

OWNER'S MANUAL



Global Power Management

In Partnership with

Bay Technical Associates



Norlinx Manual Publication # , November 2003

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ABOUT THIS OWNER'S MANUAL

This document provides information required for installing and operating Norlinx's Global Power Management software. It should allow the user to connect, power up, and access an applications menu where peripheral equipment can be controlled. We recommend reading this manual carefully, while placing special emphasis on software configuration. If you have any problems with your installation, please contact a BayTech Applications Engineer at **228-467-8231**, or toll free from anywhere in the United States using **1-800-523-2702** or contact us at our Web Site, www.baytech.net.

Norlinx develops remote management software to access, control and monitor remote site management equipment. If you would like information on any of these products, please contact Norlinx Customer Service at **919-846-7975** or visit us on the web at www.norlinx.com.

BayTech manufactures many remote site management products, data switches, data collection multiplexers, remote power controllers, and peripheral print sharers. If you would like information on any of these products, please contact BayTech Customer Service at the numbers previously listed or visit us on the web.

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Norlinx, Inc.
4700 Falls of the Neuse Road
Suite 130
Raleigh, NC 27609
Attn: General Counsel

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Microsoft Speech Software Development Kit, Version 5.1

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Installation and Setup:

This software can be used for any BayTech DS or F Series controllers and any BayTech RPC/RPS with Ethernet.

Software/Hardware Requirements:

Minimum hardware requirements for the GPM¹ software installation is Pentium II or higher, 128MB Ram, 800x600 resolution, 500 meg of hard drive space, Windows 98, NT, 2000, XP.

Software Installation:

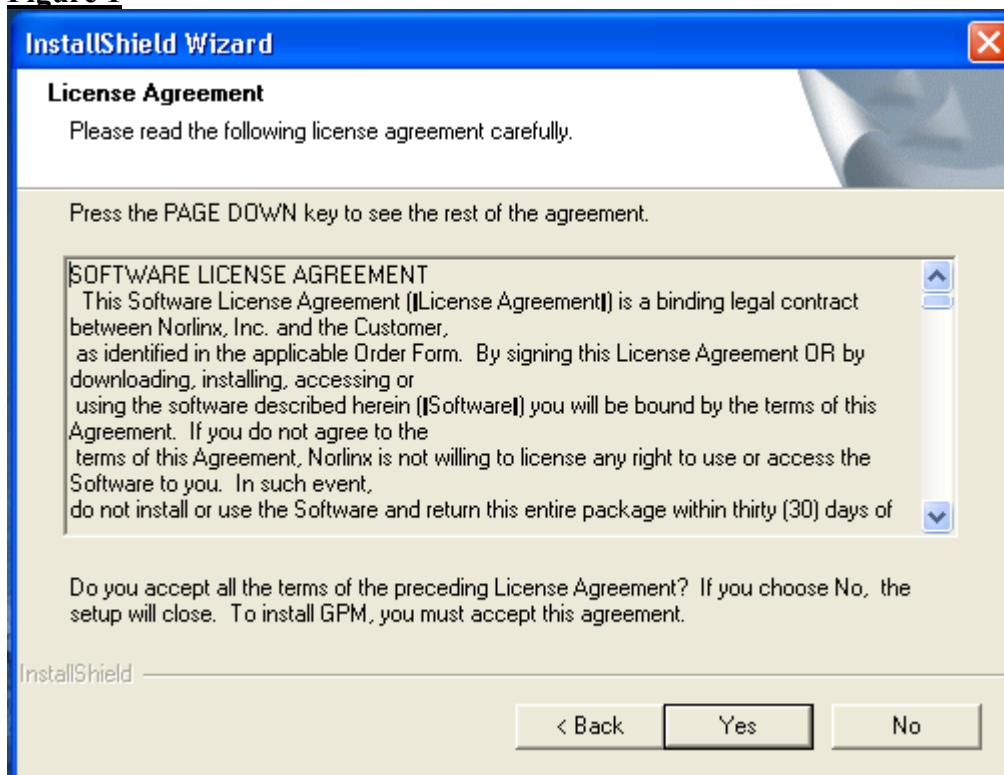
Local Database Installation:

Install the GPM software from Baytech's website or FTP site.

After file is downloaded to your hard drive, go to the folder and double click on Setup.exe.

Click Yes to accept the terms in the License Agreement. (Figure 1)

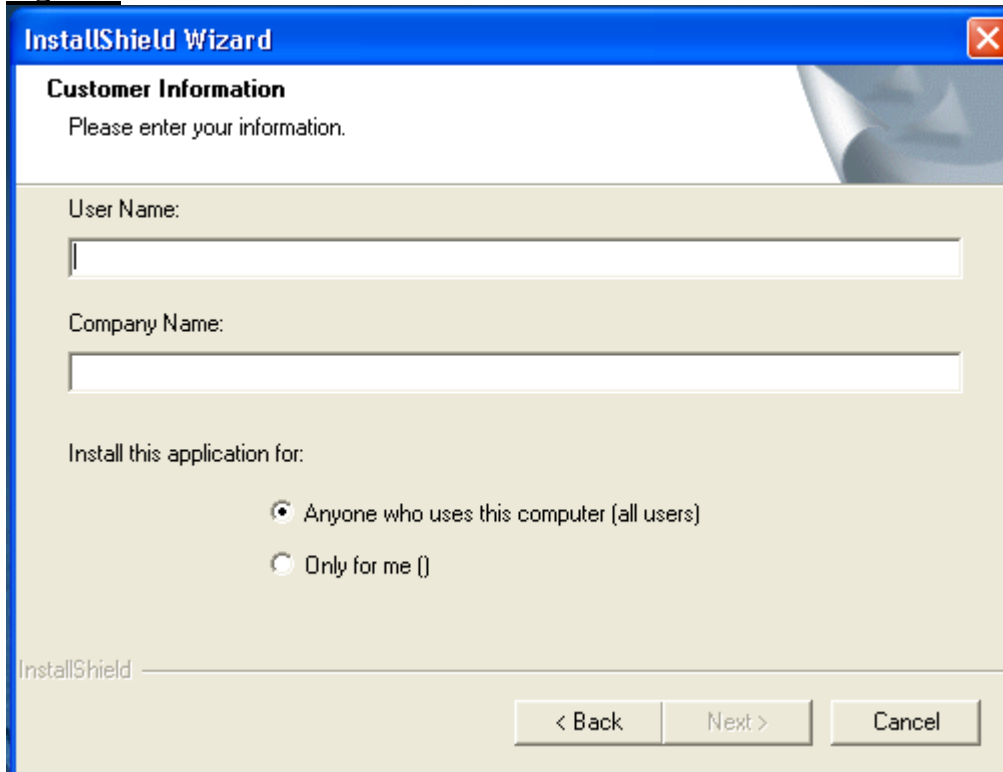
Figure 1



Type in User name and Company and select the installation. Default is Complete Installation. (Figure 2)

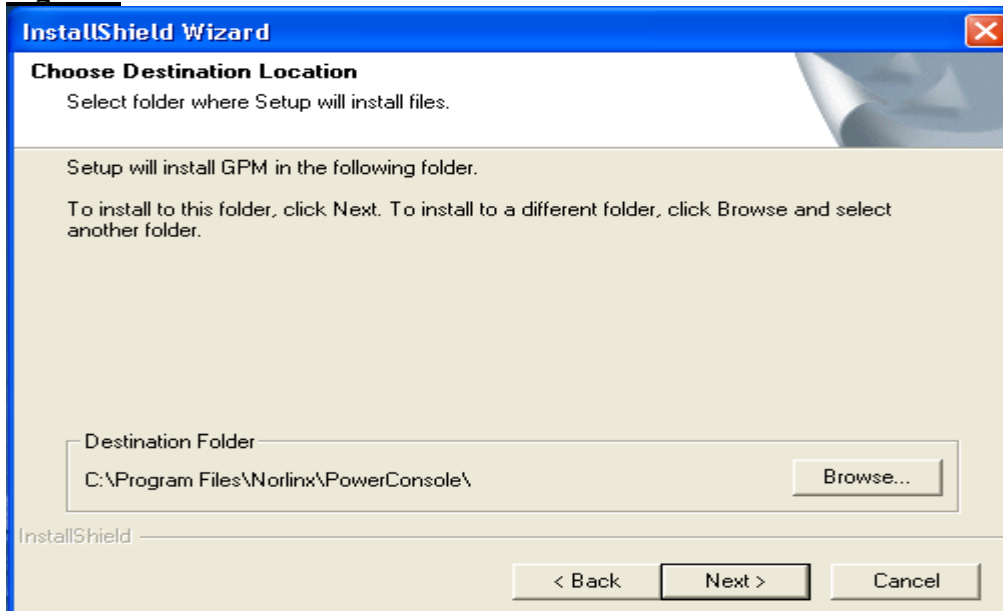
¹ GPM – Global Power Management
U140A133-01

Figure 2



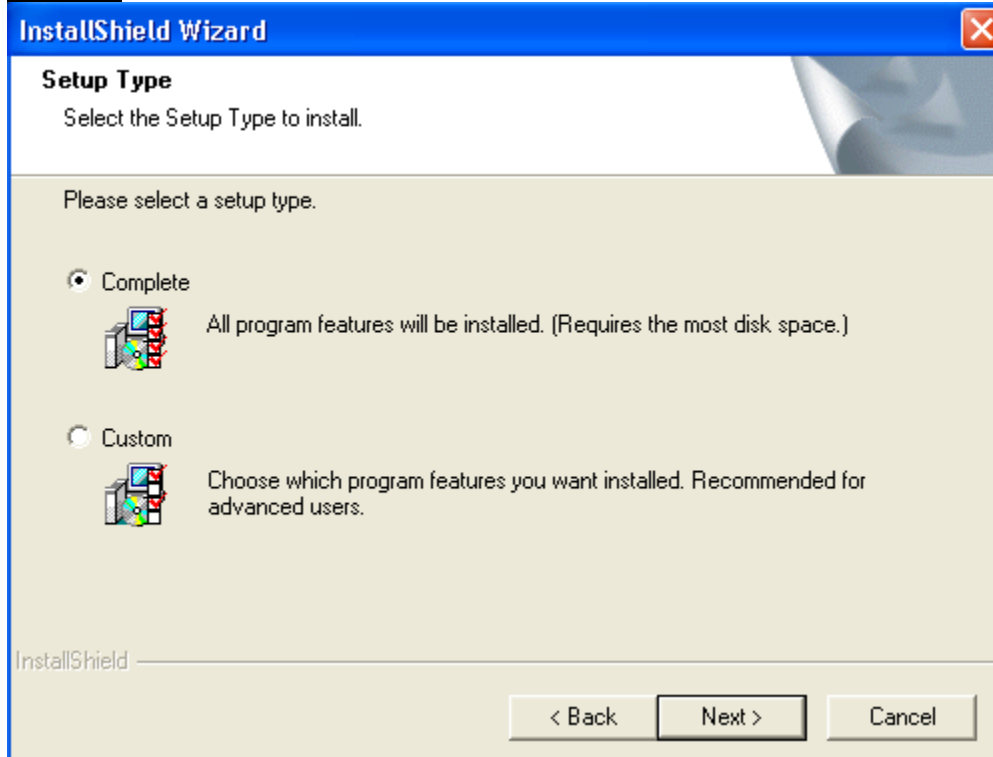
Choose the destination location to install the software. Use the Default selection and click on Next. (Figure 3)

Figure 3



Set up the type of installation. Default is Complete. Click Next and the software will go through the installation. (Figure 4)

Figure 4



After installation, there will be a Power Console icon on your desktop. Double click the icon to start the software. (Figure 5)

Figure 5



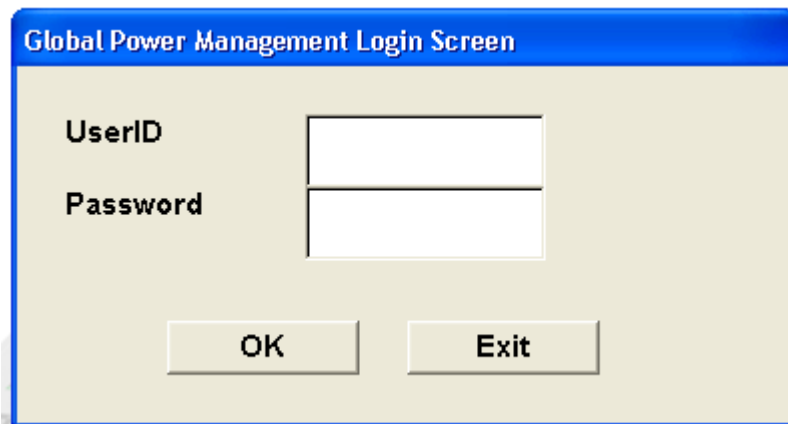
GPM Login

First Time Session: The User ID and Password is automatically filled in for you. (Figure 6)
Please record User ID and Password for future logins. Default User ID: **Admin**; Default Password: **Password**. (Figure 7)

Figure 6

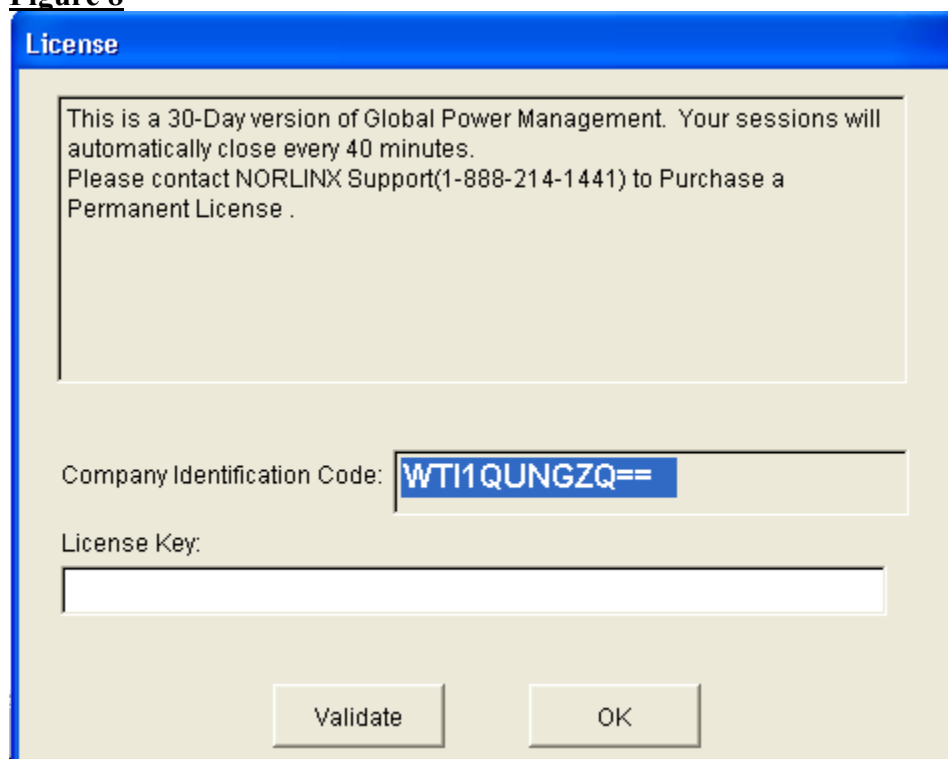


Figure 7



After filling in login information and click OK, you will get a license key screen. (Figure 8)

Figure 8



For the 30-Day Trial Version, click OK to proceed.

