Getting Started with the SAP S/4HANA 2022 (SP00) Fully-Activated Appliance

SAP

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1 Appliance information

1.1 Introduction

This guide provides information about the "SAP S/4HANA 2022, Fully Activated Appliance" on SAP Cloud Appliance Library (SAP CAL, https://cal.sap.com).

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

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

The usage as a development system in implementation projects is <u>not</u> 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.

Via SAP Cloud Appliance Library, the appliance can be rapidly brought up as your personal appliance with administrative rights in dedicated hyper-scalers such as Amazon, MS Azure or Google Cloud Platform (setup time ~2 hours).

SAP also offers to use the appliance on your own hardware e.g. in your data center (setup time usually ~2-3 days), please see SAP Note 2041140 if you are interested in this deployment option.

Important:

Once the system has been successfully provisioned in your SAP CAL account, it is under your ownership and control (you have all-area admin authorizations in your appliance). SAP does not access or maintain this system in any way after provisioning, and you will not receive any updates by SAP.

If you consider upgrading to a higher release (either major release or an FPS), this will need to be done as a customer-specific project (using maintenance planner, SUM, etc.). In many cases it might be easier to create a new appliance for the newer release, and transport/export any important artifacts from the older release.

Further information:
- 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=1636309 .
- 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 2022 appliance (but another SAP appliance template), however, the concepts are the same.

1.2 Installed products

When you deploy the appliance, you get access to a system landscape that has been built using the following components (see picture below).

1. SAP S/4HANA 2022 (SP00), on the SAP HANA database
2. SAP NetWeaver 7.50 JAVA with Adobe Document Services (on Sybase ASE database)
3. Optional: Microsoft Windows Server 2019 (as remote desktop) for easy frontend access.
4. Optional: SAP BusinessObjects BI Platform 4.3 SP2
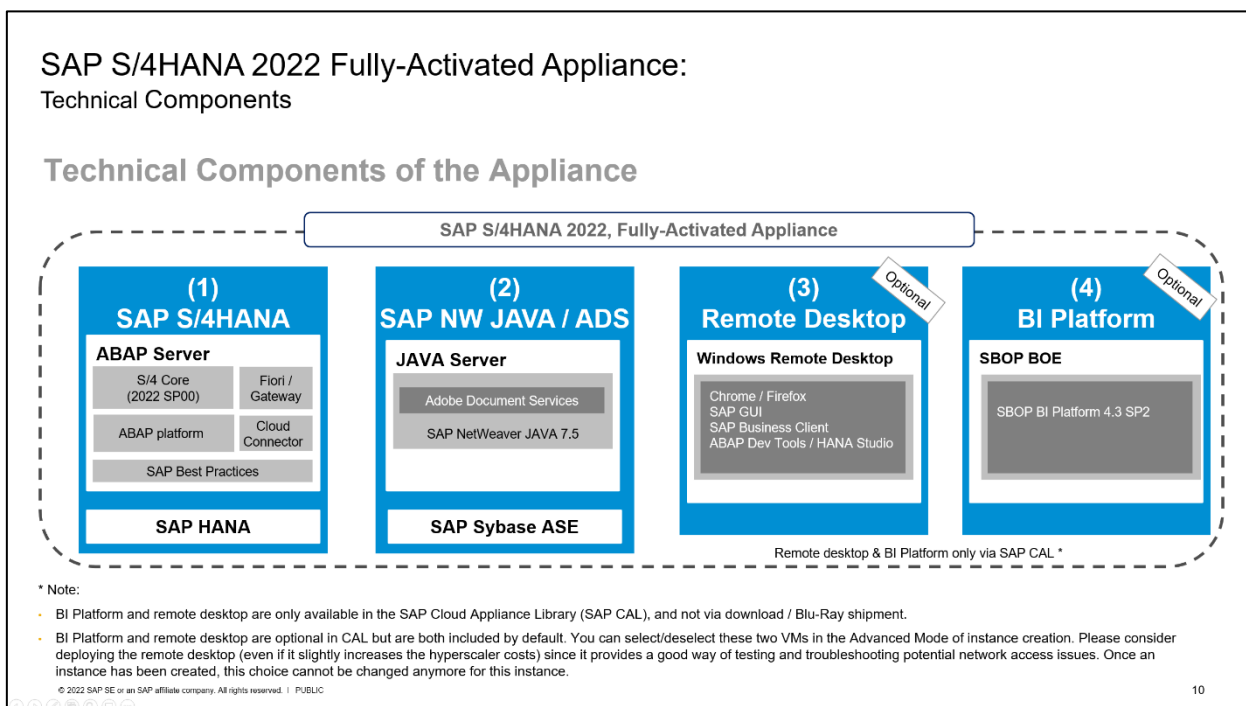
Notes:

