



1308 Florida Ave.  
Panama City, FL 32401  
(850) 763-2192

# *Professional Systems Associates, Inc.*

---

<http://www.psasys.com>

# CMPRO

*CM+PLM Simplified*  
*(and a whole lot more)*

Product White Paper





# CMPRO

## *CM+PLM Simplified (and a whole lot more)*

Product White Paper

---

### Contents

<b>Introduction</b> .....	<b>3</b>
<b>The Solution</b> .....	<b>3</b>
<b>CMPRO</b> .....	<b>4</b>
<b>CMPRO Components</b> .....	<b>5</b>
<b>Systems</b> .....	<b>5</b>
<b>Baselines</b> .....	<b>5</b>
Normal Baselines.....	5
Merged Baselines.....	5
Product Definition Baselines.....	5
Product (Design) Baselines.....	6
<b>Document and Drawing Management</b> .....	<b>6</b>
Drawing and Parts List Management.....	6
Document Management.....	7
<b>Product Definitions</b> .....	<b>7</b>
Drawing Trees.....	7
Part Trees.....	8
Part BOMs.....	9
<b>Work Orders</b> .....	<b>9</b>
<b>As-Built</b> .....	<b>9</b>
<b>Inventory Management</b> .....	<b>10</b>
<b>Workflow – Getting the Right People Involved</b> .....	<b>10</b>
Overview.....	10
Workflow Document Features.....	10
<b>Enterprise Change Forms (CMII)</b> .....	<b>12</b>
Enterprise Problem Report (E-PR).....	12
Enterprise Software Problem Report (E-SPR).....	12
Enterprise Change Request (E-CR).....	12
Enterprise Change Notice (E-CN).....	13
<b>Project Management (PM)</b> .....	<b>13</b>
PM and Workflow.....	13

<b>Contract / DD1423 Tracking .....</b>	<b>14</b>
<b>Released Software Management .....</b>	<b>14</b>
<b>Alterations Management .....</b>	<b>14</b>
<b>Integration .....</b>	<b>14</b>
<b><i>Technical Overview .....</i></b>	<b><i>15</i></b>
<b>Technical Architecture .....</b>	<b>15</b>
Oracle Database Server .....	15
Adobe ColdFusion Enterprise Edition Server.....	15
Web Server.....	15
FTP File Server(s) .....	15
<b>CMPRO Licensing.....</b>	<b>16</b>
<b>Customization and Scalability .....</b>	<b>16</b>
<b><i>Your Partner .....</i></b>	<b><i>16</i></b>

---

## Introduction

CMPRO is an enterprise-class engineering, product life-cycle, inventory, and configuration data management solution that simplifies and automates the management of data and processes. Before we talk more about CMPRO though, let's take just a minute and talk about configuration management. Just what is configuration management anyway?

The terms *configuration* and *management* can be defined as follows:

**con·fig·u·ra·tion** a : relative arrangement of parts or elements. b: something that results from a particular arrangement of parts or components.

**man·age·ment** judicious use of means to accomplish an end.

Using this information, we can put together the following broad definition of configuration management:

*The judicious use of various arrangements of parts or elements (belonging to some 'thing' or 'things').*

Every day you try to judiciously use various arrangements of parts and/or elements controlled by your organization (your means) in order to efficiently and economically provide quality goods and/or services (an end). Although this definition could literally apply to just about anything, for most organizations, these “arrangements of parts and/or elements” relate directly to one or more products/items that are produced, maintained, and/or managed by that organization.

For a better focused, more product-oriented definition of configuration management, we turn to the American National Standards Institute:

*"A management process for establishing and maintaining consistency of a product's performance, functional and physical attributes with its requirements, design and operational information throughout its life."*

The “management process” referred to in this definition has many facets, all of which depend on effective configuration data management.

## The Solution

CMPRO is *the solution* that automates and simplifies the process of managing engineering, product, inventory, and configuration data and empowers organizations to more effectively produce, maintain, and/or manage the products and items that are central to how they work.

