



PowerNet Installation and Troubleshooting Guide

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<http://207.241.78.223/isoxpert/calltrak.nsf/WebTracking?OpenForm>

Implementation Process for PowerNet Products

The purpose of this document is to provide our partners, resellers, and end-users with a guide for resolving issues with the installation of a PowerNet Product.

This document provides our partners with a plan for gaining the required information from the customer, preparing operating systems and network environments, installing PowerNet products, and verifying the initial installation.

Connect highly recommends that you stage the system off site or set up as a small private network away from the customer. This will allow you to become familiar with the products and ensure a successful site visit and installation.

In order to stage the system correctly, you will need the equipment and then follow these steps defined on the next three pages. Sample network diagrams are provided in **Appendix Q**.

Connect has a reference manual for each of its PowerNet Products, which contains instructions on installing PowerNet software from CD-ROM or from the Web. This documentation is found at www.connectrf.com under Partner Services.

Customer Requirements and Information Gathering

1. Determine if you will be installing the PowerNet OpenAir server and/or PowerNet Twin Client Telnet/PowerNet AirLinc/PowerNet DataLinc.

Choice: _____

NOTE: DataLinc and AirLinc are dependent on OpenAir Windows and Twin Client.
Twin Client is independent.

2. When installing on Windows 2000, follow the instructions in **Appendix A**. When installing on Windows NT, follow the instructions in **Appendix B**.

NOTE: Make sure that the CRFADMIN virtual drive on which you are installing is the same as the actual CRFADMIN drive/directory. **Appendix P**.

3. For PowerNet Twin Client, gather the following customer information:

- What emulation will they be using?

Select only ONE for Twin Client.

VT100

VT220

3270

5250

- Identify up to ten application target hosts with the emulation available you had selected above.

Appendix C (Must have at least ONE)

- Gather the access point's information per the manufacturer's example for the customer's network.

Appendix D (Must have at least ONE)

- Gather the mobile unit information.

Appendix E (Must have at least ONE)

- Gather the PowerNet OpenAir server information.

Appendix F (Must have at least ONE)

- Gather the PowerNet Twin Client server information.

Appendix G (Must have ONE)

Installation Process

1. If you are using a PowerNet OpenAir Linux server, go ahead and configure it with the above settings you gathered in **Appendix F**. Also, refer to the PowerNet OpenAir Linux manual.

NOTE: If you are not connected to the network, you will need to shutdown the server and cable to the network, and then turn on the server. This is a result of the NIC adapter not sensing the cable attachment. It disables itself when the power is turned on and the cable is not attached to the network.

2. Configure the access points according to **Appendix D**.
3. Install PowerNet Twin Client manager on the permanent designated server using the information you gathered in **Appendix G**. Also, refer to the PowerNet Twin Client manual for your terminal. Each manufacturer utilizes different flash memory technology that requires proprietary loading methods found in the terminal-specific PowerNet Twin Client manuals. These manuals can be found at www.connectrf.com/Resources/service/p_release.htm or at the website of our specific OEM partners.
4. Configure your mobile units using the instructions found in the PowerNet Twin Client manual and the information you gathered in **Appendix E**.

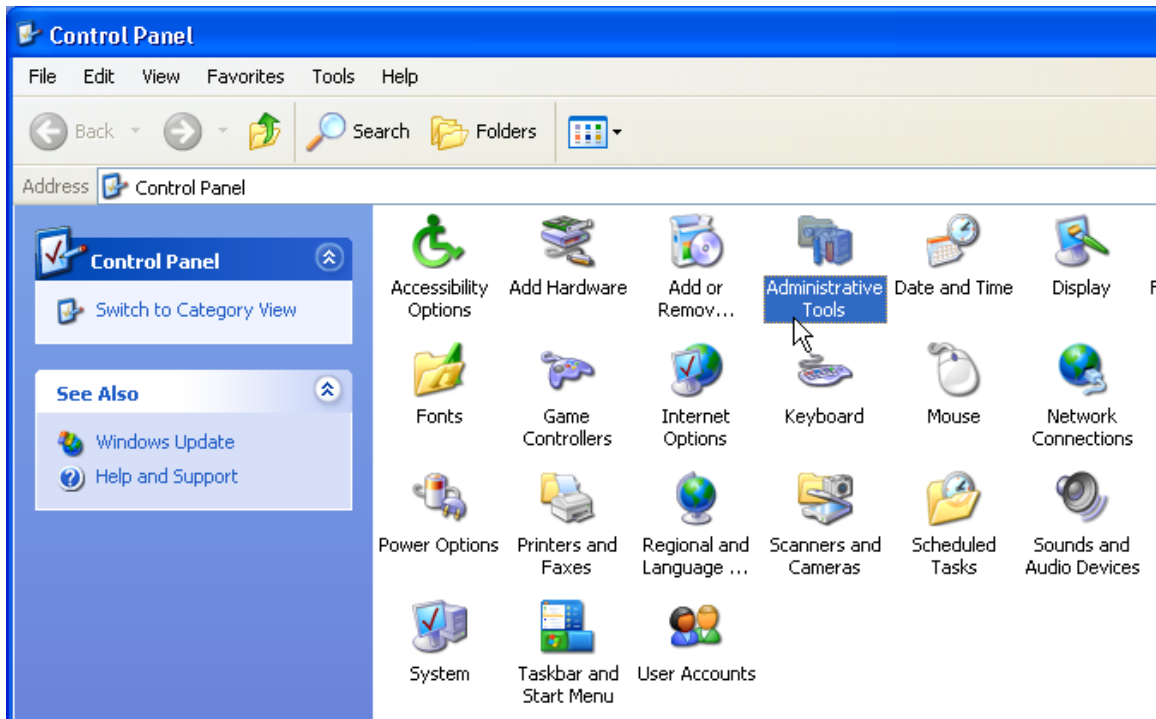
Verification of the Installation

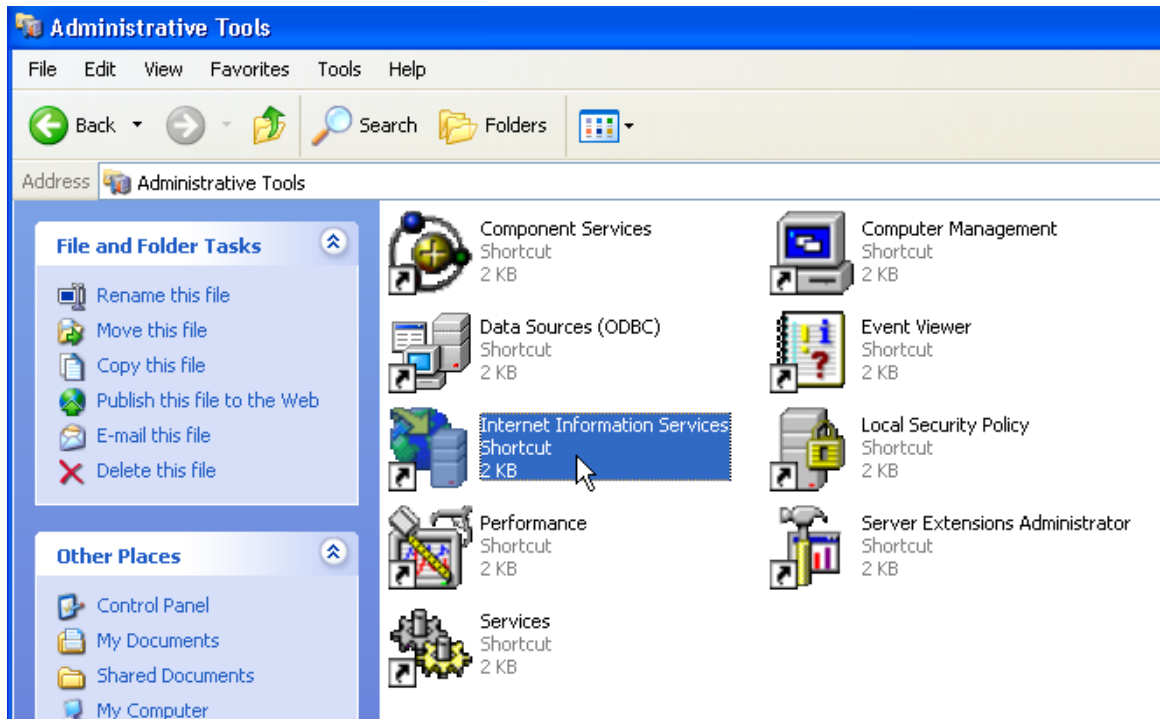
From the PowerNet Twin Client server, open a MS-DOS window, and follow the steps below.