- The virtual machines (VMs) for the BI Platform and the remote desktop (RDP) are optional in Cloud Appliance Library. You can deselect these two VMs in the Advanced Mode of the appliance creation. Once an appliance has been created, this choice cannot be changed anymore for this appliance.
  Please consider deploying the remote desktop (even if it slightly increases the hyperscaler costs) since it provides a good way of testing and troubleshooting potential network access issues.
- The BI Platform and the remote desktop are only available when using SAP Cloud Appliance Library as described in this document. However, you can also receive the virtual 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 virtual 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 2022 (details can be found on https://rapid.sap.com/bp/BP_OP_ENTPR).
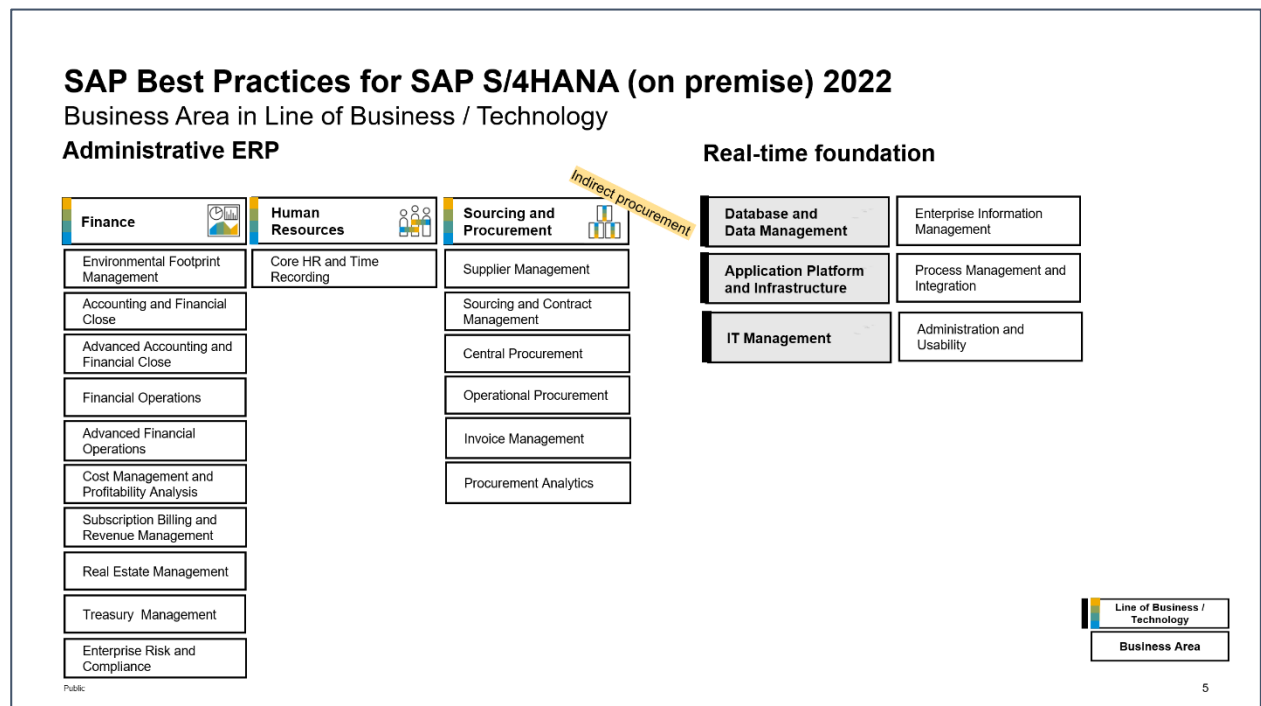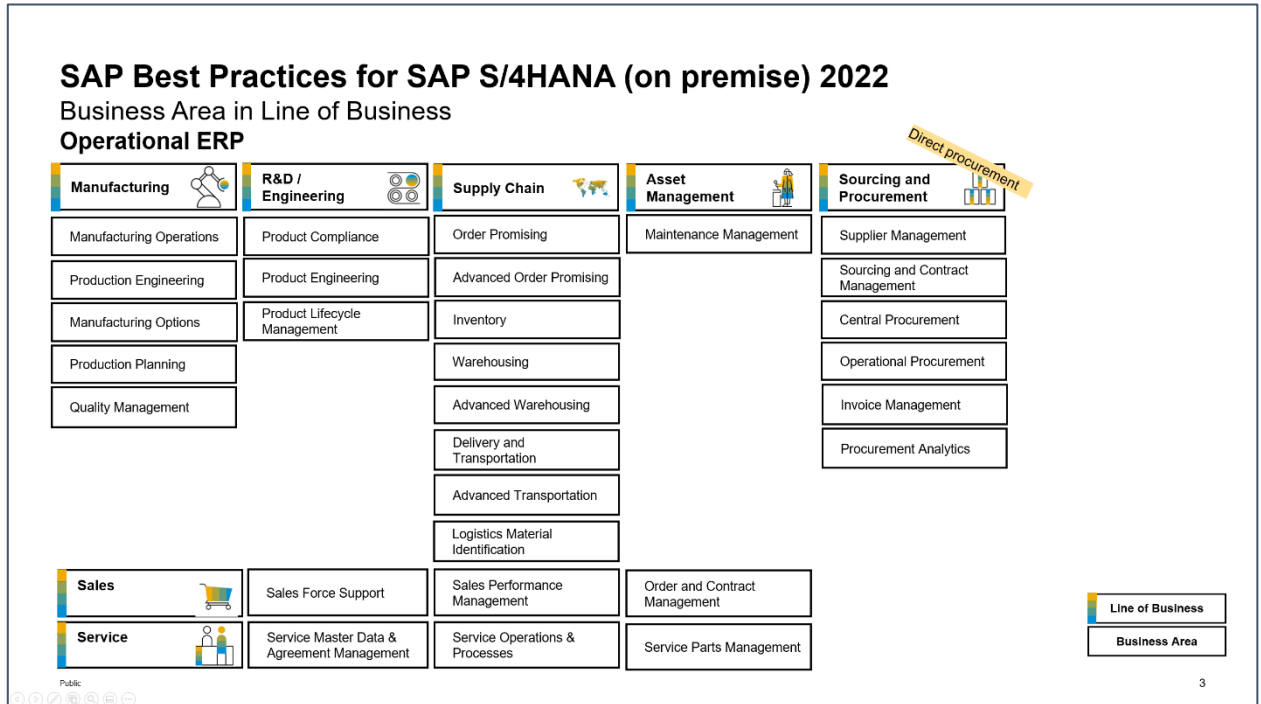
In the appliance, the Best Practices have been fully activated, however, there are still areas that require additional configuration to be fully functional.

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 2022 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.

SAP Best Practices for SAP S/4HANA (on premise) 2022
Localization Coverage - 2022

43
Local Versions

25
Languages

Australia, Austria, Belgium, Brazil, Canada, China, Czechia, Denmark, Finland, France, Germany, Hong Kong (China), Hungary, India, Indonesia, Ireland, Italy, Japan, Luxembourg, Malaysia, Mexico, Netherlands, New Zealand, Norway, Philippines, Poland, Portugal, Romania, Russia, Saudi Arabia, Singapore, South Africa, South Korea, Slovakia, Spain, Sweden, Switzerland, Taiwan (China), Thailand, Turkey, United Arab Emirates, United Kingdom, United States

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

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 (BP) based on the BP client approach for all localizations. This is the standard BP business content as it was delivered with SAP S/4HANA 2022 (no corrections or additional configuration changes were applied).

SAP S/4HANA 2022 Fully-Activated Appliance
What client is used for what?

ABAP Client	Description
100 Trial & exploration client (merged-000-client setup **)	• Pre-activated SAP Best Practices for SAP S/4HANA 2022 (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 **)	• 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**)	• SAP S/4HANA 2022 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 2022 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 2022 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.

(**) For information on the differences between an SAP Best Practice and a merged-000 client, please see here. Especially please make sure to understand that client 400 does not contain the whole "usual" customizing that you might know from client 000. Therefore, especially if you use scenarios outside the SAP Best Practices scope, they might not work as expected without further customizing by you (you might even experience coding errors due to this).