---

## CMPRO

When you create, change, or manage goods, services, etc., in your organization (for internal purposes or for customers), you try to follow certain processes that are intended to ensure that things get done the *right* way. Several different types of mechanisms are used to facilitate these “controlling” processes—ranging from paper forms, to spreadsheets, to e-mail, to a combination of all these (and perhaps a few not mentioned here). These different mechanisms at least attempt to ensure that information is gathered and that appropriate individuals are involved in approving and directing different related actions—or at least that’s the way it’s supposed to work. More often than not though, these types of items end up piling up on someone’s desk or in someone’s in-box, getting lost, and/or taking enormous amounts of time obtaining approval or initiating actions. When this happens, the resulting delays and confusion can be costly. Even worse, the information related to these items many times remains (for most part) invisible to the organization, thus inhibiting process improvement and effective decision making.

CMPRO can change all that.

Using CMPRO, PSA partners with your organization to implement a solution that optimizes your internal processes and empowers success. This is accomplished (in part) by migrating away from the older disjointed control mechanisms mentioned previously towards paperless electronic forms and integrated application modules (CMPRO provides a 100% paperless system—although forms may be printed if desired). To provide compliance with existing processes and standards, many electronic forms (for commercial and government organizations) are also available in CMPRO to use directly or modified if desired.

*Electronic forms of specific interest to military customers are electronic Engineering Change Proposals (ECP), Notice of Revisions (NOR), Advanced Specification Change Notice (ASCN), Software change Proposals/Requests (SCP/SCR), Engineering Investigations (EIs), Engineering Change Requests (ECRs), Navy Change Requests (NCR), DD1149s, DD250s, DD1423s (CDRLs), and many more.*

Your new CMPRO solution provides a centralized and vastly improved way to automate and control processes. All electronic forms have workflow capabilities (see below), are track-able, and are now a means of gathering data about your how your processes work. Since the data is recorded in a powerful relational database, it can be searched and analyzed for a multitude of purposes.

In short, CMPRO helps you get things done the *right* way.

---

## **CMPRO Components**

Let's take a closer look at the different major components of CMPRO and how they work together.

### **Systems**

CMPRO provides a clean two-level hierarchy for identifying the systems (products) for which data is being managed. Each system (level 1) can have multiple subsystems (level 2) to help further organize data. Additional "levels" of a system's hierarchy are defined at the part level and can be built out to the granularity needed (we'll talk more about this in the Product Definition section a little later).

Identifying systems is very important in CMPRO. Systems provide centralized points around which baselines are built, key data items are identified, and the overall process of managing a product's life-cycle is hinged.

The system/subsystem hierarchy can also be abstracted to represent things like programs and projects, if it makes sense to organize data in that manner for a particular situation.

### **Baselines**

Baselines serve as a central control mechanism for managing product data over time. CMPRO provides for several types of baselines: normal, merged, product definition, and product.

#### **Normal Baselines**

A normal baseline in CMPRO consists of all the approved documents, drawings, software, and change documents associated with a system and/or subsystem at the time the baseline is generated. This data is gathered from CMPRO's document, drawing, and software repositories, as well as from the various electronic change form modules in CMPRO (e.g. Engineering Change Proposals, Drawing Change Notices, Document Change Notices, etc).

Normal baselines can be edited, if need be, to include items not stored in CMPRO, or to remove items that should not be listed. These baselines are also stored and can be compared with other baselines.

#### **Merged Baselines**

A merged baseline is the combination of two normal baselines. This may be helpful if you have a system with multiple subsystems, but you only need baseline data from some of the subsystems.

#### **Product Definition Baselines**

A product definition baseline is produced in connection with part-tree data previously generated by CMPRO's Product Definition module. This baseline includes the same data as a normal baseline and, in addition, includes part data as well.

## Product (Design) Baselines

A product baseline, sometimes referred to as a product “design” baseline, is similar to a product definition baseline in that it is part-tree driven. However, a product baseline does not require that Product Definition module data be generated ahead of time. Also, the inclusion of repository documents (and software) is dependent upon direct associations created with the drawing records that manage the parts in the baseline. Change documents are included automatically when they are tied to these drawing records. Product baselines are closely tied to CMPRO’s Enterprise Change Forms (which are discussed in greater detail a little later on).

