

Document Version: 1.0 – 2020-04-10

Getting Started with the SAP S/4HANA 1909 FPS01 Fully-Activated Appliance

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1 Solution Information

1.1 Introduction

This guide provides information about the “SAP S/4HANA 1909 FPS01 Fully Activated Appliance” on SAP Cloud Appliance Library (SAP CAL, <https://cal.sap.com>).

The appliance contains an SAP S/4HANA 1909 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=897560>

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/>.

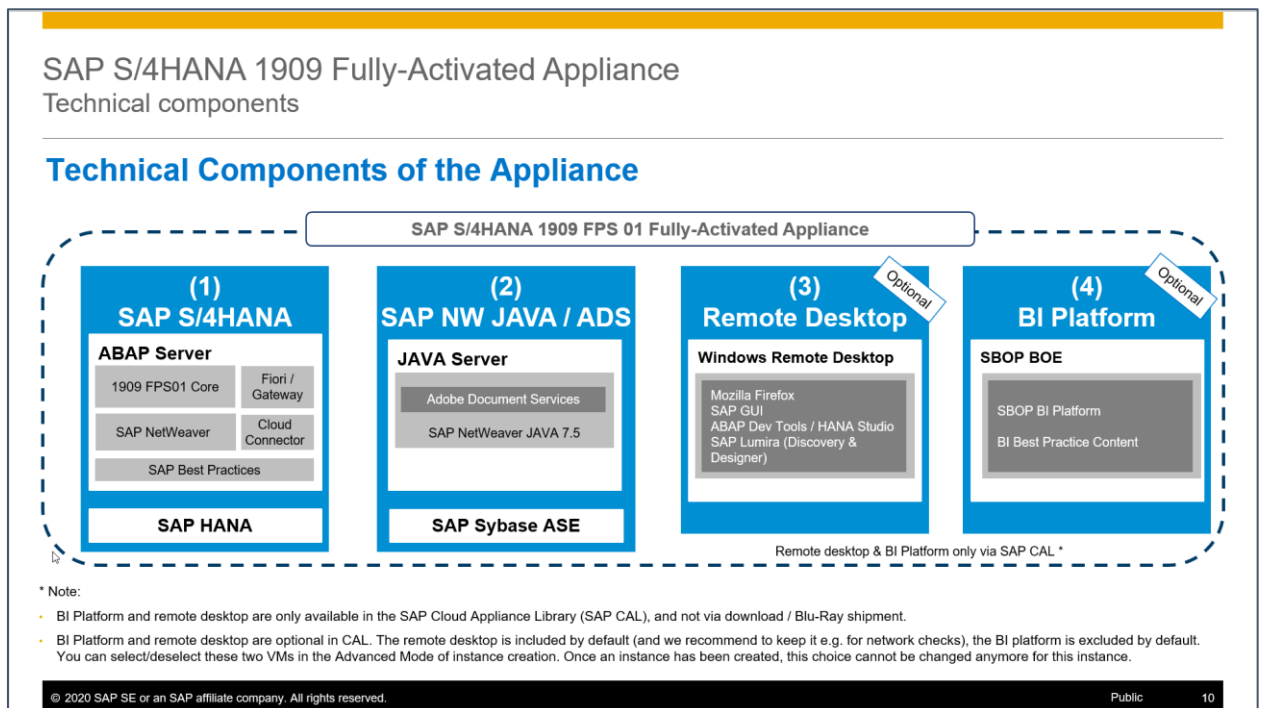
Video tutorials how to create an AWS account and how to launch the appliance can be found [here](#).

They might not necessarily show the creation of the SAP S/4HANA 1909 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 NetWeaver 7.54 application server ABAP incl. SAP S/4HANA 1909 (FPS01)
2. SAP NetWeaver 7.50 application server JAVA with installed Adobe Document Services.
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.

