

TSI® FMS 5 SOFTWARE

HOW TO CONFIGURE A BUDDY SYSTEM

TECHNICAL BULLETIN TCC-114

(6/5/24) Rev D

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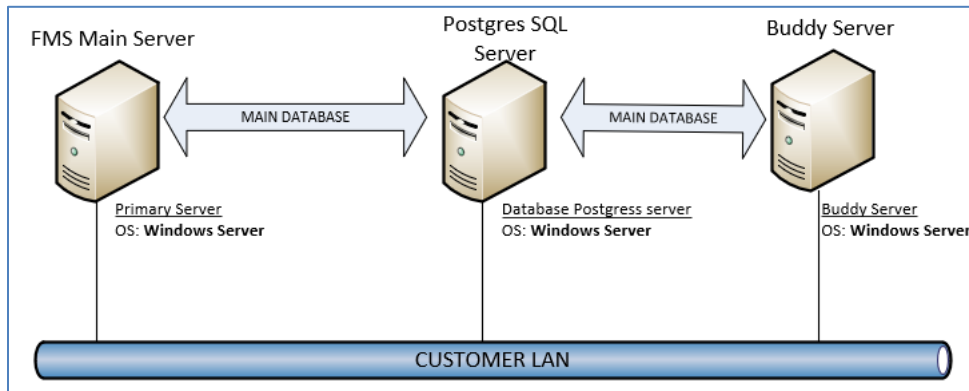
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Description

This technical note explains the ideal configuration for a Buddy System. The proper configuration will include a Main Node (FMS Main Server) that writes to database FMS01 located on the PostgreSQL Database Server. The Buddy Server should then write to the same database FMS01 located on the PostgreSQL Database Server. This configuration will ensure that the main Database FMS01 database is kept synchronized.

If using security, it is recommended to have the Watchdog Node on the Buddy Server as the password server. When this document references security, it assumes the Watchdog Node on the Buddy Server is the password server.



Prerequisites

FMS 5.1.0 must be installed on both the FMS Main Server Computer and the Buddy Server.

Both servers must be on the same network and subnet.

For FMS 5.7 and later only PostgreSQL Server version 11 or higher can be used, recommended version is version 15.

Assumptions

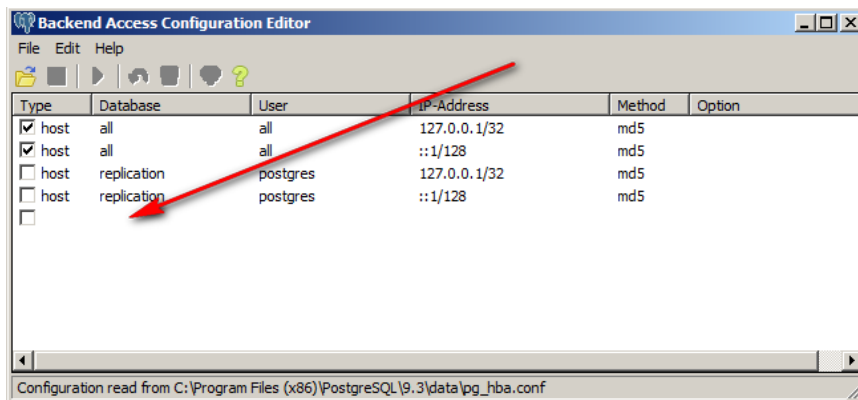
This document assumes the following:

- Main Monitor Node Name: MainNode
 - Database Name: FMS01
 - Mirror Database Name: FMS01
 - User Name: monitor
 - Password: fms
 - TCP/IP Address: 192.168.1.6
- Watchdog Node Name: Watchdog
 - Database Name: FMS01
 - Mirror Database Name: FMS01
 - User Name: monitor
 - Password: fms
 - TCP/IP Address: 192.168.1.50
- Buddy Node Name: MainNodeBuddy

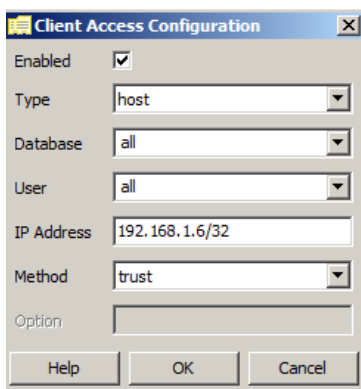
- PostgreSQL 9.3 Databases for both computers have been installed in the following folder:
C:\Program Files (x86)\PostgreSQL\9.3

MainNode Computer Configuration Instructions

1. Start pgAdmin III.
2. Add the local IP address to the file pga_hba.conf. To start:
 - Under Menu File, select Open “pga_hba.conf”
 - Browse for this file within the PostgreSQL 9.3 installation folder (C:\PROGRAM FILES (X86)\POSTGRESQL\9.3\DATA)
3. On the Backend Access Configuration Editor screen, double click on the last line as shown below.

