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# Installing SAP AS ABAP 7.52 SP04 on Oracle Virtual Box [Developer Edition]



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## A. INTRODUCTION

The ABAP application server on ASE 16.0 provides a great platform for trying out the ABAP language and toolset. It is extensively pre-configured with Fiori launchpad, SAP Cloud Connector, SAP Java Virtual Machine, pre-configured backend /frontend connections, roles, and sample applications.

This solution is intended for two groups of developers:

- **Non-ABAP developers**, who are interested in learning more about the ABAP language and development tools
- **ABAP developers**, who are interested in learning about version 7.52

It contains:

- SAP AS ABAP 7.52 SP04
- SAP GUI for the Java 7.5 and SAP GUI for Windows 7.50
- SAP Sybase ASE 16.0 SP02

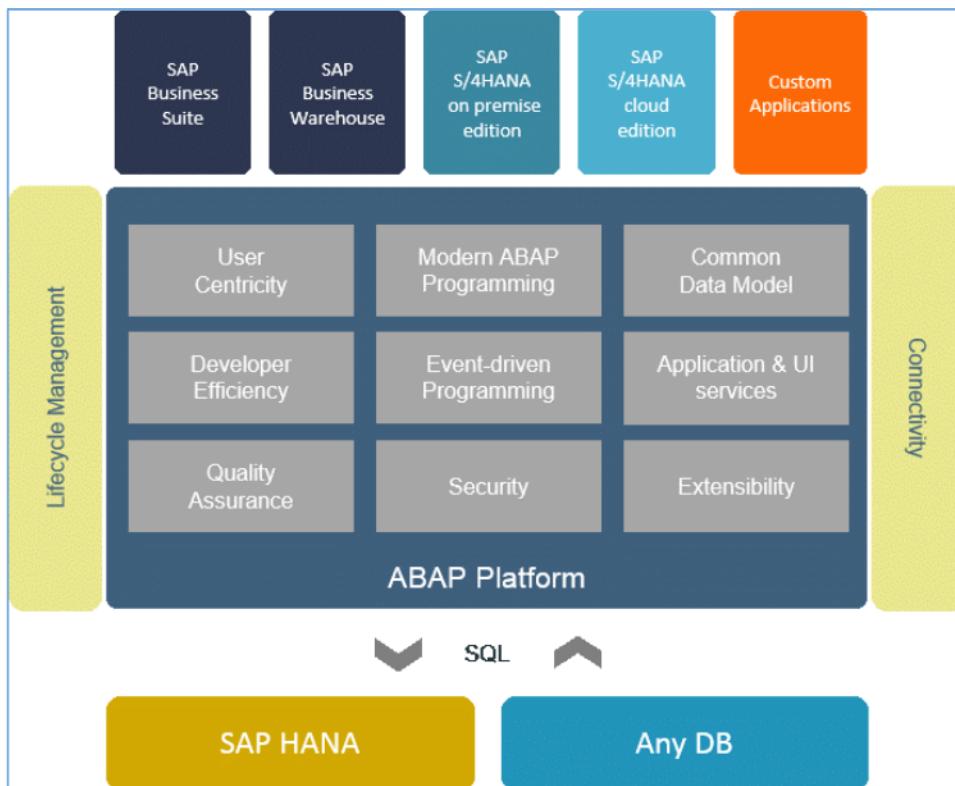


Fig. 1 : SAP AS ABAP Architecture

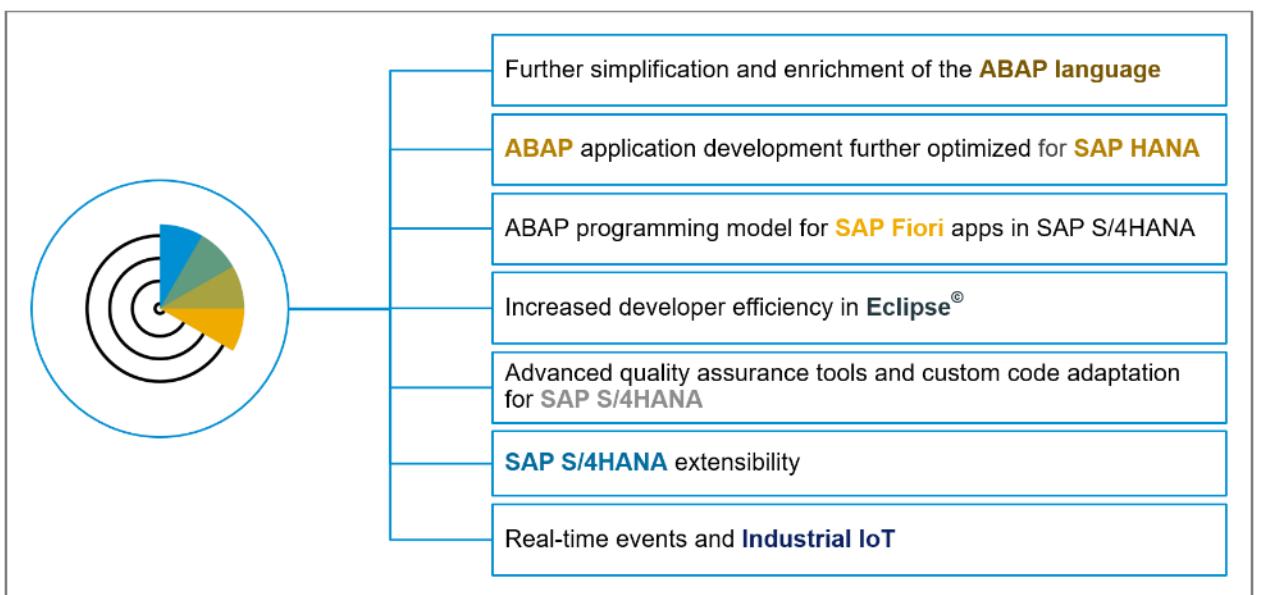
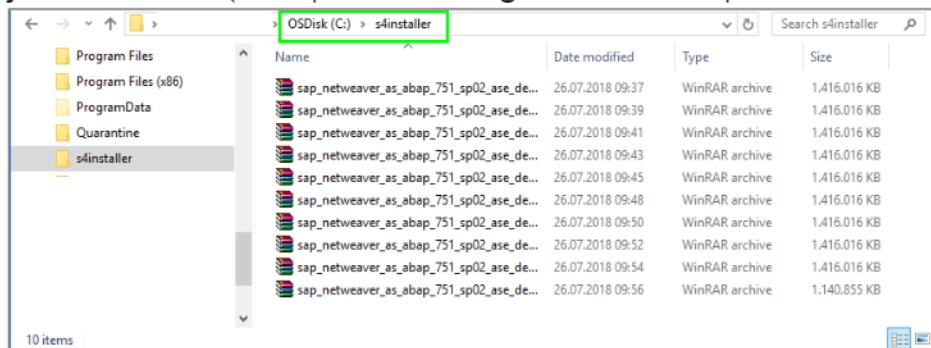


Fig. 2: AS ABAP 7.52 SP04 Highlights

More information: Presentation: [SAP NetWeaver AS for ABAP 7.52 Package – Overview and Product Highlights](#)