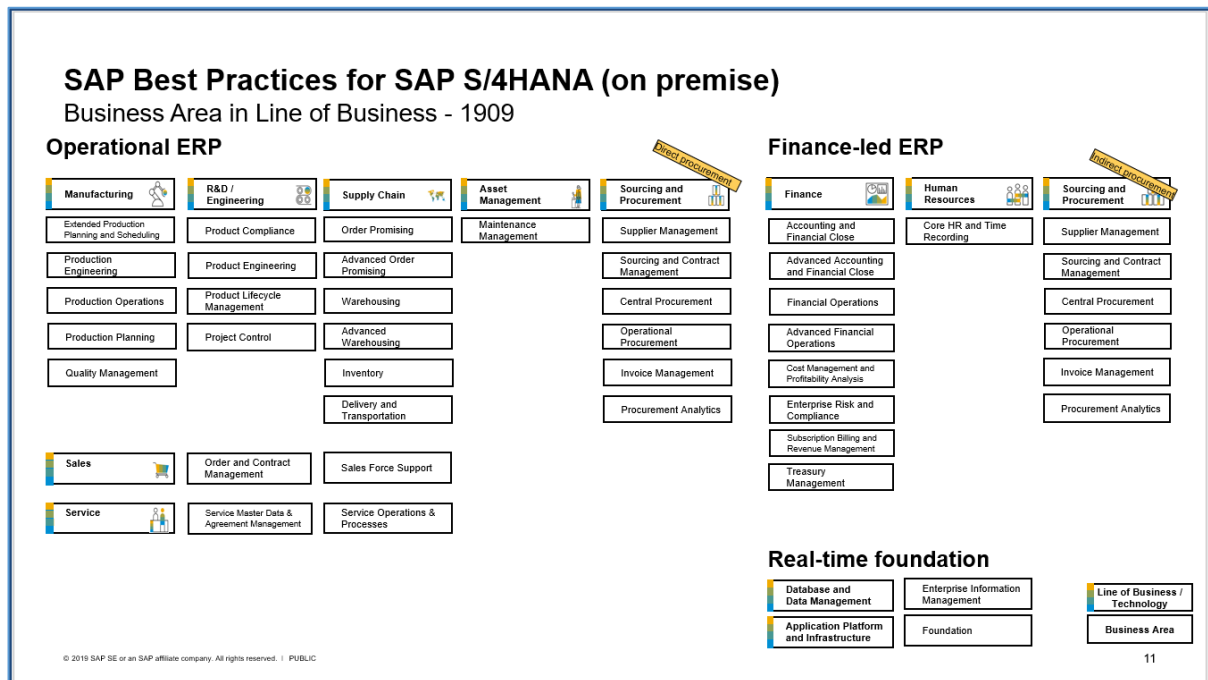
1.3 Business Scenarios & Localizations

The appliance uses SAP Best Practices as main business content.

The chart below summarizes the Best Practices scope for SAP S/4HANA 1909 (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 1909 is available for 42 countries/regions and 39 languages:

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, South Africa, South Korea, Spain, Sweden, Switzerland, Taiwan, Thailand, Turkey, United Arab Emirates, United Kingdom, United States

In the appliance, all available localizations are activated (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 company code 1710).

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

Localization Coverage - 1909



42

Country/Region Versions



39

Languages

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, South Africa, South Korea, Spain, Sweden, Switzerland, Taiwan, Thailand, Turkey, United Arab Emirates, United Kingdom, United States

Arabic, Bulgarian, Catalan, Chinese (simplified), Chinese (traditional), Croatian, Czech, Danish, Dutch, English, Estonian, Finnish, French, German, Greek, Hebrew, Hindi, Hungarian, Italian, Japanese, Kazakh, Korean, Latvian, Lithuanian, Malay, Norwegian, Polish, Portuguese, Romanian, Russian, Serbo-Croatian, Slovak, Slovenian, Spanish, Swedish, Thai, Turkish, Ukrainian, Vietnamese

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New in 1909
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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 to experience the activation of SAP Best Practices on your own (see the [SAP Best Practices implementation guide](#) for details)
- 400 contains the activated Best Practices based on the merged-client-000 approach

Please see chapter 2 for default users and logon procedures.

SAP S/4HANA 1909 Fully-Activated Appliance

What client is used for what ?

ABAP Client	Description
100 Trial & exploration client (merged-000-client **)	<ul style="list-style-type: none"> Pre-activated SAP Best Practices for SAP S/4HANA 1909 (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-client approach
200 Ready-to-Activate client (white list **)	<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 (merged-000-client **)	<ul style="list-style-type: none"> Full copy of client 000 customizing with SAP S/4HANA 1909 Best Practices activation (42 localizations*) This is the standard delivery state of Best Practices (no additional configuration, no corrections applied)

(*) There are 42 localizations contained in the SAP S/4HANA 1909 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, South Africa, South Korea, Spain, Sweden, Switzerland, Taiwan, Thailand, Turkey, United Arab Emirates, United Kingdom, United States

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

Client 300 (full activation on white-list client) is not delivered in SAP S/4HANA 1909 SP00.

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Public

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(*) 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 Whitelist and merged-000 can be found in the [Implementation Guide](#) → *Prerequisite Settings* → *Setting up a new Best Practices Client - Client Setup Alternatives*.

1.5 Post-installation Steps & Sample Demo Walkthroughs

Once you have created a system instance in SAP CAL, you will have a principally working system.

However, there are some settings that you should adapt prior to first usage to ensure the best experience for your end users, such as setting the open materials management period to the current month.

