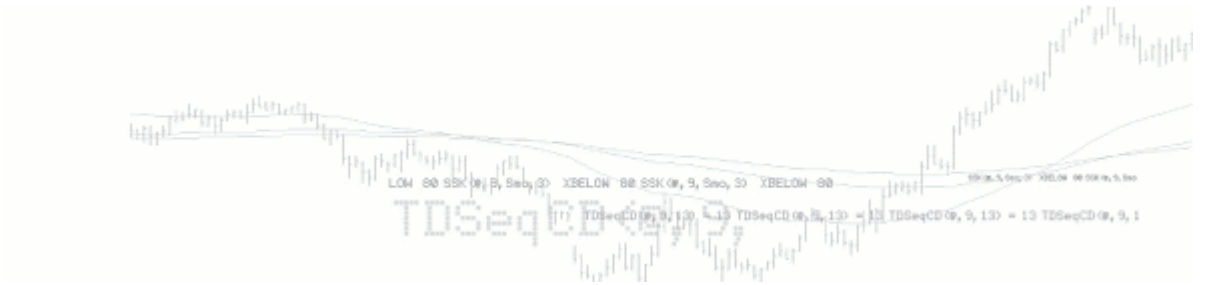

CQG/LAN Technical Specifications

March 12, 2009

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CQG Integrated Client

CQG Integrated Client (CQG IC) is a decision support system designed to meet the needs of the most demanding market professional. With this adaptive, dynamic software package, CQG continues to provide:

- an excellent user interface;
- quality data management;
- outstanding performance;
- reliability; and
- dependable customer support

that has long been CQG's hallmark. CQG LAN client software operates with Windows XP® and Windows Vista® and is available for the networked environment. Windows 2000 is no longer supported.

CQG/LAN

CQG/LAN provides additional levels of flexibility and robustness for CQG IC:

- CQG/LAN can be installed on a network dedicated to CQG or it can operate on a shared network segment.
- CQG/LAN permits each CQG client to log on and off at their convenience.
- CQG/LAN delivers real-time data to each CQG client.
- CQG/LAN permits a CQG client to access the server from a remote location.
- CQG/LAN is architected to support redundant servers. If a single CQG/LAN server fails and an alternate CQG/LAN server is available on the network segment, the CQG client's connection is transferred to the alternate server.

CQG/LAN uses the industry standard TCP/IP-based transport and name resolution services supported by Winsock 1.1. Data delivery is via TCP/IP on an Ethernet network.

CQG/LAN client software consists of 32-bit Windows® applications developed for Intel X86® architecture computers.

About this document

This document provides the information you need to understand computer, system, server, and installation requirements; network communication; bandwidth use; and support of firewalls, proxies, and other software applications.

The most current version of this document is always available at:

http://www.cqg.com/Docs/LANSpecLetter.pdf.

Customer Support

CQG Customer Support is available to help you. Please call us at 1-800-525-1085 or e-mail at websupt@cqg.com.

Computer Specifications

These specifications are appropriate for single and dual monitor set ups. If you have three or four monitors, you will need a higher performance processor, video card, and network connection.

	Required	Recommended
Processor	Dual-Core. Intel Core 2 Duo (2.33GHz or better) suggested.	Quad-core. 8MB L2 cache, 2.4GHz or better, 1066FSB.
Memory	2GB RAM.	2GB DDR2 SDRAM. 4GB for Vista.
Hard Drive	160GB, IDE-100, 7200RPM with 4GB of free hard disk space.	320GB Performance RAID 0 (2 x 160GB WD Raptor SATA 1.5Gb/s 10,000 RPM HDDs) with 6-10GB of free hard drive space. 30%-40% of free disk space is advisable for overall system performance. SCSI encouraged.
Video Card	Dual port graphics adapter with 128Mb of memory, 64Mb per port.	256Mb recommended with 128Mb per port supporting Direct X version 9.x.

Operating System: Beginning with CQG IC 7.8, Windows 2000 is no longer supported. Windows XP Pro® SP2 recommended. Windows Vista® acceptable with modifications.

Internet Access: Internet service via a high-speed connection, such as DSL, cable, or fixed wireless/wireless local loop (WLL). Wireless internet connections not recommended, especially broadband over a wifi card. Dial up not supported.

System Setting Requirements

Hibernate and stand by modes cannot be used on a system running the CQG client.

Hard drive power-saving features should also be disabled.