## Document and Drawing Management

Product information exists in wide variety of different types. There are drawings, parts lists, technical manuals, etc—most of which require revision control. CMPRO provides a Document Repository and a separate Drawing Repository to manage documents and drawings. These “vaults” provide centralized locations for managing meta-data\* associated with drawings and documents, as well as their attached electronic files in their native file formats.

*\*Meta-data is the information “about” something. Like its number, revision, title, and so forth.*

## Drawing and Parts List Management

The CMPRO Drawing Repository provides a centralized “vault” for managing drawing and parts list data. Drawing information tracked includes the drawing number, revision, title, CAGE code, organization, security status, application information (next assembly), etc. Each drawing can also have one or more drawing sheets, including a parts list (PL) sheet. Parts lists are tied to drawings and include assemblies, components, and reference items. These parts lists can be maintained using a PL sheet (where the PL itself is revision controlled) or as an integrated parts list.

Correctly entered and maintained parts lists are very powerful when combined with other modules in CMPRO (such as Product Definitions, Work Orders, and As-Built). Drawing trees can be automatically produced from drawing application information and parts trees and bills of material (BOMs) can also be produced from part used on information as recorded in drawing part lists.

The level of control imposed on the drawing creation and revision process is determined by several business rules. At the highest level of control, a change control document is required in order to create or revise a drawing. This change control document must be routed and approved before a new or revised drawing can be released into the Drawing Repository.

CMPRO provides several “out of the box” change control documents for drawing management. These include:

- **Drawing Change Notice (DCN).** Used for revising drawings (and incorporating stacked changes).

- **Engineering Order (EO).** Used for stacking changes against drawings.
- **Notice of Revision (NOR).** Used for managing changes to DOD drawings.

All of these documents are fully workflow enabled.

CMPRO also provides a full-featured parts list that includes part notes, material, CAGE codes, assembly and component parts, application information (used on and next assembly), effectivities (including limited effectivities), etc. Part trees and bills of material (BOMs) can be produced automatically from application and used-on information.

## **Document Management**

The CMPRO Document Repository does for documents what the Drawing Repository does for drawings. Acting as a centralized “vault”, the Document Repository tracks information about documents and their attached electronic files. The information tracked includes document number, revision, title, type, media, security, associated contract information, etc. Document trees can even be constructed by entering in next-higher document information.

The level of control imposed on the document creation and revision process is determined by several business rules. At the highest level of control, a change control document is required in order to create or revise a drawing. This change control document must be routed and approved before a document action can be completed.

CMPRO provides some “out of the box” change control documents for document management. The primary form is the workflow-enabled **Document Change Notice (DOCCN)**. Used for controlling the creation and revision of documents in the Document Repository.

## **Product Definitions**

If drawing and part data is correctly entered and maintained in CMPRO, three types of product definitions can be produced automatically: drawing trees, parts trees, and part BOMs (Bills of Material). Part trees are particularly important in CMPRO because they provide the backbone for product definition baselines, Work Orders (which are used to manage the building of end-items/assemblies), and other data items in CMPRO.

## **Drawing Trees**

A drawing tree is a hierarchical breakdown of the drawings for a system starting at a particular drawing and working down. Drawing trees can be produced starting with an “end item” drawing, or from any assembly drawing in the middle of a product’s structure. If the application information for drawings is correctly entered and maintained, CMPRO will generate drawing trees on demand, in real time.

