

✓ Full Documentation: Hosting Grafana with SQL Server Data + Remote Access via ZeroTier

🔧 PART 1: System Requirements

Component	Requirement
OS	Windows 10/11 (or Server)
SQL Database	SQL Server (any version)
Visualization	Grafana OSS (Free)
Networking	ZeroTier (for secure remote access)
Internet	Required for ZeroTier-based remote access

🌿 PART 2: Local System Setup (Main PC)

Step 1: Install SQL Server + Enable TCP/IP

1. Install SQL Server
2. Open SQL Server Configuration Manager
3. Go to SQL Server Network Configuration > Protocols for MSSQLSERVER
 - Enable **TCP/IP**
4. Restart SQL Server Service
5. Allow **SQL TCP Port (default: 1433)** in Firewall

Step 2: Install Grafana

1. Download and install Grafana OSS from: <https://grafana.com/grafana/download>
2. After install, Grafana will auto-run on:
 - `http://localhost:3000`
 - Default Login:
 - Username: admin
 - Password: admin (change on first login)

Step 3: Configure SQL Server Data Source in Grafana

1. Open `http://localhost:3000`
2. Go to "**Connections > Data sources**"
3. Click Add data source → Select **Microsoft SQL Server**
4. Fill the details:
 - Host: `localhost:1433`
 - Database: `Your_DB_Name`
 - Authentication:
 - SQL Login (e.g. `sa, your_user`)
 - Save & Test → Success ✓

Step 4: Create Dashboards

1. Go to **Dashboards > + New Dashboard**
2. Add a **panel** (table/graph)
3. Write SQL queries to show live data

```
sql
CopyEdit
SELECT TOP 100 [DateTime], [Value] FROM [Your_Table] ORDER BY
[DateTime] DESC
```

4. Save the dashboard
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PART 3: Enable Remote Access (via ZeroTier)

Step 1: Install ZeroTier on Both PCs

1. Download: <https://www.zerotier.com/download/>
2. Install ZeroTier on:
 - Main PC (SQL + Grafana)
 - Remote PC (Viewer)

Step 2: Join Same ZeroTier Network

1. Create account at <https://my.zerotier.com>
2. Create a network
3. Copy network ID (e.g. db64858fedc2ede1)
4. On both PCs, run:

```
bash
CopyEdit
zerotier-cli join db64858fedc2ede1
```

5. Approve the devices in ZeroTier dashboard
6. Both PCs will get virtual IPs like 192.168.194.109, 192.168.194.36

Step 3: Allow Grafana & SQL Ports in Firewall

- Allow these **inbound rules** on **Main PC**:
 - TCP 3000 (Grafana)
 - TCP 1433 (SQL Server)
 - Optional: Enable ICMP (ping) for diagnostics
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PART 4: Remote Access & Use

To Open Grafana from Remote PC:

1. On remote PC (connected to same ZeroTier network)
2. Open browser:

```
cpp
CopyEdit
http://192.168.194.109:3000
```

(Replace with Main PC ZeroTier IP)

✓ To Connect Grafana Dashboard to SQL Data:

Grafana already points to local SQL, so dashboard loads as-is.

🛡️ PART 5: User Roles & Security

Add Read-Only User

1. Go to **"Server Admin > Users"**
 2. Add new user (e.g. operator)
 3. Set role as **Viewer** (cannot edit)
 4. Share login with read-only users
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💡 Optional Improvements

Feature	Benefit
Reverse Proxy with Domain Use <code>https://grafana.yoursite.com</code>	
Backup Dashboard JSON	Keep copies of your dashboard layout
Dark Mode / Kiosk Mode	Perfect for display boards
Alerts	Configure email/Slack alerts based on thresholds

🔧 Troubleshooting

Issue	Fix
SQL connection error	Ensure TCP enabled, correct user/pass, port open
Grafana not loading remotely	Ensure port 3000 open, ZeroTier running
ZeroTier not connecting	Restart ZeroTier, ensure network joined & authorized
Slow remote load	Caused by mobile internet latency

📁 Final Folder Suggestions

- Keep logs in: `C:\Grafana\Logs`

- Backup DB queries: C:\Grafana\SQLQueries
 - Dashboard JSON: Export to C:\Grafana\Dashboards
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Summary Checklist

-  SQL Server installed + TCP enabled
-  Grafana installed + working locally
-  SQL Data Source connected in Grafana
-  Dashboard created + working
-  ZeroTier setup on both machines
-  Port 3000 + 1433 open in firewall
-  Remote PC can view Grafana
-  Viewer role created for secure access