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## Introduction

This document describes how you must change the Preboot Execution Environment (PXE) boot configuration prior to a reboot of any of the SAP High Performance Analytic Appliance (HANA) nodes when you perform an Operating System (OS) upgrade with Yet another Setup Tool (YaST) or install new Ethernet Network Interface Controller (ENIC)/Fabric Network Interface Controller (FNIC) drivers. The patch/driver installation must take place on each SAP HANA node.

## Postprocess Procedure

Use this procedure when you update the OS with YaST.

1. Perform the SUSE update with YaST or the ENIC/FNIC driver installation. **Note:** Refer to the [How to upgrade to SLES/SLED 11 SP3](#) Micro Focus document for details about how to upgrade from SP2 to SP3.
2. Copy the updated kernel to the **mgmtsrv** from one of the SAP HANA nodes.

```
server01 # cd /boot
# Prepare initrd for the PXEBoot and include the nfs packages/drivers
mkinitrd -f nfs -D eth0
# Copy the initrd and vmlinuz to the tftpboot directory of the mgmtsrv
server01 # scp initrd-3.0.101-0.31-default mgmtsrv01:/tftpboot
server01 # scp vmlinuz-3.0.101-0.31-default mgmtsrv01:/tftpboot
```

3. Log on to **mgmtsrv01** in order to prepare the initial RAM disk (initrd) for the PXE Boot and to include the Network File System (NFS) packages/drivers:

```
# Check the new run_all.sh script is available (attached to this article as well)
ll /tftpboot/tmp/run_all.sh
# Change the initrd
cd /tftpboot
mkdir /tftpboot/tmp2
cp initrd-3.0.101-0.31-default /tftpboot/tmp2/
cd /tftpboot/tmp2
mv initrd-3.0.101-0.31-default initrd-3.0.101-0.31-default.gz
gunzip initrd-3.0.101-0.31-default.gz
# Now the initrd is in a CPIO format
cpio -idumf < initrd-3.0.101-0.31-default
rm initrd-3.0.101-0.31-default
# Udev files needs to be empty to avoid issues running different nodes with
that initrd
# During the kernel creation it captures all MAC addresses and align them to
the addresses in the UDEV rules file, so we empty the file before.
# During restart every server will create its own persistent-net rules again.
echo > etc/udev/rules.d/70-persistent-net.rules
# Copy the run_all script generic to all versions of the kernel
cp ../tmp/run_all.sh .
find . | cpio --create --format="newc" > ../initrd-3.0.101-0.31-default
cd ..
```

```

gzip -9 initrd-3.0.101-0.31-default
mv initrd-3.0.101-0.31-default.gz initrd-3.0.101-0.31-default
# For simplification ...
ln -s ./initrd-3.0.101-0.31-default initrd_3.0.101
ln -s ./vmlinuz-3.0.101-0.31-default kernel_3.0.101
# Now prepare the PXE boot configuration
cd /tftpboot/pxelinux.cfg
vi <hostname|IP address>
# If there is no link available you can check with the command "gethostip
server01"
copy the current SLES11_SP2 (or Default) section and adapt the values for default
and LABEL as well as the kernel and initrd links
# SAP UCS PXE Boot Definition
display ../boot.msg
default SLES11_SP3_101
prompt 1
timeout 10

LABEL SLES11_SP3_101
KERNEL kernel_3.0.101
APPEND initrd=initrd_3.0.101 rw rootdev=192.168.xx.xx:/FS_OS_01/SLES11SP3
intel_idle.max_cstate=0 processor.max_cstate=0 ip=dhcp
OS_VOLUME="FS_OS_01/SLES4SAPSP3" MAC="00:25:B5:12:00:FF" OS_SERVER="192.168.127.11"

```

#### 4. On the first SAP HANA node, ensure that SAP HANA is stopped as <SID>ADM.

```

# Check the new run_all.sh script is available (attached to this article as well)
ll /tftpboot/tmp/run_all.sh
# Change the initrd
cd /tftpboot
mkdir /tftpboot/tmp2
cp initrd-3.0.101-0.31-default /tftpboot/tmp2/
cd /tftpboot/tmp2
mv initrd-3.0.101-0.31-default initrd-3.0.101-0.31-default.gz
gunzip initrd-3.0.101-0.31-default.gz
# Now the initrd is in a CPIO format
cpio -idumf < initrd-3.0.101-0.31-default
rm initrd-3.0.101-0.31-default
# Udev files needs to be empty to avoid issues running different nodes with
that initrd
# During the kernel creation it captures all MAC addresses and align them to
the addresses in the UDEV rules file, so we empty the file before.
# During restart every server will create its own persistent-net rules again.
echo > etc/udev/rules.d/70-persistent-net.rules
# Copy the run_all script generic to all versions of the kernel
cp ../tmp/run_all.sh .
find . | cpio --create --format="newc" > ../initrd-3.0.101-0.31-default
cd ..
gzip -9 initrd-3.0.101-0.31-default
mv initrd-3.0.101-0.31-default.gz initrd-3.0.101-0.31-default
# For simplification ...
ln -s ./initrd-3.0.101-0.31-default initrd_3.0.101
ln -s ./vmlinuz-3.0.101-0.31-default kernel_3.0.101
# Now prepare the PXE boot configuration
cd /tftpboot/pxelinux.cfg
vi <hostname|IP address>
# If there is no link available you can check with the command "gethostip
server01"
copy the current SLES11_SP2 (or Default) section and adapt the values for default
and LABEL as well as the kernel and initrd links
# SAP UCS PXE Boot Definition
display ../boot.msg
default SLES11_SP3_101
prompt 1

```

```
timeout 10
```

```
LABEL SLES11_SP3_101
```

```
KERNEL kernel_3.0.101
```

```
APPEND initrd=initrd_3.0.101 rw rootdev=192.168.xx.xx:/FS_OS_01/SLES11SP3
```

```
intel_idle.max_cstate=0 processor.max_cstate=0 ip=dhcp
```

```
OS_VOLUME="FS_OS_01/SLES4SAPSP3" MAC="00:25:B5:12:00:FF" OS_SERVER="192.168.127.11"
```

## 5. Reboot all SAP HANA nodes into the new kernel.

If there are additional SAP HANA nodes in this solution, you must run the update through YaST on the node and adapt the PXE boot configuration in order to point to the correct kernel/initrd afterwards.