



NetBrain[®] Integrated Edition 10.0
System Upgrade Guide
Two-Server Deployment

Contents

1. Upgrading System	3
1.1. Terminating System Tasks	4
1.2. Stopping Server Services	4
1.3. Backing Up MongoDB Data	5
1.4. Upgrading NetBrain Database Server	7
1.5. Upgrading NetBrain Application Server	10
1.6. Activating a Subscription License	18
1.7. Verifying Upgrade Results	18
1.8. Customizing MongoDB Disk Alert Rules	20
1.9. Tuning Live Access	21
1.10. Scheduling Benchmark Task.....	22
2. Appendix: Offline Installing Third-party Dependencies	23
3. Appendix: Editing a File with VI Editor	25
4. Appendix: Restoring MongoDB Data	26
5. Appendix: Dumping MongoDB Data	28

1. Upgrading System

The upgrade process ensures data integrity, which means that the data in the current system will be still available after upgrading. If you encounter any issues during the upgrade process, contact [NetBrain Support Team](#) for help.

Note: Before upgrading your system, check its current version and the network connectivity requirements.

Upgrade from IEv8.0x

1. [Terminate System Tasks](#)
2. [Stop Server Services](#)
3. [Back Up MongoDB Data](#)
4. [Upgrade NetBrain Database Server](#)
5. [Upgrade NetBrain Application Server](#)
6. [Activate Subscription License](#)
7. [Verify Upgrade Results](#)
8. [Customize MongoDB Disk Alert Rules](#)
9. [Tune Live Access](#)
10. [Schedule Benchmark Task](#)

Note: If you have installed Smart CLI and Ansible Agent before, you need to run the latest installation packages to upgrade the two components. See [Installing Smart CLI](#) and [Installing Ansible Agent](#) for more details.

To obtain the installation package of Ansible Agent:

- **Option 1:** If the Linux server has no access to the Internet, obtain the **netbrain-ansibleagent-linux-x86_64-rhel-10.0a.tar.gz** file from NetBrain and then upload it to the **/opt/netbraintemp10.0a** directory by using a file transfer tool.
- **Option 2:** If the Linux server has access to the Internet, run the `wget <download links>` command under the **/opt/netbraintemp10.0a** directory to directly download the **netbrain-ansibleagent-linux-x86_64-rhel-10.0a.tar.gz** file from NetBrain official download site.

Network Connectivity Requirements

Source	Destination	Protocol *) and Port Number **)
Thin Client Service Monitor Agent	Application Server	HTTP/HTTPS (80/443)
Application Server	Database Server	TCP 5672/6379/9200/27017/27654/15672
Application Server	Ansible Agent (add-on)	TCP 9098
Application Server	Live Network	ICMP/SNMP/Telnet/SSH/REST API
Database Server	Application Server	TCP 9099

Note: *) If SSL was enabled for any component including MongoDB/ElasticSearch/Redis/RabbitMQ/License Agent/Front Server Controller/Ansible Agent/Auto Update Server (within Web API Server), the SSL protocol should be added to firewall rules to enable SSL connection between servers.

Note: **) The port numbers listed in this column are defaults only. The actual port numbers used during installation might be different.

1.1. Terminating System Tasks

1. Log in to the System Management page.
2. In the System Management page, select **Operations > Task Manager** from the quick access toolbar.
3. Select all running tasks and click **End Process**.

1.2. Stopping Server Services

To avoid any further dataset changes or data corruption while reinstalling MongoDB/Elasticsearch binary files or restoring MongoDB/Elasticsearch data, stop the relevant services.

1. Log in to the Windows server where NetBrain applications are installed and stop the following services in the Task Manager.

Note: If the system was upgraded from the versions older than 7.1, ensure the service named **proxyservice** no longer exists in the **Services** tab of **Task Manager**; otherwise follow the steps [here](#) to uninstall the Proxy Server before proceeding with the upgrade procedures.

NetBrain Component	Service Name
Web API Server	W3SVC
Web API Server	WAS
Worker Server	NetBrainWorkerServer
Front Server	NetBrainFrontServer
Task Engine	NetBrainTaskEngine
Front Server Controller	NetBrainFrontServerController
Update Server	NetBrainUpdateService
Service Monitor Agent	NetBrainAgent
Knowledge Cloud Proxy	NetBrainKCProxy

1.3. Backing Up MongoDB Data

Before upgrading the system, it is highly recommended to back up all MongoDB data in case of any data loss or corruption during the upgrade process. The backup data will be used to restore data after MongoDB is reinstalled. See [Restoring MongoDB Data](#) for more details.

In case that you don't want to stop the service of MongoDB or the volume of the MongoDB data is small, you can refer to [Dumping MongoDB Data](#) for another way to back up the data and refer to [Restoring Dumped MongoDB Data](#) to restore the dumped data.

The following steps introduces how to use the `cp` command to copy underlying MongoDB data files directly for backup.

Notes:

- Make sure you have stopped [all relevant services](#) before backing up data.
- The backup data can only be used to restore the database on the same server.

1. Log in to the Linux server where the MongoDB node is installed as the **root** user.

2. Stop the service of MongoDB.

- 1) Run the `systemctl stop mongod` command to stop the MongoDB service.
- 2) Run the `ps -ef|grep mongod` command to verify whether the **mongod** process is stopped.

```
[root@localhost ~]# ps -ef| grep mongod
root      15136 14237  0 10:42 pts/2    00:00:00 grep  --color=auto mongod
```

Note: If the **mongod** process is stopped, the result should only contain one entry as shown above.

3. Run the `mkdir /etc/mongodb_databk` command to create a directory under the **/etc** directory to save the backup data.

```
[root@localhost ~]# mkdir /etc/mongodb_databk
```

Note: Ensure the backup directory (**/etc/mongodb_databk** in this example) has sufficient space to store the backup data.

4. Run the `cd /usr/lib/mongodb` command to navigate to the **/usr/lib/mongodb** directory.

Note: If you modified the following default directory to store all MongoDB data files during the MongoDB installation, you must use the new directory (available in **mongod.conf**) accordingly.

5. Run the `du -hs data` command under the **/usr/lib/mongodb** directory to double-check the total size of MongoDB data to ensure the target folder (**/etc/mongodb_databk** in this example) has sufficient space.

