Working title:

IP Office Server Edition restore process

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1 Introduction

This document serves as a "guide" for restoring a virtualized IP Office Server Edition installed on an ESXI System (VMWARE).

Recovery is only possible to a system with the same software version (components IP-Office, oneX-Portal, VMPro, WebRTC, Media Manager must have the same software version as the source system) and you must have the UUID of the Source-VM (stored in dem vmx-file of the VM).

The file names and IP addresses shown in this document are only intended as examples and must be adjusted in the respective system.

Source VM and Destination VM should never see each other or other IP Office systems with the same IP address on the connected networks.
Be sure to avoid IP address conflicts as this results in IP Office interfaces being switched off and the fingerprint changing. Therefore, it is strongly recommended to use a separate VLAN to set up the target VM when the source VM is still running.

2 Pre-requisite IP-Office source VM

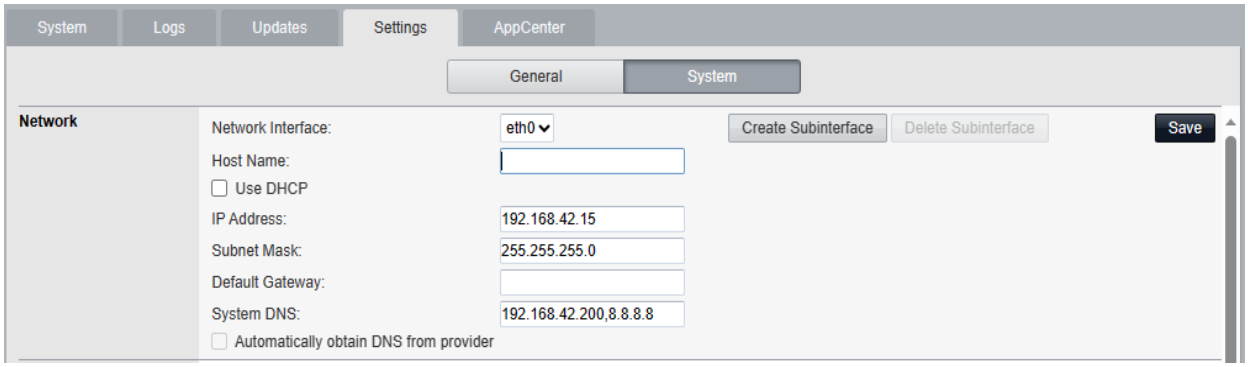
In order to be able to restore an IP Office system, the following points must be fulfilled beforehand.

1. There must be a full backup of the system. This full backup can be created / stored on the same server as the IP Office system (note the hard disk size), or it can be stored on an external server.
2. The UUID of the IP-Office Server Edition to be restored, which is installed in a VM-Ware environment, must be read out in advance. This UUID shall be noted.
3. The so-called "fingerprint" must be known. It is generated by the IP-Office Server Edition itself and is required for recovery.
4. It is necessary to pay attention to the licensing system.
   If PLDS licensing is set up, a new license file maybe must be created. If a subscription license procedure is active, this licensing model must be activated before restoring the backup.

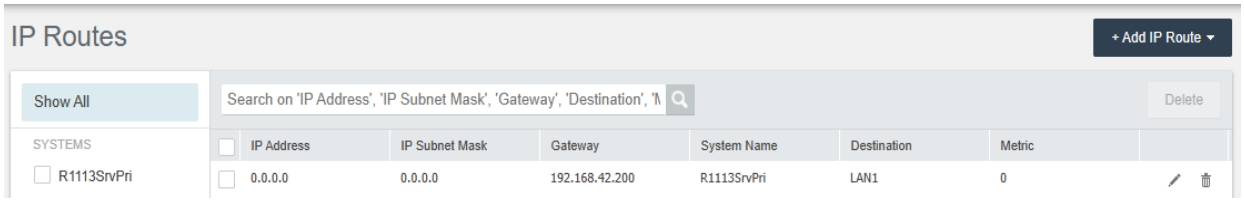
2.1 Data IP-Office source VM

The following data must be known from the IP-Office source system (source VM):

a. LAN1 IP address and SUBNET mask (from server eth0 192.168.42.15)
b. LAN2 IP address and SUBNET mask (from server eth1 192.168.43.1)
c. Default Gateway (if set up)



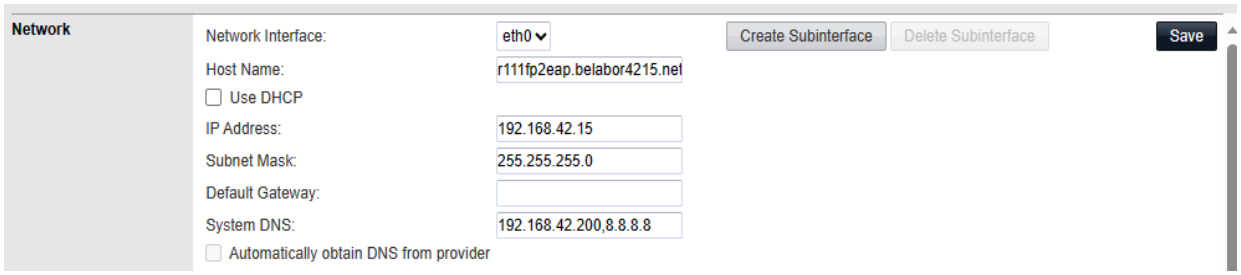
d. Gateway address (see e.g. IPO configuration / IP routes, here e.g. default route 0.0.0.0)



e. Web Manager Backup (this backup data can be stored on the same server. Please check if the hard disk has a volume of about 200GB and the HTTP server settings must be configured (see WebControl Port 7071 Settings / System)).
   A full backup can also be created on another medium/server.

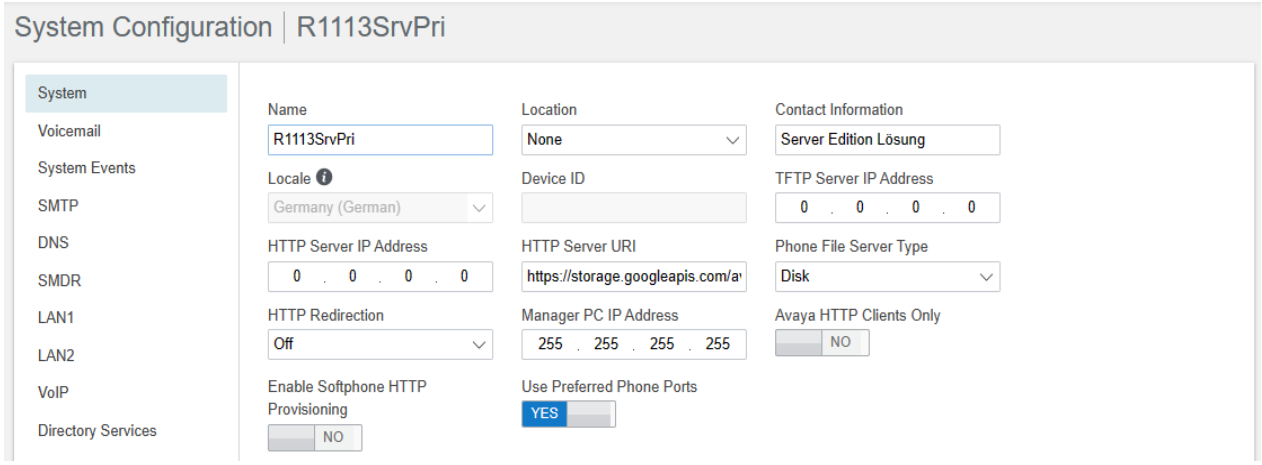
After creating the Web Manager Backup on the IP Office server itself, the files must be downloaded to a PC (download with WinSCP) from folder “/var/www/html/avaya/backup”.

