**Server – RAO IGNITION  
Potential DNS for the new VM – CARILAPSQL250001**

**Potential Conflicts Before Starting up Migration with Resolution**

* **License**: From Dresden
* **DNS Name**: If new VM tries to use the same server name (like RAO-SQL) and that name already resolves to the IP of Ignition (10.230.10.11), clients will get confused.
* **Client Still points to old IP Address:** Even if your new VM is running great, Ignition and other apps may still try to talk to 10.230.10.11 unless you update all connection strings. When ready, update Ignition’s DB connection to point to the new VM's IP or hostname.
* **Port Conflicts:** Both servers running SQL on default port 1433 isn’t a problem *unless* they’re trying to use the same IP. Since the IPs are different, this won’t be an issue unless something like port forwarding, or NAT is involved.
* **Ignition Talking to the Wrong DB After Migration:** After you migrate, if you forget to update the connection string in Ignition, it will continue pointing to the old DB on the RAO machine. Now you're running two live SQLs with the same data and any edits made on one will NOT show on the other. So shut down SQL service on RAO (or uninstall it) after verifying the new one works or update the Ignition pointer *immediately* after migration.

**Possible Resolution - 2**

* Run readonly on the old SQL Server (RAO) to make it read-only, or just stop its SQL service.
* Then switch Ignition to the new server.
* Monitor for a few days.
* Decommission old DB once stable.

**Before the Migration**

* Confirm current RAO Ignition SQL version with: SELECT @@VERSION
* Identify size of DB: EXEC sp\_helpdb
* Plan a maintenance window (or do it live)
* Create the new VM (different hostname + IP
* Install same or newer version of SQL Server
* Open firewall for port 1433 (default SQL port)
* Allow mixed mode authentication if needed
* Test basic connection to new VM from your machine using SSMS

**METHOD 1: FULL BACKUP & RESTORE**

**Only if:**

* We can afford 30-60 mins of downtime
* We want a one-time migration, not live sync

**Migration Steps**

**On RAO Ignition:**

sql

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-- Full DB backup

BACKUP DATABASE [YourDB]

TO DISK = 'C:\Backups\YourDB.bak'

WITH FORMAT, INIT, COMPRESSION, STATS = 10;

**Optional** (if want to restore latest changes later):

sql

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-- Transaction Log backup

BACKUP LOG [YourDB]

TO DISK = 'C:\Backups\YourDB\_Log.trn'

WITH NO\_TRUNCATE;

**Copy .bak (and .trn) to New VM**

* Use shared drive, USB, SCP, etc.
* Place in D:\SQLBackups\ (or similar)

**🔹 On New VM:**

sql

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-- Restore DB

RESTORE DATABASE [YourDB]

FROM DISK = 'D:\SQLBackups\YourDB.bak'

WITH MOVE 'YourDB\_Data' TO 'D:\SQLData\YourDB.mdf',

MOVE 'YourDB\_Log' TO 'D:\SQLLogs\YourDB.ldf',

REPLACE, RECOVERY, STATS = 10;

Restore log if used:

sql

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RESTORE LOG [YourDB]

FROM DISK = 'D:\SQLBackups\YourDB\_Log.trn'

WITH RECOVERY;

**Fix logins & connections:**

sql

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-- Fix orphaned users

USE [YourDB]

EXEC sp\_change\_users\_login 'Auto\_Fix', 'YourUser';

Update server identity:

sql

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EXEC sp\_dropserver 'OldServerName';

EXEC sp\_addserver 'NewServerName', 'local';

Run:

sql

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DBCC CHECKDB(); -- Verify integrity

Update Ignition:

* Go to **Gateway → Config → Databases**
* Update the SQL connection to point to the **New VM’s IP**

**Shutdown SQL on RAO**

After verifying everything:

bash

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net stop MSSQLSERVER

Or uninstall it if you're 100% sure.

**METHOD 2: SQL REPLICATION (For Zero Downtime)**

**Only if:**

* We can’t afford any downtime
* We want live data syncing before cutover

**Steps:**

**On RAO Ignition:**

1. Enable **Replication** feature in SQL Server
2. Configure it as a **Publisher**
3. Add **Distributor** (can be same server or another)
4. Choose the DB to replicate
5. Add the new VM as a **Subscriber**

**On New VM:**

* Install SQL
* Set up **Subscription** to pull from publisher
* Let the initial snapshot + live updates sync
* Monitor with Replication Monitor

**The Cutover:**

1. Stop Ignition DB connection temporarily
2. Disable the replication
3. Set new VM as main SQL source
4. Update Ignition to connect to new VM

