Technical Specifications
Deployment and Support Requirements for SURVEYOR™

TECHNICAL SPECIFICATIONS

This document contains information from Verdiem about SURVEYOR's technical characteristics and the hardware, software, and requirements for running the application on your network.

SURVEYOR SERVER

The SURVEYOR Server provides remote, network-level control over PC and monitor power settings; manages communications with the SURVEYOR Clients; and collects and stores energy-consumption data.

Compatible operating systems:

Microsoft Windows 2003 Server
Microsoft Windows 2000 Server
Microsoft Windows 2000 Advanced Server
Microsoft Windows XP Professional
Microsoft Windows 2000 Professional

Footprint with NO SURVEYOR Clients deployed

Disk: 4 MB installed, more if logs are centralized on server
RAM: 7 MB installed, increases with client count

Footprint with 1,000 SURVEYOR Clients deployed

Disk: 1 GB, more if logs are centralized on server
RAM: 100 MB

Server hardware requirements

In general, SURVEYOR requires the same minimum hardware configuration as Windows 2000 or Windows XP. Performance will generally improve for larger numbers of clients with more memory, faster processors, and faster network access.

Minimum configuration—Workstation with 1.3 GHz Pentium 4 or equivalent processor, 256MB RAM, 5GB free hard disk Space

Recommended configuration—Server with 2 GHz Pentium 4 or equivalent processor, 1GB RAM, 10GB free hard disk space

Server software requirements

Microsoft Data Access Component (MDAC) version 2.8 or higher MDAC is provided in the SURVEYOR "Resources" folder.

Server capacity

Each SURVEYOR Server can support up to 50,000 clients and up to 65,535 groups. SURVEYOR also supports one power profile per group and multiple power settings per profile (typically, customers configure no more than 4 or 5 settings per profile).

Multiple SURVEYOR Servers may be used in organizations with more than 50,000 clients.

DATABASE

The SURVEYOR Server uses Microsoft SQL Server 2000 or Microsoft SQL Server 2005 as its database management system. SURVEYOR supports all versions of SQL Server released later than SQL Server 2000 Service Pack 3. You may use either the MSDE, SQL Server 2005 Express Edition, or any MS SQL Server data repositories. IPEM can provide runtime versions of MSDE and SQL Server 2005 Express Edition, at no charge, that limit data collection to 2 GB (for MSDE) or 4GB (for SQL Server 2005 Express Edition) before data must be archived or discarded. When using MSDE or SQL Server 2005 Express Edition, the database must be located on the same machine as the SURVEYOR Server (and this configuration is limited to managing 3,000 clients). The SURVEYOR Server can also be configured for local or remote database connectivity with an MS SQL Server database, which allows for much larger data collection limits and greater flexibility.

SURVEYOR REPORTER

SURVEYOR Reporter queries the SURVEYOR database and generates custom reports on the energy consumption of networked PCs and their monitors. Data is collected on the client PCs and sent daily to the database on the server.

SURVEYOR Reporter then queries data in the database to generate energy-consumption reports. SURVEYOR Reporter system requirements. Any PC with Windows 2000 SP4 or later Windows OS. User must have rights to access the SURVEYOR database.

NET Framework 2.0 (included in the SURVEYOR Reporter installer).
Free hard drive space- Surveyor Reporter requires a maximum of 30MB, including space required by the .NET Framework 2.0.

Note: When using an MSDE database instead of SQL Server, SURVEYOR Reporter must be run from the machine that is running SURVEYOR Server.

SURVEYOR CLIENT

The SURVEYOR Client software resides on the network's client PCs. The SURVEYOR Client must be installed on every client PC whose power-management settings will be controlled and monitored by SURVEYOR. The SURVEYOR Client initiates all communication activities. It "checks in" with the SURVEYOR Server for updates to power-setting profiles, and to upload power-state and energy-consumption data to the SURVEYOR Server.