6. Run the `cp -a data /etc/mongodb_databk` command under the **/usr/lib/mongodb** directory to copy all MongoDB data files from the **data** directory to the **/etc/mongodb_databk** directory.

```
[root@localhost mongodb]# cp -a data /etc/mongodb_databk
```

7. Run the `cd /etc/mongodb_databk` command to navigate to the **/etc/mongodb_databk** directory.

8. Run the `ls -al` command under the **/etc/mongodb_databk** directory to browse the backup data.

```
[root@localhost mongodb_databk]# ls -al
total 136
drwxr-xr-x.  3 root root      18 Jun 6 22:49 .
drwxr-xr-x.  6 root root      79 Jun 6 22:48 ..
drwxr-xr-x.  4 netbrain netbrain 106496 Jun 6 22:49 data
```

9. Run the `systemctl start mongod` command to start the MongoDB service.

1.4. Upgrading NetBrain Database Server

Pre-Upgrade Tasks

Service Monitor Agent has dependencies on the third-party package **libffi-devel zlib-devel readline-devel bzip2-devel ncurses-devel gdbm-devel xz-devel tk-devel libffi-devel gcc**. Run the `rpm -qa | grep -E "zlib-devel|readline-devel|bzip2-devel|ncurses-devel|gdbm-devel|xz-devel|tk-devel|libffi-devel|gcc"` command to check whether it has been installed on this Linux server. If it has not been installed yet, you can choose either option below to install the dependencies:

- **Online Install:** run the `yum -y install zlib-devel readline-devel bzip2-devel ncurses-devel gdbm-devel xz-devel tk-devel libffi-devel gcc` command to install them online
- **Offline Install:** refer to [Appendix: Offline Installing Third-party Dependencies](#) for further instructions.

Upgrading NetBrain Database Server

1. Log in to the Linux server as the **root** user.
2. Run the `mkdir` command to create a directory under the **/opt** directory to place the installation package. For example, **netbraintemp10.0a**.

Note: Don't place the installation package under any personal directories, such as **/root**.

3. Download the installation package.
 - **Option 1:** If the Linux server has no access to the Internet, upload the **netbrain-all-in-two-linux-x86_64-rhel-10.0a.tar.gz** file to the **/opt/netbraintemp10.0a** directory by using a file transfer tool.
 - **Option 2:** If the Linux server has access to the Internet and the **yum** service has been installed:
 - 1) Run the `yum -y install wget` command to install the `wget` command if it has not been installed.
 - 2) Run the `cd /opt/netbraintemp10.0a` command to navigate to the **/opt/netbraintemp10.0a** directory.
 - 3) Run the `wget <download link>` command under the **/opt/netbraintemp10.0a** directory to download the **netbrain-all-in-two-linux-x86_64-rhel-10.0a.tar.gz** file to this directory:

Note: The download link is case-sensitive.

4. Run the `tar -zxvf netbrain-all-in-two-linux-x86_64-rhel-10.0a.tar.gz` command under the **/opt/netbraintemp10.0a** directory to extract installation files.

```
[root@localhost netbraintemp10.0a]# tar -zxvf netbrain-all-in-two-linux-x86_64-rhel-10.0a.tar.gz
netbrain-all-in-two-linux-10.0a/
```

```
...
netbrain-all-in-two-linux-10.0a/upgrade.sh
```

5. Run the `cd netbrain-all-in-two-linux-10.0a` command to navigate to the **netbrain-all-in-two-linux-10.0a** directory.
6. Run the `systemctl start mongod` command to restart the MongoDB service.
7. Run the `./upgrade.sh` command under the **netbrain-all-in-two-linux-10.0a** directory to install NetBrain Linux components.
 - 1) Read the license agreement, and then type **YES** and press the **Enter** key.
 - 2) Type **I ACCEPT** and press the **Enter** key to accept the license agreement. The script starts to check whether the system configuration of the Linux server meets the requirement, and all required dependent packages are installed for each Linux component.

```
[root@localhost netbrain-all-in-two-linux-10.0a]# ./upgrade.sh

Please read the End User License Agreement ("EULA") for the license type (perpetual or
subscription)
purchased in the order form at https://www.netbraintech.com/legal-tc/ carefully. I have read
the
subscription EULA, if I have purchased a subscription license, or the perpetual EULA, if I
have
purchased a perpetual license, at the link provided above. Please type "YES" if you have read
the
applicable EULA and understand its contents, or "NO" if you have not read the
applicable EULA. [YES/NO]: YES

Do you accept the terms in the subscription EULA, if you have purchased a subscription
license, or
the perpetual EULA, if you have purchased a perpetual license? If you accept, and to continue
with
the installation, please type "I ACCEPT" to continue. If you do not accept, and to quit the
installation script, please type "CANCEL" to stop. [I ACCEPT/CANCEL]: I ACCEPT
INFO: 2021-02-28 00-00-18.804: Old version of MongoDB was installed. Upgrade is required.
INFO: 2021-02-28 00-00-18.990: Creating upgrading log...
INFO: 2021-02-28 00-00-19.002: Starting to check system
INFO: 2021-02-28 00-00-20.269: Collecting system information SUCCEEDED.
INFO: 2021-02-28 00-00-20.278: ALL_COMPONENT_LIST=servicemonitoragent mongodb licenseagent
elasticsearch rabbitmq redis
...
```

Note: If the Service Monitor was not installed previously, you will be prompted to enter the relevant info to install Service Monitor.

8. MongoDB, License Agent, Elasticsearch, RabbitMQ, Redis and Service Monitor Agent will be upgraded sequentially. Then run the `reboot` command to restart the machine.
9. Run the following commands to check their service status separately after the server starts up.

▪ **systemctl status mongod**

```
[root@localhost ~]# systemctl status mongod
mongod.service - MongoDB service
Loaded: loaded (/usr/lib/systemd/system/mongod.service; enabled; vendor preset: disabled)
Active: activating (running) since Tue 2020-07-07 13:23:24 EDT; 5min ago
Control: 1143 (mongod)
Memory: 902.3M (limit: 8.0G)
...
```

▪ **systemctl status netbrainlicense**

```
[root@localhost ~]# systemctl status netbrainlicense
netbrainlicense.service - NetBrain license agent service
Loaded: loaded (/usr/lib/systemd/system/netbrainlicense.service; enabled; vendor preset: disabled)
Active: active (running) since Tue 2020-07-07 13:23:35 EDT; 9min ago
Process: 1175 ExecStart=/usr/bin/netbrainlicense/licensed -f /etc/netbrainlicense/licensed.conf (code=exited, status=0/SUCCESS)
Process: 1150 ExecStartPre=/bin/chmod o+r /sys/class/dmi/id/product_uuid (code=exited, status=0/SUCCESS)
Main PID: 2111 (licensed)
Memory: 17.6M
...
```

▪ **systemctl status elasticsearch**

```
[root@localhost ~]# systemctl status elasticsearch
elasticsearch.service - Elasticsearch
Loaded: loaded (/usr/lib/systemd/system/elasticsearch.service; enabled; vendor preset: disabled)
Active: active (running) since Tue 2020-07-07 13:23:25 EDT; 12min ago
Docs: http://www.elastic.co
Main PID: 1153 (java)
Memory: 4.5G
...
```