f. IPO-Hostname (WebControl 7071 / Settings / System → Network/Host Name (example: r111fp2eap.belabor4215.net)

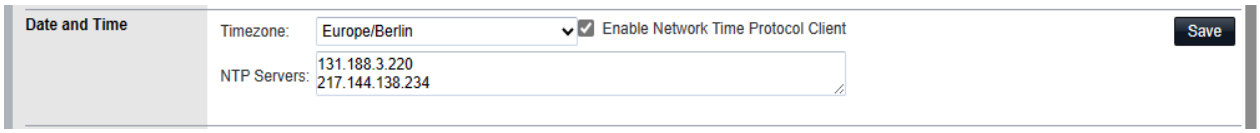


g. Make a note of the APN key (IP Office security settings)

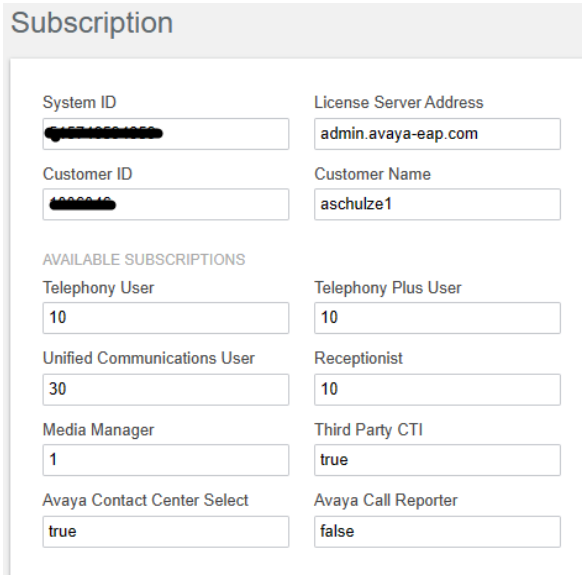
h. The IP Office System Name (WebManager 7070 / System Settings / System → System / Name (R1113SrvPri)



i. Timezone of the Server Edition (WebControl 7071) (example: Europe/Berlin)

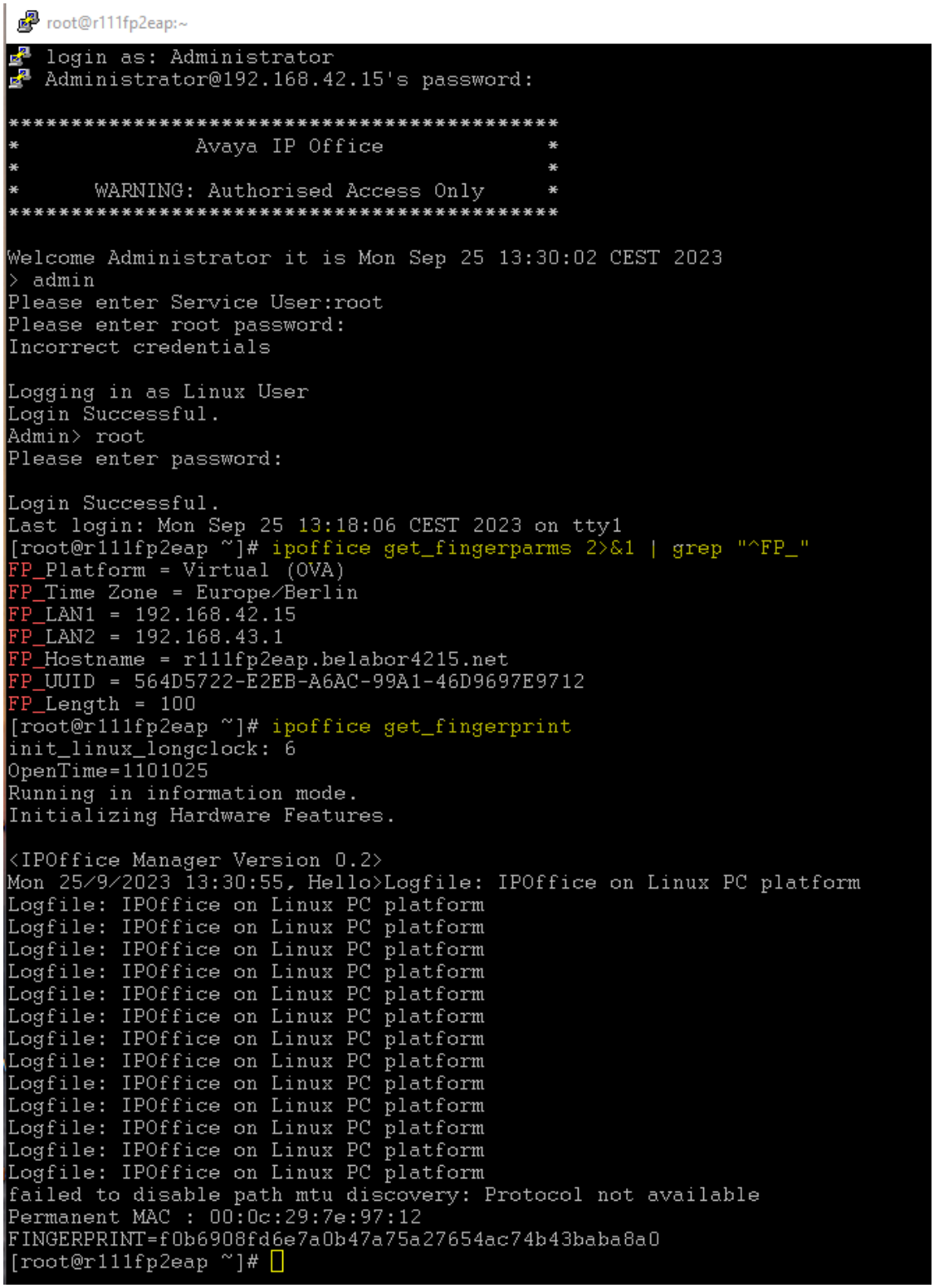


j. Check / obtain the license file (for PLDS licensing), write down the Subscription System ID, Customer ID and License Server Address for IP-Office (WebManagement 7070 / System Settings / Subscription System → ID + Customer ID + License Server Address).