Software Registration

To register the software after the 30-Day Trial Version or after purchasing the GPM software and downloading it from Baytech’s website, you need to contact Norlinx at customerserv@norlinx.com to give Company ID code (shown on your License screen) and other required information to receive a License Key to become a registered user of the software.

NOTE: Norlinx will need to know how many outlets will be used with this software and whether you will need the **Local Database Version** or the **SQL Server Version**, as the software is purchased according to these requirements.

Once the software is purchased, Norlinx will give you a License Key. Enter this license key or copy and paste it from your email message, into the License Key space. Click Validate, the GPM License Validation screen pops up, click OK and you are now ready to use the software. (Figure 9)

Figure 9



NOTE: After clicking OK to validate the license key, you will still see the trial version at the top of the screen. When you exit the software and go back into it, the Trial version header will disappear.

To change the license key, you will follow the same step as the initial set up.

SQL Server Installation

The requirement to use the SQL Server Database version of the GPM software is to ensure Microsoft SQL Server Enterprise Manager is installed on your computer.

Step 1: Run the database.sql script that installs with Global Power Management.

Open SQL Enterprise Manager by going to Start, Programs, Microsoft SQL Server, Enterprise Manager.



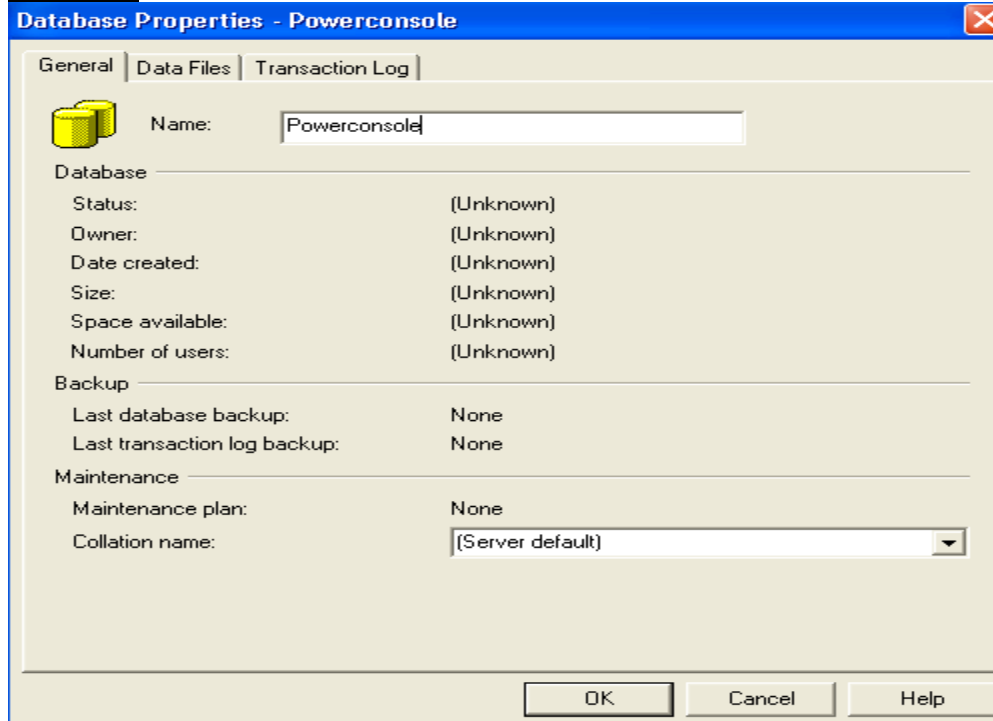
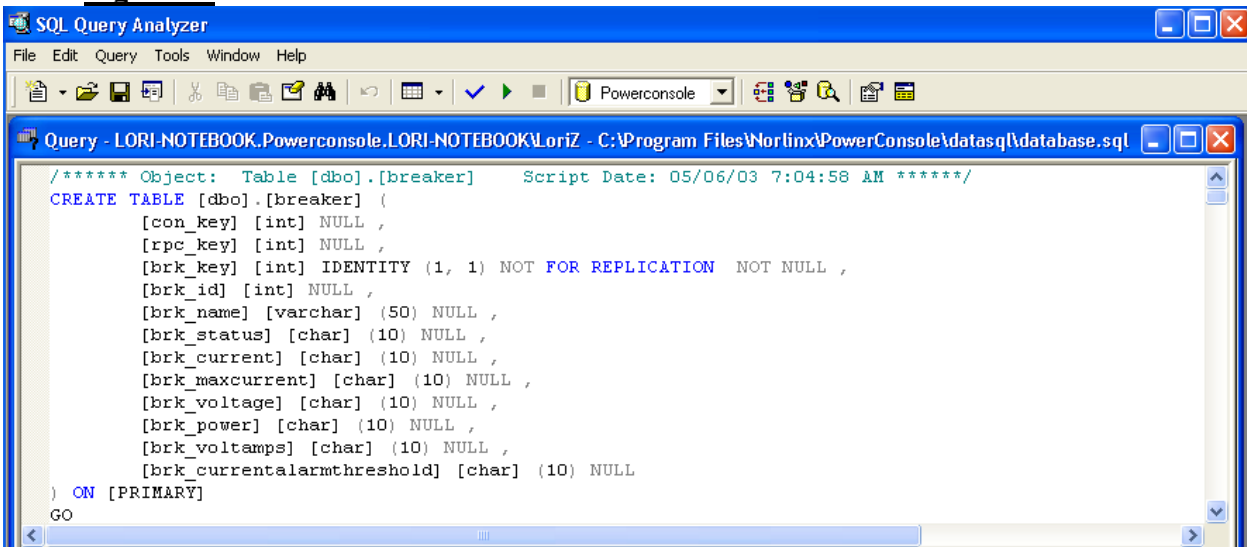
With SQL Enterprise Manager, you will need to create a new database called Powerconsole. To do this, click on Action, New Database or click this symbol  or . A Database Properties box appears and you type in Powerconsole in the Name section, then click OK (Figure 10)

Figure 10



In SQL Query Analyzer Open the database.sql script file found in C:\Program Files\Norlinx\PowerConsole\datasql folder. To do this, click on Tools, then SQL Query Analyzer, then go to File, Open, and find the above directory and file. (Figure 11)

Figure 11



Select the correct database (Powerconsole) at the top prior to running the script.

Click the Play Button to execute the script. If successful, you will receive a message at the bottom of the screen displaying “The command(s) completed successfully.”

Step 2: Create an ODBC Connection:

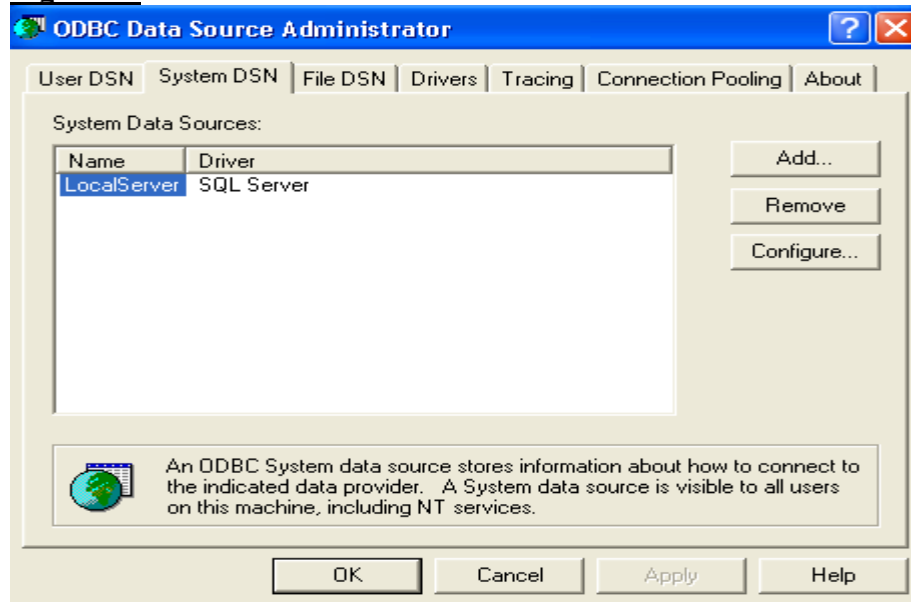
Go into Control Panel, Administrative Tools, double-click on Data Resources (ODBC)²



icon.

Select System DSN Configuration, click on Add. (Figure 12)

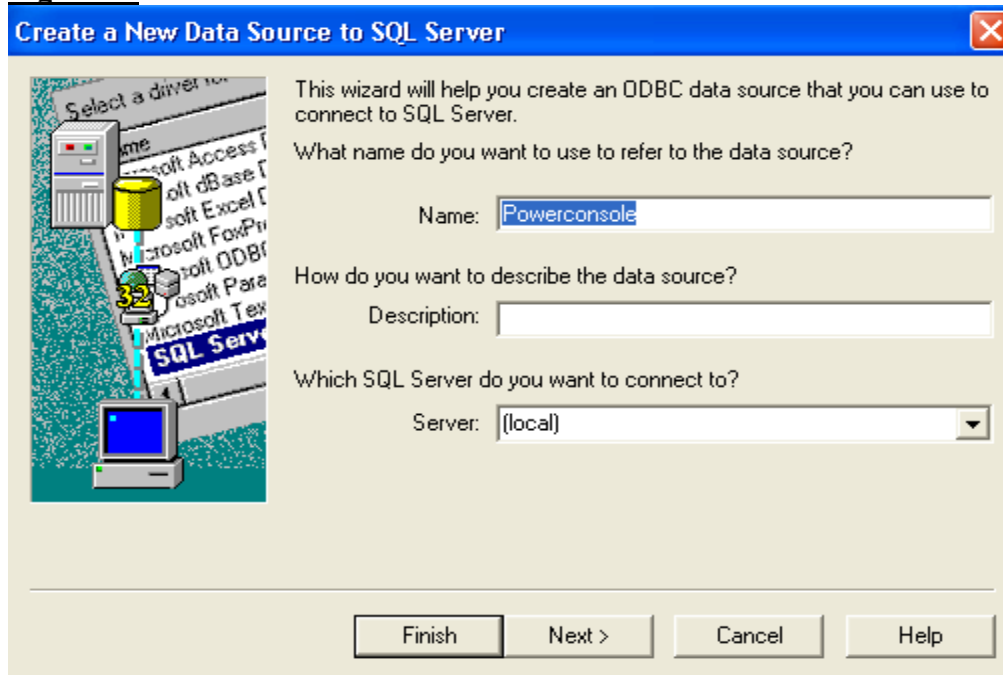
Figure 12



Select SQL Server, then type in the Name box: Powerconsole. (Figure 13)

² ODBC: Open Database Connectivity
U140A133-01

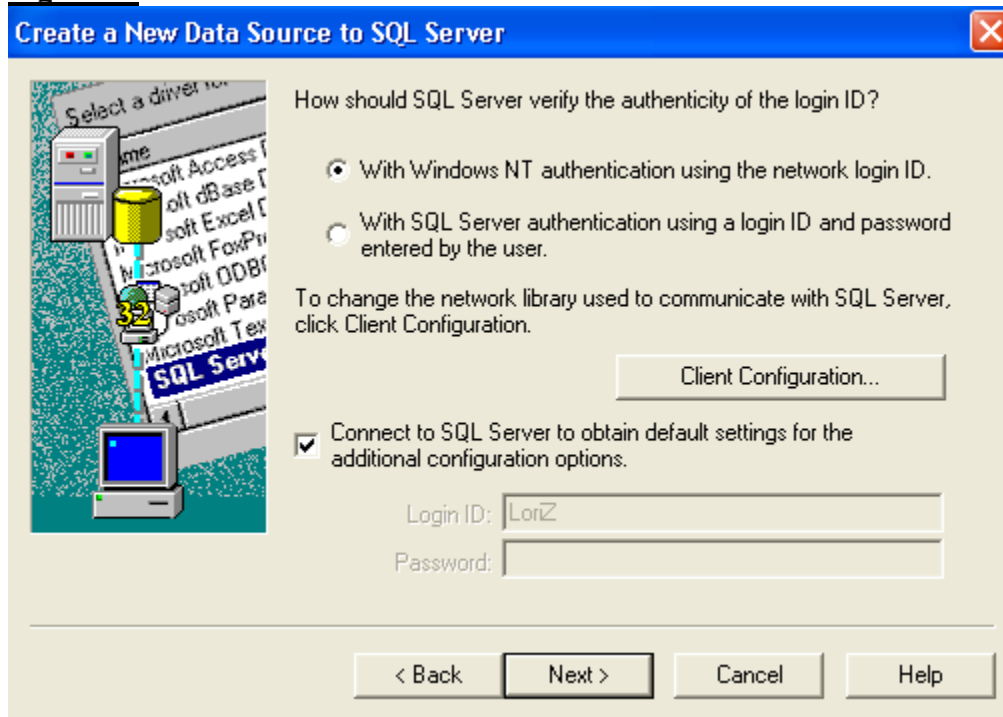
Figure 13



Select which SQL Server to connect to, click Next.