▪ **systemctl status rabbitmq-server**

```
[root@localhost ~]# systemctl status rabbitmq-server
rabbitmq-server.service - RabbitMQ broker
Loaded: loaded (/usr/lib/systemd/system/rabbitmq-server.service; enabled; vendor preset: disabled)
Active: active (running) since Tue 2020-07-07 13:26:56 EDT; 9min ago
Main PID: 1136 (beam.smp)
Status: "Initialized"
Memory: 131.2M
...
```

▪ **systemctl status redis**

```
[root@localhost ~]# systemctl status redis
redis.service - Redis
Loaded: loaded (/usr/lib/systemd/system/redis.service; enabled; vendor preset: disabled)
Active: active (running) since Tue 2020-07-07 13:23:25 EDT; 14min ago
Main PID: 1159 (redis-server)
```

```
Memory: 7.3M
...
```

- **systemctl status netbrainagent**

```
[root@localhost ~]# systemctl status netbrainagent
netbrainagent.service - NetBrain Service Monitor Agent Daemon
Loaded: loaded (/usr/lib/systemd/system/netbrainagent.service; enabled; vendor preset:
disabled)
Active: active (running) since Tue 2020-07-07 13:23:24 EDT; 15min ago
Main PID: 1144 (python3)
Memory: 135.0M
...
```

10. Verify the upgraded MongoDB version.

- 1) Log in to the Linux server where MongoDB is installed.
- 2) Open a command prompt and run the `mongo --host <IP or hostname of MongoDB Server:Port> -u <username> -p <password> --authenticationDatabase <database_name> --authenticationMechanism SCRAM-SHA-256` command to connect to MongoDB.

Example:

```
[root@localhost ~]# mongo --host 10.10.3.142:27017 -u mongodb -p mongodb --
authenticationDatabase admin --authenticationMechanism SCRAM-SHA-256
MongoDB shell version v4.0.19
...
```

Tip: If SSL is enabled, run the `mongo --host <IP or hostname of MongoDB Server:Port> -u <username> -p <password> --authenticationDatabase <database_name> --ssl --sslAllowInvalidCertificates --authenticationMechanism SCRAM-SHA-256` command.

Post-Upgrade Tasks

- Uninstall the **Java(TM) SE Development Kit 12.0.1 (64-bit)** by running the `rm -rf /usr/local/jdk-12.0.1` command.

Note: Ensure **JDK 12.0.1** is not used by other applications before proceeding with the above step.

1.5. Upgrading NetBrain Application Server

Pre-Upgrade Tasks

- Before the upgrading, clean the C:\Windows\Temp folder to make sure the upgrade process goes smoothly.
- Complete the following steps to back up the configuration files for your Front Server and Front Server Controller before upgrading the Application Server.

- 1) Navigate to the **C:\Program Files\NetBrain\Front Server\conf** directory, and then back up all files WITHOUT the prefix "**fix_**".
- 2) Navigate to the **C:\Program Files\NetBrain\Front Server Controller\conf** directory, and then back up all files WITHOUT the prefix "**fix_**".

Note: **C:\Program Files\NetBrain** is the default installation directory of the Application Server. If you changed it during the Application Server installation, modify it accordingly.

- Uninstall the **NetBrain Update Server** from Windows Control Panel.

Upgrading NetBrain Application Server

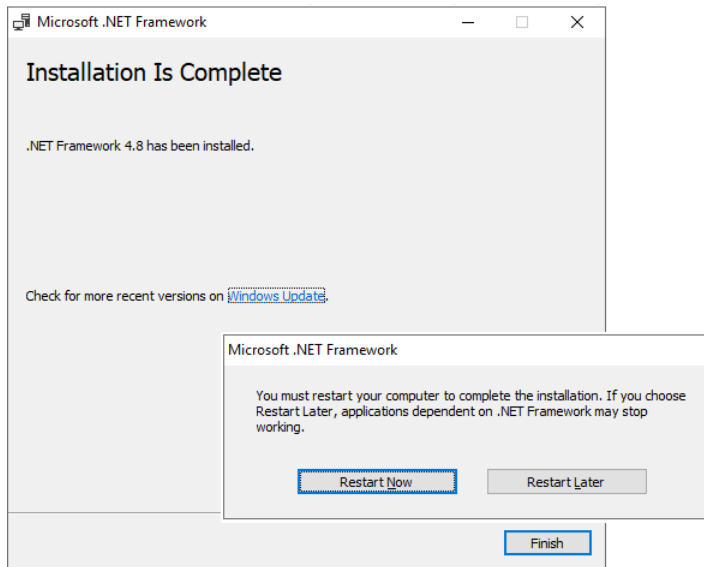
Complete the following steps with administrative privileges.

1. Download the **netbrain-all-in-two-windows-x86_64-10.0a.zip** file and save it in your local folder.
2. Extract files from the **netbrain-all-in-two-windows-x86_64-10.0a.zip** file.
3. Navigate to the **netbrain-all-in-two-windows-x86_64-10.0a** folder, right-click the **netbrain-application-10.0a.exe** file and then select **Run as administrator** to launch the Installation Wizard.
4. Follow the installation wizard to complete the installation step by step:
 - 1) If **.NET Framework 4.8** has not been pre-installed on this machine, the Installation Wizard will guide you through the installation of **.NET Framework 4.8**.

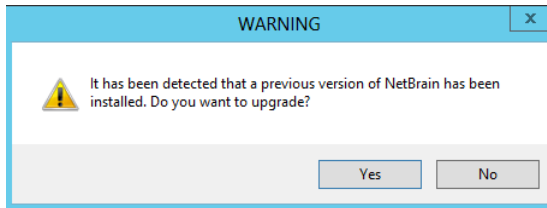
Note: Make sure the Windows update is of the latest. For Windows Server 2012, the update **KB2919442** and **KB2919355** must be installed before the .NET Framework 4.8 installation can start.

Note: Some running applications must be closed during the installation of .NET Framework 4.8, such as Server Manager.

