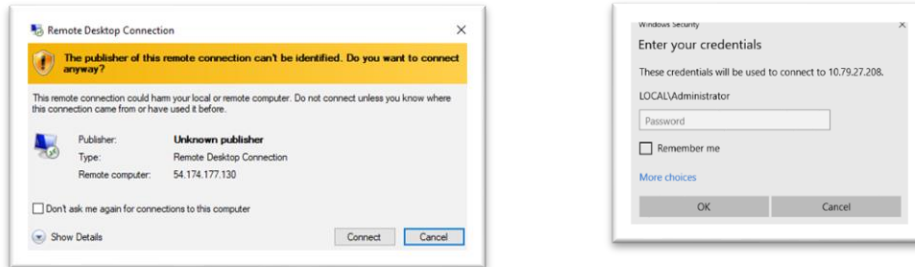
1. After your own solution instance is created, click the [Connect](#) button in the Instances view of the console.



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



- Confirm the pop-up window to allow Remote Desktop Connection (click on "Connect"). Enter user *Administrator* (local domain of the remote desktop) and your <Master Password> that you specified during the instance creation in the SAP CAL console.



- Next you will see the pre-configured Windows Frontend Server. Follow the information on the Welcome page (start link also on desktop if it doesn't come up automatically) to logon to the SAP S/4HANA system, and to run sample scenarios. More details on system connectivity can be found in section 3.3.

Welcome to the SAP S/4HANA 2020 (FPS01) Fully-Activated

About this remote desktop

This remote desktop is one part of the SAP S/4HANA Fully-Activated Appliance that you have created via the SAP Cloud App. It is the easiest access to your SAP S/4HANA backend system, but you can access your system also via frontend tools that a. For details, please see the [Getting Started Guide](#) that is linked from your personal system instance in the SAP CAL console.

Note on SSL certificates:
A certificate (self-signed by SAP) provides single sign-on features when using Chrome on this remote desktop against the SAP. When accessing the Fiori Launchpad on other browsers / machines, you will encounter browser messages about untrusted certificates. For details, please see the [Getting Started Guide](#). If you would like to call the SAP S/4HANA Fully-Activated Appliance from other environments that require a trusted certificate, please see the [documentation](#) on how to import your own trusted certificate into the appliance. There is also a guide amongst the [SAP S/4HANA](#) documentation on how to import your own trusted certificate into the appliance.

Access to your system

Access via SAP Fiori Launchpad

You can start exploring the [SAP Fiori Launchpad](#) in client 100 with the users in the below table.

The users *S4H_<area>_DEM* (e.g. S4H_FIN_DEM) have a restricted set of roles and Fiori apps assigned for the respective area.

The users *S4H_<area>* (e.g. S4H_FIN) have the complete set of roles and Fiori apps for the respective area assigned (based on the Fiori launchpad, and should be used primarily to get an overview of interesting roles).

Further useful links for browser access (credentials are case sensitive)

- [SAP Web Dispatcher console](#) (bpinst / Welcome1)
- [SAP NetWeaver Administrator \(JAVA\)](#) (Administrator / <Your Master Password>)
- [SAP Cloud Connector](#) (Administrator / manage)
- If deployed: [SAP BusinessObjects CMC](#) (Administrator / Welcome1) & [SAP BusinessObjects BI Launchpad](#) (BPINST / Welcome1)

User (client 100)	Business capability / Demo scenario
S4H_AA_DEM / S4H_AA	Asset Accounting
S4H_FIN_DEM / S4H_FIN	Finance
S4H_CASH_DEM / S4H_CASH	Cash Management
S4H_CO_DEM / S4H_CO	Controlling
S4H_MM_DEM / S4H_MM	Materials Management

5. Further remarks:

- The embedded Windows Remoted Desktop license allows 2 concurrent sessions (e.g. one for the existing user Administrator and one for another user that you can create on the remote desktop). Installing your own RDP license might also be an option to allow more concurrent users on the RDP.
- If your cloud provider infrastructure has restricted Internet access (e.g. it is a fenced environment), the remote desktop might not be fully provisioned
 - o Chrome is not installed → use Firefox for Fiori access or install Chrome at a later point in time if this is possible in your network setup
 - o The Welcome page will not show up on the desktop, but you can find it on the remote desktop in the folder `Q:\flavor\S4HANA_Fully_Activated\WelcomePage`.

2.3 Option 2: System access via local PC

2.3.1 Mapping your local */etc/hosts* file

To log on to the Fiori Launchpad from your local PC, you need to ensure that you have mapped the IP addresses of your instance against clear text host names. This mapping step is needed since the connection to the cloud providers uses IP addresses, whereas the S/4HANA system needs dedicated host names to work correctly.

After you have done the mapping (by editing a local file on your computer), you will be able to access the Fiori Launchpad of SAP S/4HANA via this URL:

https://vhcals4hcs.dummy.nodomain:44301/sap/bc/ui5_ui5/ui2/ushell/shells/abap/FioriLaunchpad.html

If you cannot map your local hosts file (e.g. you don't have administrator rights on your computer), you can use the IP address of your instance in the URL (https://<IP_Address>:44301/...), however, not all applications and scenarios will work correctly with it e.g. WebGUI or Web Dynpro applications will not display in the browser.

Another option could be to use browser plugins (e.g. Chrome Virtual Host) that simulate the mapping in the browser session only. Again, not all scenarios might work correctly with it.

The following describes how to modify the local hosts file on a Windows computer.

1. Open *Notepad* as administrator (search for *Notepad* on your computer > Right mouse click > Run as administrator):
2. Click *File* → *Open* and enter the following path:
 - For Windows operating system: `c:\windows\system32\drivers\etc\hosts`
 - For Linux operating system: `/etc/hosts`
3. Ensure to select *All Files (*.*)*
4. Open the *hosts* file and add the following lines to it (the IP addresses for the servers are displayed in the CAL console in the instance properties, take the external IP address):

```
# S4H Appliance
```

```
<External IP Address SAP S4HANA/HDB server> vhcals4hci.dummy.nodomain vhcals4hci  
vhcals4hcs.dummy.nodomain vhcals4hcs vhcaldhdb vhcaldhdb.dummy.nodomain
```

```

<IP Address SAP NW JAVA/ASE/ADS server> vhcals2eci.dummy.nodomain vhcals2eci
vhcals2ecs.dummy.nodomain vhcals2ecs vhcals2edb vhcals2edb.dummy.nodomain

<IP Address SAP BI Platform > bihost bihost.dummy.nodomain

```

5. Save the *hosts* file and exit.

2.4 Users & passwords for the system components

Note upfront: For URLs starting with *vhca1...* you will need to map your */etc/hosts* file as described in chapter 2.3.

2.4.1 SAP S/4HANA ABAP application server

2.4.1.1 Pre-configured business users in SAP S/4HANA

Client	Business Content	Sample users <i>(password Welcome1 if not noted otherwise)</i>
000 Standard delivery client	<ul style="list-style-type: none"> Nothing specific (standard customizing only) 	<ul style="list-style-type: none"> BPINST DDIC / SAP* (<Master_Password>)
100 Trial & Exploration client	<ul style="list-style-type: none"> Pre-activated SAP Best Practices for SAP S/4HANA 2020 (Germany & US, sample demo flow localized for US) * Customizing and transactional data in US company code (1710) SAP Fiori Apps Based on the <u>merged-client</u> approach BW configuration for Integrated Business Planning (IBP) <p><u>Note on the users:</u></p>	<ul style="list-style-type: none"> <i>S4H_AA_DEM / S4H_AA</i> (Asset Accounting) <i>S4H_FIN_DEM / S4H_FIN</i> (Finance) <i>S4H_CASH_DEM / S4H_CASH</i> (Cash Management) <i>S4H_CO_DEM / S4H_CO</i> (Controlling) <i>S4H_MM_DEM / S4H_MM</i> (Materials Management) <i>S4H_PP_DEM / S4H_PP</i> (Production Planning) <i>S4H_SD_DEM / S4H_SD</i> (Sales & Distribution) <i>S4H_EXT</i> (Extensibility) <i>S4H_EWM_DEM</i> (Warehouse Management) <i>S4H_DDR_DEM</i> (Demand-Driven Replenishment) <i>S4H_PPM...</i> (Portfolio & Project Management)