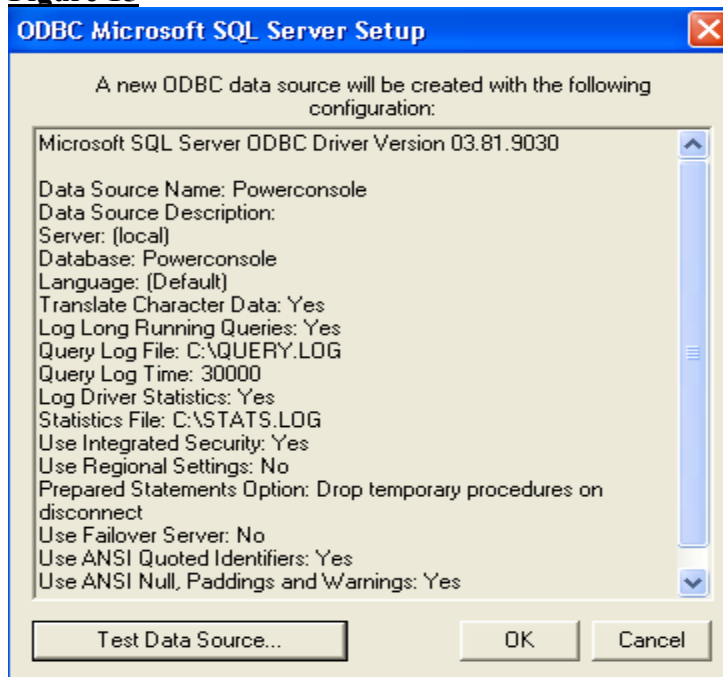
Select which options you want for SQL Server login in, click Next. (Figure 14)

Figure 14



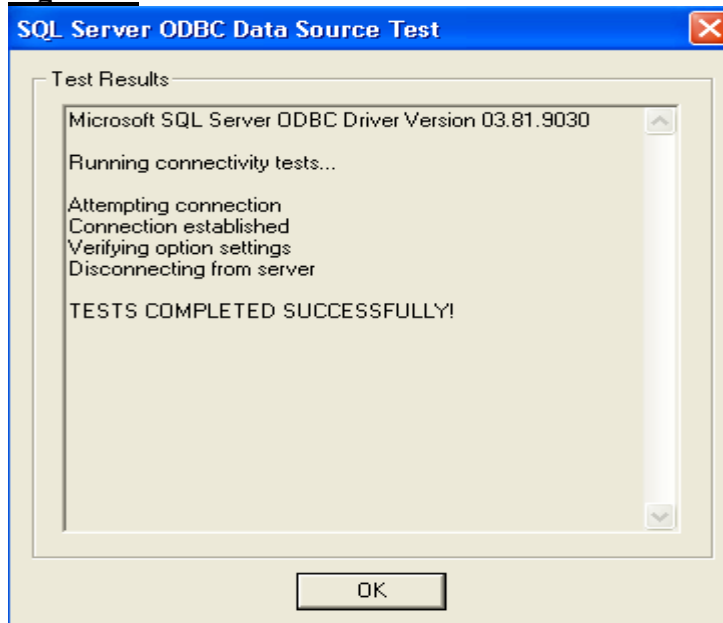
Select SQL Server Setup, click on Test Data Source, click OK. (Figure 15)

Figure 15



If Test Data Source is successful, the following message appears. (Figure 16)
 If Test Data Source fails, repeat above steps until successful.

Figure 16

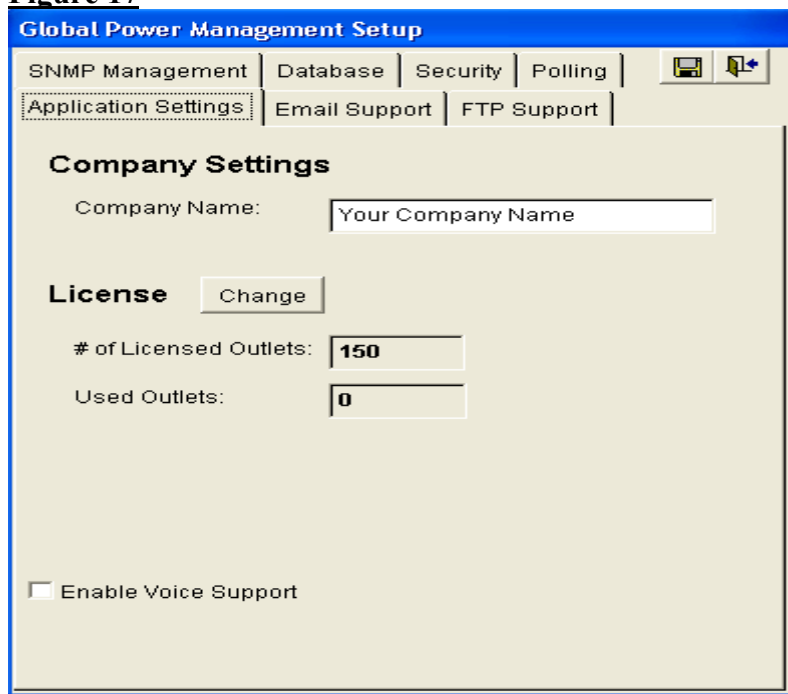


Step 3: Set GPM’s Internal Login Options:

Login into GPM as normal by typing in the Username and Password. See Login instructions.

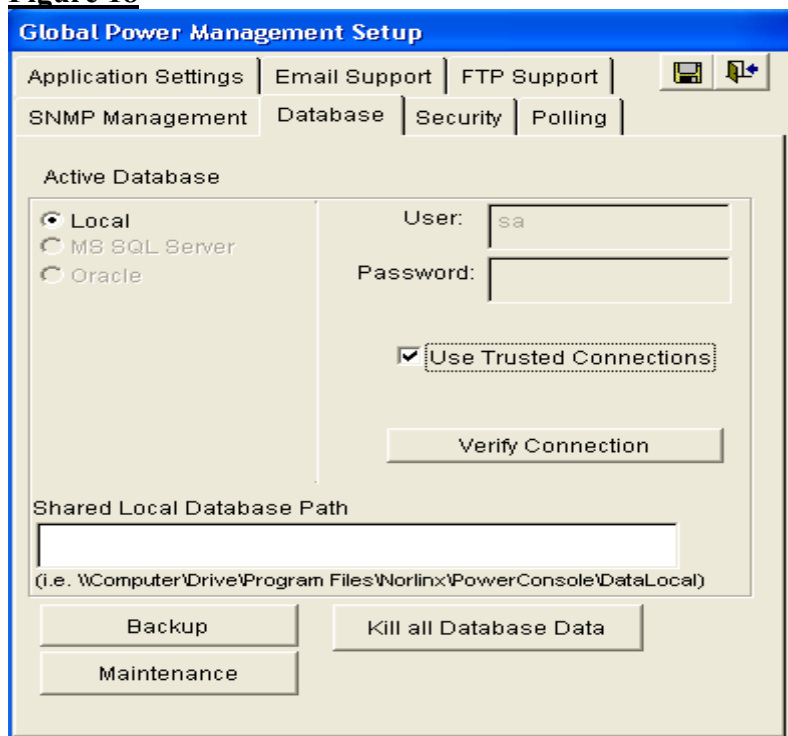
Select Setup from GPM’s Menu or Toolbar or click on Activity. (Figure 17)

Figure 17



Select the Database Tab. Type in a User Name and Password or Select Use Trusted Connections. (Figure 18)

Figure 18



Click Verify Connection

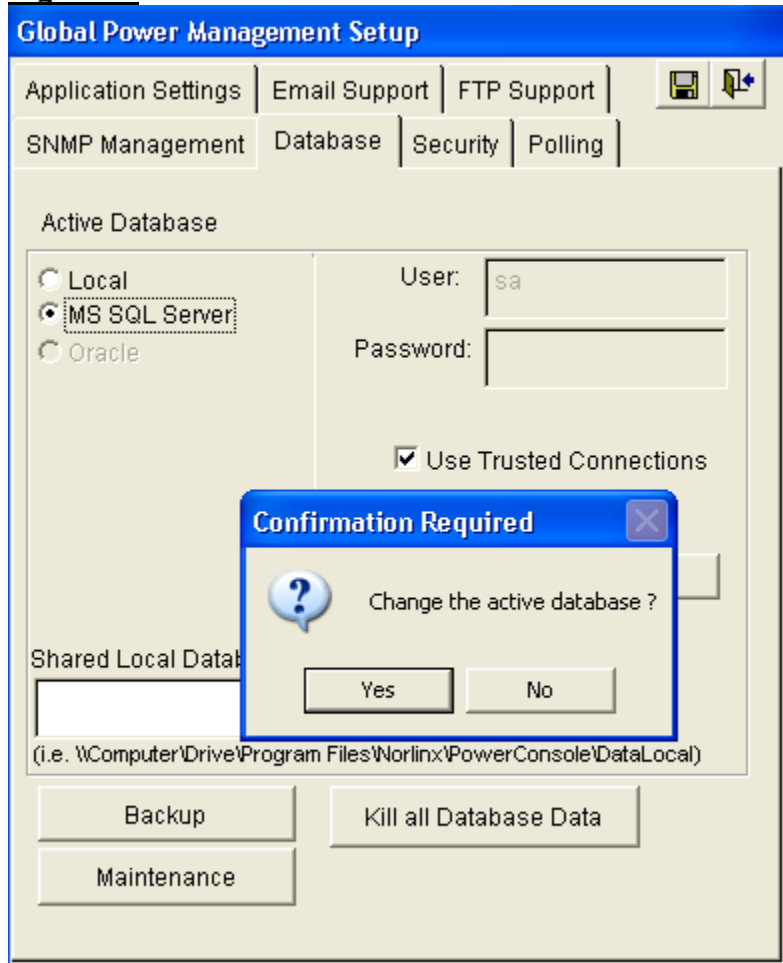
If Connection Succeeds, the following message appears. Then click OK. (Figure 19)

Figure 19



Save the Settings by clicking the save button in the upper right corner of the Global Power Management Setup screen. Change the Active Database to MS SQL Server. This brings up the login screen and type in Username and Password. . (Figure 20)

Figure 20



If Connection Fails:

Insure steps 1 and 2 have been performed properly.



Global Power Management Quick Start Manual
Check security making sure proper user name and password are entered correctly.
Continue to Verify Connection until the operation is successful.

SNMP Management

Simple Network Management. This is the technology that is used to interface with the BayTEch controller with the GPM software.

Note: Current releases of Global Power Management only work with single host DS Series SNMP controllers. Future releases will have support for dual host DS Series and F Series SNMP controllers.

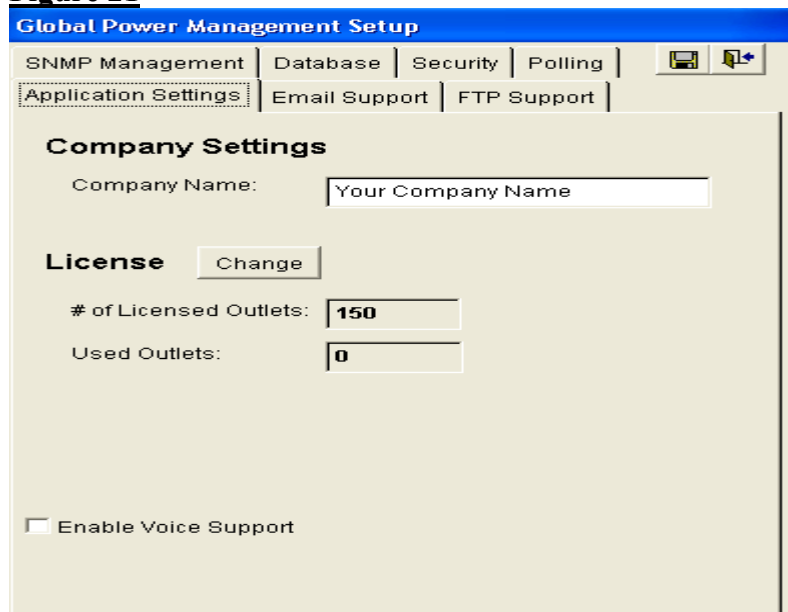
Global Power Management Setup Options

The following settings are based on the customer requirements to manage the GPM software. To access the setup options, go to the top of the screen and click on Setup, or click on  or click on the Security Tab of the GPM Console screen and click .

Application Settings

This is part of the registration process through Norlinx to fully utilize the GPM software. If you need to increase the number of licensed outlets, you will need to contact Norlinx to register the additional outlets. (Figure 21)

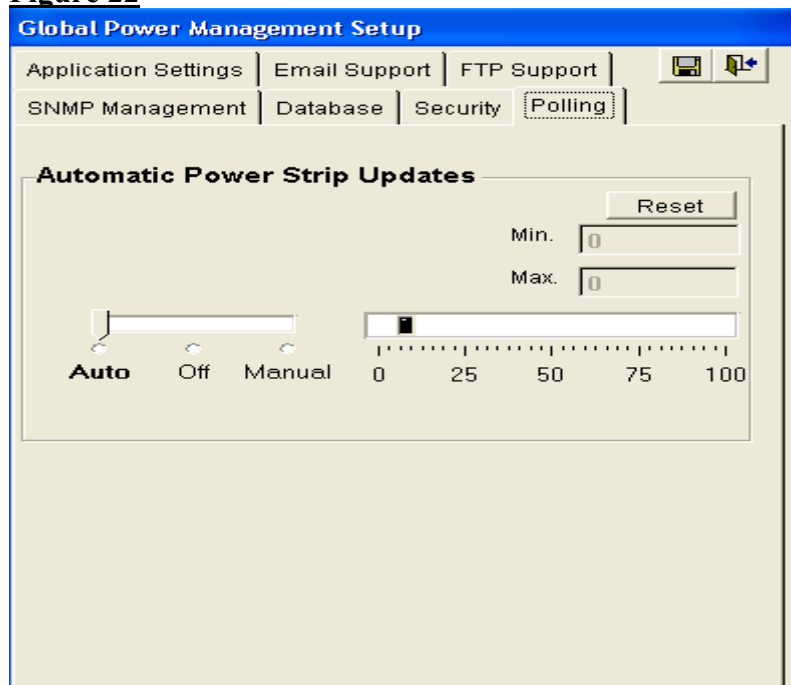
Figure 21



Power Strip Polling

When you click the activity button shown in *Figure 22*, this provides the setup for Polling. Polling occurs every x seconds for the power strip/outlet currently selected.

