

## **Accessing ROLL CALL remotely**

This white paper attempts to give a high level review of the various ways to access Roll Call Client from outside a Churches Local Area Network (LAN).

First, however lets discuss the two ways you can access Roll Call: Standalone or Client/Server. A brief explanation follows:

### **Standalone**

As this implies, installing Roll Call Standalone means that the program resides on a single “Standalone” computer and one person can access the program. The database in this architecture would reside physically on the machine. No network is required or used in this setup. If there is not a network at your church or only one person needs to access Roll Call, then this option is for you.

### **Client/Server**

When you want more than one person to access Roll Call you would install Roll Call in a Client/Server environment. In this environment, Roll Call is made up of a Roll Call Server (RC Server) component and a Roll Call Client (RC Client) component. A network (LAN) is required for this configuration. Typically this is made up of a router (wired or wireless) and two or more machines connected to the router. If you have a large number of machines, a switch might also be part of the configuration. Roll Call does not use file sharing technology. It is a fully functional relational database that uses TCP packets across the network to communicate between the clients and the server to a central database file(s). This means that no file sharing or mapping is required on the network.

The first step would be to decide which machine will house the RC Server software. You would want to install RC Server on a machine that typically isn't being used for anything else as other programs will compete with the database and thus degrade the overall performance of both Roll Call as well as those other programs. Generally, this also includes RC Client software! Now we're not saying that you can't or shouldn't install RC Client on the same machine as RC Server! In fact, you probably should install them both on the server machine so that during upgrades you can connect to the database and complete the upgrade. What we are saying is that if you choose to install RC Server and RC Client on a desktop machine that sees normal day to day use (i.e. email, Office, etc.), you might be disappointed in the performance of everything as this machine is not only responsible with handling the day to day tasks of the person on it, but also the task of everyone connect to RC Server. Keep in mind that most computers are running with a single processor (CPU). The operating system's responsibility is to divide processing time or access to the CPU among all of the programs running on the machine – including portions of the OS itself. RC server handles requests from multiple RC Clients, so the more people

connected, the more it is going to ask the OS for resources to do its work. Normally it would be OK to install Roll Call server on the machine that serves as the File Server. We recommend that the server machine have at least 512Mb of RAM installed. It is even better to install 1Gb of RAM or higher. Remember that memory is cheap (as compared with buying faster hardware) and often is the cheapest way to improving overall system performance – so load up! The operating system is the next choice. On windows, I'd recommend XP Pro or Windows 2000 or 2003 server. XP Home, however will work but it is not preferred for a server.

RC Client would need to be installed on each machine that you want to access Roll Call from.

The discussion from this point on will assume that you are running Roll Call in a Client/Server configuration and want to access Roll Call remotely. By remote, we mean from a computer that is not physically connected to the Churches LAN.

### **IP Addresses**

The first topic to address when dealing with remote access is the issue of IP addresses. On a network, each computer needs to have an IP address that uniquely identifies it from any other computer. If you want to set up a closed network within your Church then all you need is a router, some cables or wireless cards and two or more computers. You can setup the router to dynamically allocate IP addresses to the computers and/or printers on your closed network, or you can give them static IP addresses that won't change. By definition, dynamic IP addresses are those IP addresses that the router determines when a machine is turned on. Fixed IP addresses are addresses that are pre-defined and don't change from connection to connection. This closed network will allow you to easily connect to Roll Call from any computer that is physically connected to this network and has RC Client software installed.

However, lets say you want to access Roll Call from home or while you are on a trip? You can't do it with this closed network. In fact, you can't even access the internet from the computers on the network unless you buy services from an Internet Service Provider (ISP). These providers can be anything from the local phone company providing Dial up or DSL service (using phone lines) to a cable company providing broadband service (using cable lines). We will not deal with Dial up service as this would be an extremely ineffective environment in which to try to connect to Roll Call remotely.

Assuming that you are using DSL or Broadband, most churches would have an arrangement with the ISP for a dynamic IP address. This means that for \$X each month, the ISP will give you access to the internet, but they reserve the right to change the IP address you use at any time. Keep in mind that this is transparent

to you as the router deals with this and also provides you with the most security because bad folks can't hack into your network like they can if you have a fixed IP. Your router is responsible for managing the network traffic both internally and to the outside world.

Some churches opt to go with a fixed IP address. They notify their ISP that they desire a fixed IP address. They have to pay more money for this each month as well as making sure they have someone on staff that can keep their network secure from unwanted access or hackers. A fixed IP address means that anyone in the world can type in the IP address and it will take them directly to the machine. There is no masking going on so you really have to have good security.

Now that you have connectivity to the outside world with your church network the next thing to talk about is how to choose to let the "right" network traffic into your internal network to access Roll Call.

### **Remote Access**

In order to access Roll Call remotely, you must first have an internal network where RC Server is running. That network must also be able to see the "world" by using some ISP service. Additionally, the remote machine must be able to connect into that environment in a secure fashion. We assume that folks can't afford a dedicated phone line into that environment like big corporations, so we won't discuss that option. We will explore some more inexpensive ways to accomplish this connectivity – starting from least expense and moving up.