Client	Business Content	Sample users (password <i>Welcome1</i> if not noted otherwise)
	<p>The users <i>S4H_<area>_DEM</i> (e.g. <i>S4H_FIN_DEM</i>) have a restricted set of roles and Fiori apps assigned for the respective area, and should be primarily used for the suggested demo walkthroughs.</p> <p>The users <i>S4H_<area></i> (e.g. <i>S4H_FIN</i>) have the complete set of roles and Fiori apps for the respective area assigned (based on our assessment in the context of the appliance). These users will have significantly longer loading times in the Fiori launchpad, and should be used primarily to get an overview of interesting roles/apps, and to serve as template for your own user creation in transaction SU01.</p>	<ul style="list-style-type: none"> • <i>S4H_TM_DEM</i> (Transportation Management) • <i>S4H_PAI</i> (Predictive Analytics) • <i>S4H_MG</i> (Data Migration) • <i>SERV_EMPL / SERV_MAN / SLS_MAN / IC_AGENT_SRV</i> (SAP S/4HANA Service) • <i>MDG_...</i> (Master Data Governance) • <i>S4H_HCM_...</i> (Human Capital Management) • <i>FIORADMIN</i> (Fiori customizing & roles) • <i>BPINST</i> (Generic user. Caution: very long loading times in Fiori Launchpad)
200 Ready-to-Activate client (white list)	<ul style="list-style-type: none"> • Ready-to-Activate client with all pre-activation preparation activities executed 	<i>BPINST / DDIC / SAP*</i>
400 SAP Best Practices reference client (white-list)	<ul style="list-style-type: none"> • Pre-activated SAP Best Practices for SAP S/4HANA 2020 without transactional data • Based on the merged-client approach 	<i>BPINST / DDIC / SAP*</i>

All above users have the default password *Welcome1* if not indicated otherwise.

2.4.1.2 Administrative data & users for SAP S/4HANA

Connect to SAP S4H using the information in the table below (URLs with the host name *vhcal...* require hosts file mapping before, see chapter 2.3).

Name	Value	Description
SID	S4H	System ID of the SAP system
Instance Number	00	The instance number of the central instance (CI)

Name	Value	Description
Clients	See section 1.4	These are the pre-configured clients, see section “Business Scenarios & Localizations” for details
Password for users DDIC & SAP*	<Master Password> in client 000. Welcome1 in other clients	The master password is the password that you chose in the SAP Cloud Appliance Library when creating the instance.
ABAP administrator	s4hadm / <Master Password>	Additional user for ABAP lifecycle management – start/stop, administration,
SAP Web Dispatcher administrator	webadm / VA1MPwd_ or bpinst / Welcome1	Access to Web Dispatcher console: https://vhcals4hcs.dummy.nodomain:44301/sap/admin/public/default.html bpinst is case sensitive.
Technical user for HANA DB connectivity (schema user)	SAPHANADB / <Master Password>	See tCode <i>DBACOCKPIT</i> → <i>System Landscape</i> → <i>Database Connections</i> for additional usage of the SAPHANADB user
SAP Cloud Connector	Administrator / manage	Initial credentials for the integrated SAP Cloud Connector (access via https://vhcals4hcs,dummy.nodomain:8443)

2.4.2 SAP HANA DB server

Two database entities are relevant for the appliance:

The tenant database (for storing the S/4HANA data) and the system database (for general data and settings e.g. maintaining the license key for SAP HANA).

An entry for both is pre-configured in the HANA Studio on the remote desktop but you can also add entries in your local HANA Studio.

Tenant database (use Single Container when adding it to your local HANA Studio)

Name	Value	Description
HANA DB system	HDB	System ID of the HANA DB
HANA DB Instance Number	02	Instance number of HANA DB
HANA SYSTEM user name	SYSTEM / <Master Password>	Standard HANA system user

Name	Value	Description
HANA administrator name	hdbadm / <Master Password>	Additional user for HANA lifecycle management – start/stop, administration functions, recovery.
Generic HANA DB user	BPINST / Welcome1	Generic user that can be used to access HANA DB
Technical S/4HANA user	SAPHANADB / <Master Password>	Technical user for accessing HANA from the S/4HANA server. Defined in /nDBACOCKPIT; HANA schema SAPHANADB contains the S/4HANA data

System database (use *Multiple Containers* → *System DB* when adding it to your local HANA Studio, needed e.g. for applying your own HANA DB license key)

Name	Value	Description
HANA DB system	SYSTEMDB	System ID of the HANA DB
HANA DB Instance Number	02	Instance number of HANA DB
HANA SYSTEM user name	SYSTEM / <Master Password>	Standard HANA system user
HANA administrator name	hdbadm / <Master Password>	Additional user for HANA lifecycle management – start/stop, administration functions, recovery.
Generic HANA DB user	BPINST / Welcome1	Generic user that can be used to access HANA DB

2.4.3 Java Application Server

Name	Value	Description
ASE administrator name	sybadm / <Master Password>	Additional user for Sybase ASE lifecycle management – start/stop, administration.
JAVA administrator name	Administrator / <Master Password>	Additional user for JAVA lifecycle management – start/stop, administration, functions, recovery. Access to SAP NetWeaver Administrator: https://vhcalj2eci.dummy.nodomain:50001/nwa
Additional JAVA user	BPINST / Welcome1	Generic user in case other users are locked

2.4.4 SAP BusinessObjects BI platform

Parameter ID	Parameter Value	Note
Administrator name	Administrator / Welcome1	Use for all administrative functions of the BI platform e.g. in CMC
BI Power User	BPINST / Welcome1	Use for BI Launchpad
SQL Anywhere DB user	dba / ApplIance	Use to log on to the DB of the BI platform on Linux backend stored under /data/bobj/sqlanywhere/database
BI Platform Linux backend user	bipadm / <Master Password>	

In the logon screen (<http://bihost:8080/BOE/BI>), use *bihost:6400* as system and Enterprise authentication. Usage of the *bihost* alias requires local host file mapping when using local PC access (see section 2.3). The Windows remote desktop has the mapping pre-configured.

2.4.5 Windows Frontend Server Details

Connect to the Frontend server using the information in the table below.

SAP does not provide a separate MS Windows Terminal Server license as part of the appliance; hence, you can connect with a maximum of two concurrent users (with different user IDs) at the same time. The *Administrator* account is pre-configured, and you may create additional user IDs in the local user administration of the remote desktop if needed.

If you want to use the remote desktop with larger user numbers, please apply your own MS Terminal Server license to the remote desktop and potentially choose a larger sizing for the RDP in the CAL console.

Name	Value	Description
IP Address	<IP Address>	The IP address of your frontend server instance you created in SAP CAL (use the "external" IP address)
User	Administrator / <Master Password>	User for the Windows frontend server. This is a local user on the remote desktop. Only one Administrator user can logon to the front-end server at the same point in time.

A note on browsers:

Google Chrome and Firefox are pre-installed on the Remote Desktop. In the Fiori launchpad, you might find slightly different rendering behaviors depending on the browser version. If you encounter rendering problems, please search for SAP Notes how to potentially fix them.

If you want to access the Fiori Launchpad with a local browser, please be sure to map your local host file as described in section 2.3 of this document or on <https://www.sap.com/cmp/oth/crm-s4hana/s4hana-on->

[premise.html](#) → *Quick Start Guide* since otherwise some Fiori applications (e.g. WebGUI or Web Dynpro) will not work correctly.

2.4.6 Accessing Your Instance on Linux Level

You can access the Linux backend system of your appliance (ABAP / JAVA / BI) as *root* using secure SSH tools, e.g. PuTTY

For information how to access a solution on OS level, go to [this FAQ page](#) and look under the question: How to connect to a running instance via the secure shell protocol (SSH)?