Please see this blog (<https://blogs.sap.com/2019/04/23/sap-s4hana-fully-activated-appliance-demo-guides/>) for post-installation steps and extensive demo guides with sample walkthrough scenarios.

1.6 More Information & Support

1.6.1 More Information

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

Known issues blog in SAP Community: <https://blogs.sap.com/?p=897560>

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 (Quick Start Guide into SAP CAL)

<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=PLWV533hWWvDmww3OX9YPhjS1l1n6o-H2>

1.6.2 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 very 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

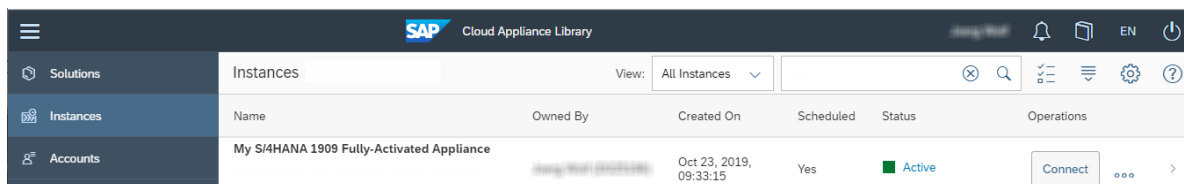
The appliance can be accessed via a preconfigured Windows remote desktop (option 1) or via client tools on your local PC (option 2).

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,

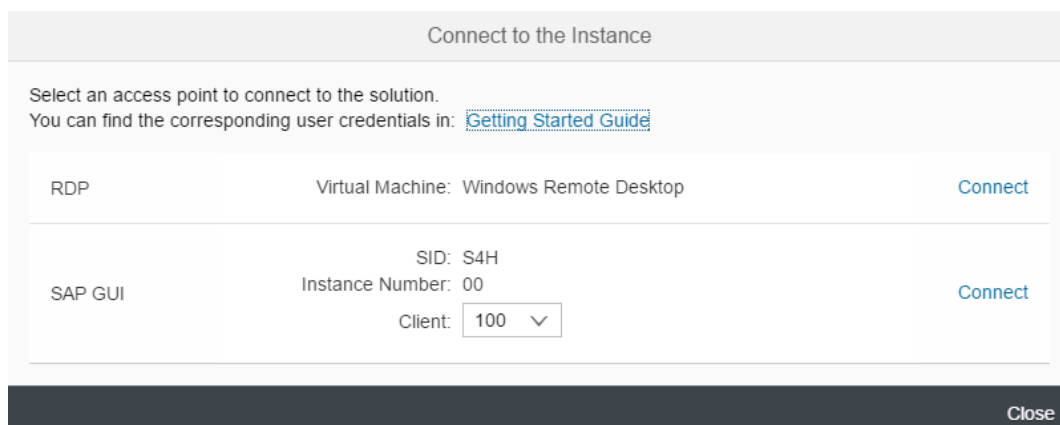
Since UI performance are usually better via access from your local PC, please evaluate if you can use this method as standard access. It requires administrator access on your PC and 5 minutes of effort.

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

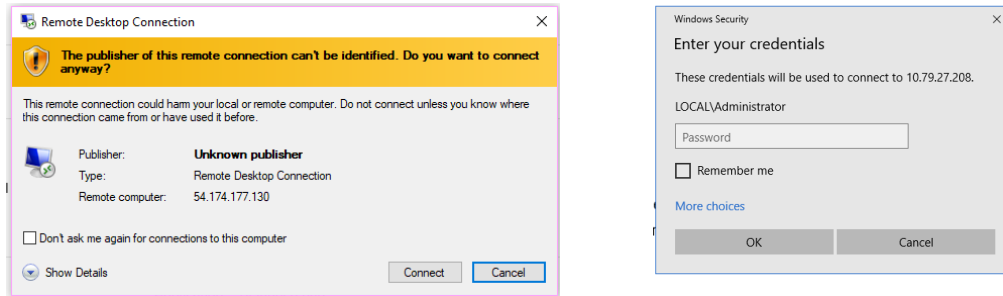
1. After your own solution instance is created, click the [Connect](#) button in the Instances view of the console.