1. Ping the router IP gathered in **Appendix D**.
 - If it does not work, verify the parameters with the customer and make the necessary changes in all the preceding steps.
2. Ping all host IPs gathered in **Appendix C**.
 - If they do not ping, the customer should verify that the router is not blocking them and that the correct Host IP addresses are identified.
3. Ping all access point IPs gathered in **Appendix D**.
 - If they do not ping, the customer should verify that the router is not blocking them and that the correct access point IP addresses are identified.
4. Ping all mobile unit IPs gathered in **Appendix E**.
 - If they do not ping, make sure the terminal is powered up and is not sleeping. Otherwise, the customer should verify that the router is not blocking them and that the correct Mobile unit IP addresses are identified.
5. If everything is set up and the pings are successful, you should be able to connect the mobile unit terminal to the Telnet application host (Sign On Display) or to the PowerNet OpenAir server and see a menu of handler choices displayed.

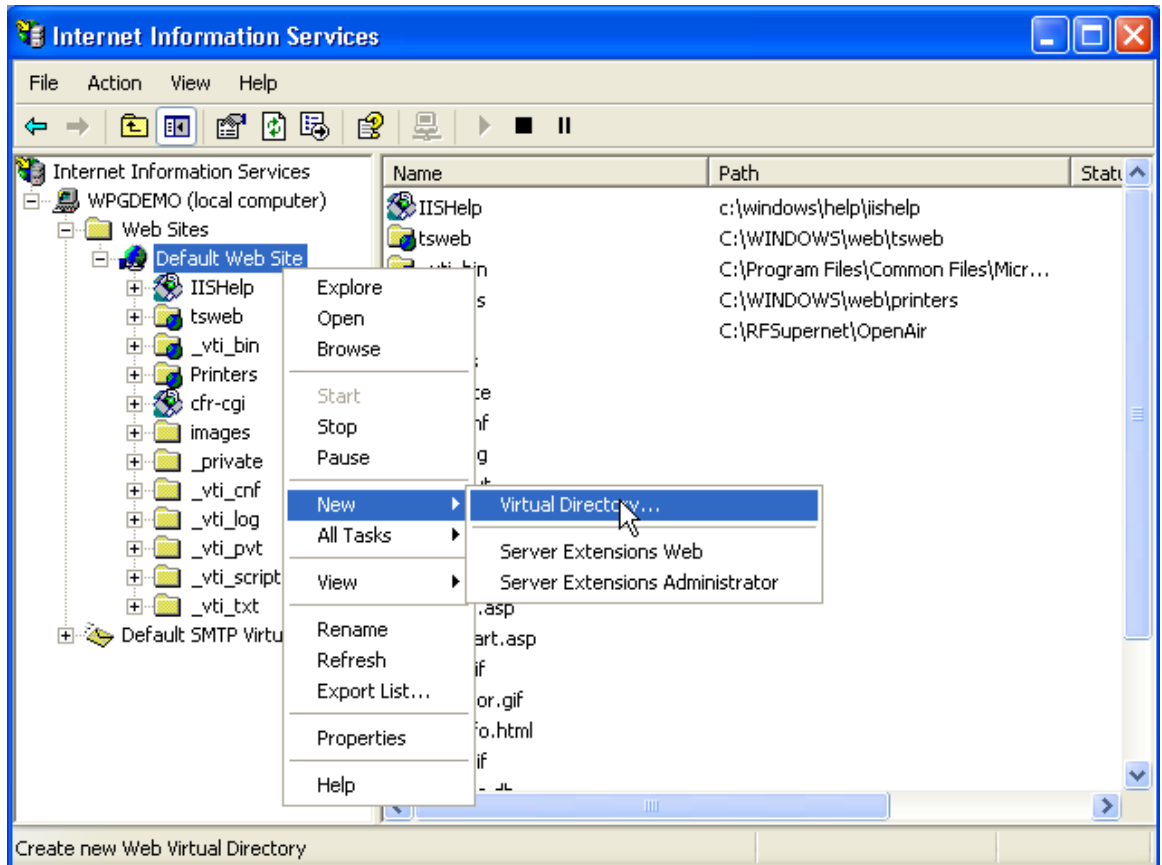
XP Soft NCU Installation

- Go to Control Panel and make sure that IIS is an installed component.
- Go to Control Panel/Administrative Tools.





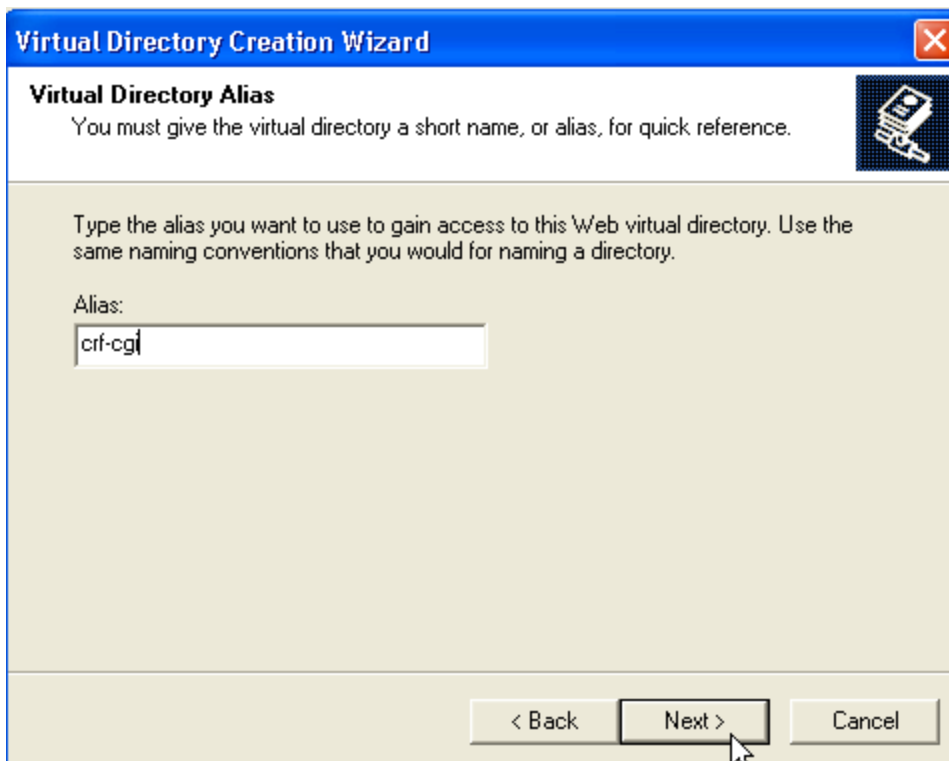
Click on Internet Information Services Shortcut.



