Matrix 3 Troubleshooting & How-To Guide
Edit Matrix Settings

General Overview

Matrix 3 is a software-based Fluid Management System that runs on one or more of your facilities computers (PC's). This guide only applies to the Graco Matrix 3 Fluid Management System and walks you through issues and the solutions to remedy them.

Throughout this guide, there will be colored text entries, they are:

Links – These are links to other support resources that may be needed to accomplish the task you are working on.
Green Text – These are navigational commands directing you to skip to or reference another section in the guide. If the command is underlined, clicking it will direct you to the location it describes.
Red Text – These are STOP points where you will need assistance from IT, Graco or your Graco distributor.

Specific troubleshooting topics can be found in the instruction manuals below. This guide will provide more theory of operation and detail on addressing specific issues. Click the links or type the numbers into the Graco.com search box.

313046 - Meters
313008 - Transceivers
312964 - Tank Level Monitors
312417 - Pump Air Controls
313013 - Matrix 3 Oil Bars
313104 - Basic Software
313106 - Professional Software (includes 3rd Party Interface capability)
313108 - Premier Software (includes 3rd Party Interface capability)
313112 - Premier Software with CDK Interface
313114 - Premier Software with Reynolds & Reynolds Interface
334786 - Premier Software with Procede/Excede Interface
3A4999 - Premier Software with DealerTrack Interface (As an addendum to the Premier Software Manual)

Notes:

- All PC related references used in this guide are based on the Microsoft Windows 10 Operating System conventions, other versions of Windows operating systems may vary.
- Troubleshooting efforts may require help from your IT/IS staff or vendor. Having them available is highly recommended.
- If you need Matrix software, contact Graco and they will get you a direct download link. All PC's must be running the same version of Matrix software, delete or discard any different versions you have.
- Check for new and updated content by visiting graco.com/matrixsupport, scroll down to the "Guides" section.
- If you find you still need help, contact a Graco Tech Assistance Agent by using the information found at the bottom of each page of this guide.

Edit Matrix Settings

Overview

There is a Matrix configuration utility called the "Matrix Properties File Editor" this is accessed by an icon found in the PC's "Start" Menu under "Graco Inc" named "Edit Matrix Settings". Under normal circumstances, this should not need to be accessed unless troubleshooting an issue or making needed changes after upgrading PCs. This guide will help you understand the purpose and adjustment of each of the features.

Both Matrix "Server" and "Client" installations have this utility installed and there are slight differences between the two. The Matrix "Server" has two additional fields which are mainly related to database backups which will be discussed later. Click on the links next to the utility you wish to learn about or to make changes. Please read this guide carefully as changes may affect Matrix operation or cause a disruption in service.

Features

- Database Management (Matrix Server only)
    - Exporting
    - Importing
    - Automatic backup location
    - Backup quantity
- Matrix Networking Settings
    - Communication paths
    - Communication ports
- Matrix Screen Refresh Times
- Matrix Report Output Directory
- Troubleshooting
- Quick Reference (cheat-sheet)

Database Management – Exporting

Exporting a database is a function typically used before upgrading the Matrix server PC so that it can be imported to the new PC. This is only performed at the existing Matrix "Server". Exported databases are saved as a single "sql" file which contains all data and setup information from the day Matrix was installed.

1. Click the PC "Start" button and type "Edit".
2. The PC should find "Edit Matrix Settings", click to open it.
3. This will bring up a window with the title "Matrix Properties File Editor".
4. Click "File>Database Utilities>Export Database".
5. Log in with Matrix administrator credentials.
6. In the pop-up, click the 3 dots (…) button on the right edge of the "Export File" box.
7. Navigate to the location where you want to put Matrix database file and click "Save".
8. Click on the "Export DB" button.
9. When it is finished, it should display "Export Successful".
    a. If it fails, you can try again or contact Graco Tech Assistance.
10. Copy the exported database to a USB or network drive for importing into a new PC later.

Note: It is recommended to export to the local hard drive, AND THEN copy the file to another location (USB or network drive).

Database Management - Importing

Importing a database is a function typically used after upgrading to a newer PC. This is only performed at the new Matrix "Server". It requires that you export the database from the old Server first and make it accessible on a USB or network drive.