Parameter ID	Parameter Value	Note
OS User Name	root	The default Linux administrator user
OS Password	<none>	Use the generated private key with SSH tools

Note:

You must use the private key (file format .pem) that was generated in the last step of the Create Instance wizard from SAP Cloud Appliance Library. During the creation, you were asked to either store the key file attached to your instance within SAP CAL or download it to a local secure file share on your computer.

2.5 Optional: Get your own fully-qualified domain name & SSL certificate

The SAP S/4HANA Fully-Activated Appliance by default contains these two settings:

- A dummy domain name for Fiori access (*.dummy.nodomain)
- A certificate self-signed by SAP (issuer cal.dummy.nodomain)

Depending on network setup and end-user authorizations, these settings may cause problems:

- Business users need to change the */etc/hosts* file with administrator rights on their PC (often not allowed)
- The corporate proxy or the end-user web browser might generally not trust self-signed certificates and bounces them back
- Inbound connectivity into the S/4HANA system (e.g. from SAP Analytics Cloud) is not trusted due to a self-signed certificate

On the [demo guide blog of the appliance](#), you can find a technical guide how to enable this for your system.

The Fiori domain name change requires on SAP GUI access, and will take ~ 15 minutes.

The SSL certificate requires access to the Linux OS and basic Linux skills, and will take ~ 45 minutes.

Please be aware that the mentioned guide is meant to provide a quick workaround and might not comply with the security recommendations that are issued by SAP in general.

3 Licenses & Fees

SAP CAL is a platform for quickly using SAP on-premise software products in a hyperscaler environment. Therefore, three separate license / cost factors need to be considered, each depending on the duration that your system should be used:

- a) the SAP on-premise product (e.g. SAP S/4HANA)
- b) SAP Cloud Appliance Library
- c) the chosen cloud provider

This table gives an overview about the different aspects. Details are mentioned in the paragraphs afterwards. The third column in the table below (on-premise installation) is an alternative to SAP CAL and not covered in detail in this document (please see SAP Note [2041140](#) for details).

SAP S/4HANA 2020 FPS01 Fully-Activated Appliance: Fees, licenses, and support for the different channels

	SAP CAL 30-day trial	SAP CAL >30 days	On-Premise installation
SAP S/4HANA licenses ?	No Covered by web-based terms & conditions form on cal.sap.com	Yes Bring your own (trial) licenses. Appliance has 90-day temporary license key as courtesy.	Yes Bring your own (trial) licenses. Appliance has 90-day temporary license key as courtesy.
SAP CAL license ?	No Covered by web-based terms & conditions form on cal.sap.com	Yes Monthly CAL subscription is needed (see overview or buy directly in SAP Store)	No
Hosting fees ?	Yes Hosting provider will charge you	Yes Hosting provider will charge you	No
Server hardware costs ?	No	No	Yes Hardware (x86_64) with Linux OS needed
Support ?	SAP community	SAP Incident (BC-VCM-CAL)	SAP Incident (BC-VCM-CAL)

Supported hosting providers as of December 2020 are Amazon Web Services (AWS), Microsoft Azure, Google Cloud Platform (GCP)

Needed S/4HANA licenses
(as of January 2021)

CAL >30 days:
S/4HANA Enterprise, HANA runtime, Sybase ASE

On-premise:
Additional licenses needed (for S/4 engines and further add-on product components), see SAP Note [2041140](#)

Get missing (trial) licenses via

- SAP Account Executive
- [SAP Store](#) (customer self-service)

SAP Partners:
S/4HANA TD / DEV licenses are sufficient

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3.1 First 30 days: Running your system instance as trial

In the first 30 days, the SAP license fees (CAL & S/4HANA) are waived. During this period, you only need to bear the hosting fees of your cloud provider.

The 30-day period starts when you accept the form for the trial agreement in the CAL console (after clicking on "Create Instance").

During the instantiation, the S/4HANA system will generate a temporary license key that is enough for exploration purposes.

3.2 Beyond 30 days: Running your instance with SAP licenses

If you want to use an appliance beyond the 30-day trial period (i.e. [unlock the solution in SAP CAL](#)), you need to obtain two SAP licenses:

1. The SAP Cloud Appliance Library (SAP CAL) subscription
2. The SAP product licenses for the product(s) that are bundled within your appliance

The validity of these licenses will be automatically checked after the first 30 days. In case of a missing license component an error message will be displayed in the SAP CAL console and the respective solution will stay in status "Suspended".

The cloud provider fees will stay the same as during the first 30 days.

You can continue to use a trial instance from the first 30 days under these conditions, all your changes in that instance will be preserved once you unlock the solution.

3.2.1 SAP CAL subscription

You can purchase the subscription package via the SAP Store on <https://www.sapstore.com/solutions/99007/SAP-Cloud-Appliance-Library>.

The minimum subscription is 3 months for one instance (i.e. you can have exactly one instance active at a time during these 3 months). You can also choose longer subscription periods and higher instance numbers (i.e. you can activate multiple solutions in parallel).

In the SAP Store, you will need an S-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 instance is not possible. In case these two users do not belong to the same organization, please see [this blog](#) how to resolve this.

3.2.2 SAP product licenses

3.2.2.1 SAP S/4HANA Enterprise Mgmt. & SAP HANA DB

To use an instance 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 instance 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 instance creation, the system will stop working without these technical license keys (see the next chapter for details).

Note:

The following separately licensed SAP S/4HANA capabilities are also configured and described in the pre-configured demo scenarios of the appliance. These capabilities will technically work in your instance without entering dedicated license keys for them, however, they might not be part of your customer-specific license agreement for implementation / production systems.

- SAP S/4HANA Finance for cash mgmt.
- SAP S/4HANA Finance for receivables mgmt.
- SAP S/4HANA for advanced compliance reporting
- SAP Business Planning and Consolidation, add-on for S/4HANA
- SAP S/4HANA for extended planning
- SAP S/4HANA Advanced Available-to-Promise
- SAP S/4HANA for Advanced Variant Configuration, standard
- SAP Portfolio and Project Management for SAP S/4HANA professional
- SAP Enterprise Master Data Governance for SAP S/4HANA

3.2.2.2 Optional: SAP BusinessObjects BI Platform licenses

If you chose to use the optional SAP BusinessObjects Platform in your system instance, the temporary license key for BI will be valid for 30 days. It needs to be replaced by your own permanent key for the BI platform after that time if you want the BI platform to work.

If you don't apply a permanent license key, the BI platform cannot be used anymore.

The other instance components (S/4HANA etc.) will not be affected and can be used even without the BI platform.

3.3 Beyond 90 days: License key installation required

Latest 90 days after instance creation (but better directly after unlocking the solution in CAL after 30 days), you need to apply a valid license key to the system components.

- SAP S/4HANA
- SAP HANA database
- SAP NetWeaver J2EE platform
- Optional: SAP BusinessObjects BI platform

The first three are part of the SAP S/4HANA license; the BI platform needs to be licensed separately.

To get license keys for your system components, you first need to register them as a customer installation (see <https://support.sap.com/en/my-support/systems-installations.html>).

Afterwards you can request license keys via the SAP license key application (<https://support.sap.com/licensekey>).

During the license key generation, you will be asked for certain parameters (hardware keys and other system properties). The table below has the details.

For S/4HANA and JAVA, you can also choose to generate a *"Maintenance Certificate"* together with the license key. The Maintenance Certificate is valid for 3 months and only needed for advanced system operations e.g. the installation of add-ons or support packages. It doesn't affect the system in general so you can decide whether to take it or not. More details are [here](#).

