One-NDS  9 SP2


# Installation Update Manual


**A50016-E4104-D219-1-7618**


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This document has 48 pages.

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# General Information

## References

| [1] | One-NDS 9 SP2 Release Notes Update |
| --- | --- |
| [2] | One-NDS 9 SP2 Platform Integration Guide<br>A50016-E4104-D114-*-7618 |
| [3] | One-NDS 9 SP2 Installation Manual<br>A50016-E4104-D110-*-7618 |
| [4] | One-NDS 9 SP2 Installation Full Manual<br> A50016-E4104-D210-*-7618 |

## Summary of changes

The purpose of this section is to describe the changes made to the document compared to the previous versions. Changes between document versions are cumulative; the latest document version contains all changes made to previous versions.

**Version 1, 08/2014**

Initial version of One-NDS 9 SP2, following changes are made:

- Restrictions
- Updating the Directory Server Software (BE-DSA, R-DSA)
- Pre-update and post-update checks
- Troubleshooting
- Full Installation of New or Broken Nodes after Update the Installation
- Annex: Useful Logs and Basic Statuses

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# 1 Introduction

One-NDS 9 SP2 release is based on SuSE Linux Enterprise Server operating system (SLES11 SP3).

## 1.1 Prerequisites

The following are the prerequisites:

- One-NDS 9 base (OneNDS-XX-X-9.0.0.15_FULL) or One-NDS 9 SP1 (OneNDS-XX-X-9.0.1.16_FULL / OneNDS-XX-X-9.0.0.15_UPDATE_01-16) release must be installed.

- All hot fixes released for the current installed software version that are marked as pre update relevant must be installed on the system.

- BIOS and firmware versions on all nodes must conform to [2]

## 1.2 Restrictions

- Changes in TPD does not have any effect on the update process. To change values from TPD on the node, a complete installation is required.

- During the update phase, if the nodes are in a mixed mode, it is not possible to update or add new extension packages.

- The enhanced password policy feature is enabled only after **extendedPasswordSyn_ADM.ldif** from additionalData is applied to all DSA. For more information, refer [1].

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# 2     Quick Update Installation Guide

This chapter introduces the most important steps of the update installation. The steps are explained in detail in this manual.

Perform the following steps:

1. Update BIOS and firmware versions on all nodes refer to [2].

2. Perform the pre-update steps according to the Release Note [1]. Depending on the release different pre-update steps are required. Sections required for installations upon One-NDS 9 base release are marked with: "(only for update from One-NDS 9 base)".

3. Log on to the install server and switch to user **root**.

4. Copy the update medium as follows:

   - `OneNDS.cpio` to `/ISS/CPIO` on the install server.

   - `OneNDS.cryptoSW.cpio` to `/ISS/CPIO` on the install server.

5. Copy the `md5` checksum file as follows:

   - `OneNDS.md5 to /ISS/CPIO on the install server.`

   - `OneNDS.cryptoSW.md5 to /ISS/CPIO on the install server.`

6. Use the following commands to check if checksum over medium is ok

   `# md5sum -c OneNDS.md5`

   Result must display: `OneNDS.cpio: OK.`

   `# md5sum -c OneNDS.cryptoSW.md5`

   Result must display: `OneNDS.cryptoSW.cpio: OK.`

   If check of `md5` fails, copy the medium again to the install server.

7. Log on to the install server as `sufuser` (direct login, no `su`) and start the `SufDirector` (for more information, refer section 3.2.1).

   `> cd ~`

   `> SufDirector`

8. Use the offered menu to prepare a new medium (both `OneNDS.cpio` and `OneNDS.cryptoSW.cpio!` - for more information, refer section 3.2.1.

9. Open a new shell (as user root) and update the relevant packages on the install server (for more information, refer to [1]).

   ```
   # onends_update_prepare /ISS/update/OneNDS-XX-X-
   9.0.1.16_UPDATE_02-18.medium
   ```

10. Restart the `SufDirector` in previous shell.

11. Perform update NEs (select hosts, prepare update, start update now – for more information, refer section 3.2.2.

    Note: Update the ADM nodes first.

    Update must be done on nodes in the following order (for more information,, refer section 3.1):

    - ADM (for more information, refer section 3.1.1)

    - BE-DSA (It is updated if it is not in the state "Primary". For more information, refer section 3.1.2).

    - R-DSA (It is updated if it is not in the state "Primary". For more information, refer section 3.1.2).

    - PGW-DSA (It is updated if it is not in the state "Primary". For more information, refer section 3.1.3 ).

    - PGW Update PGW one by one, not in parallel, to prevent provisioning outage. For more information, refer section 3.1.4

    - Install Server (For more information, refer section 3.1.5

12. Perform post-update steps according to Release Notes [1]

13. After the software updates are completed, the Install Server must be set up with the appropriate full medium. For more information, refer section 3.3.

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# 3    Software Update of the One-NDS

## 3.1   One-NDS Software Update Concept

This section describes the concept of One-NDS update by using the software management functionality provided by the Install Server.

**Important restriction:**

During the update phase, that is, if the nodes are in a mixed mode, the operator must not update or add new extension packages.

**Hint:**

For information on executing the update procedure with update tooling on the Install Server, refer section 3.2.

For information on executing the update procedure on IBM hardware, refer chapter Annex: IBM HS22 with EMC VNX5100

For information on executing the update procedure on HP hardware, refer section Annex: HP ProLiant BL460c Gen8 Blade Servers with HP StorageWorks P2000 G3 Storage System

The NE type to be updated depends on the operational needs and on the content of the update media.

A certain update medium contains software updates for one or more components.

In general, there is no dependency between the different NE types.

If there is any dependency, it is described in the [1].

**Prerequisites:**

- Read the release note [1] .

- Check the `/etc/hosts` for ADM and DNS configuration.

The following components are covered and might be contained in an update medium:

- One-NDS Administrator(ADM)

- Directory Server(R-DS, BE-DS)

- Provisioning Gateway DS / Notification Manager(PGW-DS)

- Provisioning Gateway(PGW)

- Install Server(IS)

Only `NEs` on the same site can be updated from the site local Install Server.

However, if all the following prerequisites are met, updates can be started in parallel on the different site local Install Servers:

In general, the following prerequisites must be met on all nodes independently from the NE type:

- Software RAID `Resynch` must not be running on the targets (this is not valid for IBM and HP blade with SAN).

    This is the only case immediately after a full installation, a software update commit, a software update fallback or replacement of a hard disk.

    To verify this, log in as root to the single node and enter:

    `cat /proc/mdstat`

- Each mirror disk (`md*`) must be in state [UU].

- All target host names must be present on the Install Server and can be verified by using the following command:

    `vi /etc/hosts`

### 3.1.1 Updating the ADM Application Software

Update the ADM nodes first.

During the update process, no operations using the One-NDS Administrator are allowed.

For the update of the ADM nodes, the following rules apply:

1. Turn off automatic synchronization on active ADM.

    a. Navigate to **ADM Administration -> ADM Synchronization**.

    b. Unselect the checkbox against **Enable automatic ADM synchronization**.

    c. Click **Save**.

2. Force the ADM Synchronization on active ADM.

    a. Navigate to ADM Administration -> ADM Synchronization.

    b. Click Start ADM Synchronization.

3. Perform the update of active ADM through `SufDirector`, for more information, refer section 3.2.

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4. After update of active ADM is completed, **[C]ommit /[F]allback** perform the update on all standby ADM nodes. A warning regarding "ADM Synchronization" will appear on each standby ADM node, for example:

```
   Executed Plugins:

   CC_check_bios_version          OK
   CC_check_hardware_raid         OK
   adm-update-postcheck.sh        WARNING
   ss-update-postcheck.sh         OK

   Output:
### WARNING in adm-update-postcheck.sh:
WARNING: Database dbmstatusservice is missing. This is Standby ADM.
Database udpate is not applied until jboss is in running state or ADM nodes are synchronized.
Recommendation: Start ADM Synchronization after post health check suceeds on Active ADM and all ADM nodes are updated.
For database 'dbmcommon' exists upgrade path to newer version. Please restart jboss in order to apply this update. If restart do
esn't help, please contact SUPPORT Team!!!
For database 'dbmdataadmin' exists upgrade path to newer version. Please restart jboss in order to apply this update. If restart
 doesn't help, please contact SUPPORT Team!!!
For database 'dbmdsaadmin' exists upgrade path to newer version. Please restart jboss in order to apply this update. If restart
doesn't help, please contact SUPPORT Team!!!

Complete log file can be found in: '/tspinst/update-adm-V9.20140711_133520.log'

Warning


-----------------------------------------------
   OK: 3    WARNINGS: 1    ERRORS: 0


*** Fallback requested by execPostcheckPlugins ***


   [F]allback
   [R]etry
   [C]ontinue


Select code >>
```

5. Perform the update on all nomadic ADM nodes if they are included in the existing system. There are two possibilities regarding nomadic ADM nodes:

   a. If the warning regarding "ADM Synchronization" appears on nomadic ADM node, the node finishes in state **[F]allback / [R]etry / [C]ontinue**.

   b. If the warning regarding "ADM Synchronization" does not appear on nomadic ADM node, the node finishes in state **[C]ommit / [F]allback**.

   In both cases continue in next step.

6. If all standby ADM nodes are in state **[F]allback / [R]etry / [C]ontinue** and if all nomadic ADM nodes are in state **[F]allback / [R]etry / [C]ontinue or [C]ommit / [F]allback**, force the ADM Synchronization on active ADM.

   a. Navigate to ADM Administration -> ADM Synchronization.

   b. Click Start ADM Synchronization.

7. Select choice [R]etry on each standby and relevant nomadic ADM nodes (Note: Some nomadic ADM nodes could already be in state [C]ommit / [F]allback). Post installation checks are done again and update must end in [C]ommit / [F]allback state.

8. Turn on automatic synchronization on active ADM.

a. Navigate to ADM Administration -> ADM Synchronization.

b. Select the checkbox against **Enable automatic ADM synchronization**.

c. Click **Save**.

### 3.1.2 Updating the Directory Server Software (BE-DSA, R-DSA)

DS is updated only if it is not in the "Primary" state. This ensures that the DSA is always in operation.

