



**Tech20040404-1-5**

## Advanced Network Interconnections

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Cellwatch has been designed to integrate into your network easily and securely. There are a number of options that allow remote computers to see data from the Cellwatch iBMU or BMU and these are covered in NDSL Technical Bulletin "Cellwatch Connectivity".

This bulletin discusses the options available to view Cellwatch on an installation of a BMU or iBMU (hereinafter just called a BMU for short) across a network. The main topic is to describe the means by which a user would use Windows XP functionality such as Remote Desktop to connect. However, using Remote Desktop is complex and may require many alterations to be made to the configurations. For this reason alternative methods are discussed.

### Overview

**Easiest:** Use the in-built web server to review the data across the network. This requires little or no configuration.

**Harder:** Use pcAnywhere to view **and control** the Cellwatch system across a network or the Internet. This requires leaving the Cellwatch BMU as a host (it comes pre-installed and running) and a another computer on the network as a remote. Using PCAnywhere, users retain the capability to control the Cellwatch PC from either the host or remote PC during a session.

**Hardest:** Use a function built into Windows XP Pro known as Windows Desktop (or Terminal Services). There are operating system changes necessary for this to occur prior to the release of SP2. This note only now details instructions related to setting up an SP2 computer. Any BMU not updated to SP2 should now updated. Contact your reseller or NDSL for help, advice or service.

All possible solutions are discussed as the reader may wish to consider his requirements carefully in the light of the set up necessary to configure Windows Desktop.

### Web Server Solution.

The easiest solution is to turn on the Cellwatch web server and view the Cellwatch data anywhere on a network by simply typing in the IP address of the Cellwatch BMU on the remote PC Internet browser. This IP address can be obtained on the BMU by typing 'ipconfig' at the command prompt.

As described in Chapter 3 of the Cellwatch software handbook under Drop Down Menus the web interface is turned on by checking the Browser Interface function in the BMS interface menu. This will cause the Cellwatch program to start and run a HTTP (hyper text transfer protocol) server integral to the program that serves a number of web pages from the software.

Providing the network has access to port 80 (the http port) on the Cellwatch BMU any other web browser equipped computer on the network can review the data posted by the Cellwatch system. This is done by typing in the IP address located above into the browser address bar in the format *http://ID address* (for instance *http://192.168.0.11*).

### pcAnywhere Solution.

pcAnywhere from Symantec provides a very convenient, reliable and secure method of connection for any number of people for any number of Cellwatch sites. It employs standard Windows NT/XP security for authentication and across an internal network, permits a remote user to set up a number of Cellwatch site 'screens' on a central monitor providing a powerful remote control tool. Because pcAnywhere employs such good control functionality for a remote computer coupled with security and flexibility, it is hard to exceed the benefits of this solution for internal network remote control.

The Cellwatch system is automatically set up as a host and is best to have a static IP address on the network. An authentication method has already been chosen for the host (but this can be changed if required) and this can include and use in-built NT authentication.

Each monitoring PC should then have a network link created in pcAnywhere "Remote Control" to each and every particular BMU host on the network.

It is relatively easy to use pcAnywhere to control a Cellwatch BMU across the Internet. pcAnywhere uses two ports for communication between the Remote and the Host BMU. Under most circumstances it is necessary to create a route from the public Internet, through the firewall of the site housing the BMU directly to the BMU. This entails three things:

1. Knowing the static IP address of the BMU.
2. Having access to the set-up screen of the Firewall.

The two ports that pcAnywhere use are 5631 (TCP) and 5632 (UDP) and they should be mapped through to the IP address of the BMU (see illustration below).

**LINKSYS** Filters **Forwarding** Dynamic Routing Static Routing DMZ Host MAC Addr. Clone Setup

**PORT RANGE FORWARDING**

Port forwarding can be used to set up public services on your network. When users from the Internet make certain requests on your router, they will be redirected to the specified IP.

