Clinical Trials Management System
(CTMS)

Atlant's Protocol Manager™

Keep Clinical Trials on Time and on Budget

Enterprise information boundaries are disappearing as corporations open their networks to allow external access by clinical trials partners to internal systems. In today's competitive and regulatory environment, managing all of the assets, people, and documents that comprise a clinical trial is essential.

Atlant's Protocol Manager ™ manages time-critical information, regulatory documents, budgets, and schedules about investigators, patients, clinical-trial staff, and all related components of a clinical trial. Protocol Manager is the award- winning computer software
system which satisfies a company's need for a Clinical Trials Management System (CTMS).

The offering by Atlant Systems described in this document is meant to provide the client with the correct hardware, software, and deployment services to meet the requirements for a CTMS. The offering is comprised of four components:

1. Protocol Manager
2. Server recommendations
3. Requirements Planning
4. Consulting support services

Atlant's Protocol Manager Software:

Clinical trial information boundaries are disappearing as pharmaceutical and biotech researchers open their networks to allow external access to internal trials. In today's regulatory environment with access via the Internet, securing these open networks, systems, and applications is essential.

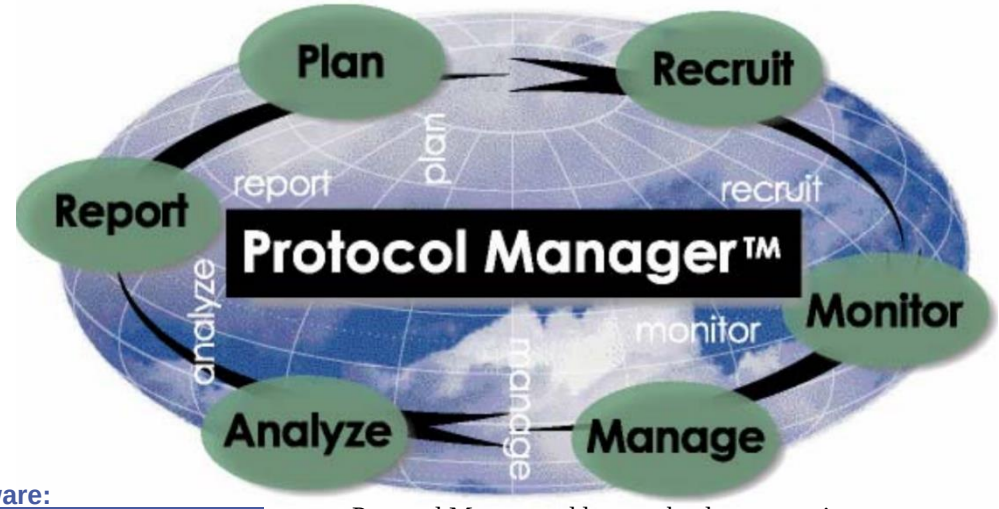
Atlant's Protocol Manager software provides the highest level of access and security to on-line and on-time clinical trial information. Protocol Manager facilitates e-business models for clinical trial management by supporting a secure intranet and extranet.

Protocol Manager is a suite of integrated applications designed to assist the Clinical Trial Project Team in managing information about clinical trials for sponsors.

It is a configurable Clinical Trial Project Management solution. Atlant provides configuration services to fit Protocol Manager to your specific environment.

Protocol Manager helps manage both trial and regulatory documents associated with a trial. Protocol Manager helps the project manager develop and manage project budgets and inventories. Its integrated applications enable users to create, review, approve, release, track, and control documents including:

- protocols
- investigator profiles
- site and vendor contracts
- patient profiles
- patient visits
- project status reports
- appointments
- call reports
- form letters
- trip and monitoring reports
- 1572's
- CV's.



Protocol Manager addresses the documentation, workflow and communication needs of the entire clinical trial team, including:

- Sponsors
- CROs
- SMOs
- TMOs
- ECs
- Labs
- CRAs
- CRCs
- Investigators
- IRB

Protocol Manager is a Global Clinical Trials Expressway:

Protocol Manager supports continuous improvement by creating a comprehensive database of all planned, current and completed trials. This data can be used to establish and measure key processes and to implement global standards.