For the update of the directory server software, the following rules apply for the update:

1. Update One or something else the BE server out of all in advance and wait for not about 24 hours before the other updates are started. This helps to verify the possibly erroneous behavior of the new software.

2. Start with the BE servers on one site fulfilling the preconditions. For more experienced users, all sites can be processed in parallel (the appropriate Install Server must be chosen accordingly).

   - As `sdfrun`, enter the command `ndsSysInfo` on every DS, or get the DS status through the NetAct.

   - Status is seen through GUI ADM (for more information, refer section 3.1.2.1).

3. "Secondary Synchronized" servers updated immediately and start the update of these servers.

4. Update the next site BE servers, which are 'Secondary Synchronized'.

5. Initiate a site of previously updated servers to take over the primary role by using the ADM GUI (for more information, refer section 3.1.2.1).

   State change of DS is also be done by using nds command:

   a. as `sdfrun`, log in to the DS in status 'Secondary Synchronized Primary Standby'

   b. Enter the command, `nds changeover` that switches the server roles 'Primary' <-->'Secondary Synchronized Primary Standby'.

6. Update all former 'Primary' now 'Secondary Synchronized' DS in parallel.

7. Repeat the same procedure for the directory servers within the R-DSA

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### 3.1.2.1 Changing the State of Directory Servers through ADM GUI

Change the state of directory server which is in **P** (Primary) state from **P** to **P SS** ('Secondary Synchronized', with 'Primary Standby' flag set to 'Y'):

Perform the following steps:

1. There is an initial state on the screenshot below. Click the number marked by red arrow (see below). DSA Details window will appear.
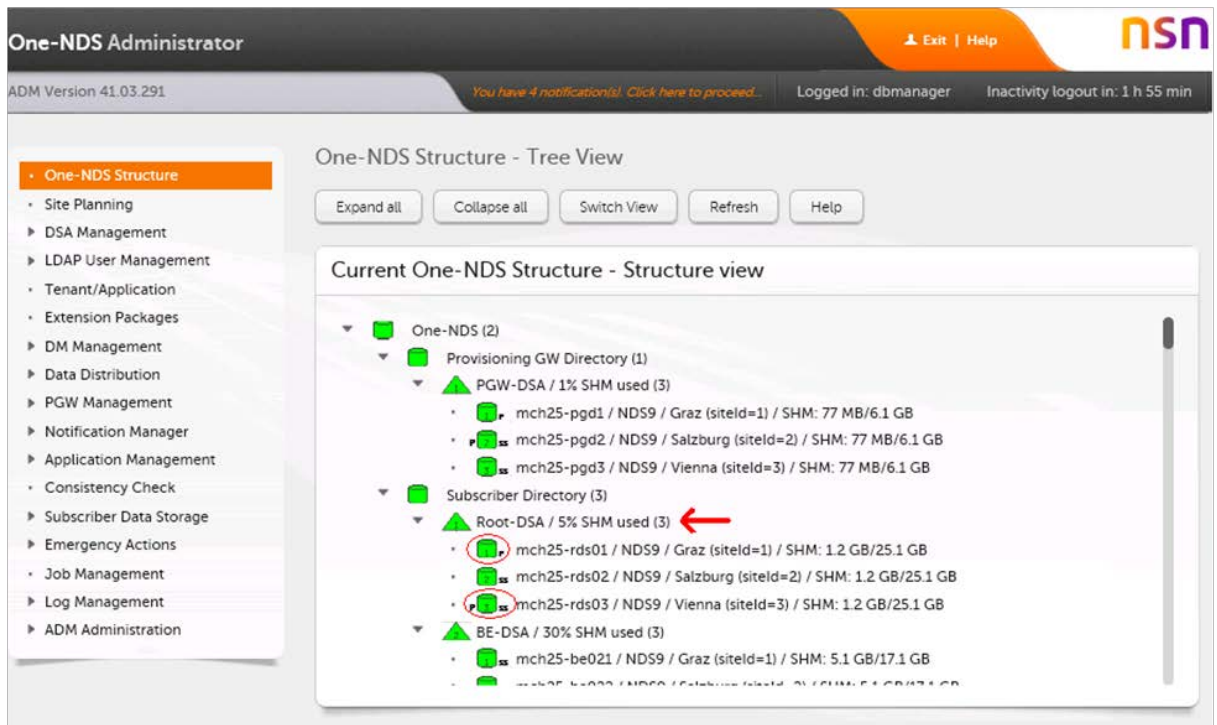


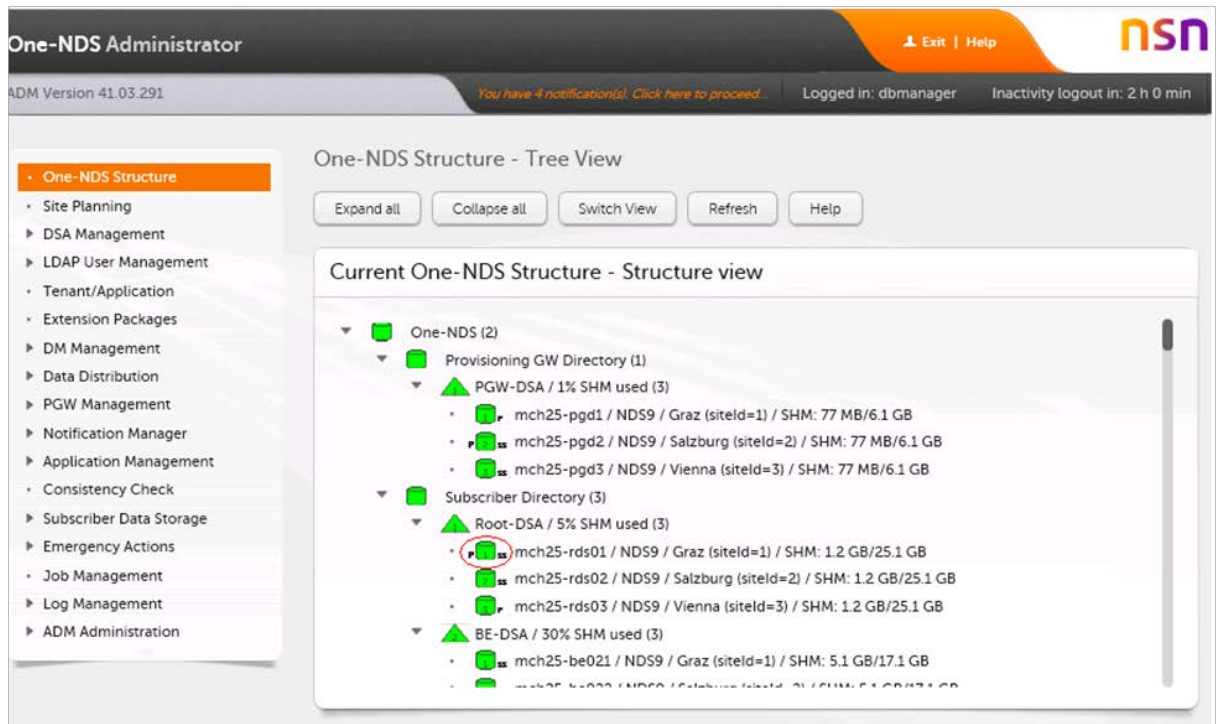Initial state for 'DSA Details', click number marked by red arrow.

2. Select **Changeover** for the **P SS** directory server.



Select "Changeover" for the P SS directory server.

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3.  Click **OK** to confirm the change of state There is a final state on the snapshot below.



Former 'Primary' directory server is in P SS state now.

### 3.1.3  Updating the PGW-DSA Software

The same preconditions apply as for the R-DSA and BE-DSA.

1.  Update one directory server out of all in advance and wait about 24 hours before the other updates are started. This helps to verify the possible erroneous behavior of the new software.

2.  Start with directory servers on one site fulfilling the preconditions (primary standby).

3.  Secondary Synchronized" servers are updated immediately and start the update of these servers in parallel.

4.  Initiate all previously updated servers to take over the primary role by using the ADM GUI (for more information, refer section 3.1.2.1).

5.  Update all former 'Primary' now 'Secondary Synchronized' DS in parallel.

### 3.1.4  Updating the PGW Application Software

Update PGW one by one, not in parallel, to prevent provisioning outage. Perform the following steps for each PGW:

1. ExP hotfixes must be uninstalled before update PGW according to release notes for ExP hotfixes.

   Reason is that PGW deletes any class files in its directories. Therefore, if any ExP hotfix delivered class files, they are lost with update and the hotfix is no longer properly installed. Therefore, the ExP causes issues that PGW cannot start.

2. Perform the update of PGW.

   **Hint:** Under certain conditions, removal of PGW core hotfixes may fail during the update. In that case, perform a `SufDirector` fallback, remove the PGW core hotfixes by using following script under `provgw` or root user and retry the update.

   ```
   # /etc/provgw/scripts/remove-hotfixes.sh
   ```

3. After the successful PGW software update, reinstall ExP hotfixes uninstalled in step 1.

### 3.1.5  Updating the Install Server

Start the `onends_is_update` script as "root" on Install Server as follows:

```
# onends_is_update /ISS/update/OneNDS-XX-X-
9.0.1.16_UPDATE_02-18.medium
```

### 3.2  Tooling Update- `SufDirector`

Considering all the described conceptual issues in mind, the update must be performed as described within this section.

