

# Milestone XProtect VMS Products 2022 R3c on Windows EXPRESSCLUSTER X Quick Start Guide

This article shows how to setup SQL Server 2019 Cluster with EXPRESSCLUSTER X Mirror Disk configuration.

## Reference

### EXPRESSCLUSTER X

- <https://www.nec.com/en/global/prod/expresscluster/en/support/manuals.html>

### EXPRESSCLUSTER X HA/DR solution with Milestone XProtect

- <https://www.milestonesys.com/marketplace/nec/nec-expresscluster-x-ha-dr-solution/>

## System configuration

- Servers: 2 node with Mirror Disk
- OS: Windows Server 2022 Standard in Domain Environment
- SW:
  - SQL Server 2019 Standard
  - Milestone XProtect 2022 R3c
  - EXPRESSCLUSTER X 5.0.2

```
<LAN>
|
| +-----+
+--| Primary Server |
| | - Windows Server 2022 Standard |
| | - SQL Server 2019 |
| | - Milestone XProtect 2022 R3c |
| | - EXPRESSCLUSTER X 5.0.2 |
| +-----+
|
| +-----+
+--| Secondary Server |
| | - Windows Server 2022 Standard |
| | - SQL Server 2019 |
```

```
| | - Milestone XProtect 2022 R3c |
| | - EXPRESSCLUSTER X 5.0.2 |
| +-----+
|
```

## EXPRESSCLUSTER X Setup

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This procedure shows how to setup SQL Server cluster by mirroring both SQL Server master database and user database.

### EXPRESSCLUSTER X Setup a basic cluster

Please refer [Basic Cluster Setup](#)

### Install SQL Server

#### On Primary Server and Secondary Server

1. Start SQL Server Installer and select as follows:

- Installation
  - Select "New SQL Server stand-alone installation or add features to an existing installation"
- Microsoft Update
  - Default or as you like
- Product Updates
  - Default or as you like
- Product Key
  - Enter license key
- License Terms
  - Accept
- Feature Selection
  - Database Engine Service: Check
  - Shared Features: As you like
    - **Note** We recommend to install SQL Client Connectivity SDK to enable sql command for maintenance.
- Instance Configuration
  - Default or as you like
- Server Configuration
  - Service Accounts
    - SQL Server Agent: Manual
    - SQL Server Database Engine: Manual

- SQL Server Browser: As you like
- Database Engine Configuration
  - Server Configuration
    - As you like
      - **Note** We recommend to set SA Account with Mixed Mode or add Domain Account for Windows authentication because the database should be accessible from both Primary and Secondary Servers.
  - Data Directories
    - C:\Program Files\Microsoft SQL Server\
    - User database directory: C:\Program Files\Microsoft SQL Server\MSSQL15.TEST\MSSQL\Data
    - User database log directory: C:\Program Files\Microsoft SQL Server\MSSQL15.TEST\MSSQL\Data
    - Backup directory: C:\Program Files\Microsoft SQL Server\MSSQL15.TEST\MSSQL\Backup
- Ready to install
  - Install

## Milestone XProtect 2022 R3c Installation on Windows

- [https://doc.milestonesys.com/latest/en-US/standard\\_features/sf\\_mc/sf\\_installation/mc\\_installthesystem.htm](https://doc.milestonesys.com/latest/en-US/standard_features/sf_mc/sf_installation/mc_installthesystem.htm)

### Data Directories configuration On Primary Server

1. Confirm that the failover group is active on the server
2. Create a folder on Mirror Disk

e.g.) E:\MSSQL

3. Start SQL Server Configuration Manager
4. Select [SQL Server Services] at the left tree
5. Right click [SQL Server ( )] and select [Properties]
6. Go to [Setup Parameters] tab and edit existing parameters as follow:
  - Before:
    - -dC:\Program Files\Microsoft SQL Server\MSSQL15.TEST\MSSQL\DATA\master.mdf
    - -lC:\Program Files\Microsoft SQL Server\MSSQL15.TEST\MSSQL\DATA\mastlog.ldf
  - After:

- -dE:\MSSQL\DATA\master.mdf
- -IE:\MSSQL\DATA\mastlog.ldf

7. Check SQL Server is installed normally.

- i. Start Windows Service Manager and start SQL Server service.
- ii. Confirm that SQL Server service status becomes running.
- iii. Stop SQL Server service

### Configure Milestone Database in Mirror drive

1. Using SQL management studio:

2. Right click the milestone database one by one (Surveillance, Surveillance\_IDP, Surveillance\_IM, SurveillanceLogServerV2)

- tasks

- detach tick on drop and click OK on the database detach window

3. Right click databases:

- attach all milestone databases one by one (Surveillance, Surveillance\_IDP, Surveillance\_IM, SurveillanceLogServerV2)

- add and point to the mdf file. It will automatically take the ldf file to the attach databases window.