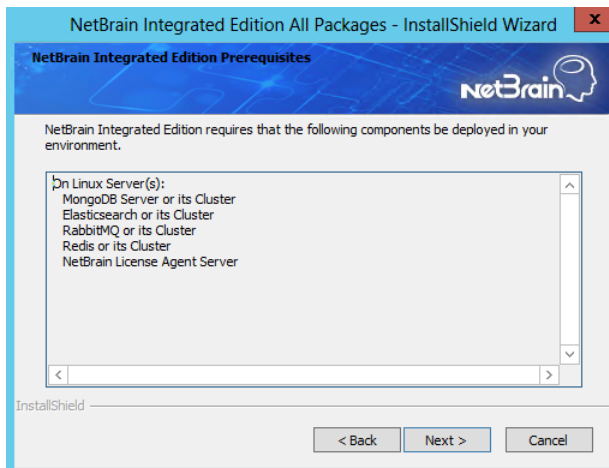
Note: After .NET Framework 4.8 is successfully installed, you must click **Restart** to restart the machine immediately. Otherwise, the upgrade will fail due to the failure of upgrading the new .Net Framework. After the machine reboots, ensure the FIPS is disabled after restarting the machine. To disable the FIPS setting, modify the **Enabled** value to **0** under the **HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\Lsa\FipsAlgorithmPolicy** directory of Windows registry.



- 2) Stop all the NetBrain services on the Windows server manually before continuing the upgrade.
- 3) Click **Yes** in the dialog box to initiate the system upgrade.

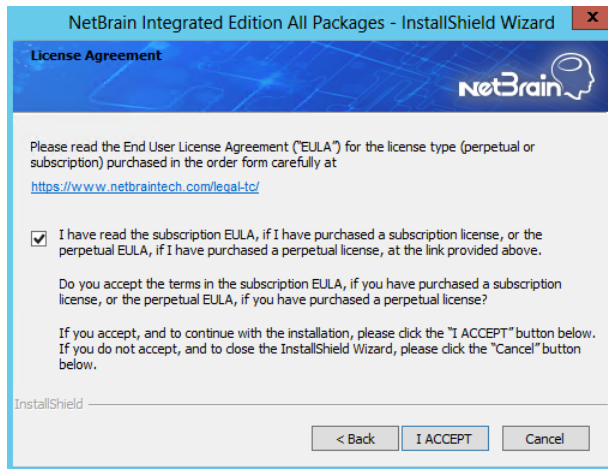


- 4) On the Welcome page, click **Next**.
- 5) On the NetBrain Integrated Edition Prerequisites page, read the list of Linux components that must be deployed beforehand in your environment and click **Next**.

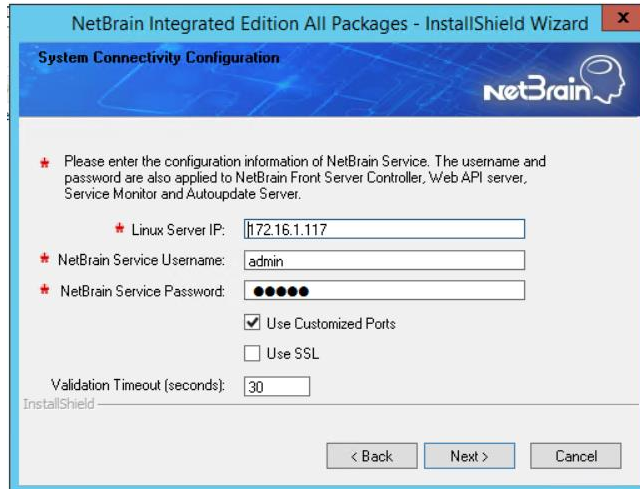


- 6) On the System Configuration page, review the system configuration summary and click **Next**.

- 7) On the License Agreement page, read the license agreement, and then select the **I have read the subscription EULA** check box and click **I ACCEPT**.



- 8) On the System Connectivity Configuration page, review the connection information to connect to NetBrain Database Server. Click **Next**.



Note: Checking the **Use SSL** option will inherit the SSL settings of your existing NetBrain Database Server.

Note: If you customized a port number for any of Linux components during the installation of NetBrain Database Server, select the **Use Customized Ports** check box.

- 9) (Required only if the **Use Customized Ports** check box is selected) On the Customized Settings page, leave all fields unchanged. Click **Next**.

NetBrain Integrated Edition All Packages - InstallShield Wizard

Customized Settings

Modify the following settings for each component only if they are customized.

MongoDB Port: Replica Set Name:

License Agent Port: RabbitMQ Port:

Elasticsearch Port: Redis Port:

Front Server Controller Port:

InstallShield

< Back Next > Cancel

Note: Disk space check will be performed to ensure the requirement of minimum 50G free disk space is met.

- 10) On the Auto Update Server page, enter the required information and click **Next**.

NetBrain Integrated Edition All Packages - InstallShield Wizard

Auto Update Server

Please specify the settings for the Auto Update Server. Note: The address should be the IP address of this machine.

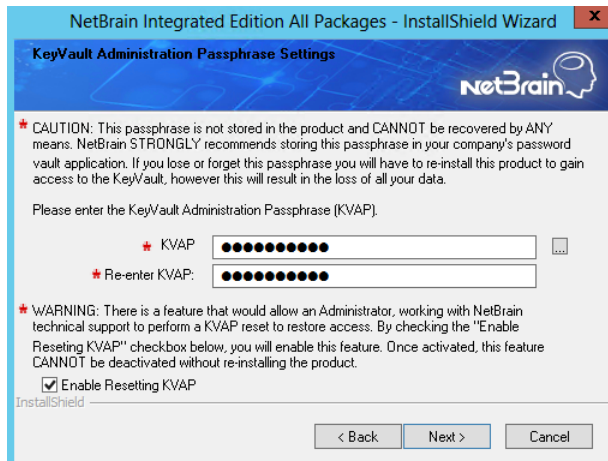
Address:

Port:

InstallShield

< Back Next > Cancel

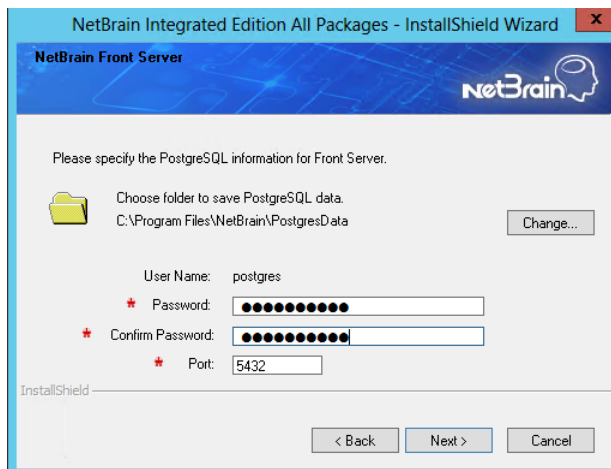
- 11) On the KeyVault Administration Passphrase Settings page, enter the existing passphrase twice and click **Next**.



The screenshot shows the 'KeyVault Administration Passphrase Settings' dialog box. It features a blue header with the NetBrain logo. A caution message states that the passphrase is not stored and cannot be recovered. Below this, there are two password fields: 'KVAP' and 'Re-enter KVAP', both masked with black dots. A warning message explains that enabling the 'Enable Resetting KVAP' checkbox allows for a passphrase reset. The checkbox is checked. At the bottom, there are 'Back', 'Next >', and 'Cancel' buttons.