Firstly, log in to an appropriate Install Server as `sufuser` (direct login, no `su`) and copy the new Media to `/ISS/CPIO`.
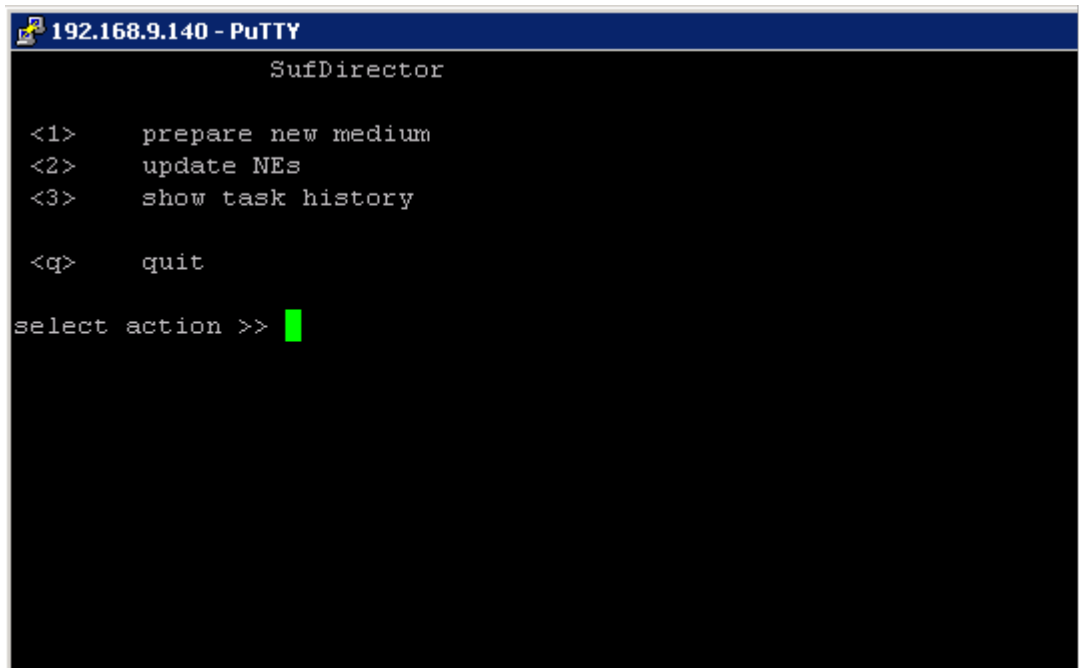
### 3.2.1  Preparing the Install Server

1. Start ssh-agent:

   ```
   > eval `ssh-agent` ssh-add
   /export/home/sufuser/.ssh/id_rsa
   ```

2. Change to the home directory and call the SufDirector:

   ```
   >cd ~
   ```

   ```
   >SufDirector
   ```

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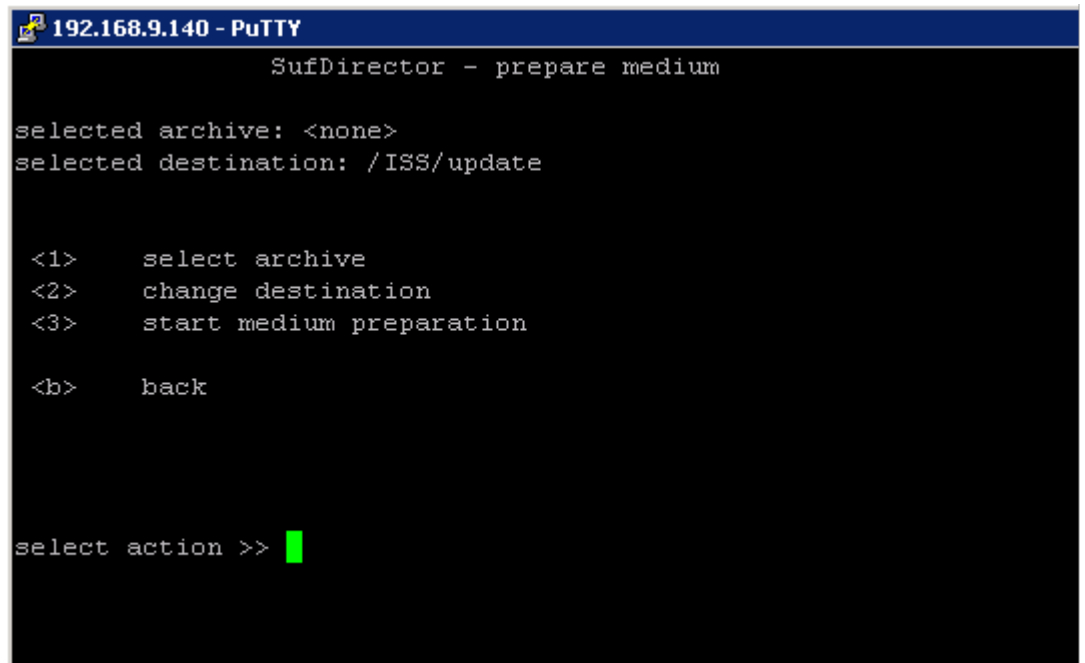
*Start update procedure.*

3. Start with **<1>  prepare new medium**.

The following screen is displayed:
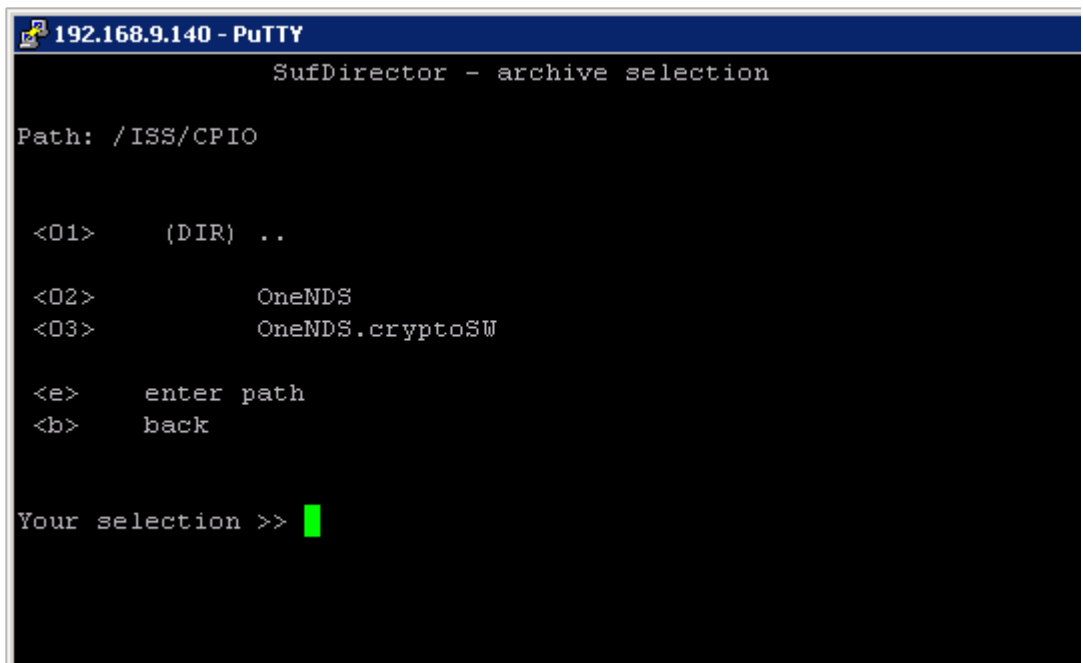


*Select Next Operation (select archive, change dir, start medium preparation).*

a.  Select option **<1>   select archive**, to select the update medium
    to be prepared on the Install Server. Select option **<2>   OneNDS**

```
192.168.9.140 - PuTTY
                SufDirector - archive selection

Path: /ISS/CPIO


 <01>     (DIR) ..

 <02>            OneNDS
 <03>            OneNDS.cryptoSW

 <e>     enter path
 <b>     back


Your selection >>
```
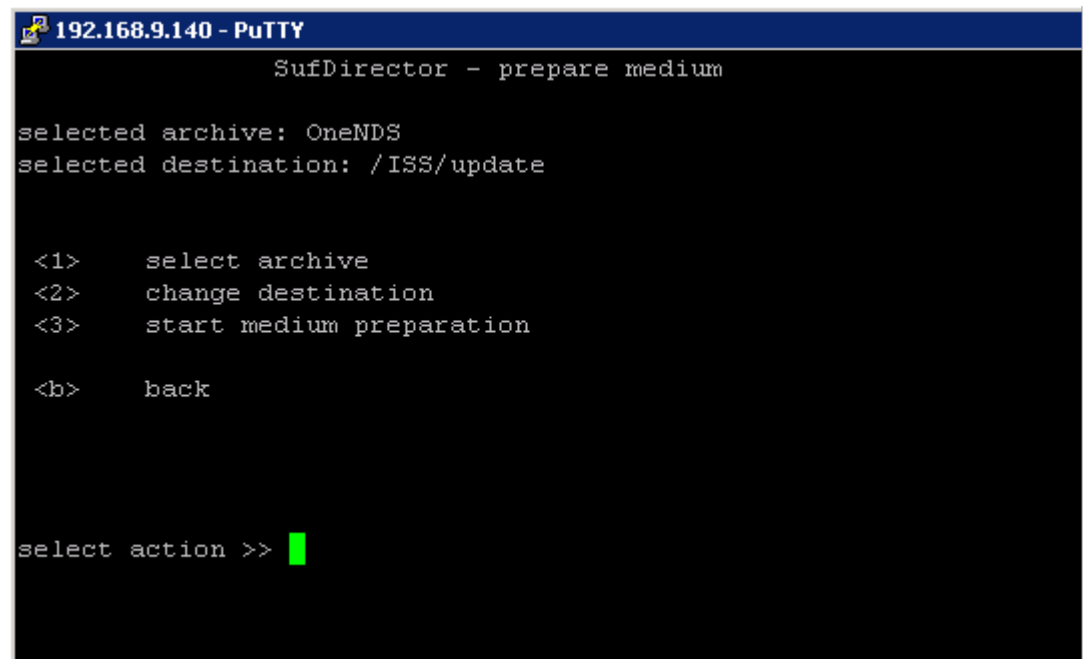
*Select OneNDS.cpio.*

b.  Select option **<3>   start medium preparation**.

```
192.168.9.140 - PuTTY
                SufDirector - prepare medium

selected archive: OneNDS
selected destination: /ISS/update


 <1>     select archive
 <2>     change destination
 <3>     start medium preparation

 <b>     back



select action >>
```