## B. PREPARATION

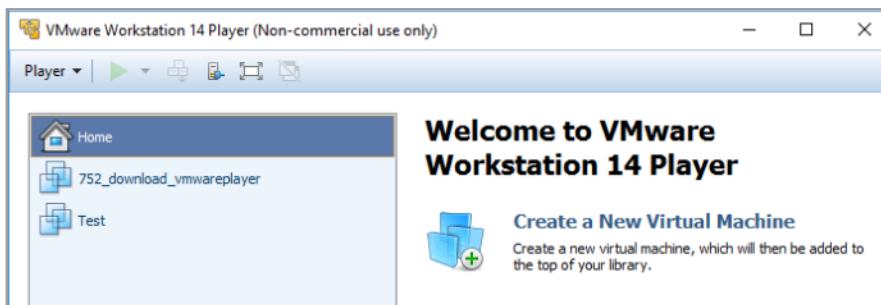
1. Ensure you have the following hardware:
  - x86\_64 Processor based hardware
  - S
  - About 100 GB free disk space for server installation
  - About 2 GB free disk space for client installation
  - English – SAP AS ABAP requires that you configure English (LANG=en\_US.UTF-8) as the operating system language
2. Download VMware Workstation Player, version 14.0 for your operating system from here: [VMWare Workstation Player 14.0](#). Note: Do not install version 15.0 yet. There is currently an issue with version 15 and some versions of Windows (independent of AS ABAP).
3. Download openSUSE Leap 15 in your local machine (64 bit, released version) from: <https://software.opensuse.org/distributions/leap>
4. Download all the ABAP download files from: <https://developers.sap.com/trials-downloads.html> (search for “ABAP 7.52” ) and store them all in a new folder, directly on your local drive. (If the path is too long, the extraction process will not work correctly):



5. Download and install WinSCP (FTP client for Windows):  
<https://winscp.net/eng/download.php>  
WinSCP is a convenient FTP client for copying the ABAP installation files from your local PC / Laptop to the Linux system. *If your OS System is not Microsoft Windows, you need to use a tool similar to WinSCP.*

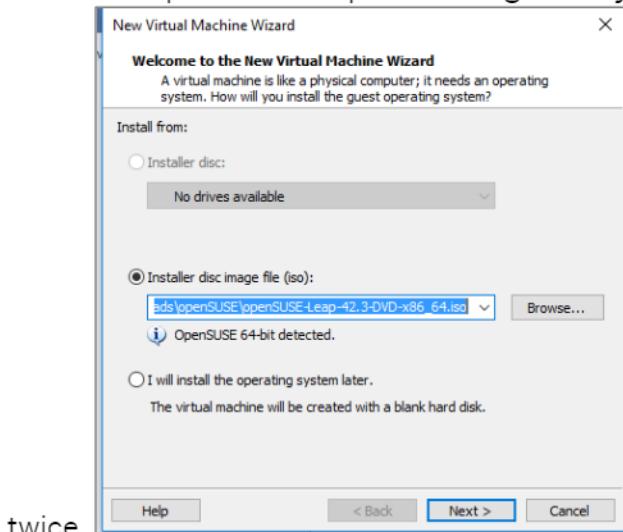
## C. CREATE VMWARE INSTANCE; INSTALL OPENSUSE

- 1) Start VMWare Player and create a new virtual machine by clicking Create a New Virtual Machine:

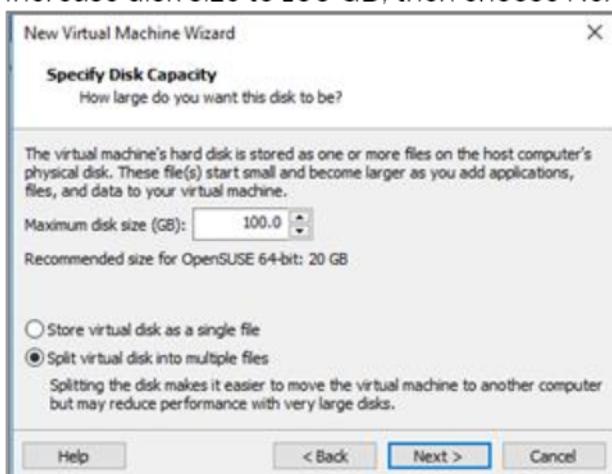


In the wizard:

- 2) Select the openSUSE Leap 15 iso image from your local hard drive, then choose Next



- 3) Increase disk size to 100 GB, then choose Next – but do not click Finish!:



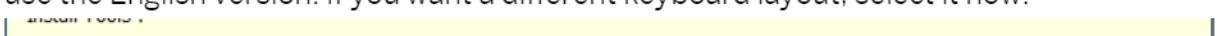


- 4) In Customize Hardware, enter the following values, then choose Close > Finish:
  - Select Processors: 4
  - Memory size = 8192 (approximately 8GB)
- 5) In the openSUSE screen, choose Installation (using keyboard, not mouse):

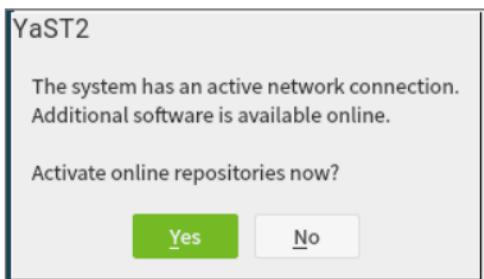


Important: When the installation wizard appears, choose language and keyboard layout (test keyboard).

NOTE: We have only tested the US English-language version. If you have problems, please use the English version. If you want a different keyboard layout, select it now:



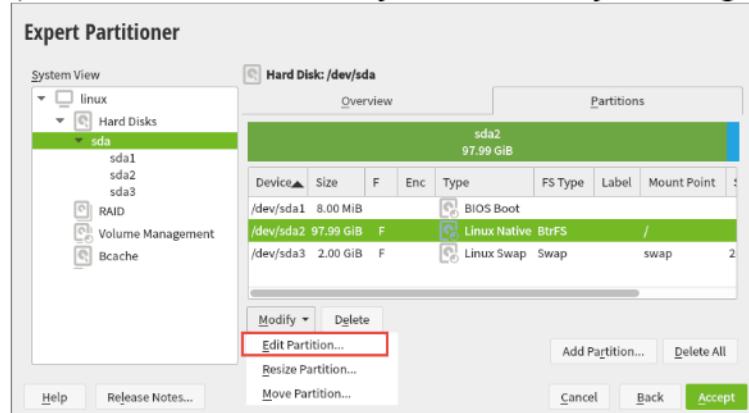
- Read and accept the License Agreement by choosing Next.
- Activate the online repositories, if asked.