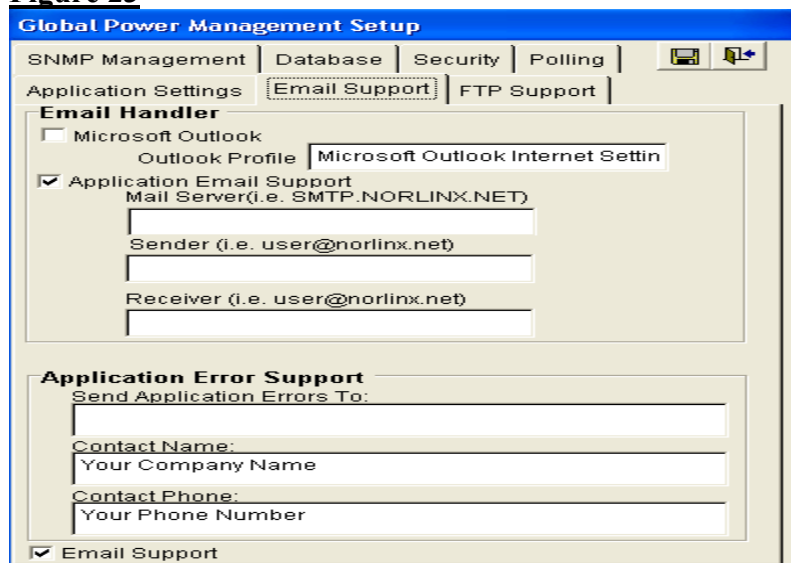
Figure 22



Email Support:

This screen provides emails to Norlinx for any program anomalies. This also sets up email for SNMP Traps, which can send email messages up to 4 IP addresses. (Figure 23)

Figure 23



Security Setup

This allows users to assign security roles across the Enterprise or each Logical Organization, by setting up as Local Security or WinNT Security. Clicking on the Security Type allows you to change this option based on the customer needs.

Local Security: GPM maintains its own set of groups and users that can be imposed onto logical organizations, thus assigning control to specific segments within the organization. Each group or user can have specific control over operations. (Figure 24 and 25)

Figure 24

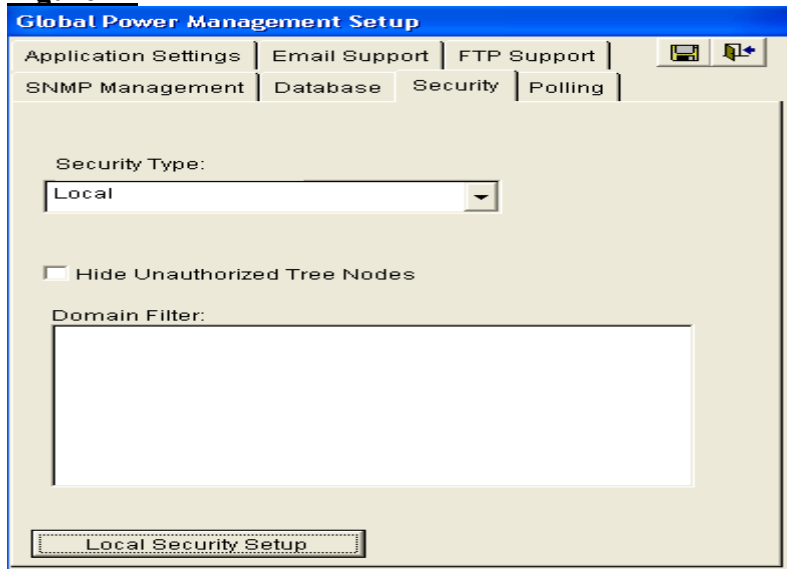
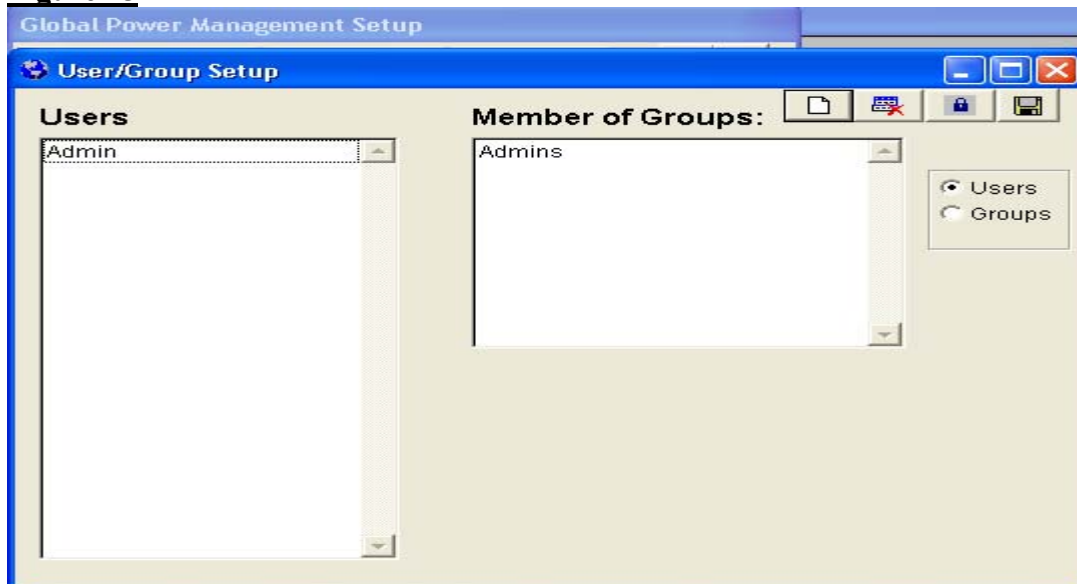


Figure 25




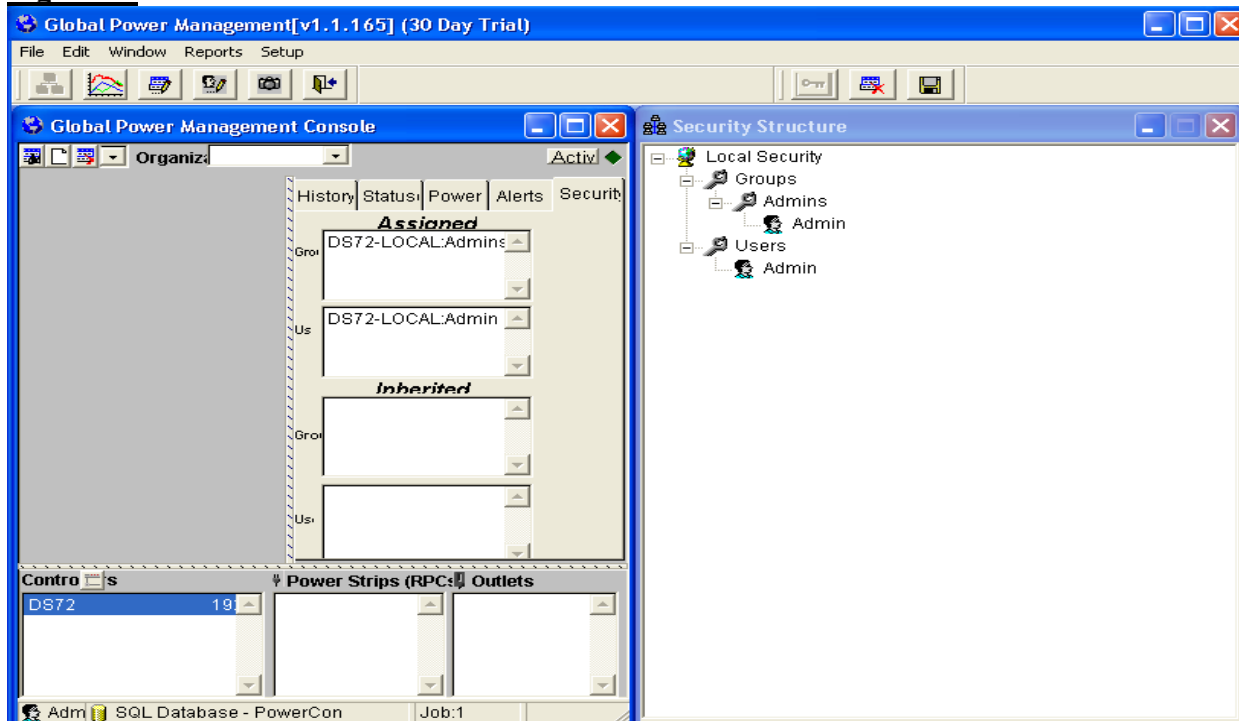
When you click on , you can view the Security Structure. By right clicking on the Admin or User, you can control what type of security setting you want to set up. You can easily drag and drop groups or users to where you want the Security set up. (Figure 26)

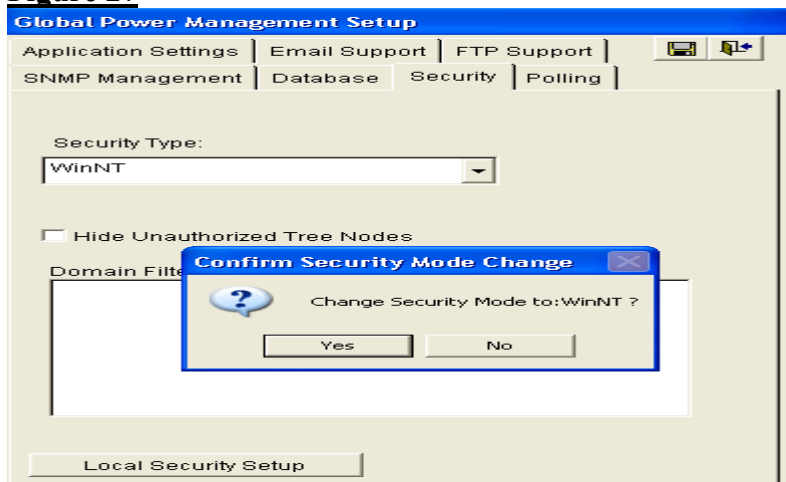
Figure 26



Win NT Security: This is a hierarchal security scheme in which domains are created within the company. This exposes the enterprise groups and users that are an integral part of Windows NT/2000.

To change the Security Type to WinNT, just click on WinNT, and then it will ask to confirm to change the Security setting. Then click save to accept the changes. (Figure 27)

Figure 27



This feature has the ability to hide physical access to those users and groups.

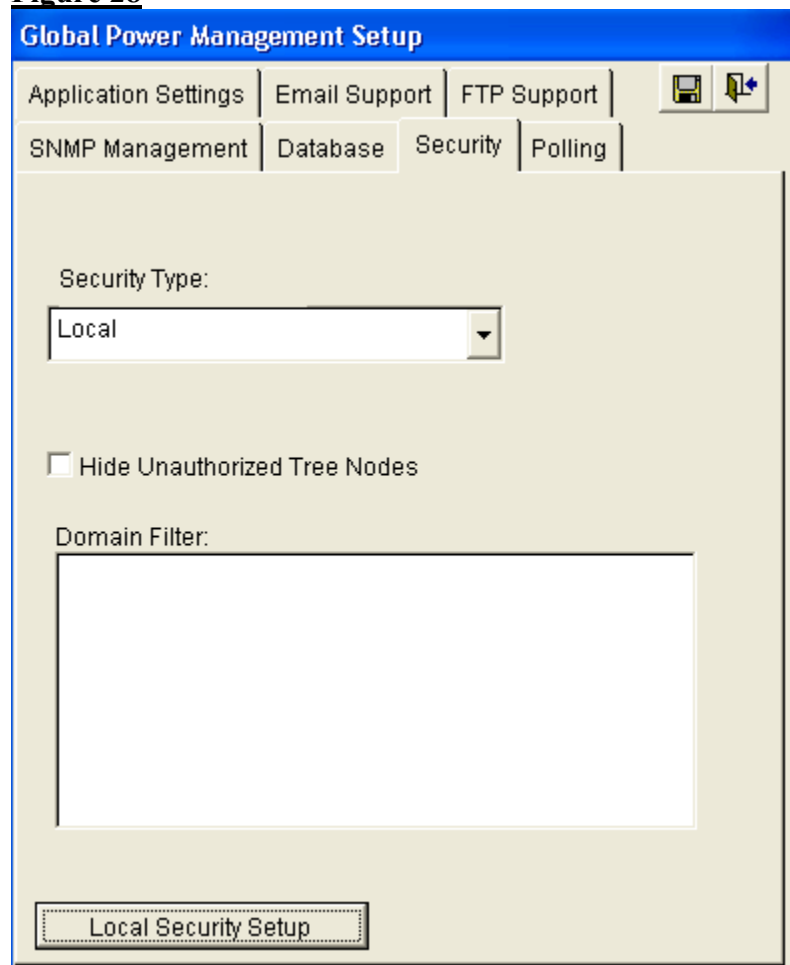
The Administrator can modify user rights as a lower level of the security scheme.

The Administrator has the ability to drag and drop to a cabinet, server, data center, organization or assigned unit and can control anything in either the physical or logical organization. Advanced Security options are discussed later in this document.

SNMP Password Protection:

This feature has the ability to password protect the Read Only (RO) and Read Write (RW) capability of each BayTech controller. GPM encrypts and stores these passwords in the database. Each time communication takes place, it is required to provide the appropriate password. Administrators can prevent other administrators or users from discovering a BayTech controller by setting the RO password. (Figure 28)

Figure 28



Power Management

Adding Controllers/Power Strips

GPM detects BayTech SNMP devices on the local subnet or can be given IP's to discover remote BayTech SNMP devices. Once discovered, a status screen displays the controllers and associated RPC's with their receptacles.