An example drawing tree looks like this in CMPRO:

Drawing Tree IDB TRIBOT MODEL 1 DRAWING TREE REV: - MAY 17 2008					
ID		PDM-100123189979			
Top Drawing		SARA-T101 • SARA TRIBOT, MODEL 1			
Model					
1 2 • Next • Last • Displaying records 1 to 10 of 17					
Indent Code	Drawing Number	Title	Model	Rev	CAGE
A	<a href="#">SARA-T101</a>	SARA TRIBOT, MODEL 1		-	99999
B	<a href="#">SARA-T102</a>	SARA TRIBOT, MAIN SYSTEM	SARA TRIBOT	-	99999
C	<a href="#">SARA-T103</a>	SARA TRIBOT, TRI-ENGINE ASSEMBLY	SARA TRIBOT	-	99999
D	<a href="#">SARA-T104</a>	SARA TRIBOT, ENGINE, RIGHT	SARA TRIBOT	-	99999
D	<a href="#">SARA-T105</a>	SARA TRIBOT, ENGINE, CENTER	SARA TRIBOT	-	99999
D	<a href="#">SARA-T106</a>	SARA TRIBOT, ENGINE, LEFT	SARA TRIBOT	-	99999
C	<a href="#">SARA-T107</a>	SARA TRIBOT, MOUNT ASSEMBLY	SARA TRIBOT	-	99999
C	<a href="#">SARA-T108</a>	SARA TRIBOT, TEST BALL SET ASSEMBLY	SARA TRIBOT	-	99999
B	<a href="#">SARA-T109</a>	SARA TRIBOT, FRONT LIFT SYSTEM	SARA TRIBOT	-	99999
C	<a href="#">SARA-T110</a>	SARA TRIBOT, TOUCH SENSOR ASSEMBLY	SARA TRIBOT	-	99999

## Part Trees

A part tree is the hierarchical breakdown of the parts for a system starting at a particular part and working down. These are sometimes referred to as indented part breakdowns, or IPBs. Like drawing trees, part trees can be produced starting with an “end item” part, or from any assembly part in the middle of a product’s structure. If the used-on information for parts is correctly entered and maintained, CMPRO will generate part trees on demand, in real time.

An example part tree looks like this in CMPRO:

Part Tree: SARA TRIBOT (RS20080505C1652)							
ID		PDM-100123180102 • AS-RELEASED					
Build Part		SARA-T101-1 • SARA TRIBOT, MODEL 1					
<a href="#">View Drawing PL</a>							
1 2 3 4 5 6 7 8 9 10 • Next • Last • Displaying records 1 to 10 of 121							
Indent Code	Part Number	Qty Ea	BOM Qty	Description	Child Work Order	Change Date	Release Status
A	<a href="#">SARA-T101-1</a>	1.00	1.00	SARA TRIBOT, MODEL 1	N	05-MAY-2008	CURRENT
B	<a href="#">SARA-T102-1</a>	1.00	1.00	SARA TRIBOT, MAIN SYSTEM	N	05-MAY-2008	CURRENT
C	<a href="#">L-53788</a>	1.00	1.00	CPU BRICK	N	05-MAY-2008	CURRENT
C	<a href="#">L-55805</a>	1.00	4.00	WIRE HOOK-UP, 35CM/14INCH	N	05-MAY-2008	CURRENT
C	<a href="#">L-55806</a>	2.00	2.00	WIRE HOOK-UP, 50CM/20INCH	N	05-MAY-2008	CURRENT
C	<a href="#">SARA-T103-1</a>	1.00	1.00	SARA TRIBOT, TRI-ENGINE ASSEMBLY	N	05-MAY-2008	CURRENT
D	<a href="#">SARA-T104-1</a>	1.00	1.00	SARA TRIBOT, ENGINE, RIGHT	N	05-MAY-2008	CURRENT
E	<a href="#">L-2780</a>	7.00	38.00	PIN WITH FRICTION & SLOTS	N	05-MAY-2008	CURRENT
E	<a href="#">L-32009</a>	1.00	4.00	LIFT ARM DOUBLE BENT	N	05-MAY-2008	CURRENT
E	<a href="#">L-32073</a>	1.00	7.00	AXLE 5	N	05-MAY-2008	CURRENT

## Part BOMs

A part BOM (Bill of Material) is essentially a “shopping list” of the parts needed to build all or part of a system, starting at a particular part and working down. Where a part tree might repeat a single part that is used in various assemblies multiple times, a part BOM will list that part only once with the total quantity needed. Like drawing and part trees, part BOMs can be produced starting with an “end item” part, or from any assembly part in the middle of a product’s structure. If the used-on information for parts is correctly entered and maintained, CMPRO will generate part BOMs on demand, in real time.