OneNDS.cpio file is unzipped to the selected destination directory. Default destination
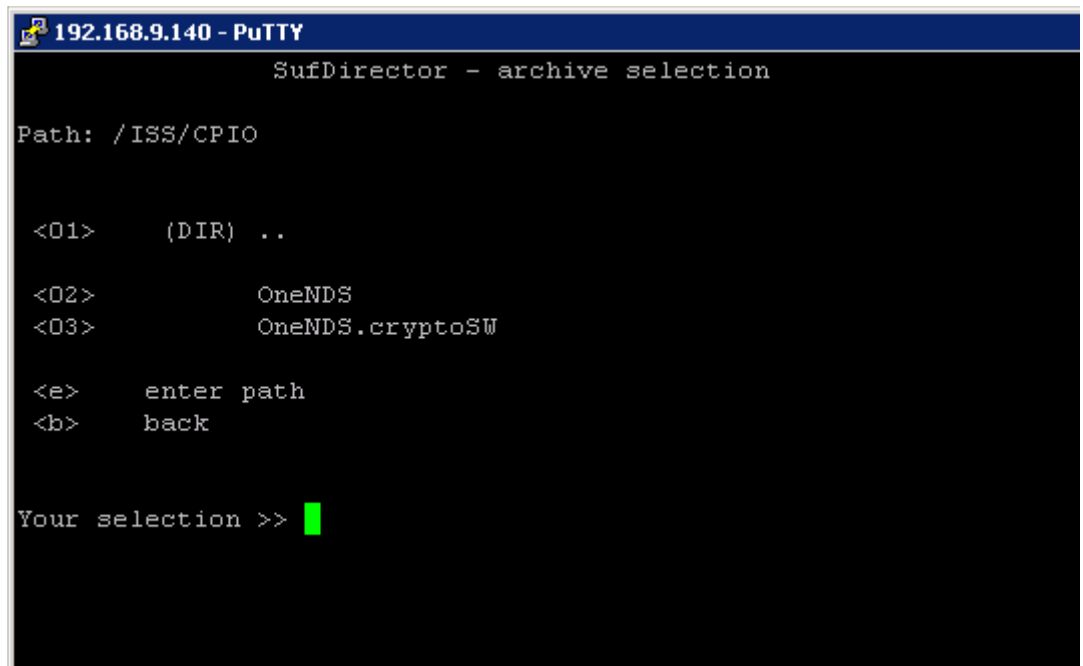directory is `/ISS/update/`.

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Now the `OneNDS.cpio` file is unzipped to the selected directory (default destination directory is `/ISS/update/`). A new directory named `OneNDS-XX-X-9.0.1.16_UPDATE_02-18.medium` is created.

Now the `OneNDS.cryptoSW.cpio` file must be handled in the same way.

Select option **<1> prepare new medium**.

Select option **<1> select archive**.

Select option **<3> OneNDS.cryptoSW.**

```
192.168.9.140 - PuTTY
                    SufDirector - archive selection

Path: /ISS/CPIO


 <01>    (DIR) ..

 <02>          OneNDS
 <03>          OneNDS.cryptoSW

 <e>    enter path
 <b>    back



Your selection >>
```
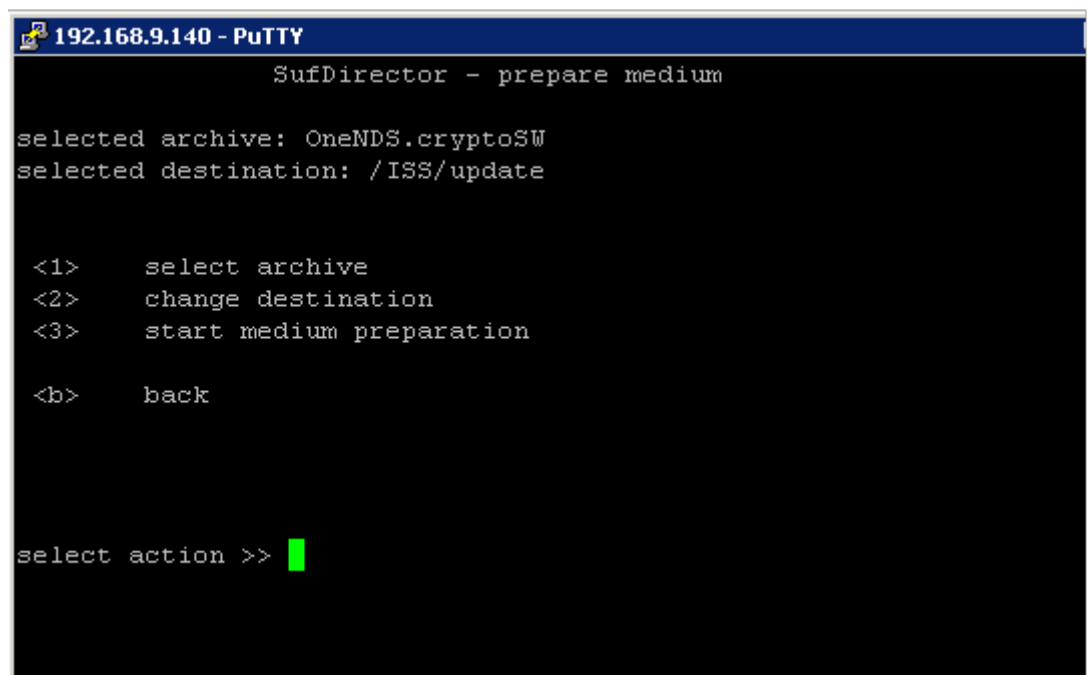
Select option **<3> start medium preparation**.

```
192.168.9.140 - PuTTY
                    SufDirector - prepare medium

selected archive: OneNDS.cryptoSW
selected destination: /ISS/update


 <1>     select archive
 <2>     change destination
 <3>     start medium preparation

 <b>     back




select action >> █
```
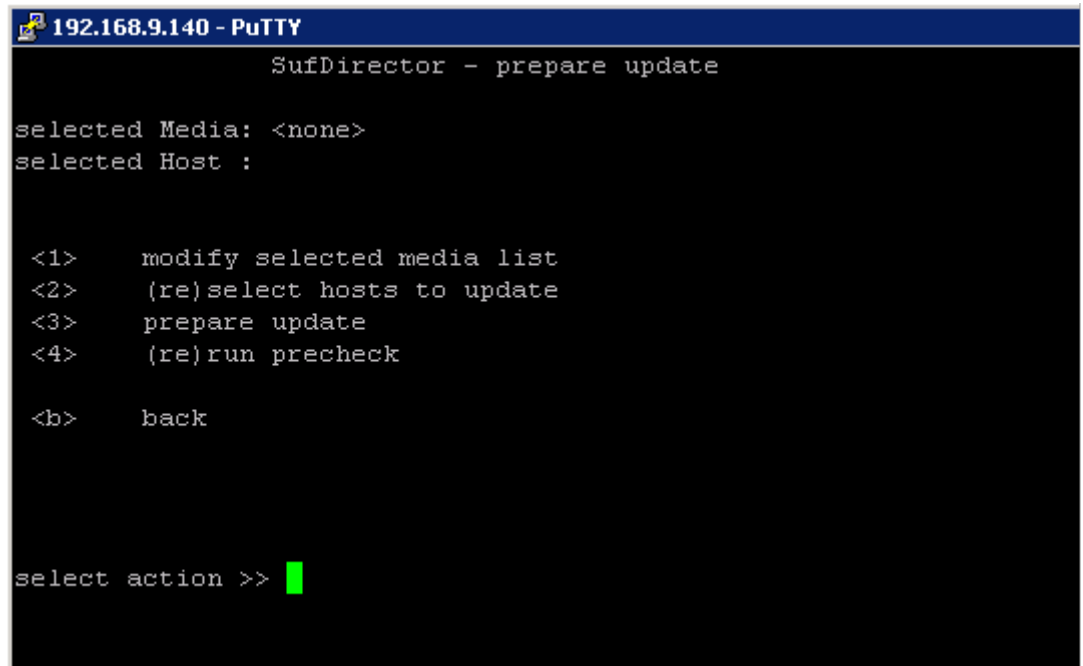
OneNDS.cryptoSW.cpio file is unzipped to the selected destination directory.

> Now the `OneNDS.cryptoSW.cpio` file is unzipped to the `OneNDS-XX-X-9.0.1.16_UPDATE_02-18.medium` directory. The `OneNDS.cryptoSW.cpio` file contains additional files to the `OneNDS.cpio` file; no files in `OneNDS-XX-X-9.0.1.16 UPDATE_02-18.medium` directory will be overwritten during preparation process.
>
> 4. Select option **<2>  update NEs**.
>
> The following screen is displayed:

a.  Select option **<1>   modify selected media list**.
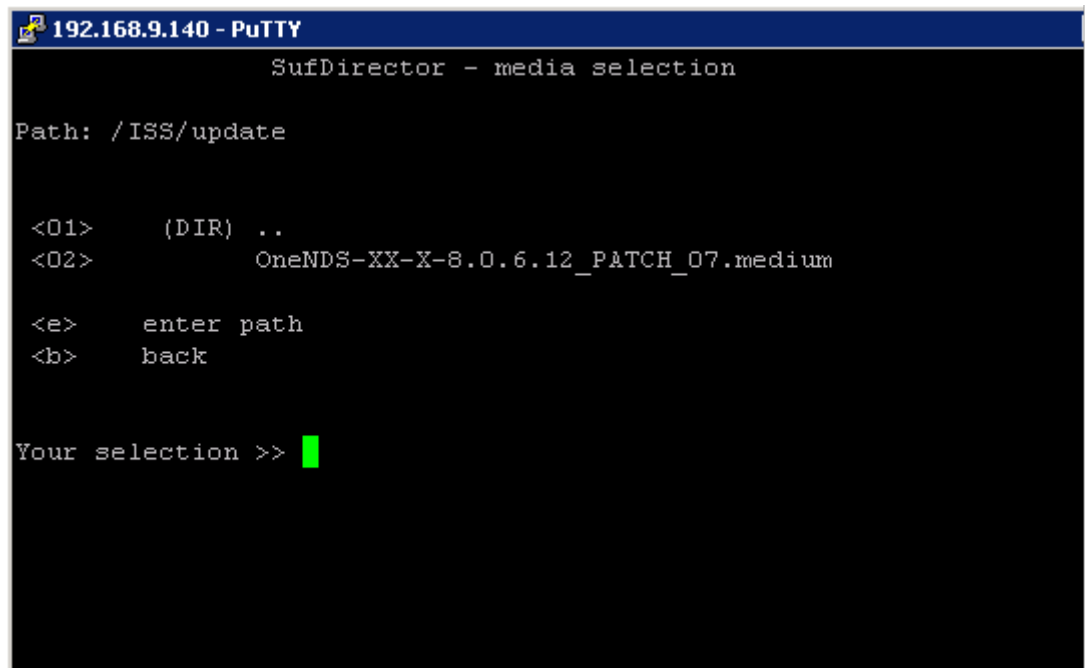


b.  Select option **<a>   add medium**.

