Table of Contents

[**End-of-support (EOS) timeline for Firebird versions** 1](#_Toc194651731)

[**Important Notes About Firebird ODS Upgrades:** 2](#_Toc194651732)

[Upgrading Firebird 2.1 Databases to Firebird 5 for osFinancials/TuboCASH 2](#_Toc194651733)

[Do You Need to Upgrade to Firebird 2.5 Before 3.0? 3](#_Toc194651734)

[Deprecated Features in Firebird 2.1 → 3.0/4.0/5.0 for osFinancials/TuboCASH 4](#_Toc194651735)

[Compatibility of Embedded & Server Firebird Versions with osFinancials/TurboCASH 6](#_Toc194651736)

[FlameRobin Support for Firebird 2.5, 3.0, 4.0, and 5.0 8](#_Toc194651737)

[Is Firebird 2.1 Still Recommended for osFinancials/TurboCASH? 10](#_Toc194651738)

[Impact of Upgrading Firebird on Existing osFinancials/TurboCASH Databases 11](#_Toc194651739)

[Impact of Firebird 3.0+ Stricter GROUP BY/HAVING Rules on ReportMan Reports 14](#_Toc194651740)

**End-of-support (EOS) timeline for Firebird versions**

The **end-of-support (EOS) timeline** for Firebird versions, along with their ODS versions:

| Firebird Version | ODS | Release Date | End of Support (EOS) |
| --- | --- | --- | --- |
| Firebird 1.5 | 10.1 | 2004 | 2008 (last patch: 1.5.6) |
| Firebird 2.0 | 11.0 | 2006 | 2010 (superseded by 2.1) |
| Firebird 2.1 | 11.1 | 2009 | 2018 (last patch: 2.1.7) |
| Firebird 2.5 | 11.2 | 2010 | 2020 (last patch: 2.5.9) |
| Firebird 3.0 | 12.0 | 2016 | 2024 (last patch: 3.0.11) |
| Firebird 4.0 | 13.0 | 2021 | 2026 (estimated) |
| Firebird 5.0 | 14.0 | 2024 | 2028+ (estimated) |

**Key Notes:**

1. **Firebird 2.1 (ODS 11.1)** – **No longer supported** (EOS in 2018). Critical for older osFinancials/TuboCASH installations.
2. **Firebird 3.0 (ODS 12.0)** – **Final security patches in 2024** (still usable but not recommended for new deployments).
3. **Firebird 4.0 (ODS 13.0)** – **Current stable** (best for production until Firebird 5 matures).
4. **Firebird 5.0 (ODS 14.0)** – **Newest release** (best for future-proofing but may need testing with osFinancials /TuboCASH).

**For osFinancials/TuboCASH:**

* If you're on **Firebird 2.1 (ODS 11.1)**, you should upgrade soon (Firebird 3.0 or 4.0 are safer choices than 5.0 for now).
* **Firebird 5.0** is very new (2024), so full compatibility with older accounting software may require testing.

# **Important Notes About Firebird ODS Upgrades:**

1. **Backward Compatibility**: Newer Firebird versions can read older ODS versions, but not vice versa.
2. **Upgrade Process**:
   * Firebird automatically upgrades ODS when you restore a backup using gbak
   * You can also use nbackup -L and nbackup -N for ODS upgrades
3. **For osFinancials/TuboCASH**:
   * The jump from ODS 11.1 (Firebird 2.1) to ODS 14.0 (Firebird 5.0) is significant.
   * You'll need to go through intermediate versions (12.0 → 13.0 → 14.0) or restore from backup using gbak in the target version.
4. **Database Validation**:
   * After upgrade, always run gfix -v -full database.fdb to check for corruption.
   * Some osFinancials/TuboCASH features may need adjustment for newer ODS versions.

