# MigratoryData Server

## Installation Guide

*Version 5.0*
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# Copyright Information

# Contents

# 1. Introduction

This guide describes the installation of MigratoryData Server. It is recommended to read *MigratoryData Architecture Guide* before reading this document for a better understanding of the concepts and to have a more comprehensive background.

## 1.1   Release

This guide is part of the documentation set for MigratoryData Server version 5.0.

## 1.2   Related Documents

- *MigratoryData Architecture Guide*

- *MigratoryData Configuration Guide*

- *MigratoryData API Developer's Guide* and *Reference Manual* for each client library of MigratoryData Server

# 2. Requirements and recommendations

## 2.1   Supported Operating Systems

Written in Java, MigratoryData Server runs on all major operating systems: Linux/Unix, Mac OS, Windows, and potentially any other platform having support for OpenJDK Java Runtime Environment (JRE) version 8 or later.

MigratoryData Server comes with 64-bit installers for RPM-based and DEB-based Linux distributions. Also, a platform-independent tarball is available.

The recommended operating systems for production deployments are Red Hat Enterprise Linux or Centos 6 or later and Debian 7 or later.

## 2.2   Installation Requirements

### 2.2.1   OpenJDK

You need to install Java Runtime Environment (JRE) version 8 or higher on your system before you can install and run MigratoryData Server.

The recommended JRE is OpenJDK version 8.

## 2.3   Hardware

### 2.3.1   CPU

In a production environment it is recommended to have a server with at least 4 CPU cores, but the recommendation can grow to more CPU cores depending on the load of data on the server and how much simultaneous clients will be connected.

>   **Note** — For development or small deployments there are no special requirements concerning CPU. You can use any decent workstation hardware.

### 2.3.2   RAM

In a production environment it is recommended to have 8 GB or more memory depending on the load of data on the server and how much simultaneous clients will be connected.

> **Note** — For development or small deployments it is recommended to have at least 512 MB memory.

## 2.4   Capacity Planning

You can estimate the hardware and the number of MigratoryData Server instances required for your use case by using *MigratoryData Benchmark Kit*, a software tool able to:

- connect a configurable number of concurrent clients

- subscribe to a configurable number of subjects per client

- publish messages of a configurable size at a configurable frequency

# 3. Linux

## 3.1  RPM Based Linux

The installation procedure described in this section has been tested on Red Hat Enterprise Linux and CentOS 64-bit distributions.

### 3.1.1  Install OpenJDK Java Runtime Environment

As discussed in Section 2.2.1, the Java Runtime Environment (JRE) version 8 (or later) is required for running MigratoryData Server. To install the JRE version 8 of OpenJDK, run as `root`:

```
yum install java-1.8.0-openjdk-headless
```

Validate your installation with the following command:

```
java -version
```

The output should be something like:

```
openjdk version "1.8.0_181"
OpenJDK Runtime Environment (build 1.8.0_181-8u181-b13-2 deb9u1-b13)
OpenJDK 64-Bit Server VM (build 25.181-b13, mixed mode)
```

### 3.1.2  Install MigratoryData Server

Download the RPM package of MigratoryData Server and run as `root` the following command to install it:

```
rpm -vi migratorydata-Version-Architecture.rpm
```

This will deploy MigratoryData Server as follows:

| Location | Description |
|---|---|
| `/etc/migratorydata/migratorydata.conf` | The default configuration file. Please refer to *MigratoryData Configuration Guide*, Section "Using Configuration File", to learn how to customize it |
| `/etc/sysconfig/migratorydata` | The default system configuration file. Please refer to *MigratoryData Configuration Guide*, Section "Using Environment Variables", to learn how to customize it |
| `/var/log/migratorydata/` | The logs folder |
| `/usr/share/migratorydata/` | The folder which contains the object code of MigratoryData Server as a JAR file |
| `/usr/share/migratorydata/extensions` | The folder which contains the extensions of MigratoryData Server |
| `/usr/bin/migratorydata` | A script used by the `init.d` daemon script |
| `/etc/init.d/migratorydata` | The `init.d` daemon script used to start, stop, and restart the MigratoryData Server service |
| `/usr/share/doc/migratorydata` | Folder containing docs, examples, and licenses |