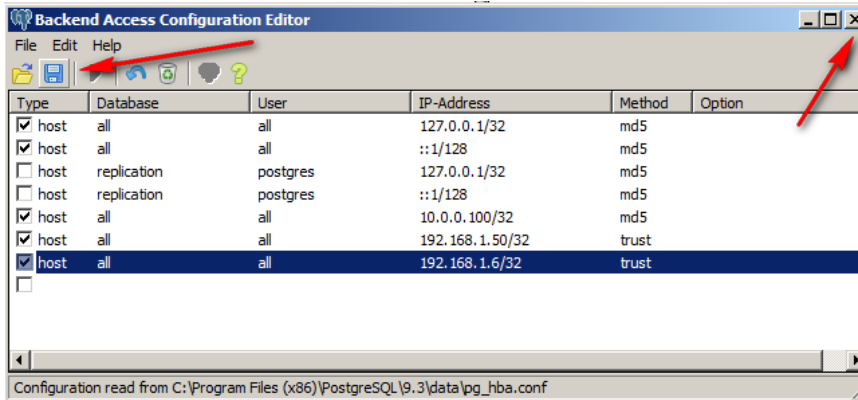


4. Enter the following values:

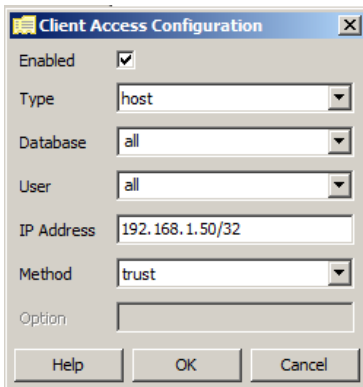


Note: The IP address is your local Computer IP Address

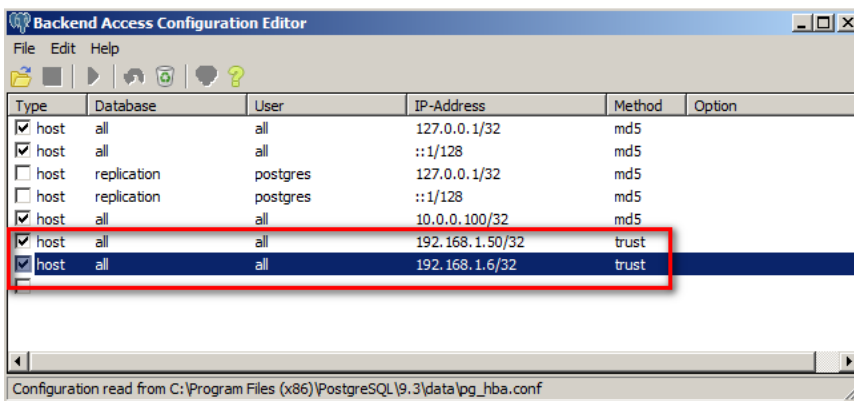
5. Click **OK**.
6. Click the **Save** icon and exit.



7. Repeat Step 3 to add the Watchdog IP address to PostgreSQL.
8. Enter the following values:



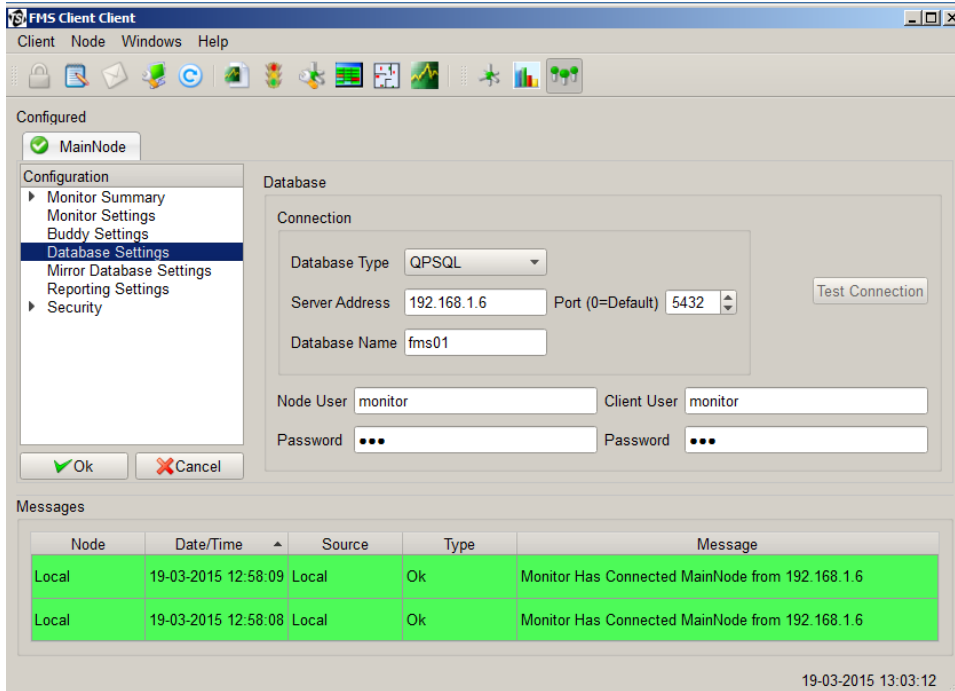
9. Click **OK**.
10. **Save** and exit the Backend Access Configuration Editor.