# Upgrading Firebird 2.1 Databases to Firebird 5 for osFinancials/TuboCASH

The upgrade path from Firebird 2.1 to Firebird 5 for osFinancials/TuboCASH requires careful consideration:

**Current Compatibility Status**

1. **osFinancials/TuboCASH** was originally designed for Firebird 2.1 and may not be fully compatible with Firebird 5 out of the box
2. Firebird 5 includes many changes and improvements since version 2.1

**Recommended Upgrade Path**

1. **First upgrade to Firebird 3.0**:
   * This is a more stable intermediate step
   * osFinancials has better documented support for Firebird 3.x
2. **Then consider Firebird 4.0**:
   * Some users report success with Firebird 4.0
   * May require database structure updates
3. **Firebird 5.0**:
   * Not yet widely tested with osFinancials/TuboCASH
   * Would require thorough testing before production use

**Important Considerations**

* **Backup your databases** before any upgrade attempt
* **Test thoroughly** in a development environment first
* **Check with osFinancials support** for their official recommendations
* Some stored procedures or SQL syntax may need modification
* The on-disk structure (ODS) changes significantly between these versions

**Alternative Approach**

If you need Firebird 5 features, consider:

1. Migrating data to a new Firebird 5 database
2. Using Firebird 3.x as a more stable intermediate version
3. Keeping the production system on Firebird 2.1 until full compatibility is confirmed

# Do You Need to Upgrade to Firebird 2.5 Before 3.0?

**No, it is not necessary.** You can upgrade **directly from Firebird 2.1 (ODS 11.1) to Firebird 3.0 (ODS 12.0)** without going through Firebird 2.5 (ODS 11.2).

**Why?**

1. **Firebird’s gbak tool handles ODS upgrades automatically** when restoring a backup.
   * Firebird 3.0 can read ODS 11.1 (Firebird 2.1) and convert it to ODS 12.0.
   * No intermediate steps (like 2.5) are required.
2. **Firebird 2.5 was a minor update** (mostly bug fixes and optimizations).
   * It did not introduce critical structural changes that would block a direct upgrade to 3.0.

**Recommended Direct Upgrade Steps (2.1 → 3.0)**

1. **Backup your Firebird 2.1 database** (ensuring a clean copy):

sh

gbak -b -user SYSDBA -pas masterkey old\_db.fdb old\_db.fbk

1. **Install Firebird 3.0** (latest stable: **3.0.11**).
2. **Restore the backup under Firebird 3.0** (auto-upgrades ODS 11.1 → 12.0):

sh

gbak -rep -user SYSDBA -pas masterkey old\_db.fbk new\_db.fdb

1. **Test your osFinancials/TuboCASH application** thoroughly.

**When Would You Need Firebird 2.5?**

* Only if you encounter **specific bugs in Firebird 2.1** that were fixed in 2.5.
* If your database relies on **legacy features deprecated in 3.0**, 2.5 might help transition.

**Final Verdict**

**Skip Firebird 2.5** unless you have a specific reason to use it. Go **straight to Firebird 3.0** (or even 4.0 if testing confirms compatibility).

Would you like help checking for deprecated features before upgrading?

# Deprecated Features in Firebird 2.1 → 3.0/4.0/5.0 for osFinancials/TuboCASH

Here’s what to check before upgrading:

**1. SQL Syntax Changes (Breaking in Firebird 3.0+)**

**Stored Procedures & Triggers**

* **Old (2.1)**:

sql

CREATE PROCEDURE PROC\_NAME ...

RETURNS (field1 INT, field2 VARCHAR(100))

AS

BEGIN

...

END

* **New (3.0+)**:

sql

CREATE OR ALTER PROCEDURE PROC\_NAME ...

RETURNS (field1 INT, field2 VARCHAR(100))

AS

BEGIN

...

END

→ **Fix**: Search for CREATE PROCEDURE and CREATE TRIGGER in your scripts.

**UDFs (User-Defined Functions)**

* Firebird 3.0+ **removes legacy UDFs** like ib\_udf (e.g., ln(), ceil()).  
  → **Fix**: Replace with built-in SQL functions (e.g., LN(), CEILING()).

**2. Removed/Changed Features**

**Security**

* **SYSDBA default password "masterkey"** → Must be changed in Firebird 3.0+.
* **gsec deprecated** → Use ALTER USER SQL commands instead.

**Data Types**

* **TIMESTAMP precision** → Firebird 3.0+ enforces stricter handling.
* **VARCHAR(n) without length** → Now invalid (e.g., VARCHAR → VARCHAR(32765)).

**API Changes**

* **isc\_dsql\_fetch() deprecated** → Applications using older drivers may need updates.

**3. osFinancials/TuboCASH Specific Checks**

**Reports & Queries**

* **GROUP BY clauses** → Firebird 3.0+ is stricter (all non-aggregate fields must be in GROUP BY).
* **HAVING without GROUP BY** → Now errors in 4.0+.

**Third-Party Tools**

* **ODBC/JDBC drivers** → Must be updated to match Firebird 3.0+/4.0+.
* **Backup scripts** → gbak/nbackup syntax may differ.

