TimeControl®6 and Oracle-Primavera in Industrial Situations

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Overview

Project management is more than project planning and everyone who's been in the project management industry for any length of time will tell you so. Yet when we look at the tools for updating projects from information received in the field, it can be often intimidating.

One of the most common tools that we think of when we think of updating project information is the venerable timesheet. Even Primavera had Progress Reporter (and before that Webster) for well over a decade. There are similar tools attached to most project scheduling packages on the market. These tools are designed for situations where resource leveling will be done to the individual level. The paradigm is quite clear. Planning is done from the top down. Individuals are assigned to tasks. These individuals will go to their desks and open up their copy of Oracle Primavera and then update the week's assignments with the hours and the progress they've accomplished for that week. The results are then returned to the activities in question and, presto, the schedule advances.

As lovely as that sounds, it doesn't seem so easy when you try to apply the same paradigm to an industrial situation.

What do you do to collect hours and progress when the project resources aren't sitting at desks at all? What if they're welders and carpenters and electricians? What if they're working on a crew outdoors in inclement weather and have no intention of using a computer?

What do you do when the resource planning isn't managed down to the individual level. Instead, as it often is for EPC, for Heavy Construction or for Shutdowns, managed at a skill or trade level? How do we update the information from the field then?

We'll take a look at how to apply 3rd party tools to this challenge over the next few pages.

Over the last 25 years, we've seen a number of very common situations on how project managers deal with the challenge of collecting resource progress from the field. Here are a few of the most frequently reported scenarios:

Don't bother

This is by far the most common. Project Managers who find it difficult to collect per-task information on resource usage most often throw up their hands and say they won't even start. Instead, they allow data to be collected in several flavors. Take down sheets by supervisors report on the progress of each task on a percent complete, units complete or remaining duration basis. Resources are progressed "as planned" and the project scheduler looks continually at the future rather than worrying about how much time it took to complete the past.

Labor time is collected separately on a time and attendance basis. So, there is data on how much has been spent on what kind of skill and a notion of how on time or late a particular type of work is. This allows some notion of how much effort was spent on it if the data is combined in some way.

This may be the most common scenario but it's also the scenario that generates the most common request for change from management. In this new world of efficiency and governance, management has a few challenges of its own. It's compelled by competitors who have management systems where they can identify in close to real time how much is spent on tasks within projects as they progress. Or by management who must spend an inordinate amount of time reconciling the invoices of sub-contractors after work is completed to determine how much work was done by the contractor and, more importantly, whether the contractor honored their obligations in terms of effort spent on certain tasks.

Order out of chaos

Many industrial environments use a work order or work sheet to assign work to each resource. The resource fills in the work as it's completed. This hard copy sheet then ends up back in the project office where clerks take the information and try to get it into the corporate systems. The most common method of doing this is to use Excel to make summaries of each sheet and then to import the summaries into Oracle Primavera and corporate tracking systems.

The problem with such information is that it creates a huge volume of data that is not sorted in the way the original plan was made. Getting it back into the format that the schedule would require in order to update the schedule with total hours is impossibility. So, only summary data ends up back in the corporate system.

Take it down

Other organizations send a foreman or crew leader into the field with a take-down sheet. This sheet includes the work for the entire crew. The foreman or crew leader updates the

information for each crew member and the information for the task the crew was working on in the same sheet. The resulting pages end up back in the project office where a clerk updates the project status but rarely the individual crew entry work.

Why wouldn't the crew entry resource usage be updated? Because it's not in a format that the schedule readily accepts. The project clerk would be required to go to multiple lines on the take-down sheet and enter them as line item updates in some kind of timesheet that could be organized to summarize to the skill level. It's again an impossible task. Instead, the summary task progress is noted and the rest of the sheet is eitehr summarized for payment purposes or put into a big collection of such sheets and used for invoice reconciliation.

Crew entry

If an industrial organization has determined that it must collect timesheets in some way from the field or plant floor, then one of the best ways to solve this challenge would be to have a crew progress entry interface. Such an interface is not delivered by default within Oracle Primavera.

The interface would need to provide the following:

1. An ability to identify individuals with particular meta data such as their contracting company and the billable rate that would be used in an invoice.
2. An ability to group individuals into crews and possibly into more than one crew
3. An ability to group individuals by the same trade or skill that was used in resource planning back in the Oracle Primavera schedule
4. An ability to collect hours in a non-homogenous fashion across the crew. That means that it's not just the crew did 8 hours on this but this person within the crew did so many hours on this and that person in the crew did so many hours on that.
5. An ability to update the interface with any changes from the Oracle Primavera schedule since the last shift
6. An ability to update the Oracle Primavera schedule with the task progress, the resource assignment progress, the costs and even the Steps if used.
7. An ability to use the data for invoice reconciliation when contractor invoices are received
8. An ability to send crew timesheet data to Finance and/or HR for payroll, human resource tracking or billing purposes.
9. An ability to keep an auditable record.

