



# Knowledge Base Article: MES Database Clustering and Primary Key Retrofit

**Version Specific:** Use these steps when adding primary keys to versions before 3.81.12 SP0. After this version, these steps are done automatically.

Support has been added for **database clustering** by retrofitting and adding primary keys to all MES tables. This process is handled via system properties in the gateway configuration.

## Configuration

To enable the automatic primary key retrofit and addition, you must modify the `ignition.conf` file:

1. Set the system property `com.sepasoft.db.addPrimaryKeys=true` in the gateway's `ignition.conf`.
2. Restart the Ignition gateway to initiate the process.

## Monitoring and Verification

- **Logs:** The progress screen is no longer used; instead, **everything is visible via the logs**. You should check the logs for a correct progress report regarding the retrofit process.
- **Database:** Once the upgrade completes, verify that all tables have received the expected primary key column.

## Important Limitations and Best Practices

- **Oracle Database Incompatibility:** This property is **unsupported on Oracle databases** and enabling it will cause the system to crash.
- **System Performance:** Enabling this system property will **slow down MES system startup**, even after the database changes are complete.
- **Cleanup:** It is recommended to **remove the system property** from `ignition.conf` after the process completes to avoid startup delays.

## Advanced Configuration for Testing

For testing purposes—specifically regarding database initialization and upgrades—a secondary property is available:



- **Property:** `-Dcom.sepasoft.db.disableAutoIdColumn=true`
- **Function:** This forbids adding primary key columns during table creation.

**Testing Workflow:** To test the upgrade process, you can utilize the following workflow:

1. Enable `disableAutoIdColumn` and comment out `addPrimaryKeys` in `ignition.conf`.
2. Restart Ignition and recreate the database (tables will be created empty and without primary key columns).
3. Enable `addPrimaryKeys` and restart Ignition again.
4. Observe the logs to watch the tables being upgraded.