After installation:

1. The service will start automatically when the machine reboots. To manually start, stop, restart, and get the status of the service, run as `root` one of the following commands:

   ```
   /etc/init.d/migratorydata start
   /etc/init.d/migratorydata stop
   /etc/init.d/migratorydata restart
   /etc/init.d/migratorydata status
   ```

2. To test the installation start a web browser on the machine where MigratoryData Server has been installed and open the following URL:

   ```
   http://localhost:8800
   ```

   If a browser is not available on the machine where MigratoryData Server has been installed, then, supposing the address of the machine is `push.example.com` and the port 8800 is not blocked by the firewall of the machine, you can remotely test the installation by opening the following URL from a remote machine connected to `push.example.com`:

```
http://push.example.com:8800
```

This will open the home page of MigratoryData Server which contains docs and examples.

3. The next step is to build your clients to communicate with your MigratoryData Server installation. Please refer to the *Developer's Guide* and *Reference Manual* of the client library that you intend to use to learn how to build clients for MigratoryData Server.

### 3.1.3 Upgrade MigratoryData Server

To upgrade MigratoryData Server to a newer version, run as `root` the following command:

```
rmp -vU migratorydata-NewVersion-Architecture.rpm
```

**Note** — The upgrade process will preserve your customized configuration files to ensure the continuity of your service. A copy of the default configuration of the new version is also provided with the extension *.rpmnew* if it differs from the default configuration of the installed version.

### 3.1.4 Uninstall MigratoryData Server

To remove MigratoryData Server from your system, run as `root` the following command:

```
rpm -ve migratorydata
```

## 3.2 DEB Based Linux

The installation procedure described in this section has been tested on Debian and Ubuntu 64-bit distributions.

### 3.2.1 Install OpenJDK Java Runtime Environment

As discussed in Section 2.2.1, the Java Runtime Environment (JRE) version 8 (or later) is required for running MigratoryData Server. To install the JRE version 8 of OpenJDK, run as `root`:

```
apt-get install openjdk-8-jre-headless
```

Validate your installation with the following command:

```
java -version
```

The output should be something like:

```
openjdk version "1.8.0_181"
OpenJDK Runtime Environment (build 1.8.0_181-8u181-b13-2 deb9u1-b13)
OpenJDK 64-Bit Server VM (build 25.181-b13, mixed mode)
```

### 3.2.2 Install MigratoryData Server

Download the DEB package of MigratoryData Server and run as `root` the following command to install it:

```
dpkg -i migratorydata-Version-Architecture.deb
```

This will deploy MigratoryData Server as follows:

| Location | Description |
| --- | --- |
| `/etc/migratorydata/migratorydata.conf` | The default configuration file. Please refer to *MigratoryData Configuration Guide*, Section "Using Configuration File", to learn how to customize it |
| `/etc/default/migratorydata` | The default system configuration file. Please refer to *MigratoryData Configuration Guide*, Section "Using Environment Variables", to learn how to customize it |
| `/var/log/migratorydata/` | The logs folder |
| `/usr/share/migratorydata/` | The folder which contains the object code of MigratoryData Server as a JAR file |
| `/usr/share/migratorydata/extensions` | The folder which contains the extensions of MigratoryData Server |
| `/usr/bin/migratorydata` | A script used by the `init.d` daemon script |
| `/lib/systemd/system/migratorydata.service` | The systemd unit file for the the MigratoryData Server service |
| `/usr/share/doc/migratorydata` | Folder containing docs, examples, and licenses |

After installation:

1. The service will start automatically when the machine reboots. To manually start, stop, restart, and get the status of the service, run as `root` one of the following commands:

   ```
   systemctl start migratorydata
   systemctl stop migratorydata
   systemctl restart migratorydata
   systemctl status migratorydata
   ```

2. To test the installation start a web browser on the machine where MigratoryData Server has been installed and open the following URL:

   ```
   http://localhost:8800
   ```

   If a browser is not available on the machine where MigratoryData Server has been installed, then, supposing the address of the machine is `push.example.com` and the port 8800 is not blocked by the firewall of the machine, you can remotely test the installation by opening the following URL from a remote machine connected to `push.example.com`:

   ```
   http://push.example.com:8800
   ```

   This will open the home page of MigratoryData Server which contains docs and examples.

3. The next step is to build your clients to communicate with your MigratoryData Server installation. Please refer to the *Developer's Guide* and *Reference Manual* of the client library that you intend to use to learn how to build clients for MigratoryData Server.

### 3.2.3   Upgrade MigratoryData Server

To upgrade MigratoryData Server to a newer version, run as `root` the following command:

```
dpkg -i migratorydata-NewVersion-Architecture.deb
```

**Note** — The upgrade process will preserve your customized configuration files to ensure the continuity of your service. A copy of the default configuration of the new version is also provided with the extension *.dpkg-dist* if it differs from the default configuration of the installed version.

### 3.2.4   Uninstall MigratoryData Server

To remove MigratoryData Server from your system, run as `root` the following command:

```
dpkg --purge migratorydata
```

# 4. Platform Independent

The installation procedure described in this section has been tested on Windows, Linux, and Mac OS platforms.

### 4.0.1   Install OpenJDK Java Runtime Environment

As discussed in Section 2.2.1, the Java Runtime Environment (JRE) version 8 (or later) is required for running MigratoryData Server. To install the JRE version 8 of OpenJDK, follow the specific instructions for your operating system.

### 4.0.2   Install MigratoryData Server

Download and extract the tarball distribution of the MigratoryData Server to any folder. You will have the following layout in your installation folder:

| Location | Description |
|---|---|
| `doc` | Folder containing the documentation set for MigratoryData Server |
| `html` | Folder containing the home page of MigratoryData Server including documentations and examples |
| `logs` | The logs folder |
| `THIRD-PARTY-LICENSES` | Folder containing the licenses of the third-party components embedded in MigratoryData Server |
| `LICENSE.txt` | Use of MigratoryData Server is subject to the license terms defined by this file |
| `migratorydata.conf` | The default configuration file. Please refer to *MigratoryData Configuration Guide* to learn how to customize it |
| `migratorydata.jar` | The object code of MigratoryData Server |
| `extensions` | The folder which contains the extensions of MigratoryData Server |
| `README.txt` | A short introduction to the product |
| `start-migratorydata.bat` | The start script of MigratoryData Server for Windows systems |
| `start-migratorydata.sh` | The bash start script of MigratoryData Server for Linux/Unix systems |

After installation:

1. To start MigratoryData Server, open a console/terminal, change to the directory where MigratoryData Server package has been extracted, and run one of the following commands according to your operating system:

   ```
   start-migratorydata.bat      (Windows)
   ./start-migratorydata.sh     (Linux/Unix)
   ```

2. To test the installation start a web browser on the machine where MigratoryData Server has been installed and open the following URL:

   ```
   http://localhost:8800
   ```

If a browser is not available on the machine where MigratoryData Server has been installed, then, supposing the address of the machine is `push.example.com` and the port 8800 is not blocked by the firewall of the machine, you can remotely test the installation by opening the following URL from a remote machine connected to `push.example.com`:

```
http://push.example.com:8800
```

This will open the home page of MigratoryData Server which contains docs and examples.

3. The next step is to build your clients to communicate with your MigratoryData Server installation. Please refer to the *Developer's Guide* and *Reference Manual* of the client library that you intend to use to learn how to build clients for MigratoryData Server.