Whew! That's some list. But without these minimal requirements, we're right back to using Excel or not tracking the data at all.

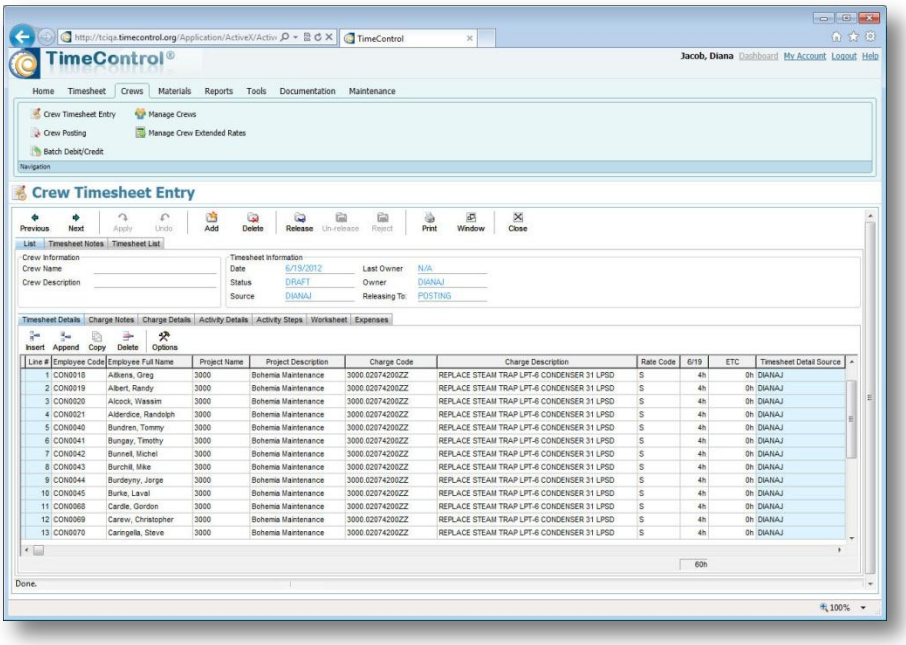
A few other "nice to have's" would be:

- An ability to automatically create a take down sheet with the crew's and activity's pertinent information for the day's shift
- An ability to trap user-definable errors
- A robust reporting engine
- A web interface
- An ability to not have to work across the Internet as many Industrial and particularly heavy construction sites have sporadic or no Internet access.

While creating such an interface on a custom basis is, of course, possible and some organizations have dug in and written such systems themselves, it should be obvious from the list of functions listed here that such an effort would not be trivial or inexpensive.

One example of a third party application that was designed specifically to provide this type of crew update interface for Oracle Primavera would be HMS Software's TimeControl Industrial TCi). TimeControl Industrial is based on the long standing timesheet system by Canadian-based HMS Software. TimeControl has been around since the mid-90's and HMS Software has been a Oracle Primavera technical partner since 1997 when they completed their first link to Oracle Primavera from TimeControl.

TimeControl Industrial includes a crew entry interface which allows crews to be defined from a list of individuals who can each have their own labor rates or whose rates are defined by role or trade.



The TimeControl Industrial timesheet system is a complete timesheet environment. This means that there is a timesheet that is designed for back-office personnel, as well as the crew timesheet for field personnel. Since all the timesheet data can be linked to both project tasks from Oracle Primavera and non-project tasks which might not be managed within Oracle Primavera, the organization can have a single comprehensive timesheet database that can be used for the entire organization. This system can provide data to multiple applications at once including Oracle Primavera itself where both the actual labor hours and progress as well as the estimate to complete can be updated, Human Resources applications where vacation, sick leave, and other entitlement time can be tracked for the internal staff, Payroll where the pay for both salaried and wage personnel can be updated, Billing where the per-project invoicing information can be summarized, Finance/ERP applications for a variety of purposes and other systems as required.

TimeControl Industrial includes several key elements of functionality that makes using the system to collect project updates for Oracle Primavera ideal. They include:

A Crew Timesheet which allows information to be entered by a clerk for the entire crew at once.

Complex Rate tables which allow not just multiple rates to be entered per employee but an ability to track the potentially complex rates that come from multiple trades with multiple contractors, multiple union contracts and other conditions.

