
Users Guide

PointWare

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Introduction

Overview

PointWare is a program used to maintain Point Servers and Point Managers. PointWare provides a graphical interface to common Point Server/Point Manager configuration and data gathering tasks. PointWare simplifies the setup and management of Point Server/Point Managers. PointWare makes connections with Point Server/Point Managers, reads the data and places the data in a database on the computer. PointWare can display alarm and data reports.

Connectivity

PointWare can make connections with a Point Server/Point Manager using the three supported media: TCP/IP, Modem and Serial Port. PointWare can both initiate pushes and answer multiple simultaneous connections. The user can set up PointWare to use the available communication resources on the PC (Ethernet, Modems, Serial Ports).

The Serial media is useful for commissioning Point Servers/Point Managers before they are set to the field.

Configuration Management

PointWare manages each Point Server/Point Manager's configuration. The setup interface allows viewing and editing of Point Server/Point Manager information that is stored in the database. All the functions of the Point Server/Point Manager are supported in the setup interface. PointWare monitors configuration integrity between the database and the Point Server/Point Manager.

Data Gathering

PointWare gathers stored data in the Point Server/Point Manager's Historical and Event Logs and places it in the database. PointWare will only gather the latest data that is not found in the database. All data, both collected data and configuration data is stored in a Microsoft SQL Server database.

An action list can be setup so that when the software connects to a Point Server/Point Manager whether initiating the connection or answering the call, PointWare will implement those individual actions against the Point Server/Point Manager.

PointWare also includes a scheduler so that PointWare can make a connection to a Point Server/Point Manager at a specific time and implement the action list.

Reports

PointWare contains several built-in reports that show activity of Point Servers/Point Managers, received alarms, collected events and trends of the collected historical data. PointWare shows sensor data as a line graph (sensor reading versus time). The selected data used to generate the graph can be exported as an Excel, Access, ASCII text, HTML or XML file.

Third party software such as MS Access, MS Excel and Crystal Reports can be used to generate custom reports by querying the database directly.

Alarming

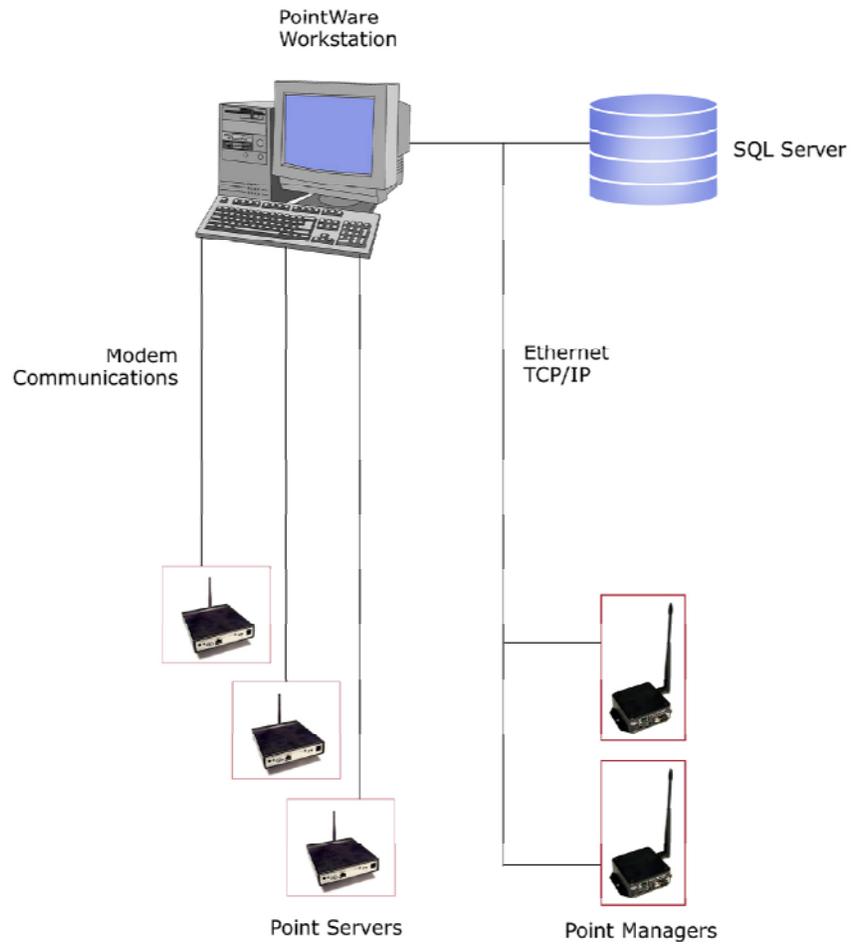
PointWare will show all collected Alarms since the last acknowledgement. An operator can then view all reported alarms collected by Point Server/Point Manager, from overnight for example. PointWare can also email these same alarms to multiple email recipients when the alarms are received.

Expandable

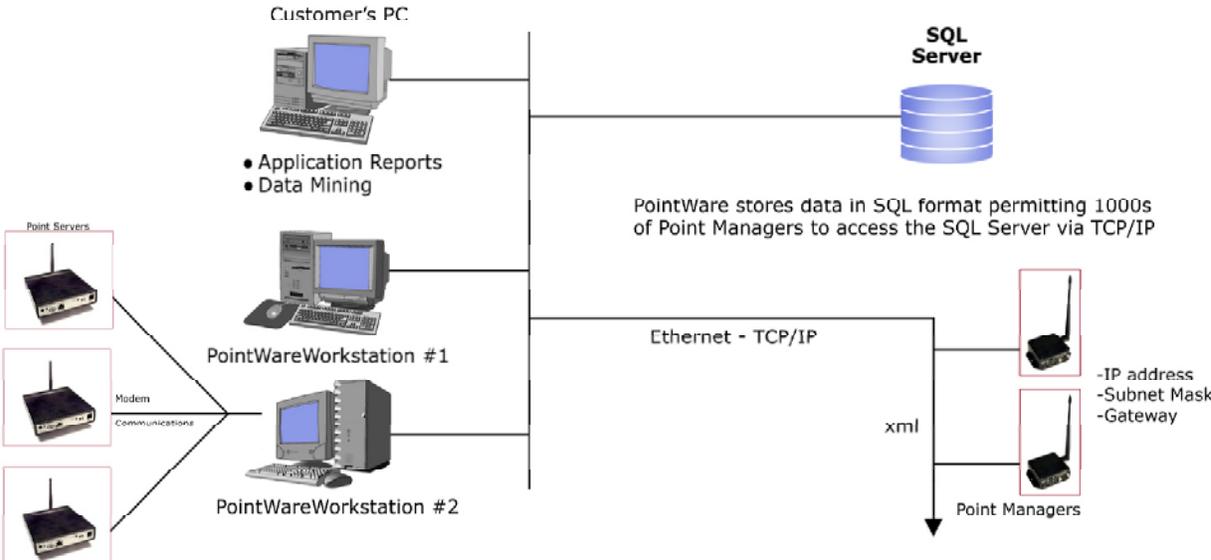
PointWare can be run on multiple computers on a network where PointWare references a central database. Different responsibilities then can be assigned to each instance. The system can then grow as more Point Servers/Point Managers are added to the system. For example one instance of PointWare can answer calls through several modems, the 2nd can poll Point Servers/Point Managers through modems and 3rd can manage TCP/IP connections. All instances can choose whether or not to display or email alarm notifications.

Single User

Modem and/or Ethernet Connectivity



Enterprise Level Modem & Ethernet Connectivity



Requirements

Windows ME, XP, 2000, or 2003

Access to MS SQL Server 2000 or MSDE 2000

Ethernet (or TCP/IP connection)

Serial port (optional)

Modem (optional).

Point Manager or Point Server

Terms and Concepts

Push: A Push occurs in PointWare when PointWare attempts to contact a Point Server/Point Manager. A Push usually executes a series of Actions.

Wait: If PointWare has a Wait set up, it will respond to a Point Server/Point Manager's attempt to contact the computer. When a Wait is connected, it can execute a list of Actions.

Event: A change of state or value that triggers an action by Point Server/Point Manager. When event conditions are met, Point Server/Point Manager may alarm and/or log the event.

Alarm: A response by Point Server/Point Manager to an event. Point Server/Point Manager will attempt to notify of the alarm by attempting to contact the host computer or by sending an email.

Log: A response by Point Server/Point Manager to an event. Point Server/Point Manager writes the event information to its log. PointWare can then read this log into the computer.

Connection: PointWare and Point Server/Point Manager are currently communicating.

Actions: Performed during a connection, an action gathers information from or downloads information to the Point Server/Point Manager. Examples of an Action would be to get the Historical Log data or to write the Setup.

Point Server/Point Manager: A data acquisition server that maintains a log of data and events and makes this log available to be stored and analyzed on a host computer.

Media: Type of communication resource that PointWare uses to connect to a host computer. PointWare can use the following resources: Serial, Modem and TCP/IP.

Media Device: Specific media channel. Example: COM1 or TCP/IP 192.168.1.55.

Tree: Used to organize Point Servers/Point Managers in hierarchical organization.

Branch: a branch in the hierarchical tree used to organize Point Servers/Point Managers.

UTC: Universal Time Coordinates. Point Servers/Point Managers and PointWare can store time related information in UTC and then convert the time to local time for presentation.

Multi-Client Mode: multiple instances of PointWare running connected to the same database.

Quick Start

Quick Start Overview

In order to use PointWare and a Point Server/Point Manager, you will have to do the following:

1. Create a PointWare database or connect to an existing PointWare database.
2. Set up the media on which you will connect with a Point Server/Point Manager.
3. Set up a Point Server/Point Manager by reading the set up of an existing Point Server/Point Manager
- or -
4. Set up a Point Server/Point Manager by creating a setup in PointWare and writing the setup to the Point Server/Point Manager.

For more information about installing Point Server/Point Manager, see the Point Server or Point Manager's User Guide.

Note: Before using PointWare, determine if you need to accommodate Point Server/Point Managers from different time zones and view their data in relationship to their time zones. Set the UTC option if you need this feature. See the section "UTC and Time Zones" for more information.

Creating or Connecting to a PointWare Database

When PointWare starts for the first time, it will prompt you to either connect to an existing PointWare database or create a new PointWare database. The PointWare database can reside on the local computer or be remote on a database server.

PointWare will display a prompt requesting that you "Setup a Connection" or "Create a database". If running for the first time, you will want to create a database. Before proceeding, make sure you know how to connect to your SQL Server and how to log on to the SQL Server.

Creating

PointWare will prompt you for the connection string (Database Setup). Select the "Build" button where PointWare displays a form (Data Link Properties) for you to

fill in. If you want to test the connection, you will need to temporarily remove the reference to "PointWare" as the database name (since it does not exist yet). Specify the name of the database in the "Select the database on the server" field. "PointWare" is the default name. Click OK in the Data Link Properties and OK again in the Database Setup. If PointWare is successful in connecting to the SQL Server and logging in, it will create the Point Ware database and then show the PointWare main window.

Connecting

The "Set up Connection to PointWare Database" allows you to connect to an existing PointWare database whether it is local or remote. PointWare will prompt you for the connection string (Database Setup). Select the "Build" button. PointWare displays a form (Data Link Properties) for you to fill in. If you want to test the connection, click the "Test Connection" button.

Media Setup

You must decide which media type you want to use and verify that that Media device is properly installed on you computer.

Go to the Media Tab. Right click with your mouse on the Media Tab. PointWare will display a popup menu. For the type of media you are using, select one of the following: Serial, Modem or TCP/IP. If you select Serial, you will be prompted for which serial port you want to use. If you select Modem, PointWare will prompt you for a modem, with a list of modems it has detected on your computer. When you click "OK", PointWare creates a Media device on the Media Tab.

Reading a Point Server/Point Manager Setup

A Point Server/Point Manager's setup consists of its sensor list, event list, and its configuration of communications media. By making a connection to a Point Server/Point Manager, PointWare can read its setup and store it in the database for management.

NOTE: Before establishing a connection with a Point Server/Point Manager, make sure the clock on your computer has the correct time and date set as well the proper time zone and daylight saving time. Make sure you have configured at least one media device and that the Point Server/Point Manager is connected to the host computer or LAN, and powered.

Establish a Connection

Go to the "Pushes" tab. Right click in the window. A menu will pop up. Select "New". If you have set up media, the Push Manager window will appear.

Select the "Import New" radio button near the top of the window. Select the media type from the "Device" group (TCP/IP, Modem or Serial). If you choose TCP/IP you will need to fill in the IP Address. For modem, you will need the phone number of the Point Server/Point Manager. If you choose Serial, make sure the right Com Port is showing in the "Serial Port" box.