Select Media for Update, for example <2>.

    c. Select one of the indicated software media that must be used for update, for example, option **<2>**.

       The destination can be kept as indicated above and must not be changed.

    d. Select option **<b>**.

### 3.2.2 Updating the NEs
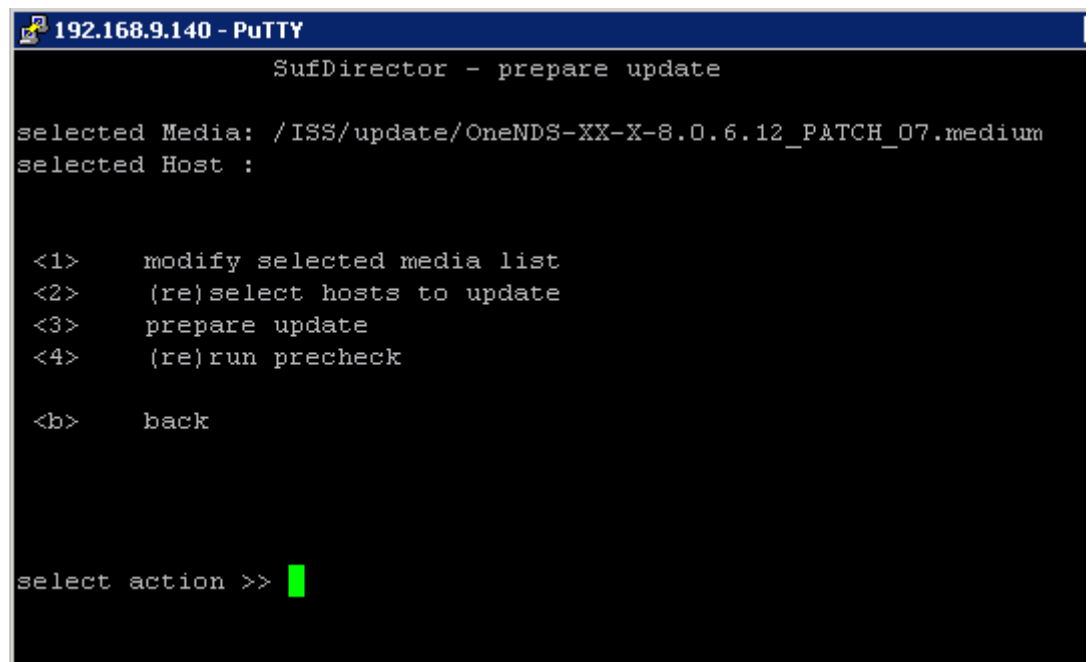
The Install Server is updated automatically with **prepare new medium** option.

If the new Install Server software version is contained, this is automatically installed without any operator interaction.

**Note:** There is no fallback/commit mechanism available on Install Server. In addition, the disc raid configuration is not touched.

Perform the following steps:

1. Select one of the hosts to be updated by choosing the option **<2>**.

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```
192.168.9.140 - PuTTY
                   SufDirector - prepare update

selected Media: /ISS/update/OneNDS-XX-X-8.0.6.12_PATCH_07.medium
selected Host :


 <1>     modify selected media list
 <2>     (re)select hosts to update
 <3>     prepare update
 <4>     (re)run precheck

 <b>     back




select action >>
```

Select host to update **<2>**.


The following screen is displayed:

```
192.168.9.140 - PuTTY
                   SufDirector - host selection



 <a>     add host
 <r>     remove host

 <b>     back



select action >>
```
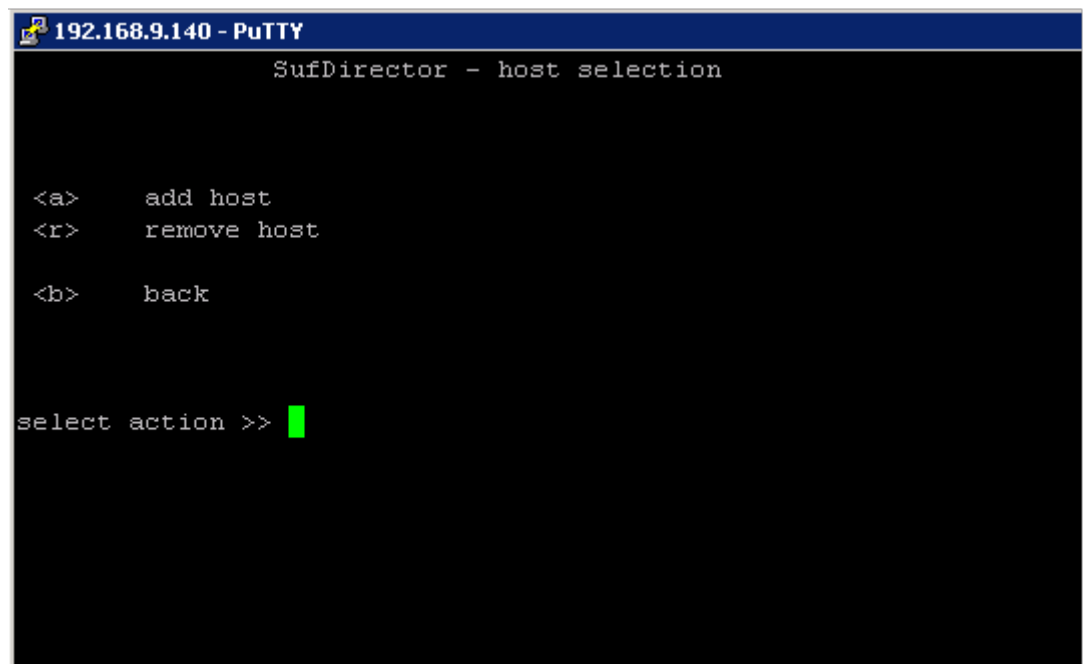
a. Select option **<a>**.

A panel is opened where you enter the appropriate host name listed on `/etc/hosts` on install server (for example, `mch3-pgwds1`) and press **Enter**.

b. Select option **<b>**.

This takes you back to the previous screen ("prepare update").

2. When the selection of the appropriate host is completed, start the preparation of update by choosing **option <3>**.



Start "prepare update" <3>.

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If asked, enter passphrase and click **Enter**.

```
mch3a-install_218.1.90.207                                         _ □ ×
select action >>
contacting hosts ...
   * mch3-pgwds1...
cannot contact host mch3-pgwds1 via SUF. If this is a freshly installed system
than the SUF components have not yet been installed.

Shall SUF be installed now on mch3-pgwds1[y/n] ? y

Shall admin-LAN be used [y/n] ? y

Enter the name of the host in the admin-LAN: mch3-pgwds1

Script started, file is /var/opt/SMAWtspir/work/session.9262/mch3-pgwds1/SufInst
aller.log
Writing log to /var/opt/SMAWsuf/Controller/SufInstaller.1/SufInstaller.log
No install directory given. Using default directory
*** If using ssh, be prepared to enter the passwords asap. ***
*** sshd has a timeout while waiting for the password.      ***
** Starting update for node mch3-pgwds1 using interface mch3-pgwds1
** Getting local version
Local APS: TSPYSR911100
pkgadd SMAWsufut  APS: TSPYSR911100
pkgadd SMAWsufus  APS: TSPYSR911100
Continue (y/n)?
```
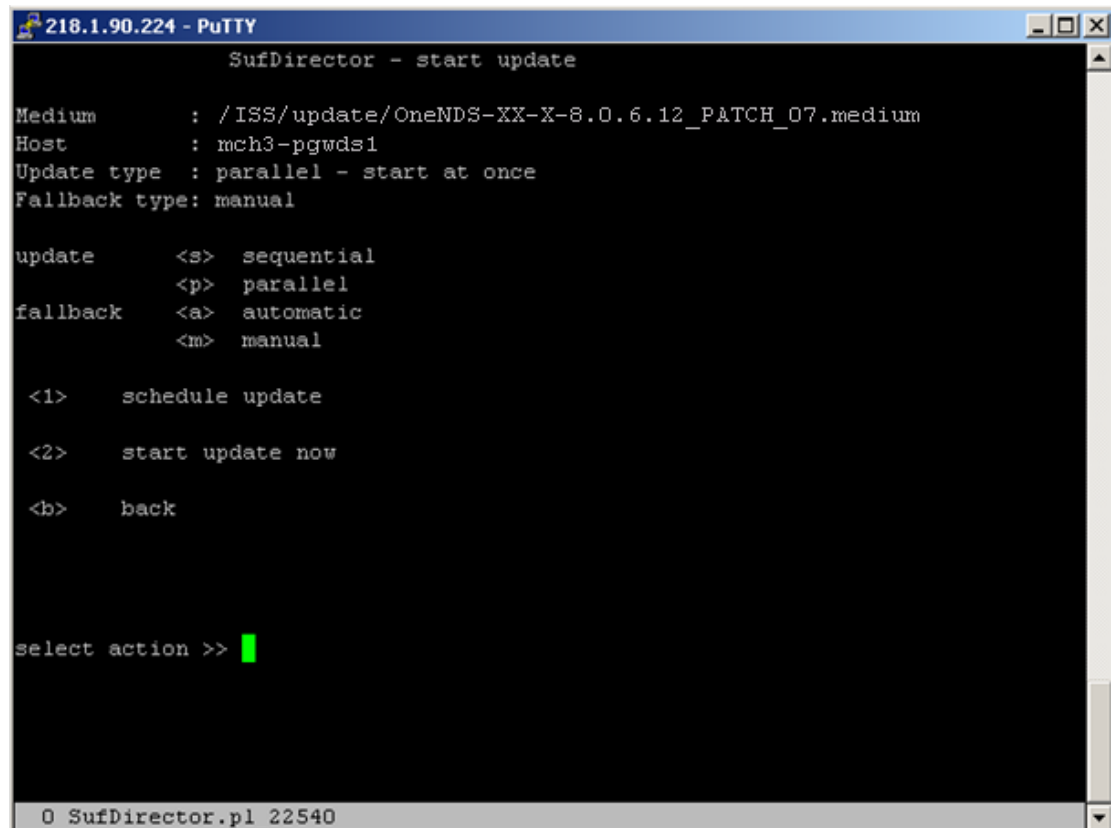
If asked, enter the values as described in the screen.

By entering one of the following options, the update process is customized:

| update | **\<s\>** | sequential | one NE after another is updated |
|---|---|---|---|
| | **\<p\>** | | parallelupdates of single NE's are processed in parallel |
| fallback | **\<a\>** | automatic | in case of an error during the update procedure the Install Server itself initiates all actions needed to fall back to the previous software version |
| | **\<m\>** | manual | the operator needs to decide whether a fallback to a previous version is to be initiated or not |

3. After selecting the needed configurations, the update itself can be started by choosing option **\<2\>**.

