O

Work Order & Maintenance Management System

General Overview
Features and Capabilities

V 2.16

An FMRG™ Product White Paper

March 18, 2011

This White Paper is intended for guidance only
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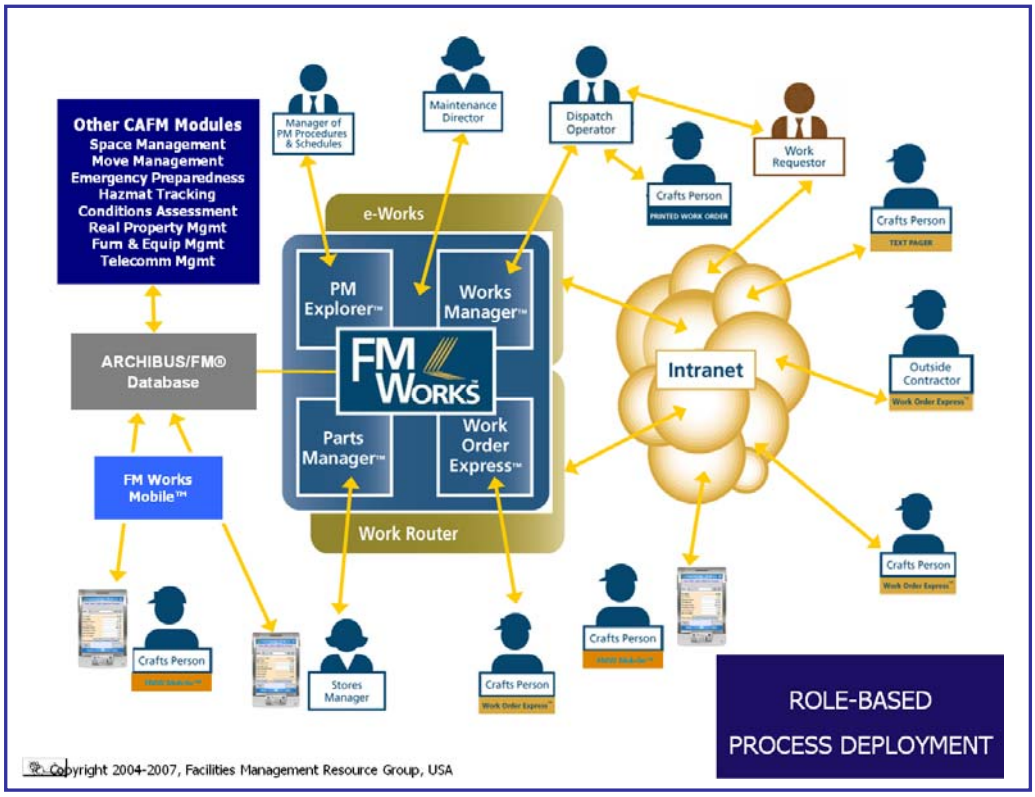
INTRODUCTION

FM Works™ is a powerful, easy-to-use computerized maintenance management system (CMMS) that is fully compatible and integrated with ARCHIBUS®. By providing a modern and very user-friendly interface, combined with substantial, additional functionality, FM Works significantly enhances the power and productivity of ARCHIBUS systems for operations and maintenance management, while also saving money on system software.

Role-Based Process Deployment

FM Works is built around the key idea that there are many different roles in a maintenance or building operations organization, and in order to perform at the peak of productivity and efficiency, each role needs a user interface and levels of functionality that are specifically designed for that role. To accomplish this, FM Works provides a state-of-the-art software platform consisting of four powerful Primary System Modules plus our new FM Works Mobile PDA/wireless platform and three System-Wide Capabilities that employ modern network-based communications to enable a variety of automated processes. These Primary System Modules and FM Works Mobile (shown in light blue in the figure below) and System-Wide Capabilities (shown in olive green) seamlessly access the ARCHIBUS database. They can be "mixed and matched" for the optimal configuration that best meets your CMMS requirements, giving you flexibility to meet your budget now and allowing you to expand the system in the future as needed.



Primary System Modules

Works Manager™ is the heart of the system. Using an interface similar to Microsoft Outlook®, it provides an extremely powerful capability for managing the primary work flow – from entering, processing and managing work requests, work orders, resources, priorities, and charge back accounts, up through issuing, printing and reporting on the work. Works Manager allows coding of work by "Maintenance Department" to automatically filter assignments so only the department (or other unit, such as campus or building) sees work for that unit. Works Manager allows digital images or any other digital document or drawing (such as digital photos, PDF files, schematic/wiring diagrams, and scanned documents) to be attached to any work request or work order to be included as documentation.

PM Explorer™ is a general purpose platform for managing aspects of your operation that involve pre-defined procedures that are performed at regularly scheduled intervals. It saves time and increases efficiency in the day-to-day management of defined procedures, steps, and schedules and the generation of related Work Requests/Work Orders. The first and most common application of PM Explorer is for managing preventive maintenance. There are a number of other areas of operations management that use pre-defined procedures and a regular schedule for them to be performed. PM Explorer now has three sub-modules as shown below:

PM Explorer - Equipment™ -- enables management of procedures and schedules for equipment assets. For example, preventive maintenance on air handlers, chillers, exhaust fans, etc.

PM Explorer - Housekeeping™ -- enables management of procedures and schedules for rooms within buildings. For example, maintenance of floors, windows, walls, etc.

PM Explorer - Grounds™ -- enables management of procedures and schedules for assets that are exterior to buildings such as lawns, gardens, parking lots, sports venues, etc. For example, weekly maintenance of lawns and surrounding outdoor areas of buildings, reseal parking lots every 2 years, etc.

Work Order Express™ allows maintenance workers, using their own login ID, to access a focused screen that displays only their own work orders and allows them to make updates with a specialized interface. Options are available for maintenance workers to see the work of others within or outside their trade, whether or not they've been assigned. This powerful capability also has a web-enabled option so maintenance workers or contractors can access and update their work orders anywhere they have access to the intranet. FM Works Mobile (discussed below) offers a PDA version of this module.

Parts Manager™ allows effective management of the maintenance parts inventory using a Windows Outlook-style interface for enhanced productivity and more accurate parts data. In addition to enhancing the interface for the basic parts management in the ARCHIBUS schema, FM Works provides significant additional functionality for single or multiple locations of parts inventory, non-inventory parts, tool rentals, and a variety of other features.

FM Works Mobile™

FM Works Mobile is a hand-held application that extends the power, innovation and productivity of the Work Order Express and Parts Manager modules to mobile PDA devices. Data from the FM Works application is synchronized to a local database installed to the hand-held device via the FM Works Server application. Once the database is synchronized, the hand-held is used "offline" to review, enter and update work. It provides the capability for the submission of work as well as automated email notification to interested parties regarding status changes for work requests. It will run on PDAs with Pocket PC 2003 and Windows Mobile 5.0, 6.0 to 6.5 Pocket PC. Data communication can be via hard-wired "cradle sync", IEEE 802.11b/g wireless LAN and/or broadband (cellular) wireless WAN. Refer to the FM Works Mobile Specification Sheet for more details.

Mobile Work Express™ -- allows maintenance workers, using their own login ID, to access a focused screen that displays only their own work orders (and/or unassigned requests in their trade) and allows them to make updates with an easy to use interface.

This powerful capability enables maintenance workers to access and update their work orders from their own handheld device anywhere the worker has wireless or cradled access to the server.

Mobile Parts Manager™ -- enables effective management of parts and supplies inventory using a handheld device. You can add new parts as they are discovered in the parts crib. It functions similarly to the Windows Parts Manager that tracks parts inventory and supplies.

Mobile Asset Surveys™ -- enables you to download your inventory assets such as equipment, rooms, etc., to the handheld so they can be field verified, updated, etc. Users can add new asset items as items are discovered in the field. The Filtering tool enables inventory assets to be filtered as they are scanned and allows any default filter data to be added to new assets.

With the tap of button, the user can toggle between these different asset types. The grids and screens will change based on the asset type. Different asset types can be activated or deactivated.

The "Bean Counting" feature allows you to quickly count and survey inventory assets by scanning the barcode without using an entry screen. The Bean Counting "Location" mode also quickly updates the current location of asset items without using an entry screen.

This is handy in helping you to identify any equipment or rooms that are unaccounted for during a survey.

System Wide Modules

e-Works™ provides web-based capability for the submission and tracking of work requests via the company intranet -- as well as automated email notification to interested parties regarding status changes for work requests.

Work Router™ automatically routes work assignments, updates and other information via email, hand-held or wireless/mobile technology to the appropriate parties. The current version focuses on notification of emergency or urgent situations to designated "on call" workers but also has certain features for general assignment and dispatch of work that arrives via e-Works.

Automated Customer Satisfaction Survey™ provides a powerful, user-friendly interface combined with automated communications, documentation, and management capabilities to enable users to easily obtain customer satisfaction ratings and comments.

FM WORKS – A TRUE VALUE PROPOSITION

Not only does FM Works provide outstanding capabilities found in no other maintenance management solution, it is an exceptional value – with a price structure that results in a much lower implementation cost compared to other systems.

FM Works provides a powerful solution with a user-friendly interface that makes managing the daily workflow of work requests and work orders, as well as PM (preventive maintenance) procedures and scheduling, more efficient and productive. In addition, with its powerful, but easy-to-use work view management, search and retrieval capabilities and web-based features, maintenance managers have easy access to the information they need to better manage their operations and respond to inquiries – whether from a user department or from upper management.

Empowering your organization via the Internet and company intranet to easily submit and track work requests and be automatically notified of their status significantly reduces the amount of time your staff has to spend on the phone and provides up-to-date information so that all participants from requestor to tradesperson are fully informed about the status of the work.

Many of the complex tasks involved in entering and processing work orders and scheduled maintenance functions are simplified with FM Works, thereby freeing up valuable staff time for other work.

More efficient and accurate management of your maintenance parts inventory results in greater productivity because you can have confidence that the needed parts will be available when the work needs to be done.

There are tremendous efficiencies in providing your maintenance workers with direct access to their own work orders and the ability to update the status of their tasks and resource usage. This capability exists on the main FM Works system and is also web-enabled, which means that it can be accessed anywhere on the web -- a real productivity booster for today's busy and mobile maintenance workforce.

From the beginning, FM Works was developed with a focus on user-friendliness and productivity. Over the years, a tremendous amount of feedback and a great number of ideas have been incorporated into the system from its large user base. Many more innovative features are being added all the time to improve the management of maintenance operations.

HOW DOES FM WORKS WORK?

FM Works is a fully compatible and integrated with ARCHIBUS and uses the same database projects. However, FM Works operates separately from ARCHIBUS and does not require ARCHIBUS to be running at the same time. Running independently, FM Works can open your existing ARCHIBUS projects and connect to the database for access to all data. Once connected, FM Works maintains a live link to your ARCHIBUS database. For example, once you create a work request in FM Works, the work request will immediately be available in ARCHIBUS, and vice-versa.

This bi-directional capability applies to any ARCHIBUS system module or capability. For example, if you are using Web Central™ any data entered will also be available to/from FM Works. You can also use the various handheld-based data collection methods (such

as Blackberry) and applications or any other third-party ARCHIBUS-compatible products, and the data will also be available to/from FM Works.