When connecting with a new Point Server/Point Manager, no actions may be added. "Import" is the default action and "now[as soon as possible]" is the default-scheduled time. Accept the defaults and click "OK."

PointWare will attempt to connect to the Point Server/Point Manager and read its setup.

After the setup is read you can go to the "Point Server/Point Managers" tab, right-click on your new Point Server/Point Manager and select "Edit" from the pop-up menu. Then you can edit the parameters for the server and write the setup back out.

Creating a Point Server/Point Manager setup

Go to the Point Server/Point Managers Tab. Click the "Not Categorized" branch listed in the Navigation Panel on the left. Right-click in the right window and select "New" from the menu and then select "New Point Server/Point Manager". A Point Server/Point Manager setup form will be displayed. This is the setup screen where you can set parameters for the Point Server/Point Manager.

In the General Tab, give your Point Server/Point Manager a name.

Click the Connection Tab. This is where you set up the Point Server/Point Manager's communications media. PointWare shows all the media information but you only have to configure the media you need. You can only connect with a Point Server/Point Manager using media that you have configured in the "Media" tab.

In the "Push Default" section of the screen, select the way you want PointWare to communicate with the Point Server/Point Manager: Modem, TCP/IP or Serial.

For Serial, select which COM port you want to use. For Modem, enter the phone number of the Point Server/Point Manager. For TCP/IP, enter the IP address, Subnet mask, and Gateway (you may need to contact your network administration to obtain these network settings for your Point Server/Point Manager). For Modem, enter the phone number in its common form.

You may need to override the Connection information. For example you may need to add a "9" in front the phone number in order to dial out. Go to the Contact Tab and make the necessary adjustments.

This is the minimum amount of information you need for the Point Server/Point Manager Setup. View the other tabs and fields. When finished select the OK button. PointWare will save the setup to the database and the name of the Point Server/Point Manager will be listed in the Point Server/Point Managers Tab.

You are now ready to make a connection with the Point Server/Point Manager.

Write the setup

NOTE: Before establishing a connection with a Point Server/Point Manager, make sure the clock on your computer has the correct time and date set as well the proper time zone and daylight saving time.

Right click with your mouse on top of the Point Server/Point Manager that you just set up. Select "Push..." from the pop-up menu and then "Write Setup". PointWare will now attempt to connect to the Point Server/Point Manager and write out the setup you just created.

PointWare Setup

PointWare Database

Database Manager Overview

PointWare uses the Microsoft SQL 2000 Server. It can also use Microsoft Desktop Edition (MSDE). The database manager can be remote (running on another computer on the network) or can reside on the same computer where PointWare resides. With the Multi-Client version, multiple instances of PointWare running on client computers can access the same database. PointWare will create its own database when it first starts.

Creating or Connecting to a PointWare Database

When PointWare starts for the first time, it will prompt you to either connect to an existing PointWare database or create a new PointWare database. PointWare will display a prompt requesting that you “Set up a Connection” or “Create a database”. If running for the first time, you will want to create a database. Before proceeding, make sure you know how to connect to your SQL Server and how to log on to the SQL Server.

Once the connection is established, PointWare will remember the connection information.

Creating

PointWare will prompt you for the connection string (Database Setup). Select the “Build” button where PointWare displays a form (Data Link Properties) for you to fill in. If you want to test the connection, you will need to temporarily remove the reference to “PointWare” as the database name (since it does not exist yet). Specify the name of the database in the “Select the database on the server” field. “PointWare” is the default name. Click OK in the Data Link Properties and OK again in the Database Setup. If PointWare is successful in connecting to the SQL Server and logging in, it will create the Point Ware database and then show the PointWare main window.

Connecting

The “Set up Connection to PointWare Database” allows you to connect to an existing PointWare database whether it is local or remote. PointWare will prompt you for the connection string (Database Setup). Select the “Build” button. PointWare displays a form (Data Link Properties) for you to fill in. If you want to test the connection, click the “Test Connection” button.

Media Setup

Media Setup Overview

PointWare uses the communication resources that are set up on your computer by the Windows operating system. You must insure that the communication resources as defined by your computer and operating system are set up properly.

Com Port

Verify that the serial port you want to use exists. Go to the Windows Control Panel and select System. Select Device Manager and “Ports (COM & LPT)”. This is list of the available communications ports.

Verify that the serial port you want to use is not being used by another application.

From PointWare’s Media Tab, right click with your mouse. PointWare displays a popup menu. Select Serial. PointWare will prompt you for the Serial port you want to use and then list this media device in the Media tab window.

TCP/IP

PointWare uses the existing networking support of your computer. Verify that the network has been set up for your computer and that you have a TCP/IP component installed. Go to the Windows Control Panel and select Network. Verify that you have a TCP/IP component and that the network settings are set up properly and functioning.

From the Media Tab, right click with your mouse. PointWare displays a popup menu. Select TCP/IP. PointWare then displays a TCP/IP object in the Media Tab list.

Modem

From the Media Tab, right click with your mouse. PointWare displays a popup menu. Select Modem. PointWare then prompts you to select a modem, from the list of modems it has detected on your computer. Once you select a modem, PointWare displays the modem in the Media Tab.

If you have difficulties with the modem, go to the Windows Control Panel and select Modem. Select the modem you plan to use and then click the Properties button. View the modem setup. Also make sure that no other application is using the modem.

Clock Usage

PointWare uses the computer's clock to set the Point Server/Point Manager's time of day clock when it performs the Write Setup Action. **IT IS VERY IMPORTANT THAT YOUR PC CLOCK BE SET CORRECTLY.** To view your settings go to the Control Panel and select Date/Time or double click on the time that is showing on the Desktop's Task Bar. Verify the date, time, time zone and daylight savings time settings.

Note: Before using PointWare, determine if you need to accommodate Point Server/Point Managers from different time zones and view their data in relationship to their time zones. Set the UTC option if you need this feature. See the section "UTC and Time Zones" for more information.

PointWare Options

The PointWare options can be found by selecting "File" in the main menu and then selecting "Options".

Some options pertain only to the local PointWare workstation; these options will be marked as "(local)". Other options apply to all instances of PointWare running in the network; these options will be marked as "(global)".

The following is a description of the Options window.

General

Sound on Connection: (local) PointWare will sound a chime when a connection is created (either initiating or receiving).

Alarm Notification: (local) PointWare will display a popup Alarm notice when an alarm is received. Note that both alarms that are received locally and alarms received by other clients will be displayed.

Alarm Sound File: (local) PointWare will sound this file when an Alarm popup window is displayed. Click the "Play" button to test the sound file. Leave this field blank to have no sound.

Logging

Force History Snap Shot at Collection: (global) When PointWare has finished doing the History Log action, it will instruct the Point Server/Point Manager to log a History snap shot now and then collect this last record. With this mechanism, the latest sensor data can be captured when the History Log action takes place.

Clear History Log after Collection: (global) When PointWare has successfully finished collecting the History records from the History Log, PointWare will clear the History Log.

Clear Event Log after Collection: (global) When PointWare has successfully finished collecting the Event records from the Event Log, PointWare will clear the Event Log.

History Start (in days): (global) If there is no History data in the database, this field governs from at which point PointWare will start

collecting the data. This situation can arise when collecting data from an existing Point Server/Point Manager that has been logging data for long time. Starting with the current time, PointWare will start gathering from the specified number of days ago.

Event Start (in days): (global) If there is no Event data in the database, this field governs from at which point PointWare will start collecting the data. This situation can arise when collecting data from an existing Point Server/Point Manager that has been logging data for long time. Starting with the current time, PointWare will start gathering from the specified number of days ago.

Passwords

Point Servers/Point Managers use passwords to control access. The same global passwords can be used/set for all Point Servers/Point Managers. Individual Point Server/Point Manager can be set uniquely. See “Password tab” in the Point Server/Point Manager Setup section.

Set Global Passwords: (global) Sets global passwords that all Point Servers/Point Managers will use if a specific password is not setup for that Point Server/Point Manager.

Data Password: (global) Data Login password

Previous Data Password: (global) Previous Data Login password. Need to set only if you are changing passwords.

Setup Password: (global) Setup Login password.

Previous Setup Password: (global) Previous Setup Login password. Need to set only if you are changing passwords.

These parameters are set for all clients running PointWare.

Note: If you are using PointWare with any Point Server/Point Managers that are less than version 1.6, you must use global passwords. Setting individual passwords will not work. In the Point Server/Point Manager setup, the General Tab contains the version number of the Point Server/Point Manager.

Time

These parameters are set for all clients running PointWare.

UTC mode: (global) Sets whether PointWare sets and converts the Point Server/Point Manager clock and times to and from UTC. See the section “UTC and Time Zones” for more information.

UTCDataMode: (global) If checked then the data in the database is stored in UTC time. If not checked then the data is stored in local time. Only takes effect if the **UTC mode** is checked. See the section “UTC and Time Zones” for more information.

Email

PointWare can email alarms when it receives an alarm. See the section “Emailing Alarms” for more information.

Enable Email: (local) Enable sending emails when alarms are received

SMTP Host: (local) Domain name of the email server.

Authentication: (local) Type of Authentication the email server uses:
None, Plain, Login, and CramMD5.

User name: (local) Required when Authentication is used.

Password: (local) Required when Authentication is used.

From: (local) A string to identify this instance of PointWare. Needs to be
in the form of an email address (Example: "pwcentral@info.com")

To: (local) The email address to send the email. More than one email
address can be specified (delimit with ";").

CC: (local) The email address to send copies to. More than one email
address can be specified (delimit with ";").

Subject: (local) An identifying string

Test Email: (local) Click the button to send a test email. The body of the
email will contain the following message: "Testing Email function! "

Main Window

Menu Options

File

Options

Displays the options for PointWare. See the section “PointWare Options” for more information.

Exit

Click on the Exit submenu to exit the program.

View Control

The options for the View Control menu change for which tab is being displayed. The submenu options will be enabled or disabled depending on the selected content of the tab and state of the current operation. The View Control contains the same options as the popup menu when the right mouse button is clicked and when the mouse is on the current tab sheet. The following is a list of the View Control submenus per tab:

Media

Serial: Add new serial device to the Media list. PointWare will prompt for the Com Port number when this submenu is selected.

Modem: Add new modem to the Media list. PointWare will display a list of modems that are available through the Windows Operating System. PointWare will give an error if the modem is already listed in the tab. To change the configuration of the modem go to the Windows Control Panel and select Modems.

TCP/IP: Add a new TCP/IP media to the Media list. Only one TCP/IP device is allowed. PointWare expects the Windows Operating System to be previously setup for networking and TCP/IP support. To change the configuration for TCP/IP go to the Windows Control Panel and select Networking.

Delete: Delete the selected Media.

Wait: Add a Wait function to the Wait list. The submenu sets up a function that will answer incoming connection attempts by a Point Server/Point Manager on the selected Media. For further information please see the section “Setting up a Wait”.

Push: Add a Push to the Push list. The submenu sets up a function to initiate a connection with a Point Server/Point Manager on the selected media. When the submenu is selected, PointWare will enquire what Actions you want to apply to this Push and when to execute the Push. For further information please see the section “Setting up a Push”.

Waits

Edit: Edit the Actions you want applied to the Point Server/Point Manager when it makes a connection with the host on this media device. For further information please see the section “Setting up a Wait”.

Delete: Delete the selected Wait function.

Enable: Enable the Wait function since it is disabled.

Disable: Disable the Wait function. It prevents the Wait function from establishing a connection. This will free up the Serial or the Modem media to be used for the Push function.

Pushes

New: Add a Push to the Push list. The submenu sets up a function to initiate a connection with a Point Server/Point Manager on the selected media. When the submenu is selected, PointWare will enquire what Point Server/Point Manager or Branch to connect to, what Actions you want to apply to this Push and when to execute the Push. For further information please see the section “Setting up a Push”.

Edit: Edit the Actions you want applied to the Point Server/Point Manager or Branch when it makes a connection with the host or when you want to execute the Push. For further information please see the section “Setting up a Push.”

Delete: Delete the selected Push function.

Enable: Enable the disabled Push function.

Disable: Disables the enabled Push function. Select this submenu option if you want to temporarily use this media for another purpose such as setting up another Push or Wait on this media.

Go: Start executing immediately (regardless of its schedule) the selected Push function if the Push function was previously “waiting” or “done”.

Stop: Stop the execution of the selected Push function.

View Last Error: Display the Last Error window if the selected Push item has an error. Disabled if the Push item does not have an error.

Connections

Action Manager: Display the Action Manager for the currently selected Connection. You can then edit the Action Manager’s Action list. For further information, please see the section “Action Manager”.

Close: Close the selected connection.