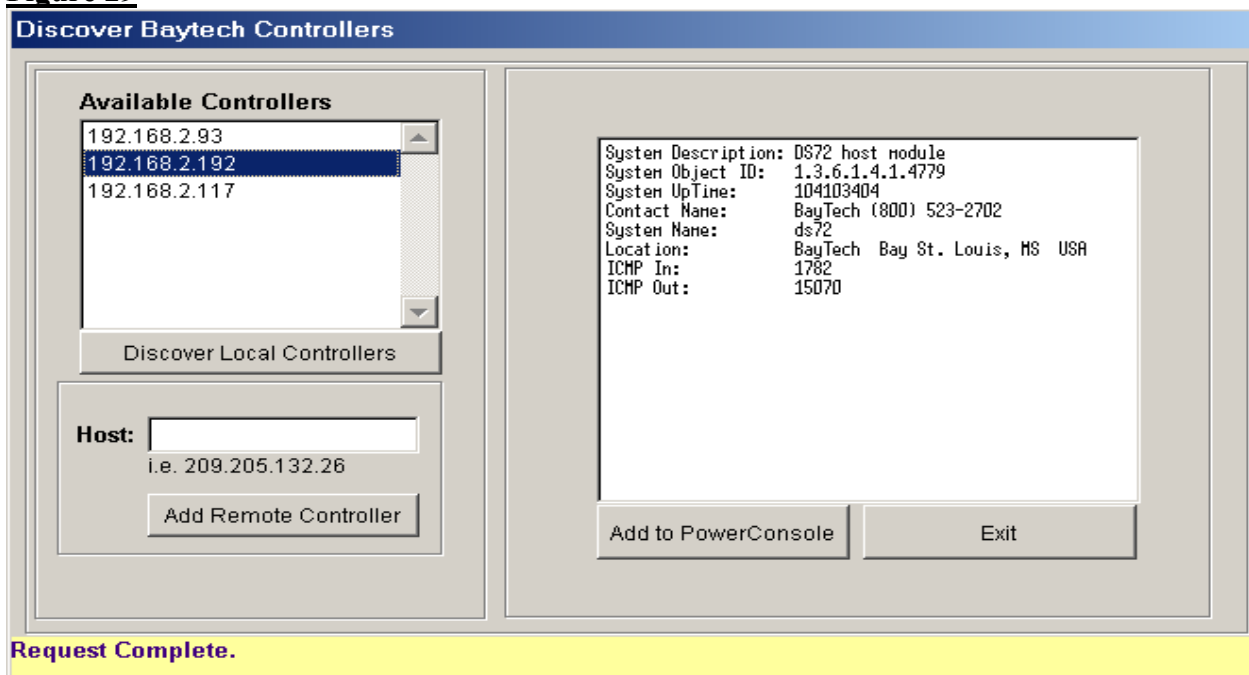
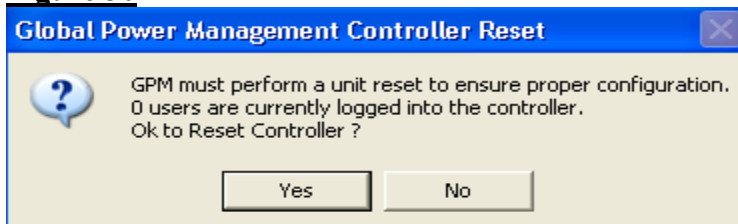
When logged into the GPM software, go to Window, select Discover BayTech controllers online or click on Available Controllers icon . If any found, highlight the controller, then click to add to PowerConsole. (Figure 29)

Figure 29



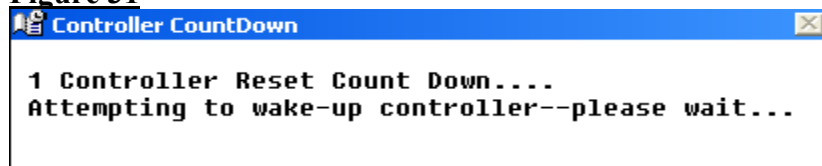
When a controller is added to the PowerConsole, a controller-reset screen appears. Click Yes to reset controller. (Figure 30)

Figure 30



This resets the unit in a fresh state. A Controller Countdown screen appears that shows the unit is being reset. Once this is complete, GPM will add the controller. (Figure 31)

Figure 31



When the controller is discovered, a Trap screen may appear. There are 34 different options that are user definable. GPM allows a user to monitor and receive alarms based on the BayTech SNMP mib. Emails and associated messages can be sent to individuals or groups of individuals. The GPM configuration provides a means to pick and choose which alerts will be flagged for notification. Alerts are customized based on preset conditions. Some of these features are defined below in more detail. (Figure 32)

Figure 32

Manage Controller Traps (Name: DS72 IP: 192.168.2.178)						
Trap Id	Trap Name	Log	User Intervention	Audible Alarm	Email Addressess	Alarm Text
1	Lost Communications	Y	N	N		
2	Est. Communications	N	N	N		
3	Outlet(s) ON	Y	Y	N		
4	Outlet(s) OFF	Y	N	N		
5	Outlet(s) REBOOT	Y	N	N		
6	Outlet(s) LOCKED	Y	N	N		
7	Outlet(s) UNLOCKED	Y	Y	N		
8	Change of SNMP Configuratio	Y	N	N		
9	Change of Outlet Configuratio	Y	N	N		
10	RS232 Access Violation	Y	N	N		
11	Network Access Violation	Y	N	N		
12	Password Change	Y	N	N		
13	New User Added	Y	N	Y		
14	User Logged In	Y	N	N		
15	Over Temperature Violation	Y	Y	N		
16	Temperature Violation Cleare	Y	Y	N		
17	Over Current Violation	Y	Y	N		
18	Current Violation Cleared	Y	Y	N		
19	Reset Modules Event	N	N	N		
20	Reset Modules Complete	N	N	N		
21	SNMP Command Execution	N	N	N		
22	File Transfer Complete	N	N	N		
23	User Terminated	N	N	N		
24	Over Voltage Violation	Y	Y	N		
25	Over Voltage Cleared	Y	Y	N		
26	Under Voltage Violation	Y	Y	N		
27	Under Voltage Cleared	Y	Y	N		
28	Circuit Breaker Alarm	Y	Y	N		
29	Module Failure Alarm	Y	Y	N		
30	User Deleted	N	N	N		
31	Group Over Current Warning	Y	Y	N		
32	Group Over Current Warning	Y	Y	N		
33	Group Over Current Emergen	Y	Y	N		
34	Group Over Current Emergen	Y	Y	N		

Trap Name Column: These trap names are features of the Baytech hardware.

Log Column: For each trap name listed above, select Yes or No if you want these traps logged. If yes, click on an outlet or power strip and go into the History tab that shows the history of that item.

User Intervention Column: Select Yes or No when an alarm is tripped and the user intervention is defined by going into the Alert tab.

Audible Alarm Column: This gives the option to sound an alarm when the alarm is tripped.



Email Addresses Column: When alarms are tripped, this gives you the option to enter one or several email addresses for notification. Text limit is 255 characters. An example of an Email Alert notification is shown below. (Figure 33)

Figure 33

```

To: anorth@baytect.net
Subject: Global Power Management Alert !!! -- Please Review Immediately

*--ALERT--**--ALERT--**--ALERT--**--ALERT--**--ALERT--**--ALERT--**
      Baytech Power Management Message:

Subject           :Outlet (s) turned OFF
Sent To           :anorth@baytech.net ,anorth@norlinx.com
Date/Time         :20020827
Controller Name   :NORLINX CONTROLLER IN CABINET 1
Controller Ip     :66.83.91.37
Power Strip Name  :BT RPC4-1001092
Location         :Raleigh Data Center
Outlet (s) Name   :(1) - alexnorth008329
                  (2) - Server 1
                  (3) - Server 2
                  (4) - Outlet 3
                  (5) - Outlet 4
                  (6) - Outlet 5
                  (7) - Outlet 6
                  (8) - Outlet 7
                  (9) - Outlet 8
                  (10) - Outlet 9
                  (11) - Outlet 10
                  (12) - Outlet 11
                  (13) - Outlet 12
                  (14) - Outlet 13
                  (15) - Outlet 14
                  (16) - Outlet 15

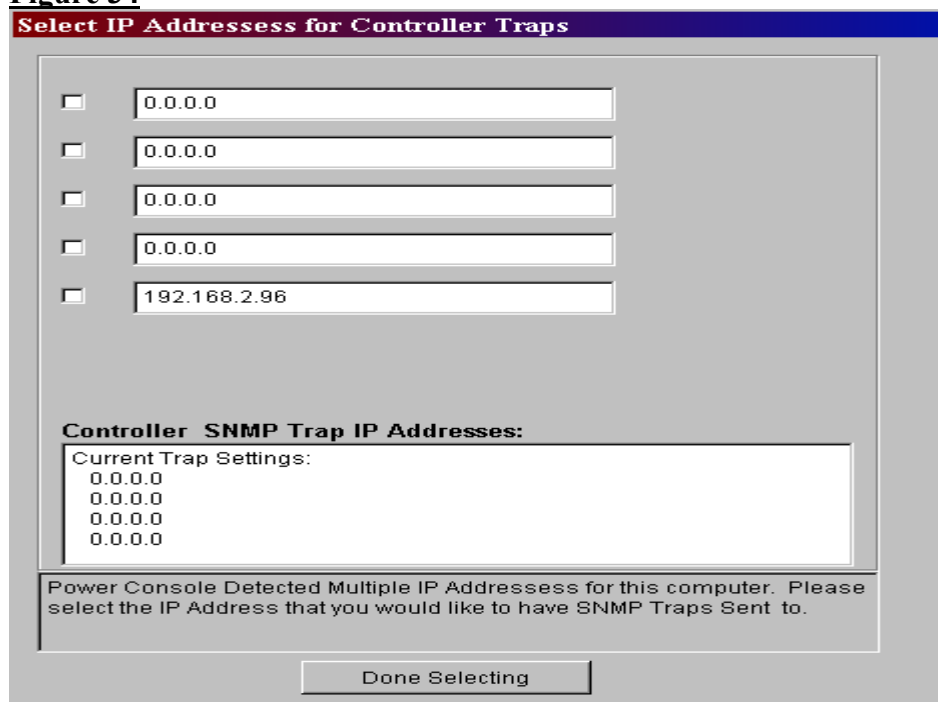
*--ALERT--**--ALERT--**--ALERT--**--ALERT--**--ALERT--**--ALERT--**

```

Alarm Text Column: After an alarm is received, this gives the option to enter text at the console. For example, Over Current Violation, a message is entered here that an Over Current Violation has occurred.

Next, you will need to set up IP addresses for the trap settings. You can select up to four IP addresses to where the trap settings need to go. The fifth IP address is your local machine. (Figure 34)

Figure 34



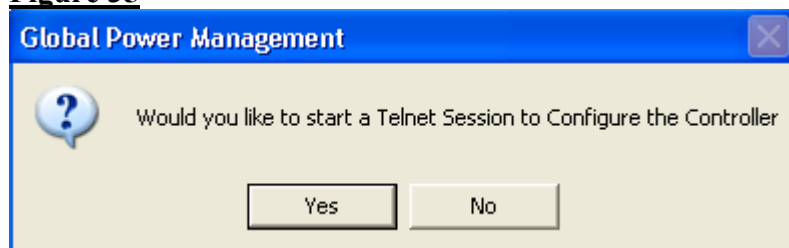
To add controllers remotely, just type in the IP address, click on Add Remote Controller, then click Add to PowerConsole. The same steps are followed as the Discover BayTech controllers process above.

If the controller needs to be configured, a screen may appear to Telnet to configure the controller. Click Yes or No, to configure. (Figure 35)

If yes, configure the controller as you normally would on initial set up or refer to the Users Guide of the controller or unit you are configuring. Go to http://www.baytech.net/ftp_series.shtml#manuals to find the User's Guide of the controller or unit you are working with.

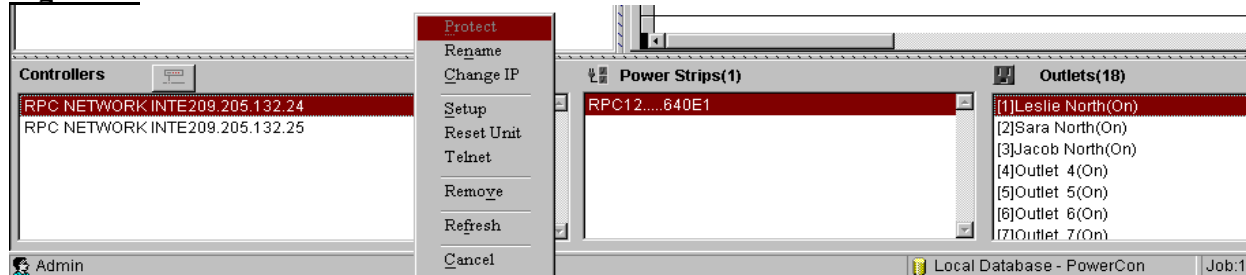
If NO, the controller will not be added to the PowerConsole, and you may have to repeat the above steps for the GPM software until the controller is added.

Figure 35



After the remote controllers are added, a status screen provides a snap shot of all BayTech power solutions. Controllers, RPC's and Outlets are displayed. On/Off, Reboot and status functions are supported by a simple right click of the mouse as shown below. (Figure 36)

Figure 36



Creating Logical Organizations

One of the power features of GPM is that ability to group equipment in many ways. Whether you need to view a data center server cabinet location or view all your Unix servers together, GPM lets you group any way you need.