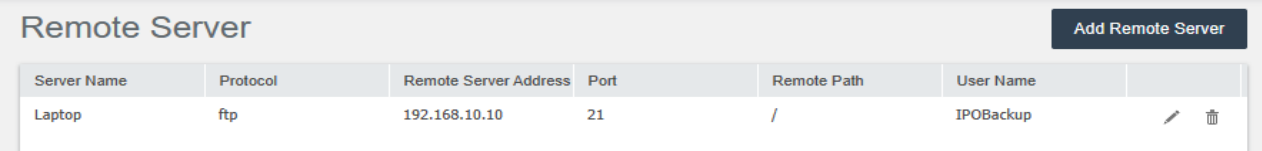


k. Readout of the IP Office self generated fingerprint (e.g. read it with putty and save it as a txt file)
The following commands must be entered by root access:
(a) ipoffice get_fingerparms 2>&1 | grep "^FP_"
(b) ipoffice get_fingerprint

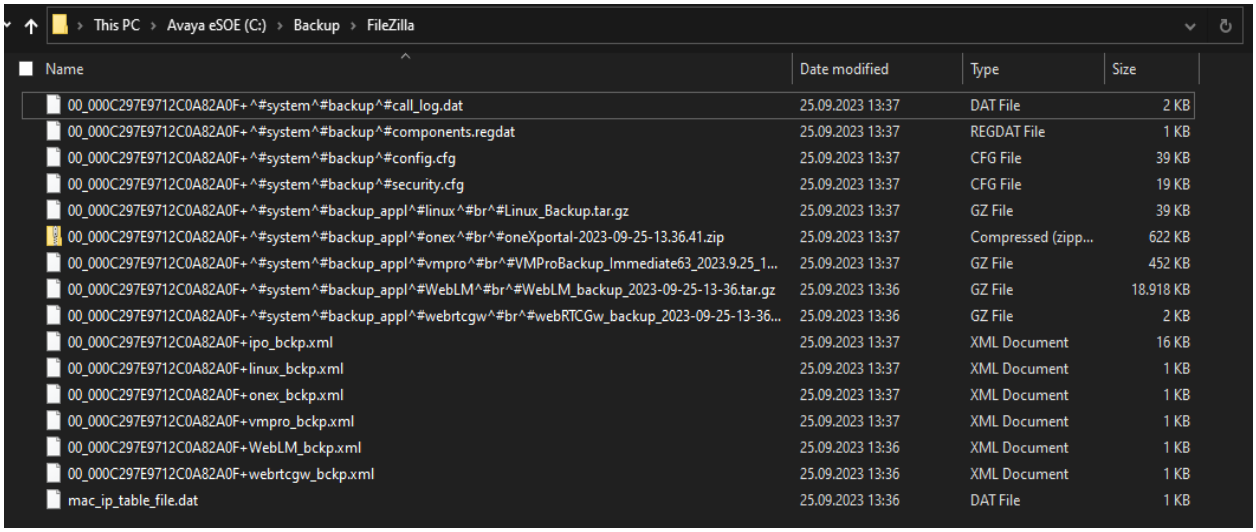
After entering the command, the following output is obtained:



l. The data of the set up remote server must be read out and recorded.



m. Files of a full backup. (Screenshot shows: Files of a full backup which was created via ftp on an external PC)

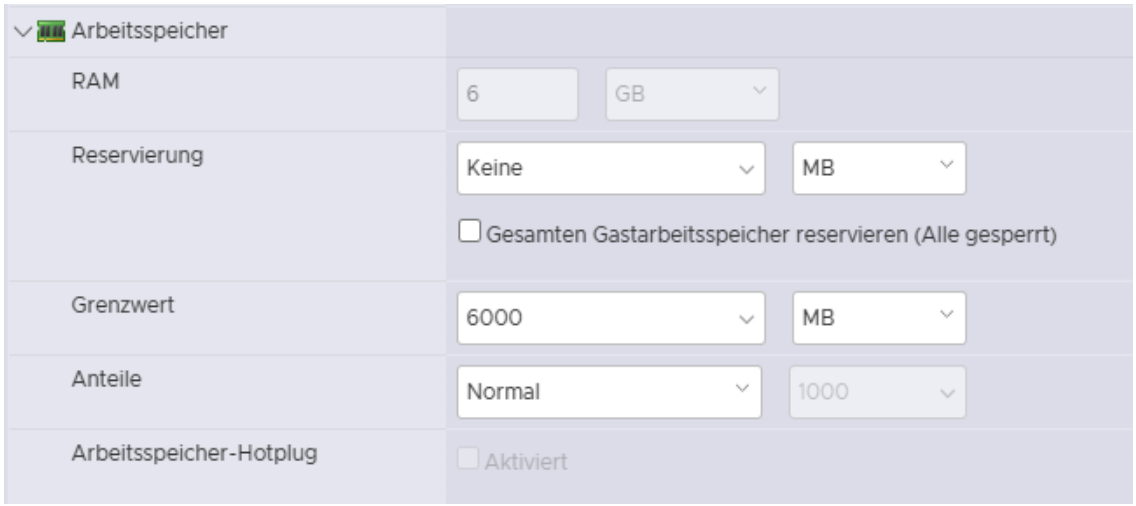


2.2 Collect data of Source VM (e.g. ESXi)

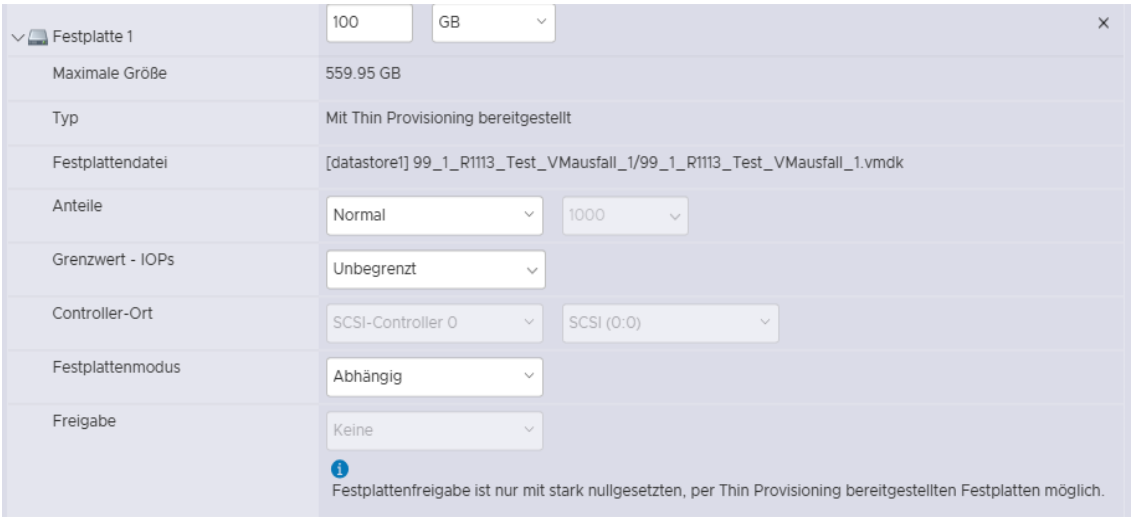
Write down the following data of the VMWare environment.

a. CPU (value of cores)

b. RAM



c. Disk partitions (partition size and partitioning type)



d. The VLAN from LAN1 and LAN2 interface

e. existing snapshots of the source VM must be deleted (if any) before the source VM have to be deleted.

f. Name of the virtual machine in VMWARE-Host

g. VMWARE Data Repository

3 Pre-requisite: Target VM

To restore a defective system, a new system must be deployed. The new system must have the exact same software release as the defective one (this effects all components of IP-Office Serveredition that has to be restored (e.g. oneX-Portal, VMPro, WebRTC, MediaManager).