An example part BOM looks like this in CMPRO:

Part BOM SARA TRIBOT (RS20080506C1230) BOM			
ID	PDM-100123180361		
Build Part	SARA-T101-1 • SARA TRIBOT, MODEL 1		
	<a href="#">View Drawing PL</a>		
1 2 3 4 5 6 7 • Next • Last • <i>Displaying records 1 to 10 of 70</i>			
Part Number	Qty	Description	Change Date
<a href="#">SARA-T101-1</a>	1.00	SARA TRIBOT, MODEL 1	06-MAY-2008
<a href="#">SARA-T102-1</a>	1.00	SARA TRIBOT, MAIN SYSTEM	06-MAY-2008
<a href="#">SARA-T109-1</a>	1.00	SARA TRIBOT, FRONT LIFT SYSTEM	06-MAY-2008
<a href="#">SARA-T111-1</a>	1.00	SARA TRIBOT, FRONT CLAW SYSTEM	06-MAY-2008
<a href="#">SARA-T114-1</a>	1.00	SARA TRIBOT, SOUND SENSOR SYSTEM	06-MAY-2008
<a href="#">SARA-T116-1</a>	1.00	SARA TRIBOT, ELECTRIC LIGHT SENSOR SYSTEM	06-MAY-2008
<a href="#">SARA-T117-1</a>	1.00	SARA TRIBOT, ULTRASOUND SENSOR SYSTEM	06-MAY-2008
<a href="#">L-53788</a>	1.00	CPU BRICK	06-MAY-2008
<a href="#">L-55805</a>	4.00	WIRE HOOK-UP, 35CM/14INCH	06-MAY-2008
<a href="#">L-55806</a>	2.00	WIRE HOOK-UP, 50CM/20INCH	06-MAY-2008

## Work Orders

Building on the successes enjoyed by having parts for a system correctly entered and maintained in CMPRO (so that product definitions can be produced as needed), Work Orders provide a workflow-enabled method to manage the building of end-items and assemblies, to include recording applicable serial numbers. Work Orders can also be integrated with CMPRO’s Inventory Management and As-Built capabilities (see below) to provide an effective end-to-end solution for systems from design to deployment to maintenance.

## As-Built

When multiple quantities of a system have been built and deployed, it is often helpful to have a method for tracking where those systems are and what their configuration was when they were built (hence the “as-built” name for this module), as well as how their configuration may change over time. The As-Built module in CMPRO provides this functionality and works best when fed with product definitions produced from part data in CMPRO.

The As-Built module tracks each system by platform and location (including a granular physical location). As a system is moved, its location history is tracked. If assemblies in a system are replaced, this can also be tracked (with the movement of parts being tied to

Inventory Management if need be). Serial numbers for end-items and their assemblies can also be tracked, including by UID.

The tracking of As-Built baselines is also supported. These baselines represent the manufacturer parts numbers actually used to build a finished system (which may differ from the design part numbers for a number of reasons).

## **Inventory Management**

The CMPRO Inventory Management module interface seamlessly with the Drawing Repository so that inventory control personnel can view drawings of a part or assembly, as well as any other associated electronic documentation. It also provides “parts where used” functionality. Parts can be tracked by lot or other storage locations and searched out using any part information (number or description don’t have to be known). Parts testing and cleaning requirements can be tracked. With Work Order and As-Built module integration, serialized parts can be tracked from cradle to grave, including by UIDs. CMPRO also maintains a vendor database of all products and services provided, with current prices, lead times and local distributor information.

## **Workflow – Getting the Right People Involved**

### **Overview**

CMPRO uses *electronic forms* and *data repositories* (also called vaults) to orchestrate the management of configuration data and processes. The word “*form*” many times carries with it negative perceptions of complexity, slow response-times, and disorganized data. This perception stems from the use of forms in the paper-based world, and is unfortunately true in many cases—as far as paper-based forms and paper-driven processes are concerned. Like forms, traditional data repositories (filing cabinets, microfilm, and—even to a certain extent—network file servers) have similar problems associated with them. Even basic electronic forms built using word processors or spreadsheets carry these issues with them.