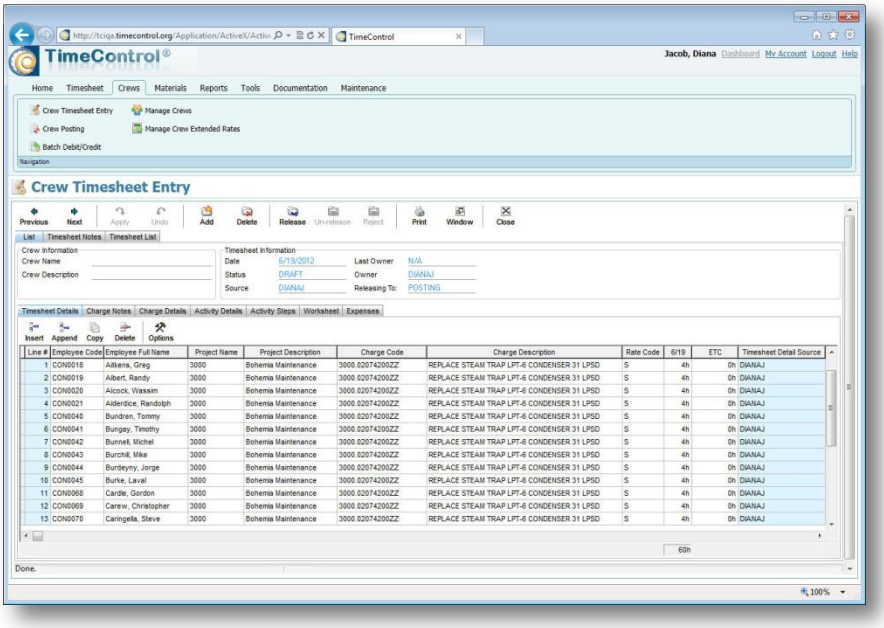
Material/Equipment usage entry which allows not just labor usage but also the usage of materials and equipment consumed by the crew in the field to be tracked and updated back in both the Oracle Primavera schedule and the Finance system.

TimeControl Industrial's link to Oracle Primavera allows a bi-directional movement of data between the timesheet system and the schedule. This movement of data can be done in the background from server to server.

TimeControl Industrial also includes HMS Software's TimeControl Consolidator which allows satellite TimeControl implementations to update their field databases independently and then have the data flow back to a centralized database for updating, analysis or reporting purposes. This allows a field office which might not have consistent Internet or network access to operate on its own including doing updates to the Oracle Primavera schedules and even payroll systems being used in field and yet maintain the corporate database up to date for reporting purposes back at the office.

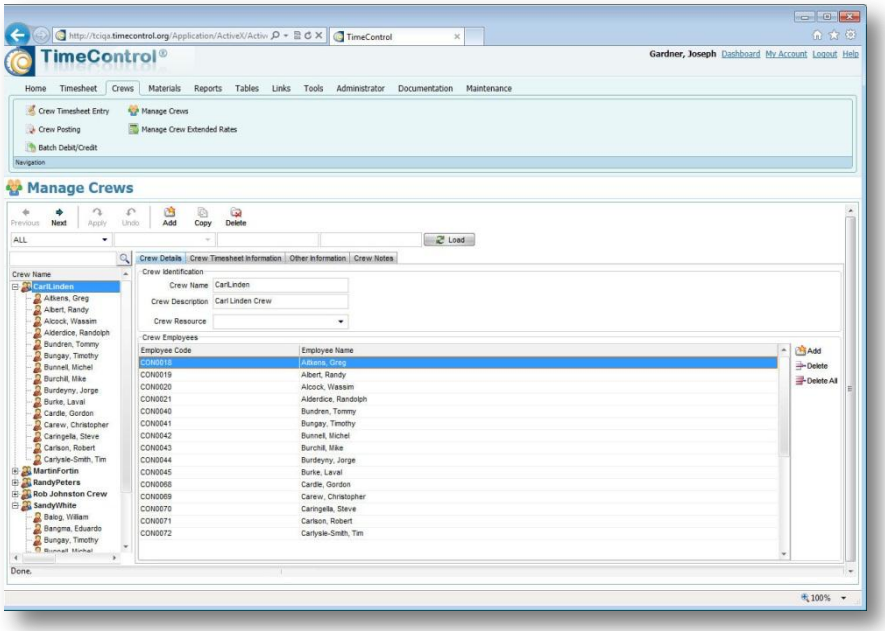
The TimeControl Crew Entry interface

Aside from the weekly timesheet that is designed for back office workers, the TimeControl *Industrial* Crew Entry interface allows crews to be assembled and then their time entered for the entire crew at once. Crew Entry supports Daily Timesheets or Weekly Timesheets. Timesheets can be entered multiple times per day such as once per shift. Blank timesheets can be used as take-down sheets and can be carried by the foreman or supervisor who updates the manual form and then the timesheet for the entire crew is entered at one time.