```
218.1.90.224 - PuTTY                                                    _ □ x
                        SufDirector - start update

Medium      : /ISS/update/OneNDS-XX-X-8.0.6.12_PATCH_07.medium
Host        : mch3-pgwds1
Update type : parallel - start at once
Fallback type: manual

update      <s>  sequential
            <p>  parallel
fallback    <a>  automatic
            <m>  manual

 <1>    schedule update

 <2>    start update now

 <b>    back




select action >>

 0 SufDirector.pl_22540
```
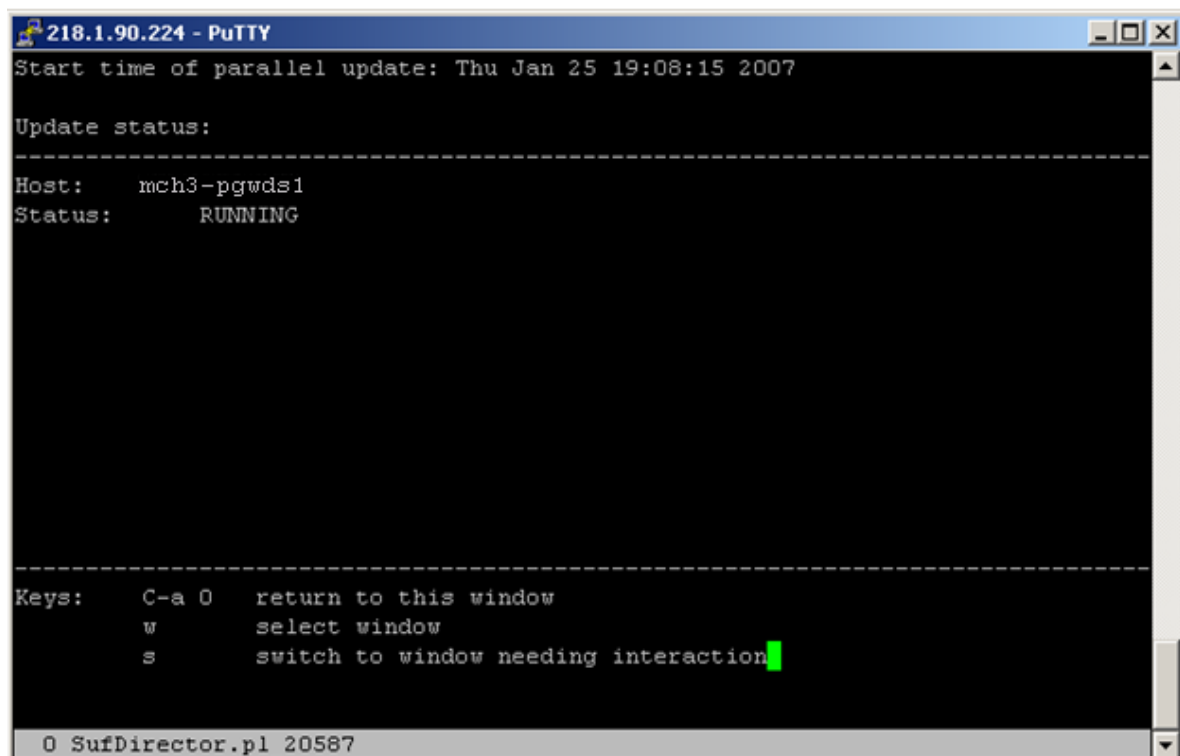
Select update process configurations.

> After the update is started, the status of the dedicated update procedure for a dedicated NE is presented as shown within the following screen:

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```
218.1.90.224 - PuTTY                                              _ □ X
Start time of parallel update: Thu Jan 25 19:08:15 2007

Update status:
--------------------------------------------------------------------------
Host:    mch3-pgwds1
Status:      RUNNING




















--------------------------------------------------------------------------
Keys:    C-a O   return to this window
         w       select window
         s       switch to window needing interaction

 0 SufDirector.pl_20587
```
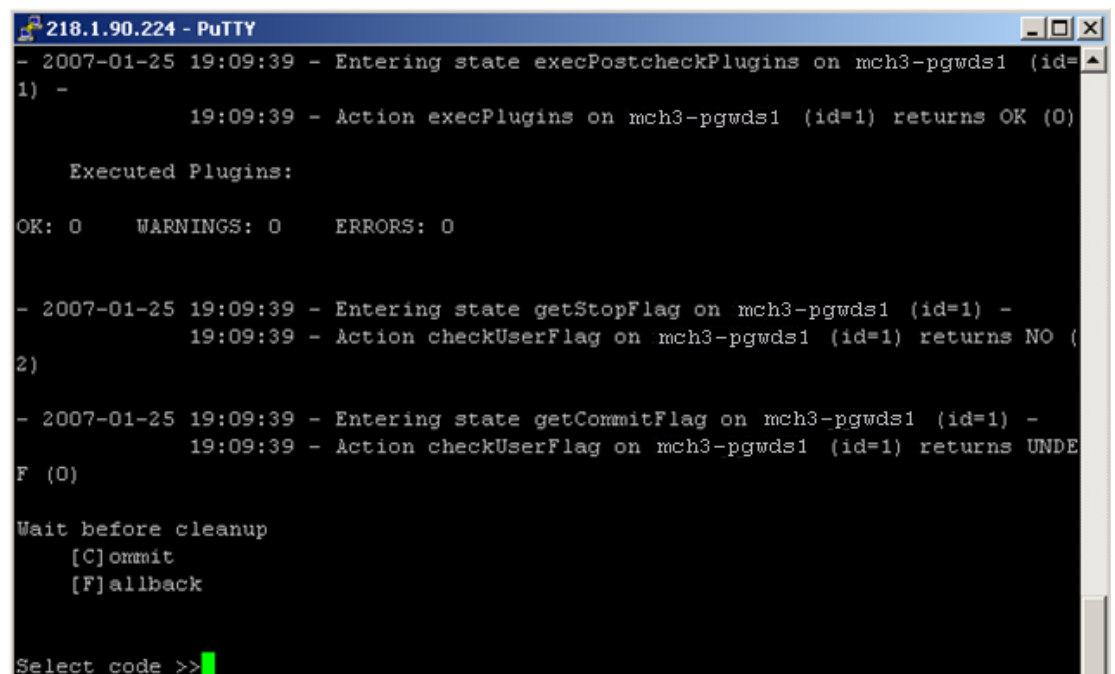
*Indicate update status.*

4. When the update of a dedicated NE is completed, this is reported in a window as shown in the following screen:



```
218.1.90.224 - PuTTY                                              _ □ X
- 2007-01-25 19:09:39 - Entering state execPostcheckPlugins on mch3-pgwds1  (id=
1) -
          19:09:39 - Action execPlugins on mch3-pgwds1  (id=1) returns OK (0)

    Executed Plugins:

OK: 0    WARNINGS: 0    ERRORS: 0


- 2007-01-25 19:09:39 - Entering state getStopFlag on mch3-pgwds1 (id=1) -
          19:09:39 - Action checkUserFlag on mch3-pgwds1 (id=1) returns NO (
2)
- 2007-01-25 19:09:39 - Entering state getCommitFlag on mch3-pgwds1 (id=1) -
          19:09:39 - Action checkUserFlag on mch3-pgwds1 (id=1) returns UNDE
F (0)

Wait before cleanup
    [C]ommit
    [F]allback


Select code >>
```

Select one of the indicated codes:

**[C]ommit** (the update is completed and a fallback is not possible anymore), or a

**[F]allback** (previous software version is "reinstalled" and can be used again).

Leave the window, as it is for an unlimited time to verify the behavior of the installed software and ensure that it fits to the expectations. However, when you are sure you must commit the update to prevent from later clashes with next update actions on the same NE.

**Note:** If you select **[F]** for Fallback, the machine reboots and starts from the hard disks without updated. However, the DS does not start automatically

(This is not valid for IBM and HP blade with SAN, where you must perform the fallback according to Annex: IBM HS22 with EMC VNX5100 and Annex: HP ProLiant BL460c Gen8 Blade Servers with HP StorageWorks P2000 G3 Storage System).

Start the DS manually or use the ADM function Synch… DSA as the nodes database backup stored on the formerly split away disk is quite only.



Update process completed.

When you have committed the update, the **Status: COMPLETED** is reported. There are several options to continue:

- **w** - Change to another window indicating another update of another NE

- **s** - Change to a window that also waits for interactions

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- **q** - Quit the update screen.

When you quit the update screen by choosing option **<q>**, answer the following two questions for deletion of temporary data with "yes".

After the above step, get back to the start screen for choosing other NE's as described and shown in the first figure in 3.2.1.

**Note:**

After the update, following files are available on the updated nodes:

`/tmp/pre-update.err`

`/tmp/post-update.err`

These files are ignored as they do not indicate any error.

### 3.2.3  Pre-update and Post-update checks

During update procedure, pre-update and post-update checks are performed.

### 3.2.3.1 Troubleshooting

If pre-update checks detect some error on DS node, following warnings appears after solving the problem and pressing **[R]etry** (this is caused because of DS has been stopped during first run of pre-update checks):

```
CC_check_physical_memory          WARNING

nds_pre_updateHealthCheck         WARNING
```

```
Output:

### WARNING in CC_check_physical_memory:

    ... checking physical memory
    ...checkMemoryParameters: WARN: Checks that depend
    on running One-NDS software are disabled.

    WARNING: OneNDS is not running !

    Please check /tspinst/CC_check_physical_memory.log


### WARNING in nds_pre_updateHealthCheck:

    NDS daemon is not running - org cannot be executed.

    WARNING: DS is NOT running. Continue without
    resolving this warning will result in subsequent
    health checks to be skipped.
```

```
Complete log can be found in /tspinst/nds-update-
checks.log
```

Ignore these warnings, and press **[C]ontinue** in `SufDirector`.