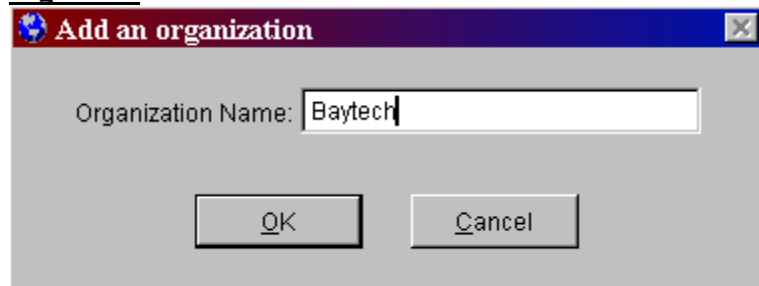
To build a Logical Organization, click on  to add a new Organization. Next you will add the name of the Organization and click OK. (Figure 37)

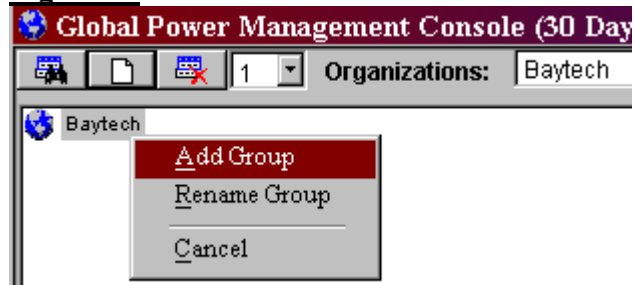
Figure 37



Once the Organization is created, then you add groups within the organization that distinguish geographical locations or by Administrators and Users or some type of logical representation of the equipment you need to monitor.

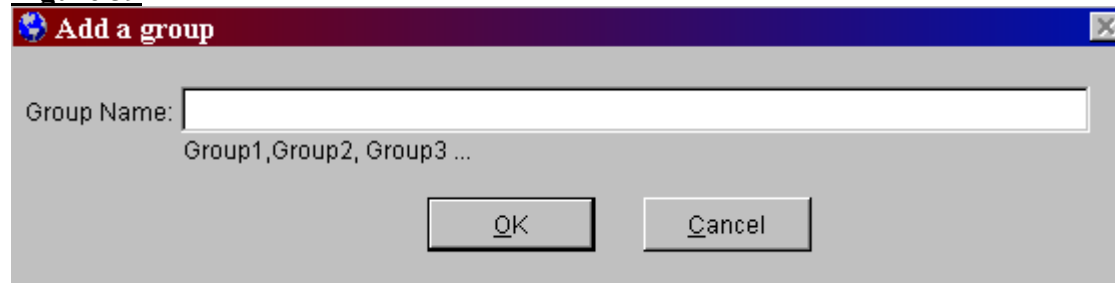
To add a group, simply right click on the Organization name. (Figure 38)

Figure 38



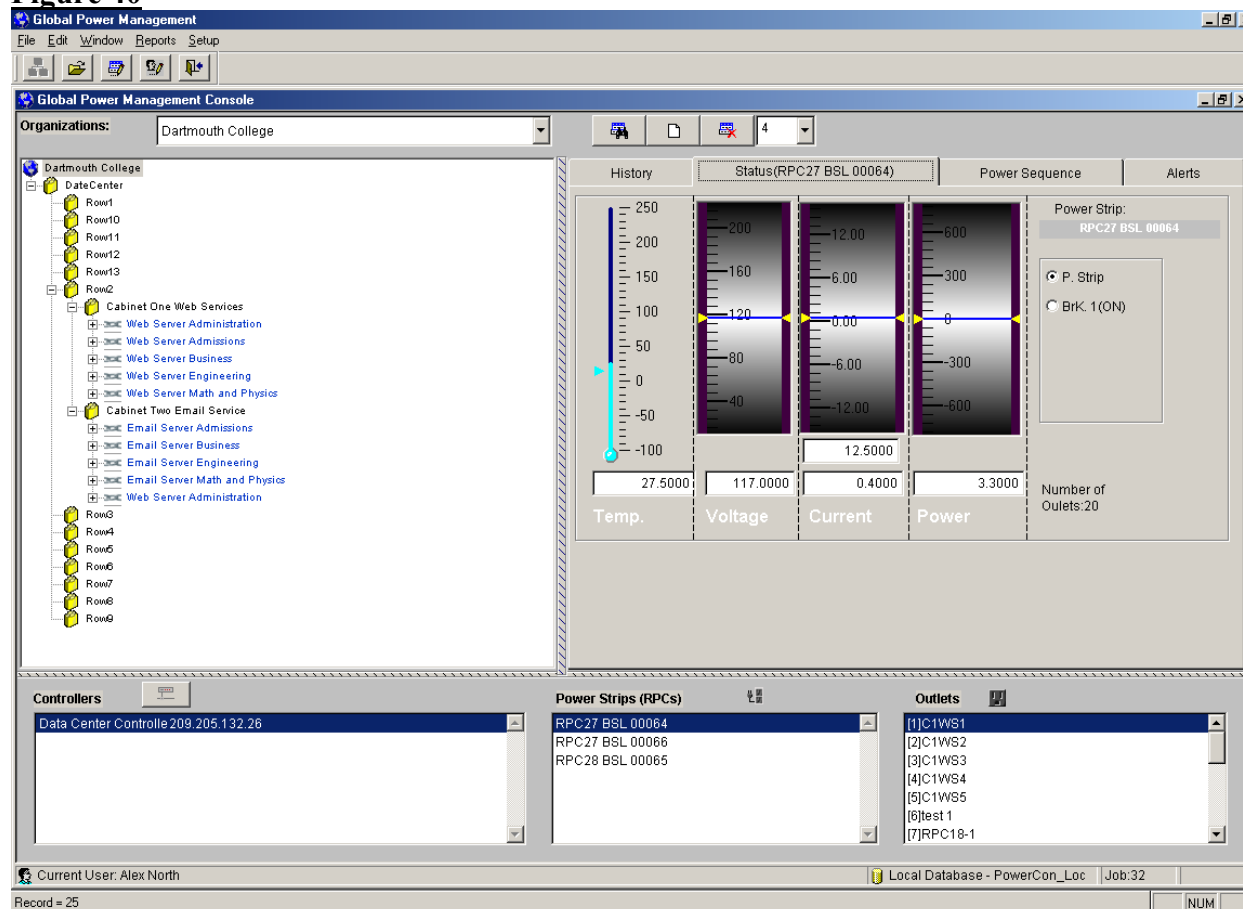
Type in the name of the group you want to add. You can type in a single group or you can type in multiple groups, separated by a comma (,). You can also add sub-groups under the group name(s), all the way to the user level. (Figure 39)

Figure 39



The Tree view shows a logical or functional view of a data center. Equipment can be grouped any way as well as many ways. This is very useful as an advanced user feature, where you can implode or explode the tree levels. (Figure 40)

Figure 40



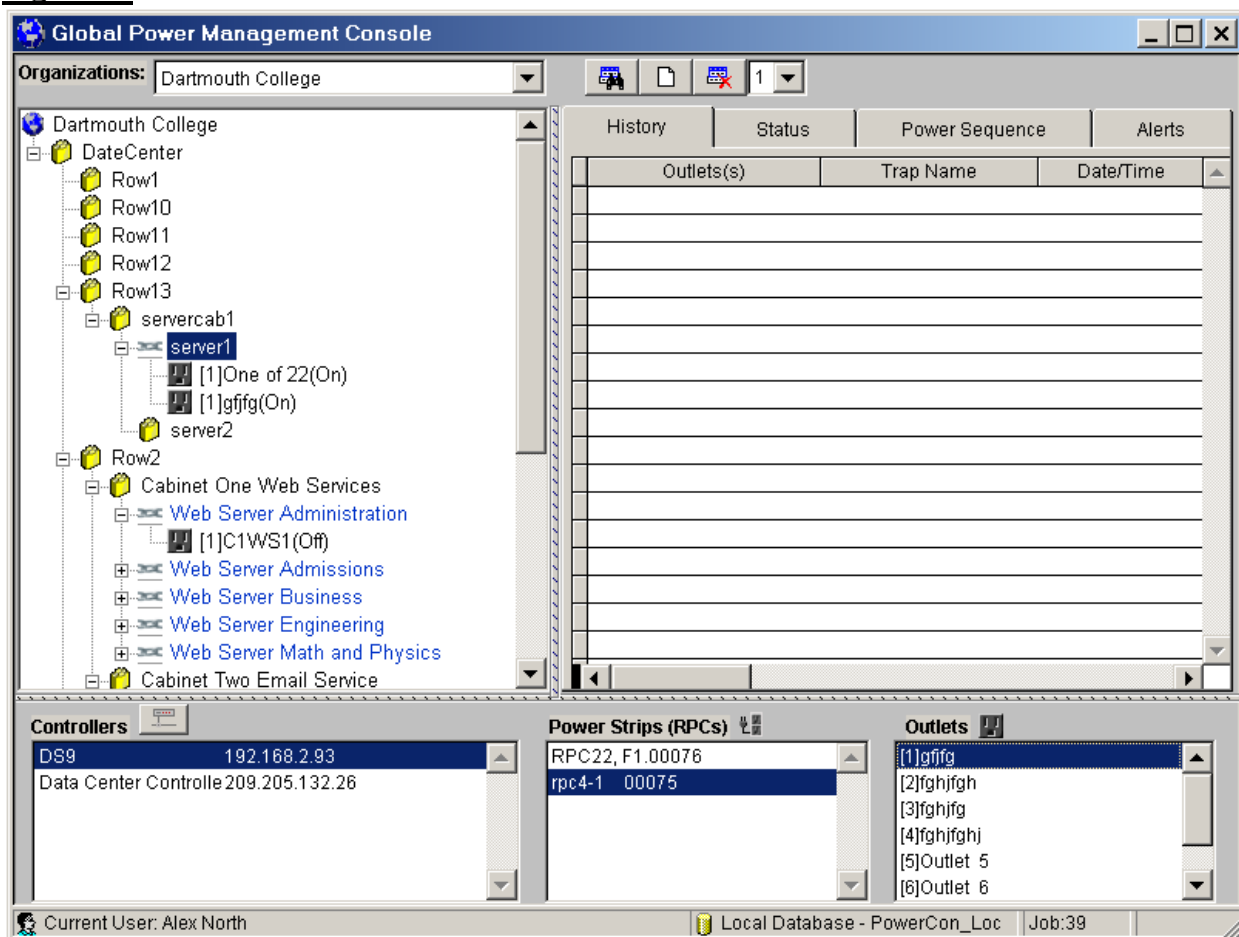
Adding Power Strips to the Organization

Supporting Equipment with Single or Redundant Power Supplies

Through an easy to use drag and drop method, you can assign any device name to a single receptacle or multiple receptacles. Receptacles assigned can be from any active controller in the Power Management Network.

A single device name can support any number of receptacles, so if you want to make a group of devices, which are turned off during critical power outages, you can simply do this with a click of a button or simply drag discovered receptacles from the outlet list to the device name. (Figure 41)

Figure 41

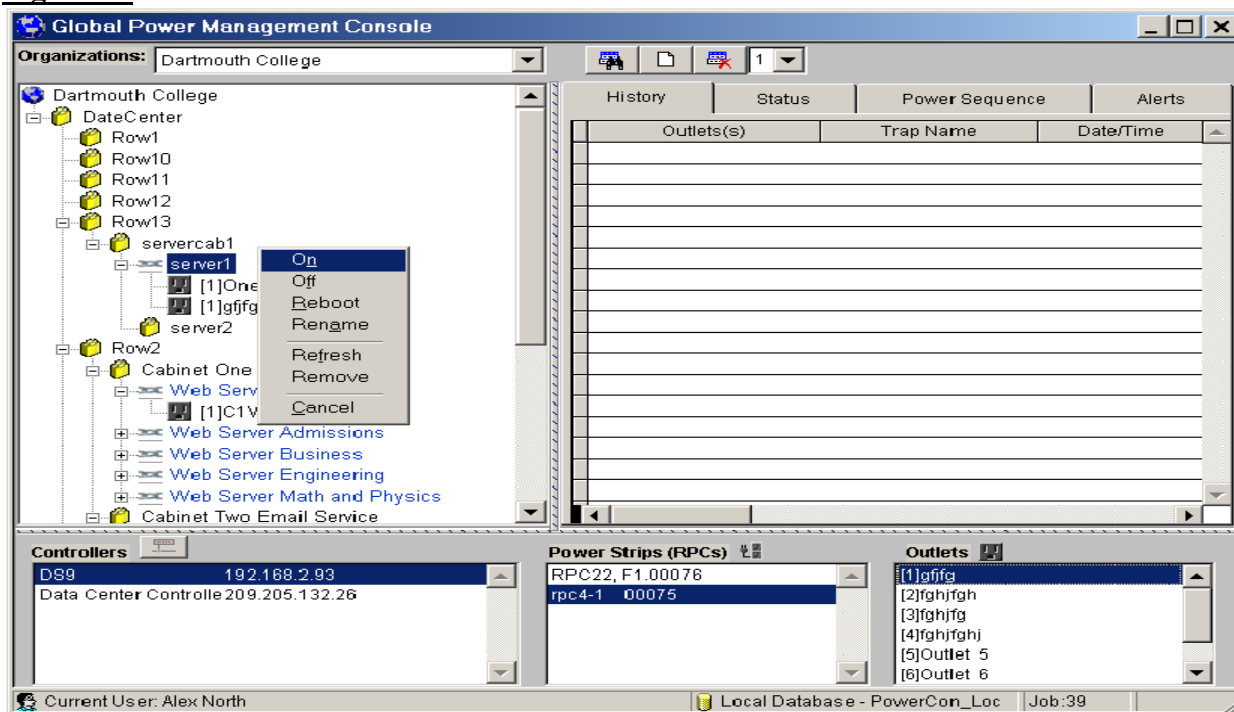


Operations

On, Off, Reboot ...