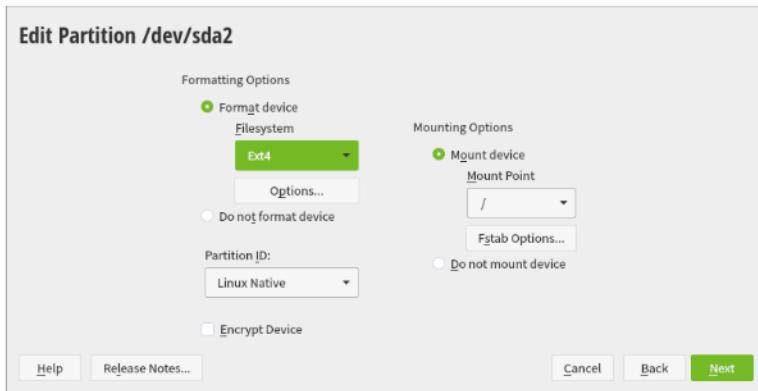
- 6) In Desktop Selection, choose GNOME desktop -> Next

- 7) In Suggested Partitioning:

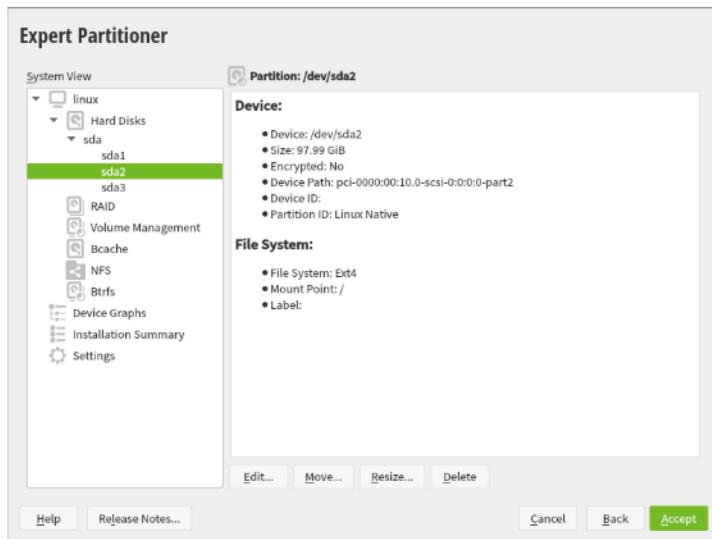
- a) Choose Expert Partitioner, then choose your hard disk, e.g. sda2, then choose Modify > Edit Partition.  
(Note: You can tell which is your hard disk by checking the size.)



b) Choose filesystem > Ext4 > Next.



c) Choose Accept.



d) Choose OK > Next

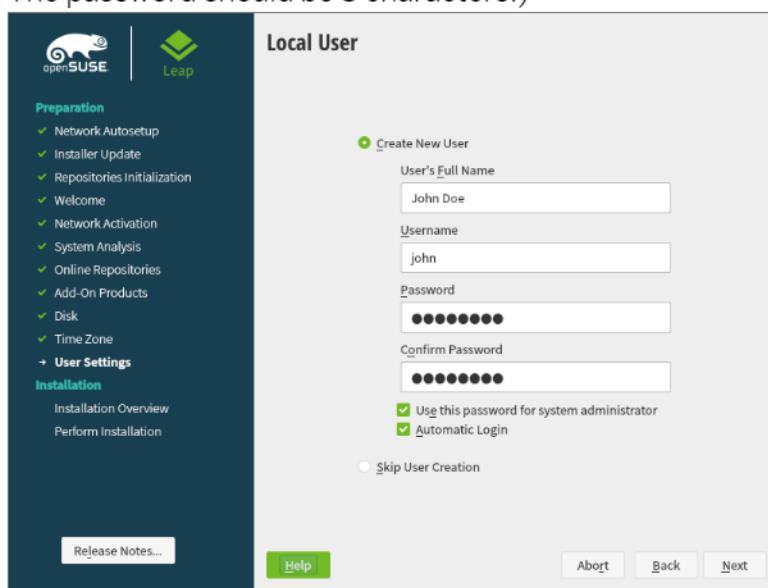
8) Select your Region and Timezone -> *Next*



a) In Desktop Selection, choose GNOME desktop -> *Next*

9) Enter:

- Your full name
- User name (provided by default, based on your full name)
- Create a master password, confirm it, then choose *Next*  
(I ticked *Use this password for system administrator* and *Automatic Login*. Leave the authentication method and encryption method as they are.  
The password should be 8 characters.)



10) IMPORTANT: In *Installation Settings*, do not choose *Install* yet!

11) You need to make the following settings. Scroll down to find Firewall and SSH:

- Disable Firewall
- Enable SSH service:



12) Click on *Install* and *Confirm* again to Install the Operating System.

### The Linux operating system will install

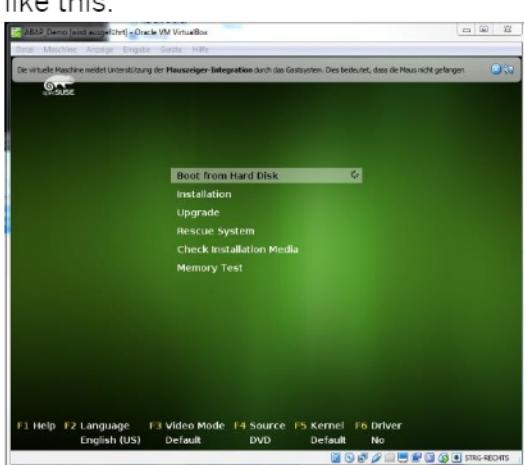
*So far so good. Time to take a coffee...*

After installation you may be informed that there are updates available. I decided to update and reboot.

## D. PREPARE OPENSUSE SYSTEM FOR ABAP INSTALLATION

In this section, we will make some settings in the openSUSE system to prepare it for the ABAP installation:

- Change proxy settings;
  - Download and extract the ABAP .rar files;
  - Install the uuidd daemon;
  - Edit the hostname and hosts files;
  - Assign root privileges to the install script
1. If you have successfully installed the openSUSE operating system, you will see something like this:



2. Boot up the system by choosing the first option, "Boot from Hard Disk."

Now, we have some settings to make before we install the ABAP server:

### Check memory

3. First, we want check used memory using a tool called Terminal.

(Background note: Technically speaking, we are interacting with the *shell*, a program that passes keyboard commands to the operating system. We are interacting with the shell using a *terminal emulator*, called Terminal).

- a) Again, choose *Activities*, then enter "T" as the search term.
- b) Choose *Terminal*.
- c) Check used memory by typing `df -h`  
(`df` = "disk filesystem"; `h` = "human-readable")

```

Filesystem      Size   Used  Avail Mounted on
/dev/sda1       2.0G  8.0K  2.0G  1% /dev
tmpfs          2.0G  176K  2.0G  1% /dev/shm
tmpfs          2.0G  1.9M  2.0G  1% /run
tmpfs          2.0G     0  2.0G  0% /sys/fs/cgroup
/dev/sda2       97G  4.4G  92G  5% /
/dev/sr0        4.4G  4.4G  0  100% /run/media/Fuchs/Downloads/openSUSE-Leap-42.1-BV

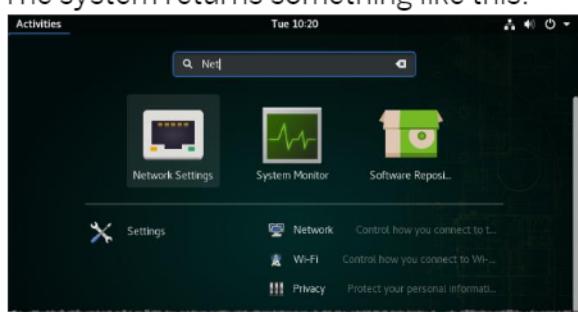
```

Minimum space in home directory, e.g. /dev/sda2 should be at least 90 GB to avoid memory errors during installation. (In this example, mine is 92G, or 5%).