The Crew Entry includes the Crew List in which individuals can be made part of one or more crews. An individual can belong to more than one crew at one time.

Crew Entry timesheets include approvals for either each indivual on the crew or the entire crew at one time. TimeControl Industrial includes an Automated Validation Rule system which can apply an unlimited number of business rules to the



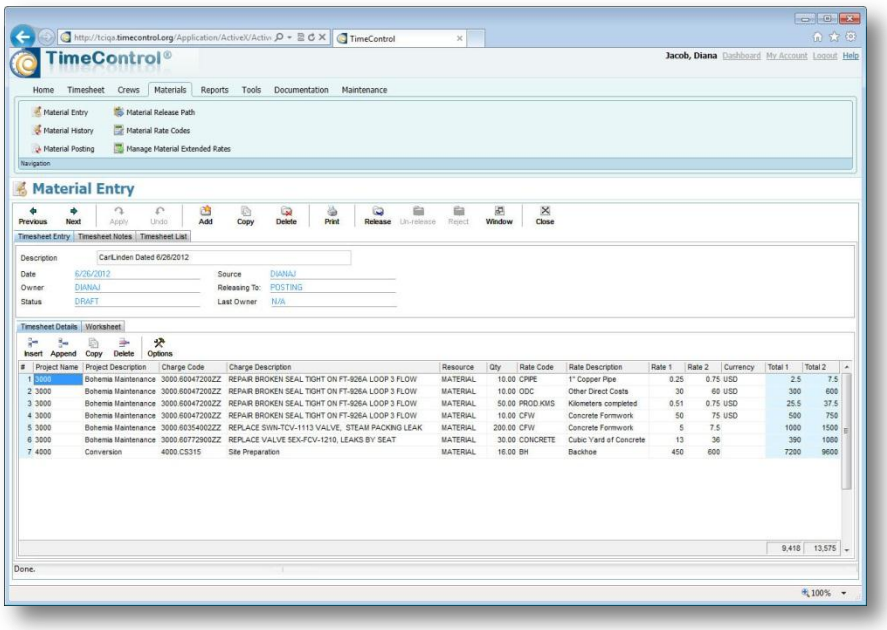
timesheet data. Also, exception reporting can identify discrepancies in the data at an early juncture so if there are problems with how data is being collected and updated, project managers can intervene immediately.

The Crew timesheet interface is very flexible and user defined fields can be applied both within the timesheet itself and to the tables to which the timesheet data is attached. A common configuration would allow entries of shift-specific conditions to be entered directly on the timesheet to identify payroll-specific conditions such as weather, hazardous conditions, task-specific elements such as stand-by professionals vs. deployed professionals and so on.

Aside from the Automated Validation Rules, approvals can be done at multiple levels for the crew timesheet information. This definition can be the same or different for each crew.

The TimeControl Material/Equipment Management Entry

TimeControl Industrial supports Material usage entry. Aside from labor entries which list the hours and costs associated to personnel working on a project, there are often non-labor resources that are used. The Material Management system in TimeControl Industrial allows entries of other resources such as materials, equipment, rentals, even costs to be tracked. The TimeControl rates system has been extended from the in TimeControl Industrial to allow rates to be defined for any type of resource, not just hours.

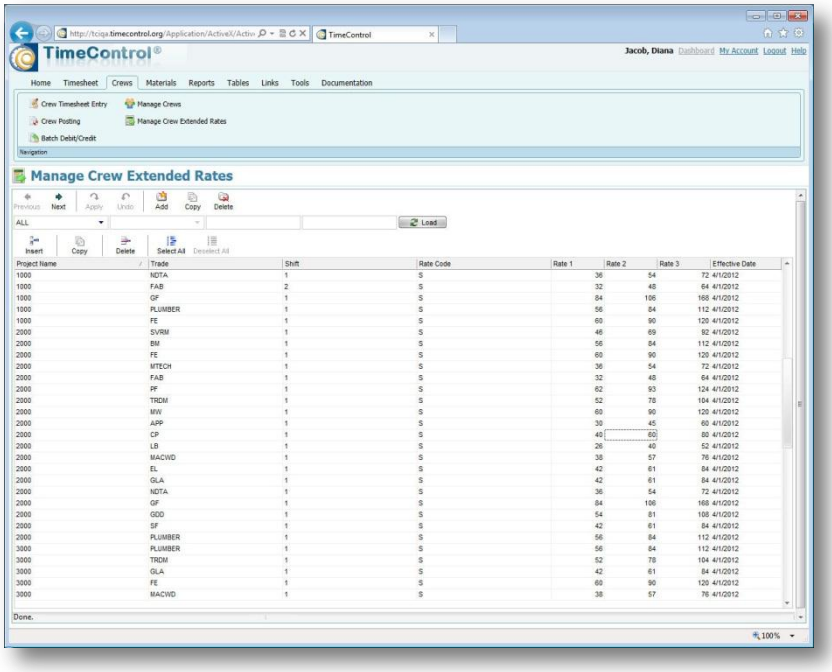


Just like the TimeControl Industrial Crew Entry interface, information can be entered in on a per-shift, per day or per week basis and once entered; the information can be approved through as many levels of approval as may be appropriate for that type of information. Separate approval paths can be created for equipment and materials or materials for certain groups vs. materials for other groups. There is no limit to the number of approval paths that can be defined.