1. Click the PC "Start" button and type "Edit".
2. The PC should find "Edit Matrix Settings", click to open it.
3. This will bring up a window with the title "Matrix Properties File Editor".
4. Click "File>Database Utilities>Import Database".
5. Log in with Matrix administrator credentials.
   a. Since this is usually a new installation, the default username and password are:
      i. Username = matrix
      ii. Password = graco
6. In the pop-up, click the 3 dots (…) button on the right edge of the "Import File" box.
7. Navigate to the location of the Matrix database file and click "Open".
8. Click on the "Import DB" button.
9. Read the warning and click "Yes" or "No" as desired.
10. If you clicked "Yes", click read the next warning and "OK" to import the database.
11. When it is finished, it should display "Import Successful".
    a. If it fails, you can try again or contact Graco Tech Assistance.
12. Open Matrix to confirm success.

Automatic Backup Location

Matrix automatically makes a full database backup every day at 3AM, this is not adjustable so the Matrix Server PC must be on at that time of day for backups to occur. All database backups are stored in "C:\MatrixDbBackups" folder by default. This can be changed to a different location if preferred by following the instructions below.

Notes:
- If changing the location of the backup folder, visit graco.com/matrixsupport and find the "Printing and Backup Settings" guide for additional steps that must be addressed for backups to successfully execute.
- For database backups, there are alternative ways to back up your database. One is where a scheduled task replicates the default database directory to another location. You can consult your IT department or vendor and ask for their assistance if needed.
- If the media/location you are changing to becomes unavailable for any reason, there will be NO backups made at all.

Changing the Location:
1. Click the PC "Start" button and type "Edit".
2. The PC should find "Edit Matrix Settings", click to open it.
3. This will bring up a window with the title "Matrix Properties File Editor".
4. In the left column, find the line with "Database export file directory" and double click inside the cell opposite it.
5. Change the path to the location of choice.
6. Once done, single click into any other cell to get out of "Edit" mode.
7. Click "File>Save".
8. Verify it works using either method below:
   a. Executing a manual backup.
   b. Waiting until the next day to see if a new backup was created.

Backup Quantity

When Matrix makes its daily 3AM backups, it keeps the 3 newest backups by default and the oldest files fall off as each new one is created. This is adjustable so that more backups can be kept.

Changing the Number:
1. Click the PC "Start" button and type "Edit".
2. The PC should find "Edit Matrix Settings", click to open it.
3. This will bring up a window with the title "Matrix Properties File Editor".
4. In the left column, find the line with "Maximum number of backups to keep" and double click inside the cell opposite it.
5. Change the value to the number of backups desired.
6. Once done, single click into any other cell to get out of "Edit" mode.
7. Click "File>Save".
8. Verify it works by waiting the same number of days you entered to see if all backups were created.

Matrix Networking Settings - Communication Paths

Matrix can operate as a stand-alone system on a single PC (Server), but can also be installed on multiple PCs (Clients) that can access the Matrix Server over your existing network connections. There are communication paths and ports listed that tell each Client where the Matrix database is located, this is on the Server. This explains how the paths function.

Notes:
- When Matrix is installed correctly, there is no need to visit these settings on any Matrix PCs.
- If the Matrix Server is upgraded after an installation, these settings will need to be changed at each Matrix Client (if present) UNLESS the new Server is renamed the same as the old one.
- If the Matrix Server is renamed after an installation, some of these settings will need to be changed at ALL Matrix PCs.
- There cannot be an underscore (_) in the Matrix Server PC name.
- Follow these instructions exactly; other changes may render your system unusable.

Changing or checking the Path: (Matrix Clients ONLY)
1. Click the PC "Start" button and type "Edit".
2. The PC should find "Edit Matrix Settings", click to open it.
3. This will bring up a window with the title "Matrix Properties File Editor".
4. In the left column, find the line with "Matrix Database Server host name" and double click inside the cell opposite it.
5. Change the value to the correct PC name of the Server.
6. In the left column, find the line with "Matrix Server (MSE) host name" and double click inside the cell opposite it.
7. Change the value to the correct PC name of the Server.
8. Once done, single click into any other cell to get out of "Edit" mode.
9. Click "File>Save".
10. Try opening Matrix, if it does not open, continue to make sure the Matrix Server works correctly first.