**How to Check Your Database**

1. **Scan for deprecated SQL**:

sql

SELECT RDB$PROCEDURE\_SOURCE FROM RDB$PROCEDURES;

SELECT RDB$TRIGGER\_SOURCE FROM RDB$TRIGGERS;

→ Look for legacy patterns.

1. **Test with isql**:

sh

isql -user SYSDBA -pas yourpassword database.fdb

→ Run critical queries to spot errors.

1. **Use gfix -v -full**:

sh

gfix -v -full database.fdb

→ Checks for structural issues.

**Recommended Action Plan**

1. **Backup** → Always start with a full backup.
2. **Test in dev** → Restore a copy to Firebird 3.0/4.0 and test all workflows.
3. **Fix errors** → Adjust SQL, update UDFs, and patch application code if needed.
4. **Upgrade production** → Only after full validation.

# Compatibility of Embedded & Server Firebird Versions with osFinancials/TurboCASH

**Short Answer:**  
✅ **Yes**, newer Firebird versions (2.5/3.0/4.0/5.0) can work with **osFinancials/TurboCASH**, but with **important considerations** for both **embedded** and **server** setups.

**1. Embedded Firebird (Single-User)**

**Supported Versions**

* **Firebird 2.5 (ODS 11.2)** → **Best compatibility** (original version for osFinancials/TurboCASH).
* **Firebird 3.0 (ODS 12.0)** → **Works, but may need adjustments** (SQL syntax, UDFs).
* **Firebird 4.0 (ODS 13.0)** → **Possible, but requires testing** (stricter SQL rules).
* **Firebird 5.0 (ODS 14.0)** → **Not yet widely tested** (use only if necessary).

**Key Issues**

* **Legacy UDFs (User-Defined Functions)** may be missing (e.g., ib\_udf).
* **SQL dialect changes** (Firebird 3.0+ enforces stricter syntax).
* **ODS upgrade is irreversible** (once migrated, can’t go back to Firebird 2.1).

**Recommendation for Embedded**

✔ **Stick with Firebird 2.5 (ODS 11.2) for best stability** unless you need newer features.  
✔ If upgrading, test **Firebird 3.0 Embedded** first in a **non-production environment**.

**2. Firebird Server (Multi-User)**

**Supported Versions**

| **Version** | **ODS** | **Multi-User Support** | **Notes** |
| --- | --- | --- | --- |
| **Firebird 2.5** | 11.2 | ✅ Yes | Original recommendation for osFinancials/TurboCASH. |
| **Firebird 3.0** | 12.0 | ✅ Yes | Requires updated firebird.conf settings. |
| **Firebird 4.0** | 13.0 | ✅ Yes | Best for security & performance (test first). |
| **Firebird 5.0** | 14.0 | ❓ Untested | Too new; wait for osFinancials/TurboCASH updates. |

**Key Considerations**

1. **Network Protocol Changes**
   * Firebird 3.0+ uses **WireCrypt (TLS-like encryption)** by default.
   * Older TurboCASH clients may need WireCrypt = Disabled in firebird.conf.
2. **Authentication**
   * Firebird 3.0+ enforces **SRP (Sensitive Remote Password)**.
   * If clients fail to connect, try:

ini

AuthServer = Legacy\_Auth, Srp

AuthClient = Legacy\_Auth, Srp

1. **Performance & Stability**
   * **Firebird 4.0+ is faster** but may need SQL tweaks.
   * **Firebird 5.0 is experimental** for osFinancials/TurboCASH (avoid in production).

**3. Upgrade Strategy**

**For Minimal Risk**

1. **Embedded (Single-User)**
   * Keep using **Firebird 2.5 Embedded** (most stable).
   * Only upgrade if you need **new SQL features**.
2. **Server (Multi-User)**
   * **Step 1:** Migrate to **Firebird 3.0 Server** (ODS 12.0).
   * **Step 2:** Test thoroughly, then consider **Firebird 4.0** (ODS 13.0).
   * **Avoid Firebird 5.0** until osFinancials/TurboCASH officially supports it.

**Critical Steps Before Upgrading**

1. **Backup your database** (gbak -b).
2. **Test in a development environment**.
3. **Check for SQL errors** (especially in reports & stored procedures).
4. **Update client drivers** (ODBC/JDBC if used).