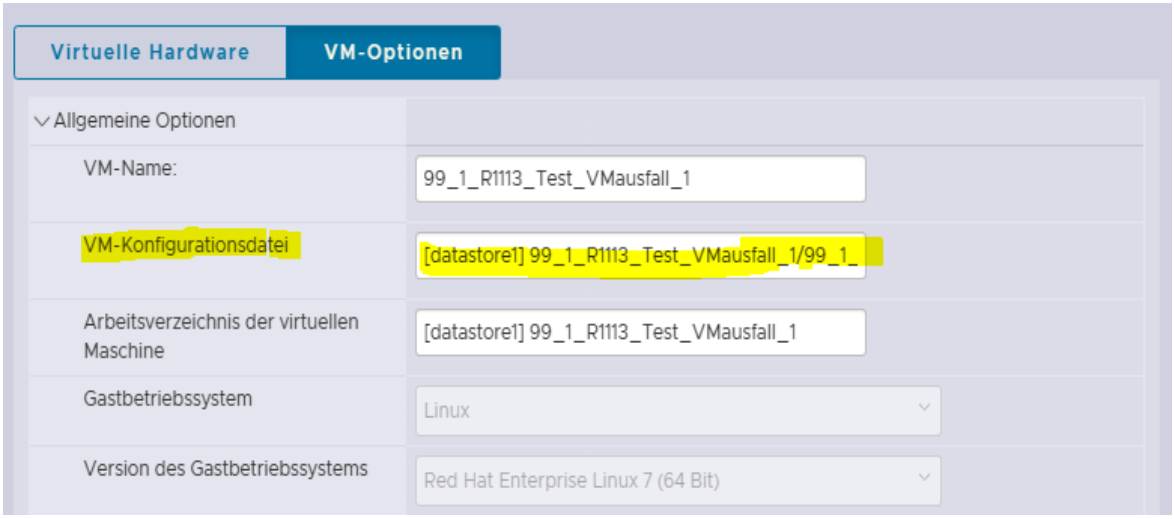
3.1 Data IP-Office Target VM

Deploy a target VM by OVA-File. The process must be carried out according to the specifications of the virtualization system.
For more information, see the document IP Office Virtual Servers (avaya.com)
(https://documentation.avaya.com/bundle/IPOfficeVirtualServer/page/Introduction.html).

!!! DO NOT POWER ON the VM after the deployment !!!

3.2 Adaptation of IP-Office target VM

a. CPU resources
b. Random access memory (RAM)
c. Set disk 1 to 200GB if local http-server should be used for restore process.
d. Check Network Adapters 1 and 2 (VLAN)
e. Note the path to the vmx file of this VM from vSphere:



f. Copy the VM configuration file (.vmx file) to the local PC and edit this file by Notepad. Overwrite the uuid.bios value with the values of the source system.

Example:
Source System

```
[root@r111fp2eap ~]# ipoffice get_fingerparms 2>&1 | grep "^FP_"
FP_Platform = Virtual (OVA)
FP_Time Zone = Europe/Berlin
FP_LAN1 = 192.168.42.15
FP_LAN2 = 192.168.43.1
FP_Hostname = r111fp2eap.belabor4215.net
FP_UUID = 564D5722-E2EB-A6AC-99A1-46D9697E9712
FP_Length = 100
```

The previously noted fingerprint values show the needed FP_UUID. It must be adjusted according to the same format as in the vmx file.
For this, change first FP_UUID format from
XXXXXXXX-XXXX-XXXX-XXXX-XXXXXXXXXXXX to
XX XX XX XX XX XX XX XX-XX XX XX XX XX XX XX XX (lower string with 16 groups of 2, separated by whitespace and "-" after 8 groups…)

Target System
Before change:

```
uuid.bios = "56 4d 90 84 04 67 ec 59-9b 40 1b 38 f4 07 c3 54"
uuid.location = "56 4d 90 84 04 67 ec 59-9b 40 1b 38 f4 07 c3 54"
vc.uuid = "52 6f eb 3e 56 be 27 db-23 bf db 92 a8 60 25 8c"
```

Adjusted:

```
uuid.bios = "56 4D 57 22 E2 EB A6 AC-99 A1 46 D9 69 7E 97 12"
uuid.location = "56 4d 90 84 04 67 ec 59-9b 40 1b 38 f4 07 c3 54"
vc.uuid = "52 6f eb 3e 56 be 27 db-23 bf db 92 a8 60 25 8c"
```

g. After adapting the vmx file, upload it to the target VM (e.g. ESXi) (confirm overwriting of the existing vmx file).
h. **VM can now be booted for the first time**.

After the VM has been started the boot process can be observed in the web console. This lasts up to 5 minutes.

Use the vSphere-webconsole to login as follows:

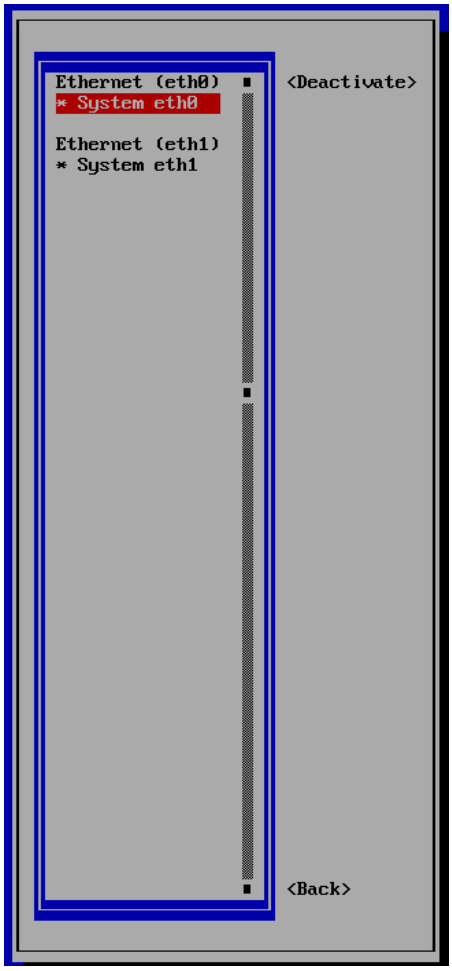
Enter the "login"-command and type for:
User: root
Password: Administrator (default password)