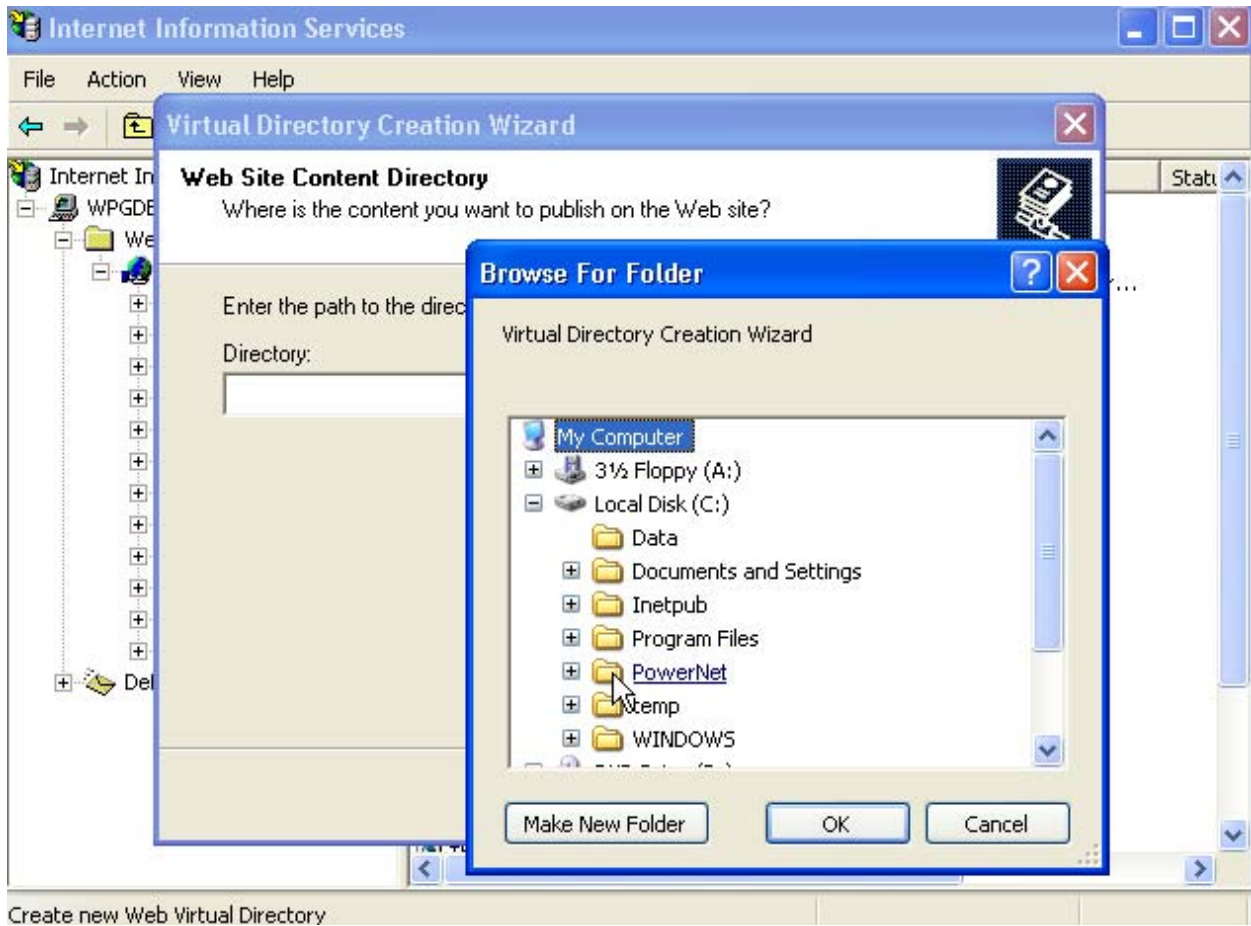
Click on The Default Web Site. Right Click and select New/ Virtual Directory.



Click Next to continue.

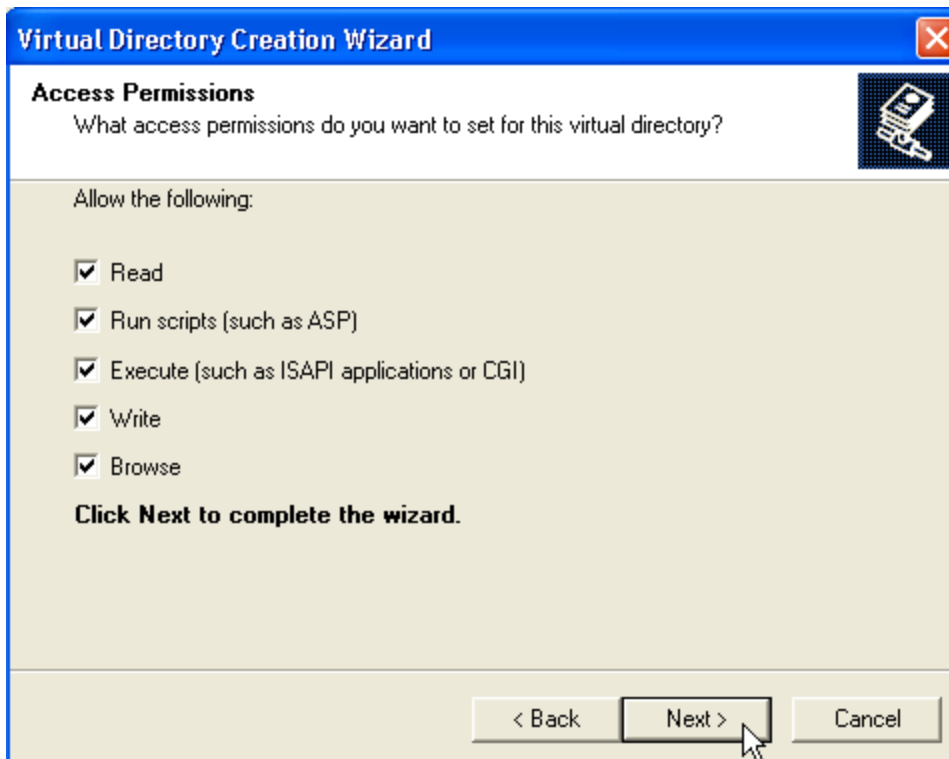


Type in crf-cgi as the alias.



When you are prompted for directory, click the Browse button. Point to the PowerNet Folder and within that folder, OpenAir. Then click Open. Then click Next.

