



Linux System Upgrade Instructions (Offline)

1. Upgrading Linux System Offline

Note: Upgrading the Linux operating system from v7.x to v8.x is **NOT** supported once the installation or upgrade of NetBrain Workstation v10 is completed. Refer to [Appendix: Upgrade Linux v7.x to v8.x Workaround](#) for workaround solution to upgrade Linux operating system from v7.x to v8.x prior to the installation of or upgrade to NetBrain Workstation v10.

This instruction will guide you to upgrade Linux operating system from v7.x (v7.0 to v7.8) to v7.9 offline. If your server has access to the Internet, it is highly recommended to [upgrade the Linux operating system online](#).

- [Upgrading CentOS to v7.9](#)
- [Upgrading RHEL to v7.9](#)

Note: Linux upgrade must be done by the **root** user because sudo account cannot be used to upgrade the packages at the OS level.

1.1. Upgrading CentOS to v7.9

1. Create a snapshot or checkpoint of your VMware server for rollback purpose in case of any failure.

Note: Ensure that the MongoDB data has been backed up, all the system services including MongoDB on the Linux server are running normally, and **DON'T** restart Linux server during and after the Linux operating system upgrade.

Note: If anything is incorrect, please hold for advice or contact your system administrator.

2. [Download the CentOS Linux ISO package](#).
3. Connect to the Linux server as the **root** user via SSH with the PuTTY tool. Then run the `mkdir /tmp/centos_79` command to create a directory to mount the ISO image.
4. Connect to the Linux server as the **root** user with the WinSCP tool without internet access and upload the ISO file to a temporary folder **/tmp/**.
5. Run the following command to verify the MD5 checksum value. Confirm that the returned checksum value is identical to the MD5 checksum value below.

```
md5sum /tmp/CentOS-7-x86_64-DVD-2009.iso
5a3b0b3f4a6654ee195ec6edb6d938a4 /tmp/CentOS-7-x86_64-DVD-2009.iso
```

Note: If the checksum value does not match, re-download the ISO file as it may have been corrupted during the transfers. Then repeat step 4 and 5 to upload the ISO file and confirm the checksum value.

6. Check the version detail of the CentOS system that is kept in the **/etc/redhat-release** and **/etc/centos-release** directories.

- 1) Run the `uname -a` and `uname -r` commands to check the information about the current system.

```
[root@localhost ~]# uname -a
Linux localhost.localdomain 3.10.0-693.el7.x86_64 #1 SMP Tue Aug 22 21:09:27 UTC 2017 x86_64 x86_64 x86_64 GNU/Linux
[root@localhost ~]# uname -r
3.10.0-693.el7.x86_64
```

- 2) Run the `cat /etc/centos-release` command to check the Linux version. For example, the version information is displayed as `CentOS Linux release 7.4.1708 (Core)`.

7. Mount the uploaded ISO file.

- 1) Run the following command to mount the uploaded ISO file for read access only.

```
mount -t iso9660 -o loop,ro /tmp/CentOS-7-x86_64-DVD-2009.iso /tmp/centos_79/
```

- 2) Run the `ls -al /tmp/centos_79/` command to see the content of the mounted folder and make sure the files and folders are as follows:

```
Dash: !S: Command not found
[root@netbrain-data-server tmp]# ls -al /tmp/centos_79/
total 703
drwxr-xr-x  8 root root    2048 Nov  4 06:35 .
drwxrwxrwt. 11 root root   4096 Apr 22 16:40 ..
-rw-r--r--  3 root root     14 Oct 29 17:14 CentOS_BuildTag
-rw-r--r--  3 root root     29 Oct 26 12:13 .discinfo
drwxr-xr-x  3 root root    2048 Oct 26 12:25 EFI
-rw-rw-r-- 21 root root    227 Aug 30 2017 EULA
-rw-rw-r-- 21 root root  18009 Dec  9 2015 GPL
drwxr-xr-x  3 root root    2048 Oct 26 12:26 images
drwxr-xr-x  2 root root    2048 Nov  2 11:17 isolinux
drwxr-xr-x  2 root root    2048 Oct 26 12:25 LiveOS
drwxr-xr-x  2 root root  673792 Nov  4 06:30 Packages
drwxr-xr-x  2 root root    4096 Nov  4 06:35 repodata
-rw-rw-r-- 21 root root    1690 Dec  9 2015 RPM-GPG-KEY-CentOS-7
-rw-rw-r-- 21 root root    1690 Dec  9 2015 RPM-GPG-KEY-CentOS-Testing-7
-r--r--r--  1 root root    2883 Nov  4 06:36 TRANS.TBL
-rw-r--r--  3 root root     354 Oct 26 12:26 .treeinfo
[root@netbrain-data-server tmp]#
```

8. Back up all the internet-based repository files to a backup folder. As the system will only be updated offline, all the internet-based repositories must be removed.

