

Configuring Local Area Networks, File Servers and SQL Servers to work with the Myriad v4 Family of products from P Squared

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Preface

The following lays out the network requirements to run the Myriad family of products from P Squared. These requirements are based on our long experience of Myriad running on thousands of computers at hundreds of sites around the world.

We have found that in almost every situation where Myriad is not performing smoothly (e.g. random pausing or stuttering on-air even when there is no user actively using the system) then it is down to one or more of the following requirements not being met.

This list is not exhaustive and will be added and updated periodically based on real world results and also our extensive in house testing and private test partners findings.

Although this document is primarily aimed at Myriad v4, most of the requirements are also valid for earlier versions of Myriad as well.

Important: We will ONLY provide support for Myriad if the following “minimum requirements” are met, and no “not supported” criteria exist. Where these requirements are not met, we cannot guarantee Myriad’s performance or stability. We can advise on how to achieve the requirements below, and in many cases we can visit your site and help you meet these requirements but this is determined on a case by case basis.

Peter Jarrett,

Technical Director, P Squared Ltd.

Terms

Minimum Required: These are mandatory and if these criteria are not met then Myriad will not be supported.

Not Supported: If any of these are in place then Myriad will not be supported.

Optionally Supported: Any items listed as optionally supported can be used as long as the criteria specified are met. They are not mandatory

Data Source: A computer that contains shared files used by Myriad – for example AudioWall files, shared Myriad data files, or any SQL Server that is hosting databases used by Myriad such as the P Squared Contacts and Users Database and Myriad Station Databases

Network Switch: The physical device used to connect computers together. These have replaced the older “Network Hubs” that were used in 10mbit networks - though many people use the two terms interchangeably. Almost all modern 100mbit and higher devices are “switches” in that they create a direct route from a source port to a destination port and ‘switch’ the network packets onto that route. Older Network hubs used to send all network packets to all ports and rely on the connected device to discard packets that were not intended for it.

On-Air Network: This is the physical network that broadcast critical computers are connected to – e.g. Broadcast Studios, Production Studios and in many cases ‘Application Workstations’ running support tools such as Myriad OCP

Office Network: This is any other network that may be in use within an organisation. On-Air networks should never be directly linked to Office Networks to ensure network isolation and performance.

Physical Networking

Minimum required:

- **Network speed:** 1Gbit – modern computers and servers can supply data at over 300mbit meaning that a 100mbit network is quickly swamped with data.
- **Network Type:** Physically wired Cat 5 or Cat 6 cabling
- **Network Switch *:** Modern network “switch” – *not* a network “hub”. Ideally this should be unmanaged, although a managed switch is suitable if the management features are disabled or left in the default manufacturer’s configuration.

Our experience has shown to get the best from Managed Network Switches they often require a lot of careful planning and configuration. In many cases it can also require specific configuration to each of the computers connected to it (such as VLAN ID’s etc.). These features add a significant layer of complexity that just isn’t needed. Myriad networks are a lot smaller and more controlled. In fact in most cases we find switching OFF any management features often improves performance due to the difficulty in configuring network interfaces and Managed Network Switches to work optimally with Myriad’s real-time networking requirements.

- **Network isolation:** Separate dedicated network for ‘On-Air’ computers with a direct dedicated connection from the main Server to the “On-Air” network switch.
- **Internet connection:** Although not required, it can be very helpful to allow license renewals as well as access to internet based information such as Wikipedia. If allowed, ensure that a suitable firewall is in place on the internet connection and that a suitable antivirus product is installed on the computer.
- **Other computers/devices:** No other computers should be connected to the “On-Air” broadcast network. Where other computers need to access Myriad data stored on a central file server, the server should have a second Network Interface installed and connected to the “office network” instead. This prevents broadcast messages on the Office LAN from swamping the “On-Air” network.

Not Supported:

- **Wireless networks *:** Although modern wireless networks are very capable, they are congested and - compared to 1Gbit physical networks - slow. Network dropouts also mean these are not supported.

Myriad requires constant connections to both SQL Server and to File Servers, so when a wireless network “drops out” this results in lost data. This can even interfere with other workstations that are physically connected as the dropped connection needs to be recognised and terminated by these servers and this can take a period of time during which other traffic can be delayed whilst the server works out what conflict resolution needs to occur with the lost data. ***Because of these reasons, Myriad is not supported and must not be run on Wireless networks even if these are only used on Office Networks.***

- **Shared Networks:** Every workstation on this LAN segment should be in the same IP Address range – some users attempt to run multiple ‘logical’ networks on a single ‘physical’ network by using different IP ranges on different workstations connected to the same Network Switch.
- **Managed Networks:** Any network management features such as VLANs, Qos, or other priority systems are not supported.
- **Bandwidth Management:** Any tools that are used to shape or manage the bandwidth or data flow between Myriad and it’s data sources are not supported.