For more information about how to generate and install product license keys, please see:

- [This blog](#) for an overview
- [Step-by-step video](#) (using an SAP-internal license key but the principle is the same for customers & partners)

SID	Product	Version	DB	OS	Comment	Where to get the hardware key and apply the license key
HDB	SAP HANA, platform edition	SAP HANA 2.0, platform edition	-	Linux	License type: SAP In-memory Appliance platform Quantity: 256 GB Memory Volume	HANA Studio: log on to system DB with SYSTEM user; <i>right-click on system</i> → <i>Properties</i> → <i>Licenses</i> . HANA Studio on remote desktop has pre-configured entry for system DB. In a local HANA Studio use host name vhcaldhdb or IP address of ABAP/JAVA VM; instance number 02; multiple containers > system database.
S4H	SAP S/4HANA	SAP S/4HANA 2020	SAP HANA database	Linux	N/A	Log on to S/4HANA with SAP GUI and use tCode <code>/nSLICENSE</code>
J2E	SAP NetWeaver	SAP NetWeaver 7.5	Sybase ASE	Linux	As license type, select 'J2EE - Web AS JAVA'	https://vhcalj2eci.dummy.nodomain:50001/nwa with Administrator user → <i>Configuration</i> → <i>Infrastructure</i> → <i>Licenses</i> .

SID	Product	Version	DB	OS	Comment	Where to get the hardware key and apply the license key
BIP	Optional: SAP BusinessObjects Business Intelligence platform	SAP BusinessObj ects Business Intelligence platform 4.2	-	Linux	Material: Choose SAP BO BI Platform (with fitting license KPI e.g. concurrent sessions CS,...) and version XI 4.2	BOE CMC (http://bihost:8080/BOE/CMC) → Licenses

Note to SAP employees:

You can generate SAP-internal license keys (18 months validity) directly in the [license key application](#) without having to register your system (just enter the hardware key and the needed parameters).

3.3.1 What to do if your temporary license key has expired

If you missed to install your own permanent license key before the temporary 90-day key has expired, your system will stop working, hence, if you experience connectivity errors roughly three months after the instance creation think of an expired license key in the first place.

The procedure is now a bit more difficult since you need to get to a fully-licensed HANA DB first before you can install the S/4 license key, therefore follow these steps:

1. Apply the HANA DB license key as described above. When you log on to the HANA system DB with the SYSTEM user, you will only have limited options (incl. some warning messages) but the license key installation works as usual.
2. Restart the S/4HANA ABAP system. The easiest way is to use the `Reboot` button in the CAL console but you can also do it on Linux OS level with the `sapcontrol` command.
3. When the S/4 instance is active again, apply the license key to S/4HANA as described above. You need to do this in client 000 with the user **SAP*** / **<Master_Password>**. Afterwards, HANA and S/4HANA should run as before.
4. Apply the JAVA server license key as described above within 30 minutes after a re-boot or activation of the instance. After this period, the JAVA server will go down until the next reboot / re-activation.
5. For SAP BusinessObjects (temporary license key expires after 30 days), apply the license key as described above (no special considerations).

4 Security Aspects in SAP CAL

4.1 Internet ports for accessing your system

By default, the following ports are opened for your solution instance (i.e. this is the inbound firewall of your cloud provider). The access from your local computer to your system instance happens via those ports (see 'Description' what port is used where).

Please make sure that your outbound firewall (e.g. if you are behind a corporate firewall) allows access through the needed ports as well. If you encounter problems behind a firewall, a good test is to use a public network (e.g. from home) or test access via the delivered remote desktop – assuming you can access the remote desktop via port 3389.

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

Virtual Machine*	Protocol	Port (open by default)	Description
ABAP	SSH	22	Used for secure connection to Linux-based server operating system
ABAP	HTTPS	44301, 44300	Used for access of a local web browser to appliance (Fiori etc.). 44301 via Web Dispatcher, 44300 via ABAP ICM directly
ABAP	HTTP	50000	Standard HTTP port for ABAP
ABAP	HTTPS	8443	Access to integrated Cloud Connector
ABAP	SAP GUI	3200	Used for access of local SAP GUI to appliance
ABAP	TCP	3300	Used for connection of ABAP Development Tools (Eclipse-based) to SAP S/4HANA ABAP repository & RFC calls to other systems if intended
ABAP	TCP	30213 / 30215	Used for connection of SAP HANA Studio to HANA DB
JAVA	SSH	22	SSH connection to Linux operating system (e.g. for PuTTY)
JAVA	HTTPS	50001	Used for access to SAP NetWeaver Administrator and other web-based J2EE applications
BIP	SSH	22	Used for secure connection to Linux-based server operating system
BIP	HTTP	8080 & 6400	Used for HTTP connection to BI platform
WIN	RDP	3389	Used for access from MS Windows remote desktop connection

* ABAP = SAP S/4HANA & SAP HANA DB;

JAVA = SAP NetWeaver 7.50 AS JAVA incl. ADS (Adobe Document Service)

BIP = SAP BusinessObjects BI Platform 4.2

WIN = MS Windows Remote Desktop

4.2 Network security considerations

Be aware that creating your instances in the public zone of your cloud provider (i.e. the “open Internet”) is convenient but less secure than providing it within your corporate network.

If you want to tighten the security, open as few ports as really needed for your scenario.

In addition, we also recommend that you limit the access to your instances by defining a whitelisted IP range of IP addresses that may access your solution (e.g. the subnet of your company). With this, only computers within the white-listed IP range can access your system via the specific port. You can maintain the IP Range settings in the CAL console → *Edit* → *Virtual Machine* → *Access Points.*, using [CIDR notation](#).

The more complex but also more secure alternative to public Internet is to set up a virtual private cloud (VPC) with VPN access (e.g. described in [this tutorial](#) or in your standard cloud provider documentation).

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

4.3 ABAP user roles and profiles

The ABAP business users listed in chapter 2 have a large set of roles and extensive authorizations (including the SAP_ALL profile).

If you plan to release the appliance to a larger set of users (especially in the Internet scenario), it is advised to restrict/lock the access with these users (or change the initial passwords) and create your own users with fitting roles and authorizations.

This can be done using the standard user management capabilities (e.g. tCode SU01, etc.).

Please also note that the user BPINST is used in various RFC connections (tCode SM59) with its fixed password. If you lock the BPINST user or change its password, please also adapt these connections accordingly.

4.4 Certificates

The appliance comes with a certificate that was self-signed by SAP. Most local browsers will issue a warning message that such a certificate is untrusted, and you will need to add the affected URLs (Fiori launchpad and others) to the list of trusted sites once.

Hence, if you see messages about unsafe connections, untrusted certificates, etc., please click on “Proceed” or “I know the risk”, etc. (the screens and needed clicks will vary depending on the browser).

As an alternative, you can also apply your own trusted certificate to the system (using tCode STRUST, etc.).

The above-mentioned [sample demo walkthrough site](#) provides a technical demo guide for installing a free 90-day Let's Encrypt certificate.

On the delivered remote desktop, the self-signed certificate has already been imported into the store with trusted certificates, and you will not see a warning if you access the Fiori launchpad. The web sites of the J2EE server or the SAP Cloud Connector will still display warnings, please acknowledge the risk and continue as outlined above.

5 Solution Provisioning in SAP Cloud Appliance Library

If you have a user in SAP Cloud Appliance Library, you need to meet the following prerequisites before starting to use the SAP Cloud Appliance library:


Cloud Provider Configurations

You have a valid account in one of the cloud providers supported by SAP Cloud Appliance Library. 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](#) or this [YouTube playlist](#).

Navigate to SAP Cloud Appliance Library

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

For more information about how to use solutions in SAP Cloud Appliance Library, see the official documentation of SAP Cloud Appliance Library (choose [Support](#) → [Documentation](#) link and choose  (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.