Bandwidth Utilization

The CQG/LAN product requires approximately 1K bytes/sec sustained and an average 2K bytes/sec of additional bandwidth for burst mode access per user or approximately 0.03% of the 100Mbit Ethernet bandwidth per user.

Because Ethernet performance degrades significantly when the network load exceeds 30%, the number of CQG clients per network segment should be limited to 60, given a normal distribution of quotes-only and technical analysis users. CQG would then consume approximately 2% of the available bandwidth, leaving sufficient reserve capacity for other network functionality.

Task	Duration	Bandwidth Usage
Startup	Short burst < 1 sec	30-50 kbps
	10-15 sec	3-5 kbps avg
Page change uncached, first time viewed	Short burst < 1 sec	5-30 kbps depending on page complexity
Page change cached, already viewed	Short burst < 1 sec	1-3 kbps
Page viewing	As long as page is displayed on screen	1-3 kbps avg sustained
Typical 10-min session including startup, shutdown, and multiple page changes	10 min	2-3 kbps avg

CQG Multiple Monitor Services

If enabled for CQG Dual Monitor Service, Triple Monitor Service, or Quad Monitor Service, a CQG system will start up multiple instances of the CQG application on the client workstation (2, 3, or 4, respectively).

Each additional instance of the application will add an additional amount of bandwidth usage, approximately equal to the figures shown in the above table. For example, a typical 10-minute session on a CQG system enabled for the CQG Triple Monitor Service can be expected to use approximately 6-9 kbps averaged over the 10-minute period.

CQG Market Scan

If enabled for CQG's optional Market Scan Service, a CQG system will utilize additional bandwidth when a scan is being executed. Scans are user-initiated and can run from several seconds to several minutes, over which time they will use an average of approximately 10-50 kbps.

Firewalls and Proxies

CQG/LAN supports the following firewall configurations:

- Network address translation
- Dynamically assigned ports on the client side

Socks 4 and 5 proxies are supported as well as a Winsock redirector, such as Microsoft® Proxy Server 2.0.

Network Communication

Client-to-Server Communication

Use	Protocol	Client Source Port	Server Destination Port
Client/server communication	TCP	System-assigned	2823

- All traffic between CQG clients and servers use the TCP protocol. The UDP protocol is not used.
- All network connections between CQG clients and servers are initiated from the client side. No connections are established by the server.
- Destination port number at the server side is 2823 (CQG's registered port number).
- Source ports at the client side will always be system-assigned port numbers in the 1025-5000 range.

Numbers of Servers Required

CQG requires that a minimum of two servers be installed.

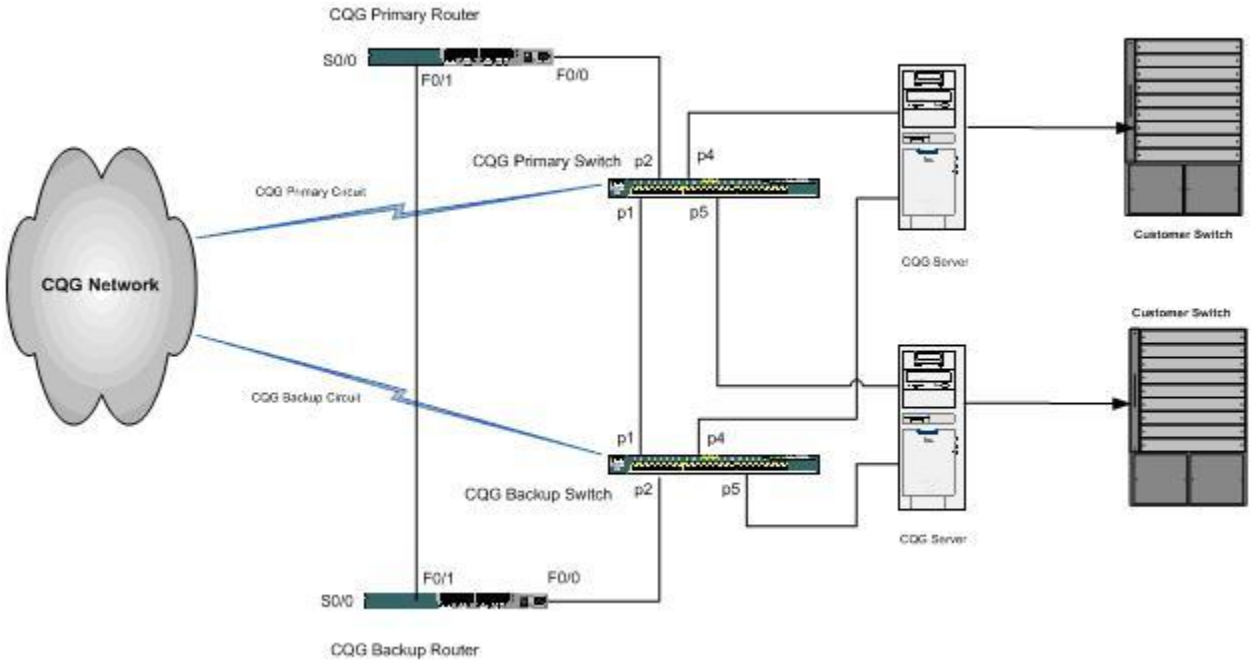
A CQG/LAN installation plan should take into account possible server failure. If it is unacceptable to have any of your users down or at risk because of a server failure, then an additional server is required. We recommend the following redundant installation:

Number of Users	Number of Servers
1 to 60	2
61 to 120	3
121 to 180	4
181 to 240	5
Each additional 60 users	1 additional server

A large percentage of power users can greatly reduce the number of users per server.

Architecture Diagram

Configuration 1



Each CQG Server requires three network interfaces:

NIC 1: CQG Primary Data Feed

NIC 2: CQG Backup Data Feed

NIC 3: Customer Network Connection

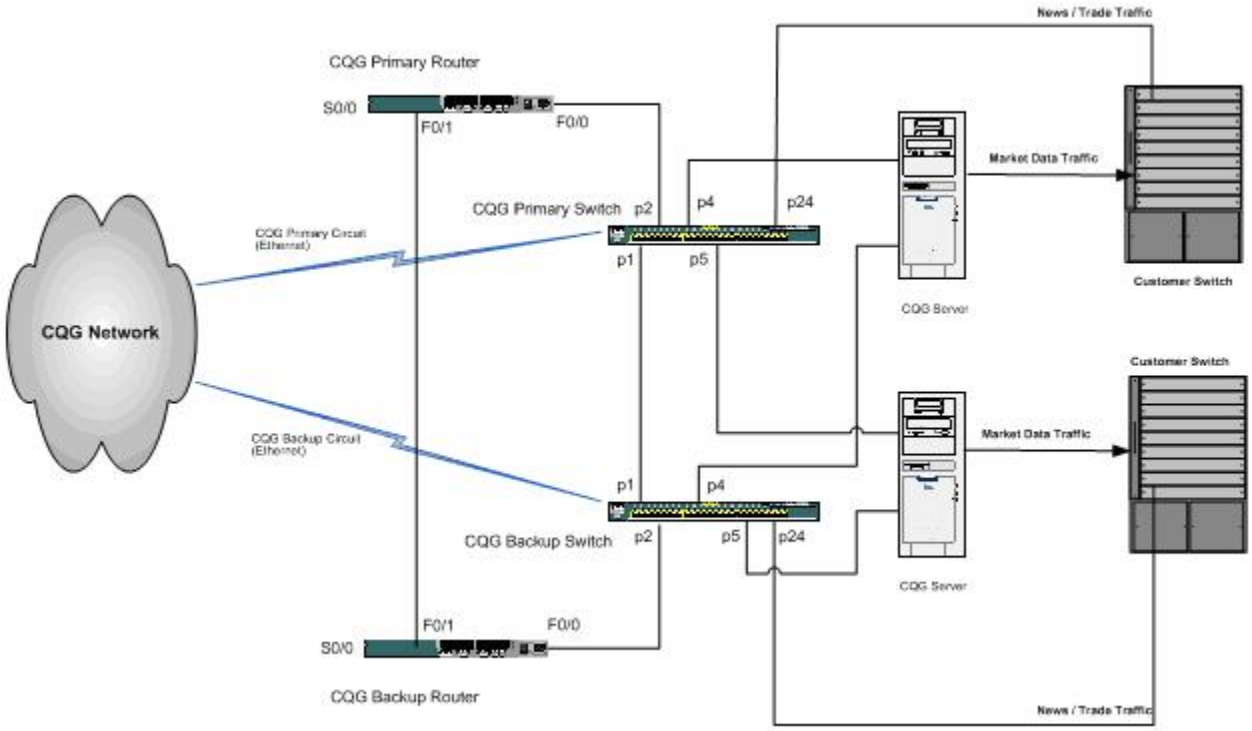
Additional connections:

COM 1: CQG Security Device

COM 2: Router Console Port Connection

Configuration 2

This configuration is for CQG/LAN with added trade routing and news functionality.