- 1) Run the `mkdir /repo-bk` command to create a backup folder **repo-bk**.

- 2) Run the `cd /etc/yum.repos.d` command to navigate to the **etc/yum.repos.d** directory.
- 3) Run the `mv *.repo /repo-bk/` command to move the ***.repo** files to the **repo-bk** folder.
9. Create a file to point to the ISO file that has been mounted. It will ensure all the packages will be retrieved from the ISO file when performing the update.
 - 1) Run the `vi /etc/yum.repos.d/local.repo` command to open the new file **local.repo** inside the vi text editor under the **/etc/yum.repos.d** directory.
 - 2) Copy the following details to the vi editor.

```
[LocalRepo]
name=Local Repository
baseurl=file:///tmp/centos_79
enabled=1
gpgcheck=1
gpgkey=file:///etc/pki/rpm-gpg/RPM-GPG-KEY-CentOS-7
```

- 3) Press the **Esc** key to exit the input mode, then enter the `:wq!` command and press the **Enter** key to save the changes and exit the vi editor.
- 4) Run the `ls -l` command to confirm that you only have the **local.repo** file in the **/etc/yum.repos.d** directory.
10. Run the following commands to upgrade the CentOS system.
 - 1) Run the `yum clean all` command to clean the cache.
 - 2) Run the `yum check-update` command to check the available upgrades.

Tip: The system will display a list of available updates, including the core operating system updates. Scan the list to make sure everything is in order.

- 3) Run the `yum update -y` command to upgrade the CentOS system to v7.9.

Tip: This will then update all the packages to the latest version. It may take a while to complete. Keep an eye out for any errors. If anything is incorrect, please hold for advice or contact your system administrator.

11. Run the `service <mongodb service name> status` command to double-check the MongoDB service status to ensure it is running normally after the Linux system upgrade.

Note: The default name of the MongoDB service varies by different system versions. In v7.0b/b1 system, MongoDB service name is `mongodnetbrain`; starting from v7.1, MongoDB service name is `mongod`.

12. Run the `cat /etc/centos-release` command to check if the CentOS system has been upgraded successfully. For example, the following information is displayed: `CentOS Linux release 7.9.2009 (Core)`.

13. As the CentOS system has been upgraded to v7.9, then you can continue to upgrade the system Database Server according to the upgrade guide.

14. After the upgrade, delete the mounted folder, and disable the local repository and recover the original one.

- 1) Connect to the Linux server as the **root** user via SSH with the PuTTY tool.
- 2) Run the following commands to disable the folder mounting to local ISO file.

```
cd /  
umount /tmp/centos_79
```

Note: Ensure that all other users have disconnected from the system because the `umount` command cannot succeed if any users are browsing the mount point.

- 3) Run the `rm -rf /tmp/CentOS-7-x86_64-DVD-2009.iso` command to delete the ISO image, then run the `rm -rf /tmp/centos_79` command to delete all files under the **centos_79** directory.
- 4) Run the `rm -rf /etc/yum.repos.d/*.repo` command to delete the local repository file.
- 5) Run the `mv /repo-bk/* /etc/yum.repos.d/` command to move the files in **repo-bk** folder to the **yum.repos.d** folder. Then run the `rm -rf /repo-bk/` command to delete the **repo-bk** folder.
- 6) Run the `yum clean all` command to clean the cache and run the `yum check-update` command to check the available upgrades.

1.2. Upgrading RHEL to v7.9

1. Create a snapshot or checkpoint of your VMware server for rollback purpose in case of any failure.


Note: Ensure that the MongoDB data has been backed up, all the system services including MongoDB on the Linux server are running normally, and **DON'T** restart Linux server during and after the Linux operating system upgrade.

Note: If anything is incorrect, please hold for advice or contact your system administrator.

2. Navigate to the [official website of Red Hat](#), and [download the RHEL 7.9 installation package](#).

Red Hat Enterprise Linux 7.9 Binary DVD

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4.22 GB

3. Connect to the Linux server as the **root** user via SSH with the PuTTY tool. Then run the `mkdir /tmp/rhel_79` command to create a directory to mount the ISO image.