Atlant's Protocol Manager is comprised of several integrated modules that work together to form a complete Clinical Trials Management System (CTMS). Because of **Atlant's Protocol Manager** *open architecture*, Protocol Manager can interface with Electronic Data Capture (EDC) and Electronic Data Management Systems (EDMS). Events recorded in each system can apprise the other system(s) of the completion of the event or that an anomaly has occurred. The functions of the modules that comprise Protocol Manager are briefly described below:

The Protocol Manager is used in the overall planning, monitoring, and managing a Clinical Trial. The Protocol Manager is the business engine which drives the entire trial process. From within this module a trial is designed to meet the
conditions set by the trial Protocol Manager. Protocol Manager Module also provides reports on the status of the overall trial and activities that are taking place during a trial.

Specific functions of the Protocol Manager module include:

- Protocol/project planning and budgeting
- Project management
- Actual spending against budgets

Trial Portals -- Protocol Manager utilizes Internet Portals to allow active, on-line interchange with all members of the project team. Portals also facilitate on-line, instant mes- saging and on-line, web-based team meetings. Discussion "sand boxes" provide vehicles for discussion interchanges whether the members are on-line or off-line. Portals modules include:

- Sponsors
- Investigators
- Project Managers
- CRAs
- Data Management
- Project Assistants
- Safety
- Clinical Trial Staff

Through the Portal modules a user may design a custom inter- face to view his information or may be the recipient of specific portals based upon his role on the trial. Portals allow on-line interchange between trial members using the latest instant messaging and team meeting technology.

Contact & Relationship Management – Relationships between many people and organizations pertaining to a clinical trial are important and dynamic. Documents are ex- changed and dialogs are recorded. The management of all that information is critical to the clinical trial. Protocol Manager provides a contact management base for all parties to a trial.

Business Development – Partners with sponsors of a clinical trial have a unique requirement. That requirement involves offering services to sponsors and coming to agreement on a contract to provide those services to the client. Protocol Manager utilizes a unique model for Business Development that is used by CROs, SMOs, and TMOs alike. Its opportunity management capabilities employ some of today's award-winning approaches to selling.

Sales forecasts, trending, win/loss analysis, and competitive information within and across product lines is available by territory, customer, or time period in both standard and ad-hoc formats.

Sponsors use the Business Development module to manage relationships with their clinical trial partners as well – CROs, TMOs, SMOs, etc.

Vendor Contracts and Payments -- Complete Vendor contracts and payment triggers may also be enabled for this system. Specific functions of Vendor Payment Management include:

- Vendor Services Planning
- Vendor Contracts and amendments
- Vendor Payments and Invoices
- Payment Events based on contracts and milestones

Investigator Relationship Management -- The investigator relationship management module begins by providing basic contact management between the sponsor or CRO and the investigative site and its personnel. The module manages relationships with sites, individual investigators [and their staffs]; IRBs, ECs, Labs, and other clinical trials partners who actually conduct parts of the trial for the CRO or sponsor.

The module tracks the complete profile of the Investigator including current activities, trials that the Investigator has participated in and Investigator-related documents. By utilizing the Secure Login capabilities of atComP, an Investigators can enter into the system through the Investigator portal and update his own information.

Specific functions of the Investigator Relationship Management module include:

- Investigator recruiting & management
- Investigator payments -- payment events and invoicing
- Monitoring and trip reports
- Appointments and calendar management
- Regulatory document management

Investigator Payments -- Complete Investigator con- tracts and payment triggers may also be enabled for this system Specific functions of the Investigator Payment Management module include:

- Investigator Contracts
- Investigator Payments and Invoices
- Payment Events based on contracts and other
- Payment events based on Patient Events

Monitoring -- Trial monitoring is an "embedded" component of several of the modules that comprise Protocol Manager. Monitoring begins with appointment scheduling and follows the monitoring workflow through to the approval of the monitoring and trip report. Trial and site metric are automatically available to the Monitor such that information is entered only once in the system.

Trial Documents -- Enabling electronic document management on a trial can provide a significant advantage in time and cost savings as well as producing higher quality information. The document module in Protocol Manager stores all of the documents associated with a trial (1572, CV, ICF, etc...).

Documents can be specific to countries, regions, and clinical trials. When an investigator is "initiated", the correct regulatory documents are automatically created from a trial document library. The specific country document is selected for creation.

Documents managed under this module have full version control and check in/ check out control. Documents may be scanned directly into the system or attached if they already exist in electronic format. Once added to the module they are enabled with workflow and review capabilities as well as expiration and notification attributes.