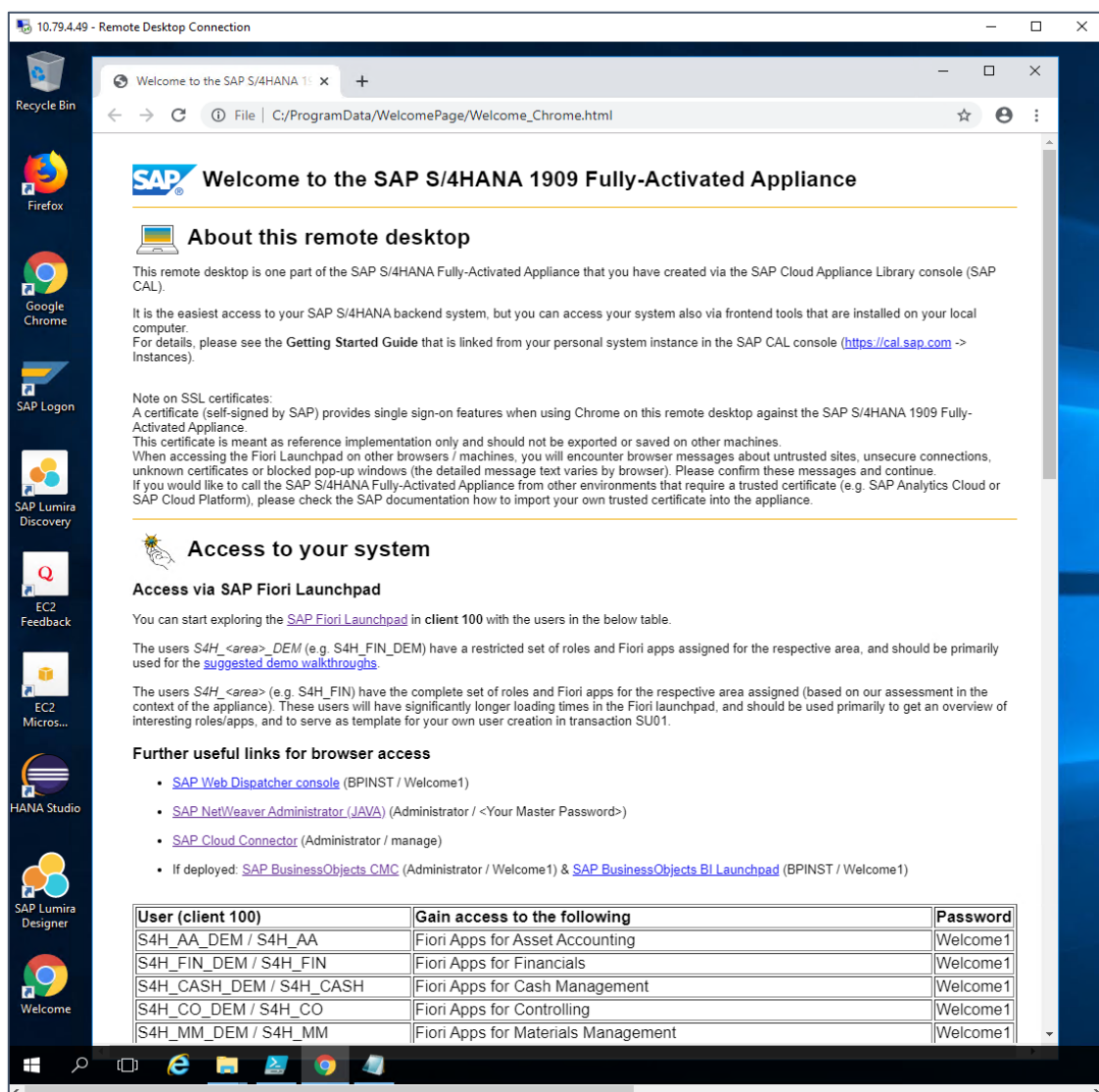
2. In the pop-up, click [Connect](#) in the "RDP Virtual Machine: Windows Remote Desktop" line.



- 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.



Note:

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.

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_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. Instructions for modifying it on a Mac can be found in the appendix.

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 vhcals4hcs vhcals4hcs vhcals4hcs.dummy.nodomain
<IP Address SAP NW JAVA/ASE/ADS server> vhcals4eci.dummy.nodomain vhcals4eci
vhcals4ecs.dummy.nodomain vhcals4ecs vhcals4ecs vhcals4ecs.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 (all password <i>Welcome1</i>)
000 Standard delivery client	<ul style="list-style-type: none">Nothing specific (standard customizing only)	<i>BPINST</i>
100 Trial & Exploration client	<ul style="list-style-type: none">Pre-activated SAP Best Practices for SAP S/4HANA 1909 (Germany & US, sample demo flow localized for US) *Customizing and transactional data in US company code (1710)SAP Fiori AppsBased on the <u>merged-client</u> approachBW configuration for Integrated Business Planning (IBP) <p><u>Note on the users:</u> 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</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)

Client	Business Content	Sample users (all password <i>Welcome1</i>)
	<p>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_PPM_...</i> (Portfolio & Project Management) • <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_EXPERT / MDG_APPROVER / MDG_REQUEST</i> (Master Data Governance) • <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</i>
400 SAP Best Practices reference client (merged-000-client)	<ul style="list-style-type: none"> • Pre-activated SAP Best Practices for SAP S/4HANA 1909 without transactional data • Based on the merged-client approach 	<i>BPINST</i>

All above users have the default password *Welcome1*.