Customized Applications		Ext.Port	Protocol TCP	Protocol UDP	IP Address	Enable
		21 To 21	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	192.168.0.5	<input checked="" type="checkbox"/>
		3389 To 3389	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	192.168.0.7	<input checked="" type="checkbox"/>
		1194 To 1194	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	192.168.0.7	<input type="checkbox"/>
		80 To 80	<input checked="" type="checkbox"/>	<input type="checkbox"/>	192.168.0.20	<input checked="" type="checkbox"/>
		65000 To 65535	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	192.168.0.5	<input checked="" type="checkbox"/>
		5631 To 5631	<input checked="" type="checkbox"/>	<input type="checkbox"/>	192.168.0.20	<input checked="" type="checkbox"/>
		5632 To 5632	<input type="checkbox"/>	<input checked="" type="checkbox"/>	192.168.0.20	<input checked="" type="checkbox"/>
		5632 To 5632	<input type="checkbox"/>	<input checked="" type="checkbox"/>	192.168.0.20	<input checked="" type="checkbox"/>
		0 To 0	<input type="checkbox"/>	<input type="checkbox"/>	192.168.0.0	<input type="checkbox"/>
		0 To 0	<input type="checkbox"/>	<input type="checkbox"/>	192.168.0.0	<input type="checkbox"/>

UPnP Forwarding Port Triggering

Apply Cancel

**IP Address of BMU**

### Windows XP Pro Remote Desktop.

Remote Desktop was created to allow out-of-office PC users access to their own PCs from a remote PC. This can be used with Cellwatch without modifications to the Windows XP (Service Pack 2+) operating system.

## Basics.

Firstly we must ensure the integrity of Cellwatch is not harmed by the alterations necessary to make Windows Desktop run. The BMU must boot from a total power fail right through to running Cellwatch at start-up.

In order to use Windows Desktop the BMU running Cellwatch must have a user set up with a password. NDSL ships all BMUs with Cellwatch software installed under the Administrator account **without an apparent login password**.

The Cellwatch software, the computer and the operating system have been configured to allow Cellwatch BMUs to boot into Cellwatch on AC power application in the event that the computer power fails, caused by catastrophic failure of the UPS, followed by the BMU battery (if fitted).

Hence, if the power to the BMU fails and is then restored, Windows returns to its desktop apparently without a log in and Cellwatch starts automatically. In fact the BMU does log-in to an Administrator account (*Cellwatch*) with a password (*cellwatch*). But this is done automatically and silently..

***Note: You cannot have multiple logon names and passwords for you Cellwatch BMU. Interactive logons will close the Cellwatch application.***

The addition of another user with or without a password to your XP Pro will stop Windows XP at a login screen and will require human intervention to get Cellwatch running unless further steps are taken. It will also invalidate any warranty for the system.

## Windows Remote Desktop.

On the BMU, it is possible to connect to the BMU running Windows XP (Service Pack 2 and above) from another computer running either Windows XP or running the Windows Desktop client installed from the Windows XP CD-ROM onto a Windows 98 or ME operating system. This functionality can be found under 'Perform Additional Tasks' on the Microsoft Windows XP CD-ROM.

To view Cellwatch on the remote PC it is essential to log-on as the one and only user on the BMU. Failure to log on as the Cellwatch user will close Cellwatch and discontinue the battery monitoring function.

Once logged on, if a local screen is connected to the BMU, it will no longer show the desktop as this has now been taken over by the Remote User. Only one user at a time may view or control the BMU desktop. If more than one user needs to view the desktop, consider using pcAnywhere.

**NOTE:** You cannot use Windows Remote Desktop with all versions of pcAnywhere running as a host. pcAnywhere replaces the Windows logon utility MSGINA.dll with its own GINA drive called AWGINA.dll. If complications occur with earlier versions of pcAnywhere, in order to remove the PCAnywhere driver simply reboot the Cellwatch BMU with PCAnywhere host disabled.

## Over the Internet?

In a similar manner to pcAnywhere, described above, Remote Desktop connections can be enabled across the Internet.

Simply map port 3389 (TCP) through from the Internet to the static IP address of the BMU requiring the connection. The Firewall IP address should then be used as the "Computer" address in Remote Desktop Connection.

## VERY IMPORTANT

A number of users have experienced significant problems with Cellwatch when they try to create new users on the iBMU and log on as a new user, remotely, using Remote Desktop. As should now be clear from understanding the above information, creating a new user and logging on with that new user will disable Cellwatch. Setting Cellwatch to run under a different user account different to the one originally set up by the manufacturer will disable the auto-start capability of Cellwatch and **voids any warranty**.

**Under no circumstances should the user set up extra users on the Cellwatch BMU and should only log into the BMU using Remote Desktop once the above procedure has been followed.**