11. Restart PostgreSQL 9.3 Service. Create the MainNode. To do so, edit the file "**C:\FMS5\Bin\Guard.ini**"
 - Append to the existing line the following extension: -node=MainNode
 - The new line will be: C:\FMS5\bin\Monitor -node=MainNode
12. With Microsoft® Windows® Explorer® browser, navigate to **C:\FMS5\Node** and rename the existing *YourComputerName.xml* file to MainNode.xml.
13. Edit **MainNode.xml** and replace any occurrence of *YourComputerName* with MainNode.

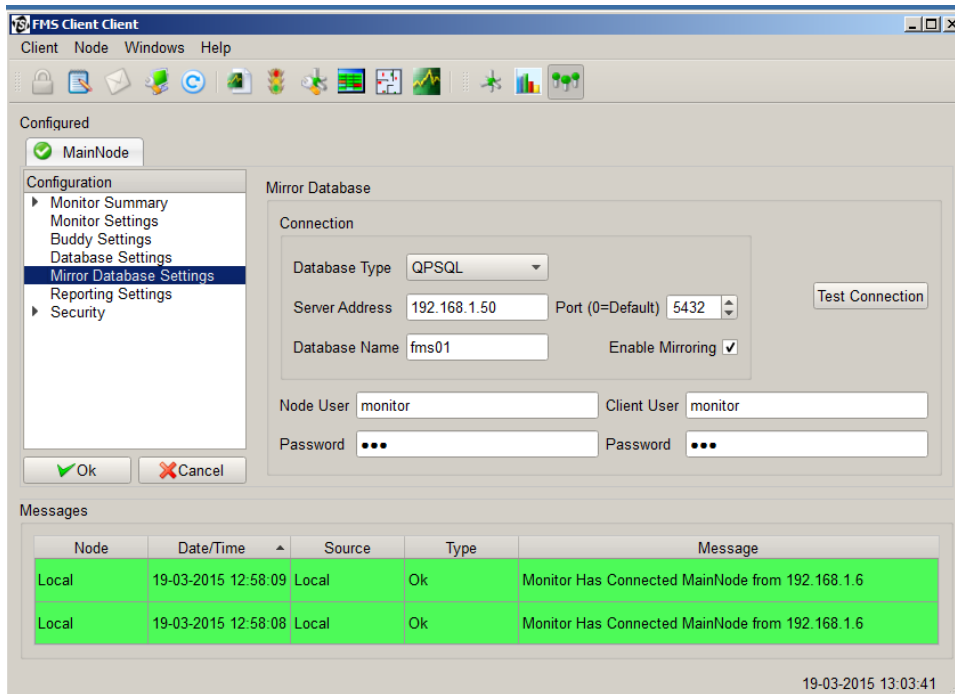
14. Restart the GuardService.
15. Start FMS5 Client.
16. Go to **Configure Node** then **Database Settings** and enter the following values:

Server Address:	192.168.1.6
Port:	5432
Node & Client User:	monitor
Node & Client Password:	fms