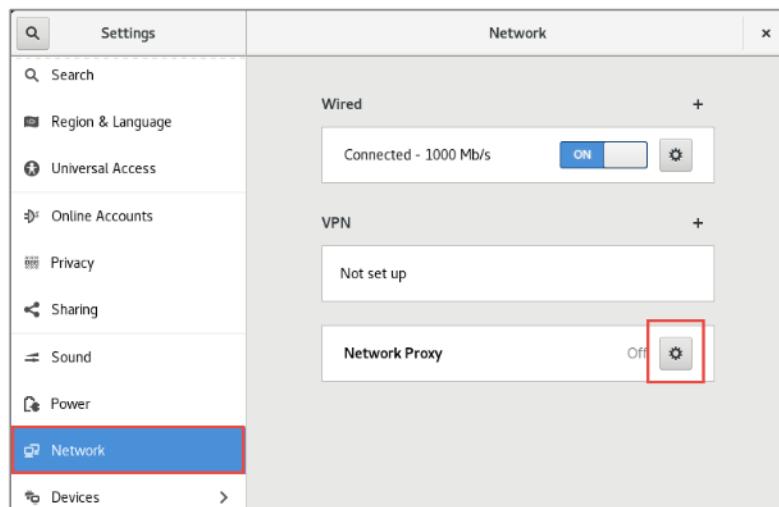
## Change the Proxy settings, if you are behind a proxy

4. Open *Activities* and enter “N” as the search term.

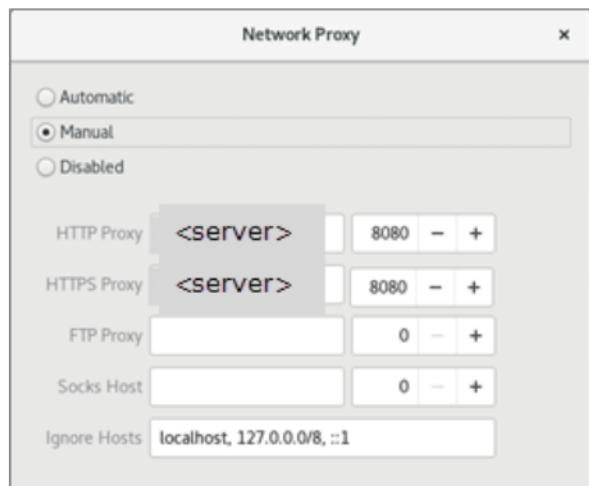
The system returns something like this:



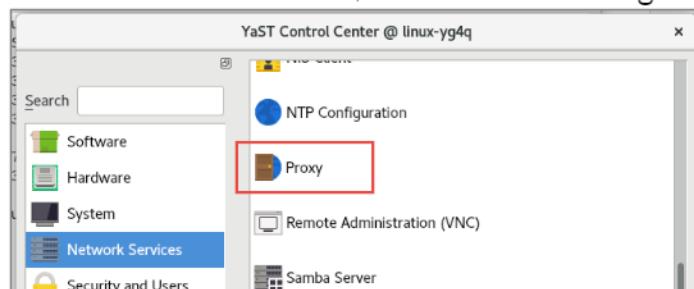
- Choose *Network*.
- In the dialog that opens, choose *Network Proxy*, then choose the Settings icon, then choose Manual.



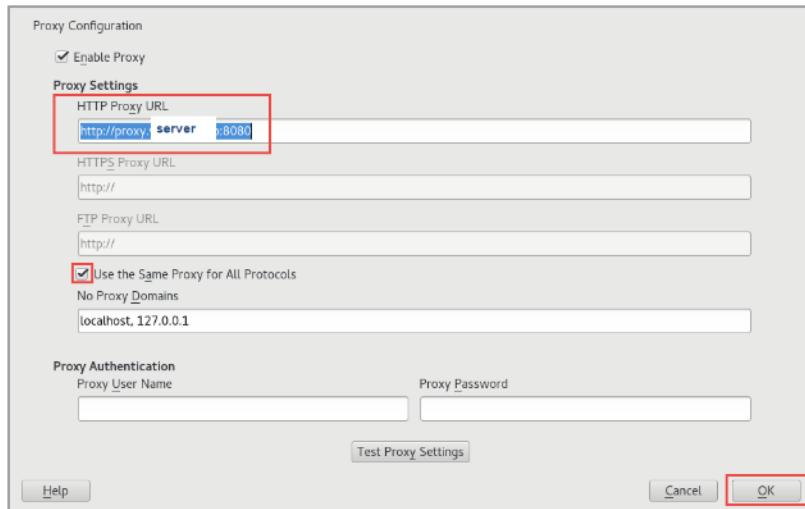
- c) Change the http and https proxy settings according to your company requirements and set the port to 8080:



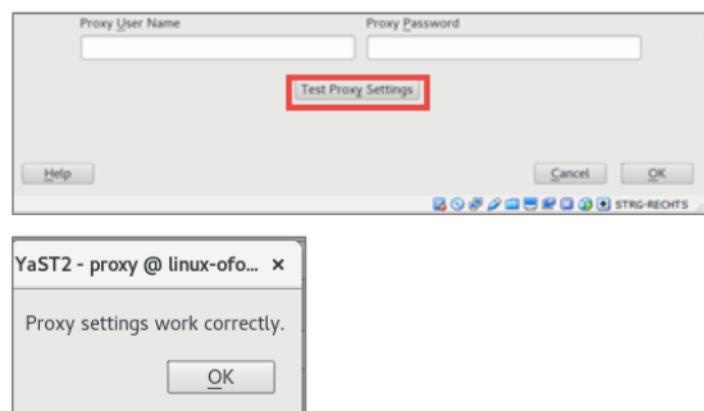
- d) Then close the window.
5. Open the system tool YaST (choose *Activities* -> enter "Y" as search term...).
- Enter your root password (ie the one you use to log on to the Linux system.)
  - Choose Network Services, scroll down on the right-hand side, then choose > Proxy:



- a) Change the HTTP proxy URL to `http://proxy.<proxy_server>: 8080`, tick *Use same for all*.