## 3.3 Full Installation of New or Broken Nodes after the Installation Update

This section describes the steps performed after the installation update.

In case of hardware error, a node must be reinstalled. Therefore Install Server has to be ready for a possible quick reinstallation.

To minimize the downtime for reinstallation caused by failure, the following steps must be performed directly after all the software updates are committed and the SUF sessions are closed:

- Update the TPD according to [2], and generate `network.xml`.

- Transfer One-NDS 9 SP2 full medium (OneNDS-XX-X-9.0.2.18 FULL) and `network.xml` to the Install Server and do a complete Install Server preparation (including password set/check, Hotfix installation). For more information about Install Server preparation, see chapter "One-NDS Installation Steps" in [4].

- In case of hardware failure Install Server is setup for node reinstallation.

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# 4    Annex: IBM HS22 with EMC VNX5100

**Note:**

Handling of snapshots through `sufSession.pl` script and handling of update through `SufDirector.pl` script are two independent processes and there is no correlation between them.

1. Before update take a snapshot of the system. For more information, refer section 4.1.
2. During update, ignore warnings related to "no split disks" and continue.
3. At the end of update, `SufDirector.pl` script ends in **[C]ommit / [F]allback** state.  Select **[C]ommit** right away.
   Select **q** to quit the update screen and **y** to remove the temporary files.
   It does not do anything besides cleanly finishing the update and clearing temporary files used by SufDirector.pl script.
   This is not a real commit. If a commit is required, see below.
4. If update is OK, perform commit. For more information, refer section 4.1.
5. If a rollback is needed, restore the original snapshot taken in the first step. For more information, refer section 4.1.

## 4.1    Creating Snapshots before Nodes Update, Commit and Rollback (IBM)

### 4.1.1  Preparing the Install server /etc/hosts

To run further scripts after installing the Install server, the `/etc/hosts` file must be filled.

This can either be done manually through editing the file or recommended to use the generated shell script `fillETCHosts_<site>.sh`

1. Copy the script to the Install server as user `root` to `/tmp`

2. Execute the shell script

   `/tmp/fillETCHosts_<site>.sh`

   **Info:** This needs to be done also after an extension of the system.

### 4.1.2 Preparing the Install Server Environment for Update and Fallback

1. Install `navicli` on the install server.

   a. Log on to the install server as user `oamsys` and switch to user `root`.

      Ensure that rpm `OneNDS_istools` is installed already.

   b. Copy the `NaviCLI-Linux-64-x86-en_US` rpm (can be found within Additional Data) on the Install Server to the directory `/tmp` and change to the directory `/tmp`.

      ```
      cd /tmp

      scp <…>/NaviCLI* /tmp/.
      ```

   c. Install the rpm through command

      ```
      rpm -U NaviCLI*
      ```

   d. Run the script `setlevel_cli.sh` with level low.

      ```
      /opt/Navisphere/bin/setlevel_cli.sh
      ```

```
mch23-instB:/tmp # rpm -U NaviCLI-Linux-64-x86-en_US-7.31.25.1.24-1.x86_64.rpm
Run the script /opt/Navisphere/bin/setlevel_cli.sh  to set the security level before you proceed.
mch23-instB:/tmp # /opt/Navisphere/bin/setlevel_cli.sh
Please enter the verifying level(low|medium|l|m) to set?
l
Setting low verifying level.....

Verification level has been set SUCCESSFULLY!!!
Please refer the log /opt/Navisphere/bin/setlevel.log
mch23-instB:/tmp #
```

2. Install the update and fallback scripts on all install servers.

   a. Log on to the install server as user `oamsys` and switch to user `root`.

   b. Create the needed directory with permissions.

      ```
      mkdir /ISS/snapshot

      cd /ISS

      chown sufuser:users snapshot
      ```

   c. Switch to user `sufuser` and change to snapshot directory.

      ```
      su - sufuser

      cd /ISS/snapshot
      ```

   d. Copy the snapshot scripts to the install server to the directory.

      ```
      cp <…>/updateScripts.tar.gz /ISS/snapshot
      ```

   e. Untar the snapshot scripts.

      ```
      tar -xvzf updateScripts.tar.gz
      ```

3. Copy the configuration data generated through the TPD `xmlConverter` to the installation servers:

   a. Log on to the install server as user `oamsys` and switch to user `sufuser`.

   b. Copy the `config` data to the install server and rename them to `mmhosts.cfg` respectively `parameters.sh`

   ```
   mkdir /ISS/snapshot/script/tmp/

   scp <…>/snapshotConfig/mmhosts_<site>.cfg
   /ISS/snapshot/script/tmp/mmhosts.cfg

   scp <…>/snapshotConfig/parameters_<site>.sh
   /ISS/snapshot/script/parameters.sh
   ```

### 4.1.3  Preparing the Snapshots and Session Starting

Perform the following steps:

1. Log on to install server as user "`sufuser`".

   `SufSession` Help:

2. Preparation

```
cd /ISS/snapshot

./sufSession -init
```







If the. /sufSession -init is done for the second time after EMC configuration (not the second time during this update session), the LUN's are not initialized and the output screens appears as below :

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3. Validate the data stored in EMC:

```
./sufSession -validate
```

```
sufuser@:/ISS/snapshot> ./sufSession -validate

Checking existense of configuration files... Passed

**** Configuration to be validated: ****

Valid nodes for SnapSession:
NODENAME          hostname          chassis aMM IP        slot ID
##########################################################################
mch23-sm2                  mch23-sm2           10.50.118.104            3
mch23-pgw2                 mch23-pgw2          10.50.118.104            4
mch23-pgd2                 mch23-pgd2          10.50.118.104            5
mch23-rds02                mch23-rds02         10.50.118.104            6
mch23-be022                mch23-be022         10.50.118.104            9
mch23-be032                mch23-be032         10.50.118.104            10

*** Starting validation ***
Checking number of cache LUNs...
Checking cache LUNs...
Valid cache LUNs: 23
Counting valid Storagegroups...
Valid SGs: 23, Cache LUNs: 23....... Passed
Checking aMM IP connectivity to 10.50.118.104... Passed
Checking Host to Storage Group bindings and Host to aMMIP[slot_id] bindings...
root@mch23-sm2: 10.50.118.104[3] SG[mch23-sm2]
Fetching MAC and WWN data from root@mch23-sm2...(sles10)
Checking WWNs in "mch23-sm2" against WWN fetched from root@mch23-sm2...        Passed
Comparing MAC address of 10.50.118.104, slot 3 to MAC on root@mch23-sm2...    Passed
root@mch23-pgw2: 10.50.118.104[4] SG[mch23-pgw2]
Fetching MAC and WWN data from root@mch23-pgw2...(sles10)
Checking WWNs in "mch23-pgw2" against WWN fetched from root@mch23-pgw2...       Passed
Comparing MAC address of 10.50.118.104, slot 4 to MAC on root@mch23-pgw2...   Passed
root@mch23-pgd2: 10.50.118.104[5] SG[mch23-pgd2]
Fetching MAC and WWN data from root@mch23-pgd2...(sles10)
Checking WWNs in "mch23-pgd2" against WWN fetched from root@mch23-pgd2...       Passed
Comparing MAC address of 10.50.118.104, slot 5 to MAC on root@mch23-pgd2...   Passed
root@mch23-rds02: 10.50.118.104[6] SG[mch23-rds02]
Fetching MAC and WWN data from root@mch23-rds02...(sles10)
Checking WWNs in "mch23-rds02" against WWN fetched from root@mch23-rds02...      Passed
Comparing MAC address of 10.50.118.104, slot 6 to MAC on root@mch23-rds02...  Passed
root@mch23-be022: 10.50.118.104[9] SG[mch23-be022]
Fetching MAC and WWN data from root@mch23-be022...(sles10)
Checking WWNs in "mch23-be022" against WWN fetched from root@mch23-be022...      Passed
Comparing MAC address of 10.50.118.104, slot 9 to MAC on root@mch23-be022...  Passed
root@mch23-be032: 10.50.118.104[10] SG[mch23-be032]
Fetching MAC and WWN data from root@mch23-be032...(sles10)
Checking WWNs in "mch23-be032" against WWN fetched from root@mch23-be032...      Passed
Comparing MAC address of 10.50.118.104, slot 10 to MAC on root@mch23-be032... Passed
 OK
sufuser@:/ISS/snapshot>
```

4. List all nodes which are available to be updated.

```
./sufSession -listnodes
```

```
sufuser@:/ISS/snapshot> ./sufSession -listnodes

Valid nodes for SnapSession:
NODENAME          hostname          chassis aMM IP        slot ID
##########################################################################
mch23-sm2                  mch23-sm2           10.50.118.104            3
mch23-pgw2                 mch23-pgw2          10.50.118.104            4
mch23-pgd2                 mch23-pgd2          10.50.118.104            5
mch23-rds02                mch23-rds02         10.50.118.104            6
mch23-be022                mch23-be022         10.50.118.104            9
mch23-be032                mch23-be032         10.50.118.104            10
sufuser@:/ISS/snapshot>
```

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5. Start the snapshot either on one specific node or on all nodes in parallel.

```
./sufSession -start <nodename> | -all
```

```
sufuser@:/ISS/snapshot> ./sufSession -start mch23-pgw2

Synching from OS IO buffer root@mch23-pgw2:
Starting SUF session for: mch23-pgw2, OS LUN 8
You must activate a snapshot on this session before you can access it.

sufuser@:/ISS/snapshot>
```

**Note:** Read the output carefully. If the snapshots exist for some node and it is not clear whether the snapshot is up-to-update, perform -commit and -start again commands for this node.

The EMC is now ready and the One-NDS update can be performed.