1.5   Sample demo walkthroughs

Once you have created an appliance in SAP Cloud Appliance Library 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).

These demo guides take you on a "guided tour" through some of the pre-configured areas, but you are also free to step away from these tours.

However, if you explore additional features of the SAP S/4HANA system beyond what is provided in the demo guides, you might find functions or processes that are not pre-configured and, hence, will not provide a meaningful system response. In this case, you need to configure those scenarios or functions using SAP standard procedures (e.g., via transaction SPRO) to make them work.

You might also find errors as you explore the appliance. In this case, please search for SAP Notes and corrections and decide if you want to apply them. Your appliance behaves like a regular customer system and will not be updated automatically by SAP i.e., you will need to implement these fixes in your system.

1.6   Recommended post-installation steps

As said above, your appliance will be a working system, however, since the appliance is entirely under your control (SAP does not maintain it) there are certain settings that you might need to adapt depending on your use case, for example:

1. **Evaluate and adapt security settings**
   When you create the appliance in your hyperscaler account, by default it will be deployed in the public Internet, i.e., everyone with Internet connectivity can access your system.
   We strongly recommend applying additional security measures as you consider it needed for your context. Chapter 4 of this guide mentions typical aspects and suggestions.

2. 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 .

3. **Check further time-dependent settings if you face issues**
   This is like adapting the MM period above: Since the appliance comes in a defined state (with development close some time before you start your appliance), you might need to adapt time-dependent settings e.g., validity dates of master/meta data, certain finance periods, time-dependent production windows, and so on.

4. **Register the appliance system under your customer installations 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 SAP Cloud Appliance Library
   - 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

Both options are only possible with an S-user (i.e., a registered SAP customer user). A public P-user can only register for the 30-day trial.

5. **Create own business users if the pre-configured demo users are too "heavy".**
The pre-configured S/4HANA demo users (see section 3.4.1.1.) often have many roles assigned to enable them for a broad business scenario, and they mostly have an SAP_ALL authorization profile.
If these users are too broad for your specific project, you could either create your own users in tCode SU01 (there is no contractual limit for user numbers during the trial period) or use the SAP Fiori Rapid Activation to create user with tailored role assignments (see the demo walkthrough page in the User Experience section for the respective guide).

6. **Enable the automatic download of SAP Notes**
The appliance has been technically prepared for connecting it to the SAP support backbone infrastructure.
However, for using the automatic download and application of SAP Notes (via tCode SNOTE), you need to enter your customer-specific S-User credentials in the usual SM59 RFC destinations (SAP-SUPPORT_PORTAL, SAP-SUPPORT_PARCELBOX, SAP-SUPPORT_NOTE_DOWNLOAD).

7. **On the included remote desktop: Install Eclipse (incl. HANA plug-ins) and change the default browser**

Installing Eclipse
The Welcome page on the remote desktop has detailed instructions how to use the provided PowerShell script. If you like, you can also manually install Eclipse and the corresponding SAP plug-ins from
https://tools.eu1.hana.ondemand.com/

Default browser
The remote desktop uses Internet Explorer (IE) as default browser. Since IE is deprecated by Microsoft and does not support many SAP applications anymore, you might get error messages if you open a web-based transaction (NWBC, BRF+, etc.) from the SAP GUI.

There are two options how to overcome this:

(1)
We recommend to change the default browser on the remote desktop to Chrome or Edge since these browsers will work with the SAP GUI (to do this, search for "Choose a default browser" in the Windows menu and change the browser icon in the app).

(2)
If (1) is not suitable for whatever reason, you can also enable the *myssocntl* service in S/4:
tCode SICF → right-click on service "default_host > sap > public > myssocntl" → Activate → Confirm.
With this setting, web-based transactions will use the browser that is defined in the installed SAP Logon options (in SAP Logon, choose *Options > Interaction Design > Control Settings > HTML Control*). On the remote desktop, this uses MS Edge/Chromium as default.
This setting will also eliminate the need to enter an additional logon in certain business scenarios that merge SAP GUI and browser content.
However, there is a potential issue with this setting when using SAP GUI directly from your corporate PCs (without remote desktop) since the above HTML control requires SAP GUI 7.70. If your business users have older SAP GUI versions installed on their local PCs, they might get errors when opening web transactions from a local SAP Logon.
SAP Note 2624143 describes the background.

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=1636309

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/products/s4hana-erp/on-prem-trial.html

Video tutorials (how to create Cloud Provider accounts and start an SAP S/4HANA appliance):
https://blogs.sap.com/2021/03/19/sap-cal-learning-videos-update/

1.7.2 Support

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

- SAP Cloud Appliance Library (for Cloud Appliance Library usage, access, etc.):
  https://answers.sap.com/tags/67837800100800004473

- SAP S/4HANA (for S/4 specific functional questions): https://answers.sap.com/tags/73554900100800000266

If you have an SAP Cloud Appliance Library subscription license acquired, you can also report an incident (component BC-VCM-CAL). Ideally you have registered your appliance system under your customer installations before so that you can report the incident on the right system.

2 Accessing the appliance

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 the first steps with the appliance (especially for the personnel that has set up the appliance), we recommend the access via the remote desktop since it has multiple client tools and pre-configurations included.

However, since only two users can log on to the remote desktop in parallel (at least without additional Microsoft licenses), this might be impractical if you want to provide the appliance to additional users. For this case, the access via a local computer will be better suited but for full access to all Fiori capabilities you will either need to modify the local `/etc/hosts` file (see chapter 2.3.1) or apply a fully-qualified host name to your appliance (see chapter 2.3.2).

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

1. After your own appliance is created, click the Connect button in the Appliances view of the console.
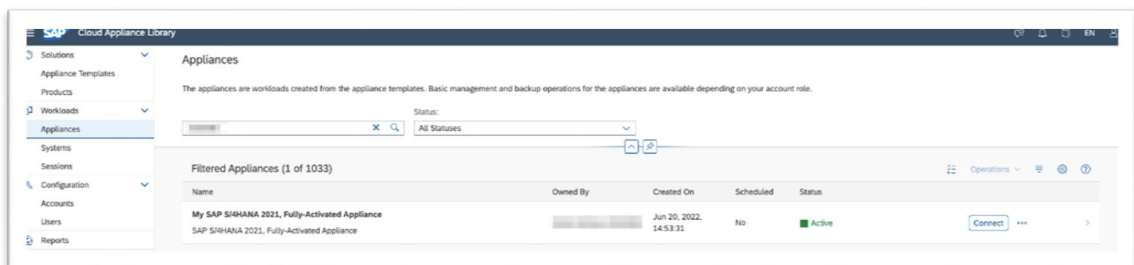
2. In the pop-up, click Connect in the "RDP Virtual Machine: Windows Remote Desktop" line .