Material and Equipment information is entered for project and/or non-project tasks and optionally linked to the resource records in Oracle Primavera. This allows non-labor costs in the Oracle Primavera schedule to be updated on a task-by-task basis making a complete financial record of the project's costs. Reconciliation of the material usage on the project schedule vs. the material costs in Finance becomes a thing of the past as the TimeControl Material and Equipment usage can be used as the source data for both systems.

The TimeControl Extended Rate Table

TimeControl Industrial includes a completely new approach to rate management for people, materials and equipment. Aside from the existing Rate system which was already revolutionary in the classic versions of TimeControl, this new system allows for the complex rates that are often found in industrial situations. This includes escalated rates, rates which must support premiums for certain kinds of work and more. Literally millions of possible rate combinations can be supported.



The TimeControl Extended Rate table matches the columns and data from the Crew Entry timesheet with the rate combinations. Imagine this rate scenario in any regular timesheet system: An employee is a contract diver on an offshore oil rig. On his schedule on-call shift, he is paid a certain rate to be the stand-by diver. If required, he will need to go in the water in which case, he will be paid a different rate for the time he is in the water. If he dives deeper than 10 meters, he will be paid a premium rate. If he dives deeper than 25 meters, he will be paid a hazard premium. This single employee on a single shift for one task might have several different rates at which he is paid!

TimeControl Industrial allows us to enter these types of rate premium columns right into the Crew Entry timesheet and then have matching columns in the Extended Rates table. This structure allows us to manage potentially very complex rate values in a single system. The resulting costs per resource and task can be transferred back to the Oracle Primavera schedule allowing us to show true costs of the task regardless of how many rates were involved.

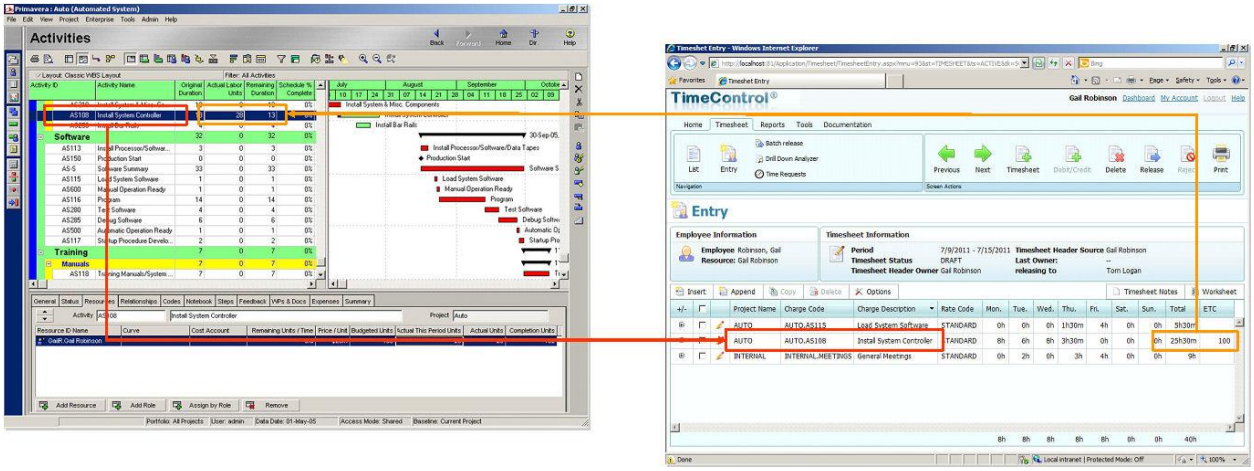
TimeControl Industrial uses the same construct for Material and Equipment rates within the Material/Equipment Usage entry.

Updating the Oracle Primavera schedule

Once data has been updated and approved in TimeControl, it is ready to transfer back to the Oracle Primavera schedule.

The entire cycle actually starts from the Oracle Primavera schedule orginally, transferring information into TimeControl directly from database to database in the background between the two servers. This ensures that the information entered in TimeControl Industrial will find a home for that information when it's returned to Oracle Primavera.