Point Server/Point Managers

New:

New Point Server/Point Manager: PointWare creates a new Point Server/Point Manager Setup and displays the Point Server/Point Manager Setup window. For further information see the section “Point Server/Point Manager Setup”.

New Branch: Create a new branch.

Delete: Delete the selected Point Server/Point Manager from the database. ALL DATA ASSOCIATED WITH THIS POINT SERVER/POINT MANAGER IS DELETED! Or delete the selected Branch. All Point Server/Point Managers assigned to this Branch or its sub-branches will be moved to the Not Categorized Branch. The selected Branch and all its sub-branches will be deleted.

Edit: Edit the selected Point Server/Point Manager Setup. PointWare displays the Point Server/Point Manager Setup Window. For further information see the section “Point Server/Point Manager Setup”.

Duplicate: Create a copy of the selected Point Server/Point Manager setup information. PointWare will ask you for a name for this Point Server/Point Manager.

Replace: Replace the existing Point Server/Point Manager. PointWare will prompt for the MAC address of the new unit. Use the “CDR” command to obtain the MAC address. See either the Point Server or Point Manager for more information about obtaining the MAC address. All setup information and collected data will be retained.

Push: PointWare shows a list of pre-established actions for you to choose. When selected PointWare will place the Push function on the Push list (viewable from the Push tab). It will start executing the Push function and if successfully completes the function will remove the Push function from the Push Item otherwise it will mark the Push function as having an error. These operations can be applied to both Point Servers/Point Managers and Branches. If a Branch is selected then the chosen operation will be applied to all Point Servers/Point Managers under that Branch.

Push: create a Push function (which will add a Push object to the Push list). The submenu sets up a function to initiate a connection with a Point Server/Point Manager on the selected media. When the submenu is selected, PointWare will enquire what Actions you want to apply to this Push and when to execute the Push. For further information please see the section “Setting up a Push”.

Get History/Events: Collect the most recent data from both the Point Server/Point Manager’s History and Event Logs.

Read Setup: Read the Point Server/Point Manager’s setup and write it to the database.

Write Setup: Take the Point Server/Point Manager’s setup stored in the database and write it to the Point Server/Point Manager. This operation will delete all data stored in the Point Server/Point Manager’s History and Event Logs.

Get History: Collect the most recent data from the Point Server/Point Manager’s History Log.

Get Events: Collect the most recent data from the Point Server/Point Manager's Event Log.

Start XML: Force the Point Manager to initiate connection to a remote web service to deliver History and Event records via XML.

Browse: PointWare launches your Internet browser and directs it to the web page of the selected Point Server/Point Manager.

View Last Error: Display the Last Error window if the selected Point Server/Point Manager or Branch has an error. Disabled if the selected Point Server/Point Manager or Branch does not have an error.

Tools

Correction Tables: The Correction Table option in the Tools menu allows you to set up correction tables for the Point Server/Point Manager. For more information, see the section "Correction Tables".

Window

The Window menu shows a list of the currently available open windows.

Reports

Comparison: Displays the Comparison Report. With the Comparison Report you can analyze the collected Historical Log data from the Point Server/Point Managers. The data is displayed as a line plot. You can compare the data from different times. For further information see the section "Comparison Report".

Trend: Displays the Trend Report. With the Trend Report you can analyze the collected Historical Log data from the Point Server/Point Managers. The data is displayed as a line plot. Trend Report shows the data starting a specific time. For further information see the section "Trend Report".

Activity: Displays the Activity Report. With the Activity Report, you can examine the call out or call in frequency and any errors noted during communications. For further information see the section "Activity Report".

Event: Displays the Event Report. The Event Report contains the collected Events from the Point Server/Point Manager. For further information see the section "Event Report".

Alarm: Displays a subset of the Event Report that shows the current Alarms since the last alarm acknowledgement. This submenu option is only enabled when PointWare receives new alarms.

Help

Contents: Show the contents for the Help System.

About: Shows the title name and version for this application. It also shows the Application parameters.

Toolbar

The Toolbar is a quick means to select one of the options in the View Control menu. When the mouse lingers over a Toolbar button, PointWare will display a message describing the button. See the section “View Control” for a list of the possible options.

Main Window Tabs

Media Tab

The Media Tab is used to set up the three media types used by the Point Server/Point Manager: TCP/IP, Serial and Modem. It shows what media is currently being used and whether that connection is available and/or already connected. There are also hot buttons that let the user create new connections. From here the user can also push a connection that has been set up or can set the PointWare to wait for a connection using one of the media.

The Media Tab is broken into four columns:

Media: Listed here will be the specific media the user is using. It will display what kind of modem the user is using, which serial (Com) port the user is using and for Ethernet it will list TCP/IP.

Kind: Lists the type of Media being used: Serial, Modem, TCP/IP

Available: Will say True if there is a connection ready and False if there is already a connection established.

Connections: Will display the number of connections present.

Right Clicking on a Media will produce a drop down menu that lets the user Add and/or Delete any of the three media. This will also let the user set up any of the medias to Push or Wait for a connection from a Point Server/Point Manager. For more information about the menu options, see the section “View Control”.

Waits Tab

The Waits Tab displays all the media types that are currently waiting for a connection, whether it is Serial, TCP/IP or Modem. It also displays Waits that have made a connection and which ones are still available to connect.

The Waits Tab is broken into five columns:

Media: Listed here will be the specific media the user is using. It will display what kind of modem the user is using, which serial (Com) port the user is using and for Ethernet it will list TCP/IP.

State: Displays current status of a media, using one of these five states: Disabled, In Use, Closing, Available, and Unavailable.

Connection: Displays the number of connection present on each media.

Details: Displays the type of media being used. For the Modem, it tells the type of modem used. For TCP/IP it displays what port the user is waiting on. For a Serial connection it will display the COM port the user is waiting on and also the connection mask for that particular COM port.

Actions: Displays abbreviations for the actions taken for the wait.

When the user right clicks on a waiting media, the user will see a drop down menu that lets the user choose between Edit, Enable, Disable and Delete. The user can decide how to treat the waiting media with these commands. . For more information about the menu options, see the section “View Control”.

Pushes Tab

The Pushes Tab displays what pushes have been made and shows which media type was used for that particular push.

The Pushes Tab is broke up into four columns:

Branch/Point Server/Point Manager: Shows which Point Server/Point Manager or Branch is the target of the push, or "Unbound" if the push is associated with a new Point Server/Point Manager.

State: Will display one of six states; Disabled, Waiting, Pushing, Retry Wait, Open and Closing.

Last: Show the time and date of the last connection made. If an error occurred during the Push, PointWare will display a red ‘X’. You can view the error by selecting the View Last Error option in the popup window when you right click on the Push.

Next: Shows the time and date of the next scheduled connection.

Details: Shows the specific media the user is using. It will show modem, Com port or TCP/IP connection

Actions: Displays the actions the push will take, in an abbreviated form.

When the user right-clicks on a pushed media, the user will see a drop down menu that lets the user choose between Stop, Go, Edit and Delete or New to create a new push. The user can decide how to treat the pushed media with these commands. . For more information about the menu options, see the section “View Control”.

Connections Tab

The Connections Tab displays all of the current connections to any Point Server/Point Managers that have been set up. It lists what media types are being used for each connection and lists the name of the Point Server/Point Manager that has made the connection.

The Connections Tab is broken into four columns:

Media: Listed here will be the specific media the user is using. It will display what kind of modem the user is using, which serial (Com) port the user is using and for Ethernet it will list TCP/IP.

Connected At: Displays the time the connection was made.

Action: Will display “running” when there is an action being executed from the Action Manager.

Point Server/Point Manager: Displays the name of the Point Server/Point Manager making the connection.

When the user right clicks on a connected media, the user will see a drop down menu that will let the user Bind, Import, start the Action Manager or Close the connection. For more information about the menu options, see the section “View Control”.

Point Server/Point Manager Tab

The Point Server/Point Manager Tab displays two panels: the left panel is the navigation panel and right is the list panel. See the section “Organizing Point Servers/Point Managers” for more information about organizing your devices.

Navigation Panel

The navigation panel allows you to navigate the organizational tree. Use the navigation panel to locate Point Servers/Point Managers. You can click on the ‘+’ or ‘-’ to expand or contract the tree. Point Servers/Point Managers are located at the end of tree branches (and only listed in the list panel). The “up arrow” above the organizational tree allows you select the parent branch of the current branch.

You also can select Point Servers/Point Managers and drag and drop them into the end branches in the Navigation panel to assign the Point Servers/Point Managers to that end branch.

List Panel

The Point Server/Point Manager Tab displays a list of Branches that are assigned to the parent Branch or a list of Point Server/Point Managers that are assigned to the parent Branch. From the List Panel you can perform operations against the Branch or the Point Server/Point Manager.

Branch List

The Branch List shows a list of Branches that belong to the parent branch.

If a Branch in the Branch List contains a Point Server/Point Manager that has an error, PointWare will present a read ‘X’ character next to the Branch. You can then select the View Last Error operation to view the error.

Unique Operations:

New Branch – create a new Branch at the same level as the Branches being displayed. The default name for this new Branch is “Branch” which you can later rename.

View Child Branches – double click the branch

Rename Branch – select Branch and click again. PointWare will present an edit box. Rename the Branch and either press ENTER or click outside the edit box.

Point Server/Point Manager List

If PointWare is showing a list of Point Servers/Point Managers in the list panel then it will show several column headings showing the state of the Point Servers/Point Managers. The columns are:

Point Server/Point Manager: Displays the names of the Point Server/Point Managers. If the Setup for the Point Server/Point Manager in the database has been changed, PointWare will display a blue arrow to indicate that the setup has been modified. If the Setup has been changed in the Point Server/Point Manager and a connection has been previously established, PointWare will display a red arrow to indicate a mismatch.

Connections: Displays the number of connections present.

Last Contact: Displays the time and date of the last contact that PointWare has had with the Point Server/Point Manager. If a red “X” is displayed, PointWare has encountered an error during the last connection with the Point Server/Point Manager.

Location: Gives the location of the Point Server/Point Managers.

Description: Gives the description of the Point Server/Point Managers.

Unique Operations:

New / New Point Server/Point Manager – create a new setup for a Point Server/Point Manager.

New / Import – import the Point Server/Point Manager setup into PointWare. PointWare displays the Push window with the Import radio button already selected. Enter the media parameters and then click OK to begin the operation.

Edit – edit the Point Server/Point Manager. PointWare will display the Edit Setup window.

Duplicate – copy a Point Server/Point Manager setup to create a new setup. PointWare will prompt for a new name for the new Point Server/Point Manager setup.

Replace – replace the Point Server/Point Manager. PointWare uses the MAC address to relate the setup to a Point Server/Point Manager. PointWare will prompt for the new MAC address of the new Point Server/Point Manager. Once you have assigned the new MAC address, you now write the setup to the new Point Server/Point Manager.

Browse – PointWare will launch the default Internet Browser and direct the browser to the selected Point Server/Point Manager.

Common Operations

Delete – delete the selected Branch or Point Server/Point Manager. If a Branch is deleted, all child Branches are deleted and all Point Servers/Point Managers assigned to the Branch or child Branches are moved to the “Not Categorized” Branch.

Push – PointWare displays the Push Window with the Selected field filled in with the selected Branch or Point Server/Point Manager name. See the section “Pushing a Connection” for more information.

Quick Pushes - “pushes” that have preset actions that are performed on the selected Branch or Point Server/Point Manager. No intermediate user involvement is required. The operation starts when the Quick Push is selected. The push will be visible in the Push tab. If the operation is completed successfully, PointWare will remove the push from the Push tab. If there is an error, PointWare will not delete the push and a message will be displayed. Also in the Push tab the push is then marked with a red “X”. All push operations can be applied to Branches and Point Server/Managers. If a push is applied to a Branch then all the actions for that Push will be applied to all the Point Servers assigned to that branch and its children.

Here are the following Quick Pushes:

Get History/Events Log - collect the data from both the History and Event Logs.

Read Setup - read the Point Server’s setup.

Write Setup - write the communication and Point Servers setup.

Get History - collect the data from the History Log.

Get Events - collect the data from the Event Log.

Start XML - starts the XML Delivery function.

View Last Error - In the Point Server/Manager tab, Branches or Point Servers/Point Managers with errors are indicated with red “X” in the contact column. If a Point Server/Point Manager is assigned to a Branch or children of a Branch, PointWare will display the red “X” to the left of the Branch name. All errors are cleared when any operation applied to the Point Server is successful. Note that all errors are logged in the Activity Log database.

Activity Window

PointWare displays progress messages in the Activity window. While a Push or Wait is occurring, PointWare will display messages describing the progress of the communications. PointWare will display error messages if it encounters an error during the communications.