### Data Directories configuration On Secondary Server

1. Confirm that the failover group is active on the secondary server.

2. Start SQL Server Configuration Manager.

3. Select [SQL Server Services] at the left tree.

4. Right click [SQL Server ( )] and select [Properties]

5. Go to [Setup Parameters] tab and edit existing parameters as follow:

- Before:

- -dC:\Program Files\Microsoft SQL Server\MSSQL15.TEST\MSSQL\DATA\master.mdf
- -IC:\Program Files\Microsoft SQL Server\MSSQL15.TEST\MSSQL\DATA\mastlog.ldf

- After:

- -dE:\MSSQL\DATA\master.mdf
- -IE:\MSSQL\DATA\mastlog.ldf

6. Check SQL Server is installed normally.

- i. Start Windows Service Manager and start SQL Server service.
- ii. Confirm that SQL Server service status becomes running.
- iii. Stop SQL Server service.

# Set the DB and application Services to Manual

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After the SQL Server setup has completed on both servers, set all of the SQL Server and Milestone Services to manual, and make sure that they should be stop state.

## SQL and Milestone Services Setup in Cluster

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1. Right click on failover and click Add Resource in builder window.
2. Choose service resource.
3. Type a service name to the resource (Ex: MSSQLSERVER) and add optional comments if required.
4. Click Next.
5. Click on Connect and select the service MSSQLSERVER from the drop down.
6. Click OK.
7. Click Next (for default values) to learn more about parameters please refer the Express Cluster Reference Guide. Click Next.
8. Click Finish.
9. Right click on failover and click Add Resource in builder window.
10. Choose service resource.
11. Type a service name to the resource (Ex: Milestone Data service) and add optional comments if required.
12. Click Next.
13. Click on Connect and select the service Milestone XProtect Data Collector Server from the drop down.
14. Click OK.
15. Click Next (for default values) to learn more about parameters please refer the Express Cluster Reference Guide. Click Next.
16. Click Finish.
17. Right click on failover and click Add Resource in builder window.
18. Choose service resource.
19. Type a service name to the resource (Ex: Milestone XProtect Management Server) and add optional comments if required.
20. Click Next.
21. Click on Connect and select the service Milestone XProtect Management Server from the drop down.
22. Click OK.
23. Click Next (for default values) to learn more about parameters please refer the Express Cluster Reference Guide. Click Next.

24. Click Finish.
25. Right click on failover and click Add Resource in builder window.
26. Choose service resource.
27. Type a service name to the resource (Ex: Milestone XProtect Event Server) and add optional comments if required.
28. Click Next.
29. Click on Connect and select the service Milestone XProtect Event Server from the drop down.
30. Click OK.
31. Click Next (for default values) to learn more about parameters please refer the Express Cluster Reference Guide. Click Next.
32. Click Finish.
33. Select File and then Upload the Configuration File.
34. Click OK, then Navigate back to Cluster WebUI and select Start Cluster.

**If required other Milestone XProtect services can be added as well e.g. Milestone XProtect Log Server, Milestone XProtect Mobile Server, and Milestone XProtect Recording Server.**

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## Check Milestone Cluster

### On Primary Server

1. Confirm that the failover group is active normally on the server
2. Connect to SQL Server ``bat  
| sqlcmd -S localhost -U -P ``
3. Create a test database and table and insert a value to it

```
1> create database testdb
2> go
1> use testdb
2> go
Changed database context to 'testdb'.
1> create table testtb(
2> id int,
3> name varchar(20)
4> );
5> go
1> insert into testtb (id, name) values(0, "Milestone");
2> go
```

4. Confirm the value is inserted

```
1> select * from testtb
2> go
id          name
-----
          0 Milestone

(1 rows affected)
```

5. Exit from the database

```
1> quit
```

6. Move the failover group to Secondary Server

### On Secondary Server

1. Confirm that the failover group is active normally on the Server

2. Connect to SQL Server

```
> sqlcmd -S localhost -U SA -P <password>
```

3. Confirm that the database, table and its value is replicated

```
1> use testdb
2> go
Changed database context to 'testdb'.
1> select * from testtb
2> go
id          name
-----
          0 Milestone

(1 rows affected)
```

4. Exit from the database

```
1> quit
```

5. Move the failover group to the Primary Server.