NOTE: You must create a virtual directory for CRFADMIN as well as for CRFCGI.



Make sure all the option boxes are checked off. Then click <Next>.

You will get a warning that to check off all the actions is dangerous but since the app is being used internally, you can ignore the warning.

Now, go to Programs/PowerNet/OpenAirAdministrator.

The page will appear as "Page not Found".

Type in the http address as follows: <http://127.0.0.1/crf-cgi/mainmenu.exe?p%20pcp.cf>

NOTE: Windows IIS authentication on a stand-alone host does not work correctly with the loopback address (127.0.0.1), but does work correctly with the hostname "localhost".

The OpenAir Administrator page will now appear.

Appendix A.

Preparing Windows 2000 for PowerNet

Why do you need to prepare Windows 2000?

Windows 2000 modified the Windows NT operating system parameters. As a result, applications that ran under Windows NT may not necessarily run under Windows 2000.

In addition, Windows 2000 supports a Telnet server, with its' own limitations.

Who should apply these changes?

Your Microsoft Certified System Administrator should apply these changes.

Where should these changes be applied?

These changes should be applied on the system identified to run the PowerNet software.

When should the changes be applied?

These changes should be applied during a period of inactivity. This is required so that your system administrator can restart the server at the hardware level through a power cycle.

How should these changes be applied?

These changes should be applied by following the steps defined on the next page.

Steps Required to Implement the Changes

In order to complete these changes, you **MUST** be logged in as the administrator of the system, not as a user with administrator rights!

Fill in the blanks and check off each step when completed.

1. Identify your Microsoft Certified System Administrator.
Name _____ **Certification number** _____.
2. Identify your local system password for top-level access.
Password _____.
3. Complete **Appendix H: Non-interactive Applications User Interface**.
4. If you intend to connect to Windows 2000 while running Telnet, complete **Appendix I: Windows 2000 Telnet Interface**.
5. Install PowerNet OpenAir without IIS or install a turnkey solution without a user interface to the product, and complete **Appendix J: Installing PowerNet OpenAir Without IIS**.
If this step is performed, **skip to step 9**. If you do not wish to perform this step, **proceed to step 6**.
6. Complete **Appendix K: Install IIS or Microsoft Peer WEB Services**. This is required to administer the system.
7. If you have installed IIS or Microsoft Peer WEB services, complete **Appendix L: Windows 2000 Permission Issues**.
8. Reboot the Windows 2000 server.
9. Install the PowerNet OpenAir Windows product. Please refer to the PowerNet OpenAir Windows reference manual for specific installation instructions. This can be found on the WEB at www.connectrf.com under Partner Services or from your specific OEM.
10. Reboot the Windows 2000 server and configure your PowerNet product, referring once again to the PowerNet OpenAir Windows manual.
11. If you encounter Windows 2000 (SERVER/NTFS) errors on starting PowerNet or if you encounter CGI script errors with the browser, complete **Appendix N: Windows 2000 (SERVER/NTFS)**.

Appendix B.

Preparing Windows NT for PowerNet

Why you need to prepare Windows NT?

Due to Windows NT operating system parameters, applications that run under Windows NT may not necessarily run under Windows 2000.

In addition, Windows NT does not support a Telnet server.

Who should apply these changes?

Your Microsoft Certified System Administrator should apply these changes.

Where should these changes be applied?

These changes should be applied on the system identified to run the PowerNet software.

When should the changes be applied?

These changes should be applied during a period of inactivity. This is required so that your system administrator can restart the server at the hardware level through a power cycle.

How should these changes be applied?

These changes should be applied by following the steps defined on the next page.

Steps Required to Implement the Changes

In order to complete these changes, you **MUST** be logged in as the administrator of the system, not as a user with administrator rights!

Fill in the blanks and check off each step when completed.

1. Identify your Microsoft Certified System Administrator.
Name _____ **Certification number** _____.
2. Identify your local system password for top-level access.
Password _____.
Complete **Appendix H: Non-interactive Applications User Interface**.
3. Install PowerNet OpenAir without IIS or install a turnkey solution without a user interface to the product, and complete **Appendix J: Installing PowerNet OpenAir Without IIS**.
If this step is performed, **skip to step 8**. If you do not wish to perform this step, **proceed to step 4**.
4. Complete **Appendix K: Install IIS or Microsoft Peer WEB Services**. This is required to administer the system.
5. If you have installed IIS or Microsoft Peer WEB services, complete **Appendix M: Windows NT Permission Issues**.
6. Reboot the Windows NT server.
7. Install the PowerNet product. Please refer to the PowerNet OpenAir Windows reference manual for specific installation instructions. This can be found on the WEB at www.connectrf.com under Partner Services or from your specific OEM.
8. Reboot the Windows NT server and configure your PowerNet products referring once again to the PowerNet OpenAir Windows manual.
9. If you encounter the following errors, Windows NT (SERVER/NTFS) errors on starting PowerNet or CGI script errors with the browser, complete **Appendix O: Windows NT (SERVER/NTFS)**.
10. If you encounter error 1067, "starting the server for APBASE", complete **Appendix P: Error 1067; Starting Apbase**.

Appendix C. Application Target Hosts

Name	IP Address	IP Telnet Port (23)

Appendix D.

Information on Access Points

Gather the access point's information per the access point manufacturer's example for the customer's network.

For each access point, find:

1. the Name or Location of the access point
2. the IP Address of the access point
3. the Netmask for the access point
4. the Router for the access point if required to get to the target application Host(s) or PowerNet OpenAir server
5. the Security settings for the radio network, and
6. the Radio settings.

NOTE: You must enable SNMP and allow read/write access for Access points to be seen by the PowerNet OpenAir server.

Make sure that filtering allows for ARPs and that ports 1800-1802 are open.

Set all applicable radio settings for the radios used.
(Refer to the radio manufacturer's guide for the required information to gather.)

Use additional sheets of paper as necessary.

Configuring one access point initially is recommended, as this will provide you with a sample for the remainder of the access points for the site.

NOTE: Terminal radio settings should match access point settings. While 802.11 is a standard for interoperability, it is implemented by each terminal and access point manufacturer in a unique and proprietary manner. If you are using different radios in the terminals and access points, contact the terminal and access point manufacturer for the correct settings.

Appendix E.

Mobile Unit Information

Gather the mobile unit information per the terminal and radio manufacturer's example for the customer's network.

For each mobile unit, find:

1. the IP address of the mobile unit
2. the Netmask for the mobile unit
3. the Router for the mobile unit if required to get to the target application Host(s) or PowerNet OpenAir server
4. the Security settings for the radio network, and
5. the Radio settings.

Set all applicable radio settings for the radios used.
(Refer to the radio manufacturer's guide for the required information to gather.)

Use additional sheets of paper as necessary.

Configuring one mobile unit initially is recommended, as this will provide you with a sample for the remainder of the mobile units for the site.

NOTE: Terminal radio settings should match access point settings. While 802.11 is a standard for interoperability, it is implemented by each terminal and access point manufacturer in a unique and proprietary manner. If you are using different radios in the terminals and access points, contact the terminal and access point manufacturer for the correct settings.

Appendix F.

PowerNet OpenAir Server Information

Gather the PowerNet OpenAir server information.