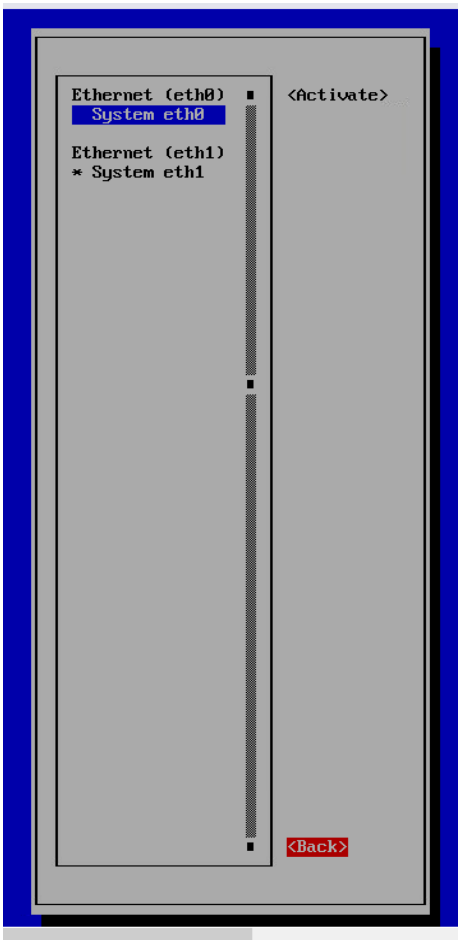
Enter the following commands:

1. systemctl start NetworkManager (Case-sensitive, US-Keyboard is used).
2. nmtui

After entering, the following graphical interface appears:

Use the arrow keys to switch to "Activate a connection" and confirm with Enter-key, the following interface is displayed:



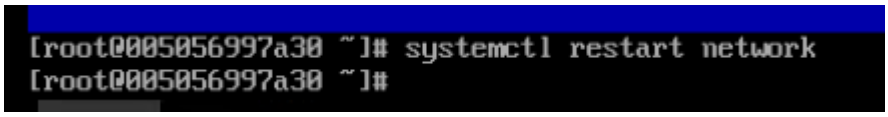


Point System eth0 is selected and switch to Activate with the enter key (before System the asterisk (see System eth1) must be gone).
Press the TAB key to go to the Back item and confirm with enter.

The previous graphical display is displayed again. Now go to “Ouit” with the arrow key and confirm with Enter.

Next step is to restart the network driver service by entering the following command:

systemctl restart network



LAN1 interface is now active and has got the IP address 192.168.42.1 (default IP address).

3.3 IPO Ignition Process

!!!

a. Accept Eula
b. Set the needed Server version (Primary, Secondary, Expansion or Application-Server)
c. New Hardware: Accept HardDrive settings unchanged
d. Configure Network: Transfer network data from the source VM, e.g.
    i. IP address (LAN1 and LAN2)
    ii. Subnet-Mask
    iii. Gateway
    iv. Hostname
e. Time & Companding
    i. Time zone
    ii. Companding
f. Change Password: assign three new different passwords (these passwords are only temporarily until the restore by webmanager), e.g.
    i. Root und security e.g. AvAyA123$
    ii. Administrator e.g. Avaya-Service
    iii. System e.g. System service
g. Security
    i. CA Certificate Generate new (only temporarily)
    ii. EASG Settings: Enable
    iii. Accept pop-up alerts
h. Summary Settings (if applicable). Maybe take a screenshot.

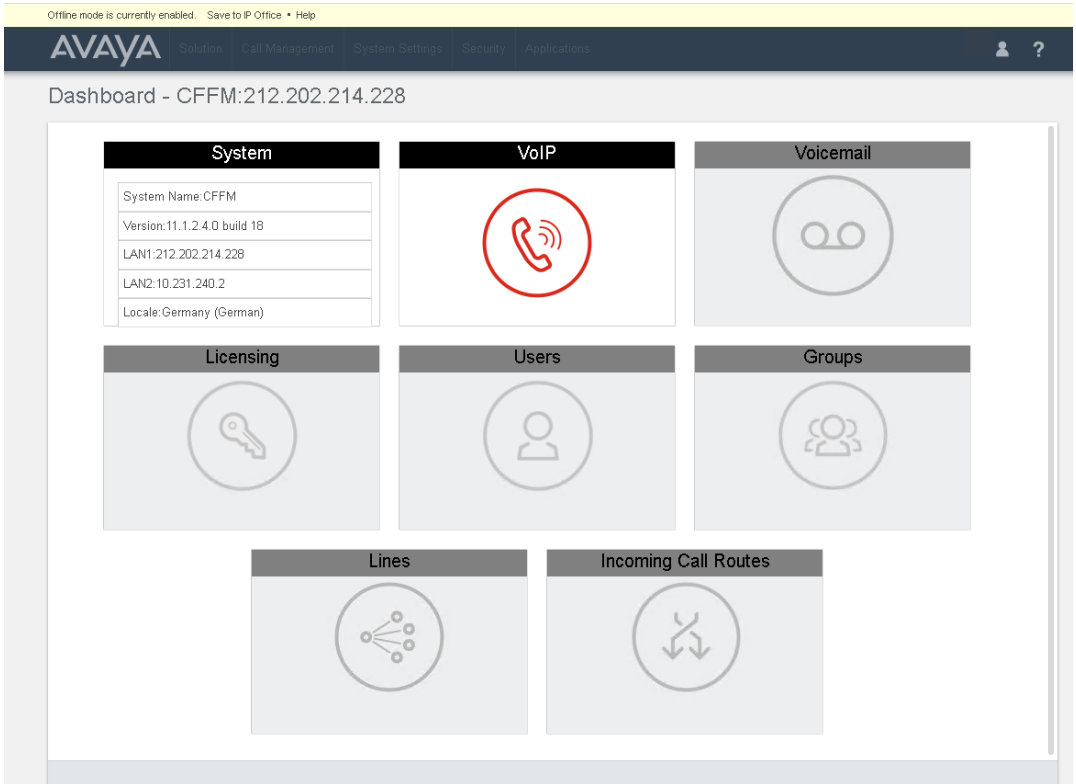
The server edition reboots – waiting time at least 10 minutes (recommendation: then log in again via web control (7071) and wait until all IPO services are green for at least 5 minutes)