Although FM Works requires access to the ARCHIBUS database on the network server, it has the unique capability of being installed completely independently on each PC. This is handy, for example, if you want your maintenance shop to manage work orders *without* installing ARCHIBUS and training them on how to use it. All they need to be familiar with is the simplified FM Works interface.

Although FM Works is an extraordinarily powerful maintenance management solution, it is not currently a complete replacement for the basic ARCHIBUS® Building Operations (BOPS) module. FM Works is designed to significantly enhance the basic BOPS capability -- mainly from a workflow/productivity standpoint. Each system will need one BOPS module to run complex reports and processes and other functions currently not available in FM Works. Each system has an optimal configuration of BOPS modules and FM Work's components to deliver maximum performance and productivity for maintenance operations. FMRG or your authorized FMRG reseller will gladly work with you to determine this optimal configuration.

WHAT DO YOU NEED TO RUN FM WORKS?

Currently, FM Works operates seamlessly with ARCHIBUS® versions 11 and above running on the Sybase, Microsoft SQL Server, or Oracle database platforms. Versions of ARCHIBUS prior to11.1 are not supported.

From a hardware standpoint, FM Works does not require anything more than the hardware required to run ARCHIBUS. However, there are some software licensing requirements that need to be addressed.

From a software standpoint, every installation requires at least one ARCHIBUS Building Operations Module and one ARCHIBUS Infrastructure Connection Point plus enough Enterprise Access Licenses (EALs) to allow authorized connection to the ARCHIBUS database for applications such as third-party enterprise applications. (Contact your authorized ARCHIBUS dealer for information regarding ARCHIBUS licensing requirements.)

Since FM Works is a third-party enterprise application, in addition to the minimum requirement of one Building Operations Module, proper licensing requires enough ARCHIBUS EALs to support the total number of users who concurrently access the database.

It may also be necessary to upgrade the number of "seats" for your database platform to handle the additional users that will use FM Works. FMRG or your FMRG reseller can help you determine if additional database licenses are needed.

SOME SAMPLE ISSUES RESOLVED BY FM WORKS

FM Works provides solutions to several issues that have been raised by users over the years.

"I find it difficult to manage my day-to-day workload of work orders. Often I need to do complex searches for existing work orders, to view and to compare multiple requests at the same time… and quickly!"

The Works Manager component provides an interface for doing just this. Using a "multiple document interface," you can have multiple work requests or work orders open at the same time. You can even have the work order associated with the work request open at the same time! All of this can be accessed through a simple search engine.

"Our equipment often gets moved around the facility without our knowledge. How can we quickly survey the equipment and identify its current location?"

The "Bean Counting" feature allows you to quickly count and survey equipment simply by scanning the barcode without using an entry screen. The Bean Counting "Location" mode also quickly updates the current location of the equipment item without using an entry screen.

"I want to allow personnel throughout the company to submit work requests via our company intranet, but I don't want to go to the expense and bother of setting up a complex web-based maintenance management system."

The e-Works component provides a simple and cost-effective capability to allow web-based submission (as well as review) of work requests without needing a full web deployment of your entire operation. This simplified approach uses common sense to address the primary web-based requirement of most maintenance organizations.

"My help desk personnel and managers are constantly being interrupted and spending too much time responding to inquiries regarding the status of requested work."

The e-Works component lets a requestor check the status of his/her work via the company Intranet. But perhaps more importantly, it also enables automatic notification regarding status changes via email to all parties concerned with a work request or work order. Who gets a notice and at what stage is all controlled by your system preferences. The system can be set up to generate not only fully automated notices whenever the status of the work changes, but it can also be set to allow the messages to be edited – completely at your discretion.

"I want to have my staff in the maintenance department enter their own work orders and update the results once they have been completed, but I don't want to take the time to train them in ARCHIBUS."

FM Works can operate independently on any installed workstation that is connected to your network and ARCHIBUS database server. This means that

you can quickly get your maintenance workers trained on FM Works, a simpler and easier-to-use product, thereby allowing them to view and only have access to the data that applies to them.

Using the Work Order Express component, maintenance workers even have a special interface designed to focus attention on just the information required to do their work and then update the database with details pertaining to that assignment.

"We run a large facility and I don't want my maintenance staff to return to a central location to update their work data. They should be able to access their data anywhere in the facility, update it, or do whatever is needed."

With the web-enabled access to Work Order Express, your staff can have access to their work order information anywhere there is a connection to the company intranet.

"How can I make the often daunting and data intensive task of managing my preventive maintenance data easier?"

Use the PM Explorer component in FM Works. A Windows Explorer interface allows you to see all of your PM procedures, steps and schedules. You can drag and drop these items to make managing this information easier and more efficient.

"We sometimes need to run PMs separately for each building and sometimes just for Air Handlers, etc?"

Users can generate PMs based on the schedules shown in the results from a filtered WorkView. This allows almost limitless combinations of filtering of schedules for selective PM generation. Users can create WorkViews for each building and separate ones for the Air Handlers. When they run the WorkView and see the equipment schedules, they then can run PMs on those equipment schedules alone.

"I have multiple maintenance departments who don't really need to see each others' work. I don't want to set up multiple databases since the ARCHIBUS background data (buildings, rooms, tools, parts, etc.) is common for each maintenance department."

FM Works provides the ability to set up multiple Maintenance Department codes. Setting this special code in each user's login will enabled them to see only their own department's work requests and equipment when they log into FM Works. If desired, certain logins can also be set up to see all of the information in the system or, by supplying this code, to filter the database specific to each Maintenance Department when they perform searches.

"We have thousands of work requests in our existing system. Some maintenance management systems are slow to retrieve this amount of data."

FM Works is designed to handle large data sets. Not only is the retrieval process quick and efficient, the user can set thresholds on searches so progress bars can

automatically appear to not only show the progress of the retrieval, but to allow the user to halt the search if desired.

FM Works also has features that allow you to address more than one work requests at a time. For example, if you need to close-out multiple work requests and orders, FM Works you to run a search for the ones you want to close-out. You then indicate all the work requests/orders that you want to close-out and with a single operation, close out the whole batch.

"Many times we need to attach photos or diagrams to work orders for documentation or to be sure the field crew has the right information to do the work."

Digital photos or digitally scanned documents can easily be linked to a work request or work order and then be printed along with the work order directly from FM Works.

"I really need a PDA-based mobile solution to improve worker productivity and efficiency, but I don't want to add another separate product to my system configuration."

FM Works Mobile is a modern state-of-the-art PDA mobile solution that is fully integrated within FM Works and shares the same user-friendly design as its other modules.

"We have two labor shifts… I don't want to double the number of PDAs we own!"

In FM Works Mobile, craftspeople are not assigned to a specific handheld but instead, handhelds are assigned to a PDA group. As long as they keep the handheld synced, they can pick up any handheld within their PDA group, login and get their current data.

"Our workers who work on the weekend need to see unassigned work so they can assign themselves and go get it done without the helpdesk assigning it."

FM Works Mobile can be easily configured to allow the craftspeople to see unassigned work. Once they select an unassigned Work Request, they can then assign it to themselves and complete the request.

FM WORKS – SUMMARY OF SYSTEM COMPONENTS

As discussed in the Introduction, FM Works consists of four Primary System Modules, plus FM Works Mobile and the three System-Wide Capabilities for network-based communications via the Inter/Intranet.

Each system module has specific functions and design features to improve the productivity of operations management. The modules can be “mixed and matched” as required to allow you to build the “best fit” system configuration depending on your organization’s requirements and budget.

A minimum system configuration consists of a single-user FM Works license for each of the Primary System Modules. A more fully featured system will consist of several Works Manager components plus a selection of other components as well as the e-Works “system-wide capability” for maximum productivity and efficiency.

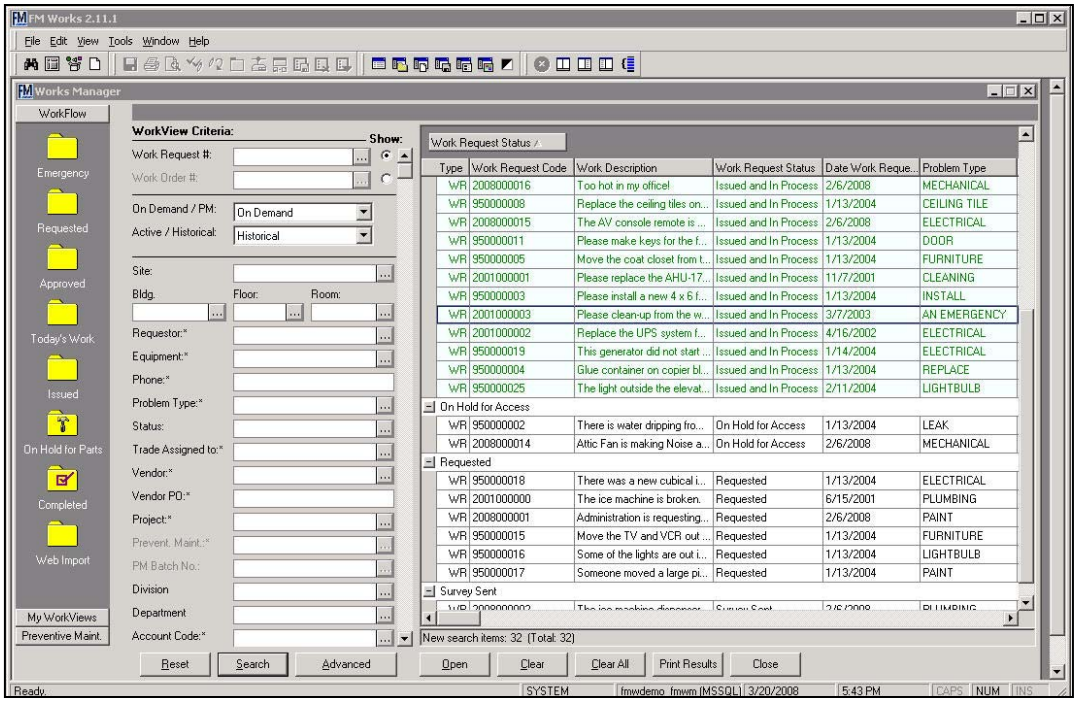
Primary System Modules

Works Manager

Using an approach similar to Microsoft Outlook, Works Manager provides an efficient, modern computing platform for managing all work requests and work orders easily and efficiently.

Works Manager provides a flexible way to organize the work according to workflow categories and to easily customize the display of information by grouping, sorting, and arrangement of columns as well as colors to show the status of work. You can set up and save any WorkView for easy recall at the touch of a button.

Users can search for Active or Historical (closed-out) work requests or work orders or both. In the screen shot below, you can see the WorkFlow bar at the left side. Each of the folder icons represents a different set of criteria to view work requests and work orders. To call up that view and display the results in the right hand pane, simply click on the folder.



The screen shot also shows a flexible and user-friendly display of your work. You can easily change the order of the columns, the width of columns, the grouping and sort order by using familiar "drag and drop" or traditional techniques. The above example has grouped the Work Requests by Status Code. Once you have an arrangement of search criteria, grouping, sorting and the like that you want to use again, save the WorkView to either the WorkFlow group or to a new group that you set up.

Various WorkViews can be set up to provide quick and easy access to your information. The information about how to filter the data in the WorkView is saved with the WorkView so that every time the user clicks the WorkView, the data is automatically refreshed.