Organizing Point Servers/Point Managers

Organizing Overview

PointWare uses a hierarchical tree/branch structure similar to how Windows organizes folders and files. There are two Branches that are permanent: “Point Server/Managers” which is the root and “Not Categorized” which is a branch off the main root. These two Branches cannot be deleted. New Branches can be added to “Point Server/Managers”.

Rules and Notes:

1. All Point Servers that are created during an import operation will be assigned to the “Not Categorized” branch.
2. Once a branch has a Point Server assigned you cannot assign another Branch.
3. When a Branch gets deleted, all the Point Servers assigned to the Branch and its children get assigned to the “Not Categorized” Branch.
4. In the Point Server/Manager tab in the main window, the left panel (Navigation panel) shows a tree view of the structure of branches. You use the left panel to navigate the tree.
5. The right panel in the Point Server/Manager tab shows a list of child branches or Point Servers that belong to that branch. From this panel you will perform operations to either branches or Point Servers.

Adding Branches

In the Navigation Panel (left panel) select the Branch you want to add a child branch. Go to the right panel and then either right click to show a popup menu and select “New Branch” or click the tool button with the hint “New Branch”.

Adding Point Servers/Point Managers

In the Navigation Panel (left panel) select the Branch you want to add a Point Server. Go to the right panel and then either right click to show a popup menu and select “New Point Server” or click the tool button with the hint “New Point Server”. You cannot add a Point Server if the selected branch already has a child branch

Rename Branch

Do a slow double click on a branch either in the Navigation panel or the right panel. An edit box will appear over the branch. Enter the new name and then press enter.

Assigning a Point Server to a New Branch

Expand the tree in the Navigation Panel to show the desired branch. Show the Point Server(s) you wish to reassign. Click and hold the left mouse button over the Point Server. Drag the Point Server to the desired branch and then release the mouse button. You can select multiple Point Servers by holding the CTRL key down while you click on each Point Server. On the last Point Server hold the mouse button down and then drag and drop the Point Servers to the desired Branch.

Deleting Branches

Select the Branch in the right panel and then either right click to show a popup menu and select “Delete” or click the tool button with the hint “Delete”. All Point Servers that are assigned to this Branch or children of this Branch will be reassigned to the “Not Categorized”

Deleting Point Server/Managers

Select the Point Server in the right panel and then either right click to show a popup menu and select “Delete” or click the tool button with the hint “Delete”. The Point Server setup information and all collected data will be deleted.

Path Names

There are two forms of path names that PointWare will show: the long path and the short path. For long paths, PointWare will show the full tree Branch up to but not including the root Branch “Point Server/Point Managers”. If the path name includes a Point Server/Point Manager, PointWare encloses the Point Server/Point Manager name in brackets.

Example Branch: “\USA\KY\Bluegrass\Fayette\Elementary”.

Example Point Server/Point Manager:

“\USA\KY\Bluegrass\Fayette\Elementary[Clays Mill]”.

For short path names, PointWare shows an abbreviated form that does not show any of the parent branches. Example Branch: “.\Elementary”. Example Point Server: “.\[Clays Mill]”. For Point Servers/Point Managers assigned to the “Not Categorized” Branch, PointWare does not show the path name information but just the Point Server/Point Manager name (not enclosed in brackets).

Point Server/Point Manager Errors

In the Point Server/Manager tab, Point Servers/Point Managers with errors are indicated with red “X” in the contact column. The error can be viewed by right clicking to show a popup menu and then selecting “View Last Error...”.

If a Point Server/Point Manager is assigned to a Branch or children of a Branch, PointWare will display the red “X” to the left of the Branch name. You can also view the error (or errors of all Point Servers under this Branch) by right clicking to show a popup menu and then selecting “View Last Error...”.

In the Push tab for pushes that had an error that occurred, PointWare will display a red “X” in the Branch/Point Server/Point Manager tab. You can view the error (or errors of all Point Servers applied by this push) by right clicking to show a popup menu and then selecting “View Last Error...”.

All errors are cleared when any operation applied to the Point Server is successful. Note that all errors are logged in the Activity Log database.

Setting up a Point Server/Point Manager

Point Server/Point Manager Setup Overview

If you create a new setup (either by selecting New or Duplicate in the Point Server/Point Managers Tab) or if you edit an existing setup, you have to download these changes to Point Server/Point Manager in order for these changes to take effect. Use the Write Setup and Write Comm Setup Actions to download the setup.

Event Actions

Point Server/Point Manager can trigger events that create actions such as log, alarm and email. An Alarm is when an Event causes the Point Server/Point Manager to make a connection with a host computer. If PointWare is running and a Wait on the proper media is created, PointWare will process the event. PointWare will notify the user by enabling the alarm button and playing an alarm sound.

Each field in the Point Server/Point Manager that supports an Event Action will contain a label that shows the current selected actions (Ex. "Log,Alarm,Email") and a button (with a yellow light bulb icon) that will display the "Select Event Action" window. The "Select Event Action" window contains the following options

Log: Point Server/Point Manager logs the event into the Event Log with the current time and date.

Email: Point Server/Point Manager sends an email describing the event. The email contact information must be set up. You can set up email on the "Media Callout" tab of the Point Server/Point Manager setup.

Alarm: Point Server/Point Manager initiates a connection attempt triggered by this event. The connection attempt is governed by the "Media Callout" table in the "Media Callout" tab.

The other parameters: **Start Output**, **Stop Output**, **Edit Output** button, **Edit Output Groups** button are reserved for future use.

Point Server/Point Manager Setup

General Tab

General information about the Point Server/Point Manager.

Name: Enter a name that will identify this Point Server/Point Manager. An entry here is required.

Location: Location description of the Point Server/Point Manager. (optional)

Description: Enter additional information about the Point Server/Point Manager. (optional)

TimeZone Offset: Select the time zone that the Point Server/Point Manager is operating in by clicking the "Time Zone List" button. TimeZone Offset must be set when UTC mode is used. See the section "UTC and Time Zones" for more information. (optional)

Daylight Savings: Select Daylight Savings if the Point Server/Point Manager is going to be placed where daylight savings is observed. Daylight Savings must be considered when using UTC mode. Note: for Point Servers, this setting is only used for reporting. Point Manager uses this setting in order to compute local time when presenting time. See the section "UTC and Time Zones" for more information.

Auto Add Mode: Tells the Point Server/Point Manager how to add new sensors to the sensor table. It can be set to add **None**, **All sensors** or add sensors when the **Service** button is hit. Default is Service Mode.

All Sensors: When the Point Server/Point Manager receives a transmission from a sensor it will automatically add that sensor to the sensor table.

Service Mode: Will add a sensor to the sensor table if the sensor transmitted in service mode, i.e. the service button on the transmitter was pressed.

None: Will add no sensors.

Serial Number: Unique identifier for the Point Server/Point Manager that is contained in the Point Server/Point Manager. This number will be displayed after the user has read the setup of the Point Server/Point Manager or Imported the settings from the Point Server/Point Manager.

Version: Version number of the firmware for the Point Server/Point Manager.

Connection Tab

The Connection Tab is where the user sets up the user's communication settings with the Point Server/Point Manager. This screen is broken up into four sections: the three different medias used and a choice of which media to push on.

Push Default: Lets the user choose which media will be the default to push.

TCP/IP: The following fields are used by TCP/IP to establish connections and set up email.

Dynamic IP - (Applies only to Point Managers). The Point Manager will try to access a DHCP Server to have the its IP address information assigned dynamically.

IP Address – IP address to assign to this Point Server/Point Manager. (required)

Subnet Mask – the mask used with the network that Point Server/Point Manager will use. (required).

Gateway Address – the IP address of the gateway that the Point Server/Point Manager will be using. (optional)

Name Server– the IP address of the DNS Server that the Point Server/Point Manager will use to resolve domain names. May be necessary to use with the email and XML Delivery functions (optional)

Port – the IP port that Point Server/Point Manager will establish connections and respond to Point Server/Point Manager commands.

Radio Cmd-(optional) Set the channel for receptions from radio devices. The channel specifies the Network ID and Hop Table.

Modem: specify the parameters that the Point Server/Point Manager will use to set up its modem. (optional)

Baud rate - 1200 to 115200 baud with the default being 2400 Baud. The modem can also be set up to answer on a preset number of rings.

Initialization String: AT command string to initialize the modem.

Phone Number: The phone number of the Point Server/Point Manager that PointWare will use to call the Point Server/Point Manager. This the common phone number used to identify the Point Server/Point Manager.

Contact Tab

The Contact Tab contains information necessary to contact the Point Server/Point Manager. In order to contact the Point Manager you may need to changed the contact information from the default. For example, suppose you set the phone number to 5553422 but in order to call out from your workstation you need to dial 9 first. Enter 9 before the phone number in the Phone Number field. This information is stored uniquely for each PointWare workstation.

Restore Defaults: Copies the media information from the Connection Tab.

Phone Number: Enter the number used to call the Point Server. You may need to add additional dialing parameters.

IP Address: Override the IP address as set in the Connection Tab. Use this field when trying to change the IP address of the Point Server/Point Manager.

Serial: Select which serial port to communicate with the Point Server/Point Manager. The user can choose between Com Ports 1 – 8 or None if so desired.

Passwords Tab

Point Server/Point Managers have two levels of passwords: Data Login and Setup Login. *Be very careful in using passwords. If you forget your passwords, you may not be able to collect data or change the setup.* If you change the passwords, PointWare remembers the previous password and uses this password to login until the password is changed at the Point Server/Point Manager. You can have a set of global passwords for all Point Server/Point Managers being maintained by PointWare. You set the global passwords in the PointWare Options window. See the section "PointWare Options: Passwords" for more information. When global passwords are set you cannot change individual Point Server/Point Manager's passwords.

Note: If you are using PointWare with any Point Server/Point Managers that are less than version 1.6, you must use global passwords. Setting individual passwords will not work. The General Tab contains the version number of the Point Server/Point Manager.

Media Callout Tab

The Media Callout Tab is where the connections are defined for the Point Server/Point Manager to callout its alarms and establish periodic connections. Here Email settings, Periodic Callout and Alarm Callouts are setup.

The **Media Callout Table** can be set up to callout by the same three kinds of media used to connect to the Point Server/Point Manager: TCP/IP, Serial and Modem. Also the user can set the number of times to try to connect and also the delay in-between each try.

Choose "Type" from the drop-down box and enter the configuration string in the "Prompt/Phone Number/Address" box. "Type" can be any of the following:

Modem: Using the Modem the user provides the *phone number* to be called and sets the *dial time*: how long (in seconds) that the user wants the phone to ring.

TCP/IP: Using TCP/IP, the user needs to include the *IP address* of the PC the user is trying to connect to and the *port* number as well.

Serial: Using Serial to callout, simply provide *any message* to push across the serial connection.

If you have set up a "Type" then you must fill in the "Tries" and "Delay" boxes. The "Tries" box tells the Point Server/Point Manager how many times it will try to make a connection on the selected media. "Delay" tells Point Server/Point Manager how many seconds to wait between tries.

The **Periodic Interval Callout** feature is used when it is needed to have the Point Server/Point Manager callout at a specific time and/or interval. This can be set to start at any time called Base and can be set to callout again after the Interval, specified in days, hours or minutes. This feature can be enabled or disabled simply by putting a check mark in the Enable box.

The Point Server/Point Manager can also be set to send alarms to an **Email** account. Provide the SMTP server information and the Email address that it is being sent from. In the To Address field the user can put several addresses totaling up to 75 characters with the addresses delimited by a semicolon. You may need to specify a Name Server in the Connection Tab.

Historical Logging Tab

The Point Server/Point Manager can use historical Logging to take a snapshot of the current readings of all current sensors and record it in the history log. The **Base time** can be set to start on any given day at any time. Once this time is set an **Interval** can be set in days, hours and minutes. This feature can be toggled on and off by placing or removing a check mark in the **Enabled** box.

XML Delivery Tab

(Point Manager only)

Point Manager can initiate a connect to a web service and deliver the History and Event Logs using HTTP and XML. There are two setups: History XML and Event XML. Select the History button on the left of the tab window to have the Point Manager push History data. And/or select the Event button to push Event data.

Enable: Enable the delivery of History or Event data.

Domain: Enter the domain name (host name). This entry can be an IP address. If a domain name is used you must specify a Name Server in the Connection Tab.

URL Path: Enter the URL path name to the web service that the Point Manager will connect with.

Port Number: Enter the port number the Point Manager will establish a connection. Typically this will be port 80.

Base: Specifies when the Point Manager will start initiating the connection.

Interval: Specifies how often the Point Manager will initiate the connection. (Minimum is once a minute)

Tries: Specifies the number of times to try the connection for the current Interval attempt.

Retry Time: Specifies the amount of time to wait before trying again during the current Interval attempt.