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
SAP GUI	SID: S4H Instance Number: 00 Client:	100	Connect

Close
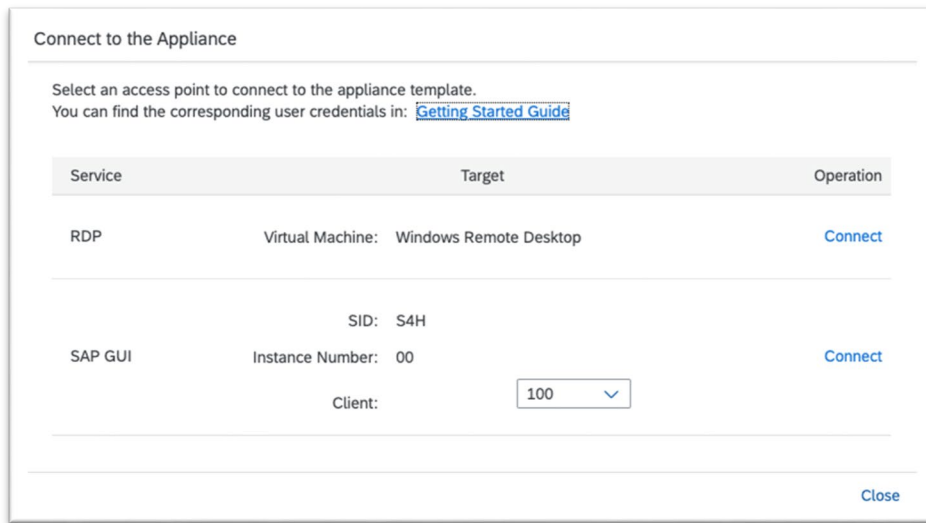
3. Confirm the pop-up window to allow Remote Desktop Connection (click on "Connect").
   Enter user Administrator (local domain of the remote desktop) and your <Master Password> that you specified during the appliance creation in the SAP Cloud Appliance Library console.
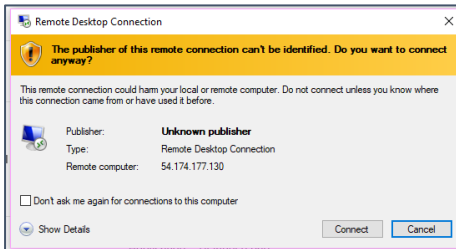
4. Next you will see the pre-configured Windows RDP server desktop.
   Follow the information on the Welcome page to logon to the SAP S/4HANA system (Fiori link, SAP GUI/HANA Studio are pre-installed on the desktop, etc.). The Welcome page shortcut on the desktop points to
   C:/ProgramData/WelcomePage/Welcome.html.
   More details on pre-configured appliance users can be found in section 2.4.
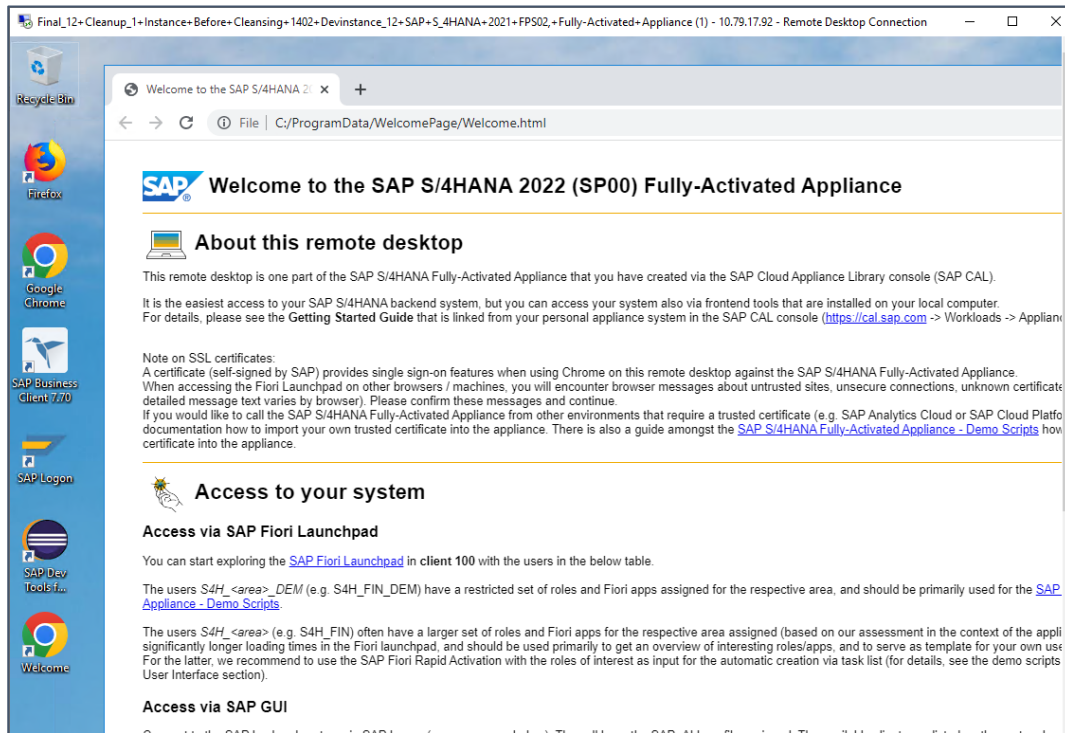
5. Further remarks:
   - The embedded Windows Remoted Desktop license allows 2 concurrent sessions (e.g., one for the existing user Administrator and one for another user that you can create on the remote desktop). Installing your own RDP license might also be an option to allow more concurrent users on the RDP.
   - Eclipse and the needed SAP plugins for accessing the HANA database will not be installed by default. Please execute the MS PowerShell script on the desktop to automatically install Eclipse and the needed SAP plugins (the Welcome page on the RDP has more details).
   - If your cloud provider infrastructure has restricted Internet access (e.g., in a fenced environment), the remote desktop will not be fully provisioned, and you must install certain components manually:
     - Chrome will not be installed → use Firefox for Fiori access or install Chrome at a later point in time if this is possible in your network setup
     - 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`.
     - The PowerShell script for installing Eclipse can be found on `D:\applianceagent\eclipseinstall.ps1`

2.3 Option 2: System access via local PC

When accessing the system via your local PC, you will need to have the respective programs installed. A local browser (Chrome preferred) is obvious, but also a local SAP GUI, SAP Business Client or SAP HANA Studio (based on Eclipse) might be needed.