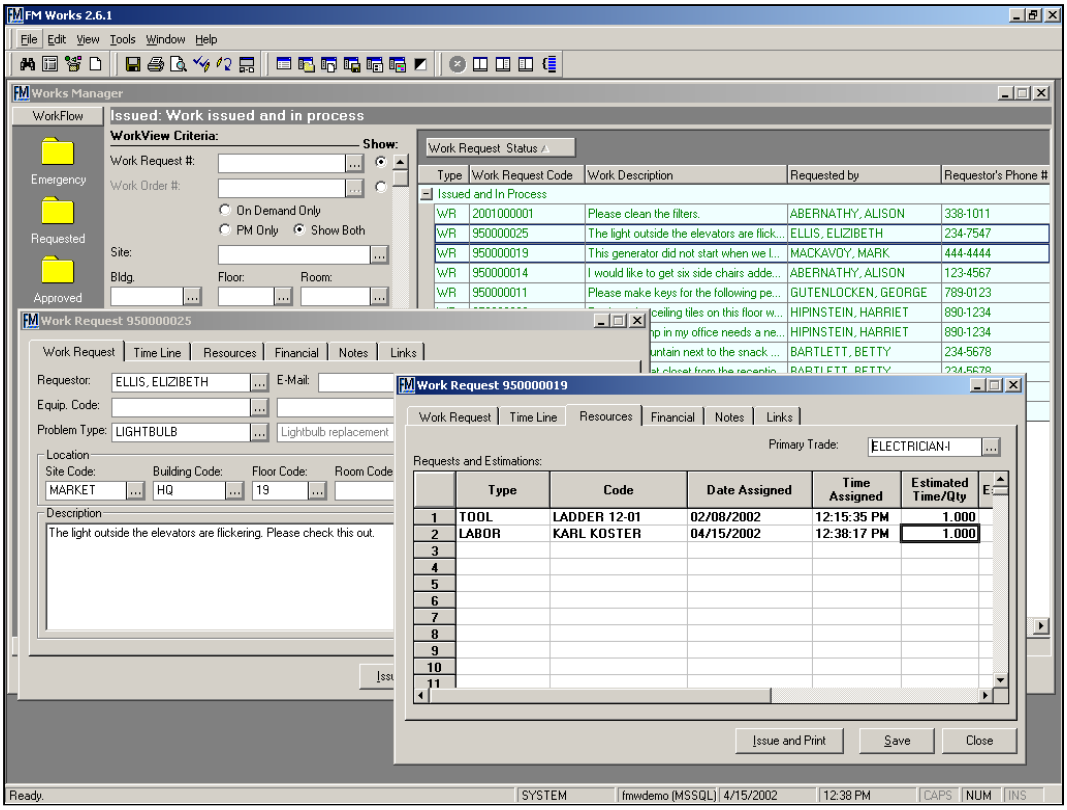
Many of the fields in the WorkView Criteria window can be searched using “wildcard”, “like” and “not like” character indicators.

Works views can include date ranges and numerical ranges as well as “days since” for aging queries.

Equipment, Department, Room and PM Schedule fields are displayed alongside the work request fields to provide related informational details. The equipment search field can also be personalized to search for asset tag numbers and serial numbers in conjunction with the equipment ID.

Another convenient feature is the ability to set up colors to highlight work by status, priority or problem type. Users can individually create custom color views. Colors can be turned on or off at the click of a button.

Works Manager also provides a tremendous amount of power and flexibility by allowing you to view multiple work requests and work orders simultaneously, as shown in the screen shot below. There is no need to close one before opening another. Simply double-click on items in the Works Manager display to open them; and then simply click from one to the other as necessary to assign resources, combine into work orders, etc.



Easily list similar work orders, edit/print them, assign resources, schedule the work, complete, and close them out. Workers can list their own assignments, track progress, identify/assign available resources, and then close the jobs and produce reports. Actual time can be entered directly into the above Resource grid, saving time for the data entry staff.

As an option, there are basic Service Level Agreement (SLA) Date Calculations for the “Date To Respond”, “Date to Complete” and “Date Actually Completed” date fields. The values for the “date to” fields are calculated based on entries in the sub-problem type table. If a trade is specified in the sub-problem type table, then it will be assigned as the

primary trade of the work request and the request will be issued to that trade. The Estimated Date of Completion can be automatically calculated based on settings in the PM schedule.

Time saving features such as an option to enter the requester's telephone number instead of their name allow for maximum flexibly when creating a new request.

Work Requests can be made into "templates" and recalled later to "paste" into a new work request. Users choose the template from a list and the various field values in the template are pasted to the work request.

A major feature of the ***Works Manager*** is the built-in search tool. Using the WorkView Criteria section of the screen, you can enter a simple search, such as a requestor's name, or a complex search, such as "Issued work requests on the Third Floor of the South Beach Building." The search results show all of the matching work requests and/or work orders. You can then further refine your search, open a specific request/order, or print a report. For any search, you can further group and sort as necessary; and then save it either as a primary Work Flow folder or as a saved WorkView for easy retrieval at any time.

In ***Works Manager*** you can find any request or work order or group of items by searching for any word contained in the work order itself, or use specific criteria such as those shown below. This is just a small subset of the criteria available to search for and retrieve work requests and work orders.

- PM Code
- Equipment
- Requestor
- Project
- Room
- Site
- Department
- Vendor PO
- Phone Number
- Problem Type
- Status
- Craftsperson
- Date Range
- Number Range
- Building
- Floor
- Trade
- Maintenance Dept.

NOTE: The above is just a partial list of the available search criteria.

In addition to enabling searches for specific values, most fields can also be searched using "wildcard searches." For example to search for work requests dealing with all equipment items that contain "AHU" the wildcard search criteria of "%AHU% would be entered in the Equipment ID field.

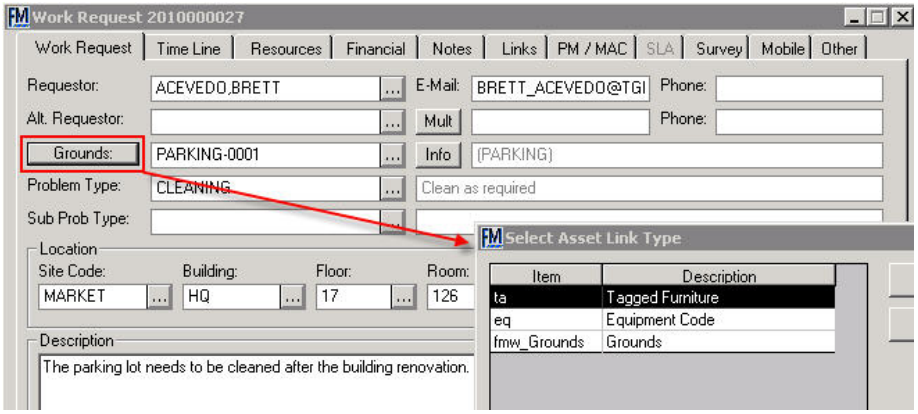
The Advanced features in Works Manager enable you to search for words or phrases that may exist in the work request/order description. For example, in the Advanced search screen, you can enter a word such as "door" and FM Works will locate all work requests or work orders that contain that word.

In addition to the primary and alternate requestor, you can also list up to 100 additional requestors to a work request.

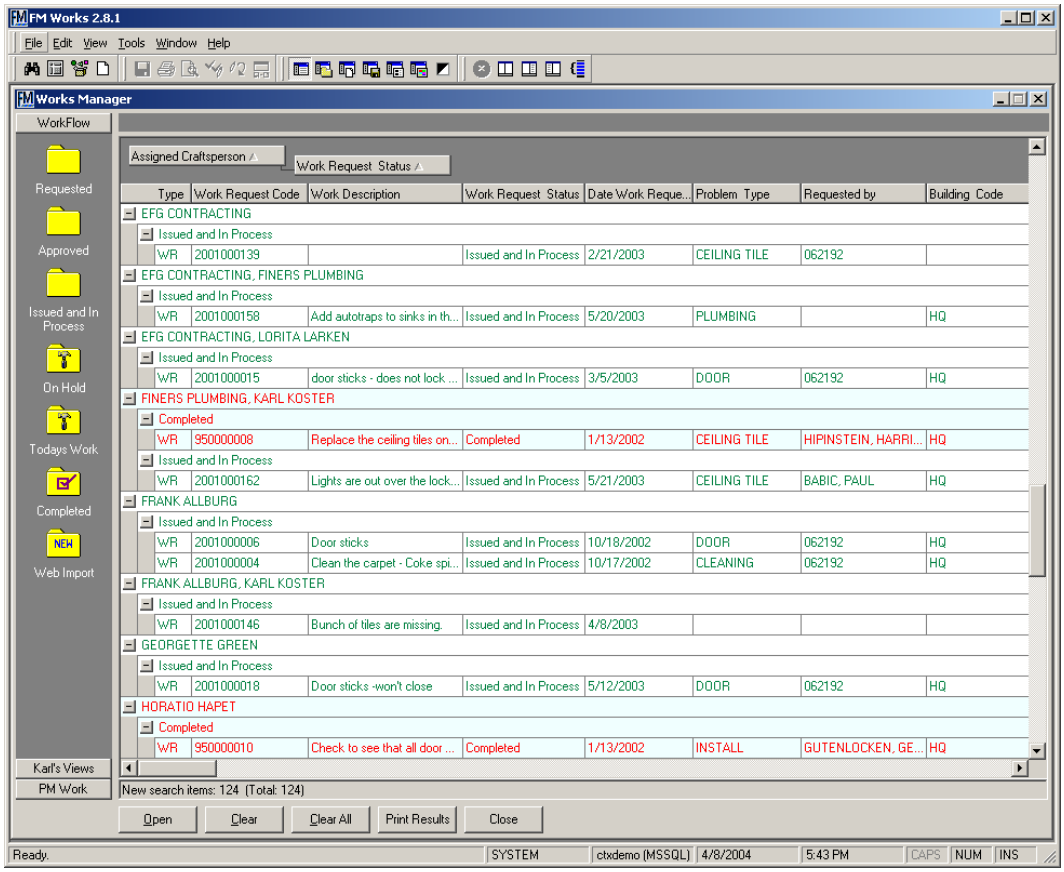
You can easily link or attach any digital image or document to a work request (and its associated work order) or to an equipment item. Examples include: photos of the work area or problem, AutoCAD drawings, diagrams, copies of purchase orders, scanned documents, actual documents (e.g. MS Word or Adobe Acrobat (PDF) files), links to web pages, etc. See the section entitled "**Linking and Attaching Digital Items**" later in the white paper.