6 Appendix

6.1 Installed Technical Component Details

6.1.1 SAP ABAP application server 7.55 with SAP S/4HANA 2020 FPS01 & SAP HANA DB 2.0.54

Component	Release	SP-Level	Support Package	Short Description of Component
SAP_BASIS	755	0001	SAPK-75501INSAPBASIS	SAP Basis Component
SAP_ABA	75F	0001	SAPK-75F01INSAPABA	Cross-Application Component
SAP_GWFND	755	0001	SAPK-75501INSAPGWFND	SAP Gateway Foundation
SAP_UI	755	0002	SAPK-75502INSAPUI	User Interface Technology
ST-PI	740	0014	SAPK-74014INSTPI	SAP Solution Tools Plug-In
SAP_BW	755	0001	SAPK-75501INSAPBW	SAP Business Warehouse
UIBAS001	600	0001	SAPK-60001INUIBAS001	UI for Basis Applications 6.0
MDG_FND	805	0001	SAPK-80501INMDGFND	MDG Foundation
S4FND	105	0001	SAPK-10501INS4FND	Foundation
MDG_APPL	805	0001	SAPK-80501INMDGAPPL	MDG Applications
S4CEXT	105	0001	SAPK-10501INS4CEXT	S4CEXT
S4CORE	105	0001	SAPK-10501INS4CORE	S4CORE
S4CRM	205	0001	SAPK-20501INS4CRM	S4CRM
SAP_HR	608	0087	SAPKE60887	Human Resources
SAP_HRCAE	608	0087	SAPK-60887INSAPHRCAE	Subcomponent SAP_HRCAE of SAP_HR
SAP_HRCAR	608	0087	SAPK-60887INSAPHRCAR	Subcomponent SAP_HRCAR of SAP_HR
SAP_HRCAT	608	0087	SAPK-60887INSAPHRCAT	Subcomponent SAP_HRCAT of SAP_HR
SAP_HRCAU	608	0087	SAPK-60887INSAPHRCAU	Subcomponent SAP_HRCAU of SAP_HR
SAP_HRCBE	608	0087	SAPK-60887INSAPHRCBE	Subcomponent SAP_HRCBE of SAP_HR
SAP_HRCBG	608	0087	SAPK-60887INSAPHRCBG	Subcomponent SAP_HRCBG of SAP_HR

Component	Release	SP-Level	Support Package	Short Description of Component
SAP_HRCBR	608	0087	SAPK-60887INSAPHRCBR	Subcomponent SAP_HRCBR of SAP_HR
SAP_HRCCA	608	0087	SAPK-60887INSAPHRCCA	Subcomponent SAP_HRCCA of SAP_HR
SAP_HRCCH	608	0087	SAPK-60887INSAPHRCCH	Subcomponent SAP_HRCCH of SAP_HR
SAP_HRCCL	608	0087	SAPK-60887INSAPHRCCL	Subcomponent SAP_HRCCL of SAP_HR
SAP_HRCCN	608	0087	SAPK-60887INSAPHRCCN	Subcomponent SAP_HRCCN of SAP_HR
SAP_HRCCO	608	0087	SAPK-60887INSAPHRCCO	Subcomponent SAP_HRCCO of SAP_HR
SAP_HRCCZ	608	0087	SAPK-60887INSAPHRCCZ	Subcomponent SAP_HRCCZ of SAP_HR
SAP_HRCDE	608	0087	SAPK-60887INSAPHRCDE	Subcomponent SAP_HRCDE of SAP_HR
SAP_HRCDK	608	0087	SAPK-60887INSAPHRCDK	Subcomponent SAP_HRCDK of SAP_HR
SAP_HRCEG	608	0087	SAPK-60887INSAPHRCEG	Subcomponent SAP_HRCEG of SAP_HR
SAP_HRCES	608	0087	SAPK-60887INSAPHRCES	Subcomponent SAP_HRCES of SAP_HR
SAP_HRCFI	608	0087	SAPK-60887INSAPHRCFI	Subcomponent SAP_HRCFI of SAP_HR
SAP_HRCFR	608	0087	SAPK-60887INSAPHRCFR	Subcomponent SAP_HRCFR of SAP_HR
SAP_HRCGB	608	0087	SAPK-60887INSAPHRCGB	Subcomponent SAP_HRCGB of SAP_HR
SAP_HRCGR	608	0087	SAPK-60887INSAPHRCGR	Subcomponent SAP_HRCGR of SAP_HR
SAP_HRCHK	608	0087	SAPK-60887INSAPHRCHK	Subcomponent SAP_HRCHK of SAP_HR
SAP_HRCHR	608	0087	SAPK-60887INSAPHRCHR	Subcomponent SAP_HRCHR of SAP_HR
SAP_HRCHU	608	0087	SAPK-60887INSAPHRCHU	Subcomponent SAP_HRCHU of SAP_HR
SAP_HRCID	608	0087	SAPK-60887INSAPHRCID	Subcomponent SAP_HRCID of SAP_HR
SAP_HRCIE	608	0087	SAPK-60887INSAPHRCIE	Subcomponent SAP_HRCIE of SAP_HR
SAP_HRCIN	608	0087	SAPK-60887INSAPHRCIN	Subcomponent SAP_HRCIN of SAP_HR
SAP_HRCIT	608	0087	SAPK-60887INSAPHRCIT	Subcomponent SAP_HRCIT of SAP_HR
SAP_HRCJP	608	0087	SAPK-60887INSAPHRCJP	Subcomponent SAP_HRCJP of SAP_HR
SAP_HRCKR	608	0087	SAPK-60887INSAPHRCKR	Subcomponent SAP_HRCKR of SAP_HR
SAP_HRCKW	608	0087	SAPK-60887INSAPHRCKW	Subcomponent SAP_HRCKW of SAP_HR
SAP_HRCKZ	608	0087	SAPK-60887INSAPHRCKZ	Subcomponent SAP_HRCKZ of SAP_HR

Component	Release	SP-Level	Support Package	Short Description of Component
SAP_HRCMX	608	0087	SAPK-60887INSAPHRCMX	Subcomponent SAP_HRCMX of SAP_HR
SAP_HRCMY	608	0087	SAPK-60887INSAPHRCMY	Subcomponent SAP_HRCMY of SAP_HR
SAP_HRCNL	608	0087	SAPK-60887INSAPHRCNL	Subcomponent SAP_HRCNL of SAP_HR
SAP_HRCNO	608	0087	SAPK-60887INSAPHRCNO	Subcomponent SAP_HRCNO of SAP_HR
SAP_HRCNZ	608	0087	SAPK-60887INSAPHRCNZ	Subcomponent SAP_HRCNZ of SAP_HR
SAP_HRCOM	608	0087	SAPK-60887INSAPHRCOM	Subcomponent SAP_HRCOM of SAP_HR
SAP_HRCPH	608	0087	SAPK-60887INSAPHRCPH	Subcomponent SAP_HRCPH of SAP_HR
SAP_HRCPL	608	0087	SAPK-60887INSAPHRCPL	Subcomponent SAP_HRCPL of SAP_HR
SAP_HRCPT	608	0087	SAPK-60887INSAPHRCPT	Subcomponent SAP_HRCPT of SAP_HR
SAP_HRCQA	608	0087	SAPK-60887INSAPHRCQA	Subcomponent SAP_HRCQA of SAP_HR
SAP_HRCRO	608	0087	SAPK-60887INSAPHRCRO	Subcomponent SAP_HRCRO of SAP_HR
SAP_HRCRU	608	0087	SAPK-60887INSAPHRCRU	Subcomponent SAP_HRCRU of SAP_HR
SAP_HRCSA	608	0087	SAPK-60887INSAPHRCSA	Subcomponent SAP_HRCSA of SAP_HR
SAP_HRCSE	608	0087	SAPK-60887INSAPHRCSE	Subcomponent SAP_HRCSE of SAP_HR
SAP_HRCSG	608	0087	SAPK-60887INSAPHRCSG	Subcomponent SAP_HRCSG of SAP_HR
SAP_HRCSE	608	0087	SAPK-60887INSAPHRCSE	Subcomponent SAP_HRCSE of SAP_HR
SAP_HRCST	608	0087	SAPK-60887INSAPHRCST	Subcomponent SAP_HRCST of SAP_HR
SAP_HRCST	608	0087	SAPK-60887INSAPHRCST	Subcomponent SAP_HRCST of SAP_HR
SAP_HRCTH	608	0087	SAPK-60887INSAPHRCTH	Subcomponent SAP_HRCTH of SAP_HR
SAP_HRCTR	608	0087	SAPK-60887INSAPHRCTR	Subcomponent SAP_HRCTR of SAP_HR
SAP_HRCTW	608	0087	SAPK-60887INSAPHRCTW	Subcomponent SAP_HRCTW of SAP_HR
SAP_HRCUA	608	0087	SAPK-60887INSAPHRUA	Subcomponent SAP_HRCUA of SAP_HR
SAP_HRCUN	608	0087	SAPK-60887INSAPHRUN	Subcomponent SAP_HRCUN of SAP_HR
SAP_HRCUS	608	0087	SAPK-60887INSAPHRUS	Subcomponent SAP_HRCUS of SAP_HR
SAP_HRCVE	608	0087	SAPK-60887INSAPHRVE	Subcomponent SAP_HRCVE of SAP_HR
SAP_HRCZA	608	0087	SAPK-60887INSAPHRZA	Subcomponent SAP_HRCZA of SAP_HR
SAP_HRGXX	608	0087	SAPK-60887INSAPHRGXX	Subcomponent SAP_HRGXX of SAP_HR