Client operating systems
Windows Vista (all editions)
Windows XP (all editions and service packs)
Windows 2000 Professional SP1 or higher
Windows ME
Windows 98 First and Second Editions
Windows NT 4.0 SP6 Workstation
Windows 95

Client hardware requirements
Minimum configuration—PC with 233 MHz Pentium or equivalent processor, 64MB Ram, 64MB free hard disk space

Client software requirements—Internet Explorer 5.0 or higher, with Task Scheduler enabled
Client footprint
Disk—5MB installed, more if logging is enabled
RAM—13MB

Additional software required:
For Windows 95 and 98 clients—Microsoft Task Scheduler as a component of Microsoft Internet Explorer 5.0 or higher

COMMUNICATIONS AND SECURITY

Client and Server Communications

The SURVEYOR Client and Server components require Windows Sockets 2.0 (or higher) and communicate with each other over TCP/IP. The SURVEYOR Client always initiates the connection, so it must either have the server's IP address or access to a DNS server to resolve the server's name. The TCP/IP port used is configurable on both server and client machines. While a client is running and awake, it maintains an open connection to the server. This connection allows changes and commands on the server to be immediately sent to the client. All communication with the server uses a single port that may be configured to be any port above 1024. The default port is 5600. The average client will communicate with the server once each day to report energy-consumption data, unless the administrator has turned off this feature. In addition, each time a client PC is turned on or awakened, it re-syncs with the server, checking for updates to the current power management settings. Finally, whenever the power management settings are changed at the server level, the new settings are sent to all clients in the group

Bandwidth

The SURVEYOR Server and SURVEYOR Clients communicate several times per day: at initial boot-up or login of the client, at the scheduled time for data to be sent to the server (this time is configurable and can be turned off), and when sending TCP/IP keep-alive packets.

Typical packet sizes for each client are:
Initial Connect (Reboot or Restart from OFF): 0.6K
User Login: 0.25K
Suspend/Hibernate/Wakeup Reconnect: 0.01K to 0.02K some times, 0.0K other times
Daily Rollup: 0.6K to 2.0K depending upon data collected
Keep-Alive Every 2 Hours: 0.01K
Total: up to 2.9K per day per client

NOTE: If for some reason data is not sent from the client to the server (e.g., the client is off the network, the client is not connected, the server is not accepting logs, etc.,) daily data accumulates on the client until it can be sent to the server. This action may result in multiple days of data being sent to the server at one time. SURVEYOR has administrator-configurable settings that determine the amount and frequency of data sent to the SURVEYOR database from each client. When options for User Activity Detail or Hourly Rollups are selected, the amount of data will be higher.

Daily tracking—data packets are 0.08K to 0.1K, sent once a day.
Hourly tracking—data packets are 1.67K to 2.4K, sent once a day.
Activity tracking adds another 5K to the data packet, sent once a day. (Activity tracking is typically run only during an evaluation on a statistically significant sample set of computers.)

Server Security

SURVEYOR adheres to stringent security policies. Your IT Administrators can be assigned security rights with fine grained control over who is allowed to change configurations and groupings. Rights assignment integrates with the Windows security model, so separate accounts and passwords are not required.

In addition, all routine communications are initiated by the PC client. Each client "checks in" with the server daily to pass energy-consumption data and check for changes to the policy of its group. This ensures that communication, licensing, and group management are authenticated at the client level. It also prevents a "rogue" server from attempting to shut down clients on the network.

SURVEYOR does not interfere with other applications; however SURVEYOR provides an optional administrator capability to shut down a PC or group of PCs regardless of running applications or unsaved data. This action can only be initiated from the SURVEYOR Server console, and requires specific rights to be configured within Surveyor Security. SURVEYOR uses the Windows OS shutdown functionality, so by default SURVEYOR will not close any application that is configured to veto an OS shutdown command. To avoid any potential conflicts, SURVEYOR can be configured so as to not make power state changes on PCs running specific applications specified by the administrator.

DEPLOYMENT AND SUPPORT REQUIREMENTS

SURVEYOR is engineered to minimize deployment times and the need for ongoing support. The following sections summarize the roles, activities, and estimated time required to deploy and support SURVEYOR.

ROLES

System Administrator

The system administrator installs, configures, and supports the server software, and configures and deploys the client software on applicable PCs on the network. The system administrator should have basic knowledge of the following:

- MS Windows Operating Systems
- MS Registry
- Networking
- MS SQL Server
- PC and monitor power management settings (ACPI)

Energy Manager

The energy manager works with the system administrator to define PC power settings, to group PCs according to power usage profiles, and to generate energy-consumption and energy-savings reports. The energy manager should have basic understanding of how to configure power settings and generate reports using SURVEYOR.

DEPLOYMENT METHODS AND TIME REQUIREMENTS

Server Installation

Installation of the SURVEYOR server software is straightforward. As with any network application, there are several prerequisites that must be checked to ensure successful installation, such as connectivity to a remote database if desired.