Information that comes from Oracle Primavera includes the task and assignments and optionally, resource definitions. Tasks codes can be transferred as well so that the charge codes in TimeControl have the same meta data as the activities in Oracle Primavera. Status of tasks can be moved also which can be useful if we wish to hide completed or unstarted tasks.



Approved data can be pushed back to the Oracle Primavera schedule unattended on a scheduled basis or, more commonly, the project manager can pull the data into the Oracle Primavera schedule when he or she is ready to receive it.

The project manager has several options available in terms of what data to move from TimeControl Industrial to Oracle Primavera including:

- Hours from the individual and crew timesheets and then optionally;
- The associated labor costs
- Material/Equipment Usage
- The associated material/equipment costs
- Estimate to complete by resource
- Estimate to complete for the entire task
- Transfer to financial periods
- Oracle Primavera Steps

HMS and Primavera have partnered since 1997 to make extensive timesheet functionality available to Primavera customers who need to extend timesheets into financial situations. HMS and Oracle have partnered since 1997 to ensure that TimeControl supports Oracle databases, architecture and financial applications. With the acquisition of Primavera by Oracle in 2008, HMS's strategic alliance was further advanced.

Aside from the Industrial-specific functions described above such as Crew timesheet entry, Materials, Equipment, Production Values and Oracle-Primavera look to TimeControl and TimeControl Industrial for a number of comprehensive functions including:

Auditable Historical data
TimeControl includes historical data on all timesheet data regardless of what changes or deletions were made in the planning system. This means that if a task is deleted or moved, the actuals are not changed.

Track controllable edits to posted timesheet data
TimeControl allows audited Debit/Credit changes to previous timesheets which are tracked as changes to the original timesheet

Automated business validation rules
TimeControl includes unlimited automated validation Rules which allows an organization to define what makes an acceptable timesheet. This can include simple rules such as "no more than 24 hours per day" or complex rules such as "no overtime unless you are a wage employee and have done at least 8 hours of regular time today".

Unlimited Rates
TimeControl allows an unlimited number of rates per employee. Each rate maintains two values. They are typically used for internal or actual cost and external or billing cost.

Project and Non-project time
TimeControl can track both project items from the scheduling system and non-project items such as overhead types. There is no limit to the number of project or non-project items that can be included.

Unlimited user-defined fields
TimeControl allows an unlimited number of user defined fields to be added to any table (such as the employee list or task items).

Multilingual
TimeControl includes a multi-lingual client which includes many languages by default and a module to add your own language translations.

Expense Reporting
TimeControl tracks non-labor entries such as expense reports

DCAA Compliance
TimeControl is DCAA (Defense Contract Audit Agency) compliant. You'll find a white paper and other resources on how to use TimeControl for DCAA compliance at www.timecontrol.com/solutions/dcaa.

Sarbanes-Oxley and other government Compliance
TimeControl is a powerful tool for Sarbanes-Oxley compliance in order to conform to SEC rules for internal costing and deployment for any company publicly traded in the US TimeControl complies also with numerous government standards including the "European Work Rules", FMLAs and "California Work Rules" along with many others

Extensive Approvals
TimeControl supports multiple levels of manual approval with each level and the path for each employee definable at the employee level.

Matrix Approvals
TimeControl supports HMS Software's unique "Matrix Approval Process for Labor Actuals™" which allows timesheet data to be approved by both line or resource managers and projects managers

Resource assignment options
TimeControl supports both individual and group resource identification. Timesheet data can be sent for an individual's resource code group multiple employees into one generic resource code

Hierarchical display for high data volume
TimeControl displays projects, rates and tasks in a hierarchical tree format. This allows support of a tremendous volume of data

Link to Finance for HR, Payroll and Invoicing
TimeControl's financial-quality data is ideally suited to meet a variety of financial requirements and TimeControl's Link module allows output to be sent to virtually any major Finance system

Multiple project management system links
TimeControl supports multiple project management links simultaneously. A project environment which includes both Primavera and Microsoft Project, for example, could be supported by TimeControl at the same time. End-users would simply see a list of tasks.