IP Address	Netmask	Router

Appendix G.

PowerNet Twin Client Server Information

Gather the PowerNet Twin Client server information.
(Must have ONE)

(Using a separate table on its own sheet of paper is suggested.)

IP address	Netmask	Router

Appendix H.

Non-Interactive Applications User Interface

PROBLEM DESCRIPTION

Windows NT and 2000 have a setting buried in the registry that controls how much memory is available to non-interactive applications for user interface components like windows and menus. Non-interactive applications are programs that start as services and don't have the "Interact with desktop" option selected. Apbase is a non-interactive application in this sense. Since Apbase kicks off VTERM, which in turn kicks off AirLinc, they all are PowerNet non-interactive applications.

Here's the catch; Windows NT defaulted the amount of memory for these components (known as the desktop heap) to 3 MB. Windows 2000 defaulted it to 512 KB. That is why we have the problem on 2000, but not on NT. If you raise the value in the registry on 2000, everything works fine.

SOLUTION

To change the value, run **regedit** and open the following key (folder):
HKEY_LOCAL_MACHINE\System\CurrentControlSet\Control\SessionManager\SubSystems.
Edit the value of the field called "**Windows**". It contains a bunch of values strung together. Near the beginning you should see one that looks like "**SharedSection=1024,3097,512,512**". The third value (512) is the one we need to increase. Use the value of 3097. It should now read: "**SharedSection=1024,3097,3097,512**".

NOTE: You may see different values in the other positions of SharedSection, and there may not be a forth value. However, it is the 3rd value we need to change. Do not be concerned if the other values are different from our example.

After making the change, you need to reboot.

An upper limit may exist. Contact Microsoft for a description of what that may be and how it affects memory utilization under its operating systems.

Appendix I.

Windows 2000 Telnet Interface

INTRODUCTION

The following are instructions for configuring the Telnet server under Windows 2000 for PowerNet.

PROBLEM DESCRIPTION

The terminal does not communicate with Windows 2000 Telnet server.

SOLUTION

1. Select **Start, Control Panel, Administrative Tools, and Telnet Server Administration.**
2. This brings up the **Telnet Server Administration** dialog window. Select **3** to change the registry settings.
3. Now select the **NTLM (NT LAN Manager)** menu item **(7)**.
4. Change the setting to **1** and save it.
5. Now **Stop (4)** the Windows Telnet service.
6. Then **Start (5)** the Windows Telnet service.

Appendix J.

Installing PowerNet OpenAir Without IIS

This procedure details how to install our Windows NT/2000 product when Microsoft's IIS or Peer-to-Peer WEB services are not installed. This is used for producing turnkey systems.

1. Order and install the products on a lab development system that has IIS or Peer WEB services loaded.
2. Refer to the Windows setup options in the beginning of this document.
3. Create and test your turnkey settings in the lab.
4. On the turnkey system, edit the registry, and add the following registry path/folder:
"HKLM\SYSTEM\CurrentControlSet\Services\W3SVC\Parameters\Virtual Roots"
Add a field in the Virtual Roots folder called "/". The value of the field should be "**c:\temp,,1**"
5. Run the standard install.
6. Reboot the system.
7. Copy the directory from the lab machine to the turnkey machine.
8. Get the machine ID by typing DIR at the DOS prompt.
9. Obtain the authorization code from Connect and add it to the AUTHORIZE file in the PowerNet directory.
10. Stop and Start APBASE using the services menu, and verify that you can connect to the host with a RF terminal.

Appendix K.

Install IIS or Microsoft Peer WEB Services

INTRODUCTION

The OpenAir PowerNet Windows server is dependent on Microsoft Internet Information Server or Peer Web Server for managing the software interface via a WEB Browser.

BACKGROUND

You must be the administrator to install these products. If not, you may run into security issues within Windows.

In order to manage the OpenAir PowerNet server via a WEB interface, you must have Microsoft IIS installed prior to installation of PowerNet OpenAir server on a Windows server.

Please refer to Microsoft's procedures for installing their products.

http://support.microsoft.com/support/IIS/Install/install_iis4.asp?LN=EN-U

S&SD=gn&FR=0

- Updated: July 22, 2000

RESOLUTION

In order to install either Microsoft IIS or Peer Web Server, the registry key, "HKEY_LOCAL_MACHINE/SYSTEM/CURRENT CONTROL SET/SERVICES/W3SVC" must be deleted.

Appendix L.

Windows 2000 Permission Issues

INTRODUCTION

The PowerNet OpenAir Windows product has a browser Interface. It will launch the default WEB browser to run the PowerNet OpenAir Administrator.

There have been problems where the browser lacks full permission to access files and/or services under Windows 2000.

This can cause a variety of errors, including:

- 1) the inability to run PowerNet OpenAir administrator from the browser. (Windows 2000 will fail with an "Unable to access" message.)
- 2) the inability to enter an authorization code. (Windows 2000 will produce a message of "Invalid Code" when in fact, it is fine.)
- 3) the inability to setup local TCP/IP address. (Windows 2000 will produce a message about the inability to move the "host file".)