On Alarm: (Event only) Initiate the connection when an alarm occurs. (Do not wait for the next interval).

Time Format: Select the time format of the data records delivered.

System Events Tab

Startup Action: Event Action to trigger when the Point Server/Point Manager powers up.

Historical Full Action: Event Action to trigger when the % full is reached in the History Log.

Historical % Full: Determine how full the History Log is before the Historical Full event is triggered.

Event Full Action: Event Action to trigger when the % full is reached in the Event Log.

Event % Full: Determine how full the Event Log is before the Event Full event is triggered.

AutoAdd Action: Event Action to trigger when a sensor is automatically added to the Point Server/Point Manager.

Event actions can be any of the following: *Log*, *Email* and *Alarm*. See the section "Event Actions" for more information.

Sensors Tab

PointWare displays a list of the sensors for this Point Server/Point Manager. You can add, remove or edit the sensors. The Point Server/Point Manager is configured with these sensors in the order that they are displayed. Double click the sensor to edit its setup. To delete the entire sensor table, check the box labeled "**All Sensors**" and press the "**Delete**" button. You will be prompted to confirm your decision and then Point Ware will delete all sensors. This may take a few moments if the number of sensors is large.

New Sensor

The New Sensor entry window has the following fields:

Type: Select the type of sensor you are adding.

Name: Enter a descriptive name for the sensor. This sensor will be identified with this name.

Serial Number: Enter the serial number as listed on the sensor.

Edit Sensor

Select a sensor and click the "**Edit...**" button. You will see a form where you can edit the sensor's identifying label and other parameters. You can also set up events for the sensor. Point Server/Point Manager will act according to the events you have set up. See "Sensor Setup" for more information.

Sensor Setup

Sensors consist of I/O types. Some sensors have more than one I/O type. PointWare will show different tab sheets for the specific I/O types. The I/O types are categorized as Analog, Integer, Data and State. Each tab sheet will be titled concerning that I/O points function. For example a Point Temp has one I/O point that is an Analog and its tab sheet is titled 'Temperature'. The following is list of standard Point Sensors with their I/O points defined.

Sensor Model	Sensor I/O Type	Tab Sheet Titles
Point Temp	Analog	"Temperature"
Point Humidity	Analog	"Humidity"
Point Light	Analog	"Temperature"
Point PIR	Data	"Light"
Point ANA	Analog	"iButton"
Pressure	Analog	"Analog"
Counter	State	"State"
	Integer	"Open Count"

	Integer	"Close Count"
Discrete	State	"On"
Thermistor	Analog	"Temperature"
Point ANAS16	Analog	"Analog"
Count Temp	State Integer Analog	"State" "Count" "Temperature"
Fast Count Temp	Integer Analog Integer Analog	"State" "Temperature" "Seconds" "Rate"
Alarm Temperature	State State Analog Data	"Temp Alarm" "Time Alarm" "Temperature" "Detail"
Directional Counter	State Integer Integer	"State" "CounterA" "CounterB"
InnovCont	State State Data	"Contact" "Battery" "Info"
InnovTherm	Analog Analog State Data Data	"Thermistor" "Reference" "Battery" "Options" "Status"
Proximity2	State Integer Integer Integer State	"State" "Object Count" "Acc Object Time" "State Time" "Range"

General Tab

The General Tab shows parameters that can be set for each sensor.

Name: descriptive name for the sensor (16 characters maximum).

Serial No: sensor's serial number (16 characters – may be padded with zeros). Use caution when changing the serial number! An incorrect serial number will prevent Point Server/Point Manager from communicating with this sensor.

Type: Sensor type (read only)

Time to Offline: The maximum amount of time, in seconds, that may elapse between sensor transmissions before Point Server/Point Manager triggers the offline event. Default is 120 seconds.

Offline Action: When Point Server/Point Manager triggers an Event, Point Server/Point Manager will take the following possible action listed. See the "Event Actions" section for more information.

Online Action: After the Age Event has fired and when Point Server/Point Manager receives a data packet from the sensor, PointWare considers the sensor to be Online. When the sensor comes back Online, Point

Server/Point Manager will take the following possible action listed below in “Event Actions” .

Service Action: Point Server/Point Manager will take one of the following possible actions listed below when it receives a packet of data from a sensor that indicates the service button has been pressed. See the “Event Actions” section for more information.

Log Snap Shot of Current Readings: When Pont Server detects an Event for the sensor, it will also take a snap shot of the current I/O points and log the snap shot in the Historical Log.

Analog Tab

The Analog Tab describes how the Point Server/Point Manager handles the Analog I/O type information. This information tells the Point Server/Point Manager how to scale the sample data for the I/O point and how to present the data. Two sets of events can be set up to trigger. This tab sheet may have different titles. For example, a Point Temp is titled ‘Temperature’. *Note:* All analogs are normalized to 16 bits (0-65535)

Scale: Enter the value to scale the reading from the sensor I/O point assuming the following equation: $EngValue = Scale * rawvalue + Offset$.

Offset: Enter the value to offset the reading (after the scale has been applied) from the sensor I/O point assuming the following equation: $EngValue = Scale * rawvalue + Offset$.

Scale/Offset Calc: PointWare will present the Scale and Offset Calculator. If you have two points (each with an Engineering Value and the value from the sensor), the Scale and Offset Calculator will allow you to calculate the proper scale and offset. See the section “Scale and Offset Calculator” for more information.

Units: Engineering Units label.

Decimal Places: The number of decimal places to show when this I/O point is reported by the Point Server/Point Manager.

Two Alarm points (events) can be setup for each Analog I/O type. Select either the “Event 1” or the “Event 2” radio buttons to show event information. For each event series you specify parameters for the high and the low thresholds.

Enter Action: Point Server/Point Manager will take one of the following possible actions listed when the High trigger occurs. See the “Event Actions” section for more information.

Value: The high value at which the Point Server/Point Manager will trigger an Event.

Span (sec): fire an event if the high threshold exceeds this amount of time. The Point Server/Point Manager logs a the analog value when the event fires.

Span Action: Point Server/Point Manager will take one of the following possible actions listed when the Span trigger occurs. See the “Event Actions” section for more information.

Exit Action: Point Server/Point Manager will take one of the following possible actions listed when the Exit trigger occurs. See the “Event Actions” section for more information.

Each event series has a Hysteresis value that applies to both the high and low thresholds.

Hysteresis: Controls when the sensor reading can trigger another event. When a high threshold event has triggered, the sensor value must go below the (high value – hysteresis) before another high threshold event can be triggered. When a low threshold event has triggered, the sensor value must go above the (low value + hysteresis) before another low threshold event can be triggered.

Scale and Offset Calculator

By using the Scale and Offset Calculator, you calculate the scale and offset necessary for the setup of the sensor. The Calculator has the following fields and buttons:

Engineering:

E-Point 1 – first point engineering value

E-Point 2 – second point engineering value

Binary:

B-Point 1 – first point raw value.

B-Point 2 – second point raw value.

If the OK button is pressed, the program places the calculated scale and offset values in the scale and offset fields in the Sensor Setup window.

For sensor types like Analog and Light, the raw data from the sensors needs to be converted to Engineering Units. For example if your Analog sensor is measuring pressure and gives 12 bit data (0 to 4095), you will want to convert the data to range of 0 to 100 PSI. Point Server/Point Manager applies a Scale and Offset to the raw reading to convert to Engineering Units. You will need to enter a Scale and Offset for each Analog and Light Sensor. If you know two reference points between the raw value and the Engineering Value, then Scale and Offset can be calculated with this formula:

$$\text{Scale} = (\text{E-Point2} - \text{E-Point1}) / (\text{B-Point2} - \text{B-Point1})$$

$$\text{Offset} = \text{E-Point1} - (\text{B-Point2} * \text{Scale})$$

Point Server/Point Manager uses the Scale and Offset to calculate the Engineering Units:

$$\text{Engineering Units} = \text{Scale} * \text{raw} + \text{Offset}$$

Example: Point Analog (12-bit)

At a reading of 819 the value is supposed to be 0 PSI and, at a reading of 4095 the value is supposed to be 100 PSI.

$$\text{Scale} = (100 - 0) / (4095 - 819) = 0.0305$$

$$\text{Offset} = 0 - (819 * 0.0305) = -25.00$$

Typically the Scale and Offset for the Humidity/Temperature and Temperature Sensors will be set to 1 and 0. You only need to change these fields if you need to make an adjustment (calibrate) to the sensors.

Integer Tab

The Integer Tab describes how the Point Server/Point Manager handles the Integer I/O type information. This information tells the Point Server/Point Manager how to scale the sample data for the I/O point and how to present the data. Two sets of events can be set up to trigger. The value returned by the sensor is a 32 bit unsigned value.

Scale: Enter the value to scale the reading from the sensor I/O point assuming the following equation: $EngValue = Scale * (rawvalue + ZeroingOffset)$.

Zeroing Offset: Enter the value to offset the reading from the sensor I/O point before the scale is applied. The equation is as follows: $EngValue = Scale * (rawvalue + ZeroingOffset)$.

Units: Engineering Units label.

Decimal Places: The number of decimal places to show when this I/O point is reported by the Point Server/Point Manager.

Two Alarm points (events) can be setup for each Integer I/O type. The following lists

Base: value at which the Point Server/Point Manager will trigger the first event. This value is a 32-bit integer value. Do not use the scaled value but the raw integer or count.

Interval: – the increment value at which the Point Server/Point Manager will trigger additional events. This value is a 32-bit integer value.

Action: Point Server/Point Manager will take one of the following possible actions listed when the Event occurs. See the “Event Actions” section for more information.

Data Tab

The Data Tab describes how the Data I/O type is presented and what action the Point Server/Point Manager takes when an event is triggered. The Data I/O type contains 8 bytes of information that can be presented in different ways.

On Change Action: Point Server/Point Manager will take on of the following possible actions listed when the Data I/O value changes. See the “Event Actions” section for more information.

Present As:

Character Data: the Data I/O type is displayed as character data

Serial Number: the Data I/O type is displayed as a Serial Number (use this format with Point PIRs).

ASCII Hexadecimal: the Data I/O type is displayed as an ASCII Hexadecimal string.

State Tab

The State Tab describes how the State I/O type is treated and what action the Point Server/Point Manager takes when an event is triggered. The State I/O type contains up to 8 independent states. Each state can be named and Events set up so that an Event can trigger if the state is entered ("To Action") or exited ("From Action").

Name: name to title the state (8 characters maximum)

To Action: Point Server/Point Manager will take on of the following possible actions listed when the State I/O transitions into this state. See the "Event Actions" section for more information.

From Action: Point Server/Point Manager will take on of the following possible actions listed when the State I/O transitions out of this state. See the "Event Actions" section for more information.

State of Concern: The Point Server/Point Manager's HTML file will show an alarm when the sensor is in this state if this box is checked.

Pushing a Connection

Set Up A Push

A Push is defined as taking a Media, either TCP/IP, Serial or Modem and forcing (pushing) that Media to make a connection between the PC and a Point Server/Point Manager.

PointWare makes use of Pushes to read and write the setup or collect the logged data from each Point Server/Point Manager. A Push is the easiest way to get the changes you have made to the setup of a Point Server/Point Manager written to the Server.

You can set up a Push to a single Point Server/Point Manager or to a group of Point Server/Point Managers listed in a Branch.

Push to Point Server/Point Manager

The Push dialogue box will come up when the user right clicks on a Media under the Media Tab and selects Push or when the user right clicks on a Point Server/Point Manager under the Point Server/Point Manager Tab and selects Push or when the user right clicks in the window on the Push tab and selects "New..."

From the Push dialog window, the first choice to make is to select a Point Server/Point Manager or Branch to make a connection with. The Push mechanism uses the default media that was selected in the Point Server/Point Manager Setup.

Push to Groups

If a Branch is selected, PointWare will perform the selected Actions on all the Point Servers/Point Managers that belong to that Branch or children. The maximum number of connections established is limited by the MaxConcurrent parameter as defined in the PointWare.INI file. See the section "Program Parameters" for more information. The default is 5. Once the maximum number of connections is reached, PointWare will wait until a connection becomes free until starting a new connection.

Common Push Parameters

The user can now either make the connection or choose to have actions run from the Action Manager. The user will see on the right hand side of the dialogue box a list of actions. These actions are defined in the Action Manager section of this manual; see "Action Manager" for more information. Choose which actions you want

PointWare to run and click Add. To move an action's order up or down, select the action in the "To Do" window and click on the up or down arrows to change its placement in the list.

To see when PointWare will run this action, look in the "Scheduling" box. If it says, "once [as soon as possible]" then PointWare will try to execute this push as soon as you click "OK" on the Push screen. If it says, "Done" then this push has already been executed. To execute this push again, choose "Edit" from the Push screen Scheduling section, or right-click on the Push in the PointWare main window and select "Go".