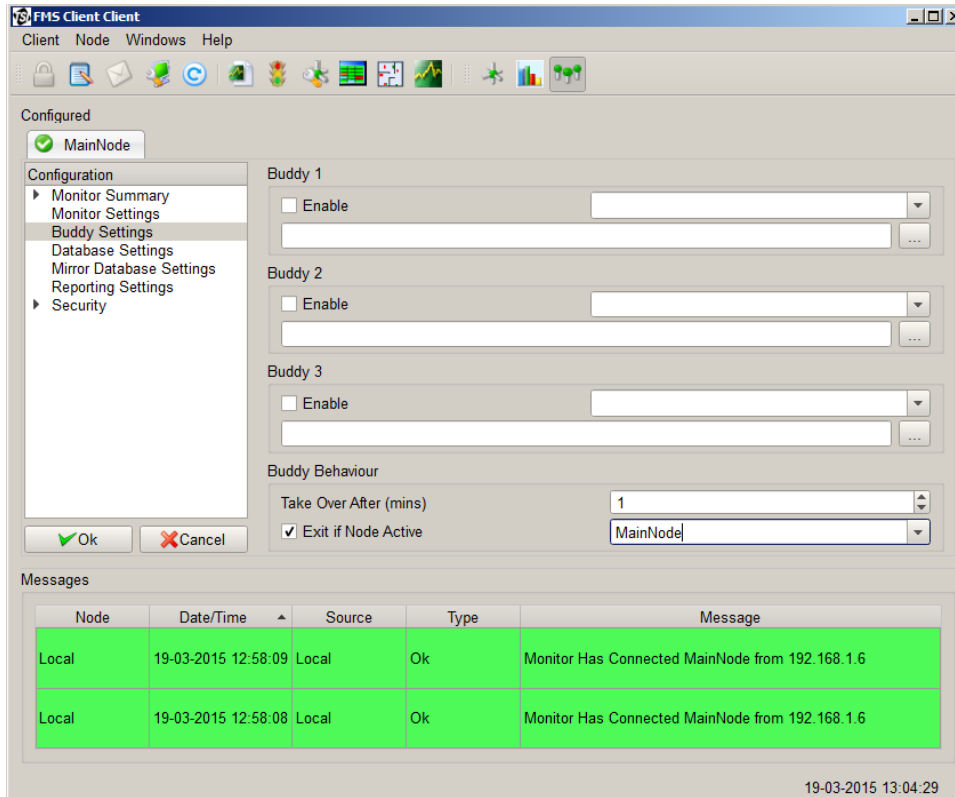


17. Go to **Mirror Database Settings** and enter the following values:

Database Type:	QPSQL
Server Address:	192.168.1.50
Port:	monitor
Node & Client Password:	5432
Database Name:	fms01
Enable Mirroring:	Checked
Node & Client User:	monitor
Node & Client Password:	fms



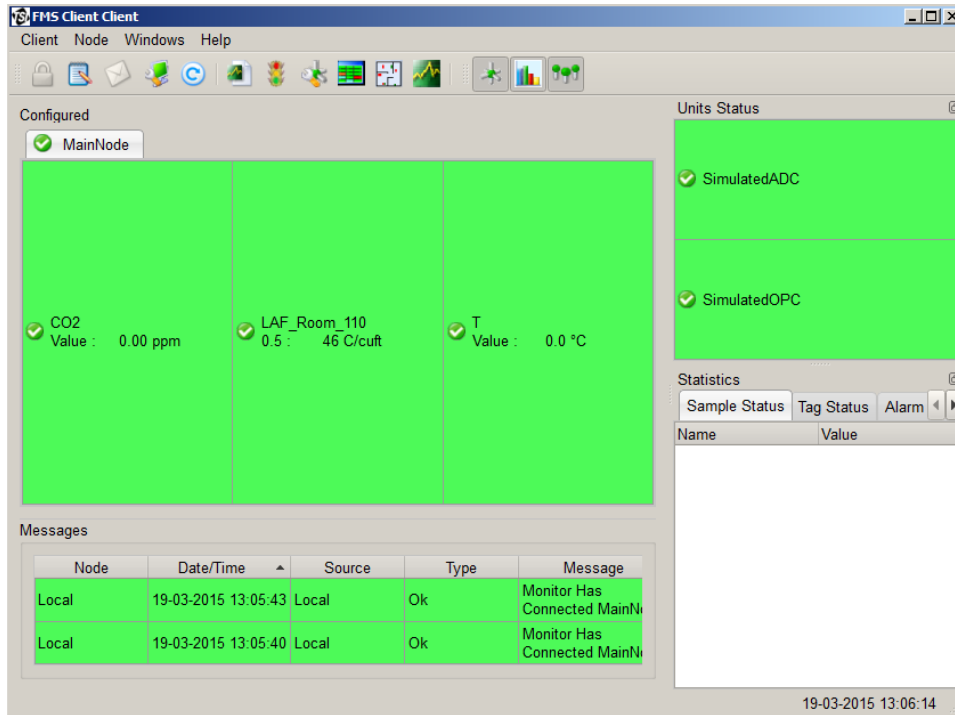
18. Go to Buddy Settings and check **“Exit if Node Active”** then select from the dropdown list **“MainNode”**.



Note: Takeover time = 1 mins means “MainNodeBuddy” node will automatically take over one minute after the main monitor dies.

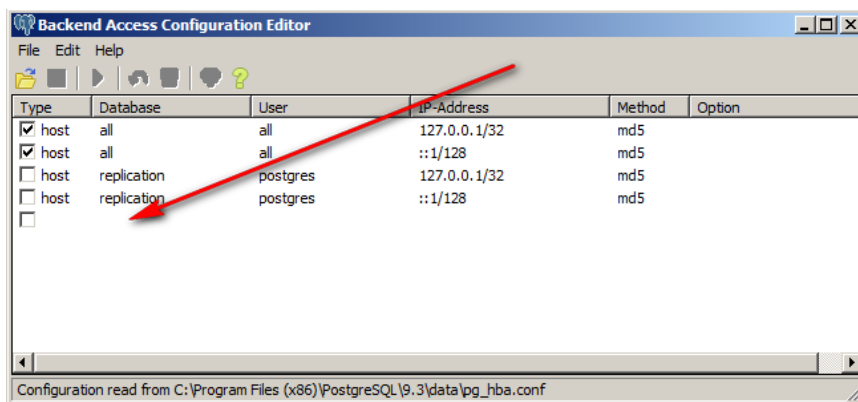
19. Click **Ok** and confirm save.
20. Click **Yes** to reboot the monitor.