CMPRO can help your organization overcome the negative aspects of paper-based forms, paper-driven processes, traditional data repositories, and basic electronic forms. All electronic forms and data repositories in CMPRO are workflow-enabled to facilitate the involvement of appropriate personnel in associated organizational processes.

### **Workflow Document Features**

The following items highlight some of the common features (and benefits) associated with CMPRO workflow forms, which are referred to in CMPRO as workflow *documents*:

**Flexible Automatic Routing.** When a workflow document is created in CMPRO, it is assigned to a route—designed by your organization—that automates the associated review/approval process. Individuals included in the route electronically sign-off on their respective portion of the process and the workflow document is automatically forwarded to the next person (who receives an automatic e-mail notifying him or her that they have an item in CMPRO that requires their attention).

*When people to electronically “sign” a workflow document in CMPRO, this signature is not a digital facsimile of a handwritten equivalent, but rather an electronic “stamp” that includes the full name of the user as entered by the system administrator together with a time and date. This combination of full name, time, and date can only be generated after the completion of a successful login to CMPRO.*

If the workflow document needs to be sent back to previous step in the workflow route, it can be at any time. The workflow document can also be transferred from one user to another as necessary.

**Workflow Document History.** Everything that happens to a workflow document during its life-cycle is recorded in a permanent document history. This allows all actions taken relating to a workflow document to be reviewed in the order that they happened. Items recorded in the history include electronic workflow sign-offs, returns, and transfers, review requests, parallel review requests, and the attachment of electronic files.

**Annotations.** Annotations provide a simple way to identify issues associated with a workflow document (or just about any other data item tracked in CMPRO). Think of them as “sticky notes” that you can put on something that will always be visible until they are handled and closed.

**CMPRO Messages.** Internal messages (sometimes called *review requests*) can be sent to other CMPRO users asking them to review a workflow document. These review requests link back to the associated document and provide a permanent record of document review activities.

**Discussions.** Discussions provide a way for users to “talk” about an item in CMPRO and then track everything that is said about that item in the context of a specific topic. Discussions can actually be associated with many different types of things: documents, drawings, workflow documents, polls, etc. Any given item can have multiple topics of discussion going at any time.

**Polls.** Polls provide a way for you to gather opinions from users in CMPRO in connection with a workflow document at a particular step in its life-cycle. Opinions are submitted as a vote-like response of Yes, No, or Waive and include remarks to help explain why a particular response was given. Poll participants may change their responses as often as they want until a poll is closed. There is always a discussion (see above) integrated with a Poll in case people need to collaborate regarding the poll they are participating in.

**File Attachments and Associated Documents.** Electronic forms may have other information associated with them as they flow through a particular workflow route, either as related items in CMPRO or other supplemental files (like word processing documents, spreadsheets, etc). CMPRO allows its internal items, as well as external items (such as web sites), to be associated together as well as allowing electronic files to be attached. The electronic files remain with the form and are viewable at any time by authorized individuals using viewers or the native program that created the file. Associated items that have been linked together are viewable from within CMPRO using a common screen.

**Pooled Documents.** On a particular step of a workflow route, a workflow document may be placed in a pool that is accessible to several users. Any user with permission to sign-off on the document at that step in the route can take ownership of the document from the pool. Document pooling allows user groups to team-up when working on certain types of documents. When someone is done with one document, they simply go to the pool and take the next available item.

## **Enterprise Change Forms (CMII)**

As part of its collection of workflow-enabled electronic forms, CMPRO provides forms that fit the functionality outlined by the CMII model, as taught by the Institute of Configuration Management (ICM). (Visit the ICM web site, <http://www.icmhq.com/>, for addition details.)

There are three (4) forms in CMPRO meeting the CMII model, and they are:

- Enterprise Problem Report (E-PR)
- Enterprise Software Problem Report (E-SPR)
- Enterprise Change Request (E-CR)
- Enterprise Change Notice (E-CN)

In the normal process of managing change with these forms, the E-PR form comes first [optionally], then the E-CR, and if the E-CR gets approved, an E-CN. There can be multiple E-CRs to an E-CN, and vice versa (multiple E-CNs may be created that are duplicates, but have different effectivities). To process simple changes, the E-CN can be created without an E-PR or E-CR.