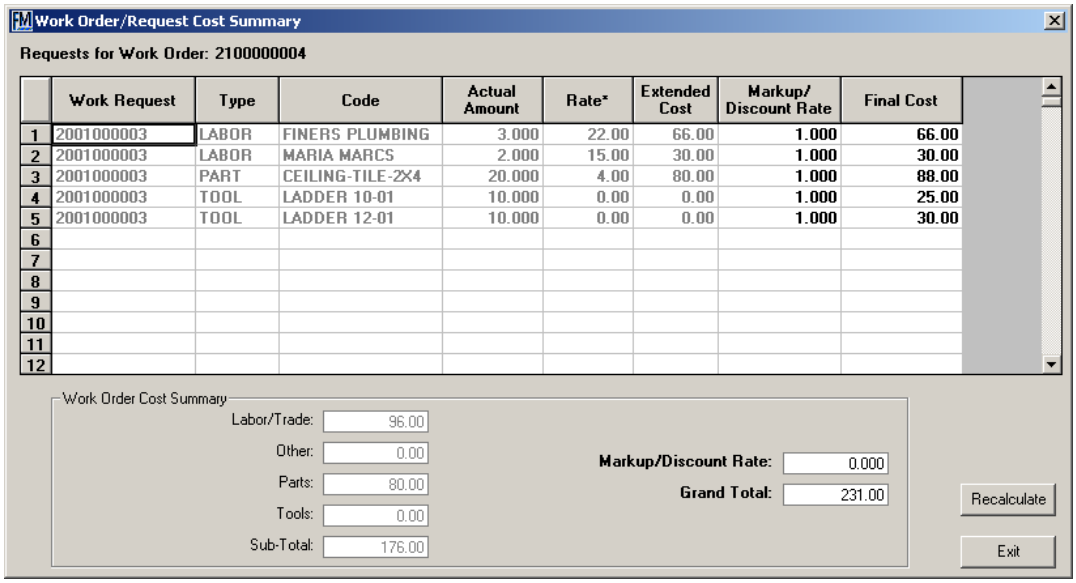
FM Works can link a work request to a project. This enables you to track single or multiple work requests associated with a project for tracking and project cost accounting.

If custom asset tables, such as grounds, furniture, etc. are linked to the Work Request, these asset types can be configured to show in the Work Request screen. Multiple asset types can be displayed and updated by clicking the toggle button.



Works Manager allows retrieval, sorting and grouping on "Assigned Craftsperson."





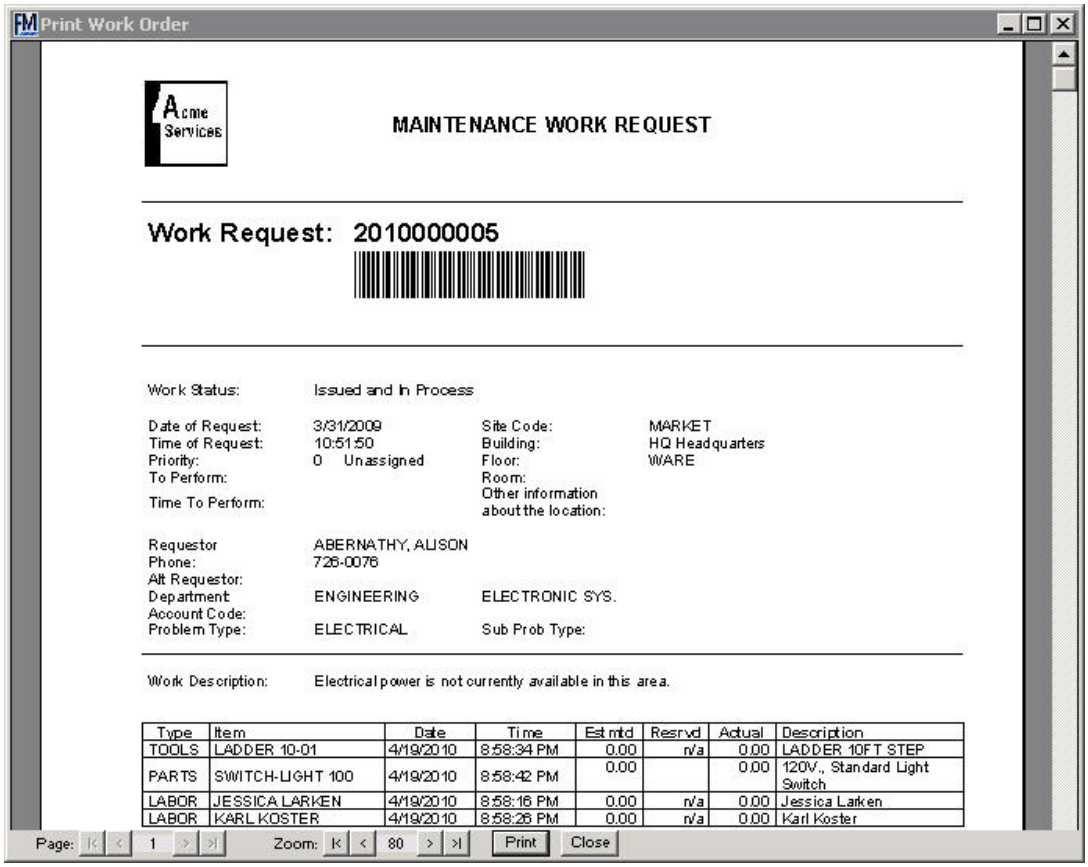
Works Manager provides powerful cost estimating, web-based approval and cost summarization functions. The screen shot below shows the cost summarization screen. A user with the appropriate security level can adjust the markup/mark down costs and override the final costs for each task or the whole work order.

For cost estimating, the system allows the initial requestor to specify if the desired work is “billable” and if so, the account code for chargeback and whether or not an estimate is required to be approved before proceeding with the work. This information is made readily available to the help desk and appropriate maintenance staff.

The system tracks historical labor costs for the craftspeople. This means that the rate can be different based on the effective date of the labor entry.

Once the estimate is prepared using the automated functions of the system, an email is sent to the requestor directing them to a web page that provides all required cost information and the ability to Approve or Cancel the work.

The requestor’s response (Approve or Cancel) then automatically updates the work request status and notifies the maintenance department of the requestor’s decision.



By default, the system provides a canned Printed Work Order. There are various options that enable this report to be tailored to show other information and field values. For example, the logo on the report can be customized. Many other custom fields can also be added to the report.

The Printed Work Order is also different for on-demand vs. PM requests. The PM Work Order shows more preventive and equipment information.

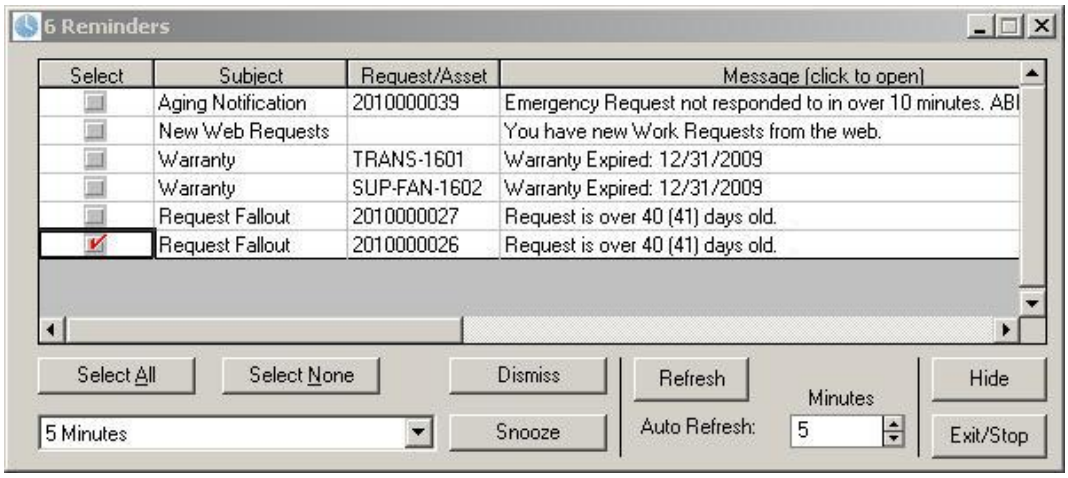
See the Linking and Attaching section later in this White Paper for printing attachments with the Printed Work Order.

A powerful feature in FM Works is the automated Notifications and Alerts. These are definable rules that automatically trigger time based configurations found in a set of XML files. Priorities on the rules can be set so that timer rules can run anywhere from once a day to every few minutes for checking the status of newly submitted requests. The notification system can also be configured to check on data from other tables, such as work requests, orders, equipment, etc.

FM Works Notifications runs on the FM Works Server and report the results to the FM Works client. Notifications that find a matching condition trigger an Alert in the Reminders Window. The Alerts can be snoozed for a set amount of time or dismissed in the Reminders window.

Notifications may also be configured with user or group security to enable only specific users to receive these Alerts. Emails can also be sent when an Alert is created.

An advanced setting allows Work Requests to be created as Alerts in addition to being shown in the Reminders window. As an example, this allows a new request to be created when equipment is added to the equipment table so it can be assigned to a craftsperson to be reviewed, checked, activated, etc.



Some examples of the different types of Notifications include:

1. New Work Requests from the Web
2. Work Request Aging, response time not met, etc.
3. Emergency request not responded to in a set amount of time
4. Result of a poor/unsatisfactory Customer Satisfaction survey, etc.
5. Equipment Warranty Expiring
6. Notification that new equipment has been added

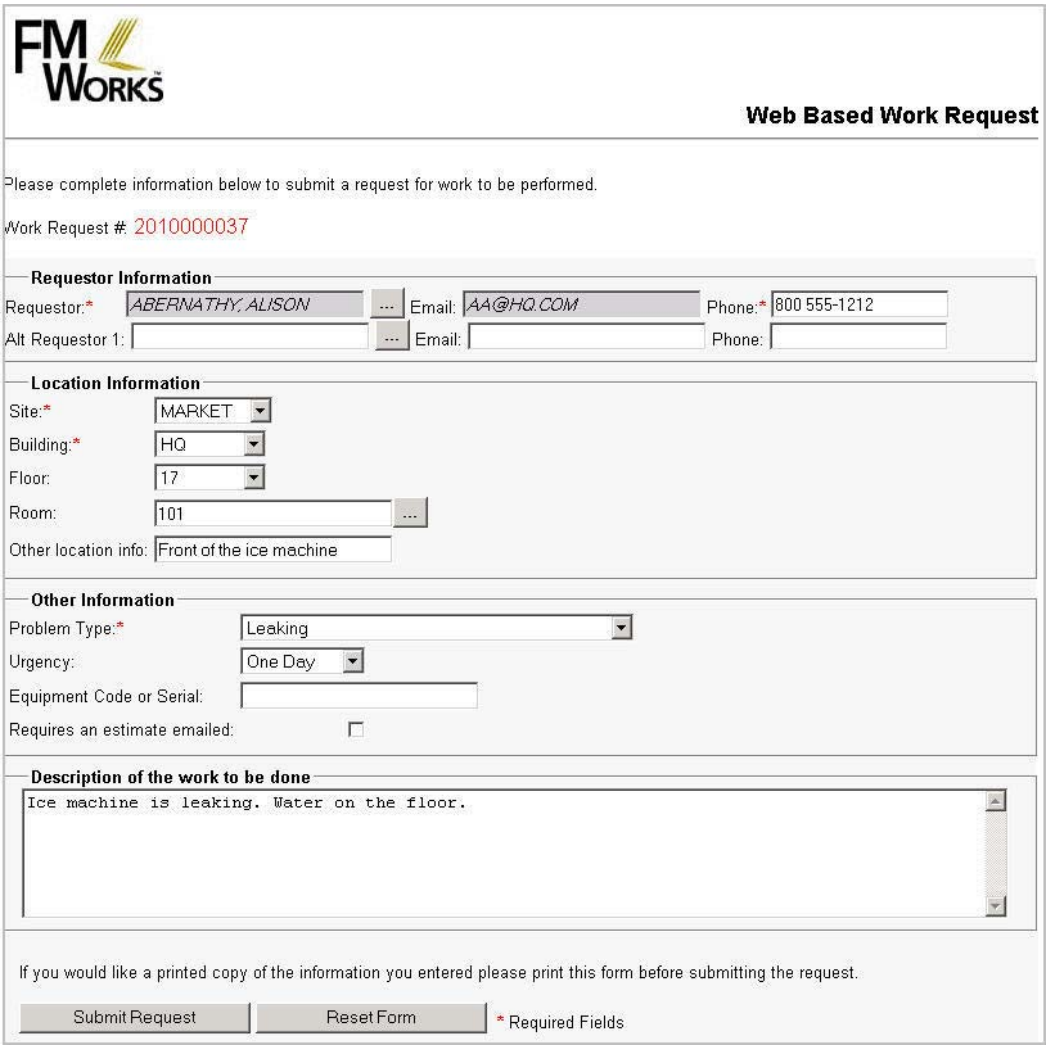
These rules can be adjusted to check from days to minutes, etc. as well as to set values in other fields (change priority, status, etc.) and include SQL “where“ clauses to filter the requests to be checked.

