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# Configuring Microsoft SQL Server Express

Microsoft [SQL Server Express](#) provides enterprise class database performance for free. However, it does have some limitations when compared to the full version of SQL Server. But these limitations are not likely to adversely affect most PaperCut NG/MF users. These limitations include

- 4GB limit on database sizes (10GB for SQL Server Express 2008/2012/2016)
- Limited to use only 1 CPU
- Limited to use only 1GB of RAM

This section describes how to configure Microsoft SQL Server Express edition for use with PaperCut NG/MF. It is assumed that SQL Server Express is already installed with the default configuration.

Once this configuration is complete, you can use the database with PaperCut NG/MF by following the instructions in [Upsize to an external database \(RDBMS\)](#).

To configure Microsoft SQL Server Express, perform the following tasks on the machine with SQL Server installed.

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## Step 1: Enable TCP/IP connections

PaperCut NG/MF uses TCP/IP to connect to the SQL Server database, but SQL Server Express does not enable TCP support by default. To enable TCP/IP:

- 1 In **SQL Server Configuration Manager**, expand the **SQL Server Network Configuration > Protocols for SQLEXPRESS** node.
- 2 Right-click the **TCP/IP** item on the right; then select **Properties**.
- 3 On the **General** tab, change **Enabled** to **Yes**.
- 4 On the **IP Addresses** tab, under the **IPAll** node, clear the **TCP Dynamic Ports** box.
- 5 In **TCP Port**, enter the port to listen on . For example, 1450. Remember this port, because it needs to be used in the PaperCut NG/MF connection string.
- 6 Click **OK**.
- 7 Restart the Microsoft SQL Server Express service using either the standard service control panel or the SQL Express tools.

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## authentication

PaperCut NG/MF requires SQL Server authentication to be enabled on the instance of SQL Express. To do this:

- 1 In **SQL Server Management Studio Express** tool, right-click the instance of SQL Express to configure; then select **Properties**.
- 2 Select the **Security** section on the left.
- 3 Change the **Server Authentication** to **SQL Server and Windows Authentication mode**.
- 4 Restart the Microsoft SQL Server Express service using either the standard service control panel or the SQL Express tools.

## Step 3: Create a database user

PaperCut NG/MF requires a user to connect to the database. To create this user:

- 1 In **SQL Server Management Studio Express** tool, right-click the **Security > Logins** node; then select **New Login**.
- 2 Enter the username (e.g. papercut).
- 3 Change the **Server Authentication** to **SQL Server and Windows Authentication mode**.
- 4 Enter the user's password.
- 5 Disable password expiration.
- 6 Click **OK**.
- 7 After creating the PaperCut NG/MF database, assign this user `db_owner` permissions on the database, so that it can create the required database tables.
- 8 To initialize the database, follow the instruction in **Upsize to an external database (RDBMS)**.

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**Express**, right-click the database; then select **Properties**.

The **Database Properties** dialog is displayed.

**2** Scroll to the top of the **Other options** list.

**3** In **Auto Update Statistics**, select **True**.

**4** Click **OK**.

Alternatively, you can set up this optimization as a scheduled task after hours to ensure you see no performance issues due to database indexing problems.

The optimization we recommend you run is:

- ```
exec sp_msForEachTable  
@COMMAND1= 'DBCC  
DBREINDEX ( "?" )';
```
- ```
exec sp_updatestats;
```

Databases with large databases with millions of print jobs can complete this command in less than three minutes. The result was seen where reporting took 10-15 minutes before optimization, and now takes a matter of seconds.

## Comments

Share your findings and experience with other PaperCut users. Feel free to add comments and suggestions about this Knowledge Base article. Please don't use this for support requests.

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