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
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

Tenant database (use Single Container in 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
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

System database (use Multiple Containers → System DB in 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

The administration users for ASE and JAVA on operating system level are defined as follows:

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	

2.4.4 SAP BusinessObjects BI platform

The administration users for SAP BusinessObjects BI Platform are defined as follows:

Parameter ID	Parameter Value	Note
Administrator name	Administrator / Welcome1	Use for all administrative functions of the BI platform

Parameter ID	Parameter Value	Note
BI Power User	BPINST / Welcome1	

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 will need to create additional user IDs in the local user administration of the remote desktop.

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.

3 Licenses

3.1 First 30 days: Running the appliance as trial

In the first 30 days, the SAP license fees 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.

After the 30 days, your instance will go into a suspend mode unless you unlock the SAP S/4HANA Fully-Activated solution (see next section). If you decide to keep the trial instance from the first 30 days, all your changes in that instance will be preserved once you unlock the solution.

3.2 Beyond 30 days: Running the appliance 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 (see the sections below for details):

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

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.

3.2.1 SAP CAL subscription license

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.

3.2.2 SAP S/4HANA product licenses

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

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

Please note that 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 if you enter the above license keys, 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

3.2.3 License key installation in your instance

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

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

Note:

When you create the instance, a temporary 90-day license key is generated in your system. This will be enough for the 30-day trial phase and any delays that might occur while you generate your own license keys.

SID	Product	Version	DB	OS	Comment
<i>HDB</i>	<i>SAP HANA, platform edition</i>	<i>SAP HANA 2.0, platform edition</i>	<i>n/a</i>	<i>Linux</i>	<i>License type: SAP In-memory Appliance platform Quantity: 256 GB Memory Volume License needs to be applied in the HANA system DB (HANA Studio → Add System: Host</i>

SID	Product	Version	DB	OS	Comment
					<i>name vhcaldhdbdb or IP address, instance number 02, multiple containers > system database)</i>
<i>S4H</i>	<i>SAP S/4HANA</i>	<i>SAP S/4HANA 1909</i>	<i>SAP HANA database</i>	<i>Linux</i>	<i>N/A</i>
<i>J2E</i>	<i>SAP NetWeaver</i>	<i>SAP NetWeaver 7.5</i>	<i>Sybase ASE</i>	<i>Linux</i>	<i>As license type, select 'J2EE - Web AS JAVA'</i>
<i>BIP</i>	<i>Optional: SAP BusinessObjects Business Intelligence platform</i>	<i>SAP BusinessObjects Business Intelligence platform 4.2</i>	<i>n/a</i>	<i>Linux</i>	<i>Material: Choose SAP BO BI Platform ...</i>

4 Security Aspects in SAP CAL

4.1 Internet ports for accessing your system

By default, the following ports are opened for the security group of 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 if you can access that through 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

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

ABAP = SAP NetWeaver 7.53 AS ABAP incl. SAP S/4HANA

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 computing platform is convenient but less secure than providing it within your corporate network.

If you want to tighten the security, open as few ports as needed (e.g. only port 22 (SSH) for Linux-based solutions and port 3389 (RDP) for the Windows remote desktop).

In addition, we also recommend that you limit the access to your instances by defining a specific IP range in the Access Points settings, 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, which is described in [this tutorial on SCN](#).

You must change the initial user passwords provided by SAP when you log onto the system for the first time.

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.).

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 NetWeaver 7.54 application server ABAP incl. SAP S/4HANA 1909 FPS01