A “low threshold” on work request numbers so old requests can be ignored.

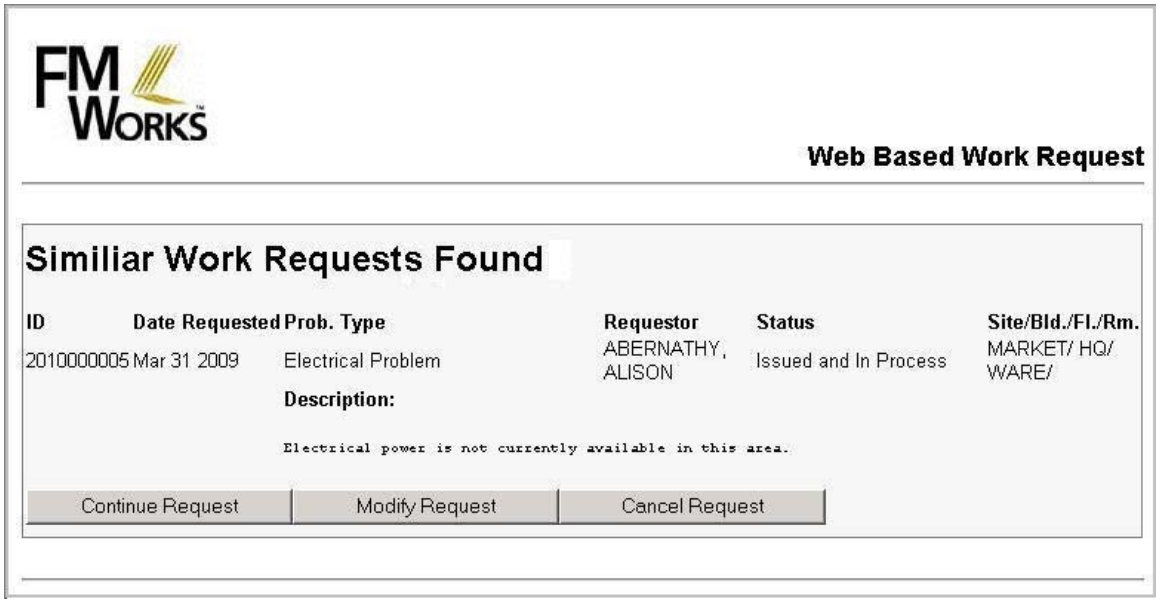
e-Works

Although **e-Works** is a “System-Wide Capability,” this module is integral to the creation of work requests and effective customer communication. e-Works saves time and increases efficiency in maintenance management by automating both the submission of work requests and custom email notifications of the status change for all work requests and work orders. Emails can be automatically triggered when new requests are submitted.

Work requests are easily submitted by any employee with access to the company intranet by using the simple form shown below. The work request number is automatically assigned and immediately displayed to the user once the form is submitted.



As requests are submitted, your help desk or work dispatch operator is automatically notified via the Works Manager interface. The operator then has the option of viewing the new work requests by selecting the special WorkView folder containing these new requests.



Duplicate work requests can be detected before they are submitted. If this feature is enabled the system will show a new screen, "Similar Work Request(s) Found" and prompt the user to Continue, Modify or Cancel the request.

One of the most time consuming and distracting aspects of operations management is the constant need to respond to inquiries from requestors and managers regarding the status of requested work.

In addition to the automated emails, requestors may use e-Works to view their work requests to check on the status, estimated completion, etc.

FM WORKS

Work Requests By Requestor

Work Requests submitted by: ABERNATHY, ALISON

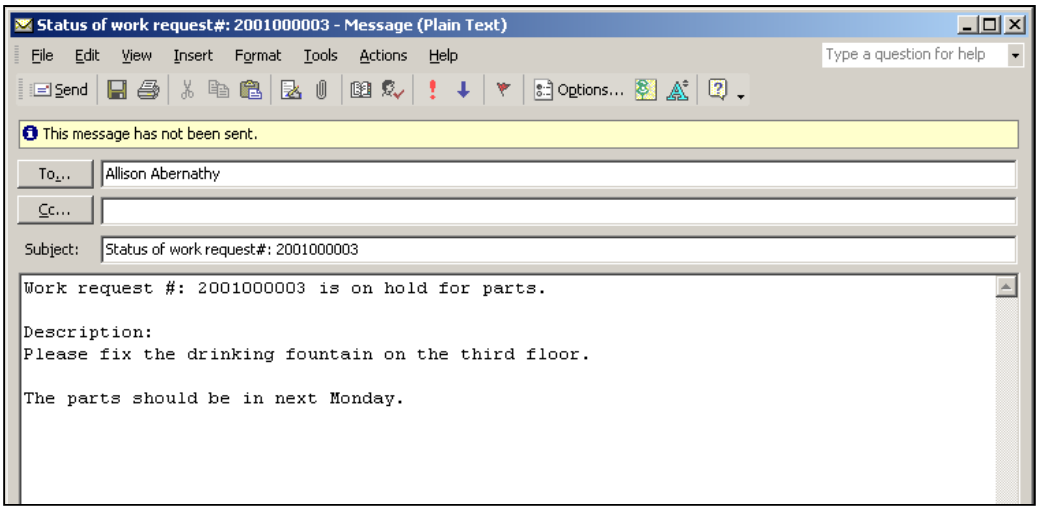
1

ID	Status	Date Requested		Prob. Type	Site/Bld./Fl./Rm.	Equip.	Priority	Estimated Completion	Completed By
2010000033	Hold	1/24/2011 3:22:08 PM		CLEANING	Market Street Site MARKET /HQ //		Unassigned		
	Alternate Requestor: **Craftsperson Notes:** KARL KOSTER: **Description:** Clean the oil spill around the loading dock.								
2010000005	Issued and In Process	3/31/2009 10:51:50 AM		ELECTRICAL	Market Street Site MARKET /HQ /WARE /		Unassigned		
	Alternate Requestor: **Craftsperson Notes:** JESSICA LARKEN: , KARL KOSTER: **Description:** Electrical power is not currently available in this area.								
2010000004	Issued and In Process	4/16/2002 9:54:31 AM		ELECTRICAL	Market Street Site MARKET /HQ /18 /128	PBX1	Unassigned		
	Alternate Requestor: **Craftsperson Notes:** KARL KOSTER: **Description:** Replace the UPS system for our PBX.								
2010000002	Issued and In Process	7/30/2009 9:23:56 AM	7/30/2009 9:50:18 AM	ELECTRICAL	JFK Boulevard Site JFK /JFK A /04 /001		Today	* 8/4/2009 8:52:38 PM	
	Alternate Requestor: **Craftsperson Notes:** DDD ELECTRICAL: **Description:** Electical problem with the AV console								

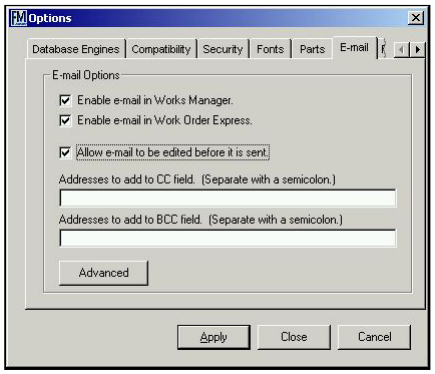
In addition, e-Works has a very powerful status notification feature which automatically sends an email to the requestor and other selected personnel as the status of the work changes.

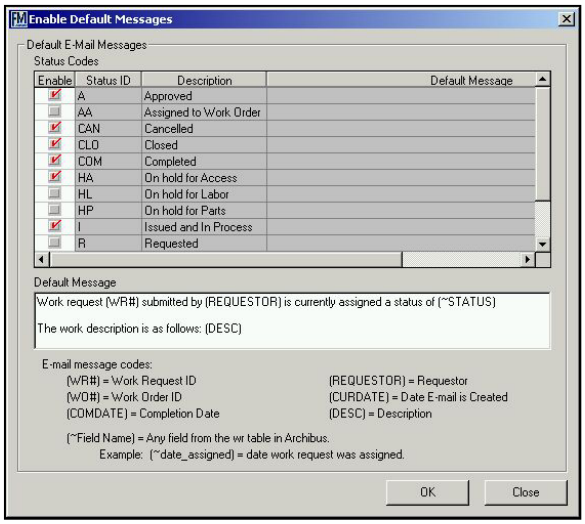
This keeps the requestor informed of the progress of the work -- which saves you time by not having to respond to phone or email inquiries. In addition, proactively informing your requestors of the status of their work will result in much happier ”customers.”

This feature can be fully controlled to conform to your needs by setting not only who gets notified but at what stages. It also allows the automatically generated emails to be optionally edited by your operator.



The system administrator has the option to set up the status codes (i.e. Requested, Approved, On-hold for Parts, Completed, etc.) that will generate an email -- as well as the message that will be sent corresponding to each status code.





You also have the option of updating the email message (customizing it “on the fly” for each individual work request, if needed) or simply sending an email to the requestor at anytime by right clicking on the work request in the Works Manager.

You can also simply send an “ad hoc” email at anytime from within Works Manager.

By turning *off* the “Allow email to be edited before it is sent,” emails can be sent “automatically” without any user interaction. The email notification feature of e-Works seamlessly integrates with your regular email system such as Microsoft Outlook, Lotus Notes, Novell GroupWise or any other system that is "MAPI” or “SMTP” compliant.

Users can have the option to send SMTP emails through the FM Works Server rather than their workstations when they are not allowed to relay them through the email server.

Different STMP servers can be assigned to each user so their mail can be routed to a local server based on their location.

PM Explorer

PM Explorer is a powerful and flexible platform for managing ANY aspect of your operation that involves pre-defined procedures that are performed at regularly scheduled intervals. It saves time and increases efficiency in day-to-day management of defined procedures, steps, and schedules and the generation of related Work Requests/Work Orders. The first and most common application of PM Explorer is for managing preventive maintenance of equipment -- and that is why it is called "PM" Explorer. However, there are other areas of operations management that use pre-defined procedures and a regular schedule for them to be performed. Therefore, PM Explorer now has three sub-modules as shown below:

PM Explorer - Equipment -- enables management of planned procedures and schedules for equipment assets. For example, preventive maintenance on air handlers, chillers, exhaust fans, etc.