Specific functions of the Trial Documents Management module include:

- Forms letter library
- Regulatory (site-essential) document library
- Monitoring and trip reports

Patient Relationship Management -- The Patient Relationship Management Module tracks all activities and information around a subject enrolled in a clinical trial. The patient record is tracked along with Visit and Schedule information. CRF pages Queries and Protocol Deviations are also tracked. Ad-hoc visits, Ad-hoc CRF's and multi-leg trials are all easily handled by this powerful and flexible module.

Specific functions of the Patient Relationship Management module include:

- Patient recruiting
- Patient scheduling
- Patient tracking
- Electronic Data Clarification(s) – EDCFs
- Protocol Deviations & Exceptions

Patient Recruitment -- The recruitment module is a call center application for the evaluation of prospective patients on a clinical trial. The module contains a list of qualifying questions as defined by the protocol. Additionally, marketing and follow up questions may be recorded. By utilizing this module a list knowledge base may be formed and maintained and a reservoir of potential trial subjects for future studies is developed.

Inventory -- The Inventory control module tracks the shipment of drugs and the inventory of drugs on site at a trial center, including the lot and batch numbers of the drugs as well as expiration and recall dates. In addition to drug shipments Kits, medical supplies and other site essentials can also be tracked within this system.

Specific functions of the Inventory Management module include:

- Clinical Supplies
- Test kits
- Documentation bundles
- Kits
- Components
- Serial number and randomization numbers

Human Resources Management -- The Human Re- sources module contains a personnel directory of the company's personnel who are or could be involved in a clinical trial. Contact information is maintained as well as up-to-date CVs and training schedules.

Person content recorded in Human Resources contains information including department, job title, resource type, etc. "Contract Personnel" are also placed in the Human Resources module such that they may obtain protocol assignments from the trial project manager within the Protocols Module. The Protocols Module tracks assignments of personnel to specific trials based upon their availability.

Activity and Expense Reporting -- Trial personnel may enter time and expenses in this module. Once entered this information provides an accurate and up to date costing on the clinical trial. Through this module it is possible to review the budget information, compare actual versus forecast budgets and more accurately plan the expense of future projects.

Adverse Events -- Adverse Events and Serious Adverse Events must be properly tracked and reported on a trial. Protocol Manager comes enabled with the atWatch AE safety system. From within this module an Adverse Event may be reported encoded and submitted to the FDA electronically.

Specific features of the Adverse Event Management module include:

- Add-on module to Protocol Manager
- Meets the FDA's MedWatch Reporting Requirements
- Incorporates coding dictionaries including COSTART and MedDRA
- Ability to add coding dictionaries

Query Manager -- The Query Manager produces Ad-hoc reports or stored reports across databases and across studies. By utilizing the Query Manager a project manager, sponsor or any authorized individual can generate a custom report of information on the trial.

Unique Features of Protocol Manager:

Powerful Tools -- Protocol Manager integrates clinical trial management processes with the extensive functionality of a collaborative groupware application. The resulting Protocol Manager applications deliver functionally rich, comprehensive clinical trial project management capabilities to the project team.

Remote Operation -- Protocol Manager allows remote users to participate in many functions of the system via dial- up, intranet, or extranet. Requests for actions and process notifications appear in the recipient's electronic mail box. CRAs can enter data on site or after hours via a laptop. All changes made to documents remotely, can be replicated to the Protocol Manager databases, thus dramatically expanding accuracy and productivity.

E-Mail Freedom -- Protocol Manager interfaces with all known
e-mail systems. Action items and document workflow tracking make free use of the users' e-mail. However, e-mails are kept external to the Protocol Manager processes.

Ease of Use -- An intuitive look and feel to screens makes using Protocol Manager simple and straightforward. Protocol Manager users are prompted through document development by pop-up menus and internal checks on data integrity. The Protocol Manager help database provides detailed user information for the Protocol Manager suite of applications.

Connections to other systems -- Protocol Manager helps the clinical trial team manage a trial. Other computerized systems may be used to manage other data elements of a trial. Protocol Manager has been connected to many other internally-developed and
vendor-supplies systems. Popular system types include: Electronic Data Capture (EDC) systems, Clinical Trial Data Management Systems (CDMS), Standard Operating Procedure (SOP) systems, and document management systems.

Uploading data and information -- Clinical trial data may currently exist in other systems outside of Protocol Manager. In addition to being able to connect to other systems, direct data can be uploaded into Protocol Manager by applying some simple scripts.