Component	Release	SP-Level	Support Package	Short Description of Component
SAP_HRRXX	608	0087	SAPK-60887INSAPHRRXX	Subcomponent SAP_HRRXX of SAP_HR
EA-DFPS	805	0001	SAPK-80501INEADFPS	SAP Enterprise Extension Defense Forces & Public Security
EA-HR	608	0087	SAPK-60887INEAHR	SAP Enterprise Extension HR
EA-HRCAE	608	0087	SAPK-60887INEHRCAE	Subcomponent EA-HRCAE of EA-HR
EA-HRCAR	608	0087	SAPK-60887INEHRCAR	Subcomponent EA-HRCAR of EA-HR
EA-HRCAT	608	0087	SAPK-60887INEHRCAT	Subcomponent EA-HRCAT of EA-HR
EA-HRCAU	608	0087	SAPK-60887INEHRCAU	Subcomponent EA-HRCAU of EA-HR
EA-HRCBE	608	0087	SAPK-60887INEHRCBE	Subcomponent EA-HRCBE of EA-HR
EA-HRCBG	608	0087	SAPK-60887INEHRCBG	Subcomponent EA-HRCBG of EA-HR
EA-HRCBR	608	0087	SAPK-60887INEHRCBR	Subcomponent EA-HRCBR of EA-HR
EA-HRCCA	608	0087	SAPK-60887INEHRCCA	Subcomponent EA-HRCCA of EA-HR
EA-HRCCH	608	0087	SAPK-60887INEHRCCH	Subcomponent EA-HRCCH of EA-HR
EA-HRCCL	608	0087	SAPK-60887INEHRCCL	Subcomponent EA-HRCCL of EA-HR
EA-HRCCN	608	0087	SAPK-60887INEHRCCN	Subcomponent EA-HRCCN of EA-HR
EA-HRCCO	608	0087	SAPK-60887INEHRCCO	Subcomponent EA-HRCCO of EA-HR
EA-HRCCZ	608	0087	SAPK-60887INEHRCCZ	Subcomponent EA-HRCCZ of EA-HR
EA-HRCDE	608	0087	SAPK-60887INEHRCDE	Subcomponent EA-HRCDE of EA-HR
EA-HRCDK	608	0087	SAPK-60887INEHRCDK	Subcomponent EA-HRCDK of EA-HR
EA-HRCEG	608	0087	SAPK-60887INEHRCEG	Sub component EA-HRCEG of EA-HR
EA-HRCES	608	0087	SAPK-60887INEHRCES	Subcomponent EA-HRCES of EA-HR
EA-HRCFI	608	0087	SAPK-60887INEHRCFI	Subcomponent EA-HRCFI of EA-HR
EA-HRCFR	608	0087	SAPK-60887INEHRCFR	Subcomponent EA-HRCFR of EA-HR
EA-HRCGB	608	0087	SAPK-60887INEHRCGB	Subcomponent EA-HRCGB of EA-HR
EA-HRCGR	608	0087	SAPK-60887INEHRCGR	Subcomponent EA-HRCGR of EA-HR
EA-HRCHK	608	0087	SAPK-60887INEHRCHK	Subcomponent EA-HRCHK of EA-HR
EA-HRCHR	608	0087	SAPK-60887INEHRCHR	Subcomponent EA-HRCHR of EA-HR

Component	Release	SP-Level	Support Package	Short Description of Component
EA-HRCHU	608	0087	SAPK-60887INEAHRCHU	Subcomponent EA-HRCHU of EA-HR
EA-HRCID	608	0087	SAPK-60887INEAHRCID	Subcomponent EA-HRCID of EA-HR
EA-HRCIE	608	0087	SAPK-60887INEAHRCIE	Subcomponent EA-HRCIE of EA-HR
EA-HRCIN	608	0087	SAPK-60887INEAHRCIN	Subcomponent EA-HRCIN of EA-HR
EA-HRCIT	608	0087	SAPK-60887INEAHRCIT	Subcomponent EA-HRCIT of EA-HR
EA-HRCJP	608	0087	SAPK-60887INEAHRCJP	Subcomponent EA-HRCJP of EA-HR
EA-HRCKR	608	0087	SAPK-60887INEAHRCKR	Subcomponent EA-HRCKR of EA-HR
EA-HRCKW	608	0087	SAPK-60887INEAHRCKW	Subcomponent EA-HRCKW of EA-HR
EA-HRCKZ	608	0087	SAPK-60887INEAHRCKZ	Subcomponent EA-HRCKZ of EA-HR
EA-HRCMX	608	0087	SAPK-60887INEAHRCMX	Subcomponent EA-HRCMX of EA-HR
EA-HRCMY	608	0087	SAPK-60887INEAHRCMY	Subcomponent EA-HRCMY of EA-HR
EA-HRCNL	608	0087	SAPK-60887INEAHRCNL	Subcomponent EA-HRCNL of EA-HR
EA-HRCNO	608	0087	SAPK-60887INEAHRCNO	Subcomponent EA-HRCNO of EA-HR
EA-HRCNZ	608	0087	SAPK-60887INEAHRCNZ	Subcomponent EA-HRCNZ of EA-HR
EA-HRCOM	608	0087	SAPK-60887INEAHRCOM	Subcomponent EA-HRCOM of EA-HR
EA-HRCPH	608	0087	SAPK-60887INEAHRCPH	Subcomponent EA-HRCPH of EA-HR
EA-HRCPL	608	0087	SAPK-60887INEAHRCPPL	Subcomponent EA-HRCPL of EA-HR
EA-HRCPT	608	0087	SAPK-60887INEAHRCPPT	Subcomponent EA-HRCPT of EA-HR
EA-HRCQA	608	0087	SAPK-60887INEAHRCQA	Subcomponent EA-HRCQA of EA-HR
EA-HRCRO	608	0087	SAPK-60887INEAHRCRO	Subcomponent EA-HRCRO of EA-HR
EA-HRCRU	608	0087	SAPK-60887INEAHRCRU	Subcomponent EA-HRCRU of EA-HR
EA-HRCSA	608	0087	SAPK-60887INEAHRCSA	Subcomponent EA-HRCSA of EA-HR
EA-HRCSE	608	0087	SAPK-60887INEAHRCSE	Subcomponent EA-HRCSE of EA-HR
EA-HRCSG	608	0087	SAPK-60887INEAHRCSG	Subcomponent EA-HRCSG of EA-HR
EA-HRCSI	608	0087	SAPK-60887INEAHRCSI	Subcomponent EA-HRCSI of EA-HR
EA-HRCSK	608	0087	SAPK-60887INEAHRCSK	Subcomponent EA-HRCSK of EA-HR