21. Configure FMS5 with all the instruments, sample points, and other configurations needed for your installation.

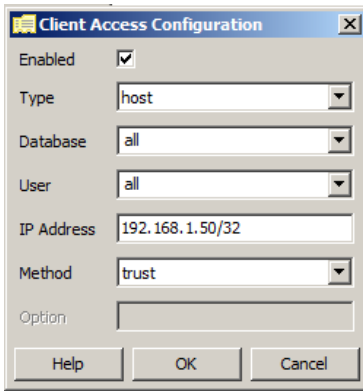


Buddy Computer Configuration Instructions

1. Start pgAdmin III on the Watchdog Computer.
2. Add the local IP address to the file pga_hba.conf. To start:
 - Under Menu File, select Open pga_hba.conf
 - Browse for this file within the Postgres 9.3 installation folder (C:\PROGRAM FILES (X86)\POSTGRESQL\9.3\DATA)
3. On the Backend Access Configuration Editor screen, double click on the last line as shown below.



4. Enter the following values:



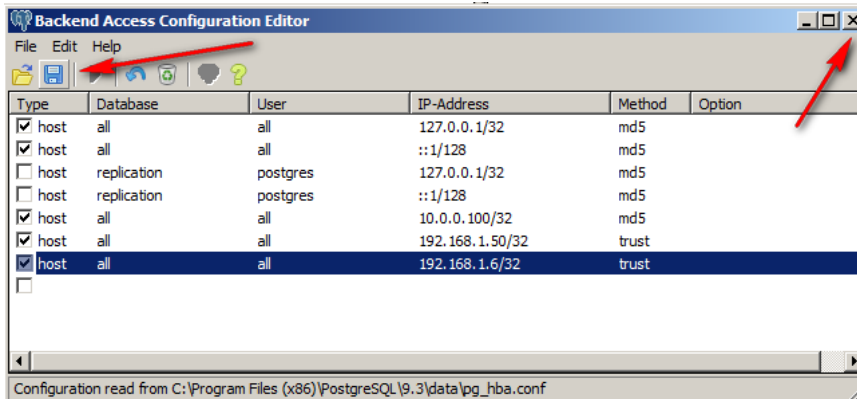
The dialog box 'Client Access Configuration' has the following settings:

- Enabled:
- Type: host
- Database: all
- User: all
- IP Address: 192.168.1.50/32
- Method: trust
- Option: (empty)

Buttons: Help, OK, Cancel

Note: The IP address is your local Computer IP Address

5. Click **OK**.
6. Click the Save icon and exit.

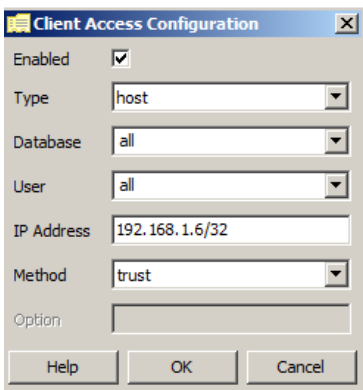


The 'Backend Access Configuration Editor' window shows a table of configurations. A red arrow points to the Save icon in the toolbar, and another red arrow points to the Close button in the window title bar.

Type	Database	User	IP-Address	Method	Option
<input checked="" type="checkbox"/>	host	all	all	127.0.0.1/32	md5
<input checked="" type="checkbox"/>	host	all	all	::1/128	md5
<input type="checkbox"/>	host	replication	postgres	127.0.0.1/32	md5
<input type="checkbox"/>	host	replication	postgres	::1/128	md5
<input checked="" type="checkbox"/>	host	all	all	10.0.0.100/32	md5
<input checked="" type="checkbox"/>	host	all	all	192.168.1.50/32	trust
<input checked="" type="checkbox"/>	host	all	all	192.168.1.6/32	trust
<input type="checkbox"/>					

Configuration read from C:\Program Files (x86)\PostgreSQL\9.3\data\pg_hba.conf

7. Repeat Step 3 to add the “**MainNode**” IP address to PostgreSQL.
8. Enter the following values:



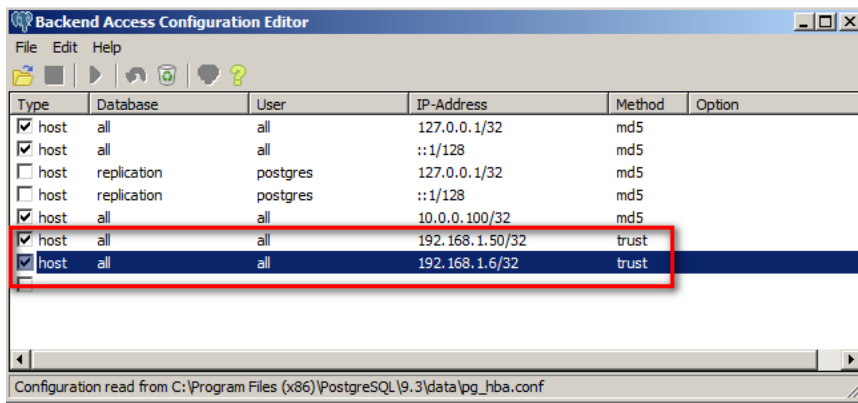
The dialog box 'Client Access Configuration' has the following settings:

- Enabled:
- Type: host
- Database: all
- User: all
- IP Address: 192.168.1.6/32
- Method: trust
- Option: (empty)

Buttons: Help, OK, Cancel

9. Click **OK**.

10. **Save** and exit the Backend Access Configuration Editor.