Component	Release	SP-Level	Support Package	Short Description of Component
SAP_BASIS	754	0001	SAPK-75401INSAPBASIS	SAP Basis Component
SAP_ABA	75E	0001	SAPK-75E01INSAPABA	Cross-Application Component
SAP_GWFND	754	0001	SAPK-75401INSAPGWFND	SAP Gateway Foundation
SAP_UI	754	0002	SAPK-75402INSAPUI	User Interface Technology
ST-PI	740	0012	SAPK-74012INSTPI	SAP Solution Tools Plug-In
SAP_BW	754	0001	SAPK-75401INSAPBW	SAP Business Warehouse
UIBAS001	500	0001	SAPK-50001INUIBAS001	UI for Basis Applications
MDG_FND	804	0001	SAPK-80401INMDGFND	MDG Foundation
S4FND	104	0001	SAPK-10401INS4FND	Foundation
MDG_APPL	804	0001	SAPK-80401INMDGAPPL	MDG Applications
MDG_UX	804	0001	SAPK-80401INMDGUX	MDG Additional User Interface
S4CORE	104	0001	SAPK-10401INS4CORE	S4CORE
S4CRM	204	0001	SAPK-20401INS4CRM	S4CRM
SAP_HR	608	0073	SAPKE60873	Human Resources
SAP_HRCAE	608	0073	SAPK-60873INSAPHRCAE	Subcomponent SAP_HRCAE of SAP_HR
SAP_HRCAR	608	0073	SAPK-60873INSAPHRCAR	Subcomponent SAP_HRCAR of SAP_HR
SAP_HRCAT	608	0073	SAPK-60873INSAPHRCAT	Subcomponent SAP_HRCAT of SAP_HR
SAP_HRCAU	608	0073	SAPK-60873INSAPHRCAU	Subcomponent SAP_HRCAU of SAP_HR
SAP_HRCBE	608	0073	SAPK-60873INSAPHRCBE	Subcomponent SAP_HRCBE of SAP_HR
SAP_HRCBG	608	0073	SAPK-60873INSAPHRCBG	Subcomponent SAP_HRCBG of SAP_HR

Component	Release	SP-Level	Support Package	Short Description of Component
SAP_HRCBR	608	0073	SAPK-60873INSAPHRCBR	Subcomponent SAP_HRCBR of SAP_HR
SAP_HRCCA	608	0073	SAPK-60873INSAPHRCCA	Subcomponent SAP_HRCCA of SAP_HR
SAP_HRCCH	608	0073	SAPK-60873INSAPHRCCH	Subcomponent SAP_HRCCH of SAP_HR
SAP_HRCCL	608	0073	SAPK-60873INSAPHRCCL	Subcomponent SAP_HRCCL of SAP_HR
SAP_HRCCN	608	0073	SAPK-60873INSAPHRCCN	Subcomponent SAP_HRCCN of SAP_HR
SAP_HRCCO	608	0073	SAPK-60873INSAPHRCCO	Subcomponent SAP_HRCCO of SAP_HR
SAP_HRCCZ	608	0073	SAPK-60873INSAPHRCCZ	Subcomponent SAP_HRCCZ of SAP_HR
SAP_HRCDE	608	0073	SAPK-60873INSAPHRCDE	Subcomponent SAP_HRCDE of SAP_HR
SAP_HRCDK	608	0073	SAPK-60873INSAPHRCDK	Subcomponent SAP_HRCDK of SAP_HR
SAP_HRCEG	608	0073	SAPK-60873INSAPHRCEG	Subcomponent SAP_HRCEG of SAP_HR
SAP_HRCES	608	0073	SAPK-60873INSAPHRCES	Subcomponent SAP_HRCES of SAP_HR
SAP_HRCFI	608	0073	SAPK-60873INSAPHRCFI	Subcomponent SAP_HRCFI of SAP_HR
SAP_HRCFR	608	0073	SAPK-60873INSAPHRCFR	Subcomponent SAP_HRCFR of SAP_HR
SAP_HRCGB	608	0073	SAPK-60873INSAPHRCGB	Subcomponent SAP_HRCGB of SAP_HR
SAP_HRCGR	608	0073	SAPK-60873INSAPHRCGR	Subcomponent SAP_HRCGR of SAP_HR
SAP_HRCHK	608	0073	SAPK-60873INSAPHRCHK	Subcomponent SAP_HRCHK of SAP_HR
SAP_HRCHR	608	0073	SAPK-60873INSAPHRCHR	Subcomponent SAP_HRCHR of SAP_HR
SAP_HRCHU	608	0073	SAPK-60873INSAPHRCHU	Subcomponent SAP_HRCHU of SAP_HR
SAP_HRCID	608	0073	SAPK-60873INSAPHRCID	Subcomponent SAP_HRCID of SAP_HR
SAP_HRCIE	608	0073	SAPK-60873INSAPHRCIE	Subcomponent SAP_HRCIE of SAP_HR
SAP_HRCIN	608	0073	SAPK-60873INSAPHRGIN	Subcomponent SAP_HRCIN of SAP_HR
SAP_HRCIT	608	0073	SAPK-60873INSAPHRGIT	Subcomponent SAP_HRCIT of SAP_HR
SAP_HRCJP	608	0073	SAPK-60873INSAPHRJJP	Subcomponent SAP_HRCJP of SAP_HR
SAP_HRCKR	608	0073	SAPK-60873INSAPHRCKR	Subcomponent SAP_HRCKR of SAP_HR
SAP_HRCKW	608	0073	SAPK-60873INSAPHRCKW	Subcomponent SAP_HRCKW of SAP_HR
SAP_HRCKZ	608	0073	SAPK-60873INSAPHRCKZ	Subcomponent SAP_HRCKZ of SAP_HR