Application Security and Compliance with 21 CFR Part 11

Protocol Manager utilizes Atlant's atComPac application for compliance with 21 CFR Part 11. Protocol Manager provides the following features

Security -- Protocol Manager utilizes the most-comprehensive security model available to ensure that all information and data is viewed, read, edited, changed, and managed only by authorized personnel.

Audit Trail -- Protocol Manager provides a human read-able audit trail, at the field level, for each document in the system. Utilizing Atlant's Snapshot technology, Protocol Manager tracks
the original value of a field, the changed (new) value of the field and records the date, time and originator of the change.

Digital Signatures -- By employing a PKI based digital certificate for identification and authentication, Protocol Manager can apply a digital signature to any electronic record in the system. Once applied, the digital signature will meet the criteria necessary for non-repudiation and identity chal- lenges, and can be considered the legal equivalent of a hand- written signature.

Identity Confirmation -- The Protocol Manager authentication module (atComPac) meets the guidelines set forth by the FDA for subsequent saving or signing of records in both a new session and in a continuous session. During the initial authentication of a session, the identity of a user is de- termined by the presence of that person's "private key" and the associated password for that private key. In subsequent authentications, a separate password tied to the private key is required.

Access Logging -- Access to an application can be logged using the atComPac tool set. When a user enters the data-base, the event is captured, the termination of that session is also captured and a log is written with the length of time of each session.

Access Control -- One of the challenges in a regulated environment is to produce a 21 CFR part 11 audit trail of the access and permissions changes to an application. By utilizing the access control module (atComPac), a full audit trail is written showing the access changes, the previous levels and/or roles and subsequent changed levels and/or roles. Utilizing the module, it is also possible to further restrict actual access to the database and provide power users the ability to update security without giving them full "DBA" or manager permissions to the system.

Web Authentication -- The web based version of the tool allows a web form to capture all changes in the audit trail and perform full authentication at the saving of a record.

Reason for Change -- Many key fields within a system should require a user to enter a reason for change when updating those values. The system allows the database manager to define fields that require a reason for change.

Rules Based Configuration -- By default all fields within the database are audited. The configuration module allows the database manager to define rules for auditing as well as to select certain fields for exclusion, and direct where the audit trail is to be stored (internal or external to the current data- base).

Ease of Use

Protocol Manager incorporates powerful groupware technology for collaboration and information exchange. By enabling people to access and modify the same documents, Protocol Manager allows team members to work independently while sharing a common database.

Protocol Manager has been designed with deliberate simplicity, mirroring the workflow of the clinical and regulatory affairs organizations. A consistent user interface across multiple platforms, coupled with extensive on-line help, makes Protocol Manager intuitively easy to learn and use. Navigation within Protocol Manager is very easy, using buttons and icons that automatically forward users through the appropriate work- flow.

The system provides a wide range of features that simplify the workflow management of clinical trial environments. These features include:

- Linked subsystems with bidirectional cross-referencing of clinical trial documentation
- Management of documents through appropriate states of development and approval
- Automated document control
- Consolidation of review and approval history and actions associated with the clinical trial process
- Locking upon completion of controlled records
- Automatic notification and escalation to enforce action items

Protocol Manager is extremely flexible. It can easily be adapted and customized to meet specific user needs and organizational characteristics.
Protocol Manager employs user-controlled tables for almost every checklist-driven entry.
Modification of checklists and tables are under the control of the clinical database administrator, not the IT staff.
Protocol Manager is scalable. It can serve a single location or an entire enterprise with global locations. Through replication, data can be synchronized across large organizations.

Protocol Manager has been tested with a wide variety of other applications to further extend its power to other critical functions within the organization including finance and operations. These include: graphics, video, sound, word processing, spread sheets, management reporting, and other database managers -- Oracle, DB2, SAS, and Documentum included.

Deployment Approach

	Deployment Step		
	1	2	3
Focus	**Initial live trial(s)** **Project Team** **PMs Pas** **CRAs** **Short dura-tion**	**More Trials** **Longer Trials** **Programs**	**Full De-ployment**
Scope	**Configura-tion** **Load Ref DBs** **Project Team** **Country**	**Additional Trials** **Expanded Team** **PT to Train** **Region**	**Global** **End-user Train**
Modules	**Protocols** **Site Docs** **Templates** **Investiga-tors** **Contacts**	**Investiga-tors** **Monitoring** **Enrollments** **T&E**	**Patient Re-cruiting** **Patient Tracking** **Adverse Events** **EDCFs** **Inventory**