**Disaster Recovery**

|  |
| --- |
| * SQL restore fails |

|  |  |
| --- | --- |
| Restart SQL on RAO, keep Ignition connected to old IP | |
| * Ignition connection fails after cutover |

|  |  |
| --- | --- |
| Revert DB connection to old IP | |
| * Data loss fear |

|  |  |
| --- | --- |
| Keep old server untouched for a week | |
| * User logins break |

|  |
| --- |
| Re-run sp\_change\_users\_login |
| **Remember**   1. **SQL Logins & Orphaned Users**   When you restore the database, the **logins** on the old server don’t come over — just the database users.  **Result:** Ignition might throw login errors like:  pgsql  CopyEdit  Login failed for user 'IgnitionUser'  **Fix:**   * Manually recreate SQL logins on new VM using the same usernames and passwords. * Run this on each DB:   sql  CopyEdit  USE YourDB  EXEC sp\_change\_users\_login 'Auto\_Fix', 'IgnitionUser'; |

1. **Firewall Rules & Port Blocking**

SQL Server uses port **1433** (default). Your new VM might block it by default.

**Fix:**

* On the new VM, open port 1433 in the Windows firewall.
* Check any external firewall (like your network team might manage).

1. **SQL Server Configuration Mode**

If you're using **SQL authentication** (e.g., sa or custom users), you need **Mixed Mode Authentication** enabled.

**Fix:**

* SQL Server → Right-click → Properties → Security → Ensure **SQL Server and Windows Authentication mode** is selected.

1. **SQL Services Not Auto-Starting**

If the VM restarts, will SQL Server auto-start?

**Fix:**

* Go to Services (services.msc)
* Set SQL Server service to **Automatic**

1. **Ignition Tags, Scripts or Reports Still Hitting the Old DB**

You might update the DB connection, but **some scripts or tags** inside Ignition could be:

* Using older named connections
* Hitting the old DB manually (via tag event scripts or named queries)

**Fix:**

* Do a **full search in Ignition** for the old DB connection name or IP
* Update all affected bindings, named queries, and reports

1. **Performance Differences**

Your new VM may:

* Have different disk speeds
* Lack enough RAM
* Use a different CPU architecture

F**ix:**

* Monitor with Activity Monitor in SQL Server
* Watch Ignition's **Diagnostics → Database Query Performance**
* Tune indexes or queries if needed

1. **SQL Agent Jobs (if used)**

If you had SQL jobs (like backups, ETLs), they **don’t migrate** with the DB.

**Fix:**

* Manually re-create jobs on the new VM

1. **Post-Migration Testing**

You need a **real test plan**:

* Can Ignition read/write tags via DB?
* Can reports generate?
* Are queries returning the same results?
* Do dashboards still load?

**Fix:** Build a post-migration test checklist (I can help make one for your case)

1. **Rollback Plan (Just in Case)**

If the new VM dies during cutover, can you:

* Bring SQL back online on RAO quickly?
* Repoint Ignition back?
* Recover the data from fallback logs?

**Fix:** Keep old SQL alive but read-only until you’ve run production on the new one for a week.

**BONUS: Professional Moves**

* **Create a DNS alias** for SQL like sql.prod.company.local  
  So next time you migrate, you don’t update Ignition — just update the alias.
* **Document everything**  
  So future you (or your team) doesn’t suffer during the next upgrade.
* **Monitor live queries** for the first 3 days  
  So you catch slow queries or weird behavior early.

**What about the server?**

Option 1: Vcenter Converter Standalone

* Install **VMware vCenter Converter Standalone**
* Select **Convert a physical machine**
* Input the RAO IP and credentials
* Destination = our ESXi or VMware Workstation/Player/Pro

Customize:

* Uncheck unnecessary partitions (like OEM or recovery)
* Resize disk if needed

Start conversion

**First Boot on VM:**

* Power on VM but **do NOT connect to the network yet**
* Log in and:
  + Change hostname (temporarily) to avoid name conflict
  + Change static IP to something else temporarily
* Check that all services (SQL, Ignition, etc.) start

**Clean Up:**

* Uninstall hardware-specific drivers/tools (RAID, GPU software)
* Install VMware Tools (or equivalent for Hyper-V)

**5. Cutover Plan**

**Option A: Replace Physical with Virtual (same IP/Name)**

1. Shut down physical RAO
2. Change VM hostname and IP back to original
3. Test internal access: ping RAOIGNITION, Ignition DB connection, etc.
4. Monitor for at least 3 days

Option 2: **New IP/Name (More Controlled)**

1. Leave physical RAO online
2. VM gets new IP & name
3. Update DNS records or connection strings
4. Slowly migrate traffic to new server
5. After 1 week, shut down physical RAO