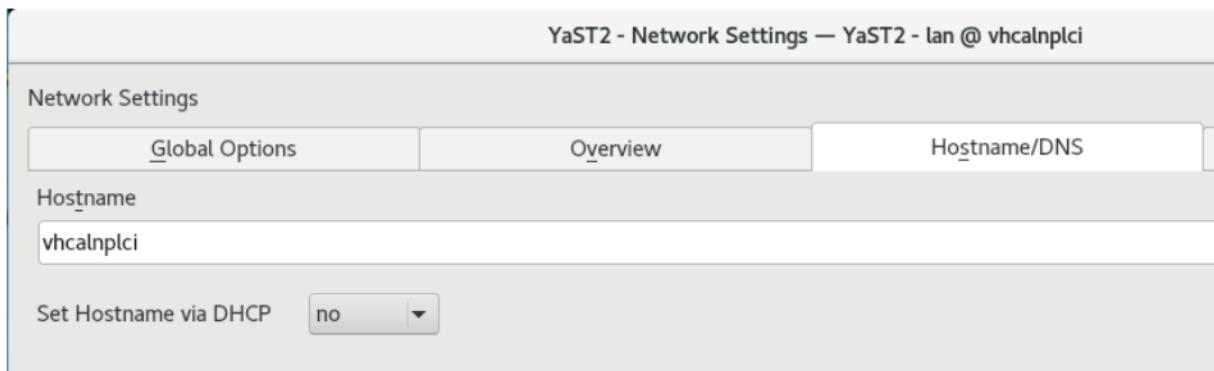


- b) Choose OK.  
6. Log out, then log in again; reopen YaST.  
7. Then test the proxy, using "Test Proxy Settings". Then choose OK, OK.



## Set DHCP setting to No

8. In YaST > System > Network Settings, Set Hostname via DHCP = No:



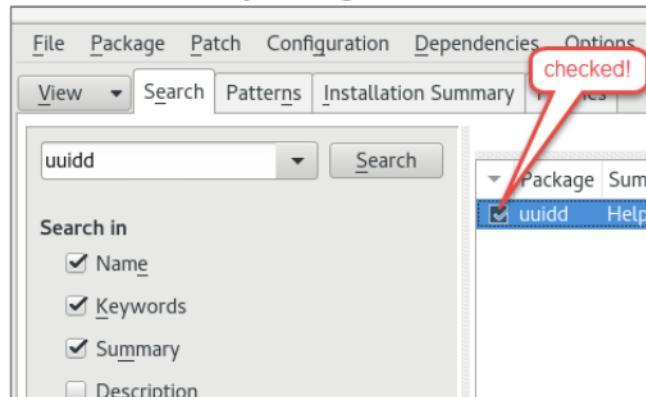
(Background: Depending on your DHCP setup, the operating system may change the host name - which means that vhcalnplci is no longer configured locally.)

## Install uuidd

Now we are going to install the `uuidd` daemon: This daemon provides universal unique identifiers – essential for creating database keys. (See SAP Note [1310037](#) for more details.) Still in YaST, choose Software > Online Update.

9. After online update is completed, open the *Search* tab, and enter the search term “`uuidd`”, then choose *Search*.

- a) Choose “`uuidd`” by ticking the checkbox, then choose *Accept*:



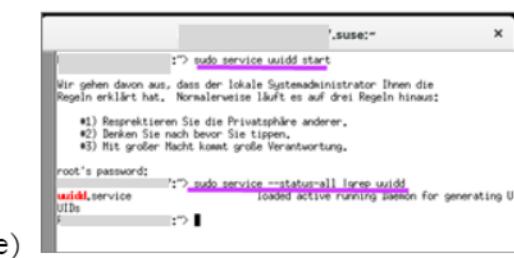
- b) YaST will install `uuidd`.
- c) Now reboot when prompted.

10. Similarly, we need to install the unpacking utility, `unrar`.

- a) Again, in Online Update, in Search, enter the term `unrar`.
- b) Tick the checkbox, choose Accept.
- c) Wait till `unrar` is complete and reboot when prompted.

11. Now we are going to start the `uuid` service in Terminal:

- Open Terminal.
- Start `uuid`, by entering: `sudo service uuid start`
- Enter the root's password.  
(Note: `sudo` = "superuser do" ie you need to be a superuser to execute this command. Thus, you also have entered the root's password.)
- Check if the service has started by entering: `sudo service --status-all |grep uuid`



12. We also need to check that `libaio` or `libaio1` is installed on your Linux system. In Terminal, enter the command `rpm -qa | grep libaio`. The system should return your libaio library and version no:  
`libaio1 1.0.3.109-22.3x86_64` (or similar).

## Edit the hostname and hosts files

13. Still in Terminal, we will change the hostname, by entering `sudo nano /etc/hostname`.

- Delete the name that is there and replace it with `vhalnplci`.  
IMPORTANT: Do not rename the server after installation. This feature has been removed from this developer edition for simplicity's sake.
- It should look something like this:



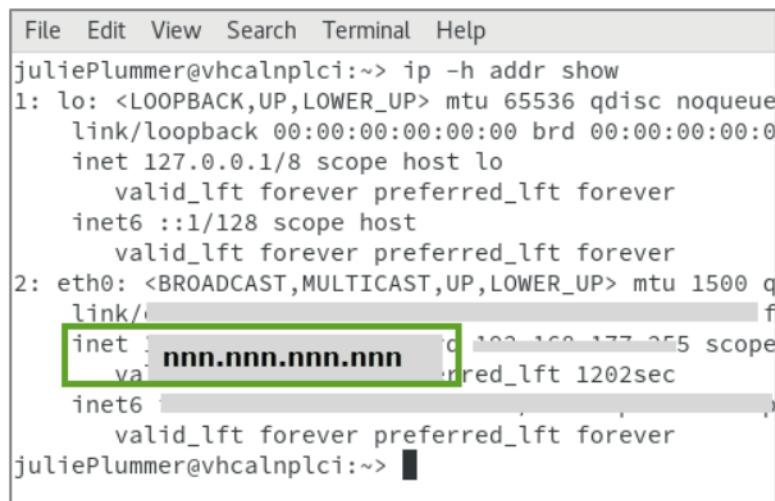
- Save your changes by choosing `Ctrl+o`, then Enter.
- Quit the editor by choosing `Ctrl+x`.
- Check by entering `sudo cat /etc/hostname`
- Restart network by entering: `sudo rcnetwork restart`

g) Restart your Linux instance

h) Check that the hostname has changed by entering **hostname**

14. Now we will map the IP address to the new hostname:

a) Check the IP address by entering **ip -h addr show**  
(-h = human-readable)



```
File Edit View Search Terminal Help
juliePlummer@vhcalnplci:~> ip -h addr show
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inetc6 ::1/128 scope host
        valid_lft forever preferred_lft forever
2: eth0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc f
    link/ether [REDACTED] brd [REDACTED]
    inet [REDACTED] nnn.nnn.nnn.nnn brd [REDACTED] valid_lft 1202sec
        inetc6 [REDACTED]
            valid_lft forever preferred_lft forever
juliePlummer@vhcalnplci:~>
```

b) Open the hosts file by entering **sudo nano /etc/hosts**

c) Using this IP address, add a new entry of the form:

<IP address> <hostname> <hostname>.dummy.nodomain  
ie <IP address> vhcalnplci vhcalnplci.dummy.nodomain



```
Activities Terminal Mon 12:26
julieplummer@vhcalnplci:~
```

```
File Edit View Search Terminal Help
GNU nano 2.8.5 File: /etc/hosts

# hosts This file describes a number of hostname-to-address
# mappings for the TCP/IP subsystem. It is mostly
# used at boot time, when no name servers are running.
# On small systems, this file can be used instead of a
# "named" name server.
# Syntax:
# IP-Address Full-Qualified-Hostname Short-Hostname
#
127.0.0.1 vhcalnplci vhcalnplci.dummy.nodomain
localhost

# special IPv6 addresses
::1 localhost ipv6-localhost ipv6-loopback
fe00::0 ipv6-localnet
ff00::0 ipv6-mcastprefix
ff02::1 ipv6-allnodes
[ Read 24 lines ]
Get Help Write Out Where Is Cut Text Justify Cur Pos
Exit Read File Replace Uncut Text To Spell Go To Line
```

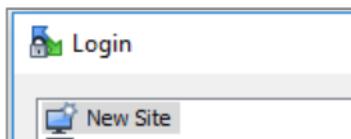
d) Again, save your changes by choosing **Ctrl+o**, then **Enter**.

e) Quit the editor by choosing **Ctrl+x**.