4. Connect to the Linux server as the **root** user with the WinSCP tool without internet access and upload the ISO file to a temporary folder **/tmp/**.
5. Run the following command to verify the MD5 checksum value. Confirm that the returned checksum value is identical to the MD5 checksum value below.

```
md5sum /tmp/rhel-server-7.9-x86_64-dvd.iso
7e40e30e794ca80fcd840aa1a54876b0  rhel-server-7.9-x86_64-dvd.iso
```

Note: If the checksum value does not match, re-download the ISO file as it may have been corrupted during the transfers. Then repeat step 4 and 5 to upload the ISO file and confirm the checksum value.

6. Mount the uploaded ISO file.
 - 1) Run the following command to mount the uploaded ISO file for read access only.

```
mount -t iso9660 -o loop,ro /tmp/rhel-server-7.9-x86_64-dvd.iso /tmp/rhel_79/
```
 - 2) Run the `ls -al /tmp/rhel_79/` command to see the contents of the mounted folder and make sure the files and folders are as follows (there should be a **.discinfo** file like below):

```
[root@centos76-30105 ~]# ls -al /tmp/rhel_7.9/
total 992
dr-xr-xr-x.  9 root root   4096 Sep 17 15:35 .
drwxrwxrwt. 13 root root   8192 Oct 13 17:34 ..
dr-xr-xr-x.  4 root root   2048 Sep 17 15:35 addons
-r--r--r--.  1 root root     56 Sep 17 15:25 .discinfo
dr-xr-xr-x.  3 root root   2048 Sep 17 15:35 EFI
-r--r--r--.  1 root root   8266 Sep 17 14:27 EULA
-r--r--r--.  1 root root   1455 Sep 17 14:27 extra_files.json
-r--r--r--.  1 root root  18092 Sep 17 14:27 GPL
dr-xr-xr-x.  3 root root   2048 Sep 17 15:35 images
dr-xr-xr-x.  2 root root   2048 Sep 17 15:35 isolinux
dr-xr-xr-x.  2 root root   2048 Sep 17 15:35 LiveOS
-r--r--r--.  1 root root    114 Sep 17 15:08 media.repo
dr-xr-xr-x.  2 root root 946176 Sep 17 15:35 Packages
dr-xr-xr-x.  2 root root   2048 Sep 17 15:35 repodata
-r--r--r--.  1 root root   3375 Jul 14 10:15 RPM-GPG-KEY-redhat-beta
-r--r--r--.  1 root root   3211 Jul 14 10:15 RPM-GPG-KEY-redhat-release
-r--r--r--.  1 root root   1796 Sep 17 15:35 TRANS.TBL
-r--r--r--.  1 root root   1900 Sep 17 15:25 .treeinfo
[root@centos76-30105 ~]#
```

- 3) Run the `head -n1 /tmp/rhel_79/.discinfo` command to check the numeric value in the first line of the **.discinfo** file from the mount directory.

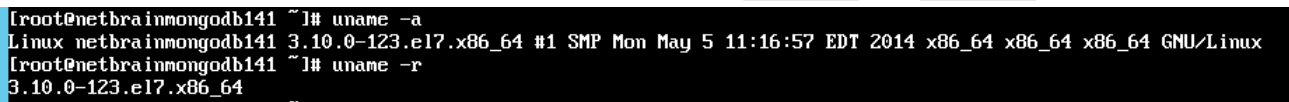
```
head -n1 /tmp/rhel_79/.discinfo
1600369739.509793
```

7. Backup all the internet-based repository files to a backup folder. As the system will only be updated offline, all the internet-based repositories must be removed.

- 1) Run the `mkdir /repo-bk` command to create a backup folder **repo-bk**.
 - 2) Run the `cd /etc/yum.repos.d` command to navigate to the **etc/yum.repos.d** directory.
 - 3) Run the `mv *.repo /repo-bk/` command to move the ***.repo** files to the **repo-bk** folder.
8. Create a file to point to the ISO file that has been mounted. It will ensure when we run the update all the packages will be retrieved from the ISO file.
- 1) Run the `vi /etc/yum.repos.d/local.repo` command to open the new file **local.repo** inside the vi text editor under the **/etc/yum.repos.d** directory.
 - 2) Copy the following details to the vi editor.

```
[LocalRepo]
mediaid=1600369739.509793
name=Local Repository
baseurl=file:///tmp/rhel_79
gpgkey=file:///etc/pki/rpm-gpg/RPM-GPG-KEY-redhat-release
enabled=1
gpgcheck=1
```

Note: Replace **media_id** with the numeric value in the **.discinfo** file, and replace **repository_url** with the **/tmp/rhel_79** repository directory.