Note: Keep notes of the passphrase because it is required when you scale up or upgrade the Application Server. In case of losing the passphrase, select the **Enable Resetting KVAP** check box so that NetBrain system admin can reset the passphrase at any time.

- 12) On the NetBrain Front Server page, create and confirm the password for PostgreSQL Database.

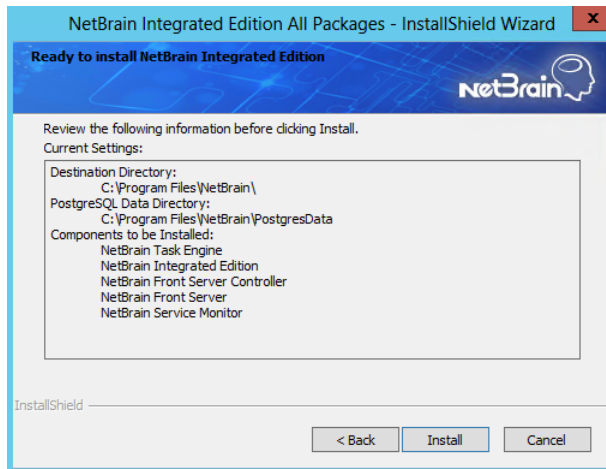


The screenshot shows the 'NetBrain Front Server' dialog box. It has a blue header with the NetBrain logo. The main text asks to specify PostgreSQL information. There is a folder selection field for saving data, currently set to 'C:\Program Files\NetBrain\PostgresData'. Below this, there are fields for 'User Name' (set to 'postgres'), 'Password', 'Confirm Password', and 'Port' (set to '5432'). The password fields are masked with black dots. At the bottom, there are 'Back', 'Next >', and 'Cancel' buttons.

Note: The length of the password must be greater than 8 characters.

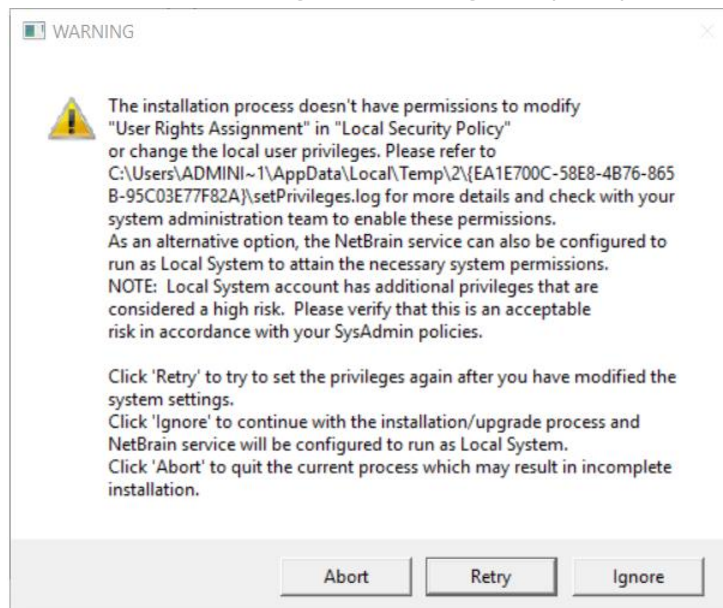
Note: Make sure the designated data folder has more than 180GB free space.

- 13) Review the server components to be upgraded and click **Install**. All the Windows components will be upgraded one by one.



Note: Depending on the hard drive type of the Application Server, the entire upgrade process may take approximately 1 hour (SSD) to 2.5 hours (HDD). Please expect the lengthy upgrade process and refrain from interrupting it.

- 14) (Optional) Ensure the NetBrain installation process using administrator account has the necessary permissions to modify “User Rights Assignment” in “Local Security Policy” or change the local user privileges. Otherwise, the following error message will prompt when installing each Windows component.

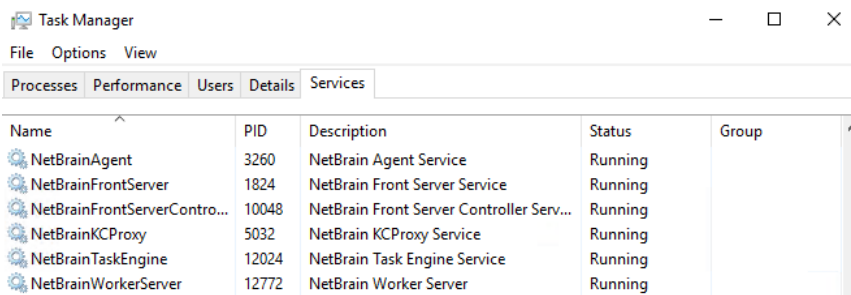


- Click **Ignore** to continue with installation/upgrade process and NetBrain service will be configured to run as Local System.
- If you have security concerns, click **Abort** to quit the installation/upgrade process.
- Click **Retry** after you have modified the system settings.

Note: Local System accounts have additional privileges that are considered a high risk. Please verify that this is an acceptable risk in accordance with your SysAdmin policies.

Note: After clicking **Abort**, please check with your system administration team to enable the relevant permissions, uninstall the affected component(s) and reinstall. Contact NetBrain support team if you need any assistance during the process.

5. After all components are successfully upgraded, click **Finish** to complete the upgrading process and exit the Installation Wizard.
6. Open the Task Manager and navigate to the **Services** tab, you can find the following running NetBrain services.



Name	PID	Description	Status	Group
NetBrainAgent	3260	NetBrain Agent Service	Running	
NetBrainFrontServer	1824	NetBrain Front Server Service	Running	
NetBrainFrontServerContro...	10048	NetBrain Front Server Controller Serv...	Running	
NetBrainKCProxy	5032	NetBrain KCProxy Service	Running	
NetBrainTaskEngine	12024	NetBrain Task Engine Service	Running	
NetBrainWorkerServer	12772	NetBrain Worker Server	Running	

Post-Upgrade Tasks

- Follow the steps below to recover the special settings if you have customized the **Web.config** file for your Web Server and/or Web API Server:

1) Navigate to **NetBrain > Web Server** and locate the backup file **backup_Web.config** under **nb_publish_server** and **nb_publish_client**.


2) Manually recover the settings one by one in **Web.config** according to the previous configurations in the backup file **backup_Web.config**.

Note: DO NOT directly replace the **Web.config** file with the backup file as it may cause log-in problems for NetBrain Workstation.

Note: Contact NetBrain Support if you have any questions regarding the specific items in the **Web.config** file that need to be recovered.