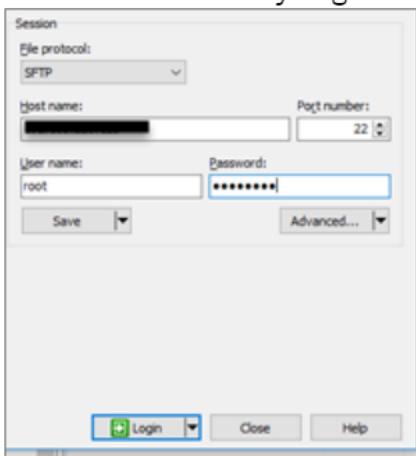
f) Check the changes by using the command `sudo cat /etc/hosts`

[Copy the ABAP files using WinSCP, then extract them in Linux](#)

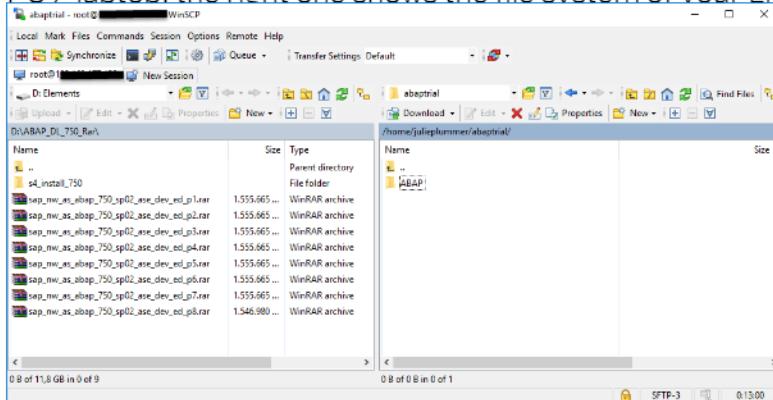
15. Start WinSCP and select New Site



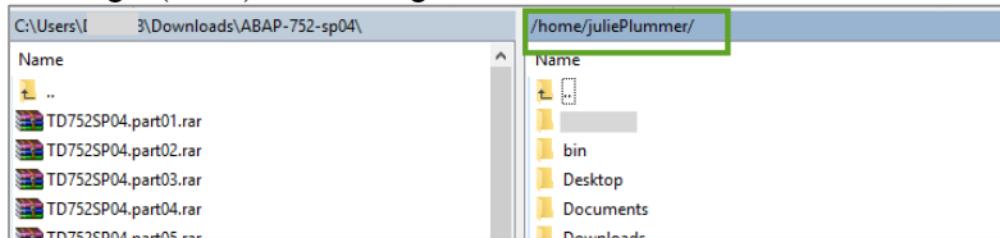
16. Take the IP address you got from command `ip -h addr show` above:



17. If you connect successfully, you'll see 2 tabs. The left shows the file structure your local PC / laptop, the right one shows the file system of your Linux appliance:



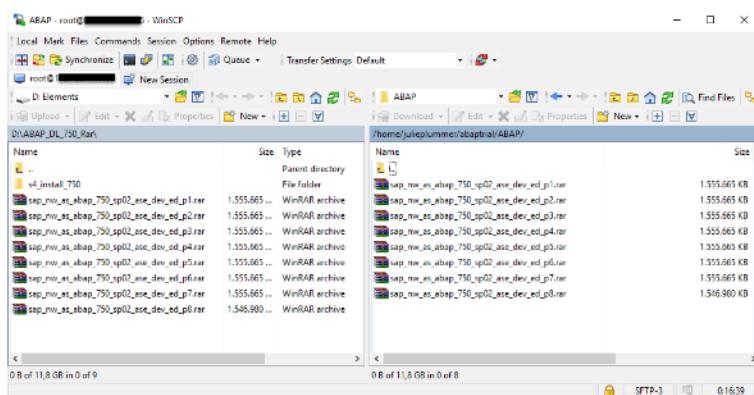
18. In the right (Linux) frame, navigate to `/home/<username>`



19. Create a directory named abaptrial, and within that, a directory named ABAP

20. In the left (Windows) frame, navigate to the folder that contains the ABAP installation files you downloaded before.

21. Copy the whole content to your `<username>/home/abaptrial/ABAP` folder. That will take a few minutes:



22. Now you need to unpack the .rar files in Linux.

- a) Go back to your Linux instance and open terminal
- b) In the download folder /home/abaptrial/ABAP, execute the following command (as superuser):  
`$ sudo unrar x TD752SP04.part01.rar`

(Note: “x” = “extract, retaining existing directory structure”. Unrar then extracts all files automatically.)

```
Extracting client/SAPGUI4Windows/50144807_6.ZIP          97%
Extracting from TD752SP04.part11.rar
...
      client/SAPGUI4Windows/50144807_6.ZIP          OK
Extracting client/JavaGUI/50144807_7.ZIP          OK
Extracting client/JavaGUI/PlatinManual_12-20012039.zip    OK
Extracting client/JavaGUI/PlatinManual750_5-80002496.ZIP    OK
All OK
juliePlummer@vhcalnplci:~/abaptrial/ABAP> █
```

Later, when the installation and setup of the ABAP System is done and everything works fine, you should delete the ABAP folder to save disk space on your virtual appliance.

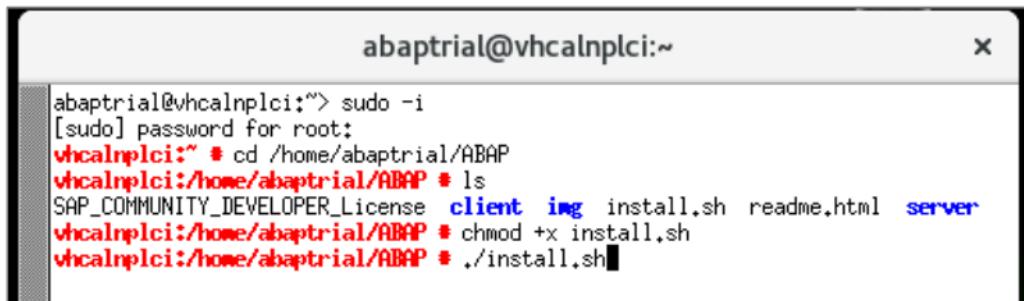
### Assign root privileges

23. And now... (last step before we install), we will assign root privileges, by entering `sudo -i`

- a) Enter the root's password and navigate to the shared folder with the ABAP installation:

```
File Edit View Search Terminal Help
vhcalnplci:~ # ls
.bash_history  .cache  .config  .curlrc  .dbus  .gnupg
vhcalnplci:~ # cd ~
vhcalnplci:~ # cd..
vhcalnplci:/ # ls
bin  boot  dev  etc  home  lib  lib64  lost+found  mnt
vhcalnplci:/ # cd home
vhcalnplci:/home # ls
juliePlummer
vhcalnplci:/home # cd juliePlummer/abaptrial/ABAP
vhcalnplci:/home/juliePlummer/abaptrial/ABAP #
```