Refer to Configuration 2 if electronic trade routing and news are to be deployed for CQG clients.

Six additional IP address will be required for this configuration:

- CQG Primary Interface
- CQG Backup Interface
- CQG HSRP
- CQG News
- Trade routing
- Trade routing

Each CQG Server requires three network interfaces:

NIC 1: CQG Primary Data Feed

NIC 2: CQG Backup Data Feed

NIC 3: Customer Network Connection

Additional connections:

COM 1: CQG Security Device

COM 2: Router Console Port Connection

Server Specifications

The CQG/LAN Server runs on 100% IBM®-compatible hardware that meets the following requirements:

Processor	Intel®-based 3 GHz dual processor is recommended. 2 Ghz dual processor minimum.
Operating System	Windows 2000 Professional Server; Windows 2003 recommended
RAM	2 GB RAM; 3GB recommended.
Hard Drive	SCSI drive with at least 100 GB free space required; 300 GB recommended. After installation of CQG server software, 10 GB of free space is required.
CD-ROM	Quad speed or better
Serial Port 1	A dedicated High Speed Communications Port equipped with 16550A UART. Chip for connection to the CQG SECDEV.
Network adapter 1	Required: Ethernet – 10BaseT for CQG data, primary communication
Network adapter 2	Required: Ethernet – 10BaseT for CQG data backup
Network adapter 3	Required: Ethernet – 100BaseT for CQG server-to-server communications

A minimum of two servers, each with four network adapter cards (NIC), are required in this CQG/LAN environment.

Dealing with Server Failure

CQG/LAN is architected for robustness through symmetrical redundancy. Each server is capable of performing every system function, including acting as the active login server. Failover is automatically triggered when critical inter-server communications are interrupted for longer than the permitted time-outs.

If one CQG/LAN server fails, the CQG client's connection is automatically transferred to another CQG/LAN server, guaranteeing uninterrupted access to market data.

CQG/LAN and Market Data

CQG broadcasts market data to CQG/LAN servers using IP multicast communications over a dedicated leased line.

CQG server software can automatically fail over to a second dataline for market data.

A CQG SECDEV is connected to a CQG/LAN server's serial port for unique server identification.

External IP Traffic

Currently, CQG/LAN does not use external IP connections.

Installation

Because CQG is a real-time, mission-critical application, CQG recommends that CQG software is loaded on a local hard drive and that the working directory be on a local drive as well.

For best performance, CQG recommends against running the CQG client from an application server and setting the working directory to a file server.

IMPORTANT: User permissions on the main CQG folder and all subfolders and files must be set to "Modify" or "Full Control." Installing the CQG client application on a restricted drive and assigning it limited permissions, such as "Read & Execute," will result in problems and may at times prevent the CQG application from functioning at all.

CQG provides for automatically copying user-modified files to a file server for daily backup.

CQG requires the registration of COM and ActiveX® components on the client system.

CQG requires that mdac 2.7 or higher and Microsoft .net framework 2.0 or higher be installed on the client PC.

File Server

A file server is recommended for storing unique configuration information about and for each CQG client.

It is of utmost importance that a routine file backup policy is in place on the file server.

The file server needs to provide access permission for the creation of new private directories for new CQG clients.

Network traffic is negligible. The file server must be accessible on the client side of a firewall.

Entitlements and Permissioning

CQG/LAN entitlement management is carried out remotely by CQG. Each user has a unique set of entitlements that are accurately reflected in CQG's monthly billing. CQG can flag customer accounts to prevent any unauthorized entitlement without proper authorization.

CQG/LAN does not provide on-site entitlement management. CQG/LAN requires network enabled client workstations, network cabling, and other networking hardware be provided by the customer. The customer has the option of supplying the servers or leasing the server equipment through CQG. IP addresses and other information necessary to install servers and workstations must be available at the time of installation.

Data is delivered to each server by a network connection. CQG supplies a security device (SECDEV) for each server which connects to its serial COM port, which allows CQG to manage the services available to each CQG client.

Client Load Leveling

When a CQG client logs on to a CQG/LAN server cluster, the active login server allocates the client to the CQG/LAN data server with the fewest users.

CQG/LAN and Other Applications

The CQG client is DDE-compliant and can provide data to software such as Excel® and Visual Basic®.

CQG does not publish its data feed for general price databasing.

CQG/LAN Server and Other Applications

The CQG/LAN server hardware must be dedicated to operating as CQG/LAN Server. No other applications should be running on this hardware.