11. Restart PostgreSQL 9.3 Service.

12. Copy from the Main Computer to the Buddy Computer the following files and rename them as follows:

- C:\FMS5\Node\MainNode.xml to Buddy Computer C:\FMS5\Node\MainNodeBuddy.xml
- C:\FMS5\Config\NodeLocal.xml to Buddy Computer C:\FMS5\Config\BuddyNodeLocal.xml
- If using security, copy C:\FMS5\Config\NodePassword.xml to the Buddy Computer C:\FMS5\Config\BuddyNodePassword.xml

13. The file containing all AeroTrak+ Active Air Sampler program configured (C:\FMS5\Config\AASAllPrograms.xml) on the Main Computer should be periodically copied to the Buddy Computer to ensure the Buddy Configuration remains up-to-date unless no modifications to the programs are allowed after completing FMS Configuration and validation.

14. Create the Watchdog Node. The only role of this node will be to monitor MainNode. To do so, edit the file "C:\FMS5\Bin\Guard.ini" on the Buddy Computer.

- Append to the existing line the following extension: -node=Watchdog
- The line will be: C:\FMS5\bin\Monitor -node=Watchdog

15. With Microsoft® Windows® Explorer® browser, navigate to C:\FMS5\Node and rename the existing *YourComputerName.xml* file to Watchdog.xml

16. Edit Watchdog.xml and replace any occurrence of *YourComputerName* with Watchdog.

17. Restart the GuardService.

18. Start FMS5 Client.

19. Go to **Buddy Settings** and enter the following values:

Buddy 1 Enabled:	Checked
Select:	MainNode

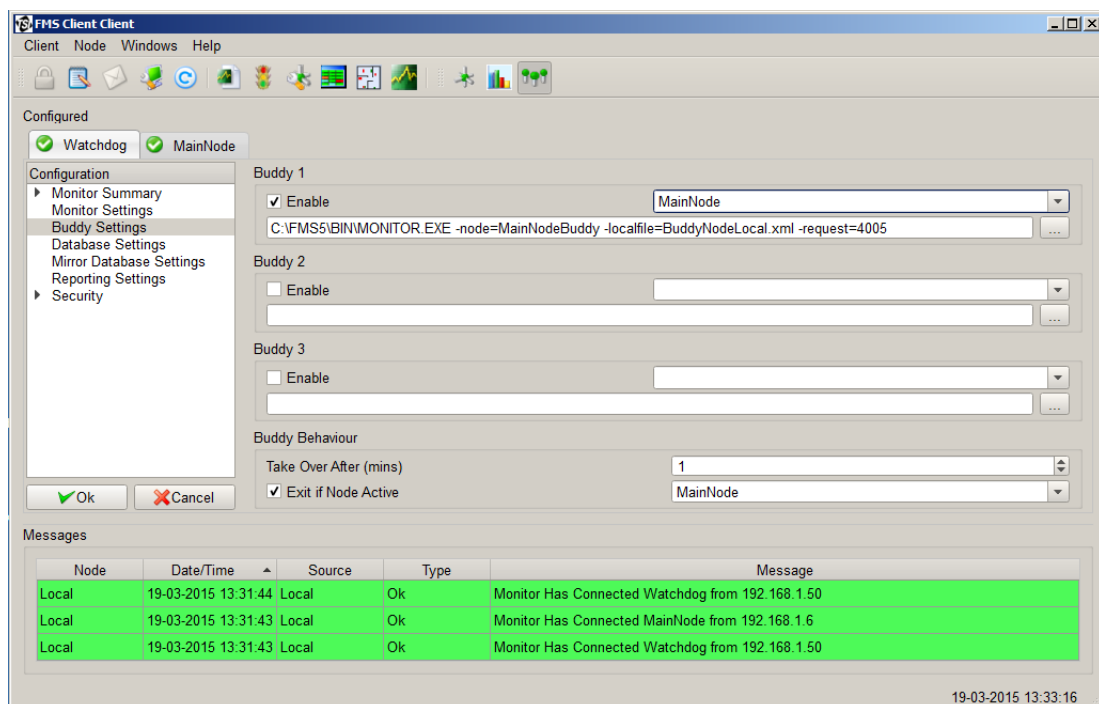
Enter the following command line:

```
C:\FMS5\BIN\MONITOR.EXE -node=MainNodeBuddy -localfile=BuddyNodeLocal.xml -request=4005
```