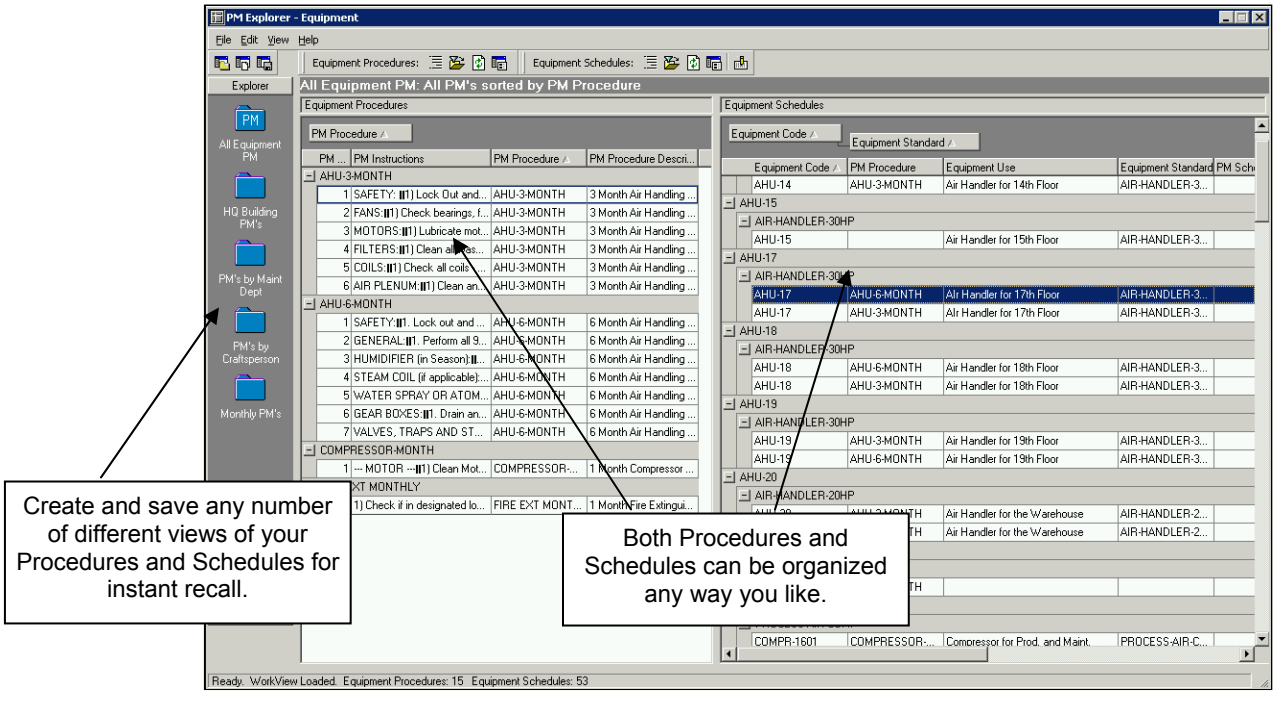
PM Explorer - Housekeeping -- enables management of planned procedures and schedules for rooms within buildings. For example, scheduled maintenance of floors, windows, walls, etc. within a room.

PM Explorer - Grounds -- enables management of planned procedures and schedules for assets that are exterior to buildings such as lawns, gardens, parking lots, roadways, sports venues, etc. For example, reseal parking lots every 2 years; perform weekly maintenance of lawns and surrounding outdoor areas of buildings; etc.

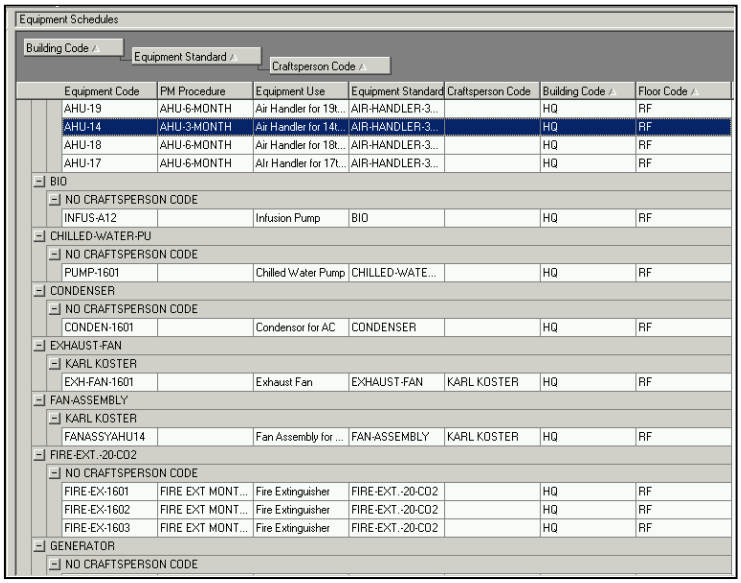
This section of the white paper focuses on the ***PM Explorer - Equipment*** *sub-module, but all of the features and functionality are also available in the Housekeeping and Grounds sub-modules.*

Managing PM Procedures and Schedules

The current version of PM Explorer uses a Windows Outlook/Explorer®-like interface that is very similar to Works Manager. With this interface, you can create, edit, and delete PM procedures and schedules quickly and easily. You can enter and then maintain your PM procedures by re-using either entire procedures or just certain steps or portions of procedures. This eliminates the need to re-enter common procedures and steps that apply to a variety of procedures.

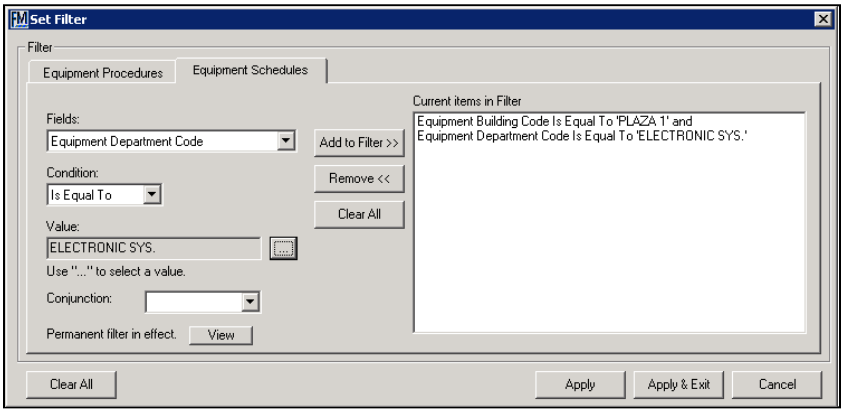


Using the drag & drop features of PM Explorer, it is easy to set up different views of both procedures and equipment. Shown below is an equipment view that is grouped first by building, then by equipment standard, and then by the craftsperson assigned to that equipment item.



Equipment Code	PM Procedure	Equipment Use	Equipment Standard	Craftsperson Code	Building Code	Floor Code
AHU-19	AHU-6-MONTH	Air Handler for 19t...	AIR-HANDLER-3...		HQ	RF
AHU-14	AHU-3-MONTH	Air Handler for 14t...	AIR-HANDLER-3...		HQ	RF
AHU-18	AHU-6-MONTH	Air Handler for 18t...	AIR-HANDLER-3...		HQ	RF
AHU-17	AHU-6-MONTH	Air Handler for 17t...	AIR-HANDLER-3...		HQ	RF
BIO						
NO CRAFTSPERSON CODE						
INFUS-A12		Infusion Pump	BIO		HQ	RF
CHILLED-WATER-PU						
NO CRAFTSPERSON CODE						
PUMP-1601		Chilled Water Pump	CHILLED-WATE...		HQ	RF
CONDENSER						
NO CRAFTSPERSON CODE						
CONDEN-1601		Condensor for AC	CONDENSER		HQ	RF
EXHAUST-FAN						
KARL KOSTER						
EXH-FAN-1601		Exhaust Fan	EXHAUST-FAN	KARL KOSTER	HQ	RF
FAN-ASSEMBLY						
KARL KOSTER						
FANASSYAHU14		Fan Assembly for ...	FAN-ASSEMBLY	KARL KOSTER	HQ	RF
FIRE-EXT.-20-CO2						
NO CRAFTSPERSON CODE						
FIRE-EX-1601	FIRE EXT MONT...	Fire Extinguisher	FIRE-EXT.-20-CO2		HQ	RF
FIRE-EX-1602	FIRE EXT MONT...	Fire Extinguisher	FIRE-EXT.-20-CO2		HQ	RF
FIRE-EX-1603	FIRE EXT MONT...	Fire Extinguisher	FIRE-EXT.-20-CO2		HQ	RF
GENERATOR						
NO CRAFTSPERSON CODE						

To help focus on specific areas, types of procedures or groups of equipment, PM Explorer has a filter tool (outlined in blue in the toolbar above and the dialog box below) that can be used to restrict the number of records displayed in the grid for both procedures and equipment based on the criteria that you specify.

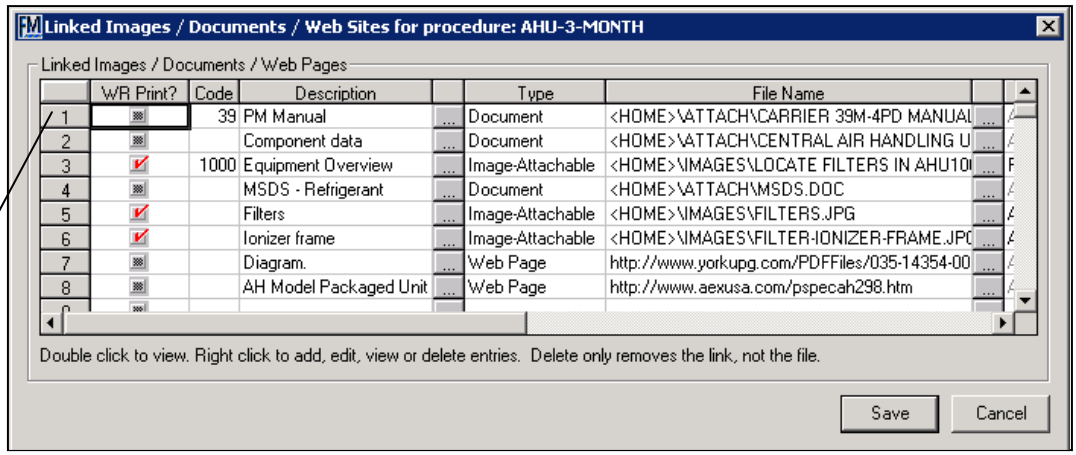


In the above example, the filter will restrict the display of equipment that is assigned to the ELECTRONIC SYS department in the PLAZA1 building.

A variety of filter criteria for both PM Procedures and Equipment can be applied in any combination to allow very effective "narrowing down" of the focus of the work required to set up and manage PM Procedures and Schedules.

Once defined, these filters can be saved as part of a WorkView for easy recall at any time.