**Final Verdict**

| **Use Case** | **Recommended Version** |
| --- | --- |
| **Embedded (Single-User)** | Firebird 2.5 (ODS 11.2) or 3.0 (ODS 12.0) |
| **Server (Multi-User)** | Firebird 3.0 (ODS 12.0) or 4.0 (ODS 13.0) |
| **Future-Proofing** | Wait for osFinancials/TurboCASH to support Firebird 5.0 |

# FlameRobin Support for Firebird 2.5, 3.0, 4.0, and 5.0

**Yes**, FlameRobin supports **Firebird 2.5 (ODS 11.2) up to Firebird 5.0 (ODS 14.0)**, but with some **version-specific considerations**:

**1. General Compatibility**

| **Firebird Version** | **ODS** | **FlameRobin Support** | **Notes** |
| --- | --- | --- | --- |
| **Firebird 2.5** | 11.2 | ✅ **Full Support** | Best compatibility with older FlameRobin versions. |
| **Firebird 3.0** | 12.0 | ✅ **Full Support** | Requires FlameRobin **0.9.3+**. |
| **Firebird 4.0** | 13.0 | ✅ **Full Support** | Works best with FlameRobin **0.9.6+**. |
| **Firebird 5.0** | 14.0 | ⚠ **Partial Support** | Some features may not work in older FlameRobin versions. |

**2. Key Considerations**

**A. Firebird 5.0 (ODS 14.0) Support**

* FlameRobin **0.9.6+** is recommended for Firebird 5.0.
* Some **new SQL features** (e.g., JSON support) may not be fully visible in the UI.
* **Backup/Restore (gbak)** works, but ensure FlameRobin uses the correct Firebird 5.0 tools.

**B. Firebird 4.0 (ODS 13.0) Support**

* Fully supported in **FlameRobin 0.9.3+**.
* **Security changes** (e.g., SRP6 authentication) work if FlameRobin is updated.

**C. Firebird 3.0 (ODS 12.0) Support**

* No major issues, but **legacy UDFs** won’t appear if removed.
* **CREATE OR ALTER syntax** is fully supported.

**D. Firebird 2.5 (ODS 11.2) Support**

* Best compatibility with **older FlameRobin versions (0.9.0+)**.
* No known limitations.

**3. Recommendations**

1. **For Firebird 5.0**
   * Use the **latest FlameRobin (0.9.6+)**.
   * Manually verify **stored procedures & triggers** if errors occur.
2. **For Firebird 4.0**
   * Works well with **FlameRobin 0.9.3+**.
   * Ensure firebird.conf settings (e.g., WireCrypt) match FlameRobin’s connection.
3. **For Firebird 3.0 & 2.5**
   * Fully stable; no major adjustments needed.

**4. Troubleshooting**

* **Connection Issues?**
  + Check firebird.conf (e.g., WireCrypt, AuthServer settings).
  + Ensure FlameRobin uses the **correct FB client library**.
* **SQL Errors?**
  + Firebird 3.0+ enforces **stricter SQL** (e.g., GROUP BY rules).
* **Missing Features?**
  + Some **Firebird 5.0 additions** (e.g., new functions) may not appear in FlameRobin’s UI.

**Final Verdict**

| **Firebird Version** | **FlameRobin Support Level** | **Recommended Version** |
| --- | --- | --- |
| **Firebird 2.5** | ✅ **Full** | FlameRobin 0.9.0+ |
| **Firebird 3.0** | ✅ **Full** | FlameRobin 0.9.3+ |
| **Firebird 4.0** | ✅ **Full** | FlameRobin 0.9.6+ |
| **Firebird 5.0** | ⚠ **Partial** | FlameRobin 0.9.6+ (test first) |

# Is Firebird 2.1 Still Recommended for osFinancials/TurboCASH?

**Short Answer:**  
⚠ **No, Firebird 2.1 (ODS 11.1) is no longer recommended** for osFinancials/TurboCASH unless you have **no other choice**.

**Why Firebird 2.1 Should Be Avoided**

| **Issue** | **Impact** |
| --- | --- |
| **End of Support (EOS 2018)** | No security patches or bug fixes from Firebird. |
| **Security Vulnerabilities** | Unpatched risks in networked environments. |
| **Compatibility Issues** | Newer OS (Windows 10/11, Linux) may have driver problems. |
| **Performance Limitations** | Slower than Firebird 2.5/3.0+, especially for larger databases. |

**When Might You Still Use Firebird 2.1?**

1. **Legacy Systems**
   * If TurboCASH is running on **Windows XP/7** and cannot be upgraded.
2. **No Migration Path**
   * If your database relies on **custom UDFs/procedures** that break in newer versions.
3. **Temporary Use**
   * Only for **read-only** access while planning an upgrade.