GPM provides easy “Click Through” control of RPC’s anywhere. Simply right click on any device name with the assigned receptacle and you can turn on, off or reboot that device. The option to remove or change the name of this device is provided as well. (Figure 42)

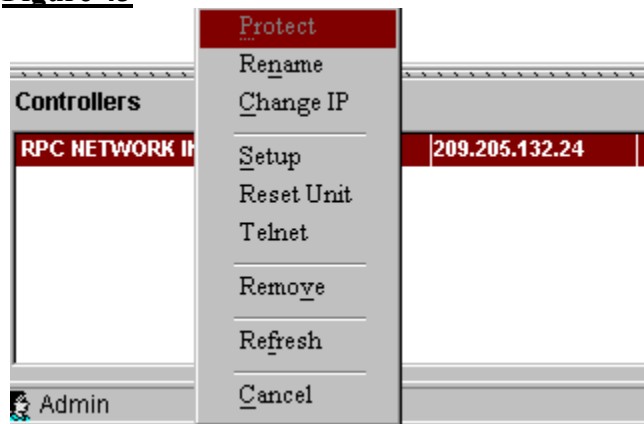
Figure 42



This feature gives you the ability to search for a server name, then you can right click to refresh, rename, turn on, off or reboot the device quickly.

Right clicking on the controller, power strip or outlet name can also give the ability to turn on, off, reboot, or rename the controller. (Figure 43)

Figure 43



Right clicking on the power strip or outlet name can also give the ability to make changes to the power strip or outlet. (Figure 43 and Figure 44)

Figure 43

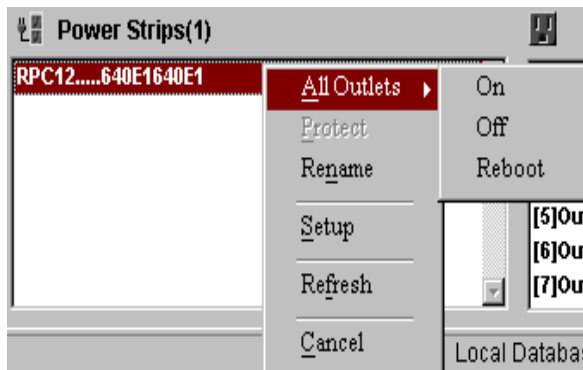
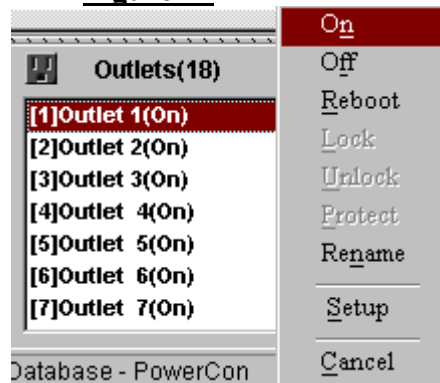


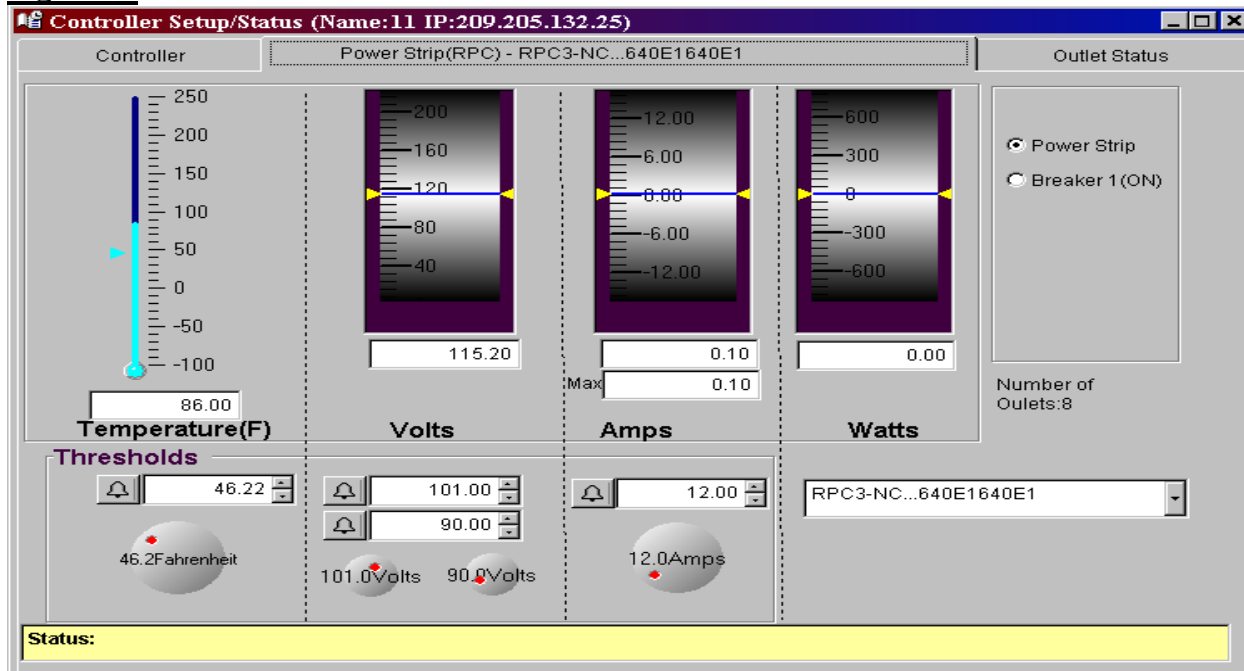
Figure 44



Threshold Setup and Management

Environmental alarm thresholds set per RPC. Current, voltage and temperature thresholds can be set for every circuit in your data center either locally or globally. Based on thresholds and trap settings, NOC personnel can be notified via email when circuits reach capacity. The power environment is displayed through graphical and textual displays as shown below. This is helpful prior to adding devices, NOC managers can easily check the capacity of a circuit, then make an informed decision on whether to add more equipment. (Figure 45)

Figure 45



Making changes to the power strip thresholds can be done three ways. One way is to highlight the text of the threshold you want to change and type in the new setting and click on the bell to set the new threshold.

Another way is to click on the ▲ or ▼ of the threshold you want to change and click on the bell to set the new threshold.

Another way is to click the mouse on the red dot of the threshold circle and move it to the desired setting. Then click on the bell to set the new threshold.

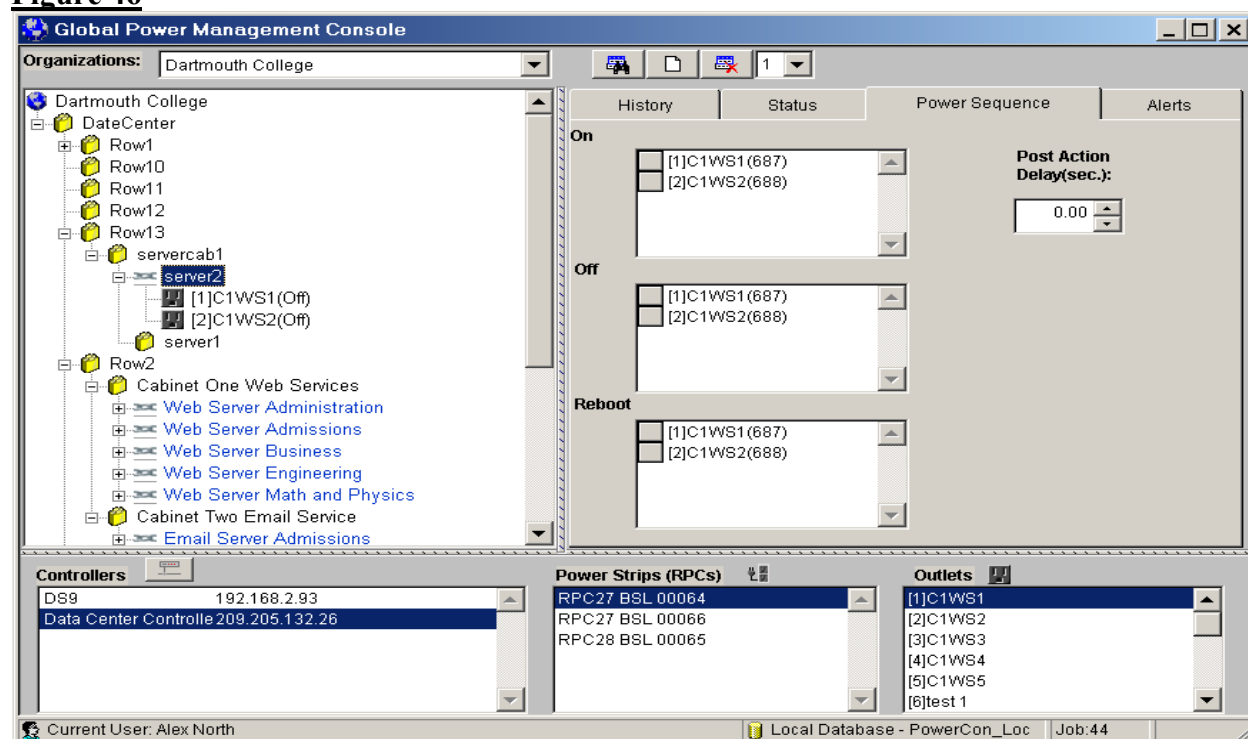
NOTE: The GPM software cannot convert Fahrenheit to Celsius, so the temperature is only read in Fahrenheit.

Creating Linked Outlets and Power Sequencing

Creating linked outlets and power sequencing can be assigned to devices with multiple receptacles. GPM allows you to sequence power supplies in any order. Delays can be set between operations. This is useful for bringing up device power supplies in a desired sequence. For example, if a server has two power strips, you take outlets from the different power strips for that server. Then you set up the sequence to turn off the secondary strip first, then the primary power strip.

As shown in the below figure, GPM allows you to sequence power supplies in any order. Delays can also be set between operations. This is a great Contingency Data Management Plan, especially for brown outs in California, for example. (Figure 46)

Figure 46



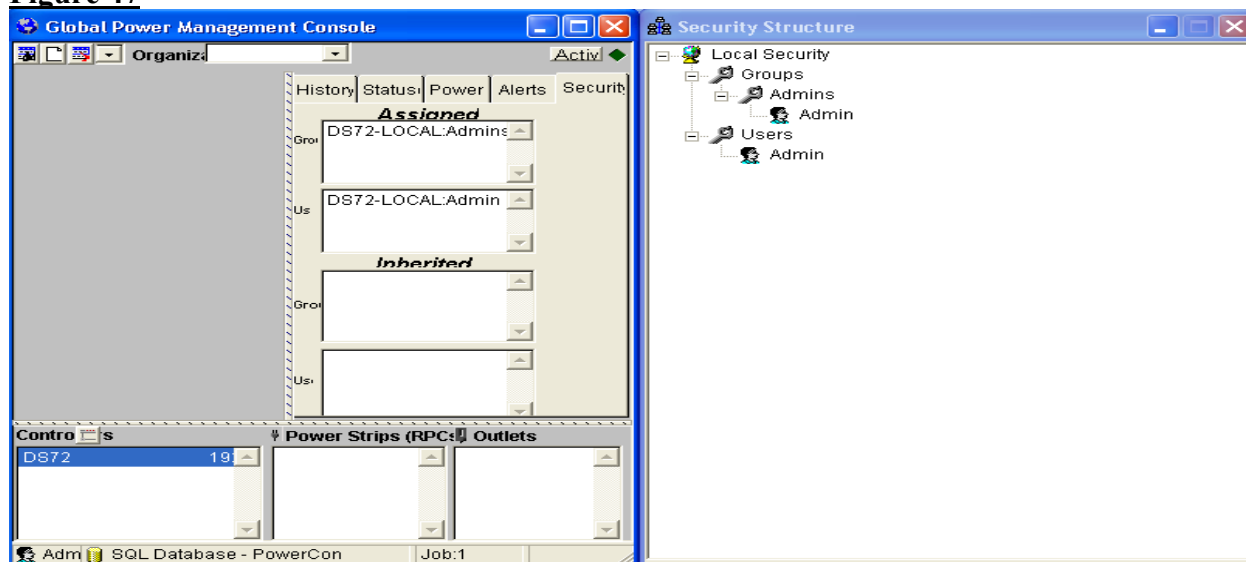
Security

WinNT/2000 Domains exposed to the power infrastructure.

Defining Users and Groups

Administrators can drag users or groups to any level within the organizational structure. Just simply click and drag the group or user to the appropriate box. (Figure 47)

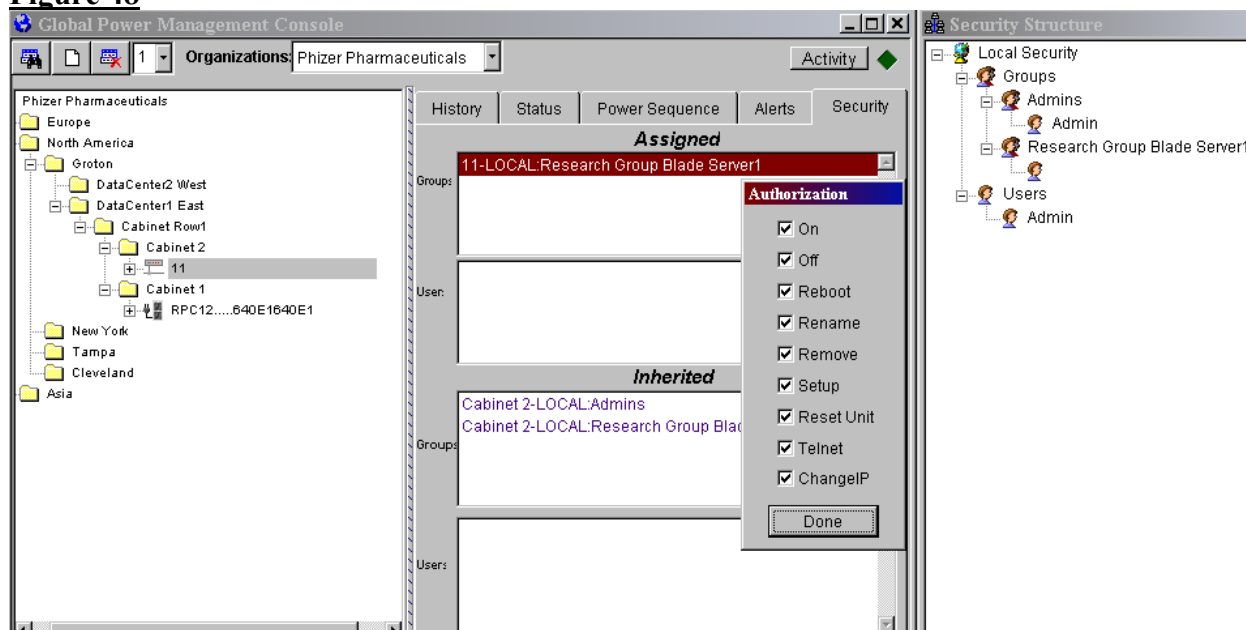
Figure 47



Applying Security

Users and groups can be assigned specific operations by the Administrator. After the operation is selected, click on Done, and it goes back to the Security screen. (Figure 48)

Figure 48



Reports and Graphs

Reports and graphs are a great resource within the organization to provide graphing for any organizational segment. They can be display graphically or with detailed reports. This is a definite advantage over Telnet, where you can only capture and manage the resource one piece at a time.