The following software must be already installed on the server:

Microsoft Data Access Component (MDAC) Version 2.8 or higher

If using a local database, MSDE or MS SQL Server must be present on the local machine. If using a remote database, access to MS SQL Server database MDAC 2.8 and a free version of SQL Server 2005 (limited to 4GB Surveyor Database size) are provided on the SURVEYOR CD in the “Resources” folder.

Detailed information on the SURVEYOR Server software installation procedure is provided in the product documentation. We are available by phone and e-mail to provide assistance.

Client Installation

You can install the SURVEYOR Client software on networked PCs in a number of ways:

Push Install—The push method involves installing the SURVEYOR client software on networked PCs from a central location. Many third-party tools can be used to push software, including Microsoft Systems Manage ment Server (SMS), Novell ZENworks, and others. SURVEYOR’s client installation supports these tools by providing a quiet install option and a command line interface that can be used to specify any setting that a manual method allows.

Image Install—The image method involves manually installing SURVEYOR client software on one PC and taking an image of that PC. The image is then installed on the other networked PCs. IPEM provides an image- preparation tool for customers who wish to install the SURVEYOR client using this method.

Script Install—SURVEYOR supports login scripts that execute a centrally located installable from the client location, using either visible scripts or “silent” scripts that require no user input. (The user installing the client must have local administrative rights, or the RunAs utility must be used.) IPEM provides a tool that automates script generation for Win 9x/2000/XP clients, including RunAs capability. IPEM can assist customers who chose to install using this method.

Manual Install Method—This method consists of running the client setup.exe at each individual PC, and manually selecting the installation options through the user interface. Because this method requires physically touching every client, it is not the recommended installation method.

The following breakdown provides a summary of the activities that your IT team will need to fulfill and the corresponding time requirements for managing Surveyor. They are broken into two categories: Deployment and Management.

Deployment

Deployment is a one time effort following the purchase of Surveyor. This will include installation and configuration of the Surveyor Server and deployment of Surveyor Clients.

Activity	Description	Time
Install and configure server software	Includes identification of a server with a static IP address and configuration of MS SQL Server or Access databases.	2 to 4 hours
Install and configure server software on distributed servers (optional)	May be required for networks that encompass tens of thousands of PCs with distributed domains. Server replication setup is the primary activity associated with these types of installations.	2 to 4 hours plus 1 hour/server
Deploy client software	Includes deploying the client software to network PCs	1 – 10 Days *
Group clients (optional)	Includes identifying groups of users who would share common power-management policies. Client groups can be configured before or after deployment	2 to 8 hours
Prepare images (optional)	Network administrators can set up their PC ghost image with an installation of SURVEYOR. This activity is based on the method by which an institution deploys new PCs.	2 to 4 hours

* The typical deployment timeline for client software that has either a centralized desktop management system or central authentication, ranges from 1-10 days. It depends on your company's software deployment policy and number of pc's. The IT effort per day related to deployment is usually 1-2 hours a day. An IPEM professional services consultant will work with you to determine your software deployment timeframe.

ONGOING SURVEYOR MANAGEMENT AND SUPPORT TIME REQUIREMENT

Your network is likely to grow after installation, so your IT administrator will need to perform activities on an ongoing basis to ensure that SURVEYOR remains properly installed and configured. The following table describes these activities and the time that we estimate will be required to complete them.

Activity	Description	Time
Regroup clients (optional)	Periodically, new groups may be defined based on organizational changes, or new mass deployments of PC's.	2 hours per quarter
Generate reports	This activity is associated with the Energy Manager running reports periodically to review the energy savings that Surveyor is providing. It also provides a means for modifying profiles to reduce consumption further.	2 hours per quarter
Reinstall client software	As PCs are replaced on the network, client software must be installed on the replacement PCs.	Hour once a quarter; or 4 Hours annually
Image preparation (Optional)	The Administrator can setup up their PC image with an installation of Surveyor. This activity depends on the method you use to deploys new PC's.	2 Hours
Install SURVEYOR upgrades	Install maintenance updates and new versions of SURVEYOR. As they are released, IPEM will provide updates on to you.	One hour a month
User support	Respond to help desk calls from end-users that may be experiencing issues on their PCs relative to the SURVEYOR software or power-management policies.	1 to 2 hours as needed