- b) Change the access rights of the install script: `chmod +x install.sh`:

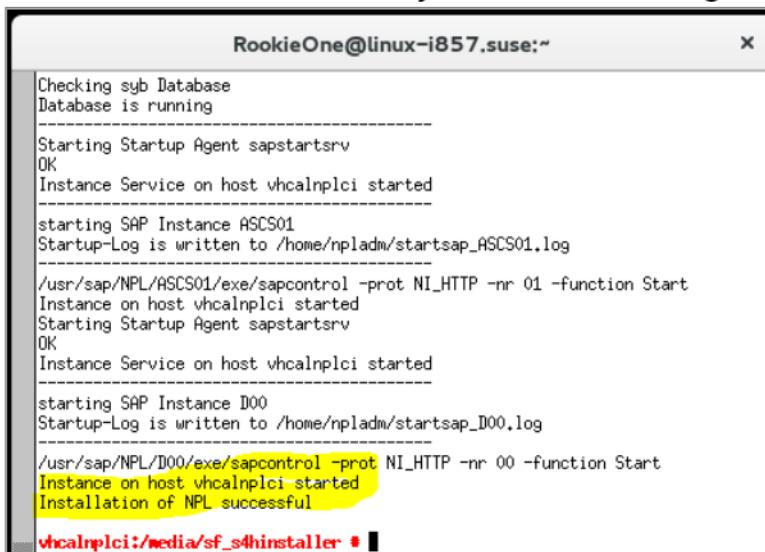


```
abaptrial@vhcalnplci:~$ sudo -i
[sudo] password for root:
vhcalnplci:~ # cd /home/abaptrial/ABAP
vhcalnplci:/home/abaptrial/ABAP # ls
SAP_COMMUNITY_DEVELOPER_License client img install.sh readme.html server
vhcalnplci:/home/abaptrial/ABAP # chmod +x install.sh
vhcalnplci:/home/abaptrial/ABAP # ./install.sh
```

## E. INSTALL THE AS ABAP SERVER

FINALLY, we run the installation, by entering the command `./install.sh`

1. Read and accept the license agreement (167 lines). To escape from the License Agreement, choose "Esc" followed by ":q".
2. When prompted for the OS user's password enter your master password of the virtual Linux OS instance twice
3. Be patient, this will take a while...
4. If the installation is successful, you will see something like this:



```
RookieOne@linux-i857.suse:~ 
Checking syb Database
Database is running
-----
Starting Startup Agent sapstartsrv
OK
Instance Service on host vhcalnplci started
-----
starting SAP Instance ASCS01
Startup-Log is written to /home/npladm/startsap_ASCS01.log
-----
/usr/sap/NPL/ASCS01/exe/sapcontrol -prot NI_HTTP -nr 01 -function Start
Instance on host vhcalnplci started
Starting Startup Agent sapstartsrv
OK
Instance Service on host vhcalnplci started
-----
starting SAP Instance D00
Startup-Log is written to /home/npladm/startsap_D00.log
-----
/usr/sap/NPL/D00/exe/sapcontrol -prot NI_HTTP -nr 00 -function Start
Instance on host vhcalnplci started
Installation of NPL successful
vhcalnplci:/media/sf_sf4installer #
```

5. If so, get out of root by entering: `su <username>`.

## F. INSTALL CLIENT(S)

### ABAP Development Tools (ADT) (“ABAP in Eclipse”)

To install ADT, go to [SAP Development Tools: ABAP](#) and follow the instructions there.

### SAP GUI for Windows

If you have already a SAP GUI installation you can connect to your system (see “[Connecting from SAP GUI for Windows](#), below). If not, this download ships with the installation files for SAP GUI for Windows, available in <install\_folder>\client\SAPGUI4Windows. Since you have extracted the .tar files in Linux, you need to move this folder to Windows in WinSCP (or equivalent):

1. Open WinSCP.
2. Navigate to <install\_folder>\client\SAPGUI4Windows\50144807\_6.ZIP
3. Copy 50144807\_6.ZIP to your Windows local drive and extract it.
4. In the extracted archive, navigate to ...PRES\GUI\Windows\Win32\SetupAll.exe and run it, following the instructions in the Wizard.

### SAP GUI for Java

This download ships with the installation files for SAP GUI for Java, available in: <install\_folder>\client\javogui .

Requirements for SAP GUI for Java include Oracle Java SE 8 32-bit or 64-bit, a properly installed Java Plugin and C++ runtime libstdc++.so.6.

### Getting started

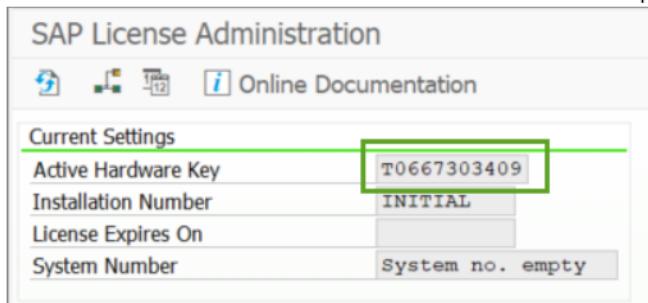
### Starting and stopping the server

To start the SAP system:

1. Switch to user **npladm** with default password in the console: **su npladm**
2. To start the SAP system, enter **startsap**
3. To stop the SAP system, switch to user **npladm** and enter **stopsap**.

## ABAP License Key

1. Start the SAP System and create a SAP GUI connection as above.
2. Log on to the system with the client 000 and user SAP\* with default password Download . In transaction SLICENSE , note down or copy your Active Hardware Key.



3. Request the license key for your trial version at [SAP Sneak Preview License Key Request](#).

NOTE: Do not use the link in the transaction SLICENSE in the panel Request License Key.

- a) Select *NPL – SAP NetWeaver 7.x (Sybase ASE)* as System ID.
- b) Enter your personal data and agree to the License Agreement.
- c) Choose *Generate* bottom right corner of screen.)
- d) The web site automatically generates a .txt file for this system/key. Download and save this file, eg on the desktop for convenience.

4. Go to transaction SLICENSE and install the license file:

- a) In the tab *Digitally signed licenses*, **delete the existing license**, then choose *Install*. This opens the text file you got and installs the new license key.

Please note that all the above steps **must** be carried out; otherwise, the above user key will not work.