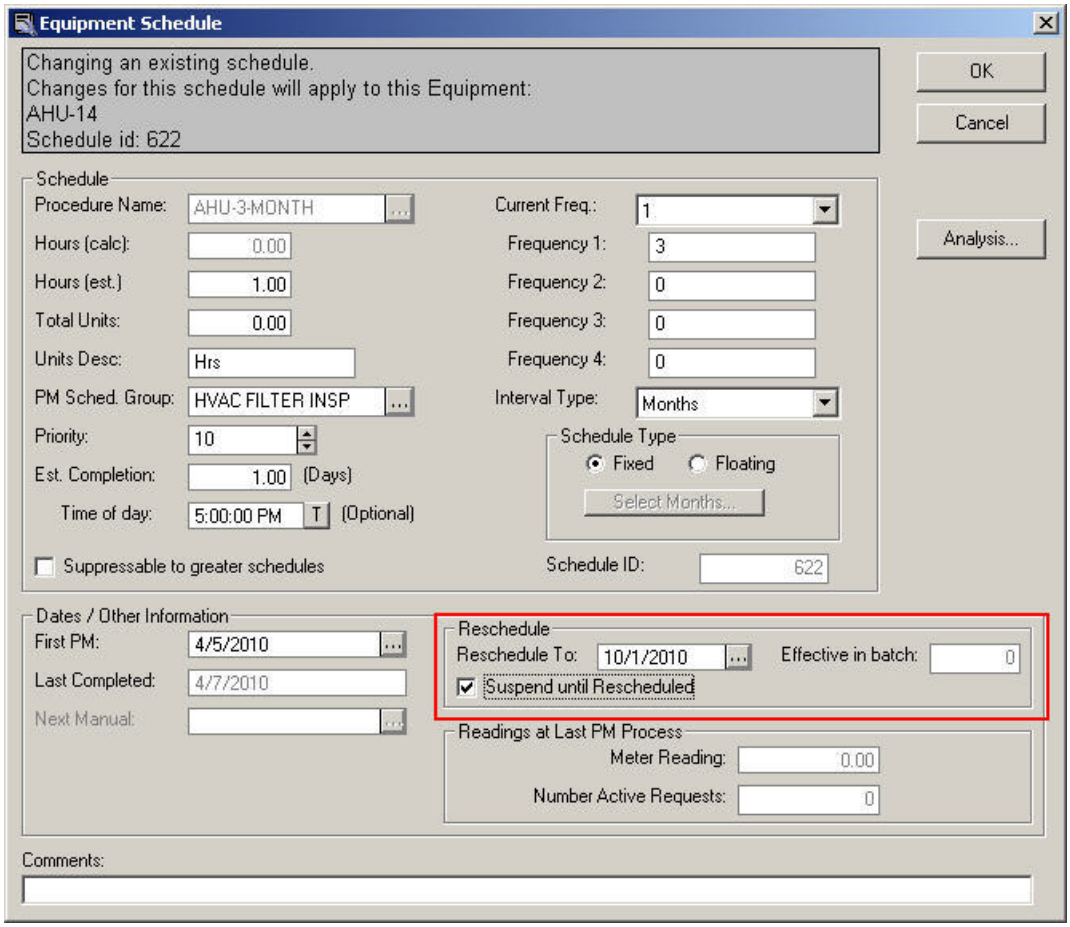
You can link and attach any digital image, document or URL to a PM procedure or equipment item. You can even specify web addresses such as a link to the manufacturer's web site. This allows manufacturer's spec books, maintenance manuals, etc. to be included as documentation. You can also specify whether or not to print the digital images on the PM Works Orders. The example below shows all the linked items available in the PM Explorer Linked Items dialog for the 3-Month Air Handler Procedure.



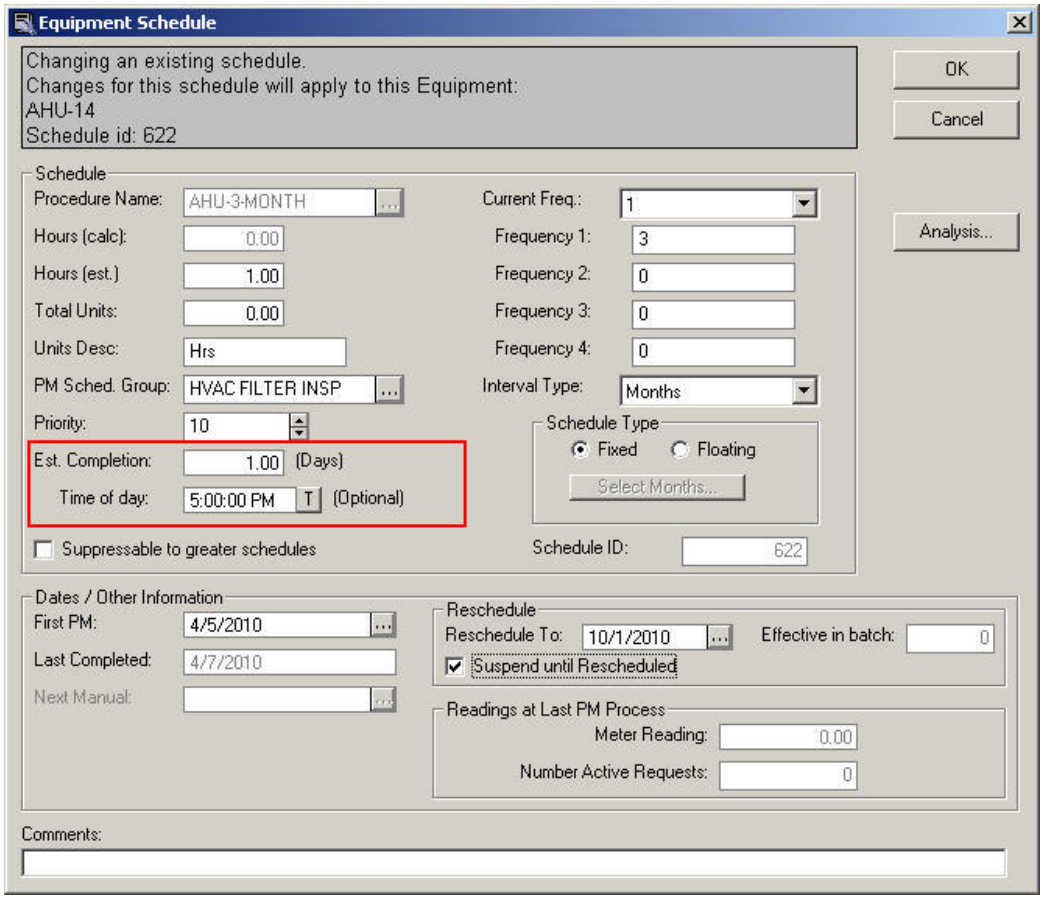
Simply double-clicking on a linked item launches the appropriate application to view the document. In this example, it is a PDF file for the Carrier Air Handler.

See the section later in this white paper titled "**Linking and Attaching Digital Items**" for more detailed information about this powerful capability.

Equipment Schedules are made by simply dragging a Procedure from its grid over to an Equipment item in its grid and dropping it. This can be done with multiple procedures being dropped on top of an entire group of equipment items. This is a very powerful capability because you can assign any number of procedures to any number of equipment items. For example, you could assign the monthly, quarterly, semi-annual and annual PM procedures to all the air handlers in building, or in the new wing, or whatever criteria you wish to use. Once you drop the procedure on the equipment item, an easy dialog is displayed where you can enter the schedule parameters.



It's easy and straightforward to reschedule a PM Schedule. Simply put the new future date that the PMs should start on and the PM Generation will start to base the schedules off that date. The batch number that was assigned when the change was made effective is also displayed. If the "Suppress until Reschedule" box is checked, no PMs for this schedule will be produced until the rescheduled date.

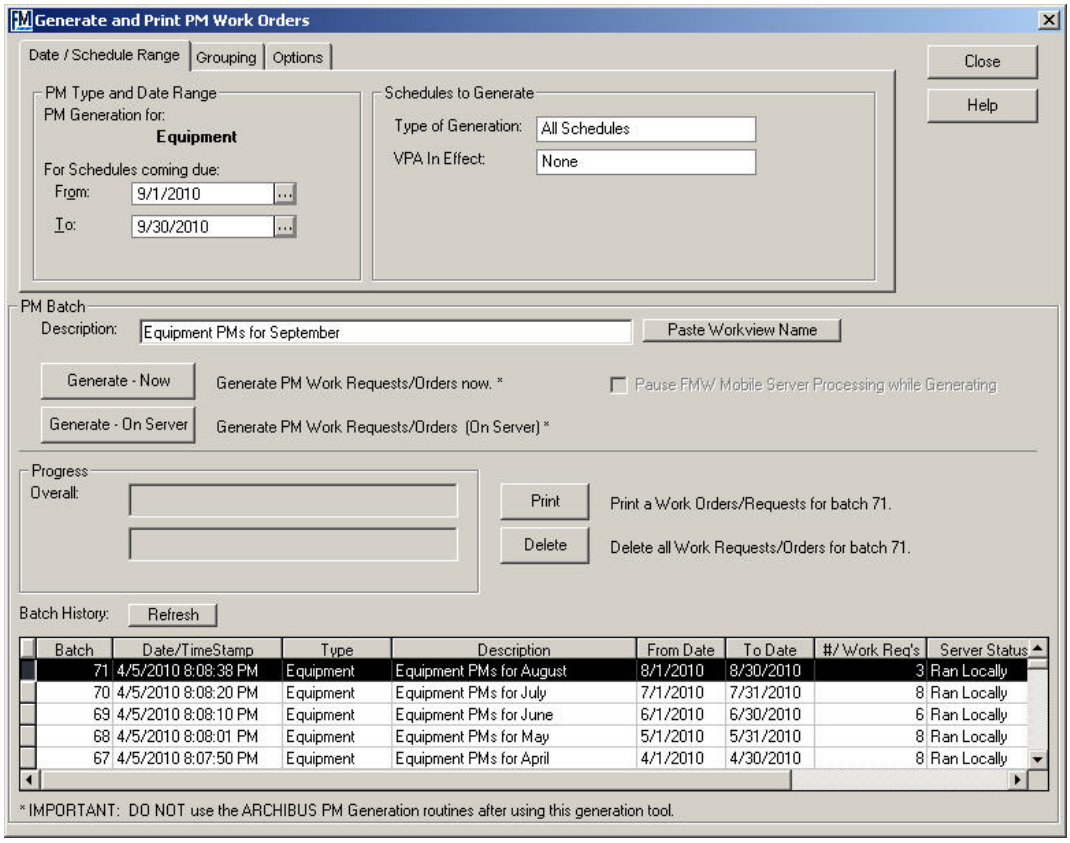


The Estimated Completion fields enable the user to have the Estimated Completion Date in the Work Request to be automatically calculated after a set number of days. The Time of Day can be automatically calculated or optionally set to a fixed time like “5:00 PM”

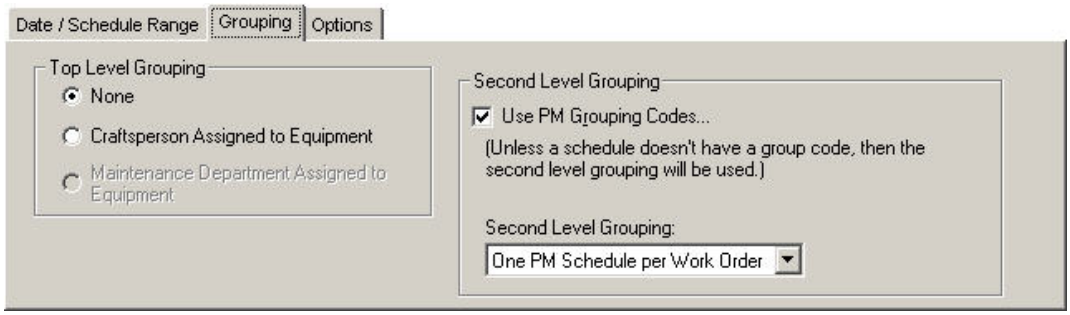
If a procedure is dragged and dropped onto a group of assets, such as Equipment Standard, the user has an option to preview which assets would be applied with the new schedule.