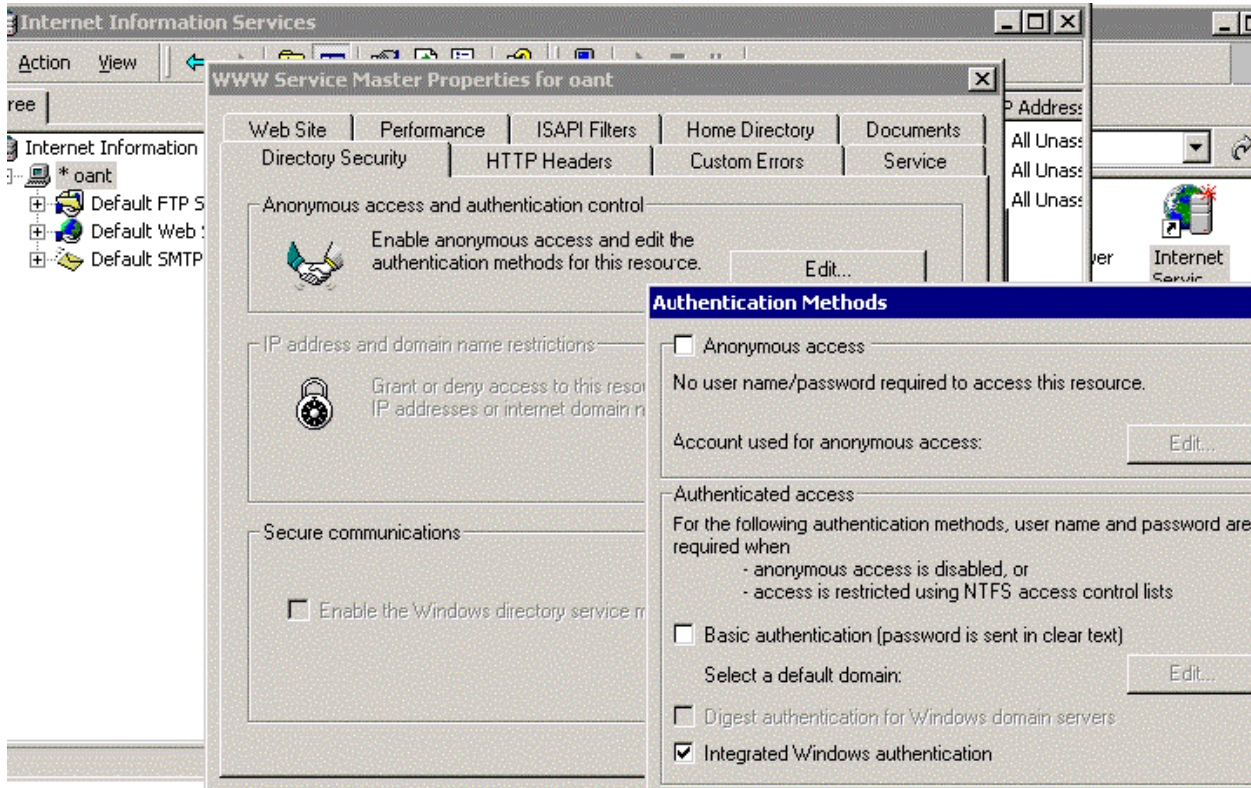
SOLUTION

Turn off Anonymous Access for the WEB server. Choose either IIS or Peer-to-Peer.

When you run the PowerNet OpenAir administrator, it will ask for User ID and Password. If you use the administrator password, all functions will work.

NOTE: The screen shot below is from the WEB setup under Windows 2000.
It is found under Control Panel/Administrative tools/Internet Information Services/
WWW Service Master Properties/Authentication Methods.

Windows 2000 Screen Shot:



Appendix M.

Windows NT Permission Issues

INTRODUCTION

The PowerNet OpenAir Windows product has a browser Interface. It will launch the default WEB browser to run the PowerNet OpenAir administrator.

There have been problems where the browser lacks full permission to access files and/or services under WIN NT.

This can cause a variety of errors, including:

- 1) the inability to run PowerNet OpenAir administrator from the browser. (Windows 2000 will fail with an "Unable to access" message.)
- 2) the inability to enter an authorization code. (Windows 2000 will produce a message of "Invalid Code" when in fact, it is fine.)
- 3) the inability to setup local TCP/IP address. (Windows 2000 will produce a message about the inability to move the "host file".)

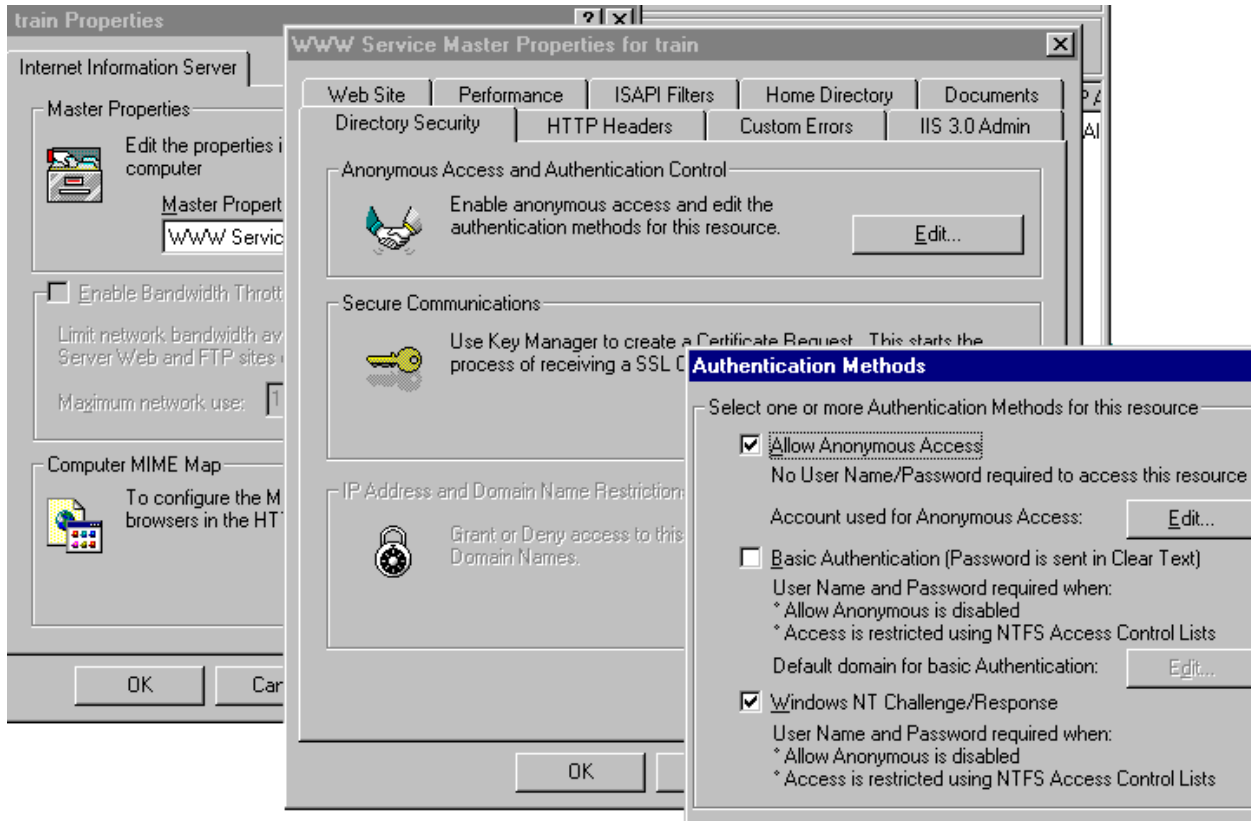
SOLUTION

Turn off Anonymous Access for the WEB server. Choose either IIS or Peer-to-Peer.

When you run the PowerNet OpenAir administrator, it will ask for User ID and Password. If you use the administrator password, all functions will work.

NOTE: The screen shot below is from the WEB setup under Windows NT.

Windows NT Screen Shot:



Appendix N.

Windows 2000 (SERVER/NTFS)

INTRODUCTION

Windows 2000 errors occur when starting PowerNet. In addition, there are CGI script errors with the browser.