3.4 ICU Process

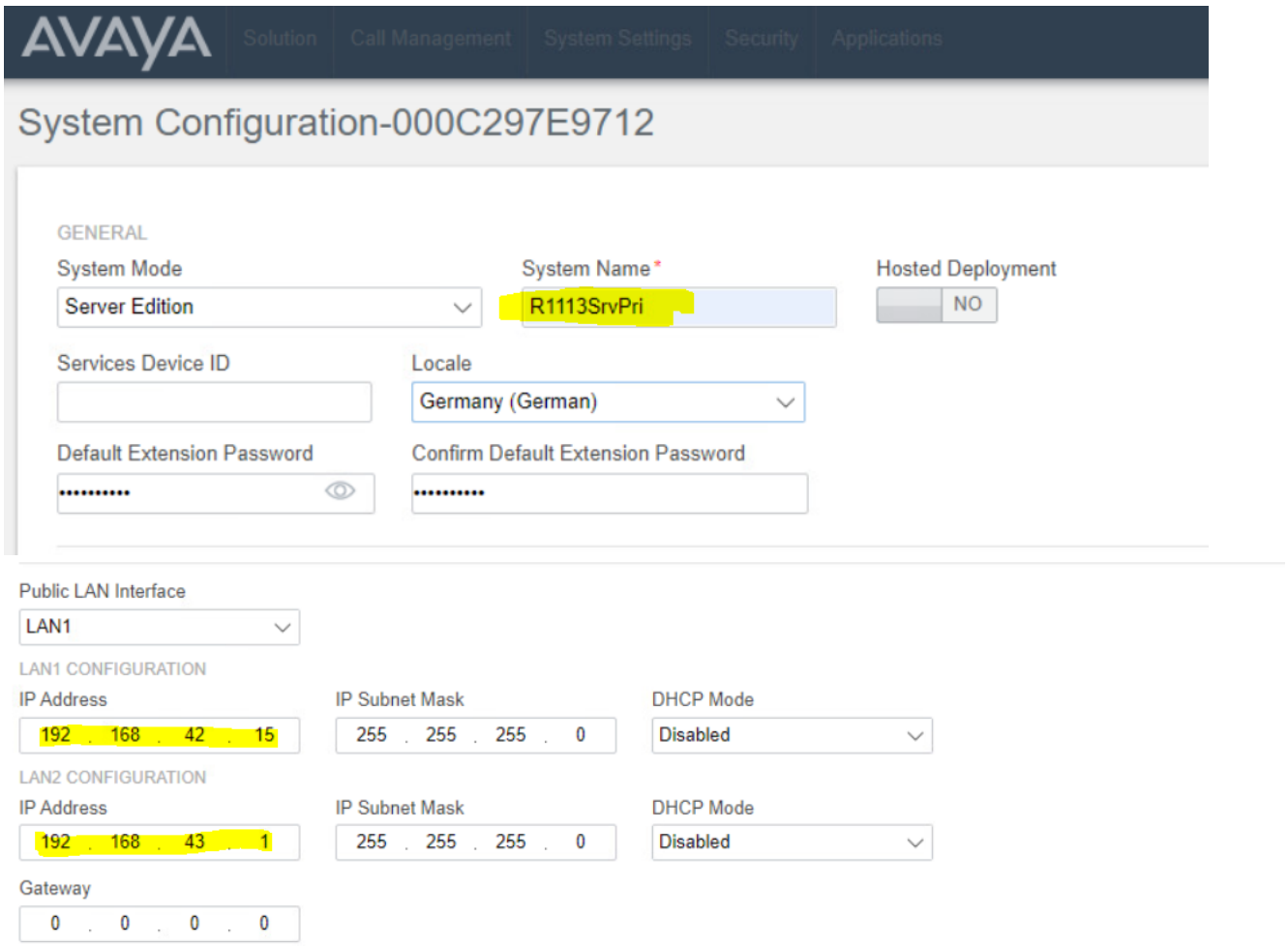
Login via Webmanager (7070) with Administrator / Admin Service

Accept Eula

Confirm warning with "Yes"



1. "System" menu: Control / configure LAN 1 / 2 configuration and gateway.
   !!! Make sure that the correct values from the source VM are entered here, otherwise the server edition will have a different fingerprint and therefore no restore will be possible later!! (LAN1, LAN2)
   Note: The system name is not the hostname, but what the IP Office is called (e.g. IPOxxxxx, in the screenshot R111SrvPri).



2. VoIP menu: Apply without changes
3. Voicemail menu: Apply without changes
4. Menu License: if necessary. change "Remote Server" to License Source "Local" and apply via the "Update" button
5. Menu Users: Click on the menu once and click the "back" button to return to the menu
6. Menu Groups: Click on the menu once and click the "back" button to return to the menu
7. Menu Lines: Click on the menu once and click the "back" button to return to the menu
8. Menu Incoming Call Routes: Click on the menu once and click the "back" button to return to the menu
9. Finally, select "Save to IP Office" at the top of the web manager. Select restore time "Immediately" and send.

The system services will now restart. Waiting time approx. 10 min.

3.5 Comparison fingerprint Target-VM / Source-VM

Login via putty (SSH shell) to the IP address of the server edition (target VM) as <administrator/password> and switch to root (see point 3.3 for passwords):

The following commands must be entered by root access:

(a) ipoffice get_fingerparms 2>&1 | grep "^FP_"
(b) ipoffice get_fingerprint

Outcome:
[root@ffm ~]# ipoffice get_fingerparms 2>&1 | grep "^FP_"
FP_Platform = Virtual (OVA)
FP_Time Zone = Europe/Berlin
FP_LAN1 = 192.168.42.15
FP_LAN2 = 192.168.43.15
FP_Hostname = <HOSTNAME> (CCFM)
FP_UUID = xxxxxxxx-xxxx-xxxx-xxxx-xxxxxxxxxxxxx
FP_Length = 98

[root@ffm ~]# ipoffice get_fingerprint
init_linux_longclock: 6
OpenTime=1719796
Running in information mode.
Initializing Hardware Features.
Logfile: IPOffice on Linux PC platform
Logfile: IPOffice on Linux PC platform
Logfile: IPOffice on Linux PC platform
Logfile: IPOffice on Linux PC platform
Logfile: IPOffice on Linux PC platform
Logfile: IPOffice on Linux PC platform
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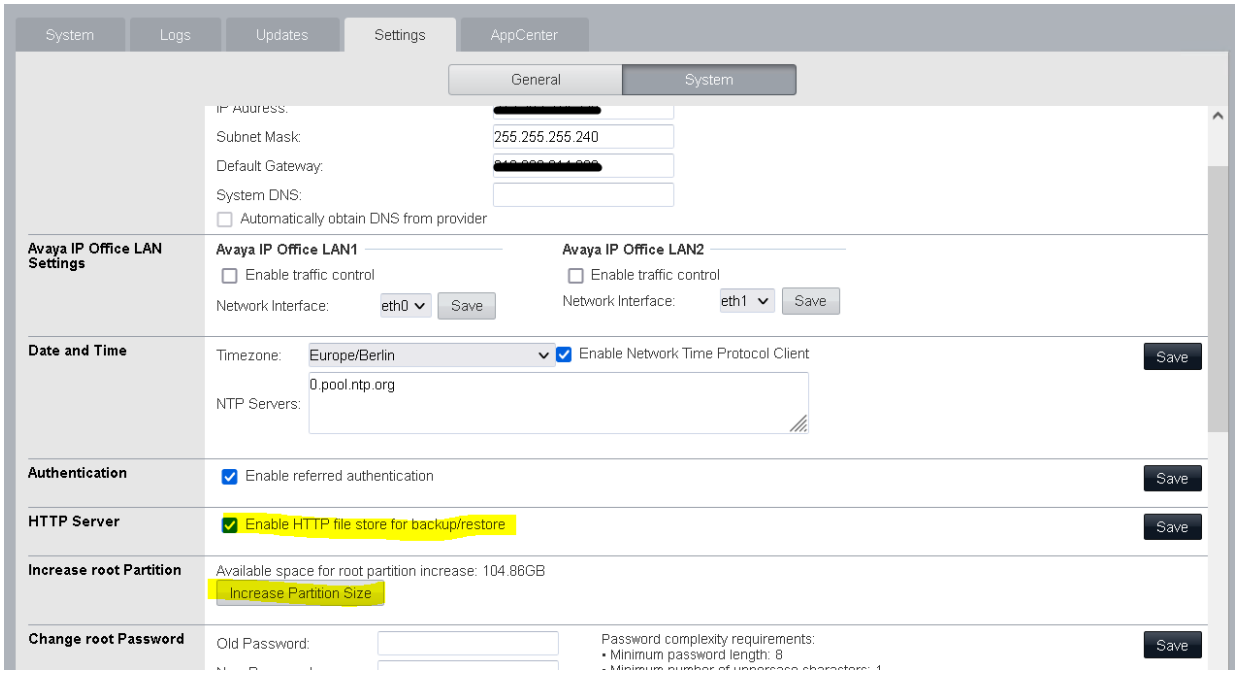
Logfile: IPOffice on Linux PC platform
Logfile: IPOffice on Linux PC platform
Logfile: IPOffice on Linux PC platform
Logfile: IPOffice on Linux PC platform
Logfile: IPOffice on Linux PC platform
failed to disable path mtu discovery: Protocol not available
<IPOffice Manager Version 0.2>
Thu 14/9/2023 16:44:49, Hello>Permanent MAC : 00:50:56:99:87:5f
FINGERPRINT=xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
[root@ffm ~] #