See the section "Scheduling" for more information about Scheduling a Push.

Scheduling

Sometimes there may be a reason why the user might not want a push to connect immediately or might need to have that push done in regular intervals. The scheduling utility lets the user set up a push for several times a day to several times a month.

After the Actions for the Push have been created, click on the 'Edit' button from the Push dialogue box.

If the start time plus the end of the range of recurrence is less than the current time, the push will only execute once.

The Scheduler is broken into three sections:

The first section is the **Activity/Event time**; here the user chooses what time of day the Push should start.

The second section is the **Recurrence Pattern**; here with use of radio buttons the user can choose between many settings on how often the push should reoccur.

The third section is the **Range of Occurrence**, here the user decides on a beginning and/or an ending date for the scheduled Push.

Select PointServer/Point Manager

The Point Server/Point Manager Tab displays two panels: the left panel is the navigation panel and right is the list panel. Navigate to the Point Server/Point Manager or Branch you want to select and then select OK. See the section "Organizing Point Servers/Point Managers" for more information about organizing your devices.

Navigation Panel

The navigation panel allows you to navigate the organizational tree. Use the navigation panel to locate Point Servers/Point Managers. You can click on the '+' or '-' to expand or contract the tree. Point Servers/Point Managers are located at the end of tree branches (and only listed in the list panel).

You also can select Point Servers/Point Managers and drag and drop them into the end branches in the Navigation panel to assign the Point Servers/Point Managers to that end branch.

List Panel

The Point Server/Point Manager Tab displays a list of Branches that are assigned to the parent Branch or a list of Point Server/Point Managers that are assigned to the parent Branch.

Branch List

The Branch List shows a list of Branches that belong to the parent branch.

Point Server/Point Manager List

If PointWare is showing a list of Point Servers/Point Managers in the list panel then it will show several column headings showing the state of the Point Servers/Point Managers. The columns are:

Point Server/Point Manager: Displays the names of the Point Server/Point Managers. If the Setup for the Point Server/Point Manager in the database has been changed, PointWare will display a blue arrow to indicate that the setup has been modified. If the Setup has been changed in the Point Server/Point Manager and a connection has been previously established, PointWare will display a red arrow to indicate a mismatch.

Connections: Always zero in this window

Last Contact: Displays the time and date of the last contact that PointWare has had with the Point Server/Point Manager.

Location: Gives the location of the Point Server/Point Managers.

Description: Gives the description of the Point Server/Point Managers.

Quick Pushes

Quick Pushes are “pushes” that have preset actions that are performed on the selected Branch or Point Server/Point Manager. Quick Pushes are available from the List View (right panel) in the Point Server/Point Manager Tab. No intermediate user involvement is required. The operation starts when the Quick Push is selected. The push will be visible in the Push tab. If the operation is completed successfully, PointWare will remove the push from the Push tab. If there is an error, PointWare will not delete the push and a message will be displayed. Also in the Push tab the push is then marked with a red “X”.

All push operations can be applied to Branches and Point Server/Managers. If a push is applied to a Branch then all the actions for that Push will be applied to all the Point Servers assigned to that branch and its children.

Some Quick Pushes are accessible through the toolbar. All Quick Pushes are accessible by right clicking to show list of options in the popup menu.

Here are the available Quick Pushes:

Push	Tool Bar	Description
Get History/Events Logs	Yes	Collect the data from both the History and Event
Read Setup	Yes	Read the Point Server’s setup
Write Setup setup	Yes	Write the communication and Point Servers
Get History	No	Collect the data from the History Log
Get Events	No	Collect the data from the Event Log
Start XML	Yes	Starts the XML Delivery function

Waiting for Connection

Setting up a Wait

A Wait can be set up on TCP/IP, Modem and Serial media. You can use this command to set PointWare to wait for a Point Server/Point Manager to push a connection to the media(s) you have set up.

Go to the "Media" tab and right click on one of the media you have set up. A pop up menu will appear. Select "Wait."

When the medium is TCP/IP the Wait dialogue box will pop up, wanting the user to enter the Port number of the Point Server/Point Manager the user wishes to connect to.

When Serial is selected the Wait dialogue box will pop up, wanting the user to enter the Connection Mask for the Point Server/Point Manager the user wishes to connect to. The Connection Mask defines what string of characters PointWare must receive in order to know if a Point Server/Point Manager is trying to establish a connection. "*" is used as a wild card. Example: Connection Mask is "*" – any character received by PointWare will cause PointWare to open a connection with the Point Server/Point Manager. Connection Mask is "Connect" – PointWare will only establish a connection with the Point Server/Point Manager if this string is received. All other characters will be ignored.

When Modem is selected the Wait dialogue box will pop up.

The user will see on the right hand side of the dialogue box a list of actions. These actions are defined in the Action Manager section of this manual. See the section "Action Manager" for more information. Choose which actions the user wants to run and click "Add". When the user clicks OK, the Media will be set to wait and when it makes a connection the actions the user has chosen will be executed.

A Wait on a Serial port or Modem media device will prevent that port from being used for Pushes. If your pushes are not executing properly, check to make sure that a wait is not enabled for that port.

Action Manager

Actions

The Action Manager is part of the Push and Wait dialogs. There are seven different actions that can be run. The user can use this feature to read and write setup information to and from any Point Server/Point Manager. The Event and History logs can be pulled from the Point Server/Point Manager to the PC via this utility. Listed below are the seven actions along with descriptions of each action. The user can also use the Action Manager in unison with the Push Scheduler to set these actions up on a scheduled basis (See Scheduling).

The Action Manager is made in two sections, a To-Do list and an Actions list. You can move Actions between the two sections by clicking the Add and Remove buttons. You can order the Actions in the To-Do list by clicking the Up and Down arrow buttons.

The Actions list contains the actions that can be executed.

Read Setup: Reads the entire configuration setup of the Point Server/Point Manager and adds it to the database.

Write Setup: Writes the configuration data in the database to the Point Server/Point Manager. This is all the data found in the Point Server/Point Manager setup screens except for the data on the "Connection" tab of the Point Server/Point Manager setup. *Caution:* Writing a new setup to the Point Server/Point Manager will clear the History and Event Logs of all data.

Write Comm Setup: Writes only the communication setup from the database to the Point Server/Point Manager. This writes only data found on the "Connection" tab of the Point Server/Point Manager setup.

Get History: Reads the History Log. The History Log is enabled on the "Historical Logging" tab of the Point Server/Point Manager setup. PointWare only reads records that have been logged since the last time the History Log was read.

Get Events: Reads the Event log. The event log will have entries if the "System Events" (found in the Point Server/Point Manager setup) or Sensor events (found in the individual sensor setup) have been configured. PointWare only reads records that have been logged since the last time the Event Log was read.

SyncClock: Either sets the clock or synchronizes the clock depending on the version of firmware of the Point Server/Point Manager. PointWare uses the computer's clock to set the Point Server/Point Manager (using the "CCS" command). If UTC mode is enable, PointWare will convert the clock to UTC time. **Pre-version 2.1c** PointWare sets the clock but the History and Event Logs must cleared before the command will be executed. Use the Clear History Log and Clear Event Log actions before using this action. **Version 2.1c or greater** PointWare uses the synchronization command ("CCSS") to set the Point Server/Point Manager clock. The History and Events Logs are not required to be cleared. Point Server/Point Manager's clock can drift up to a few seconds a day. It is important to periodically set the clock.

Status: PointWare displays status information obtained from the Point Server/Point Manager in the Activity Window. The status information includes information about the Point Server/Point Manager and the sensor status.

Clear History Log: Immediately clear the History Log.

Clear Event Log: Immediately clear the Event Log.

Start XML Delivery: PointWare issues commands to have the Point Manager start the History and Event XML Delivery process. (Point Manager only)

Disconnect: Terminates the connection between the Point Server/Point Manager and PointWare. You will typically want to add this action to the Actions list. Make sure it occurs after all the other actions. Select "Disconnect" in the To-Do screen and use the up and down arrows to send it to the bottom of the action list. If this action is not included, PointWare will not terminate the connection when finished executing the list of actions; however the Point Server/Point Manager will eventually terminate the connection because of inactivity (typically 60 seconds).

Note: PointWare uses the computer's clock to set the Point Server/Point Managers time of day clock when it performs the Write Setup or SyncClock Actions. It is very important that your PC clock be set correctly. To view your settings go to the Control Panel and select Date/Time or double click on the time that is showing on the right hand side of the task bar. Verify the date, time, time zone and daylight savings time settings. If UTC Mode is set, PointWare will convert the reading of the computer clock to UTC time.

Alarming

Alarm Process

PointWare, as set up by the user, will collect Alarms from Point Server/Point Managers either during a Push or Wait. When an Alarm is detected, PointWare will enable the Alarm button on the Toolbar and the Alarm Report submenu in the Report menu. It then displays the Alarm popup window and also sounds off the Alarm sound. The Alarm sound can be customized in the Options window. From the Alarm popup windows, click "Ok" to view the Alarm Report or "Cancel" to not acknowledge the alarm. The Alarm sound is silenced after the Alarm popup window is removed. On the Alarm popup window, PointWare shows the time and date of when the Alarm was received. When PointWare displays the Alarm Report, PointWare shows all the alarms since the last acknowledgement. When the user closes the Alarm Report, PointWare will prompt the user to acknowledge the alarms. If the user acknowledges the alarms, PointWare will then disable the Alarm Button and Alarm Report submenu. If the user does not acknowledge the alarms, PointWare continues displaying the Alarm button and Alarm Report submenu. The user can then examine these alarms (and any new alarms) at a later time. If any new alarms are collected while the Alarm Report is showing, PointWare will continue to show the Alarm Button and the Alarm Report submenu and sound off the Alarm sound when the Alarm Report is closed.

Viewing Alarms

If new alarms have been received, PointWare will enable the Alarm Button and the Alarm Report submenu in the Report menu. You can then view the Alarm Report by selecting the Alarm button or the Alarm Report submenu. The Alarm Report is a subset of the Event Report.

You can also view Alarms by using the Event Report. Select the Event Report option from the Report menu. Specify the criteria for the amount of information you want to view. If you want to view just the Alarms then select the "Alarms only" field. Go view the report. For further information, see the section "Event Report".

Emailing Alarms

PointWare can email alarm messages it receives. To set up the email parameters go to the main menu, click File and Options. Click the Email tab. See the section “PointWare Options: Email” for more information. PointWare will send the email as soon as it receives the alarm. The email PointWare generates has two sections. The first section is designed to be used by a program. The second part is designed to be read by a user.

Example Email:

```
From: ps@acme.com
Sent: Monday, January 06, 2005 7:53 AM
To: center@abc.net
Subject: Acme System

1,SUPP_CNTR,1/6/2005,08:52:19,Point Manager,EntryCnt,50,Service
1,SUPP_CNTR,1/6/2005,08:52:28,Point Manager,EntryCnt,70,Value - Open Count EvtNo: 1 3606

SUPP_CNTR

Date/Time      Point Server/Manager      Sensor Name      Event Description
-----
1/6/2005 08:52:19  POINTMANAGER            EntryCnt         Service
1/6/2005 08:52:28  POINTMANAGER            EntryCnt         Value - Open Count
EvtNo: 1 3606
```

The first section used by a program has this format:

Sequence Number, Computer Name, Date, Time, Point Server/Manager Name, Sensor Name, Event Description

Where:

Sequence Number – each email gets tagged with a sequence number. With the sequence number you can determine if an email was not received.

Computer Name – name of the PointWare client computer that sent the email

Date – date of the alarm

Time – time of the alarm

Point Server/Manager Name – name of the Point Server/Point Manager that generated the alarm

Sensor Name – name of the sensor where the alarm occurred.

Event Description – description of the alarm

Reports

Comparison Report

Comparison Report Criteria

Through the Comparison Report Criteria, you specify what Point Server/Point Managers, sensors, I/O points and date ranges you want to view. The following is description of the individual fields:

Available Point Server/Point Manager Configurations: List of the available Point Server/Point Managers. Select the desired Point Server/Point Manager to view. The PointWare will update the Available Data Points field with a list of sensors available for the selected Point Server/Point Manager. A Point Server/Point Manager may be listed more than once. The data for a Point Server/Point Manager is associated with a particular Setup set. Any major changes in the Point Server/Point Manager's Setup will cause a new association to be formed with the new setup. The following is a description of the columns:

Point Server/Point Manager – name of the available Point Server/Point Manager.

Sensors – number of sensors for the selected Point Server/Point Manager configuration.

From – starting date of the data available for the selected Point Server/Point Manager configuration.