For SAP GUI access, you can use the "Connect → SAP GUI" option in the Cloud Appliance Library console (same as for the remote desktop) and a local SAP GUI will open.

Or you can add the Cloud Appliance Library appliance to your local SAP Logon Pad or HANA Studio (use the external IP address of the ABAP/HANA virtual machine as host name, further details like system numbers, etc. are listed in section 2.4).

However, the access to the Fiori launchpad via IP addresses will not work for apps that are based on WebGUI or Web Dynpro. For those to work, you will need to map the `/etc/hosts` file as described in the next section.

As an alternative to the hosts file mapping and if you have access to a DNS service (corporate, free internet service, or the hyperscaler provides a host name), you can also apply your own host and domain name to the system, possibly together with a registered SSL certificate. See section 2.3.2 of this guide for details.

2.3.1   Mapping your local *ic/etc/hosts* file

To make all Fiori launchpad capabilities work correctly when you access the appliance from your local computer, a mapping between the (external) IP address of your appliance and the appliance host name must be established. This mapping step is needed since the connection to the cloud providers uses IP addresses, whereas the S/4HANA system expects dedicated host names to work correctly.
In the appliance the pre-defined host names in the appliance template are `vhcals4hcs` (and `vhcals4hci`) on the fictious domain `dummy.nodomain`.

The easiest way to achieve this mapping is via editing a standard file on your local computer.
(`C:\Windows\system32\drivers\etc\hosts`). However, you will need to have local administrator rights on your computer to edit this file.
After you have done the mapping, 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 or there are security concerns in your environment), please check chapter 2.3.2 if using your own fully qualified host name is an option.

For some isolated use cases, you can also put the external IP address of your S/4HANA & HANA appliance in the URL (https://<External_IP_Address_SAPS4HANA/HDB_server>:44301/sap/bc/ui5_ui5/ui2/ushell/shells/abap/FioriLaunchpad.html), however, not all applications and scenarios will work correctly with it e.g., WebGUI or Web Dynpro applications will not display in the browser, so you might hit issues in some business scenarios.

The following describes how to modify the local hosts file on a Windows computer (for Mac, please search the Internet for options).

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 Cloud Appliance Library console in the appliance properties, take the <u>external</u> IP address):