1.6. Activating a Subscription License

1. In the System Management page, click **Activate** under the **License** tab. The activation wizard prompts.
2. Activate your subscription license:
 - 1) Select **Activate Subscription License** and click **Next**.
 - 2) Enter the license ID and activation key that you received from NetBrain, with your first name, last name, and email address.
 - 3) Select the activation method based on your situation.
 - **Online** (recommended) — click **Activate** to connect to NetBrain License Server and validate your license information immediately.

Note: If your NetBrain Application Server is not allowed to access the Internet, you can configure a proxy server. Click the  icon at the upper-right corner, select the **Use a proxy server to access the internet** check box and enter the required information.

- **Via Email** — validate your license information by sending an email to NetBrain.


Note: Only use this activation method when your NetBrain Application Server is not allowed to access the Internet.

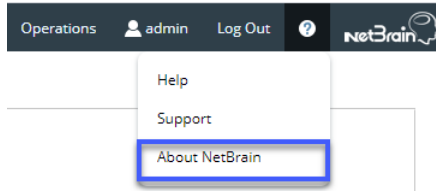
- a) Follow the instructions to generate your license file. Attach the file to your email and send it to [NetBrain Support Team](#). After receiving your email, the NetBrain team will fill in the license information on NetBrain License Server and generate the corresponding activation file, and then send it back to you.
 - b) Click **Browse** to select the activation file that you received from the NetBrain team, and then click **Activate**.
- 4) A message box will prompt you the subscription license has been activated successfully. Click **OK**.
 3. A confirmation dialog box prompts to ask you whether to generate an initial tenant. Click **Yes** and the initial tenant will be created automatically with all purchased nodes assigned.
 4. Check the tenant and domain nodes. If there is more than one domain, you need to allocate the domain.

1.7. Verifying Upgrade Results

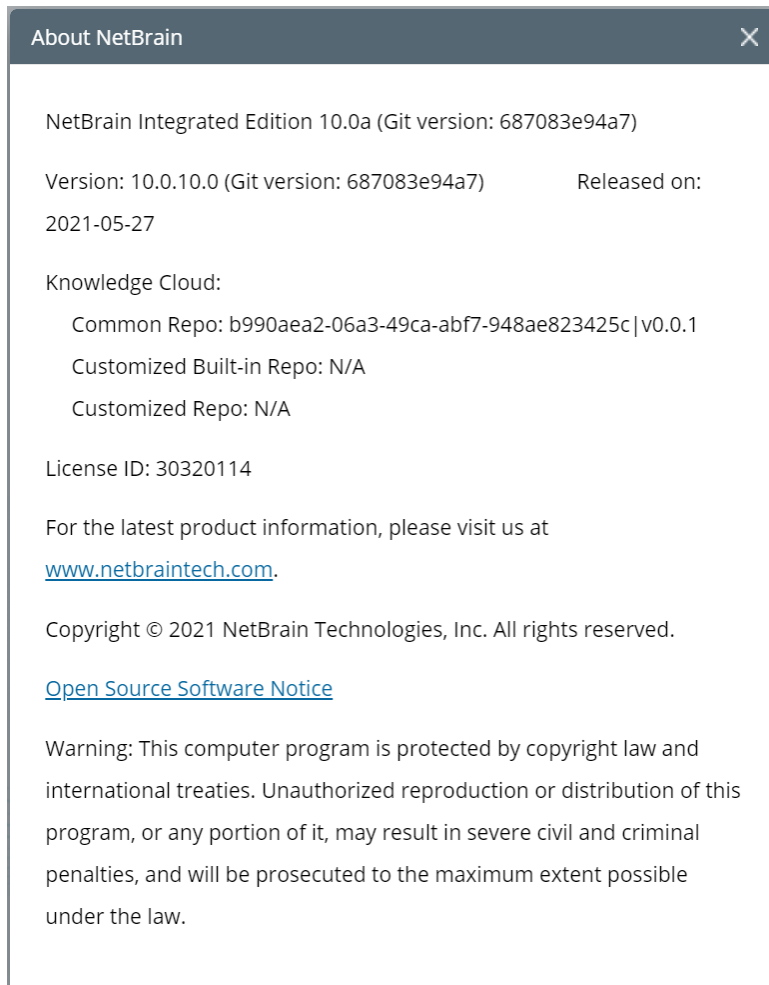
1. Do the following steps to check the IE version in web browser:

Note: It is highly recommended to clear your web browser's cache before reloading the IE web page.

- 1) In the system Management page, click the  icon and select **About NetBrain** from the quick access toolbar.



- 2) Check the version information.



2. Do the following steps to check the system version in MongoDB:

- 1) Log in to the Linux server where MongoDB is installed.
- 2) Open a command prompt and run the `mongo --host <IP or hostname of MongoDB Server:Port> -u <username> -p <password> --authenticationDatabase <database_name> --authenticationMechanism SCRAM-SHA-256` command to connect to MongoDB.

Note: The `<database_name>` mentioned in the above command must be **admin** for NetBrain.

Example:

```
[root@localhost ~]# mongo --host 10.10.3.142:27017 -u mongodb -p mongodb --
authenticationDatabase admin --authenticationMechanism SCRAM-SHA-256
MongoDB shell version v4.0.20
connecting to: mongodb://10.10.3.142:27017/?authMechanism=SCRAM-SHA-
256&authSource=admin&gssapiServiceName=mongodb
...
```

Tip: If SSL is enabled, run the `mongo --host <IP or hostname of MongoDB Server:Port> -u <username> -p <password> --authenticationDatabase <database_name> --ssl --sslAllowInvalidCertificates --authenticationMechanism SCRAM-SHA-256` command.

Note: The `<database_name>` mentioned in the above command must be **admin** for NetBrain.

- 3) Run the `use NGSystem` command to switch to the **NGSystem** database.

```
rsnetbrain:PRIMARY> use NGSystem
switched to db NGSystem
```

- 4) Run the `db.SystemInfo.find({_id: "SystemVersion"})` command to check the system version number.

```
rsnetbrain:PRIMARY> db.SystemInfo.find({_id: "SystemVersion"})
{ "_id" : "SystemVersion", "version" : "10.0.10", "operateInfo" : { "opUser" : "NetBrain",
"opTime" :
  ISODate("2020-07-14T18:31:21.735") } }
```

- 5) Run the `exit` command to exit the command prompt.

Note: System Update feature heavily relies on all the NetBrain servers and service metrics, therefore it is required to ensure all the NetBrain servers and component metrics can be viewed in the Service Monitor page.

1.8. Customizing MongoDB Disk Alert Rules

To proactively prevent the system database from data loss or even corruption, you can customize MongoDB, Front Server, and Elasticsearch disk alert rules with progressive quotas assigned. When the usage reaches the predefined threshold, specified users can be notified by both email alerts and system alerts.