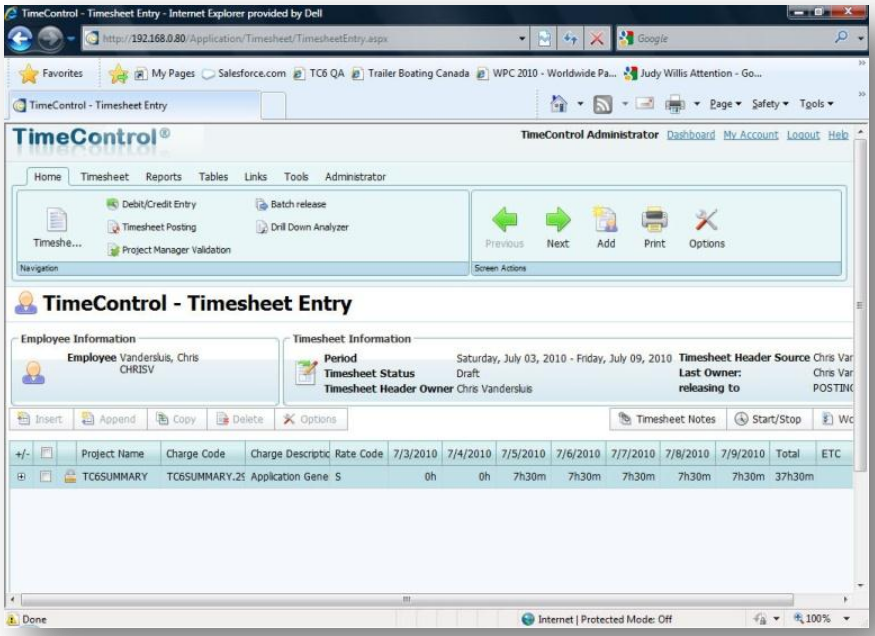
Conclusion

While collecting information from the field is more challenging than in an office scenario, more and more Oracle Primavera users are finding themselves faced with the challenge of doing so. In a competitive economy, those owners and contractors who are most efficient are most likely to thrive.

In heavy construction, heavy manufacturing, offshore or remote field operation or a plant shutdown situations, collecting project labor information from field personnel is as important if not more so than the back office staff. Collecting information from field personnel and being able to update it in a timely fashion into the Oracle Primavera schedule results in being able to provide management metrics, reporting and variance information fast enough that the organization can react to it in close to real time. Information from the field that becomes reports or dashboards to management within hours is the new gold standard against which others are measured.

For many Oracle Primavera users, finding an interface which allows field information to be collected has become a critical success factor. TimeControl Industrial offers one option to solving this challenge.

In today's challenging economy, tracking productivity is more important than ever. It is no longer enough to know only how much time has been spent. Now management demands that you know what was done with the time. Many organizations are turning to project and task based management as a way of being more effective. One of the most difficult aspects of implementing project control is the capture and approval of labor actuals. *TimeControl* provides an electronic timesheet system designed to serve both Finance and Project Management



Install On-premises or subscribe in the Cloud Online

TimeControl is avialable both as a purchasable license to be installed on your premises or in a subscription model with our Timesheet as a Service TimeControlOnline. You can find out more about our online subscription at www.timecontrol.net.

Open Architecture

TimeControl is an open architecture system which supports a variety of databases including Microsoft SQL Server, Oracle, Sybase and MySQL. Customizable user profiles allow the *TimeControl* interface to be tailored to each user's requirements.

Easy to use web interface

TimeControl's interface is browser-based and user-intuitive. User Profiles determines what the user will be presented with and the user can define where TimeControl should start and what defaults they wish. End users can use a variety of browsers such as Internet Explorer, Firefox, Chrome, Safari, Mozilla or even an iPad. (Administrators must use Internet Explorer.)

TimeControl Mobile included

TimeControl includes ***both*** a browser-based web interface ***and*** a mobile interface that can be used from your Smartphone. Whether you use an iPhone, Blackberry, Android or Windows Mobile7 device, you can access your TimeControl from wherever you are.

Multi-lingual

We know that not every user speaks English as their first language. TimeControl comes with a number of languages already in the system but every label and every message is open to the TimeControl Manage Languages module so you can change the existing translations or even add your own. This is a great feature for adjusting terminology in the system to match your organization's (The only word you can't change is: "TimeControl").

Timesheet Approvals

TimeControl supports HMS Software's unique Matrix Approval Process for Labor Actuals which allows for quick authorization of project data. This process resolves the inherent conflict that is found when both the financial and project management hierarchies must approve timesheet data simultaneously. Automated validation of timesheet data is handled by TimeControl's remarkable Validation Rules . Additional approvals can be done manually with a simple Approve/Reject or Approve/Update process. The Project Manager Validation screen displays an easy-to-view hierarchical interface for managing project approvals.

Total Flexibility with User Profiles

TimeControl's User Profiles allows the Administrator to determine which menu choices, reports and fields are accessible by each user. The entire interface can be tailored to the user's individual needs. No other system on the market today offers this much flexibility.
Field level security ensures that only the information which is important to each user, is displayed. Fields can be made read-only or invisible, removing them from view entirely. This makes *TimeControl* at once a secure, deployable system and an easy-to-use one as well.