### **Remote Desktop Software**

The cheapest and easiest way to access Roll Call remotely has got to be by using remote desktop software. Since we are familiar with LogMeIn software, we'll use that for the basis of our discussion. First it should be noted that this option (LogMeIn) is only available under windows. LogMeIn ([www.logmein.com](http://www.logmein.com)) is software that will allow a computer that is in someone's home to access a computer from within the churches network. The first thing this means is that you have to have a computer at the church to access. This also means that you probably want to have the machine in a secured area so that people can't walk by and see any sensitive data being entered on the screen. An example of this would be if you had a computer that you used to access Roll Call at the church. Maybe on the weekends, you want to put the donations into Roll Call but you don't want to have to go into the church office to do it. With this software, you quite literally take control of the machine inside the church from your remote computer. The performance when using a high speed connection on both ends is extremely good. The best part about this software is that the software is free and extremely secure!

To use this approach, you install the software on both the machine at the church as well as the machine at home. You need to leave the computer at church running in order to access it remotely. You bring up a browser on your home computer and establish an encrypted connection to the churches computer. Everything is password protected for security. Once the connection is established, you are looking at the desktop of the computer at the church. When you move your mouse on your home computer, the mouse on the churches computer moves! You can launch RC Client and do your work remotely – even send printouts to your home computer if you want.

Unlike some of the other methods we'll discuss, you can use this option even if you have a dynamic IP address with your ISP and no extra hardware or services are required.

Pros: Highly secure; good performance; ease of installation and use; dynamic IP addresses OK; software is free

Cons: Must have a computer to access; only one person/machine; windows only

### **Port Forwarding**

I'm not sure if this is the correct term for the next option, but I like it as it is descriptive of the process involved. This option requires either a fixed IP address for the churches network, or the use of the services of a company that handles Dynamic DNS access. For the purposes of this discussion, we'll assume that the church is using a dynamic IP address with their ISP. To set this option up, you will need to retain the services of a company like No-IP.com ([www.no-ip.com](http://www.no-ip.com)) or DynDNS ([www.dyndns.com](http://www.dyndns.com)). These companies provide a free service which is called web redirection. They take the information you provide to them regarding your ISP access and will in turn give you a fixed IP address that can be used in your RC Client software. The second part of the equation is that you will need to have the ability to do what is called port forwarding on your router at the church. By default, all Roll Call traffic comes in on port 19813 (this can be changed). The router would be configured to re-route all data that comes in on port 19813 to the internal IP address of the machine where RC Server is running. Once you have this configured and the IP address from one of the companies listed above, you could go into the custom tab of RC Client and enter the IP address with the port of 19813 (i.e. ipaddress-no-ip.com,19813) and the connection would be established. It is important to make sure that you have Roll Call security enabled if you want to use this option so that Roll Call would request a username and password to get in.

Pros: Inexpensive solution web-redirection is free; Secure access since your internal machines are still protected with dynamic IP addresses; Not limited to having a computer in the office to use; simple to use and maintain; Access from anywhere you have an internet connection and RC Client software installed

Cons: No encryption of data transmitted; performance isn't as snappy as in the office, but then again, you can be halfway around the world and still get into Roll Call!

## **VPN**

The last option we'll look at is VPN which stands for Virtual Private Networks. We want to look at several flavors of VPN that are available: Hardware and Software.

### **VPN using Hardware**

This option uses a router to handle VPN connections. You may have a fixed IP address at the church, or use a dynamic IP address with the web-redirection (see discussion above). You need to purchase a VPN router and place it at the church. You will define usernames and passwords in the router that will be used for authentication. Each remote machine will have a VPN client piece of software that will be installed on it. To access Roll Call at the church, you first run the VPN client software and provide the username and password. Once the secure and encrypted connection is established, you then launch RC Client and make your connection to Roll Call. The hardware (VPN router) is responsible for allowing access into the network.

Pros: Secure and encrypted; ~\$200 for router; multiple people can access at the same time

Cons: Bit more to setup and maintain

### **VPN using Software**

This option is broken down by OS software and third party software.

#### **VPN using OS Software**

You can create a VPN environment by using Microsoft Windows 2000 or 2003 server OS software. In fact, it is part of those operating systems. You setup the VPN software and define the users and passwords and the OS manages the connections. Some people may find that the cost of these operating systems makes this option unavailable. I'd suggest you look at

[www.techsoup.com](http://www.techsoup.com) to see if that will work for your church. You will still need a fixed IP address for the churches network or dynamic IP address with web-redirection (see discussion above).

Pros: bundled as part of the OS so you can get support from Microsoft

Cons: cost of OS – unless using techsoup.

#### **Third Party VPN**

Citrix. I'll mention this one for completeness, but I'm not aware of anyone using this in a Roll Call environment. This tends to be a good option if you have

hundreds of users that need to be connected concurrently. It is fast, but expensive.

Hopefully this white paper has provided you with some valuable information on how to get started on using Roll Call remotely. If you are thinking about remote access, going the route of web-redirection is probably the best approach for most as this cuts down on security exposure over a fixed IP. The internet is a valuable place to find out more details on which environment is best for your needs and how to go about setting one up.

You can also contact us at 1.888.846.4664 and we'd be happy to help. We can also put you in contact with other Roll Call users who have set up these environments in their Churches.