1. In the System Management page, click **Operations > Service Monitor** from the quick access toolbar.

2. In the Service Monitor home page, click **Alert Rules** at the upper-right corner. The default settings are as follows. When a Front Server disk or Elasticsearch disk usage is high, the system will also push alerts by email.

Alert Rules

MongoDB:

- When MongoDB disk usage reaches % or only GB free space, send emails.
- When MongoDB disk usage reaches % or only GB free space, send emails and delete Data Engine data older than months. ⓘ
- When MongoDB disk usage reaches % or only GB free space, send emails and disable write permission to MongoDB.

Front Server:

- When Front Server disk usage reaches % or only GB free space, send emails.

Elasticsearch:

- When Elasticsearch disk usage reaches % or only GB free space, send emails.

Server/Service:

- When a server is disconnected or a service is stopped, send email

Send Email Settings:

Send Email To : Cc :

Send Email Frequency : Hours

[Help](#) Cancel OK

3. Change the settings based on your needs.
 - 1) Specify the disk usage threshold for different levels.

Note: To email alerts when a server is disconnected or a service is stopped, select the corresponding check box.

- 2) Enter the email address in the **Send Email To** or **CC** fields.

Note: Email alerts are enabled only when email addresses are added at least in one field. Use a colon or semicolon to separate multiple items.

- 3) Specify the frequency to send emails.
- 4) Click **OK** to save the configuration.

1.9. Tuning Live Access

To tune live access, complete the following steps:

1. In your web browser, navigate to **http(s)://<IP address of NetBrain Application Server>/** to log in to your domain.
2. Click the domain name from the quick access toolbar and select **Manage Domain**.
3. In the Domain Management page, select **Operations > Advanced Tools > Tune Live Access** from the quick access toolbar. The **Tune Live Access** tab opens with all devices in the domain listed.
4. Click **Start Tuning**.
5. When the tuning process is completed, a notification message is displayed. Click **OK**.

1.10. Scheduling Benchmark Task

1. In the Domain Management page, select **Operations > Schedule Task** from the quick access toolbar.
2. On the **Schedule Task > Schedule Discovery/Benchmark** tab, select the **Enable** check box for the **Basic System Benchmark** entry.

Note: A full benchmark must be performed by enabling the **L2 Topology** option under the **Build Topology** section of the **Additional Operation After Benchmark** tab.

Click the icon to select the **Run Now** option from the drop-down list to run the benchmark task immediately.

Note: If you have multiple Front Servers, go to **Operations > Benchmark Tools > CheckPoint OPSEC Manager** to specify the target Front Server to access your CheckPoint firewalls and retrieve live data.

2. Appendix: Offline Installing Third-party Dependencies

1. Download the dependency package from a server with the Internet access using one of the following download links according to the version of your Operating System:
 - **CentOS7.5:** <http://download.netbraintech.com/dependencies-centos7.5.tar.gz>
 - **CentOS7.6:** <http://download.netbraintech.com/dependencies-centos7.6.tar.gz>
 - **CentOS7.7:** <http://download.netbraintech.com/dependencies-centos7.7.tar.gz>
 - **CentOS7.8:** <http://download.netbraintech.com/dependencies-centos7.8.tar.gz>
 - **CentOS7.9:** <http://download.netbraintech.com/dependencies-centos7.9.tar.gz>
 - **CentOS8.2:** <http://download.netbraintech.com/dependencies-centos8.2.tar.gz>
 - **CentOS8.3:** <http://download.netbraintech.com/dependencies-centos8.3.tar.gz>
 - **CentOS8.4:** <http://download.netbraintech.com/dependencies-centos8.4.tar.gz>
 - **RHEL7.5:** <http://download.netbraintech.com/dependencies-rhel7.5.tar.gz>
 - **RHEL7.6:** <http://download.netbraintech.com/dependencies-rhel7.6.tar.gz>
 - **RHEL7.7:** <http://download.netbraintech.com/dependencies-rhel7.7.tar.gz>
 - **RHEL7.8:** <http://download.netbraintech.com/dependencies-rhel7.8.tar.gz>
 - **RHEL7.9:** <http://download.netbraintech.com/dependencies-rhel7.9.tar.gz>
 - **RHEL8.2:** <http://download.netbraintech.com/dependencies-rhel8.2.tar.gz>
 - **RHEL8.3:** <http://download.netbraintech.com/dependencies-rhel8.3.tar.gz>
 - **RHEL8.4:** <http://download.netbraintech.com/dependencies-rhel8.4.tar.gz>
 - **OL7.7:** <http://download.netbraintech.com/dependencies-ol7.7.tar.gz>
 - **OL7.8:** <http://download.netbraintech.com/dependencies-ol7.8.tar.gz>
 - **OL7.9:** <http://download.netbraintech.com/dependencies-ol7.9.tar.gz>
 - **OL8.2:** <http://download.netbraintech.com/dependencies-ol8.2.tar.gz>
 - **OL8.3:** <http://download.netbraintech.com/dependencies-ol8.3.tar.gz>
 - **OL8.4:** <http://download.netbraintech.com/dependencies-ol8.4.tar.gz>
2. Copy the downloaded dependency package to your Linux server.
3. Run the `tar -zxvf dependencies-<OS version>.tar.gz` command to decompress the package.

Tip: Possible values of **OS version** include: `centos7.5; centos7.6; centos7.7; centos7.8; centos7.9; centos8.2; centos8.3; centos8.4; rhel7.5; rhel7.6; rhel7.7; rhel7.8; rhel7.9; rhel8.2; rhel8.3; rhel8.4; ol7.7; ol7.8; ol7.9; ol8.2; ol8.3; ol8.4.`

4. Run the `cd dependencies` command to navigate to the decompressed directory.
5. Run the `offline-install.sh` command to install the dependencies.

3. Appendix: Editing a File with VI Editor

The following steps illustrate how to edit a configuration file with the vi editor, which is the default text file editing tool of a Linux operating system.

1. Create a terminal and run the `cd` command at the command line to navigate to the directory where the configuration file is located.
2. Run the `vi <configuration file name>` command under the directory to show the configuration file.
3. Press the **Insert** or **I** key on your keyboard, and then move the cursor to the location where you want to edit.
4. Modify the file based on your needs, and then press the **Esc** key to exit the input mode.
5. Enter the `:wq!` command and press the **Enter** key to save the changes and exit the vi editor.

4. Appendix: Restoring MongoDB Data

If you encounter data loss or corruption during the upgrade process, complete the following steps to restore MongoDB data with the backup data.

1. Log in to the Linux server where the MongoDB is installed as the **root** user.

2. Stop the MongoDB Service.

1) Run the `systemctl stop mongod` command to stop the MongoDB service.