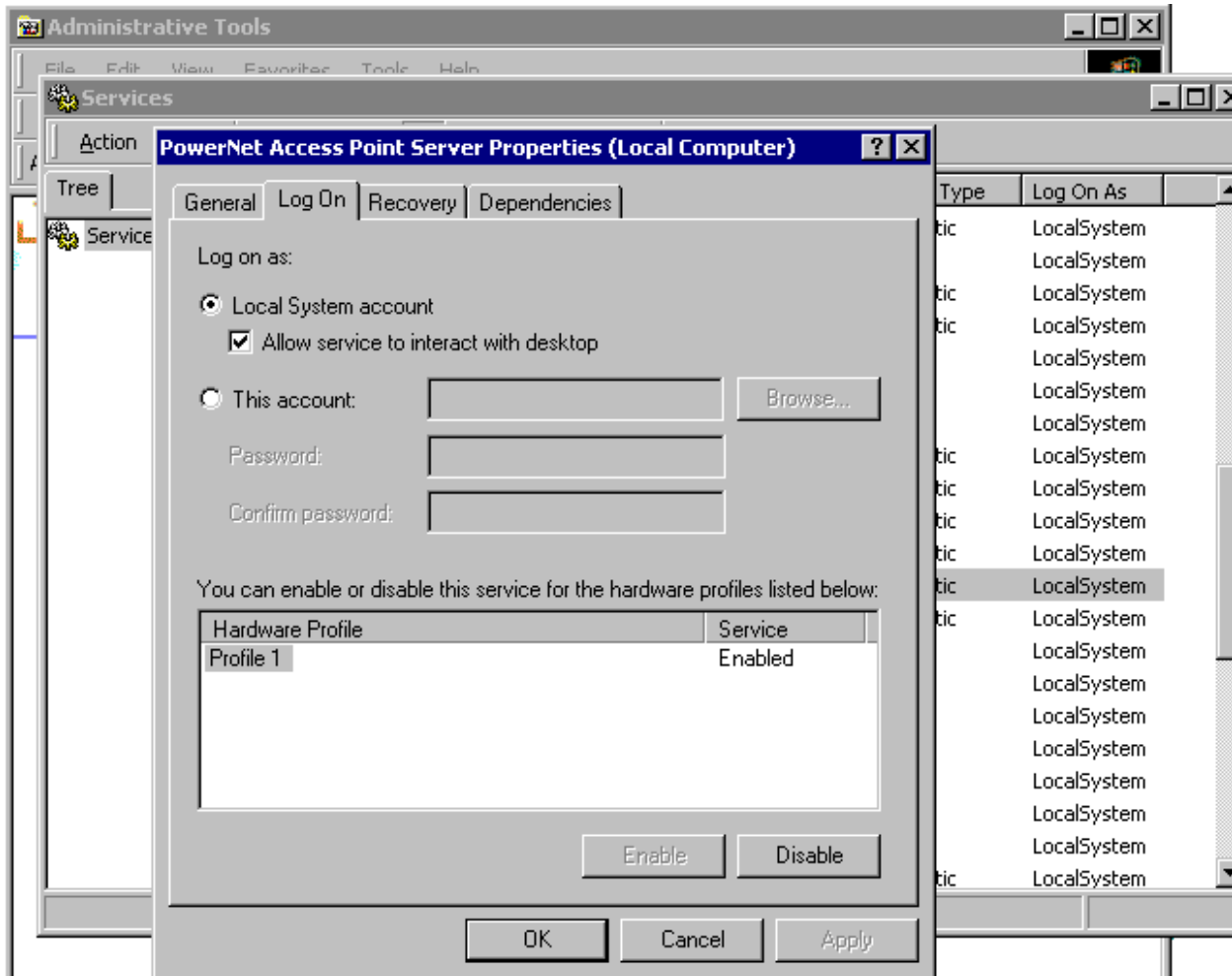
PROBLEM DESCRIPTION

PowerNet does not start on Windows 2000, and you receive CGI script errors when using the browser to administer PowerNet. A Windows error box appears with the following message: "**Apbase.exe application error. The application failed to initialize properly. 0xc0000142. Click OK to terminate the app.**" The problem could also be due to the remotesm.exe and S1base.exe files.

SOLUTION

As the root user on the 2000 console, select **Start, Programs, Administrative Tools, and Services**. Stop all PowerNet processes. Right click each process, select the **Log On** tab, and make sure you have selected both **Local System Account** and **Allow Service to Interact with Desktop**.

Screen Shot:



Appendix O.

Windows NT (SERVER/NTFS)

INTRODUCTION

Windows NT errors occur when starting PowerNet. In addition, there are CGI script errors with the browser.

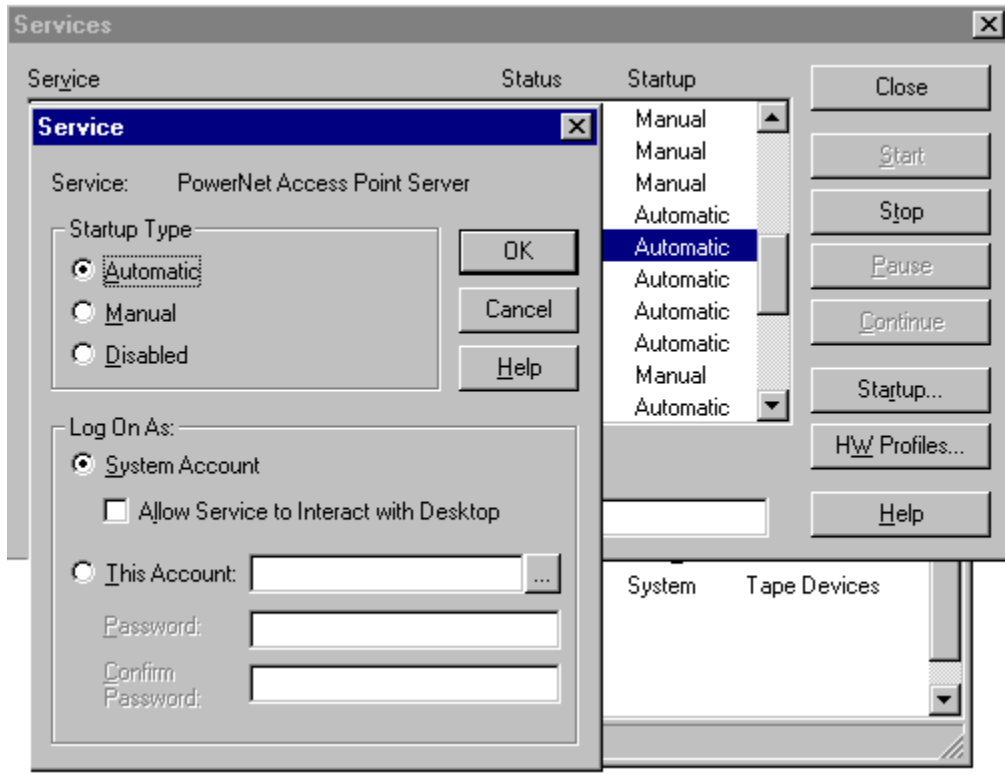
PROBLEM DESCRIPTION

PowerNet does not start on Windows NT, and you receive CGI script errors when using the browser to administer PowerNet. A Windows error box appears with the following message: "**Apbase.exe application error. The application failed to initialize properly. 0xc0000142. Click OK to terminate the app.**" The problem could also be due to the remotesmi.exe and S1base.exe files.

SOLUTION

As the root user on the NT console, select **Start, Control Panel, Administrative Tools, and Services**. Stop all PowerNet processes. Right click each process, select the **Log On** tab, and make sure you have selected both **Local System Account** and **Allow Service to Interact with Desktop**.

Screen Shot:



Appendix P.

Error 1067; Starting Aibase

Problem

I received system error 1067 trying to start the PowerNet Access Point, Remote Access, or Spectrum One service program as a Windows NT Service.

Error 1067 occurs under the following circumstances:

The user ID and password and the PowerNet Access Point, Remote Access, or Spectrum One service program do not have access to the system account.

The PowerNet Access Point, Remote Access, or Spectrum One service program has been set up to run as a service owned by a user who does not have access to run under the system account.

This typically happens if the PowerNet Access Point, Remote Access, or Spectrum One service programs are physically located on a different machine, and a user who does not have access under the system account sets the service.

Since the system account is unique on every machine, PowerNet Access Point, Remote Access, and Spectrum One service programs must be installed under the system account.