Component	Release	SP-Level	Support Package	Short Description of Component
EA-HRCTH	608	0087	SAPK-60887INEAHRCTH	Subcomponent EA-HRCTH of EA-HR
EA-HRCTR	608	0087	SAPK-60887INEAHRCTR	Subcomponent EA-HRCTR of EA-HR
EA-HRCTW	608	0087	SAPK-60887INEAHRCTW	Subcomponent EA-HRCTW of EA-HR
EA-HRCUA	608	0087	SAPK-60887INEAHRCUA	Subcomponent EA-HRCUA of EA-HR
EA-HRCUN	608	0087	SAPK-60887INEAHRGUN	Subcomponent EA-HRCUN of EA-HR
EA-HRCUS	608	0087	SAPK-60887INEAHRCUS	Subcomponent EA-HRCUS of EA-HR
EA-HRCVE	608	0087	SAPK-60887INEAHRCVE	Subcomponent EA-HRCVE of EA-HR
EA-HRCZA	608	0087	SAPK-60887INEAHRCZA	Subcomponent EA-HRCZA of EA-HR
EA-HRGXX	608	0087	SAPK-60887INEAHRGXX	Subcomponent EA-HRGXX of EA-HR
EA-HRRXX	608	0087	SAPK-60887INEAHRRX	Subcomponent EA-HRRXX of EA-HR
EA-PS	805	0001	SAPK-80501INEAPS	SAP Enterprise Extension Public Services
FI-CAX	805	0001	SAPK-80501INFICAX	FI-CA Extended
INSURANCE	805	0001	SAPK-80501ININSURANC	SAP Insurance
IS-OIL	805	0001	SAPK-80501INISOIL	IS-OIL
IS-PRA	805	0001	SAPK-80501INISPRA	SAP IS-PRA
IS-PS-CA	805	0001	SAPK-80501INISPSCA	IS-PUBLIC SECTOR CONTRACT ACCOUNTING
IS-UT	805	0001	SAPK-80501INISUT	SAP Utilities/Telecommunication
S4COREOP	105	0001	SAPK-10501INS4COREOP	S/4HANA, On-Premise only parts
S4DEPREC	105	0000	-	S/4HANA, deprecation parts
GBX01HR	600	0019	SAPK-60019INGBX01HR	FIORI X1 HCM
GBX01HR5	605	0016	SAPK-60516INGBX01HR5	FIORI X1 HCM
SRA004	600	0011	SAPK-60011INSRA004	Create Travel Request OData Integration
UIAPFI70	800	0001	SAPK-80001INUUIAPFI70	UI SFIN
UIHR001	100	0018	SAPK-10018INUUIHR001	UI for ERP Human Capital Management
UIHR002	100	0012	SAPK-10012INUUIHR002	UI for ERP Human Capital Management 100
UIS4HOP1	600	0001	SAPK-60001INUIS4HOP1	UI for S/4HANA On Premise
PERSONAS	300	0012	SAPK-30012INPERSONAS	PERSONAS - SAP GUI PERSONALISATION
ST-A/PI	01U_731	0000	-	Servicetools for SAP Basis 731 and higher

6.1.2 SAP HANA Database Plug-In Versions

HANA Version is *2.00.054.00.1611906357 (fa/hana2sp05)*

Plug-in	Key	Value
AFL	HANA auxversion	0000.00.0
AFL	HANA changeinfo	CONT 989e98fd1334a1b6e36785c8bd7e9ab5239960f1 (fa/hana2sp05)
AFL	HANA cloud_edition	0000.00.00
AFL	HANA compilebranch	fa/hana2sp05
AFL	HANA compiler- version-full	gcc (SAP release 20200227, based on SUSE gcc9- 9.2.1+r275327-1.3.7) 9.2.1 20190903 [gcc-9-branch revision 275330]
AFL	HANA compiletype	rel
AFL	HANA date	29.01.2021 08:49
AFL	HANA fullversion	2.00.054.00 Build 1611906357-1530
AFL	HANA git-hash	989e98fd1334a1b6e36785c8bd7e9ab5239960f1
AFL	HANA git- headcount	500020
AFL	HANA git- mergeepoch	1611906357
AFL	HANA git- mergetime	29.01.2021 08:45
AFL	HANA hdb-state	RAMP
AFL	HANA makeid	8370882
AFL	HANA rev- changelist	1611906357
AFL	HANA rev- patchlevel	0
AFL	HANA sapexe- branch	753_REL
AFL	HANA sapexe- changelist	2007209
AFL	HANA sapexe- version	753
AFL	HANA sp- patchlevel	0
AFL	PPMS-SP-Level	54
AFL	PPMS-SP-Patch- Level	0
AFL	PPMS-Technical- Name	HANA_AFL
AFL	PPMS-Technical- Release	2.0
AFL	afl-state	RAMP

Plug-in	Key	Value
AFL	changeinfo	CONT 9ce1799fc4f949856d57dac71e1da498972d676f (fa/afl2sp05)
AFL	compilebranch	fa/afl2sp05
AFL	compiler-version	GCC 9
AFL	compiler-version- full	gcc (SAP release 20200227, based on SUSE gcc9- 9.2.1+r275327-1.3.7) 9.2.1 20190903 [gcc-9-branch revision 275330]
AFL	compiletype	rel
AFL	component-key	afl
AFL	compversion-id	7,35549E+19
AFL	date	29.01.2021 15:09
AFL	fullversion	2.00.054.0000 Build 1611928859-1530
AFL	git-hash	9ce1799fc4f949856d57dac71e1da498972d676f
AFL	git-headcount	45
AFL	git-mergeepoch	1611928859
AFL	git-mergetime	29.01.2021 15:00
AFL	keycaption	SAP HANA AFL (incl.PAL,BFL,OFL)
AFL	keyname	HANA_AFL
AFL	keyvendor	sap.com
AFL	makeid	8372578
AFL	ofl-version	13. Sep
AFL	platform	linuxx86_64
AFL	release	2.00
AFL	required- components	name="HDB"; vendor="sap.com"
AFL	rev-changelist	1611928859
AFL	rev-number	54
AFL	rev-patchlevel	0
AFL	server-plugin	1
AFL	sp-number	54
AFL	sp-patchlevel	0
LCAPPS	HANA auxversion	0000.00.0
LCAPPS	HANA changeinfo	CONT 989e98fd1334a1b6e36785c8bd7e9ab5239960f1 (fa/hana2sp05)
LCAPPS	HANA compilebranch	fa/hana2sp05
LCAPPS	HANA compiler- version-full	gcc (SAP release 20200227, based on SUSE gcc9- 9.2.1+r275327-1.3.7) 9.2.1 20190903 [gcc-9-branch revision 275330]
LCAPPS	HANA compiletype	rel
LCAPPS	HANA date	29.01.2021 08:49
LCAPPS	HANA fullversion	2.00.054.00 Build 1611906357-1530
LCAPPS	HANA git-hash	989e98fd1334a1b6e36785c8bd7e9ab5239960f1
LCAPPS	HANA git- headcount	500020

Plug-in	Key	Value
LCAPPS	HANA git-mergeepoch	1611906357
LCAPPS	HANA git-mergetime	29.01.2021 08:45
LCAPPS	HANA makeid	8370882
LCAPPS	HANA rev-changelist	1611906357
LCAPPS	HANA rev-patchlevel	0
LCAPPS	HANA sapexe-branch	753_REL
LCAPPS	HANA sapexe-changelist	2007209
LCAPPS	HANA sapexe-version	753
LCAPPS	HANA sp-patchlevel	0
LCAPPS	LCAPPS branch	10.0_REL
LCAPPS	LCAPPS build	47
LCAPPS	LCAPPS compiler info	/LCAPPS/100_REL/20newdb/linuxx86_64/genopt/hm/c/dependencies/lcapps/gcc-9.2.1+r275327-1.3.7.sap20200227-linuxx86_64-linuxx86_64/bin/g++
LCAPPS	LCAPPS make date	Fri 29 Jan 2021 04:15:49 PM CET
LCAPPS	LCAPPS patch level	5
LCAPPS	LCAPPS release	10.00
LCAPPS	LCAPPS technical version	LC_200054_64_RAMP/004 sp-pl 0000 Build 504199-10.00COM047.5-10.0_REL-rel
LCAPPS	PPMS-SP-Level	2054
LCAPPS	PPMS-SP-Patch-Level	0
LCAPPS	PPMS-Technical-Name	LCAPPS_HDB
LCAPPS	PPMS-Technical-Release	1.00
LCAPPS	compiletype	rel
LCAPPS	component-key	lcapps
LCAPPS	compversion-id	6,78378E+19
LCAPPS	fullversion	2.00.054.0000.504199
LCAPPS	keycaption	SAP HANA LCAPPS
LCAPPS	keyname	LCAPPS_HDB
LCAPPS	keyvendor	sap.com
LCAPPS	makeid	5733839
LCAPPS	platform	linuxx86_64
LCAPPS	release	2.00
LCAPPS	required-components	name="HDB"; vendor="sap.com"; version="[2.00.054.00.1611906357,2.00.054.00.1611906357]"
LCAPPS	rev-changelist	504199