- 3) Press the **Esc** key to exit the input mode, then enter the `:wq!` command and press the **Enter** key to save the changes and exit the vi editor.
 - 4) Run the `ls -l` command to confirm that you only have the **local.repo** file in the **/etc/yum.repos.d** directory.
9. Check the version detail of RHEL that is kept in the **/etc/redhat-release** and **/etc/os-release** directories.
- 1) To check the information about the current system, run the `uname -a` and `uname -r` commands.

 - 2) To check the Linux version, run the following commands:
 - Run the `cat /etc/redhat-release` command. For example, the version information is displayed as `Red Hat Enterprise Linux Server release 7.0 (Maipo)`.

- Run the `cat /etc/os-release` command.

```
NAME="Red Hat Enterprise Linux Server"
VERSION="7.0 (Maipo)"
ID="rhel"
ID_LIKE="fedora"
VERSION_ID="7.0"
PRETTY_NAME="Red Hat Enterprise Linux Server 7.0 (Maipo)"
ANSI_COLOR="0:31"
CPE_NAME="cpe:/o:redhat:enterprise_linux:7.0:GA:server"
HOME_URL="https://www.redhat.com/"
BUG_REPORT_URL="https://bugzilla.redhat.com/"

REDHAT_BUGZILLA_PRODUCT="Red Hat Enterprise Linux 7"
REDHAT_BUGZILLA_PRODUCT_VERSION=7.0
REDHAT_SUPPORT_PRODUCT="Red Hat Enterprise Linux"
REDHAT_SUPPORT_PRODUCT_VERSION=7.0
```

10. Run the following commands to check update packages from the DVD ISO repositories.

- 1) Run the `yum clean all` command to clean the cache.
- 2) Run the `yum check-update` command to check the available upgrades.

Tip: The system will display a list of available updates, including the core operating system updates. Scan the list to make sure everything is in order.

11. Run the `yum update -y` command to upgrade the RHEL system to v7.9.

Tip: This will then update all the packages to the latest version. It may take a while to complete. Keep an eye out for any errors. If any errors pop up, please hold for advice or contact your system administrator.

12. Run the `service <mongodb service name> status` command to double-check the MongoDB service status to ensure it is running normally after the Linux system upgrade.

Note: The default name of the MongoDB service varies by different system versions. In v7.0b/b1 system, MongoDB service name is `mongodnetbrain`; starting from v7.1, MongoDB service name is `mongod`.

13. Run the `cat /etc/redhat-release` command to check if the RHEL system has been upgraded successfully. For example, the following information is displayed: `Red Hat Enterprise Linux Server release 7.9 (Maipo)`.

14. As the RHEL system has been upgraded to v7.9, then you can continue to upgrade the system Database Server according to the upgrade guide.

15. After the upgrade, delete the mounted folder, and disable the local repository and recover the original one.

- 1) Connect to the Linux server as the **root** user via SSH with the PuTTY tool.
- 2) Run the following commands to disable the folder mounting to local ISO file.

```
cd /
umount /tmp/rhel_79
```


Note: Ensure that all other users have disconnected from the system because the `umount` command cannot succeed if any users are browsing the mount point.

- 3) Run the `rm -rf /tmp/rhel-server-7.9-x86_64-dvd.iso` command to delete the ISO image, then run the `rm -rf /tmp/rhel_79` command to delete all files under the **rhel_79** directory.
- 4) Run the `rm -rf /etc/yum.repos.d/*.repo` command to delete the local repository file.
- 5) Run the `mv /repo-bk/* /etc/yum.repos.d/` command to move the files in **repo-bk** folder to the **yum.repos.d** folder. Then run the `rm -rf /repo-bk/` command to delete the **repo-bk** folder.
- 6) Run the `yum clean all` command to clean the cache and run the `yum check-update` command to check the available upgrades.

2. Appendix: Upgrade Linux v7.x to v8.x Workaround

This chapter will provide a workaround solution to help you upgrade your Linux operating system from v7.x to v8.x **prior to** the installation or upgrade to NetBrain Workstation v10.

1. Stop the services of all the Windows components.
2. Export MongoDB and ES data or back up the file.
3. (Optional) Capture a full snapshot for the VM if possible.
4. Uninstall all the previous-version NetBrain Workstation including its 3rd party dependencies.
5. Upgrade Linux OS to v8 and make sure the OS is working properly.
6. Install the NetBrain v10 onto the Linux server with empty database.
7. Import the MongoDB and ES Data using the backup file prepared in step 2.
8. Start up all the services and ensure they are up and running properly.
9. Upgrade the Windows components to v10 and this will automatically upgrade the database to v10.

Note: Contact NetBrain support team if you need any assistance with the above upgrade process.