Notes:
- Steps 5 & 7 above can be replaced by an IP address ONLY if the Server is set to a static IP or for troubleshooting.
- The values entered in steps 5 & 7 above need to be exactly the same for ALL Matrix PC's in a system.

Changing or checking the Path: (Matrix Server ONLY)
1. Click the PC "Start" button and type "Edit".
2. The PC should find "Edit Matrix Settings", click to open it.

3. This will bring up a window with the title "Matrix Properties File Editor".
4. In the left column, find the line with "Matrix Database Server host name" and double click inside the cell opposite it.
5. Change the value to the correct PC name of the Server.
6. In the left column, find the line with "Matrix Server (MSE) host name" and double click inside the cell opposite it.
7. Change the value to the correct PC name of the Server.
8. In the left column, find the line with "Transceiver Server host name" and double click inside the cell opposite it.
9. Change the value to the correct PC name of the Server.
10. Once done, single click into any other cell to get out of "Edit" mode.
11. Click "File>Save".
12. Click the PC "Start" button and type "Services".
13. The PC should find "Services", click to open it.
14. This will bring up a window with the title "Services".
15. Scroll down until you find the Matrix services.
16. Highlight the bottom one - "Matrix3MySql".
17. Click on "Stop".
18. In the popup, click on "Yes" (forces other services to close).
19. Highlight the middle one - "Matrix Transceiver Server".
20. Click on "Start" (forces other two services to start).
21. Wait about 10 seconds after starting services before trying to open Matrix.

Notes:
- Steps 5, 7 & 9 above can be replaced by an IP address ONLY if the Server is set to a static IP or for troubleshooting.
- The values entered in steps 5 & 7 above should be exactly the same for ALL Matrix PC's in a system (the Server name).
- The value entered in step 9 above should always be the name of the Matrix Server and only ON the Server.

Localhost

"Localhost" is a value that can be applied to the three lines that end with the words "Host Name" on the Matrix Server. If this is used, it turns off ALL Matrix networking and may be used:
1. Permanently, if Matrix is installed on only one computer.
2. To troubleshoot MSE message errors in a single Matrix computer setup.
3. To troubleshoot communication errors between multiple Matrix computers.

Notes:
- Localhost settings are ONLY used on the Matrix Server.
- When "Localhost" is used, no other Matrix PCs will be able to connect to it.

Matrix Networking Settings - Communication Ports

Matrix can operate as a stand-alone system on a single PC (Server), but can also be installed on multiple PCs (Clients) that can access the Matrix Server over your existing network connections. There are communication paths and ports listed that tell each Client where the Matrix database is located, this is on the Server. This explains the ports and how they work.

Notes:
- When Matrix is installed correctly, there is no need to visit these settings on any Matrix PCs.
- Each function the Matrix has it's own port to communicate through, Graco recommends NOT making any changes to these. To date, there have been ZERO instances where any of the factory default ports have needed to be changed,

Matrix Screen Refresh Times

This determines how often Matrix screens update. This rarely needs adjustment and should only be done if instructed by Graco.

Matrix Report Output Directory

This determines where saved reports are placed by default. In operating systems Windows 7 and newer, you are automatically prompted for a location to save the report. It places you in the logged in users "My Documents" folder by default.

Note: See last page for a quick overview of each line item.

Troubleshooting

If after making changes, you encounter the "Cannot send message to MSE" message, see below for possible reasons:

Cause	Solution
Incorrect entry in fields.	Double check for correct server name.
	Underscore in Server name is not allowed (_).
	No spaces at beginning or end of entry.
Other fields accidentally changed.	Compare all "Port" entries with graphic at the bottom of this guide. Ports should never be changed.
Failure to save after making changes.	Close the Matrix Properties File Editor and re-open it. If the original values remain, put in the correct values and click into another section to get out of "Edit" mode, then click "File>Save" and close the editor and open it again to verify.
	May not have adequate permission to save file, have IT grant proper access (read/write permissions) to the entire "C:\Program Files (x86)\Graco" folder.