IMPORTANT:
!!! The fingerprint displayed here must match to the source VM (point 2.1 k). If this is not the case, a step was previously done wrong, i.e. the created VM is useless and the designated backup cannot be restore. In this case delete the created VM and start from scratch.

3.6 Customize the target VM

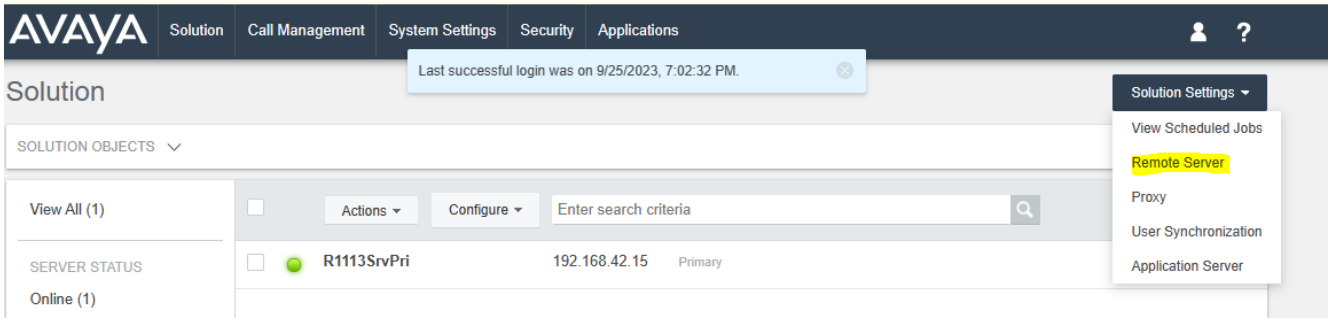
Depending on how the full backup was created on the old (defective) VM, the new VM must now be adjusted. If the old full backup has been created on the same VM, the hard disk of the new VM must be expanded to 200GB and the http server must be set up.

1. Above Webcontrol 7071 to enlarge the partition (including an automatic reboot), this step lasts at least 15-20 min.).
2. Afterwards login to Webcontrol 7071 again and enable HTTP server for backup/restore.



3. Login to WebManager port 7070

a) Add a remote server via "Solution Settings" and "Remote Server"
„Add Remote Server“:



Example for local server:

a) Server Name: e.g. "SE local"
b) Protocol: http
c) Remote Server Address: < IP address LAN1>
d) Port: 8000
e) Remote Path: /avaya/backup (lower case)

Press <SAVE>

b) HTTP - Create backup

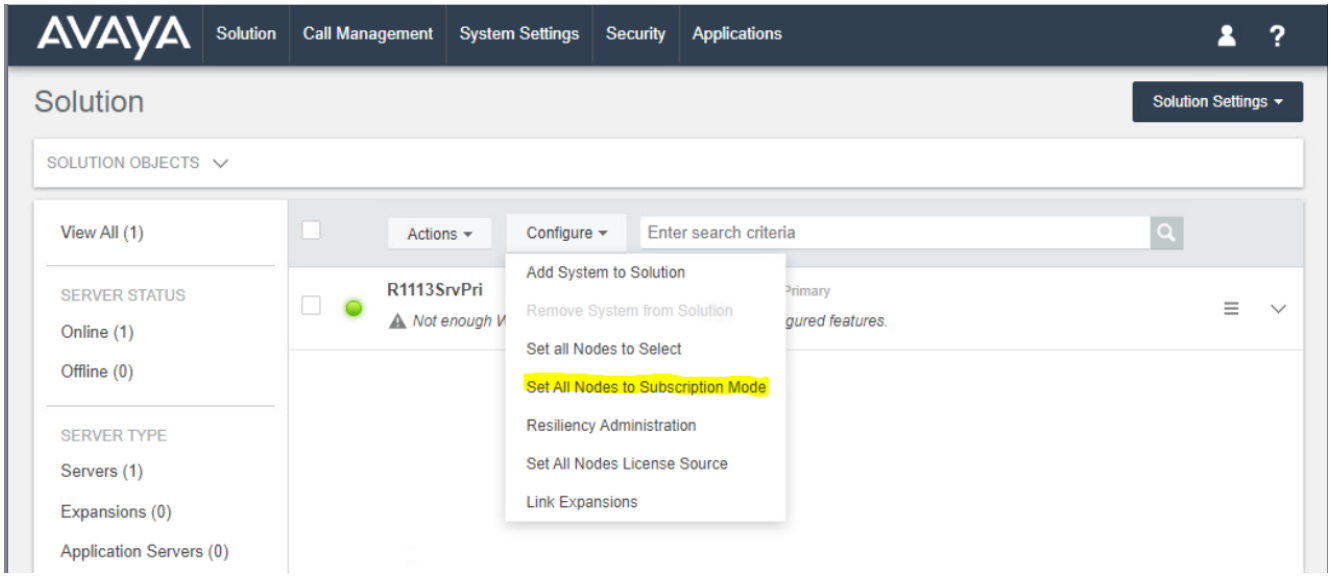
Create a backup of all services via "Solution" and "Actions" (this step is useful, but only necessary if you are unsure which new MAC address the target VM has (see point 4 below))

4 Restore the Backup

4.1 Optional Switch to Subscription mode

If an IP-Office subscription system has to be restored, the IP-Office must be converted to subscription mode before the data backup can be imported. This can be done with the IP-Office Manager as well as with the WebManager.