   ```
   # S4H Appliance
   <External IP Address SAP S4HANA/HDB server> vhcals4hci.dummy.nodomain vhcals4hci
   vhcals4hcs.dummy.nodomain vhcals4hcs vhcalhdbdb vhcaldhbdb.dummy.nodomain
   ```

```
<External IP Address SAP NW JAVA/ASE/ADS server> vhcalj2eci.dummy.nodomain vhcalj2eci
vhcalj2ecs.dummy.nodomain vhcalj2ecs vhcalj2edb vhcalj2edb.dummy.nodomain

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

5. Save the hosts file and exit.

2.3.2 Use your own fully-qualified host name

As written above, the SAP S/4HANA host name and the (external) IP address of your appliance need to be mapped.

Instead of mapping the fictious `*.dummy.nodomain` host name via the /etc/hosts file, you can also register a regular host/domain name in a DNS server of your choice and route this host name to the IP address.

In a "corporate IT context" you might e.g., use your own corporate DNS resolution for the SAP S/4HANA system. This is typically done by the customer network / security basis team.

Or if the appliance runs outside a "corporate IT context", you could either use a public low-cost DNS provider or check if the host name resolution of your hyperscaler can be used. For example, in AWS the machines typically follow a nomenclature like "ec2-<external_IP_Address>.compute-1.amazonaws.com" (use `nslookup <External IP Address>` to check).

Once you have mapped the IP address and a DNS name, the Fiori launchpad can be reached under https://<Your_host_name>:44301/sap/bc/ui5_ui5/ui2/ushell/shells/abap/FioriLaunchpad.html , however some further settings need to be adapted in the S/4HANA system.

On the demo walkthrough page a technical demo guide (in section *(A) Demo Guides* → *Technical*) shows the most relevant parameters that need to switched from the fictious *.dummy.nodomain host name to your real host name.
In addition, the guide also explains how to install a free 90-day Let's Encrypt SSL certificate e.g., if you are using the appliance outside a corporate IT context.

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 your company or by SAP in general.

2.4 Users & passwords for the system components

Note upfront:
For URLs starting with `vhcal`… 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 (password *Welcome1 if not noted otherwise*)
000 Standard delivery client	• Nothing specific (standard customizing only)	• BPINST • DDIC / SAP* (<Master_Password>)
100 Trial & Exploration client	• Pre-activated SAP Best Practices for SAP S/4HANA 2022 (Germany & US, sample demo flow localized for US) * • Customizing and transactional data in US company code (1710) • SAP Fiori Apps • Based on the merged-client-000 approach Note on the users: The demo users have a relatively broad set of roles and Fiori apps assigned for their respective functional area and should be primarily used for the suggested demo walkthroughs. These users may have longer loading times in the Fiori launchpad, especially when using them for the first time or after a system suspension. Feel free to copy them to new user IDs (using transaction SU01) and adapt those new users to your needs.	• *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) • *S4H_PP_DEM / S4H_PP* (Production Planning) • *S4H_PM_DEM / S4H_PM* (Plant Maintenance & Quality Mgmt.) • *S4H_SD_DEM / S4H_SD* (Sales & Distribution) • *S4H_EXT* (Extensibility) • *S4H_EWM_DEM* (Warehouse Management) • *S4H_PPM_...* (Portfolio & Project Management) • *S4H_TM_DEM* (Transportation Management) • *S4H_PRED* (Predictive Analytics) • *S4H_MG* (Data Migration) • *SERV_EMPL / SERV_MAN / SLS_MAN / IC_AGENT_SRV / IHR_MAN / MCS_MAN* (SAP S/4HANA Service) • *MDG_...* (Master Data Governance) • *S4H_HCM_...* (Human Capital Management) • *FIORIADMIN (*Fiori customizing & roles)

Client	Business Content	Sample users (password *Welcome1 if not noted otherwise*)
		• S4H_AIF / S4H_AIF_ADM (Application Interface Framework) • *BPINST* (generic technical user)
200 Ready-to-Activate client (white list)	• Ready-to-Activate client with all pre-activation preparation activities executed	*BPINST (Welcome1)* *DDIC / SAP* (<Master password>)*
400 SAP Best Practices reference client (white-list)	• Pre-activated SAP Best Practices for SAP S/4HANA 2022 without transactional data, no changes or corrections applied • Based on the BP-client approach	*BPINST (Welcome1)* *DDIC / SAP* (<Master password>)*

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)
Clients	See section 1.4	These are the pre-configured clients
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 appliance.
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 User *bpinst* is case sensitive.

Name	Value	Description
Technical user for HANA DB connectivity (schema user)	SAPHANADB / *<Master Password>*	See tCode *DBACOCKPIT → System Landscape → Database Connections* 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 <u>tenant</u> database (for storing the S/4HANA data) and the <u>system</u> database (for general database settings and actions 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
Tenant DB name	HDB	System ID of the HANA DB
Tenant 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
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 SAP NetWeaver 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 / <Master Password>	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 / Appl1ances	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 / *Welcome1*	

In the logon screen (http://bihost:8443/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 higher 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 Cloud Appliance Library console. But for these high user numbers it's typically better to enable access via local PCs to the appliance system.

Name	Value	Description
IP Address	<IP Address>	The IP address of your frontend server appliance you created in SAP Cloud Appliance Library (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 Appliance 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 an appliance on OS level, go to *https://cal.sap.com/catalog#/support* → *General Technical Questions* → *How to connect to a running appliance 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 Appliance wizard from SAP Cloud Appliance Library. During the creation, you were asked to either store the key file attached to your appliance within SAP CAL or download it to a local secure file share on your computer.

3   Licenses & fees

SAP Cloud Appliance Library is a delivery channel 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 Cloud Appliance Library and not covered in detail in this document (please see SAP Note 2041140 for details).