Following are additional details regarding each Enterprise Change Form.

### **Enterprise Problem Report (E-PR)**

The E-PR is used to document a problem that has been reported. It is a simple form containing the minimum required fields for gathering enough data to determine if a real problem exists, and if a fix or change will be needed. CMPRO workflow is used to route the E-PR to the appropriate reviewers.

### **Enterprise Software Problem Report (E-SPR)**

The E-SPR is used to document a problem that has been reported that is software specific. It is essentially identical to the E-PR, but contains fields that capture information that is particular to software-related issues.

### **Enterprise Change Request (E-CR)**

The Enterprise Change Request (E-CR) form is used to gather data for a proposed change, route it for review, comments, etc. with the ultimate goal of submitting the change to a Change Review Board (CRB) for approval. An Impact Matrix is an

important part of the E-CR. It provides a listing of the parts, drawings, documents, and software that are impacted by the change. It is important to remember that the E-CR does not authorize any changes to be executed; it simply gathers the impacts and costs of the change as a package to be submitted for CRB approval. For those familiar with the DoD ECP and its related processes, an E-CR is basically a one-page preliminary ECP with cost data. But where the ECP attempts to contain and manage everything within a single form, the E-CR, if approved, will spawn the creation of one or more E-CNs, depending on the effectivity of the change.

### **Enterprise Change Notice (E-CN)**

The Enterprise Change Notice (E-CN) provides the authority to schedule, revise, and release documents. E-PRs and/or E-CRs usually precede an E-CN, but are not required. E-PRs and/or E-CRs may be omitted if the change is very simple or needs to be implemented very quickly (commonly referred to as a “fast track” change). When an E-CN is created from an E-CR, the impact matrix is copied to the E-CN. If there is more than one E-CR, the impact matrices are merged together. An approved and released E-CN provides the authorization to create/revise the items listed on the impact matrix.

A typical E-CN process includes a Change Implementation Board (CIB) who is responsible for planning the implementation of the approved changes tied to the E-CN. Part of the implementation planning process involves providing an effective date for all changes. Once there is a known effective date, and a required by date has been identified, the document revision work can be planned and executed. After all change has been made and an E-CN is released, a new baseline should be generated for the system affected.

### **Project Management (PM)**

CMPRO provides simple project management (PM) capabilities that project managers (and other users) can use to track activities at the task/sub-task level of granularity. This tool allows for a great deal of flexibility in defining what a “project” is. Because of this flexibility, CMPRO’s PM tools can be used to track everything from full projects to simple “to-do” lists. Reports are available for viewing progress, current status, scheduled completion dates and other metrics associated with a project. The related change documents are also reflected in the status report for a particular project.

CMPRO’s PM capabilities are not intended to provide the same level of functionality as dedicated project management software packages. Features such as variable layers of tasks, Gant/Pert chart generation, load balancing, etc. are not a part of the CMPRO PM feature set. However, integration with such tools can be provided upon request.

### **PM and Workflow**

One of the benefits of using CMPRO for project management is the integration of workflow into the PM process. In CMPRO, Action Items for a project (remember, project is a flexible term in CMPRO PM) are generated using a workflow-enabled form. That means that you can route and track action items just like any other workflow form in

CMPRO. Action Items now have an audit trail and can be related to other items that they affect.

For example, say you use CMPRO to task someone to change a document in the Document Repository. Because the Action Item is created with a workflow form, you can associate it to the Document Repository record of the document being changed and have a record of the Action Item that caused the document to be changed. This is already recorded to a certain extent in the normal document change process, but being able to relate the actual Action Item to the change provides an additional level of tracking and control (by, for example, being able to track a change back to a project and/or to a contract delivery).

As another example, suppose you have tasked someone to change a drawing in the Drawing Repository. This is an important change that needs to be done within 10 days. Because the Action Item was issued using CMPRO it can be tracked and monitored for delinquency. E-mail notices can be sent if desired to one or all individuals with delinquent items or with items are coming due within a certain period of time.