### 4.1.4 Rollback If the Update Was Not Successful

The rollback must be done per node through the following command. Option -o can be used to omit questions.

```
./sufSession -rollback <nodename>
```

```
sufuser@:/ISS/snapshot> ./sufSession -rollback mch23-pgw2

Rolling back will cause all updates since the start of the SUF session to be lost!
Do you wish to continue (y/n): y
Powering off mch23-pgw2. aMM IP: 10.50.118.104, server slot: 4.
"mch23-pgw2" power is Off, starting rollback of session mch23-pgw2, rate medium.

Powering on "mch23-pgw2".
Rollback succesfully started for "mch23-pgw2".
sufuser@:/ISS/snapshot>
```

**Note:**

- The rollback just restores the snapshot, but the snapshot is still available.
- The snapshot is taken before the start of SUF update .The rollback restores the running server, so the rolled back server is automatically started.

### 4.1.5 Commit If the Update Was Successful

The commit must be done per node through the following command. Option -o can be used to omit questions.

```
./sufSession -commit <nodename>
```

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```
sufuser@:/ISS/snapshot> ./sufSession -commit mch23-pgw2

Commiting changes will delete patch update backup OS image created at the start of the SUF session.
Do you wish to continue (y/n): y
Deleting snapview session: mch23-pgw2

sufuser@:/ISS/snapshot>
```

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# 5 Annex: HP ProLiant BL460c Gen8 Blade Servers with HP StorageWorks P2000 G3 Storage System

**Note:** Handling of snapshots through the `sufSession.pl` script and handling of update through `SufDirector.pl` script are two independent processes and there is no correlation between them.

1. Before update through the `SufDirector.pl` script take a snapshot of the system through the `sufSession.pl` script. For more information, refer section 5.1.

2. During update through the `SufDirector.pl` script ignore warnings related to "no split disks" and continue.

```
===== ATTENTION ====== ATTENTION ====== ATTENTION
====== ATTENTION ======

=   Neither local mirrors nor ZFS declared!

=   Splitting local mirrors resp. ZFS cloning is
absolutely required for fallback!

=   Please declare mirrors resp. ZFS datasets through
SufAdmin [get|set]ClusterDescription

=   before starting the update.

===== ATTENTION ====== ATTENTION ====== ATTENTION
====== ATTENTION ======

There are warnings! Are you sure to go on ? [y|n]>>
```

Select "y".

3. At the end of update, `SufDirector.pl` script ends in **[C]ommit / [F]allback** state.  Select **[C]ommit** right away.
Select **q** to quit the update screen and **y** to remove the temporary files.

It does not do anything besides cleanly finishing the update and clearing temporary files used by SufDirector.pl script.

This is not real commit. If a commit is needed, perform it through the `sufSession.pl` script (see below).

4. If update is OK, perform commit through the `sufSession.pl` script. For more information, refer section 5.1.

5. If a rollback is needed, restore the original snapshot taken in the first step through sufSession.pl script. For more information, refer section 5.1.

## 5.1 Creating Snapshots before Nodes Update, Commit and Rollback (HP)

### 5.1.1 Starting the Snapshots

1. As "root " on Install Server, copy `onends_hp_hw-9.0.1-*.noarch.rpm` from `additionalData` to `/tmp` directory

2. Install `onends_hp_hw-9.0.1-*.noarch.rpm`

   `# cd /tmp`

   `# rpm -Uvh onends_hp_hw-9.0.1-*.noarch.rpm`

3. Copy `hpConfig_allSites_net.xml` generated by TPD to `/tftpboot` directory.

4. Start the snapshot.

   `# cd /tftpboot`

   `# ./scripts/sufSession.pl -f hpConfig_allSites_net.xml -s --all --StoragePwd <storage_password> --sdfrunPwd <sdfrun_password> --OAPwd <OA_password> –wait`

   **Hint:** Ensure that the parameter `--all` starts a snapshot also for Install Server. However, a rollback of Install Server is not allowed to run from Install Server.

   To avoid starting the snapshot for Install Server the parameter `-n <node1,node2,…>` must be used instead of the parameter `--all`.

### 5.1.2 Rollback

**Hint:**

- A rollback must not be performed in parallel shells with several sessions.

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- A rollback of Install Server is not allowed to run from Install Server. From this reason the parameter `--all` is not allowed to use for rollback from Install Server together with `hpConfig_allSites_net.xml`.

- A rollback is not allowed to be performed on DS nodes in the state "Primary".

As "root " on Install Server

```
# cd /tftpboot
```

```
# ./scripts/sufSession.pl -f hpConfig_allSites_net.xml -r
-n <node1,node2,…> --StoragePwd <storage_password> --
sdfrunPwd <sdfrun_password> --OAPwd <OA_password> --wait
```

### 5.1.2.1 Verification of Successful Rollback

Perform the following steps:

1. Check if all `suf` sessions (snapshots) have been removed.

   As "root " on Install Server

   ```
   # cd /tftpboot
   ```

   ```
   # ./scripts/sufSession.pl -f
   hpConfig_allSites_net.xml -a -n <node1,node2,…> --
   StoragePwd <storage_password>
   ```

   The result for all nodes must be:

   ```
   No suf session for node <node1> found!
   No suf session for node <node2> found!
   …
   ```

2. Check on install server as "root" that all nodes have required version.

   ```
   # onends_nodes_check –q
   ```

   If some suf session was not removed and the relevant node does not have required version, start rollback for this node again.

   If some suf session was not removed and the relevant node has required version, simply manually remove the `suf` session through Storage Management Utility (see example below):
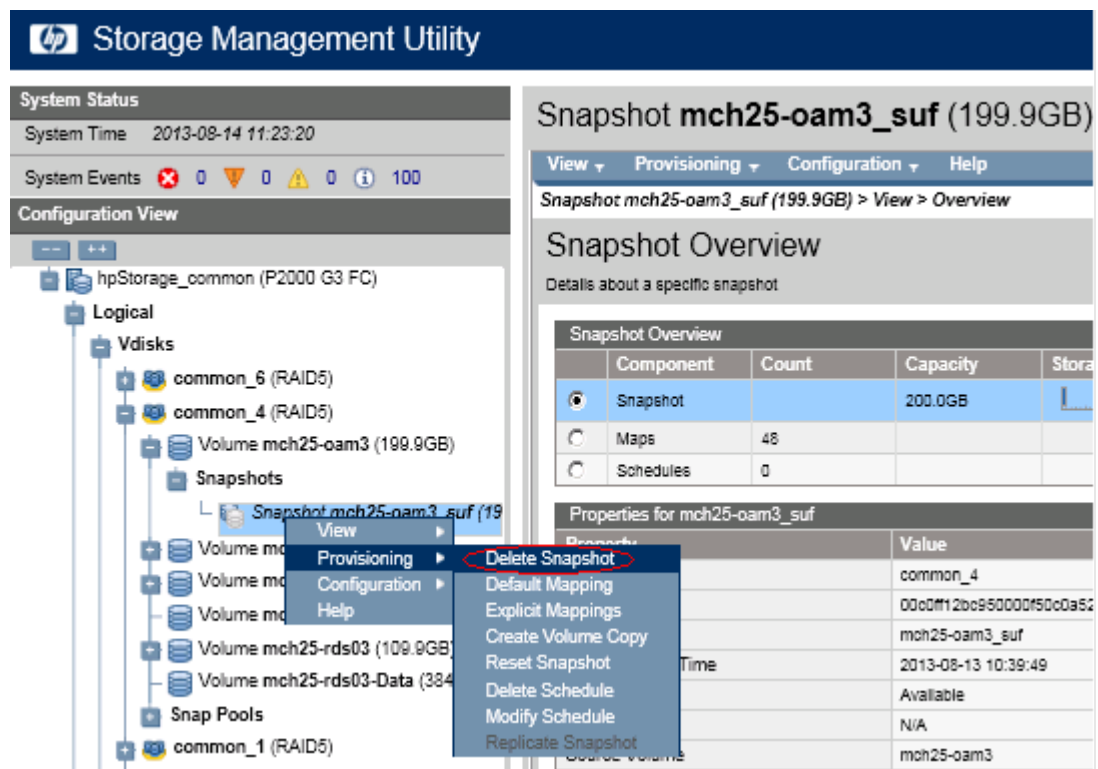
### 5.1.3  Commit

Hint:

- A commit must not be performed in parallel shells with several sessions.

- A commit of Install Server is not allowed to run from Install Server. From this reason the parameter `--all` is not allowed to use for commit from Install Server together with `hpConfig_allSites_net.xml`.

- A commit is not allowed to be performed on DS nodes in the state "Primary".


As "root" on Install Server


```
# cd /tftpboot
```


```
# ./scripts/sufSession.pl -f hpConfig_allSites_net.xml -c –n
<node1,node2,…> --StoragePwd <storage_password> -- sdfrunPwd
<sdfrun_password> --OAPwd <OA_password> --wait
```

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# 6     Annex: Useful Logs and Basic Statuses

See Annex: Useful Logs and Basic Statuses in [4].

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# Glossary and Abbreviations

| | |
|---|---|
| AAA | Authentication, Authorization, Accounting |
| ADM | One-NDS Administrator |
| AU | AAA Server Unit |
| BC | Bladecenter (IBM) |
| BE | Backend |
| BE-DSA | Backend DSA |
| BIOS | Basic Input/Output System |
| C-NTDB | Carrier Network Technology Database |
| DNS | Domain Name System |
| DS | Directory Server |
| DSA | Directory System Agent |
| ExP | Application Extension Package |
| FE | Front End |
| HW | Hardware |
| INS | Install Server |
| IMN | Installation Manual |
| JKS | Java Key Store |
| JCEKS | Java Cryptographic Extension Key Store |
| KVM | Keyboard Video Mouse Switch |

| | |
|---|---|
| LDAP | Lightweight Directory Access Protocol |
| LDIF | LDAP Interchange Format |
| LVM | Logical Volume Manager |
| NDS | One-NDS Directory |
| NTF | Notification Manager |
| NTP | Network Time Protocol |
| OA&M | Operation, Administration and Maintenance |
| One-NDS | Network Directory Server |
| OS | Operating System |
| PGW | Provisioning Gateway |
| PGW-DSA | Provisioning Gateway DSA |
| RAID | Redundant Array of Independent Disks |
| R-DSA | Routing DSA |
| SDF | Service Data Function |
| SSDS | Secondary Synchronized DS |
| SSL | Secure Sockets Layer |
| TPD | Technical Project Data |
| YaST | Yet Another Setup Tool |

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