Logical Networking Configuration:

Minimum Required:

- **Supported Protocol:** IPv4 only. IPv6 should be disabled.
- **IP Addresses:** Computers that are hosting shared resources (e.g. a computer that contains the audio files or a database) **MUST** have static IP addresses. In simpler networks it is much easier for all computers to have static IP addresses.

Optionally Supported:

- **Name Resolution:** If a working WINS or DNS infrastructure is in place and proven to be highly reliable then this can be used. If not available then all file and data connections should be via IP Address – e.g. <\\192.168.1.1\PSquared\Audiowall>

Server Operating Systems and Configuration

General Information

In smaller Myriad deployments, the audio and data files as well as the SQL Databases are often installed on the main playout computer and then shared to other computers (e.g. Studio 2 or an Administration computer) over the physical network.

Where more than 2 or 3 computers are expected to be accessing the data simultaneously we recommend using a Server to store this data instead. This also gives you a central location that can then be backed-up and maintained separately from the playout computers.

The following is not intended to be definitive list of the requirements for a Server as that is beyond the scope of this document. Instead it is more a list of specific Do's and Don'ts when using a Server.

Minimum required:

- **Operating System:** Windows Server 2008 or Server 2008R2, 2012 or 2012R2.
- **Available Memory:** At least 8GB of RAM.
- **Server Roles:** File and Print Sharing, Routing and Remote Access in LAN Routing mode (to allow network traffic to flow between different subnets)

Not Supported:

- **Windows server 2003 or earlier:** Myriad is only supported on Windows 7, and there are known compatibility issues with name resolution between Windows 7 and Windows Server 2003 (and Windows XP) due to Windows 7/2008 and higher using "Link-Local Multicast Name Resolution" – aka LLMNR.
- **Any other Operating System:** For example Linux, Ubuntu, Mac-OSX etc.
- **Network Attached Storage:** The performance of NAS devices is very variable and can often affect on-air stability
- **Active Directory ('AD'):** Computers running Myriad must not be joined to a Microsoft Active Directory. This is due to the complex requirements enforced by Group Policies and Active Directory Security policies. Experience has shown that often changes are made to AD policies that have well intentioned, but unexpected repercussions to On-Air systems.

Note: In certain *very* specific circumstances we will provide support for Myriad running on computers joined to an AD, but this must be agreed in advance with P Squared and the requirements are very specific and fall outside the scope of this document. This support is not guaranteed and is evaluated on a case by case basis.

- **Active Directory Domain Controllers ('DC'):** Myriad must never be run on a computer that is an Active Directory DC. Myriad must also never be configured to run from data sources that are hosted on a DC. An example of an unsupported configuration is a Windows Server running as a Domain Controller that is also running ('colocated') Microsoft SQL Server hosting Myriad Databases. For information on just some of the issues you may experience please see <http://support.microsoft.com/kb/2032911/en-gb>

SQL Server Requirements:

Minimum Requirements:

- **SQL Version:** Microsoft SQL Server 2008R2 Express or Standard edition or 2012 Express or Standard edition
- **Co-Location:** It is acceptable (and normal!) for SQL Server to be installed on the same computer that is hosting the Myriad Audio and Data files. However, SQL should be the only “server side” application installed on the server – for example you must not install other applications such as email or web server hosting software.

Optionally Supported:

- **SQL Server Standard based Mirroring:** SQL Mirroring is supported, but you *must* ensure that you have configured regular SQL Backups of both the Databases and also the Transaction Logs to prevent excessive Transaction Log growth. You should also configure a weekly maintenance plan to check the database structures and optimise the database’s indexes etc. These plans do not normally affect the performance of Myriad but are usually run overnight at the weekend.
- **SQL Server Database Publisher/Subscribers:** These are complicated to setup and operate, but Myriad is fully supported in this configuration. Due to the complexity involved in running these configuration they must be tested and approved by P Squared before support will be extended to cover this scenario. This configuration falls outside the scope of this document, please contact P Squared to discuss this further.

Not Supported:

- **Microsoft SQL Server 2008 or earlier (e.g. 2005, 2000, MSDE etc.)**
- **Cloud based SQL Server (e.g. Microsoft Azure):** This is not currently supported.