## **Contract / DD1423 Tracking**

The Contract Tracking Module allows users to track information about a contract, associated contract items, Contract Data Requirements Lists (CDRLs), and any associated schedule and delivery records. Contract items include delivery orders, MODs, Packages, CDRLs, SDRLs, and the scheduled (and actual) delivery products. Using this module, users can status and report on contract CDRLs deliveries that are coming due, are due, overdue, and those that have been completed. CMPRO has the actual DD1423 form in an accepted printable format.

## **Released Software Management**

The CMPRO Software Management Module provides a solution for *released* software management (not developmental software configuration management) and provides functionality similar to the drawing and document repositories. Basic revision control is provided, as well as license and location tracking, and media type and distribution tracking.

## **Alterations Management**

CMPRO provide alterations support for government organizations that require field changes, DD1149 support, and other types alterations management functionality. Contact PSA for additional details.

## **Integration**

PSA can provide integration for CMPRO to other systems (such as PDM, ERP and MRP) as required (with all CMPRO development handled by PSA). CMPRO's flexible architecture facilitates the integration process, helping you to manage all your enterprise data more effectively.

---

## Technical Overview

### Technical Architecture

A CMPRO solution requires the following technical architecture.

- An Oracle Database Server (Standard or Enterprise editions depending on your organization's needs; consult with Oracle for additional details).
- An Adobe ColdFusion Enterprise Edition server.
- A web server (PSA recommends Apache).
- One or more FTP file servers for electronic files associated with CMPRO.
- A solid network infrastructure appropriate to the scope of your CMPRO solution. **The importance of this particular item cannot be overstated.** You can have the biggest, most powerful servers in the universe; but if they sit behind a slow or poorly configured network, you'll find yourself frustrated very, very fast.
- A web browser (for the client); no plug-ins required (zero client footprint).

#### Oracle Database Server

Can be on any platform (operating system) supported by Oracle. PSA requires version 10g Release 2 or higher.

#### Adobe ColdFusion Enterprise Edition Server

Can be on any platform (operating system) supported by Adobe. PSA requires version 8, Enterprise Edition.

#### Web Server

The Adobe ColdFusion server works together with a web server to provide the client interface for CMPRO. PSA recommends using Apache (2.x) if at all possible, but does support any web server supported by Adobe for use with ColdFusion (such as Microsoft's IIS server).

#### FTP File Server(s)

CMPRO can facilitate the storage of electronic files on any FTP server platform accessible by normal network clients. Secure FTP communications are supported and PSA recommends positioning the FTP server(s) for CMPRO such that they are only accessible to the ColdFusion server. End-users will never need to access the FTP server(s) directly.

## **CMPRO Licensing**

CMPRO itself is licensed by concurrent seat per server, with a base server configuration coming with 5 Concurrent User Licenses (CULs). CMPRO is sold separately from its other required server components, which must be acquired and maintained separately from CMPRO. (PSA does provide hosted solutions, in case you don't want to deal with all the technical details. Contact us for additional information.)

## **Customization and Scalability**

CMPRO is a COTS software solution developed by PSA with an architecture that allows for rapid customization around its core CMPRO "engine" to meet the needs of each client's unique business process environment (with all CMPRO customization handled exclusively by PSA). Contact PSA for your customization needs.

---

## **Your Partner**

More important than any of the functionality that CMPRO provides to help you manage your organization's data and processes is PSA's partnership approach to helping you achieve success. Software is great, but it doesn't amount to much of anything without good people. People make it work.

PSA will work with you from day one to understand your organization's unique approach to what you do, the people you have and the processes you use. We will ensure that your CMPRO solution fits your organization and that your people understand how to use it. We'll help you optimize your organization's processes to take better advantage of CMPRO's technology, and we'll be there to make sure that future updates exactly reflect the evolutionary path that you decide will make your organization a success.

Let PSA be your partner for success. You know what you do best, and you know what you want to achieve. Let PSA help you reach your goals with CMPRO.