Component	Release	SP-Level	Support Package	Short Description of Component
SAP_HRRXX	608	0073	SAPK-60873INSAPHRRXX	Subcomponent SAP_HRRXX of SAP_HR
EA-DFPS	804	0001	SAPK-80401INEADFPS	SAP Enterprise Extension Defense Forces & Public Security
EA-HR	608	0073	SAPK-60873INEAHR	SAP Enterprise Extension HR
EA-HRCAE	608	0073	SAPK-60873INEAHRCAE	Subcomponent EA-HRCAE of EA-HR
EA-HRCAR	608	0073	SAPK-60873INEAHRCAR	Subcomponent EA-HRCAR of EA-HR
EA-HRCAT	608	0073	SAPK-60873INEAHRCAT	Subcomponent EA-HRCAT of EA-HR
EA-HRCAU	608	0073	SAPK-60873INEAHRCAU	Subcomponent EA-HRCAU of EA-HR
EA-HRCBE	608	0073	SAPK-60873INEAHRCBE	Subcomponent EA-HRCBE of EA-HR
EA-HRCBG	608	0073	SAPK-60873INEAHRCBG	Subcomponent EA-HRCBG of EA-HR
EA-HRCBR	608	0073	SAPK-60873INEAHRCBR	Subcomponent EA-HRCBR of EA-HR
EA-HRCCA	608	0073	SAPK-60873INEAHRCCA	Subcomponent EA-HRCCA of EA-HR
EA-HRCCH	608	0073	SAPK-60873INEAHRCCH	Subcomponent EA-HRCCH of EA-HR
EA-HRCCL	608	0073	SAPK-60873INEAHRCCCL	Subcomponent EA-HRCCL of EA-HR
EA-HRCCN	608	0073	SAPK-60873INEAHRCCN	Subcomponent EA-HRCCN of EA-HR
EA-HRCCO	608	0073	SAPK-60873INEAHRCCO	Subcomponent EA-HRCCO of EA-HR
EA-HRCCZ	608	0073	SAPK-60873INEAHRCCZ	Subcomponent EA-HRCCZ of EA-HR
EA-HRCDE	608	0073	SAPK-60873INEAHRCDE	Subcomponent EA-HRCDE of EA-HR
EA-HRCDK	608	0073	SAPK-60873INEAHRCDK	Subcomponent EA-HRCDK of EA-HR
EA-HRCEG	608	0073	SAPK-60873INEAHRCEG	Sub component EA-HRCEG of EA-HR
EA-HRCES	608	0073	SAPK-60873INEAHRCES	Subcomponent EA-HRCES of EA-HR
EA-HRCFI	608	0073	SAPK-60873INEAHRCFI	Subcomponent EA-HRCFI of EA-HR
EA-HRCFR	608	0073	SAPK-60873INEAHRCFR	Subcomponent EA-HRCFR of EA-HR
EA-HRCGB	608	0073	SAPK-60873INEAHRCGB	Subcomponent EA-HRCGB of EA-HR
EA-HRCGR	608	0073	SAPK-60873INEAHRCGR	Subcomponent EA-HRCGR of EA-HR
EA-HRCHK	608	0073	SAPK-60873INEAHRCHK	Subcomponent EA-HRCHK of EA-HR
EA-HRCHR	608	0073	SAPK-60873INEAHRCHR	Subcomponent EA-HRCHR of EA-HR