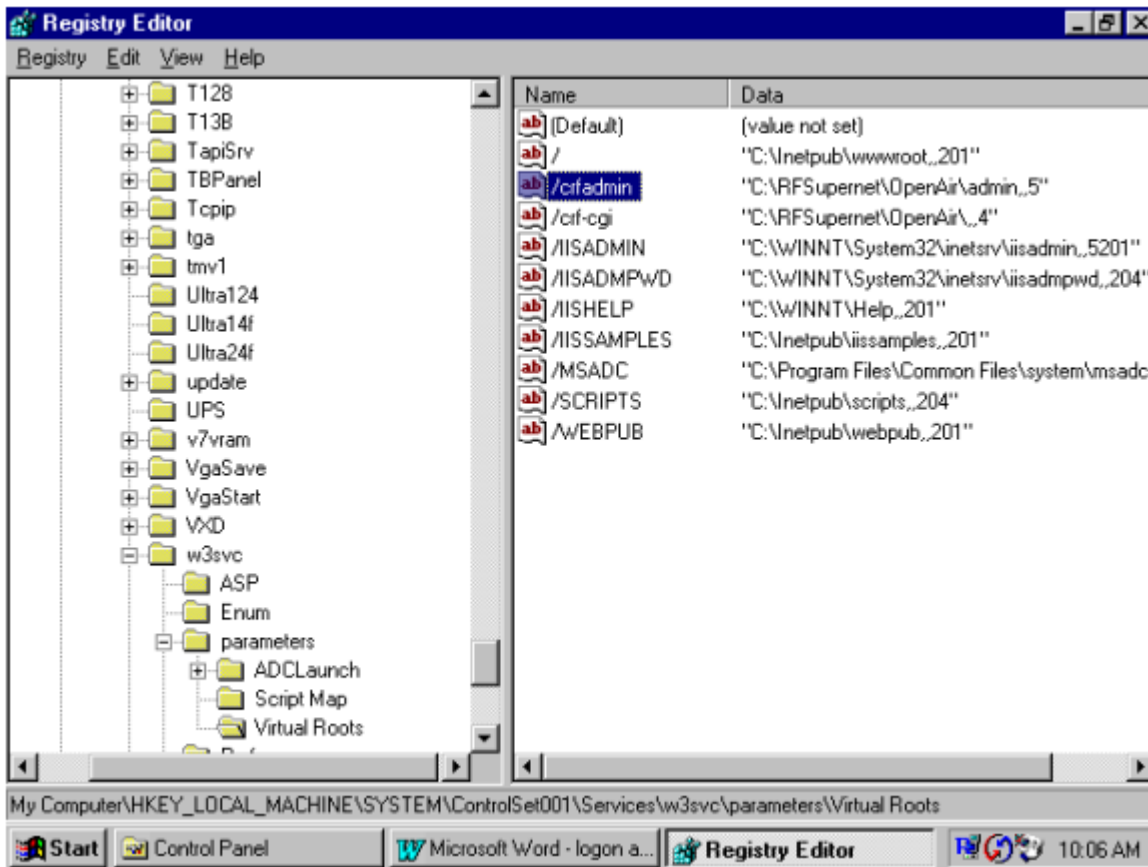
Solution

1. Uninstall PowerNet.
2. Reboot the system.
3. LOG IN as the system account administrator and NOT as a user with administrator rights.
4. Install PowerNet.
5. Reboot the system.
6. LOG IN as the system account administrator and NOT as a user with administrator rights.
7. Configure the PowerNet software for the site referencing the PowerNet manual.
8. Restart the PowerNet Access Point, Remote Access, or Spectrum One service program.

NOTE: If the files cannot be found, you must correct the path specified in the registry. This is done by running selecting Start/run/regedit. Then within regedit, select "HKEY_LOCAL_MACHINE\SYSTEM\ControlSetxxx\Services\w3svc\parameters\Virtual Roots". The Value of /crfadmin should point to the directory on which you installed the product. If it does not, edit the value and correct the path to point to the directory on which you installed the product.

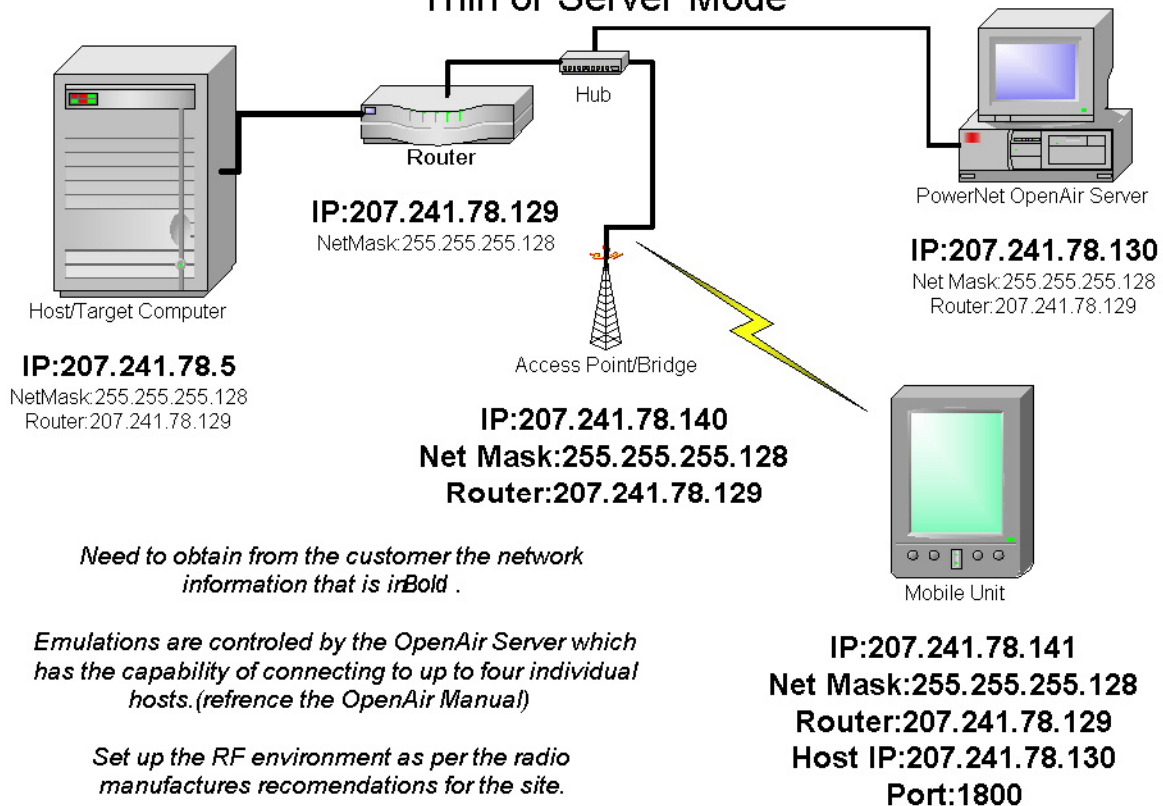
You may need to do this for each Control Set in the registry with Virtual Roots.

Screen Shot:



Appendix Q.

Requirements for PowerNet Twin Client/ Thin or Server Mode



Requirements for PowerNet Twin Client/ Thick or Direct Mode AKA Telnet