The Reports tab provides the ability to select what type of report to accomplish. Just click on the selection you want, select the timeframe, the source to collect the data from and what data you want to report on, and click Generate.

When generating graphs over time, click on graph and the Immediate Results tab, Capture and Labels tabs are then available. (Figure 49, 50, 51 and 52) GPM has the ability to graph power, voltage, current, maximum current and temperature over a specified time interval. This is great for detecting power and temperature trends within any segment of the data center or organization.

Figure 49

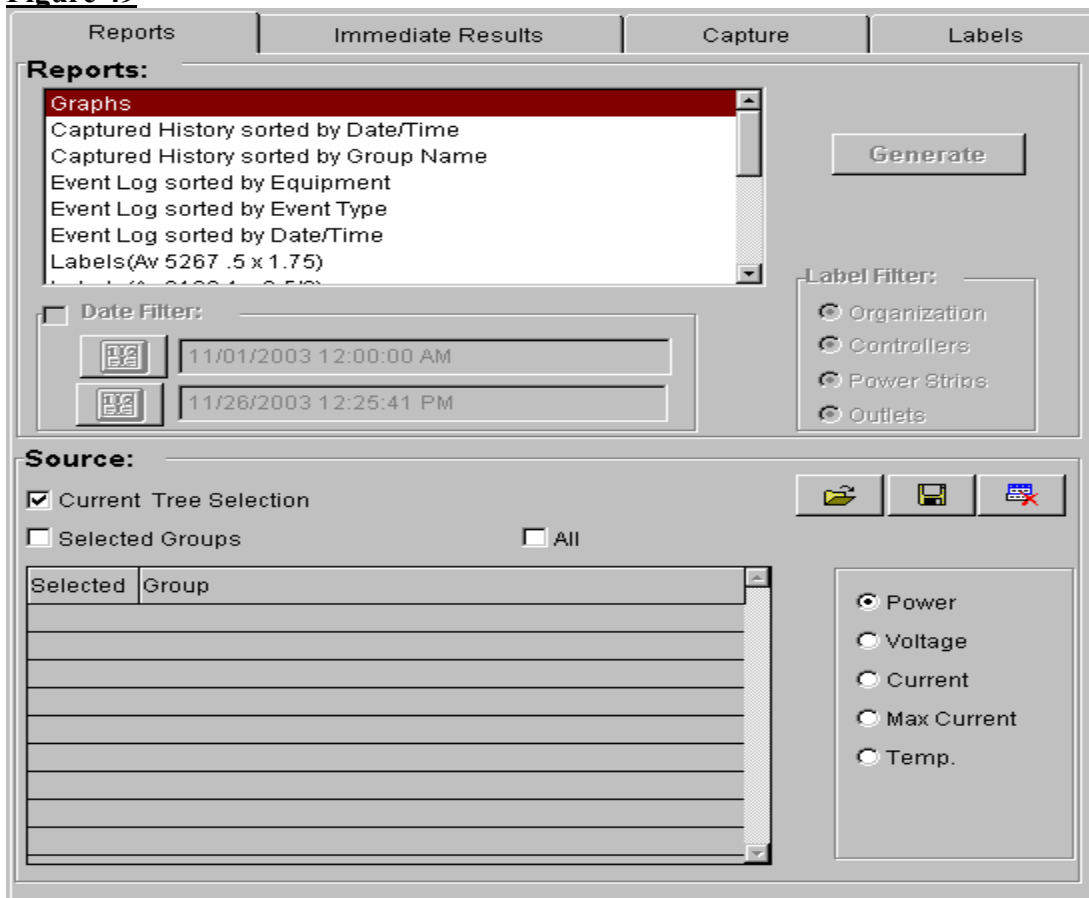


Figure 50

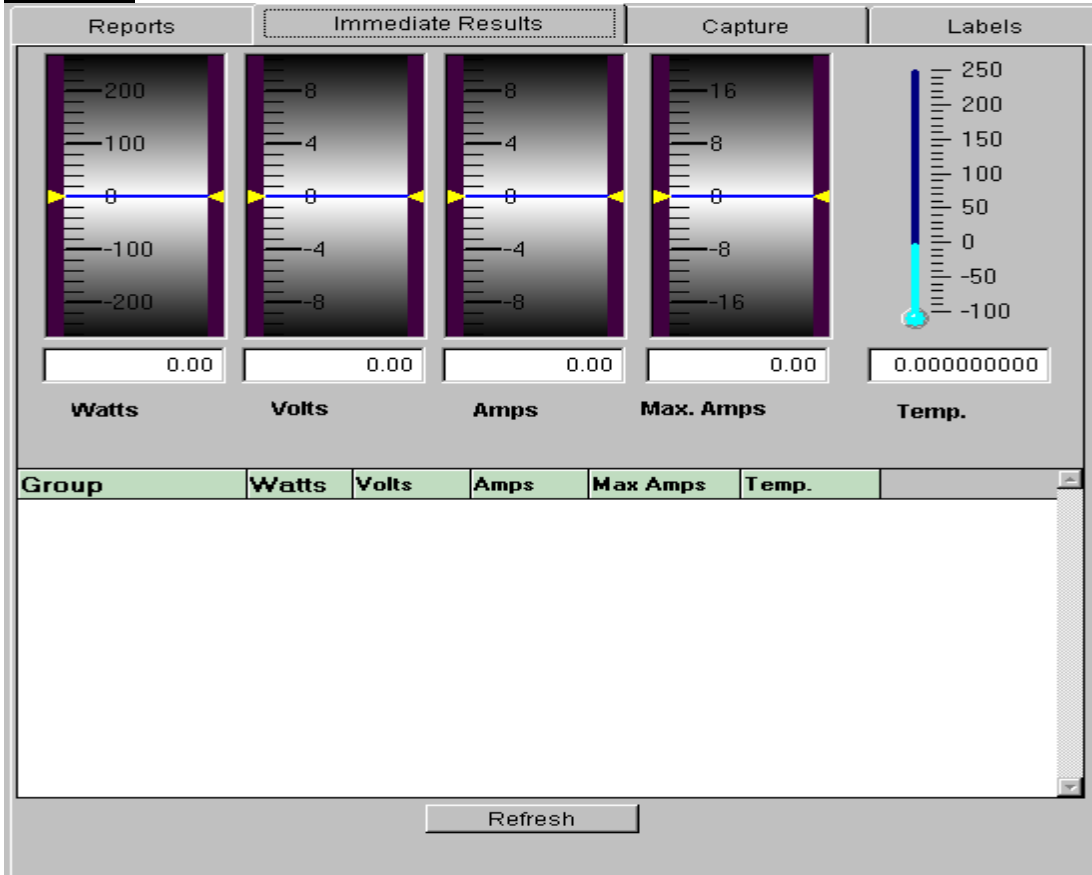


Figure 51

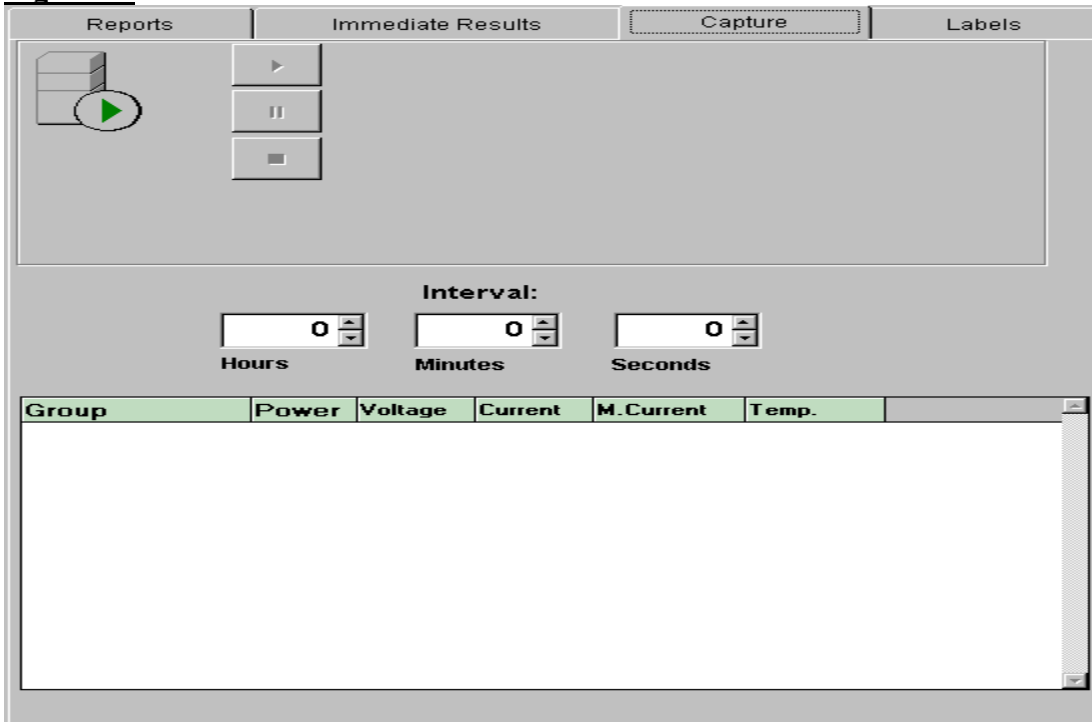
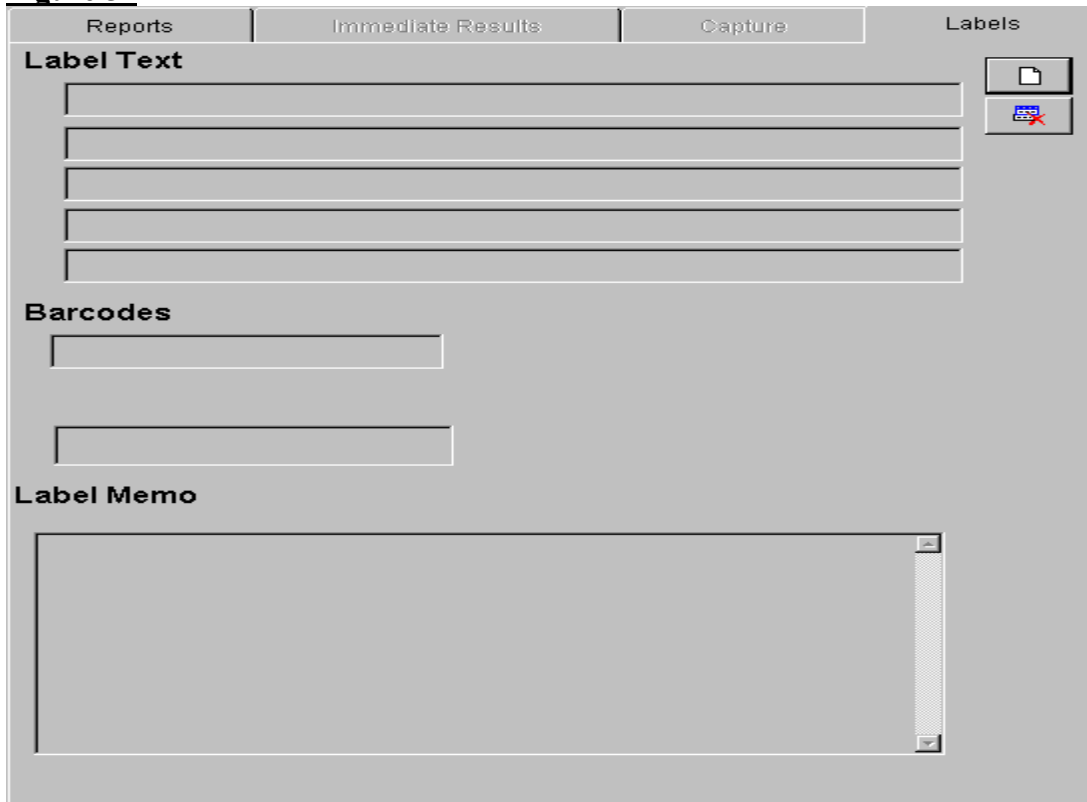


Figure 52



The screenshot shows a software window titled "Labels" with three tabs: "Reports", "Immediate Results", and "Capture". The "Labels" tab is active. The window contains three main sections:

- Label Text:** A section with five horizontal text input fields. To the right of these fields are two buttons: a document icon and a button with a red 'X' over a document icon.
- Barcodes:** A section with two horizontal text input fields.
- Label Memo:** A section with a large, empty text area and a vertical scrollbar on the right side.



TECHNICAL SUPPORT

If you have problems installing, setting up, or operating your Norlinx GPM software, please contact BayTech's technical support office as the first line of support.

BayTech has a staff of Applications Engineers on duty to assist you from **7:30 a.m. to 6 p.m. (CST or CDT), Monday through Friday** at the phone numbers or website provided below.

Please have the following information available to help the Applications Engineers answer your questions efficiently:

- a. The type of Norlinx GPM software (Local Database or SQL Server Database) purchased and when purchased.
- b. The number of receptacles purchased.
- c. GPM software version.
- d. Any devices you have connected to GPM.
- e. Provide a detailed description of the application you are using and what you are trying to accomplish.
- f. Provide a detailed description of the problem or error message
- g. If possible, a printout of the configuration status or error message screen.

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228-467-8231
FAX: 228-467-4551
Email: support@baytech.net