



# DATRAN VI Server

## Application Note

DATRAN VI Server

Server Requirements

Revision 2.1



## Introduction

IT systems are constantly evolving to not only provide new features but also provide greater security. QTech have also been working to ensure DATRAN VI keeps up with the times to ensure compatibility with new operating systems and server architectures.

The Base Station serves as the Telemetry SCADA System's central processor. It provides the collection point for data from the RTUs installed on site and traditionally consists of two main components:

- SCADA Software/Server
- Database Software/Server

The DATRAN VI SCADA system uses software to collect, store, display and report real time and historical data. It is important to note that the following components should also be incorporated into a Telemetry SCADA System:

- Configuration Utility  
This software enables the user to directly interact with the RTUs installed on site using the relevant communication medium. From here RTUs can be diagnosed, configured, and controlled
- Graphical User Interface (GUI)  
The GUI provides the ability to visually represent the sites on the Telemetry SCADA System in such a way so that everyone can check a site's status at a glance
- Trending  
Trending is a very important component of a Telemetry SCADA System as it provides the historical data from a site in a graph format making it easier to detect any abnormalities which happened
- Reporting  
A very powerful management tool, reporting is used to document the important information in an understandable, readable format
- Alarming  
Last, but not least is alarming. An effective alarming configuration not only allows for alarms to be displayed and reacted to but will also utilise either emails or SMS's to notify key staff about an alarm condition that exists on site. The ability to escalate the sequence of alarms is also an important factor to consider as this allows for the possibility of the first responder not being able to attend to a critical alarm.

A Server specification, if a Database Server is co-installed with the SCADA Server, should be made based on the Database performance requirements and storage requirements for the organisation as defined by the organisation's IT needs.

Both the DATRAN VI Server and Database Server specification should be kept in mind and whichever is the higher will set the specification. Traditionally, a Database Server will be the higher specification.

The following topics will be covered in this application note:

- Server Architecture

- Hardware Selection
- Operating System
- Memory (RAM)
- Processor
- Storage (HDD)
- Serial Ports/Connectivity
- Databases

## Server Architecture

With the enormous increase in processing performance from modern servers, many IT departments are changing the architecture of their system to include virtual servers and cloud-based servers.

Many customers already have DATRAN VI running on their virtual servers and some are looking at cloud-based options. Whilst the majority of DATRAN VI requirements are fine within a virtual system, there are some aspects that require proper planning prior to migration.

QTech's Technical Support Team are happy to work with your IT department to ensure a clean migration, please contact us with your requirements.

## Hardware Selection

The SCADA server should be regarded as a mission-critical system and as such, QTech strongly recommends that DATRAN VI be run on an industrial grade or enterprise grade server. The server should also be in a secure air-conditioned rack.

Commercial or consumer grade systems are designed to operate 8 hours per day, 5 days per week with a life span of 3 -5 years and running these systems 24/7 will reduce their operating life and increase the risk of failures. Industrial and enterprise grade systems include redundant power supplies and cooling fans, are designed to operate 24/7 with minimal downtime, have electronics that are designed to operate 24/7 for 5 to 7 years, and are backed by proper support.

The CPU selection should be based on the requirements for the operating system, SQL database, and other applications, as DATRAN VI places minimal demand on current processors.

## Operating System

DATRAN VI works on a Microsoft desktop operating system such as Windows XP, Windows 7 and Windows 10, although QTech recommend that for an infrastructure critical application that DATRAN VI should be run on a Microsoft Server platform.

Server platforms are designed to run 24/7 and provide far greater support features including multiple VPN connections which allow for greater remote management.

The Microsoft Server platforms that have been tested and approved with DATRAN VI include Server 2008 R2, Server 2012 and Server 2016. These Server platforms are all 64bit

systems as this provides better memory management for the operating system, SQL database and all applications. DATRAN VI is an efficient, resource light application which remains a 32bit application.

Windows Server 2003 and Windows XP are no longer recommended as Microsoft has ceased support for them.

## Memory (RAM)

More is better and recommended, but all new machines are available with massive amounts. A DATRAN VI Server will need at least 8GB when running Windows 10.

## Processor

DATRAN VI installed on a workstation running Windows 10 should use an Intel Core i5 processor (4 cores as a minimum).

Note that increasing the number of cores enables higher throughput to the central SCADA database in DATRAN VI. For systems with a high number of TCP/IP RTU connections, the more cores the better.

## Hard Drive HDD

Most IT staff now prefer RAID type arrays. When it comes to licensing the DATRAN software, remember this is associated with the hard drive serial number (8 digit hex). In a RAID array we need the “logical drive” details for where DATRAN is installed, typically C drive.

## Serial Ports and Connectivity

Historically, a number of “native” RS232 serial ports was in the machine build. This has become more difficult to achieve and indeed creates a server that is a hardware “orphan”.

Traditionally, most communication mediums require a few RS232 serial ports for connection to communication channels (radio/cellular modem etc) so is likely to be different to other servers in an organisation. Generally, a USB to multi-RS232 port device called a UPort from Moxa is used with new Servers. Pragmatically the Ethernet-to-Serial device is a single critical device, and an onsite spare should be considered.

USB-to-RS232 converters can also be used, but such converters are not appropriate for virtual type environments. If you are considering a virtual environment for the server, Ethernet is the supported option and an Ethernet to multiple RS232 port device is required.

## Databases

DATRAN VI can be used with MSSQL Server Express, but it is not recommended for corporate use. Best practise from a disaster recovery perspective, includes managing the regular back up and archiving of the database and even mount it on a separate, dedicated Database Server.

MSSQL Server specifications are out of scope in this document as they are subject to the data storage requirements of the organisation amongst other things such as the decision to use Standard, Enterprise, or Web editions.

The minimum version recommended for new installations is SQL Server 2016. Memory and storage specifications should be made by your IT department.

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*It is recommended the MSSQL server is installed on a separate machine.*

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## DATRAN Software

DATRAN Software normally installed on a DATRAN VI SCADA Server will be:

- DATRAN VI
- DATRAN Trending
- DATRAN Supervisor
- DATRAN Reporting
- DATRANVue
- DATRANVue Designer (recommend running on a separate PC)
- DATRAN DLP\_IDE (recommend running on a separate PC)

DATRAN VI comes with a number of Services which run in the background. Best way to check which are required for the new Server would be to go into the Services of the current machine and check which DATRAN Services are running.

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*With the latest DATRAN Supervisor and DATRANVue, .NET 4.8 is required on all machines which will use these runtimes (including the Server).*

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## Guidelines:

<https://www.fmsinc.com/microsoftaccess/SQLServerUpsizing/express/index.html>

<https://docs.microsoft.com/en-us/sql/sql-server/editions-and-components-of-sql-server-version-15?view=sql-server-ver15#Cross-BoxScaleLimits>

Also see the following documentation:

- QTech\_SOP-Restarting v1.6



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