Links to Project Management Systems

TimeControl includes direct links to project management systems including Oracle-Primavera versions P3 through the most current P6, Deltek's Open Plan and Cobra and Microsoft's Project, and Project Server. In fact, multiple products and versions can be supported simultaneously.
Integrating with a project management system drastically reduces timesheet errors as only valid tasks will be available in which to charge time. Hours entered in *TimeControl* are returned directly to the project management system as activity and resource progress.

Links to Hard Dollar Estimating/Cost Control System

TimeControl Industrial includes a direct bi-directional link to the Hard Dollar estimating and cost control system and charges in TimeControl can be linked simultaneously to Oracle-Primavera tasks and Hard Dollar cost items.

Vacation Approvals with TimeRequest™

The TimeRequest module allows users to make a request for certain types of times to be approved for entry in future timesheets. The most common application of this module may be

for requesting Vacation time off. Once approved, the time is then automatically entered by *TimeControl* into the appropriate future timesheet.
The TimeRequest module is, however, not restricted to just Vacation requests. Any category of time can be exposed to the module. This allows an infinite number of applications such as for travel time, training time, offsite or onsite time or any other type of time category where the organization wishes it to be approved in advance.

E-mail Enabled

TimeControl allows email notifications to be sent for various events such as missing timesheets, incomplete or non-approved timesheets as well as timesheets that were rejected or re-released for approval.

Expense Reports

TimeControl includes extensive expense report functionality. Users can enter an unlimited number of expense report items for each timesheet line.

Links to Payroll, HR and ERP/Finance

TimeControl is designed with a Links module that lets you define links to corporate systems and software including Payroll software or online services, Human Resources systems and ERP/Finance systems.
Using TimeControl to fulfill the requirements of not only project management but also Finance, HR and Payroll means you can eliminate the costs and inefficency of mlutiple timesheets.

Reporting

TimeControl's reporting engine looks just like Excel™. Reports can even be saved in Excel or HTML format.
TimeControl's Reporting Wizards make report generation easy. *TimeControl's* field-level security is always active so only the fields which a user has permission for will be shown. Predefined reports are available in a variety of formats which include posted timesheet data, table lists, printouts of the timesheets themselves and missing timesheet reports.

For more information

For a more complete description of TimeControl, visit www.timecontrol.com. .
For information on TimeControl Industrial visit: industrial.timecontrol.com.
To try TimeControl for free, visit our free hosted trial at: freetrial.timecontrol.com.

About HMS Software

HMS Software, a division of Montreal, Canada-based Heuristic Management Systems Inc., is a leading provider of enterprise timesheet and project management systems. HMS is an Oracle Gold partner.

Founded in 1984, HMS Software's expertise in implementing enterprise project-management and enterprise timesheet systems is recognized worldwide by some of the world's best known organizations. HMS's signature product, TimeControl, an enterprise timekeeping system designed to serve the needs of both Finance and Project Management, is distributed worldwide through an extensive list of distributors and dealers located on every continent with representatives in the US, the UK, Australia, Mexico, Europe, Asia, South Africa and the Middle East.
HMS Software's client list includes some of the world's leading corporations in the telecommunications, IT, finance, engineering, defense/aerospace and government sectors including such organizations as Acergy, Aecon Construction, Alcan, the Atlanta Airport, Akzo Nobel, The Canadian Business Development Bank, The City of Montreal, EDS, Ericsson, General Motors, the Government of Saskatchewan, John Deere, Kelly Services, The UK's National Health Service, Standard Life, UPS, Volvo Novabus and hundreds of others. HMS maintains offices in Montreal, Quebec and Toronto, Ontario.
For more information about HMS, please visit www.hmssoftware.ca.

TimeControl

First published by HMS in 1994, TimeControl has been adopted hundreds of clients and over 150,000 users around the world. TimeControl is designed to serve the needs of both project and finance simultaneously. It allows an organization to use a single timesheet for project tracking, time and attendance, time and billing, HR tracking, R&D Tax Credits, DCAA and project costing instead of having to deploy many timesheets to serve these needs.
TimeControl is available for purchase for an on-premises implementation or as a subscription as service. TimeControl's architecture is flexible and extensive supporting numerous databases such as Oracle, Microsoft SQL Server and MySQL, multiple browsers such as Internet Explorer, Firefox, Safari and Chrome and even includes a mobile interface for Smartphones
For more information about TimeControl Industrial please visit: industrial.timecontrol.com.

Strategic Services

In addition to being a publisher of one of the world's best known timesheet systems, HMS provides a full range of support services including technical support, training and consulting tailored to meet clients' specific needs. HMS Software consultants are skilled in activity-based-costing, timekeeping methodology, project management techniques, cost and earned-value management as well, of course, in the HMS-supplied products.
For more information about HMS Software services, please visit www.hms.ca.