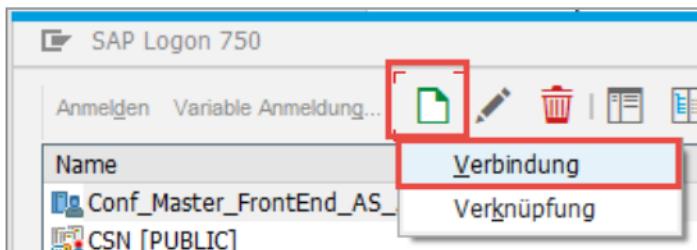
The system type changes to Demo. You can now explore the demo scenarios and develop using the ABAP tools in Eclipse and new features like the core data services or SAPUI5 UIs.

## Connecting to the ABAP server from SAP GUI for Windows

To connect to the ABAP server using SAP GUI for Windows:

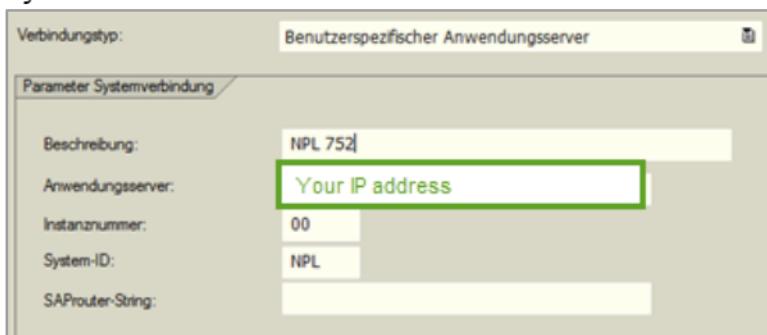
1. Navigate to your Windows hosts file: C:\Windows\System32\drivers\etc\hosts.
2. Open this file in Administrator mode and add the following lines:  
`#DL 752 SP02  
<ip_address> vhcalnplci vhcalnplci.dummy.nodomain`

3. In the SAP Logon pad, choose *New > Connection*:



4. Choose *User-specific system* and enter the following, entering your own IP address:

- Application server = <ip\_address>
- Instance = 00
- System ID = NPL



## Guides and Tutorials

The [Guides and Tutorials](#) page includes:

- Reference scenarios
- Tutorials, eg for ABAP Basics, Core Data Services, SAP Gateway...
- Developer Guide to SAP HANA Studio
- (Older tutorials)

## G. OPTIMIZATION OF SAP ASE DATABASE

### DBA Cockpit: Set password for its database connection

To use DBACOCKPIT, you need to set the user credentials of the database connection that DBACOCKPIT will use. To do so, follow the steps:

1. Log into the SAP system with SAP GUI using the user DEVELOPER, client 001 and your password
2. Call transaction DBCO
3. Switch to the Change mode (Ctrl + F1)
4. Select database connection +++SYBADM and click Goto → Details
5. Enter the correct password of SAP ASE database user sapsa
6. Hit the Save button (Ctrl + S)
7. Switch to the View mode (Ctrl + F4)

### SAP ASE: Deactivating Granular Permissions

The database of the SAP NetWeaver Developer Edition for SAP ASE is configured with granular permissions. This is the default setup for SAP ASE 16.0 SP03 running SAP NetWeaver. Since various parameters of the database are configured in a way to enable the usage of the SAP NetWeaver Developer Edition on small personal computers, you may experience a slow performance. If your use cases for the SAP NetWeaver Developer Edition do not require granular permissions being active and set up, you can improve performance by deactivating this option. You can achieve this by:

1. Log into the operating system as user sybnpl
2. Run the command isql -Usapsa -X -SNPL
3. Run command sp\_configure 'granular permission', 0
4. Run the command go
5. Run the command quit

### SAP ASE: Auditing

The database of the SAP NetWeaver Developer Edition for SAP ASE is configured in a way to keep an audit log of various activities on database level. This is the default setup for SAP ASE 16.0 SP03 running SAP NetWeaver. This audit log will accumulate and use up free space in the database. After some time this may mean that space needs to be freed up. In addition, you may not need to keep an audit log for your use cases. In this case, you can easily turn off auditing by following the steps:

1. Log into the operating system as user sybnpl
2. Run the command isql -Usapsa -X -SNPL

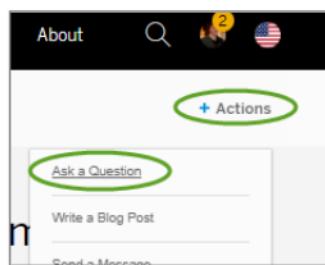
3. Run command sp\_configure 'auditing', 0
4. Run the command go
5. Run the command quit

## H. TROUBLESHOOTING RESOURCES

### Troubleshooting ABAP developer edition issues

Search first! Then ask your question in the ABAP Development Community forum:

<https://www.sap.com/community/topic/abap/all-content.html>



If it is an issue involving ABAP developer edition, remember to add the hashtag **#ABAP\_Trial**.

Please do **not** use comments in the blogs to ask tech support questions:

- It makes it difficult for other users to find similar issues in future, which leads to many duplicated errors.
- Very few people follow these blogs, so you will not get help from the vast majority of the community
- There is no capacity to monitor all blogs for all released versions.

### Troubleshooting non-AS ABAP server issues:

For openSUSE:

If you are newish to Linux, and want to do one thing to get up to speed, I would suggest familiarity with Terminal. I found William Schotts' guide helpful – and surprisingly readable: [The Linux Command Line](#)

Also, check out the SAP on Linux forum: [SAP Community SAP on Linux Forum](#)

There is also a general (non-SAP) forum for openSUSE : [openSUSE Forum](#)

For SAP GUI:

[SAP Community forum \(new\)](#)

[SCN forum – old archive](#)

## I. APPENDIX: TECHNICAL INFORMATION

### Directories and Users

The installation creates following directories and users:

Created Directories:

Directory	Size
/sapmnt	~ 2 GB
/sybase	~ 50 GB
/usr/sap	~ 3 GB

Created Users on OS level

The installation creates following users on OS level. During the installation you are prompted to enter the master password.

User name	Password	Description
sapadm	master password	Created by SAP hostagent
npladm	master password	SAP System Administrator
sybnpl	master password	SAP Database Administrator

The installed system provides the following database users:

User name	Password	Description
SAPS3R	master password	SAP Schema User
sa	master password	Superuser
sapsa	master password	Superuser
sapsso	master password	Superuser

The installed system provides the following SAP users in client 000:

User name	Password	Description
DDIC	Download	Data Dictionary User
SAP*	Download	SAP Administrator

The installed system provides the following SAP users in client 001:

Note: In general, you should develop using DEVELOPER or BWDEVELOPER (for BI content). SAP\* is only for admin purposes, eg renewing the license.

User name	Password	Description
DDIC	Download	Data Dictionary User
SAP*	Download	SAP Administrator
DEVELOPER	Download	Developer User
BWDEVELOPER	Download	Developer User

## Uninstalling instructions

If you ever want to uninstall your server, proceed as follows:

1. Delete the created directories
2. Delete the OS users
3. Delete the added lines in /etc/services (should be the last lines beginning with sap\* and sql6\* respectively)
4. Delete the line containing nplhost in /etc/hosts
5. Delete the symbolic link S99\_nplhost.sh in the directory /etc/init.d/rc3.d in case of SUSE or /etc/rc3.d in case of Red Hat
6. Restart your network.



[www.sap.com/contactsap](http://www.sap.com/contactsap)

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