To – ending date of the data available for the selected Point Server/Point Manager configuration.

Available Data Points: PointWare displays a list of the available sensors for the selected Point Server/Point Manager. Click on the '+' to expand the tree branch to view a list of the available I/O points for that sensor. Select the I/O point to view. PointWare will display a dialog window asking for the following:

Title – Specify the title the line in the graph.

Type – Specify the type of line: line or point.

Starting – Specify the starting time and date for this series of data. You can specify different times for different series of data.

Series: Shows the list of the selected I/O Points of selected Sensor of the selected Point Server/Point Manager. The following is a description of the columns.

Title – Title of the data series.

Kind – Kind of line to be drawn for the series.

Starting – Starting time and date of the series.

Add: add an I/O point from Available Data Points field.

Remove: remove the selected series from the Series List.

Report Duration: the number of hours to show for the graph

Graph 3D: show data series in 3 dimensions. If not selected, PointWare will show the series of the graph as a regular line or series of points.

Note: if PointWare is in UTCDataMode(found in the INI file parameters) and the Point Server/Point Manager has a UTC offset (found in the Point Server/Point Manager setup on the General tab), this offset will be applied to the times on the graph.

Comparison Report Graph

The Comparison Report Graph shows you the results of the criteria that you have just specified. The data is shown as an XY plot. The data is shown as an X/Y plot. The Y Axis is time shown as an offset starting at 0; the units are in hours. The X-axis is the plotted data units.

The graph has a rich set of features. The following describes the tool bar:

Normal: Return to normal view.

Rotate: Rotate the graph using the mouse.

Move: Move the graph within the window using the mouse.

Zoom: Using the mouse to shrink or enlarge the graph. Left click and move the mouse cursor towards the center of the graph to shrink the graph. Left click and move the mouse cursor away from the center of the graph to enlarge the graph.

Depth: When the graph is in 3D mode, left click and move the mouse away from the center of the graph to increase the depth of the graph. Left click and move the mouse towards the center of the graph to minimize the depth.

3D: Toggles between normal and three-dimensional mode.

Edit: Displays the Editing Chart window. From the Editing Chart window you can customize your graph.

Print: Displays the Print Preview window. From this window you can prepare your graph for printing.

Copy: Copy the current graph image to the Windows Clipboard. Once the image is in the clipboard, you can then paste the image into a document that is opened by another application.

Save: Save the image to a file.

Trend Report

Trend Report Criteria

Through the Trend Report Criteria, you specify what Point Server/Point Manager(s), sensors, I/O points and date ranges you want to view. The following is description of the individual fields:

Report Title: Enter the title for the graph.

Starting: Enter the starting date and time for the graph.

Report Duration: the number of hours to show for the graph.

Graph 3D: show data series in 3 dimensions. If not selected, PointWare will show the series of the graph as a regular line or series of points.

Available Point Server/Point Manager Configurations: List of the available Point Server/Point Managers. Select the desired Point Server/Point Manager to view. The PointWare will update the Available Data Points field with a list of sensors available for the selected Point Server/Point Manager. A Point Server/Point Manager may be listed more than once. The data for a Point Server/Point Manager is associated with a particular Setup set. Any major changes in the Point Server/Point Manager's Setup will cause a new association to be formed with the new setup. The following is a description of the columns:

Point Server/Point Manager – name of the available Point Server/Point Manager.

Sensors – number of sensors for the Point Server/Point Manager.

From – starting date of the data available for the Point Server/Point Manager.

To – ending date of the data available for the Point Server/Point Manager.

Available Data Points: PointWare displays a list of the available sensors for the selected Point Server/Point Manager. Click on the '+' feature see expand the tree branch to view a list of the available I/O points for that sensor. Select the I/O point to view. PointWare will display a dialog window asking for the following:

Title – Specify the title the line in the graph.

Type – Specify the type of line: line or point.

Starting – Specify the starting time and date for this series of data. You can specify different times for different series of data.

Series: Shows the list of the selected I/O Points of selected Sensor/Point Server/Point Manager. The following is a description of the columns.

Title – Title of the data series.

Kind – Kind of line to be drawn for the series.

Starting – Starting time and date of the series.

Add: add an I/O point from Available Data Points field.

Remove: remove the selected series from the Series List.

Note: if PointWare is in UTCDataMode(found in the INI file parameters) and the Point Server/Point Manager has a UTC offset (found in the Point Server/Point Manager setup on the General tab), this offset will be applied to the times on the graph.

Trend Report Graph

The Trend Report Graph shows you the results of the criteria that you have just specified. The data is shown as an X/Y plot. The Y Axis is time shown with the time and date. The X-axis is the plotted data units.

The graph has a rich set of features. The following describes the tool bar:

Normal: Return to normal view.

Rotate: Rotate the graph using the mouse.

Move: Move the graph within the window using the mouse.

Zoom: Using the mouse to shrink or enlarge the graph. Left click and move the mouse cursor towards the center of the graph to shrink the graph. Left click and move the mouse cursor away from the center of the graph to enlarge the graph.

Depth: When the graph is in 3D mode, left click and move the mouse away from the graph to increase the depth of the graph. Left click and move the mouse towards the center of the graph to minimize the depth.

3D: Toggles between normal and three-dimensional mode.

Edit: Displays the Editing Chart window. From the Editing Chart window you can customize your graph.

Print: Displays the Print Preview window. From this window you can prepare your graph for printing.

Copy: Copy the current graph image to the Window's Clipboard. Once the image is in the clipboard, you can then paste the image into a document that is opened by another application.

Save: Save the image to a file.

Activity Report

Activity Report Criteria

PointWare logs the activity milestones of all communications or attempted communications with a Point Server/Point Manager. An Activity record consists of when the Activity occurred, the associated Point Server/Point Manager (if any), the Action being executed (if any), and was an error recorded.

The Activity Report Criteria allows you select what information you want to view. The following is a description of the fields:

Point Server/Point Manager: Select the Activity information for a specific Point Server/Point Manager. With the “All” option, PointWare show the activity for all Point Server/Point Managers and also activities that were not associated with a Point Server/Point Manager.

Action: Select which Action you want an Activity Report for.

Source: Source specifies whether a Point Server/Point Manager or PointWare initiated the communications connections. The following describes the options:

All – use all the possible options

App – show only those activities that are specific to PointWare. An example of such activities is application startup and shut down.

Outgoing – show only those activities that occurred during a Push. PointWare either initiated by the user or scheduled attempts to make a connection with a Point Server/Point Manager.

Incoming – show only those activities that occurred during a Wait where a Point Server/Point Manager initiated the connection.

Errors Only: only those activities that were noted as errors. Errors would be such items as unexpected disconnect, communication errors, and setup mismatch errors.

Start Date and Time: Select the starting date and time for the set of activities you want to view.

End Date and Time: Select the ending date and time for the set of activities you want to view.

Note: if PointWare is in UTCDataMode(found in the INI file parameters) and the Point Server/Point Manager has a UTC offset (found in the Point Server/Point Manager setup on the General tab), this offset will be applied to the times in the report.

Activity Report Results

The results as specified by the Activity Report Criteria are displayed in the Activity Report window. The following describes the columns of the report:

Date/Time: Date and time of the Activity.

Media: the name of media for which the Activity occurred. The media may be blank.

Point Server/Point Manager: the name of the Point Server/Point Manager. The Point Server/Point Manager name may be blank.

Action: the name of the Action being applied to the Point Server/Point Manager when the activity occurred. The Action name may be blank.

Error: Indicates if this activity resulted in an error.

Message: a description of the activity. If the activity is a result of an error, Message will contain an error message. See Error List for a description of the error.

The following describes the options for Activity Report window:

Zoom to fit: resize the report to fit within the existing window.

100%: show the report at the normal printing size.

Zoom to width: resize the report to the width of the existing window.

First page: View the first page of the report.

Previous page: View the previous page of the report.

Next: View the next page of the report.

Last: View the last page of the report.

Printer Setup: Displays the Printer Setup window. You select which printer you want to use, orientation of the print page, and what pages you want printed. After making your selections, you will need to select the Print button in the report to start printing.

Print: Print the current report.

Save: Save the current report to a file. The "Save As Type" dropdown list shows you what file types you may save the report to. These include, but are not limited to, text, html, and pdf.

Load Report: load a report file.

Close: Close the Activity Report window.

Event Report

Event Report Criteria

The Event Report shows the Events that were generated by the Point Server/Point Manager.

The Event Report Criteria allows you to control what Events you want to see. The following describes the fields:

Point Server/Point Manager: Select the Event information for the specific Point Server/Point Manager. "All" selects all Point Server/Point Managers.

Sensor Type: Specify events for a certain sensor type. For instance you want to view all the events for only temperature sensors, select "Point Temp".

Sensor: Select a specific sensor.

Alarms Only: View only events that are considered alarms. Alarms are events that cause the Point Server/Point Manager to make a connection with a host.

Start Date and Time: Select the starting date and time of the events you want to view.

End Date and Time: Select the ending date and time of the events you want to view.

Note: if PointWare is in UTCDataMode(found in the INI file parameters) and the Point Server/Point Manager has a UTC offset (found in the Point Server/Point Manager setup on the General tab), this offset will be applied to the times in the report.

Event Report Results

The results as specified by the Event Report Criteria are displayed in the Event Report window. The following describes the columns of the report:

Date/Time: Date and time of the Activity.

Point Server/Point Manager: The name of the Point Server/Point Manager.

Sensor Name: The name of the sensor for the event. The name may be blank.

Sample Kind: The kind of I/O type for the sensor event. The name may be blank

Data: The I/O value that triggered the Event. This field may be blank.

Event Description: A brief description of the Event.

Alarm: Indicates if this Event is considered an Alarm.

The following describes the options for Activity Report window:

Zoom to fit: resize the report to fit within the existing window.

100%: show the report at the normal printing size.

Zoom to width: resize the report to the width of the existing window.

First page: View the first page of the report.

Previous page: View the previous page of the report.

Next: View the next page of the report.

Last: View the last page of the report.

Printer Setup: Displays the Printer Setup window. You select which printer you want to use, orientation of the print page, and what pages you want printed. After making your selections, you will need to select the Print button in the report to start printing.

Print: Print the current report.

Save: Save the current report to a file. The "Save As Type" dropdown list shows you what file types you may save the report to. These include, but are not limited to, text, html, and pdf.

Load Report: load a report file.

Close: Close the Activity Report window.

Alarm Report

The Alarm Report is an Event Report with only showing Alarms and the latest Alarms since the last acknowledgement. For further information about the contents of the Alarm Report, see the section "Event Report Results".

When the user closes the Alarm Report window, PointWare will prompt the user if he would like to acknowledge alarms. If the alarm is acknowledged, PointWare only displays the newest alarms since this acknowledgement when it receives more alarms.

PointWare will enable the Alarm button on the Toolbar and the Alarm Report submenu in the Reports menu. PointWare will disable these when the alarms are acknowledged otherwise PointWare will continue to show the Alarm button and the Alarm Report Submenu.

Correction Tables

Correction Tables--Overview

Correction Tables are used to convert analog data from raw to engineering values nonlinearly.

Scale and offset allow the user to convert the value from the sensor from raw data to engineering values. This conversion is linear. Some sensors require the raw value to be converted—or "corrected"—in a nonlinear way. Point Server/Point Managers use equations and tables to convert the raw data to engineering values nonlinearly. The "Tools" menu option "Correction Tables" allows the user to import correction tables to use on selected sensor data.

There are two pre-defined correction methods and the ability to customize many more. Each Correction method is assigned a unique "Correction ID." For analog sensors who might need a correction offset, the sensor setup allows the user to select which Correction ID to assign to the data value to convert it.

Predefined Corrections

There are two Correction IDs that are predefined in the Point Server/Point Manager as of this writing. New ones may be added in the future. The first is Linear, which has a Correction ID of 0. Linear correction will have no correction applied to the raw data unless the user sets up scale and offset. Linear correction is the default for all sensors.

The second predefined Correction ID is "NTC Thermister" which uses an equation with fitting constants to apply the offset to the raw data. For more information see the "Using Thermisters" section of the Point Server/Point Manager manual.

Defining a Correction

You can change the data associated with the existing Correction IDs or you can define a new one. To change the data, use the "Browse" button to load a new file. The data in this file will be associated with the Correction ID.

To define a new Correction ID, use the "New" button. A new screen will show that allows you to choose the Correction ID, Correction Type, and associated filename. The filename will point to a file that you have created with correction commands in

it. The Correction Type can be any one of the following: "Correction Offset", "Lookup Table" or "NTC Thermistor". Click "OK" when you are done.

Use the "Delete" button to delete the current Correction ID.