SAP S/4HANA 2022 Fully-Activated Appliance:
Fees, licenses, and support for the different channels (as of December 2022)

	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 *	**Yes** Bring your own (trial) licenses *
SAP CAL license?	**No** Covered by web-based terms & conditions form on cal.sap.com	**Yes** Monthly CAL subscription (see overview or buy directly in SAP Store)	**No**
Hosting fees?	**Yes** Hyperscaler will charge you	**Yes** Hyperscaler 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)

* Needed S/4HANA licenses

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

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 (90-day SAP S/4HANA trial use rights, customer self-service)

SAP Partners:
- S/4HANA on-premise test&demo (TD_...) and application development (DEV_...) licenses are sufficient
- Pure platform development (DEV_...) licenses are <u>not</u> sufficient

Note for IT administrators:
Latest after 90 days you will need to generate and install your own license keys to keep the system running (the appliance has a 90-day temporary license key installed like every new S/4HANA system), see the Getting Started guide for details.

3.1 First 30 days: Running your appliance as trial

In the first 30 days, the SAP license fees (Cloud Appliance Library & 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 Cloud Appliance Library console (after clicking on "Create Appliance").
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 appliance with SAP licenses

If you want to use an appliance beyond the 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
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 Cloud Appliance Library console and the respective appliance 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 appliance from the first 30 days under these conditions, all your changes in that appliance will be preserved once you unlock the appliance template.

3.2.1 SAP Cloud Appliance Library 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 appliance (i.e., you can have exactly one appliance active at a time during these 3 months). You can also choose longer subscription periods and higher appliance numbers (i.e., you can activate multiple appliance templates 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 appliance is not possible. In case these two users do now 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 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 (trial) 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 Cloud Appliance Library infrastructure checks whether the customer/partner organization of the S-user who created the appliance in SAP Cloud Appliance Library possesses these licenses. Only if this check is passed, the appliance can be activated in SAP Cloud Appliance Library beyond 30 days.

The licenses entitle your organization to use the virtual 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 appliance will stop working without these technical license keys (see the next chapter for details).

Note:
At least the following separately licensed SAP S/4HANA capabilities are also configured and described in the pre-configured demo scenarios of the virtual appliance. These capabilities will technically work in your appliance 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 appliance 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 appliance 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 appliance creation (but better directly after unlocking the appliance template in Cloud Appliance Library 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:

a) This blog for an overview
b) Step-by-step video (using an SAP-internal license key but the principle is the same for customers & partners once you have registered a technical installation for SAP S/4HANA under your customer number – please check with your inhouse SAP team or your responsible partner in case of questions).

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; *right-click on system → Properties → Licenses.* HANA Studio on remote desktop has pre-configured entry for system DB. In a local HANA Studio use host name vhcalhdbdb or IP address of ABAP/JAVA VM; instance number 02; multiple containers > system database.
S4H	SAP S/4HANA	SAP S/4HANA 2022	SAP HANA database	Linux	N/A	Log on to S/4HANA with SAP GUI and use tCode /nSLICENSE
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 → Configuration → Infrastructure → Licenses.*
BIP	Optional:	SAP BusinessObject	-	Linux	Material: Choose SAP BO BI Platform	BOE CMC (http://bihost:8443/BOE/CMC) → Licenses

SID	Product	Version	DB	OS	Comment	Where to get the hardware key and apply the license key
	SAP BusinessObjects Business Intelligence platform	s Business Intelligence platform 4.3			(with fitting license KPI e.g., concurrent sessions CS,…) and version XI 4.3	

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 needed parameters and the hardware key).

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 appliance 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 appliance 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 appliance**. 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 Cloud Appliance Library

4.1 Internet ports for accessing your system

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

Please make sure that your <u>outbound</u> 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.

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

If you want to tighten the security, open as few ports as really needed for your scenario.
Especially the port 3389 of the remote desktop could be exposed to hacking attacks from the Internet.

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	8443, 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 Further network security considerations

Be aware that creating your appliances 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.

In addition, we also recommend that you limit the access to your appliances by defining a whitelisted IP range of IP addresses that may access your appliance (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 Cloud Appliance Library 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) or other dedicated access channels from your corporate network, please see the documentation of your hyperscaler how to do this.

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 (see also the section "Recommended post-installation steps" earlier in this document).