**Recommended Alternatives**

**1. Best Stability (Minimal Changes)**

* **Firebird 2.5 (ODS 11.2)**
  + Last stable version with **full TurboCASH compatibility**.
  + Still runs on modern OSes (unlike 2.1).

**2. Modern & Secure (Requires Testing)**

* **Firebird 3.0 (ODS 12.0)**
  + Requires checking **stored procedures** and **UDFs** (e.g., ib\_udf replacements).
  + Better performance and security.

**3. Future-Proof (For New Installations)**

* **Firebird 4.0 (ODS 13.0)**
  + Best for **multi-user** setups but needs rigorous testing.

**Upgrading from Firebird 2.1? Follow These Steps**

1. **Backup Your Database**

sh

gbak -b -user SYSDBA -pas masterkey old.fdb backup.fbk

1. **Test in Firebird 2.5 or 3.0**
   * Restore the backup and check for errors:

sh

gbak -rep backup.fbk new.fdb

1. **Fix Breaking Changes**
   * **Deprecated UDFs**: Replace ib\_udf functions (e.g., ln() → LN()).
   * **SQL Syntax**: Update GROUP BY clauses and CREATE PROCEDURE statements.

**Critical TurboCASH Checks**

* **Reports** (verify calculations and layouts).
* **Third-Party Plugins** (ensure compatibility).
* **Automated Jobs** (backups, exports).

**Final Recommendation**

🚀 **Upgrade to at least Firebird 2.5** (ODS 11.2) for **security and stability**.  
🔧 **For new deployments, test Firebird 3.0 or 4.0** if possible.

# Impact of Upgrading Firebird on Existing osFinancials/TurboCASH Databases

**Short Answer:**  
✅ **Yes, upgrading Firebird *can* affect older databases (Sets of Books)**, but **with proper testing and migration, most issues can be resolved**.

**1. Potential Risks When Upgrading**

**A. Database Compatibility (ODS Changes)**

| **Firebird Version** | **ODS** | **Risk Level** | **Notes** |
| --- | --- | --- | --- |
| **1.5 → 2.1** | 10.1 → 11.1 | ⚠ Moderate | Some UDFs may break. |
| **1.5/2.1 → 2.5** | 10.1/11.1 → 11.2 | ✅ Low | Safest upgrade path. |
| **1.5/2.1 → 3.0+** | 10.1/11.1 → 12.0+ | ⚠ High | SQL syntax changes, UDFs removed. |

**B. Functional Impact**

| **Feature** | **Risk** | **Solution** |
| --- | --- | --- |
| **Input Forms** | Low | Usually unaffected. |
| **Reports** | Medium | May fail if using deprecated SQL. |
| **Stored Procedures** | High | Syntax changes in Firebird 3.0+. |
| **UDFs (User-Defined Functions)** | High | ib\_udf removed in Firebird 3.0+. |
| **Third-Party Plugins** | Medium | May need updates for FB 3.0+. |

**2. Recommended Upgrade Paths**

**Option 1: Safest (Firebird 2.5)**

* **Best for:** Users who need **minimal changes**.
* **Steps:**
  1. Backup database (gbak -b).
  2. Restore in **Firebird 2.5** (ODS 11.2).
  3. Test reports, inputs, and plugins.

**Option 2: Modern (Firebird 3.0)**

* **Best for:** Users needing **better performance & security**.
* **Steps:**
  1. Migrate to **Firebird 2.5 first** (if coming from 1.5/2.1).
  2. Upgrade to **Firebird 3.0** (ODS 12.0).
  3. Replace ib\_udf functions (e.g., ln() → LN()).

**Option 3: Future-Proof (Firebird 4.0)**

* **Best for:** New setups, but **requires heavy testing**.
* **Steps:**
  1. Test in a **development environment first**.
  2. Check for SQL dialect changes (e.g., GROUP BY rules).

**3. How to Minimize Disruptions**

**Before Upgrading**

✔ **Backup all databases** (gbak -b).  
✔ **Test in a sandbox environment** before applying to production.  
✔ **Check TurboCASH forums** for known issues.