File Format

The associated file is a listing of the Point Server/Point Manager commands to set up the corrections on the Point Server/Point Manager. Each line in the file represents a Point Server/Point Manager command. If a line starts with a pound sign (above the 3 on most keyboards), PointWare treats this line as a comment and skips to the next line. See the Point Server/Point Manager manual for more information about the Correction commands. "COS" is a Point Server/Point Manager command.

Correction Offset example

The following is an example of the contents of a file that is used to download a Correction Offset type to the Point Server/Point Manager.

```
<pound sign>Electric Thermometer=Hart Scientific Model:
1502A, Serial no. A19544, Calibration date 9-22-01
<pound sign>Platinum Resistance Thermometer, Burns
Engineering Model:17660-B-090-B-1, Serial no. 566467,
Calibration data 9-04-01
<pound sign>May 20 2002,james
COS10,1,0,127,0,16
COS10,1,1,2,4,3,1,-1,-2,-3,-4,-4,-5,-2,-1,-3,-5,-5,-6,-
6,-5,-5,-4
COS10,1,2,-4,-2,-4,-4,-4,-4,-4,-
4,6,8,8,6,4,3,1,2,4,4,3
COS10,1,3,1,-1,-2,-3,-1,-1,-2,-2,-
2,1,1,0,1,0,0,0,1,1,0,1
COS10,1,4,2,2,2,2,1,2,4,2,4,4,4,4,5,5,4,3,4,5,5,9
COS10,1,5,9,14,13,13,13,14,14,13,14,14,13,10,12,12,14,14
,13,13,14,14
COS10,1,6,15,17,16,17,17,19,20,20,20,20,19,20,20,20,20,2
0,22,22,23,25
COS10,1,7,26,25,26,26,25,25,26
```

Lookup Table example

The following is an example of the contents of a file that is used to download a Lookup Table type to the Point Server/Point Manager.

<pound sign>Test Correction Lookup

COS11,2,0,10,1000,16

COS11,2,1,2000,2016,2032,2048,2064,2080,2096,2112,2128,2144

UTC and Time Zones

Using UTC and TimeZones in PointWare

PointWare can be configured so that all Point Server/Point Manager's clocks are set to UTC time. PointWare then stores the collected data and events with UTC time stamps in the database. When the user requests the reports, PointWare displays the reports (Comparison, Trend, Event, and Alarm) in the local time of the Point Server/Point Managers. You must set the UTC and the UTCDataMode program options to use the feature. Also the time zone field (in the Sensor General tab) must be set for all Point Server/Point Managers. See the section "PointWare Options: Time" for more information.

UTC	UTCDataMode	Function Description
		Point Server/Point Manager is set to local time. All data is stored in local time. PointWare shows the data in local time.
X		Point Server/Point Manager is set to UTC time All data is stored in local time. PointWare shows the data in local time.
X	X	Point Server/Point Manager is set to UTC time. All data is stored in UTC time. PointWare shows the data in the local time of the Point Server/Point Manager(s).

Multi-Client Operation

Multi-Client Overview

PointWare can be loaded on multiple computers on a network and then share a common database. The responsibilities of maintaining the system can be distributed across each instance of PointWare. For example PointWare on computer 1 is responsible for handling all incoming modem calls. PointWare on computer 2 is responsible for all TCP/IP communications. PointWare on computer 3 is used for viewing alarms and generating reports.

Multi-Client Setup

New Install

PointWare uses a Windows service called PWDDispatch to coordinate all resources the different instances use. The service must be installed on a central computer. This central computer can be where the database server is located or can be on a client computer that will be running PointWare. Install the installation program called "PointWareDispatchSetup.Exe" to install the service. Note the IP address of the computer where the service is installed. You will need to let all the instances of PointWare know where the service is located.

Install each instance of PointWare (PointWareClientSetup.EXE). Edit the PointWare INI file for each instance and add the following lines:

```
[Server]
Address=ipaddress
```

Where ipaddress is the ipaddress where the PointWare service called "PWDDispatch" is located.

Start each instance of PointWare as you would the single instance version. For the very first instance you will want to create the database. The remaining instances you will want to connect to the new database.

Upgrading from the single instance

Multi-Client version can use the same database as the single instance but instead of creating the database, you will just connect each instance to the database.

Multi-Client Usage

Locking Resources

With the multi-client version of PointWare, PointWare will “lock” resources when a user is updating that resource. A resource is either the tree or a Point Server/Point Manager. While an instance of PointWare has the resource locked, no other instance can edit that resource. PointWare locks a Point Server/Point Manager when the Point Server/Point Manager Setup window is displayed. When PointWare removes the window the Point Server/Point Manager is “unlocked”. PointWare locks the navigation tree when a user edits the tree (rename, add, delete, and move). PointWare will “unlock” the navigation tree a minute after the last edit is made to the tree.

If a user tries to edit a resource that is being used by another instance of PointWare, PointWare will display a message stating that the resource is locked and then abort the operation. If a user tries to edit a Point Server/Point Manager setup that is locked by another instance of PointWare, PointWare will prompt the user to continue but only in read-only mode (will not save any changes) or abort.

Notifications

Notifications about edits and changes to resources are sent to all the PointWare clients. PointWare clients will update their current windows to reflect the changes. For example, if PointWare on computer 1 changes the Branch name from “District 5” to “District Five”, all PointWare clients will get notified of the change and the clients make updates accordingly. PointWare clients will receive notifications for the following: changes to the tree, edits to the Point Server/Point Manager setup, Point Server/Point Manager last contact time, Point Server/Point Manager errors and alarms.

Alarms

When a PointWare client receives an alarm, all PointWare clients that receive that new alarms are recorded in the database. If enabled, each client can then display an alarm notification window indicating that new alarms have been received.

Error Messages

Error Message Overview

PointWare logs all errors concerning communication with a Point Server/Point Manager in the Activity Log. If the user initiates an action that causes an error, PointWare will display the error.

The following section describes the errors that are either displayed or noted in the Activity Log.

Error List

Failed to Push

The Push failed to make a connection with a Point Server/Point Manager. This message pertains to Com and TCP/IP media. For Com Media, make sure the Point Server/Point Manager is attached to the right Com port and powered. For TCP/IP Media, check your network settings and check the IP address of the Point Server/Point Manager.

Wait connect failed

The Point Server/Point Manager is attempting to connect to the Host but the connection attempt failed. For the Com Media, check to make sure the Connection Mask defined in the Wait matches the Path name as specified in the Media Callout table for the Point Server/Point Manager.

Invalid Com Port

PointWare is attempting to use a Com Port that does not exist. Check your system resources (through the System Manager).

Cannot Open Com Port

The Com Port cannot be opened.

Com Port already being used

The Com Port is being used by another application. Close the application that is using the Com Port or reassign the application to a different Com Port.

Unknown error

PointWare has encountered an error that is unknown. If this error persists, contact your PointWare dealer. Sometimes this error can be the result of attempting to write a setup to the Point Server/Point Manager that contains sensors of type "Unknown". Check the sensor setup in the Point Server/Point Manager setup and delete any sensors that are of type "Unknown" before trying to write the setup out to the Point Server/Point Manager.

Resource Unavailable

Modem is not available. Check your system resources and make sure the modem is defined.

Unable to initialize device

Modem cannot be initialized.

Database error

PointWare cannot save the collected information to the database. If the problem persists, contact your PointWare dealer.

Unsupported response from Database

PointWare cannot access the database. If the problem persists, contact your PointWare dealer.

Configuration out of date new Sensor

The Point Server/Point Manager Setup has been changed (most likely a new sensor was added using Auto Add Mode) and the Setup defined in the PointWare is outdated. Either use the Read Setup or Write Setup actions to update the Setup.

Configuration out of date wrong Sensor Type

The Point Server/Point Manager does not match the Setup contained in the PointWare database. The sensor types do not match. Either use the Read Setup or Write Setup actions to update the Setup

Error processing *CMD* response

This error message pertains to the Read Setup Action item. PointWare could not parse the Point Server/Point Manager response to the command. If the problem persists, contact your PointWare dealer.

Point Server/Point Manager configuration change

The Point Server/Point Manager's Setup has changed as compared to the setup stored by PointWare. The following can change the setup in the Point Server/Point Manager:

1. A new sensor being added through the Point Server/Point Manager AutoAdd Mode.
2. The Point Server/Point Manager's Setup is changed because a second process or application has changed the setup.

Either read the Point Server/Point Manager Setup using the Read Setup Action or update the Point Server/Point Manager Setup using the Write Setup or Write Comm Setup Actions.

Outdated configuration

The setup for the Point Server/Point Manager has been changed in the PointWare database but has not been updated in the Point Server/Point Manager. Use the Write Setup and/or Write Comm Setup Actions to update the Point Server/Point Manager.

Modem Call failed due to *Message*

An attempt was made using the Push function and the modem to make a connection with the Point Server/Point Manager. The Modem and or Modem software driver was not configured properly.

Unknown error: *Message*

PointWare encountered an unknown error while using TCP/IP. If the problem persists, contact your PointWare dealer.

Disconnected

Modem or TCP/IP connection was disconnected in a middle of a connection. If error occurs during a Push, make another connection with a Push. If the error occurs during a Wait, wait for the Point Server/Point Manager to push another connection. If the problem persists, contact your communication service to investigate the quality of the media.

The number was busy

An attempt was made using the Push function and the modem to make a connection with the Point Server/Point Manager. The line was busy.

No answer

An attempt was made using the Push function and the modem to make a connection with the Point Server/Point Manager. The Point Server/Point Manager did not answer the telephone line.

No dialtone

An attempt was made using the Push function and the modem to make a connection with the Point Server/Point Manager. The computer modem did not detect a dialtone.

Cannot find PointWare Dispatcher

PointWare is trying to communicate with the PointWare Dispatcher without success. Determine that the Dispatcher has been installed and is running. Determine if the connection information is correct. See the section “Multi-Client Operation” for more information.

Point Server/Point Manager tab is locked by computer

You are trying to perform an operation that will affect the navigation tree used to organize Point Servers/Point Managers. The navigation tree is locked and being modified by another PointWare client. The PointWare client will unlock the tree one minute after the last operation is performed by the client. See the section “Multi-Client Operation” for more information.

Point Server/Point Manager is currently being used by another process!

You are trying to edit a Point Server/Point Manager setup that is being used by another PointWare client. Wait for the PointWare client to finish with editing or continue in readonly mode. See the section “Multi-Client Operation” for more information.

Program Parameters

INI File Parameters Overview

PointWare looks for switches that change the behavior of the software in file called POINTWARE.INI during startup. POINTWARE.INI is an ASCII text file that can be edited with an ASCII Text editor like Notepad or WordPad.

The file is organized with sections with dependent parameters on the following lines. The following illustrates the form:

```
[Application]
Parameter1=
Parameter2=
Parameter3=
```

PointWare stores lots of other information in this file. The next section describes those features that can be changed.

INI File Parameters Listed

All these parameters are associated with the [Application] section.

DBConnection= connection string used by PointWare to establish a connection with the SQL Server and the PointWare database. If this parameter does not exist, PointWare will prompt for connection information when it first starts.

DBConnectionTimeout= number of seconds to wait for the database connection to be established. The default is 10 seconds.

DBCommandTimeout= number of seconds for PointWare to wait for a response from the database server. The default is 7 seconds.

LogVerbose= 1 - events will be logged to the Activity table in the database one at a time. 0 (default) - events will not be logged until a Push or Wait has completed; the log will consist of a summary of all actions taken.

ModemReinitTime= number of seconds before reinitializing since the last modem activity. This function allows PointWare to periodically reinitialize its modems. A value of 0 turns off this function (default).

ModemTapiLog= 1 - PointWare creates a log of the modem activity. PointWare logs this activity to a text file called APROTAPI.HIS 0 (default) – PointWare does not log this activity.

MaxConcurrent= the maximum number of concurrent connections PointWare will establish for a media type. PointWare will wait to establish new connections while the maximum number of connections are being used. The default is 5.

ActivityLog= 1 – PointWare writes the messages displayed in the Activity window to a text file called “PointWare.act”. 0 (default) – PointWare does not write the activity messages.

All these parameters are associated with the [Device n] sections.

DeviceCmdTries= Number of times to try a command to the Point Server/Point Manager.

DeviceConnectTries= Number of times to try to connect to the Point Server/Point Manager.

WaitAnswerCount= The number of rings before the modem will answer the telephone line.

WaitIpPort= The port number of the for the TCP/IP Wait function to monitor for attempted connections.

DeviceRespWaitMs= The number of milliseconds to wait for a response for a command before retrying or failing.

Parameters for Multi-Client Mode listed in the [Server] section.

Address= IP address of the PWDDispatch Service. (Default is 127.0.0.1)

Port= port number of the PWDDispatch Service. (Default is 1070)