2) Run the `ps -ef|grep mongod` command to verify whether the **mongod** process is stopped.

```
[root@localhost ~]# ps -ef| grep mongod
root      15136 14237  0 10:42 pts/2    00:00:00 grep --color=auto mongod
```

Note: If the **mongod** process is stopped, the result should only contain one entry as shown above.

3. Restore the old data onto the MongoDB.

1) Run the `cd /usr/lib/mongodb` command to navigate to the **/usr/lib/mongodb** directory.

Note: If you modified the following default directory to store all MongoDB data files during the MongoDB installation, you must use the new directory (available in the **mongod.conf** file) accordingly.

2) Run the `ls -al` command to browse all directories and files under the **/usr/lib/mongodb** directory.

```
[root@localhost mongodb]# ls -al
total 142
drwxr-xr-x. 5 netbrain netbrain 146 Oct 19 15:02 .
drwxr-xr-x. 4 root      root      42 Sep 19 14:41 ..
drwxr-xr-x. 4 root      netbrain 42 Oct 19 15:03 data
drwxr-xr-x. 4 root      netbrain 100 Oct 19 15:03 log
-rwxr-xr-x. 2 netbrain netbrain 1004 Aug 25 17:26 mongodb-keyfile
-rwxr-xr-x. 1 netbrain netbrain 1076 Oct 19 15:02 mongod.conf
```

3) Run the `rm -rf ./data` command to delete the **data** directory.

4) Run the `mv /etc/mongodb_databk/data /usr/lib/mongodb/data` command under the **/usr/lib/mongodb** directory to move the data directory to the **/usr/lib/mongodb** directory.

5) Run the `chown -R netbrain:netbrain /usr/lib/mongodb/data/` command to change the ownership for the moved data folder.

6) Run the `ls -al` command to browse all directories and files under the **/usr/lib/mongodb** directory.

```
[root@localhost mongodb]# ls -al
total 142
drwxr-xr-x. 5 netbrain netbrain 146 Oct 19 15:02 .
```

```
drwxr-xr-x. 4 root    root      42 Sep 19 14:41 ..
drwxr-xr-x. 4 netbrain netbrain  86016 Oct 19 15: 03 data
drwxr-xr-x. 4 root    root      100 Oct 19 15: 03 log
-rwxr-xr-x. 2 netbrain netbrain  1004 Aug 25 17: 26 mongodb-keyfile
-rwxr-xr-x. 1 netbrain netbrain  1076 Oct 19 15:02 mongod.conf
```

4. Run the `systemctl start mongod` command to restart the MongoDB service.
5. Run the `mongo --host <IP or hostname of MongoDB Server:Port> -u <username> -p <password> --authenticationDatabase <database_name> --authenticationMechanism SCRAM-SHA-256` command to connect to the node.

Note: The `<database_name>` mentioned in the above command must be **admin** for NetBrain.

Example:

```
[root@localhost upgrade_replica_set]# mongo --host 10.10.3.142:27017 -u mongodb -p mongodb --
authenticationDatabase admin --authenticationMechanism SCRAM-SHA-256
MongoDB shell version v4.0.6
connecting to: mongodb://10.10.3.142:27017/?authMechanism=SCRAM-SHA-
256&authSource=admin&gssapiServiceName=mongodb
Implicit session: session { "id" : UUID("0315bda2-73f3-4304-9166-c008b9b06ce3") }
MongoDB server version: v4.0.6
...
rsnetbrain:PRIMARY>
```

Tip: If SSL is enabled, run the command `mongo --host <IP or hostname of MongoDB Server:Port> -u <username> -p <password> --authenticationDatabase <database_name> --ssl --sslAllowInvalidCertificates --authenticationMechanism SCRAM-SHA-256` command.

Note: The `<database_name>` mentioned in the above command must be **admin** for NetBrain.

5. Appendix: Dumping MongoDB Data

The built-in MongoDB command `mongodump` is a simple and efficient tool for backing up a small volume of MongoDB data. However, for a large volume of data, it is more time-consuming than using the `cp` command introduced in [Backing Up MongoDB Data](#).

Note: Make sure the service of MongoDB is running when you run the `mongodump` command.

Note: The dumped data can be used to restore data in any server.

1. Log in to the Linux server where the MongoDB is installed as **root** user.
2. Open a command prompt and run the `[root@localhost ~]# mkdir /etc/mongodb_databk` command to create a directory under the **/etc** directory to save the backup data.
3. Run the `mongodump --host <ip>:<port> -u <username> -p <password> --authenticationDatabase <database_name> --authenticationMechanism SCRAM-SHA-256 --gzip --out <filepath>` command to dump the MongoDB data to the **/etc/mongodb_databk** directory.

Note: The `<database_name>` mentioned in the above command must be **admin** for NetBrain.

Example:

```
[root@localhost ~]# mongodump --host 127.0.0.1:27017 -u mongodb -p mongodb --
authenticationDatabase admin --authenticationMechanism SCRAM-SHA-256 --gzip --out
/etc/mongodb_databk
```

Tip: If SSL is enabled, run the `mongodump --host <ip>:<port> -u <username> -p <password> --authenticationDatabase <database_name> --ssl --sslAllowInvalidCertificates --authenticationMechanism SCRAM-SHA-256 --gzip --out <filepath>` command.

4. Verify the backup result.
 - 1) Run the `cd /etc/mongodb_databk` command to navigate to the **/etc/mongodb_databk** directory.
 - 2) Run the `ls -al` command under the **mongodb_databk** directory to browse the backup data.

Restoring Dumped MongoDB Data

Restore the dumped data by using the `mongorestore` command provided by MongoDB.

Note: Make sure the service of MongoDB is running when you run the `mongorestore` command.

Note: Make sure other relevant services are stopped.

To restore the dumped MongoDB data onto the MongoDB server, run the `mongorestore --host <ip>:<port> -u <username> -p <password> --authenticationDatabase <database_name> --authenticationMechanism SCRAM-SHA-256 --gzip <filepath>` command.

Note: The `<database_name>` mentioned in the above command must be **admin** for NetBrain.

Example:

```
[root@localhost ~]# mongorestore --host 127.0.0.1:27017 -u mongodb -p mongodb --
authenticationDatabase admin --authenticationMechanism SCRAM-SHA-256 --gzip /etc/mongodb_databk
```

Tip: If SSL is enabled, run the `mongorestore --host <ip>:<port> -u <username> -p <password> --authenticationDatabase <database_name> --ssl --sslAllowInvalidCertificates --authenticationMechanism SCRAM-SHA-256 --gzip <filepath>` command.

Note: The `<database_name>` mentioned in the above command must be **admin** for NetBrain.