This can be done with 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 if you have assigned your own host name as described in chapter 2.3.2 of this guide.

On the demo walkthrough page a technical demo guide (in section *(A) Demo Guides → Technical*) explains how to install a free 90-day Let's Encrypt SSL certificate.

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 your company or by SAP in general.

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 Appliance Template 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.

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 appliance templates 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 S/4HANA 2022 SP00 on SAP ABAP application server 7.57 & SAP HANA DB 2.0.65

The SAP Kernel release is 789 PL 62.

Component	Release	SP Level	Support Package	Short Description of Component
SAP_BASIS	757	0000	-	SAP Basis Component
SAP_ABA	75H	0000	-	Cross-Application Component
SAP_GWFND	757	0000	-	SAP Gateway Foundation
SAP_UI	757	0001	SAPK-75701INSAPUI	User Interface Technology
ST-PI	740	0018	SAPK-74018INSTPI	SAP Solution Tools Plug-In
SAP_BW	757	0000	-	SAP Business Warehouse
UIBAS001	757	0000	-	UI for Basis Applications
MDG_FND	807	0000	-	S/4HANA MDG Foundation
S4FND	107	0000	-	S/4HANA Foundation
MDG_APPL	807	0000	-	S/4HANA MDG Applications
S4CEXT	107	0000	-	S/4HANA Applications EXT
S4CORE	107	0000	-	S/4HANA Core Applications 1
S4HCM	100	0000	-	Human Resources
S4HCMCAE	100	0000	-	Sub component S4HCMCAE of S4HCM
S4HCMCAR	100	0000	-	Sub component S4HCMCAR of S4HCM
S4HCMCAT	100	0000	-	Sub component S4HCMCAT of S4HCM
S4HCMCAU	100	0000	-	Sub component S4HCMCAU of S4HCM
S4HCMCBE	100	0000	-	Sub component S4HCMCBE of S4HCM
S4HCMCBG	100	0000	-	Sub component S4HCMCBG of S4HCM
S4HCMCBR	100	0000	-	Sub component S4HCMCBR of S4HCM
S4HCMCCA	100	0000	-	Sub component S4HCMCCA of S4HCM
S4HCMCCH	100	0000	-	Sub component S4HCMCCH of S4HCM
S4HCMCCL	100	0000	-	Sub component S4HCMCCL of S4HCM

Component	Release	SP Level	Support Package	Short Description of Component
S4HCMCCN	100	0000	-	Sub component S4HCMCCN of S4HCM
S4HCMCCO	100	0000	-	Sub component S4HCMCCO of S4HCM
S4HCMCCZ	100	0000	-	Sub component S4HCMCCZ of S4HCM
S4HCMCDE	100	0000	-	Sub component S4HCMCDE of S4HCM
S4HCMCDK	100	0000	-	Sub component S4HCMCDK of S4HCM
S4HCMCEG	100	0000	-	Sub component S4HCMCEG of S4HCM
S4HCMCES	100	0000	-	Sub component S4HCMCES of S4HCM
S4HCMCFI	100	0000	-	Sub component S4HCMCFI of S4HCM
S4HCMCFR	100	0000	-	Sub component S4HCMCFR of S4HCM
S4HCMCGB	100	0000	-	Sub component S4HCMCGB of S4HCM
S4HCMCGR	100	0000	-	Sub component S4HCMCGR of S4HCM
S4HCMCHK	100	0000	-	Sub component S4HCMCHK of S4HCM
S4HCMCHR	100	0000	-	Sub component S4HCMCHR of S4HCM
S4HCMCHU	100	0000	-	Sub component S4HCMCHU of S4HCM
S4HCMCID	100	0000	-	Sub component S4HCMCID of S4HCM
S4HCMCIE	100	0000	-	Sub component S4HCMCIE of S4HCM
S4HCMCIN	100	0000	-	Sub component S4HCMCIN of S4HCM
S4HCMCIT	100	0000	-	Sub component S4HCMCIT of S4HCM
S4HCMCJP	100	0000	-	Sub component S4HCMCJP of S4HCM
S4HCMCKR	100	0000	-	Sub component S4HCMCKR of S4HCM
S4HCMCKW	100	0000	-	Sub component S4HCMCKW of S4HCM
S4HCMCKZ	100	0000	-	Sub component S4HCMCKZ of S4HCM
S4HCMCMX	100	0000	-	Sub component S4HCMCMX of S4HCM
S4HCMCMY	100	0000	-	Sub component S4HCMCMY of S4HCM
S4HCMCNL	100	0000	-	Sub component S4HCMCNL of S4HCM
S4HCMCNO	100	0000	-	Sub component S4HCMCNO of S4HCM

Component	Release	SP Level	Support Package	Short Description of Component
S4HCMCNZ	100	0000	-	Sub component S4HCMCNZ of S4HCM
S4HCMCOM	100	0000	-	Sub component S4HCMCOM of S4HCM
S4HCMCPH	100	0000	-	Sub component S4HCMCPH of S4HCM
S4HCMCPL	100	0000	-	Sub component S4HCMCPL of S4HCM
S4HCMCPT	100	0000	-	Sub component S4HCMCPT of S4HCM
S4HCMCQA	100	0000	-	Sub component S4HCMCQA of S4HCM
S4HCMCRO	100	0000	-	Sub component S4HCMCRO of S4HCM
S4HCMCRU	100	0000	-	Sub component S4HCMCRU of S4HCM
S4HCMCSA	100	0000	-	Sub component S4HCMCSA of S4HCM
S4HCMCSE	100	0000	-	Sub component S4HCMCSE of S4HCM
S4HCMCSG	100	0000	-	Sub component S4HCMCSG of S4HCM
S4HCMCSI	100	0000	-	Sub component S4HCMCSI of S4HCM
S4HCMCSK	100	0000	-	Sub component S4HCMCSK of S4HCM
S4HCMCTH	100	0000	-	Sub component S4HCMCTH of S4HCM
S4HCMCTR	100	0000	-	Sub component S4HCMCTR of S4HCM
S4HCMCTW	100	0000	-	Sub component S4HCMCTW of S4HCM
S4HCMCUA	100	0000	-	Sub component S4HCMCUA of S4HCM
S4HCMCUN	100	0000	-	Sub component S4HCMCUN of S4HCM
S4HCMCUS	100	0000	-	Sub component S4HCMCUS of S4HCM
S4HCMCVE	100	0000	-	Sub component S4HCMCVE of S4HCM
S4HCMCZA	100	0000	-	Sub component S4HCMCZA of S4HCM
S4HCMGXX	100	0000	-	Sub component S4HCMGXX of S4HCM
S4HCMRXX	100	0000	-	Sub component S4HCMRXX of S4HCM
EA-DFPS	807	0000	-	S/4HANA DFPS
EA-PS	807	0000	-	S/4HANA PS
FI-CAX	807	0000	-	S/4HANA FI-CA Extended
IS-OIL	807	0000	-	S/4HANA IS-OIL
IS-PRA	807	0000	-	S/4HANA IS-PRA
IS-PS-CA	807	0000	-	S/4HANA IS-PS-CA

Component	Release	SP Level	Support Package	Short Description of Component
IS-UT	807	0000	-	S/4HANA IS-UT
S4COREOP	107	0000	-	S/4HANA Core Applications 2
S4DEPREC	107	0000	-	S/4HANA Core Applications 3
GBX01HR5	605	0023	SAPK-60523INGBX01HR5	GBX01HR5 605
UIAPFI70	901	0000	-	UI SFIN
UIHR001	100	0018	SAPK-10018INUIHR001	UI for ERP Human Capital Management
UIHR002	100	0019	SAPK-10019INUIHR002	UI for ERP Human Capital Management 100
UIS4HOP1	800	0000	-	UI for S/4HANA On Premise
PERSONAS	300	0012	SAPK-30012INPERSONAS	PERSONAS - SAP GUI PERSONALISATION
ST-A/PI	01U_731	0003	SAPKITABC2	Servicetools for SAP Basis 731 and higher
HOME	DEV	0000	-	Customer Development (Standard)
LOCAL	DEV	0000	-	System Local Development (Standard)

6.1.2 SAP HANA Database & Plug-In Versions

HANA Version *2.00.065.00.1665753120 (fa/hana2sp06)*

Plug-in	Full Version
AFL	2.00.065.0000 Build 1665821064-1530
LCAPPS	2.00.065.0000 Build 1665821064-1530
SAP_AFL_SDK_APL	4.203.2211.0
VCH2022	2022.065.0000.1665784180

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

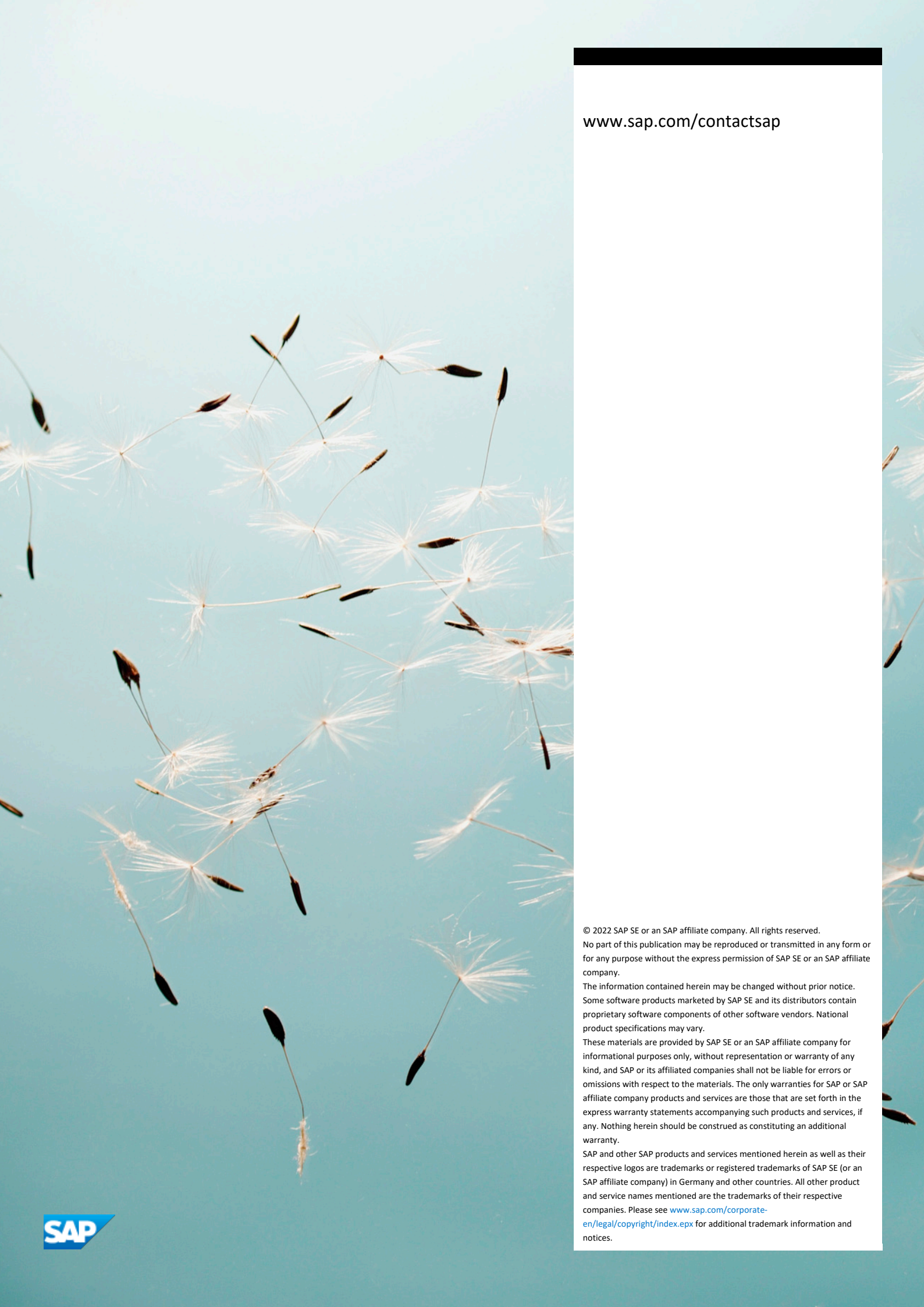| Product Name	Name	Version	Vendor	Description
SAP NETWAVER J2EE	7.50	16	sap.com	SAP NETWEAVER 7.5: Adobe Document Services
SAP NETWAVER J2EE	7.50	16	sap.com	SAP NETWEAVER 7.5: Application Server Java

6.1.4 Windows Remote Desktop

- o SAP GUI & SAP Business Client 7.70 (with Webview2 plugin for Edge)
- o MS PowerShell script for installing SAP HANA Studio & ABAP Development Tools
- o SAP Lumira 2.4 (Discovery & Designer)
- o Google Chrome
- o Mozilla Firefox

6.1.5 SAP BusinessObjects BI Platform 4.3

- o SBOP BI PLATFORM 4.3 SP02 SERVER LINUX

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