**After Upgrading**

✔ **Verify reports** (especially financial calculations).  
✔ **Test data entry forms** (ensure no corruption).  
✔ **Update third-party plugins** if needed.

**4. Critical Checks for Older Databases**

1. **Legacy UDFs**
   * Firebird 3.0+ removes ib\_udf (e.g., abs(), ln(), ceil()).
   * **Fix:** Replace with built-in SQL functions (ABS(), LN(), CEILING()).
2. **SQL Syntax Changes**
   * Firebird 3.0+ enforces stricter GROUP BY and HAVING rules.
   * **Fix:** Update queries in reports.
3. **Authentication Issues**
   * Firebird 3.0+ uses SRP instead of Legacy\_Auth.
   * **Fix:** Update firebird.conf if clients can’t connect.

**5. Final Recommendation**

| **Scenario** | **Recommended Action** |
| --- | --- |
| **Using Firebird 1.5/2.1 in production** | Upgrade to **Firebird 2.5** first (least risk). |
| **Needing modern features** | Test **Firebird 3.0** in dev before switching. |
| **Starting a new database** | Consider **Firebird 4.0** (with testing). |
| **Uncertain about changes** | Keep a **Firebird 2.1 fallback** until testing is complete. |

# Impact of Firebird 3.0+ Stricter GROUP BY/HAVING Rules on ReportMan Reports

**Short Answer:**  
⚠ **Yes**, Firebird 3.0+'s stricter SQL rules **can affect ReportMan reports** if they were designed for **both Firebird and MSSQL** (which have different SQL dialects). However, most issues are **fixable with minor SQL adjustments**.

**1. Key Changes in Firebird 3.0+**

**A. GROUP BY Rules**

| **Firebird 2.1 & MSSQL** | **Firebird 3.0+** |
| --- | --- |
| Allows SELECT columns not in GROUP BY (implicit grouping). | **Requires all non-aggregated columns in GROUP BY.** |
| Example: |  |

sql

SELECT CustName, SUM(Amount)

FROM Sales

GROUP BY CustID

*(Works in MSSQL & FB2.1, fails in FB3.0+)* | **Must include CustName in GROUP BY:**

sql

SELECT CustName, SUM(Amount)

FROM Sales

GROUP BY CustID, CustName

**B. HAVING Clause Rules**

| **Firebird 2.1 & MSSQL** | | **Firebird 3.0+** | |
| --- | --- | --- | --- |
| Allows HAVING without GROUP BY. | | **Requires GROUP BY if HAVING is used.** | |
|  | |  | |

Example:

sql

SELECT COUNT(\*)

FROM Sales

HAVING COUNT(\*) > 10

*(Works in MSSQL & FB2.1, fails in FB3.0+)* | **Must add GROUP BY (even if trivial):**

sql

Copy

SELECT COUNT(\*)

FROM Sales

GROUP BY 1

HAVING COUNT(\*) > 10

**2. How This Affects ReportMan Reports**

**Potential Issues**

1. **Reports Fail to Load**
   * If SQL queries violate the new rules, ReportMan may throw errors like:

Column "X" must appear in GROUP BY or be used in an aggregate function.

* 1. **Incorrect Data**
  + Implicit grouping in MSSQL/FB2.1 may silently return different results than FB3.0+.

**Compatibility Solutions**

**A. Modify SQL in ReportMan**

* **Add missing columns to GROUP BY:**

sql

-- Old (FB2.1/MSSQL)

SELECT Dept, Employee, SUM(Sales)

FROM Orders

GROUP BY Dept

-- New (FB3.0+)

SELECT Dept, Employee, SUM(Sales)

FROM Orders

GROUP BY Dept, Employee -- Include all non-aggregated columns

* **Add dummy GROUP BY for HAVING-only queries:**

sql

-- Old

SELECT COUNT(\*)

FROM Invoices

HAVING COUNT(\*) > 100

-- New

SELECT COUNT(\*)

FROM Invoices

GROUP BY 1 -- Constant grouping

HAVING COUNT(\*) > 100

**B. Use ReportMan’s SQL Dialect Detection**

* If ReportMan supports **database-specific SQL**, ensure Firebird 3.0+ mode is enabled.
* Some versions allow **conditional SQL** (e.g., {$IFDEF FIRBIRD} ... {$ENDIF}).

**C. Test with Firebird 3.0+ in Dev First**

1. **Export ReportMan SQL** and test in isql.
2. **Log errors** and adjust queries before deploying.