Conversion with the WebManager:



Depending on how a full backup was created on the source system, set up the remote server now. The setup should be identical to the old system (see point 2.1).

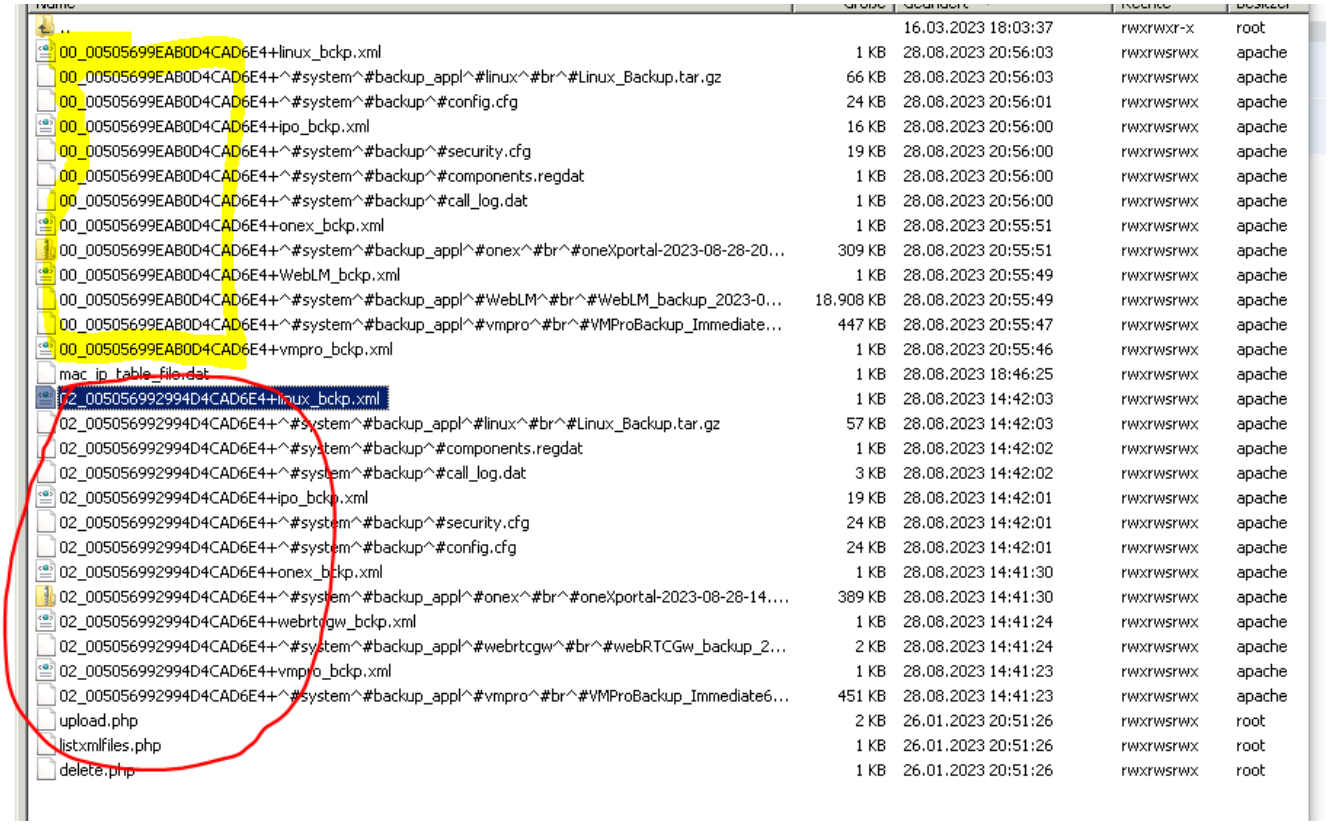
4.2 Rename Backup-Files and Upload to Target VM

Since the MAC address of LAN1 in the target VM has changed, the file names of the web manager backup of the source VM need to be changed. The easiest way is to create a backup of the target VM via the web manager, in which the naming including the new MAC address is output.

Example:

Marked in yellow →	Backup 00 of the target VM with	MAC 00505699EAB0
Marked in red →	Backing up the source VM with these files need to be renamed	MAC 005056992994

In the backup files, replace the MAC address of the source VM (02_xxxxx) with the MAC address of the target VM (00_xxxxx) (these are the digits 04-15 of the file name of each backup file):



Follow this procedure:

1. Rename the files on the PC to the new MAC address of the target VM (see above)
2. Login by root via Putty to target VM and the create a folder “backup” in the /tmp folder by command: mkdir /tmp/backup
3. Use WinSCP to transfer the renamed backup files of the source VM to the target VM in created folder /tmp/backup
4. Modify all backup files via Putty in the /tmp/backup folder:
   a) chown -R apache:apache 02* .* Change File Owner
   b) chmod -R 777 02 * .* Changing file permissions
   c) cp 02*.* /var/www/html/avaya/backup Copy files to the Webmanager backup folder of the server edition (directory path is case sensitive!)

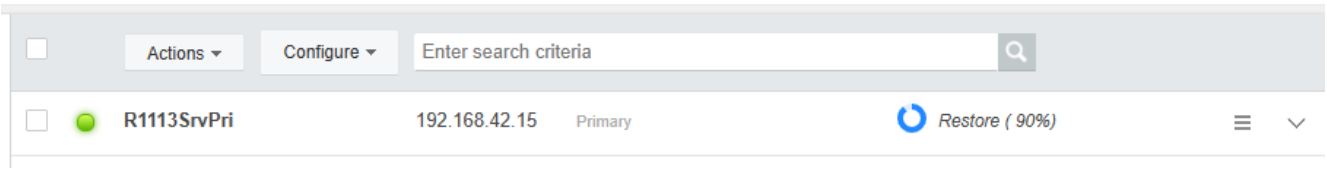
4.3 Restore

Login to Webmanager (7070) to perform restore:

- Select your Remote Server
- "Click on "Get Restore Points"
- Select the all lines of the restore point (e.g. "02_xxxxxxx”)
- Click on the "Restore" button

A warning message for server reboot appears (needs to be confirmed).

Restore is in progress:



The system will now reboot. After the reboot all services should be in green state (check by webcontrol 7071). If not maybe a manual reboot of the server edition may be necessary.
Attention: After the reboot, the former passwords (and settings) of the source VM apply again, including certificates.

5 Licensing

After the system has been created, import a new license file (if the MAC address is changed).

For PLDS licensing: Dial-in via IP Office Manager and import XML file, or
For WebLM licensing: Dial-in to WebLM and import license file (for WebLM licensing):
Then check the license status via system status: check the license alarms (the synchronization of the IP Office service with the WebLM service only takes place every 9 minutes)
If the PLDS host ID has changed, it may be necessary to register the PLDS host ID. a license SWAP can be requested.

Subscription systems:
After recovery, the system ID must be read out (via the IP Office Manager application (system / subscription) or via web manager (system settings / subscription)) and compared with the stored system ID on the COM server and, if necessary, changed.