Component	Release	SP-Level	Support Package	Short Description of Component
EA-HRCTH	608	0073	SAPK-60873INEAHRCTH	Subcomponent EA-HRCTH of EA-HR
EA-HRCTR	608	0073	SAPK-60873INEAHRCTR	Subcomponent EA-HRCTR of EA-HR
EA-HRCTW	608	0073	SAPK-60873INEAHRCTW	Subcomponent EA-HRCTW of EA-HR
EA-HRCUA	608	0073	SAPK-60873INEAHRCUA	Subcomponent EA-HRCUA of EA-HR
EA-HRCUN	608	0073	SAPK-60873INEAHRGUN	Subcomponent EA-HRCUN of EA-HR
EA-HRCUS	608	0073	SAPK-60873INEAHRCUS	Subcomponent EA-HRCUS of EA-HR
EA-HRCVE	608	0073	SAPK-60873INEAHRCVE	Subcomponent EA-HRCVE of EA-HR
EA-HRCZA	608	0073	SAPK-60873INEAHRCZA	Subcomponent EA-HRCZA of EA-HR
EA-HRGXX	608	0073	SAPK-60873INEAHRGXX	Subcomponent EA-HRGXX of EA-HR
EA-HRRXX	608	0073	SAPK-60873INEAHRRX	Subcomponent EA-HRRXX of EA-HR
EA-PS	804	0001	SAPK-80401INEAPS	SAP Enterprise Extension Public Services
FI-CAX	804	0001	SAPK-80401INFICAX	FI-CA Extended
INSURANCE	804	0001	SAPK-80401ININSURANC	SAP Insurance
IS-OIL	804	0001	SAPK-80401INISOIL	IS-OIL
IS-PRA	804	0001	SAPK-80401INISPRA	SAP IS-PRA
IS-PS-CA	804	0001	SAPK-80401INISPSCA	IS-PUBLIC SECTOR CONTRACT ACCOUNTING
IS-UT	804	0001	SAPK-80401INISUT	SAP Utilities/Telecommunication
S4COREOP	104	0001	SAPK-10401INS4COREOP	S/4HANA, On-Premise only parts
GBX01HR	600	0015	SAPK-60015INGBX01HR	FIORI X1 HCM
GBX01HR5	605	0012	SAPK-60512INGBX01HR5	FIORI X1 HCM
SRA004	600	0011	SAPK-60011INSRA004	Create Travel Request OData Integration
UIAPFI70	700	0001	SAPK-70001INUAPFI70	UI SFIN
UIHR001	100	0015	SAPK-10015INUHR001	UI for ERP Human Capital Management
UIHR002	100	0008	SAPK-10008INUHR002	UI for ERP Human Capital Management 100
UIS4HOP1	500	0001	SAPK-50001INUIS4HOP1	UI for S/4HANA On Premise
PERSONAS	300	0010	SAPK-30010INPERSONAS	PERSONAS - SAP GUI PERSONALISATION
ST-A/PI	01T_731	0002	SAPKITAB9W	Servicetools for SAP Basis 731 and higher

6.1.2 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

6.1.3 Windows Remote Desktop

- SAP GUI for Windows 7.50
- SAP HANA Studio & ABAP Development Tools
- SAP Lumira 2.0 (Discovery & Designer)
- Google Chrome
- Mozilla Firefox

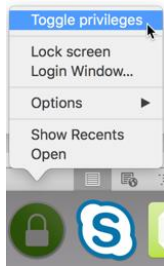
6.1.4 SAP BusinessObjects BI Platform 4.2

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

6.2 How to change the hosts file on Apple Mac

This section describes how to add the IP addresses of your instance to the hosts file on an Apple computer.

1. Start by toggling your Mac privileges so you are an administrator



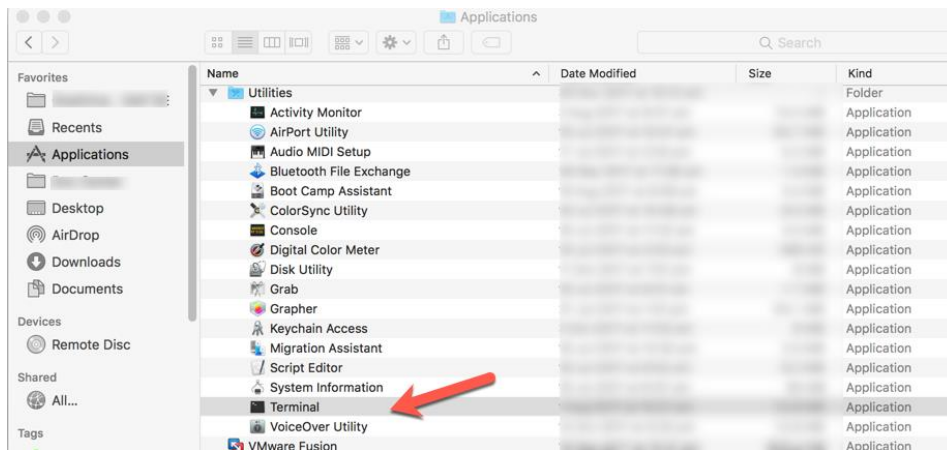
2. Make sure you are now in administrator mode



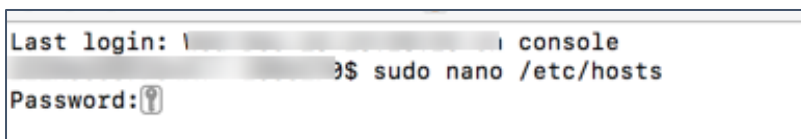
3. Open a Finder Window



4. In Applications, find *Terminal* in the Utilities folder



5. open the *terminal* utility
6. Type in: `sudo nano /etc/hosts`



7. You will be asked to provide your administrator password.
Once you have successfully entered your password, you can edit the file.
8. Add the necessary lines as described in chapter 2 of this guide.
9. When you are done, press CTRL + O to save
10. Press ENTER to confirm overwrite of file
11. Press CTRL + X to exit



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