If using security, enter the following command line:

```
C:\FMS5\BIN\MONITOR.EXE -node=MainNodeBuddy -localfile=BuddyNodeLocal.xml -request=4005 -passwordfile=BuddyNodePassword.xml
```

Take Over After:	1
Exit if Node Active:	Checked & Select MainNode



20. Go to **Monitor Settings** and enter the License Key for the Watchdog Node.

21. Click **Ok** and confirm save.

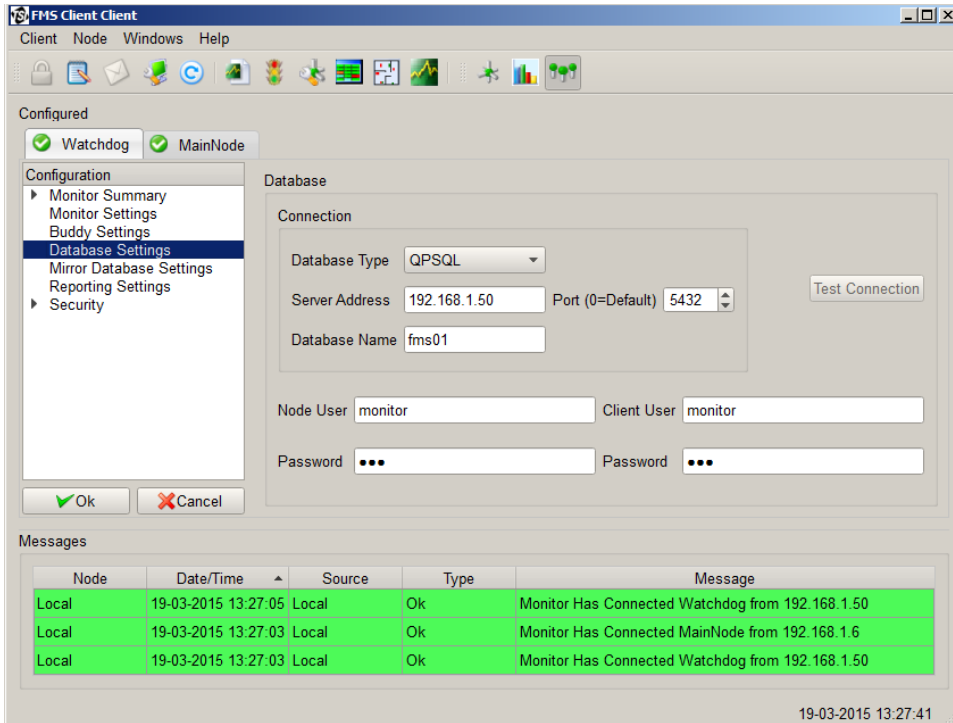
22. Click **Yes** to reboot the monitor.

23. Configure one simulated unit and sample point on the Watchdog Node; these names should be unique. The unit's name is "WatchDog_Unit" and "WatchDog" is the sample point.

24. Stop the Guard Service on the Main Monitor and wait until the Buddy Node starts on the Buddy Computer.

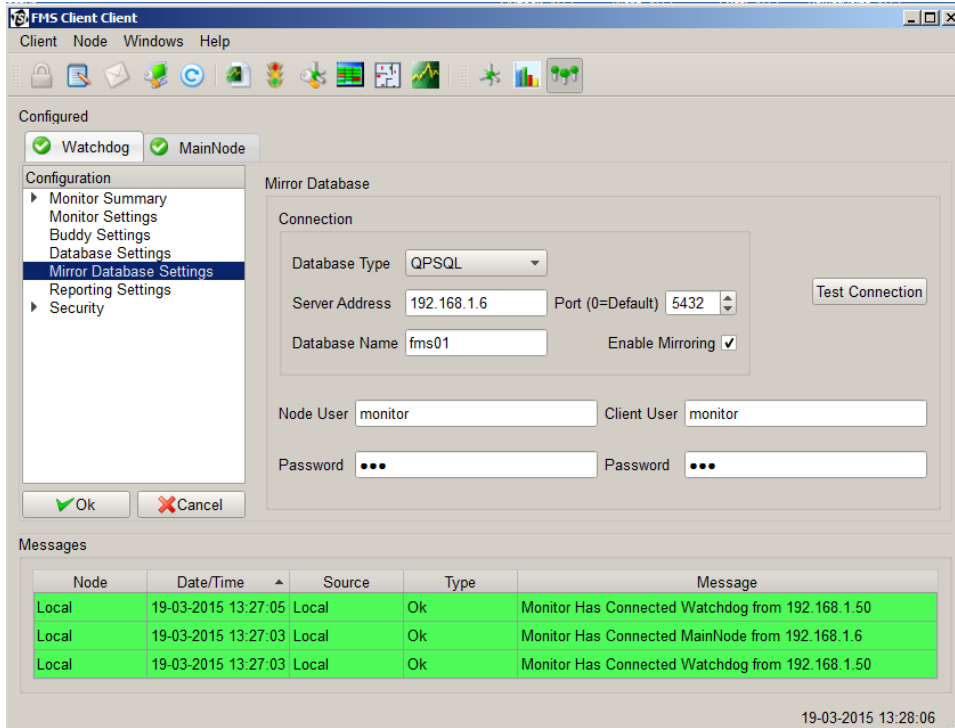
25. Once the Buddy Node has started, open Buddy's configuration window and go to **Database Settings**. Point the Buddy Node's main database to the Buddy Computer by entering the following values:

Server Address:	192.168.1.50
Port:	5432
Node & Client User:	monitor
Node & Client Password:	fms

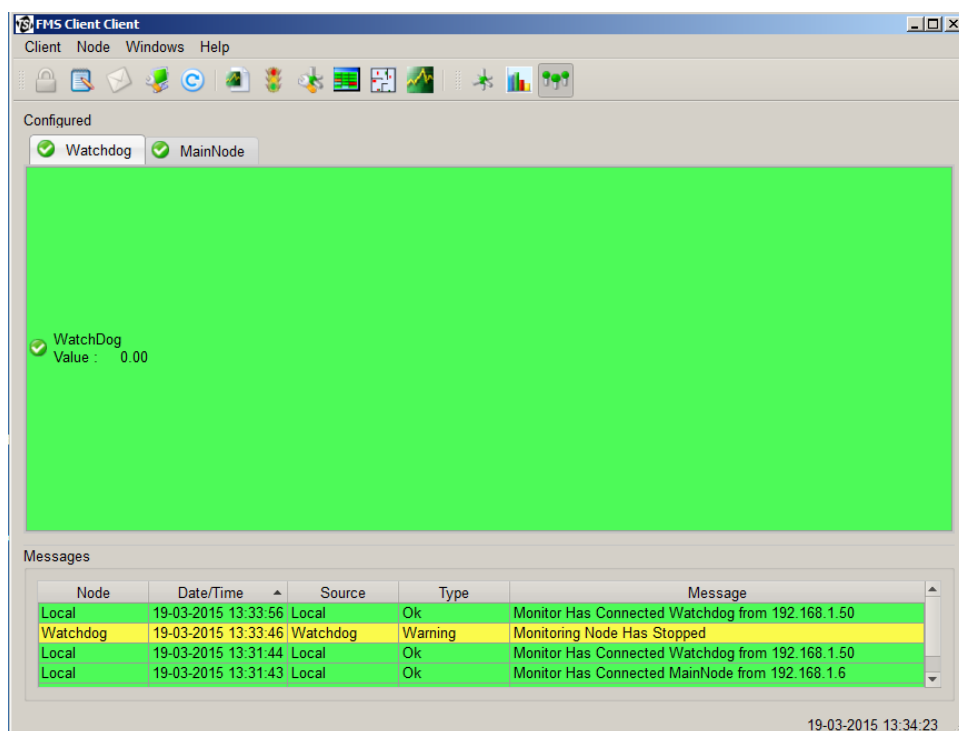


26. Go to **Mirror Database Settings** and enter the following values to point the Buddy Node's mirror database to the Main Computer:

Database Type:	QPSQL
Server Address:	192.168.1.6
Port:	5432
Database Name:	fms01
Enable Mirroring:	Checked
Node & Client User:	monitor
Node & Client Password:	fms



27. Start the Guard Service on the Main Computer. When the Main Node starts, Buddy Node should detect this and automatically shut down. If the Buddy Node fails to start, recheck all configuration settings. Ensure “**Exit if Node Active**” is enabled and the Main Node is selected in the drop-down list in Configuration.



Additional Notes

- **Security Configuration**—By using the Watchdog Node as the password server, the need to maintain password files on both computers is removed. Note that should the Buddy Computer fail, only super-users will be able to log in to the Main Monitoring Node. However, it would normally be the case that the Buddy Computer is recovered as soon as practically possible allowing normal user login to resume.
- The node configuration from the Main Computer should be periodically copied to the Buddy Computer to ensure the Buddy Configuration remains up-to-date. Be sure to update the Buddy Node’s main and mirror database configuration.
- The file containing all AeroTrak+ Active Air Sampler program (C:\FMS5\Config\AASAllPrograms.xml) on the Main Computer should be periodically copied to the Buddy Computer to ensure the Buddy Configuration remains up-to-date unless Main Computer Node does not contain any configured AeroTrak®+ Active Air Sampler Sample Point.
- When one or more AeroTrak+ Active Air Sample Program are running their running settings will be stored in the database inside a table called **aas_programs_details**. Storing running settings inside the database allow the Buddy Computer to continue these programs as soon as the Buddy takes over.
- The main node and the Buddy node **MUST** be on the same network and subnet.

Revision History

Revision	Released	Description
A	10 April 2015	Initial Release
B	20 November 2017	Minor changes
C	14 July 2021	Adapted for AeroTrak+ Active Air Sampler 7010.
D	6 May 2024	Description and Prerequisites on page 2 have been revised

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