If you are still having issues, see the following:
- "MSE" message at the Matrix Server - visit graco.com/matrixsupport and find the "Unable to Send Message to MSE - Server" guide for help. (Always start here since the Matrix Server MUST be working for Clients to work).
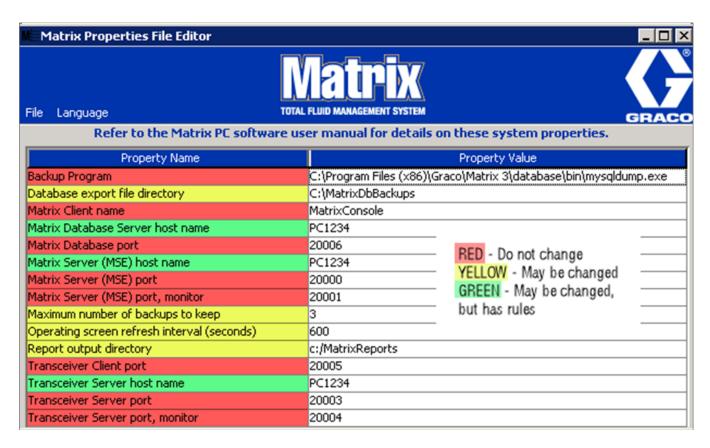- "MSE" message at a Matrix Client - visit graco.com/matrixsupport and find the "Unable to Send Message to MSE - Client" guide for help.

Contact Graco LED Tech Assistance at 800-533-9655, option 2 or LEDtech@graco.com

Quick Reference (Cheat-Sheet)

Some of the "Property Value" fields below can be changed. The "Property Name" fields are color coded to help you understand which can or should not be changed, more details are listed following the graphic.

Property Name	Property Value
Backup Program	C:\Program Files (x86)\Graco\Matrix 3\database\bin\mysqldump.exe
Database export file directory	C:\MatrixDbBackups
Matrix Client name	MatrixConsole
Matrix Database Server host name	PC1234
Matrix Database port	20006
Matrix Server (MSE) host name	PC1234
Matrix Server (MSE) port	20000
Matrix Server (MSE) port, monitor	20001
Maximum number of backups to keep	3
Operating screen refresh interval (seconds)	600
Report output directory	c:/MatrixReports
Transceiver Client port	20005
Transceiver Server host name	PC1234
Transceiver Server port	20003
Transceiver Server port, monitor	20004

RED - Do not change
YELLOW - May be changed
GREEN - May be changed, but has rules

Backup Program - Should only be on Matrix Server. If found on Clients, reinstall Matrix on clients, visit graco.com/matrixsupport and find the "Installing Matrix 3 Software" guide for help.

Database export file directory - Should only be on Matrix Server. Can be changed, visit graco.com/matrixsupport and find the "Printing and Backup Settings" guide for help.

Matrix Client name - 2 options:
- On the Matrix Server, this will ALWAYS be "MatrixConsole", do not change.
- On Matrix Clients, this will be that Clients PC name, only change if PC name changed, do NOT use an IP address here.

Matrix Database Server host name & Matrix Server (MSE) host name - 3 options:
- Value is the Matrix Server PC name (Graco recommends this).
- Value is the Matrix Server PC IP address (Server must be set to a static IP).
- Value is "localhost" (temporarily used for troubleshooting or permanently if there are NO other Matrix Clients).

Contact Graco LED Tech Assistance at 800-533-9655, option 2 or LEDtech@graco.com

Maximum number of backups to keep
This is self-explanatory. As each new backup is created, the oldest one falls off once it reaches the number set here.

Operating screen refresh interval & Report output directory
This rarely needs adjustment and should only be done if instructed by Graco.

Transceiver Server host name - 2 options:
- Always the name/IP of the computer you are at.
- localhost (only if a single Matrix PC system, or for troubleshooting)

Rules for the 3 lines that end with the words "Host Name":
- On the Matrix Server - all 3 green entries should be the same
- On Matrix Clients - only the top two green entries should be the same (Matrix Server name)
- On Matrix Clients - Matrix Client name and Transceiver Server host name should be the same (Matrix Client name)