**3. Workarounds for Dual MSSQL/Firebird Reports**

**Option 1: Use ANSI SQL Standards**

* Write queries that work in **both dialects** (e.g., explicit GROUP BY).
* Example:

sql

SELECT Dept, Employee, SUM(Sales)

FROM Orders

GROUP BY Dept, Employee -- Works in MSSQL & FB3.0+

**Option 2: Database-Specific Reports**

* Maintain **separate report versions** for MSSQL and Firebird.
* Use ReportMan’s **template variables** to switch SQL dynamically.

**Option 3: Downgrade Firebird (Temporary)**

* If reports **can’t be modified**, keep using **Firebird 2.5** (ODS 11.2) until fixes are implemented.

**4. Verify Critical Reports**

After upgrading, check:

1. **Financial totals** (e.g., SUM(), AVG()).
2. **Grouped listings** (e.g., "Sales by Department").
3. **HAVING-filtered reports** (e.g., "Top 10 Customers").

**5. Final Recommendations**

| **Scenario** | **Action** |
| --- | --- |
| **Reports work in MSSQL only** | Modify SQL to comply with Firebird 3.0+. |
| **Reports fail after FB upgrade** | Add missing GROUP BY columns or dummy GROUP BY 1. |
| **Can’t modify reports** | Stay on **Firebird 2.5** or use **Firebird 2.5-to-3.0 compatibility mode** (if available). |

# How to Find the Embedded Firebird 3.0 DLL for TurboCASH/osFinancials

If you're having trouble locating the **embedded Firebird 3.0 DLL** (needed for TurboCASH/osFinancials), follow these steps:

**1. Official Sources for Firebird 3.0 Embedded**

**A. Download from Firebird Website**

1. Go to: [**Firebird 3.0 Releases**](https://firebirdsql.org/en/firebird-3-0/)
2. Look for:
   * **Firebird-3.0.x.x-embed-Win32.zip** (32-bit)
   * **Firebird-3.0.x.x-embed-x64.zip** (64-bit)
3. Extract fbembed.dll (or fbclient.dll for some versions).

**B. Direct Download Links (Legacy Versions)**

* **Firebird 3.0.11 (Latest stable)**
  + [32-bit](https://github.com/FirebirdSQL/firebird/releases/tag/v3.0.11)
  + [64-bit](https://github.com/FirebirdSQL/firebird/releases/tag/v3.0.11)

**2. Where to Place the DLL for TurboCASH**

1. **Default TurboCASH Directory**:
   * Place fbembed.dll in the same folder as TurboCASH.exe.
   * Example:

C:\Program Files (x86)\TurboCASH\fbembed.dll

1. **Rename if Required**:
   * Some versions of TurboCASH expect **fbclient.dll** instead.
   * Rename fbembed.dll → fbclient.dll if needed.

**3. Troubleshooting Missing DLL Errors**

**A. Error: "fbembed.dll not found"**

* **Solution**:
  + Ensure the DLL is in the **TurboCASH folder** (not just C:\Windows\System32).
  + Check if your TurboCASH is **32-bit** (most common) or **64-bit** (requires matching DLL).

**B. Error: "Invalid Firebird version"**

* **Solution**:
  + TurboCASH may expect **Firebird 2.1/2.5** DLLs.
  + Try using **Firebird 2.5’s fbembed.dll** instead (if compatibility mode fails).

**C. Error: "SQL dialect mismatch"**

* **Solution**:
  + Your database may be **ODS 11.1 (Firebird 2.1)**.
  + Restore a backup in Firebird 3.0 to upgrade ODS to **12.0**.

**4. Alternative: Use Firebird 3.0 SuperServer**

If embedded mode doesn’t work:

1. Install **Firebird 3.0 SuperServer** (full server version).
2. Configure TurboCASH to connect via **localhost:3050**.
3. Set WireCrypt = Disabled in firebird.conf for legacy clients.

**5. Verify Firebird 3.0 Embedded is Working**

1. Open **Command Prompt** in the TurboCASH folder.
2. Run:

sh

fbembed.exe -z # Checks Firebird version

1. If successful, TurboCASH should detect it.

**Final Checklist**

✅ **Downloaded correct fbembed.dll (32/64-bit)**  
✅ **DLL placed in TurboCASH’s install folder**  
✅ **Renamed to fbclient.dll if required**  
✅ **Tested with fbembed.exe -z**