Plug-in	Key	Value
LCAPPS	rev-number	54
LCAPPS	rev-patchlevel	0
LCAPPS	server-plugin	1
LCAPPS	sp-number	2054
LCAPPS	sp-patchlevel	0
SAP_AFL_SDK_APL	auxversion	0000.00.0
SAP_AFL_SDK_APL	changeinfo	CONT dd499ff01d3137f1a61ccb15ed34a9a7ea3b5dbf (fa/hana1sp12)
SAP_AFL_SDK_APL	compilebranch	undefined
SAP_AFL_SDK_APL	compilebranch	fa/hana1sp12
SAP_AFL_SDK_APL	compiletype	rel
SAP_AFL_SDK_APL	component-key	sap_afl_sdk_apl
SAP_AFL_SDK_APL	compversion-id	7,35549E+19
SAP_AFL_SDK_APL	date	06.03.2020 17:20
SAP_AFL_SDK_APL	fullversion	4.203.2008.0
SAP_AFL_SDK_APL	git-hash	dd499ff01d3137f1a61ccb15ed34a9a7ea3b5dbf
SAP_AFL_SDK_APL	git-headcount	500031
SAP_AFL_SDK_APL	git-mergeepoch	1478575636
SAP_AFL_SDK_APL	git-mergetime	08.11.2016 04:27
SAP_AFL_SDK_APL	hana_afl_sdk-major-version	2
SAP_AFL_SDK_APL	hana_afl_sdk-minor-version	13
SAP_AFL_SDK_APL	hdb-state	RAMP
SAP_AFL_SDK_APL	keycaption	Automated Predictive Library
SAP_AFL_SDK_APL	keyname	sap_afl_sdk_apl
SAP_AFL_SDK_APL	keyvendor	sap.com
SAP_AFL_SDK_APL	lcmsdk-major-version	2
SAP_AFL_SDK_APL	lcmsdk-minor-version	5
SAP_AFL_SDK_APL	lcmsdk-patch-version	26
SAP_AFL_SDK_APL	lcmsdk-version	02.05.2026
SAP_AFL_SDK_APL	makeid	1
SAP_AFL_SDK_APL	platform	linuxx86_64
SAP_AFL_SDK_APL	release	4.203
SAP_AFL_SDK_APL	required-components	name="HDB"; vendor="sap.com"; version="[2.00.030.0,9999.9999.9999.9999]"
SAP_AFL_SDK_APL	rev-changelist	0
SAP_AFL_SDK_APL	rev-number	2008
SAP_AFL_SDK_APL	rev-patchlevel	0
SAP_AFL_SDK_APL	sapexe-branch	745_REL
SAP_AFL_SDK_APL	sapexe-changelist	1711525
SAP_AFL_SDK_APL	sapexe-version	745
SAP_AFL_SDK_APL	server-plugin	1
VCH2020	HANA auxversion	0000.00.0

Plug-in	Key	Value
VCH2020	HANA changeinfo	CONT 989e98fd1334a1b6e36785c8bd7e9ab5239960f1 (fa/hana2sp05)
VCH2020	HANA cloud_edition	0000.00.00
VCH2020	HANA compilebranch	fa/hana2sp05
VCH2020	HANA compiler- version-full	gcc (SAP release 20200227, based on SUSE gcc9- 9.2.1+r275327-1.3.7) 9.2.1 20190903 [gcc-9-branch revision 275330]
VCH2020	HANA compiletype	rel
VCH2020	HANA date	29.01.2021 08:49
VCH2020	HANA fullversion	2.00.054.00 Build 1611906357-1530
VCH2020	HANA git-hash	989e98fd1334a1b6e36785c8bd7e9ab5239960f1
VCH2020	HANA git- headcount	500020
VCH2020	HANA git- mergeepoch	1611906357
VCH2020	HANA git- mergetime	29.01.2021 08:45
VCH2020	HANA hdb-state	RAMP
VCH2020	HANA makeid	8370882
VCH2020	HANA rev- changelist	1611906357
VCH2020	HANA rev- patchlevel	0
VCH2020	HANA sapexe- branch	753_REL
VCH2020	HANA sapexe- changelist	2007209
VCH2020	HANA sapexe- version	753
VCH2020	HANA sp- patchlevel	0
VCH2020	PPMS-SP-Level	2054
VCH2020	PPMS-SP-Patch- Level	0
VCH2020	PPMS-Technical- Name	SAPVCHAFL2020
VCH2020	PPMS-Technical- Release	2020
VCH2020	afl-state	RAMP
VCH2020	changeinfo	CONT f83110dc622dcaff20fa0d8127995d1a01e2d364 (fa/afls42020sp05_rel)
VCH2020	compilebranch	fa/afls42020sp05_rel
VCH2020	compiler-version	GCC 9
VCH2020	compiler-version- full	gcc (SAP release 20200227, based on SUSE gcc9- 9.2.1+r275327-1.3.7) 9.2.1 20190903 [gcc-9-branch revision 275330]
VCH2020	compiletype	rel

Plug-in	Key	Value
VCH2020	component-key	vch2020
VCH2020	compversion-id	7,35549E+19
VCH2020	date	29.01.2021 15:10
VCH2020	fullversion	202.005.400.001.611.000.000
VCH2020	git-hash	f83110dc622dcaff20fa0d8127995d1a01e2d364
VCH2020	git-headcount	28
VCH2020	git-mergeepoch	1611929286
VCH2020	git-mergetime	29.01.2021 15:08
VCH2020	keycaption	SAP VCH AFL 2020
VCH2020	keyname	SAPVCHAFL2020
VCH2020	keyvendor	sap.com
VCH2020	makeid	8372591
VCH2020	online-installation-plugin	yes_with_restart
VCH2020	online-upgrade-plugin	1
VCH2020	platform	linuxx86_64
VCH2020	release	2020
VCH2020	required-components	name="HDB"; vendor="sap.com"; version="[2.00.054.00.1611906357,2.00.054.00.1611906357]"
VCH2020	rev-changelist	1611929286
VCH2020	rev-number	54
VCH2020	rev-patchlevel	0
VCH2020	server-plugin	1
VCH2020	sp-number	2054
VCH2020	sp-patchlevel	0
VCH2020	vch-version	2020.28.0 (2020.07.07)
Plug-in	Key	Value
AFL	HANA auxversion	0000.00.0

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

Product Name	Name	Version	Vendor	Description
SAP NETWAVER J2EE	7.50	16	sap.com	SAP NETWEAVER 7.5: Adobe Document Services
SAP NETWAVER J2EE	7.50	16	sap.com	SAP NETWEAVER 7.5: Application Server Java

6.1.4 Windows Remote Desktop

- SAP GUI for Windows 7.60
- SAP HANA Studio & ABAP Development Tools (2020-12)
- SAP Lumira 2.4 (Discovery & Designer)
- Google Chrome
- Mozilla Firefox

6.1.5 SAP BusinessObjects BI Platform 4.2

- SBOP BI PLATFORM 4.2 SP07 SERVER LINUX (64B)
- SAP Lumira Server for BI Platform



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