Generating PM Work Requests and Work Orders

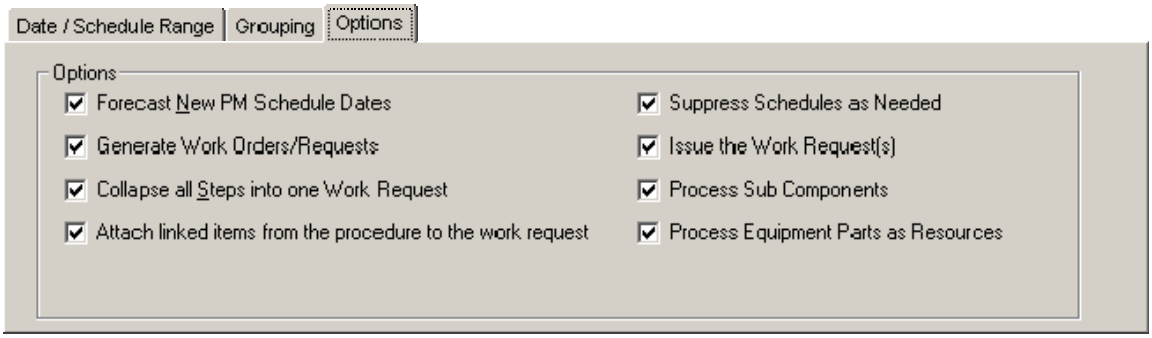
PM Explorer provides a powerful set of features for the generation of Work Requests and Work Orders based on the defined PM Procedures and Schedules. Once the PMs are generated, they can be further managed using the Works Manager and Work Order Express modules.



Grouping Tab:



Options Tab:

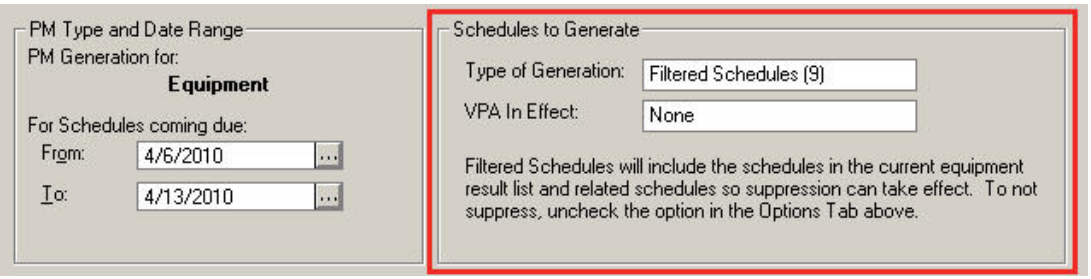


FM Works uses a very powerful and efficient method to generate PM work requests and work orders that is far superior to other methods available – thereby freeing up valuable time often spent waiting for the PM generation process to complete. FM Works also allows the user to choose effective date ranges in the past as well as to allow requests with completion dates that fall within in the current effective date range to process.

As shown in the screen shots, PM Generation is a logical step-by-step process. The common settings are found on the Date and Schedule Range tab. The other tabs contain advanced settings.

In addition, FM Works allows you to offload the PM generation process to a server which uses no local PC resources to be run at a scheduled time.

Each batch of generated PMs is tracked with a batch number so the entire batch can be easily recalled, re-run if necessary, and printed as a batch, etc.



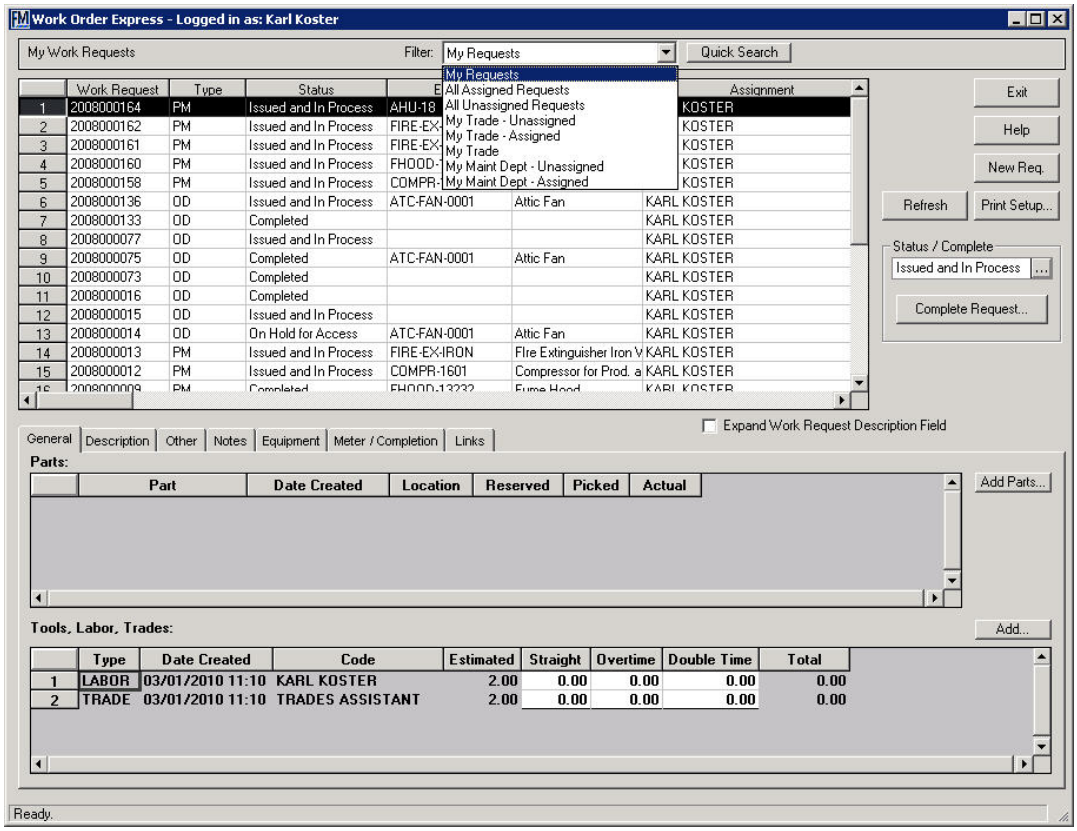
End-users can Generate PMs on the schedules shown in the results from a filtered WorkView. This allows almost limitless combinations of filtering of schedules for selective PM generation. When this feature is selected, the PM Generation screen will only generate the requests shown from the selected WorkView. The Number of schedules to be considered for generation are shown in parentheses in the “Type of Generation” box.

PM Generation has an option which creates parts resource records from the Equipment Parts table. Individual parts can be disabled from populating to the work request resources.

Custom printed work orders can be created for PMs vs. On Demand requests. This enables you to include additional equipment information, PM information and other information on the printed work order.

Work Order Express

Work Order Express increases your effectiveness in managing work orders and requests. As each maintenance worker logs in to "Work Order Express," the screen will display the work requests assigned to that person. You can be more efficient by allowing your workers to record their progress on work orders directly into FM Works themselves.



In addition to entering the status of a work request, the actual number of parts used or time clocked can be updated as well. Because Work Order Express limits access to a worker's assigned tasks, it improves accuracy and reduces the chance that one worker will close out or edit another's tickets. Maintenance workers can also add resources to a work request and add "other" (non-inventory items) such as ad-hoc purchased parts. There is a large Notes section for the maintenance worker to record the details.

The customizable Quick Search provides a method for the craftsperson to filter the requests shown in the grid.

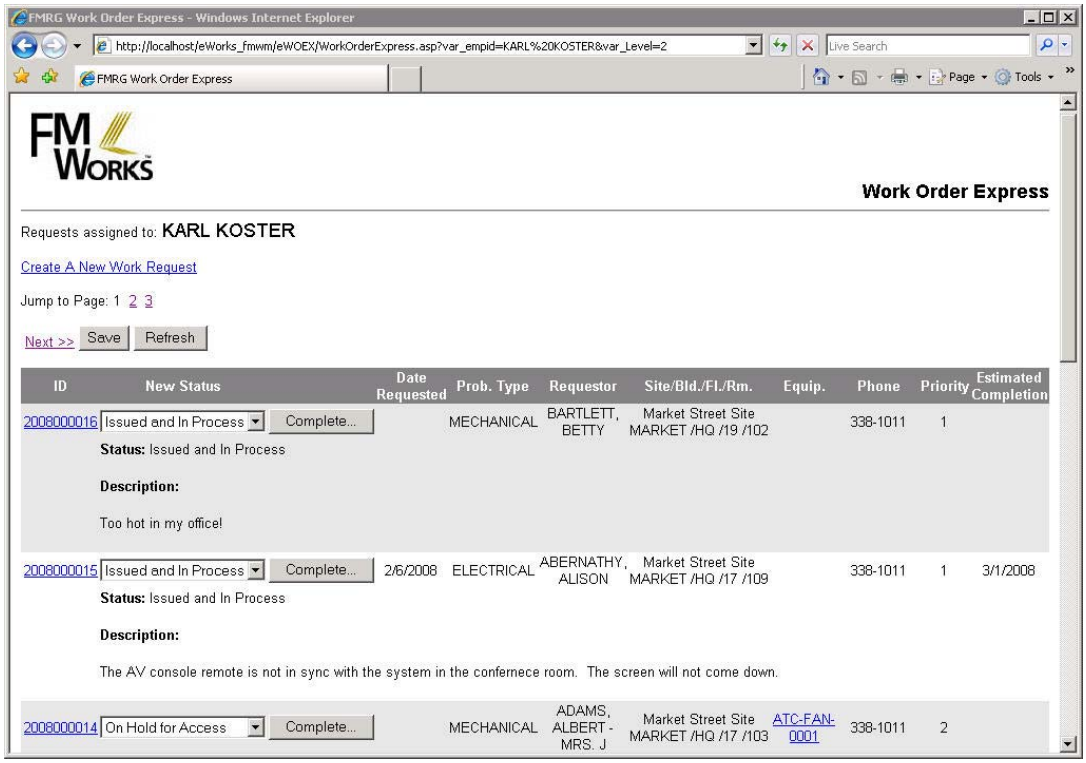
FM Works provides the option of allowing users of Work Order Express to filter the list of Work Requests to display all Requests that are assigned to the Primary Trade of the logged-in user.

Other request filtering options include the ability also to show:

- My Requests
- All Assigned or Unassigned Requests
- Assigned to My Trade – Assigned or Unassigned
- Assigned to My Maintenance Department – Assigned or Unassigned

These features provide the ability to allow craftspersons to self-assign and reassign work among themselves. The system administrator can set up any combination of these options or turn them all off, which only allows the default “My Requests” to be displayed.

Work Order Express now has an option that allows access to work request data over the web. This web-enabled interface operates similarly to the regular version of Work Order Express.



Just as in the regular Work Order Express, when the maintenance worker logs into the Web Based Work Order Express, the user is presented with a list of requests assigned to him or herself.

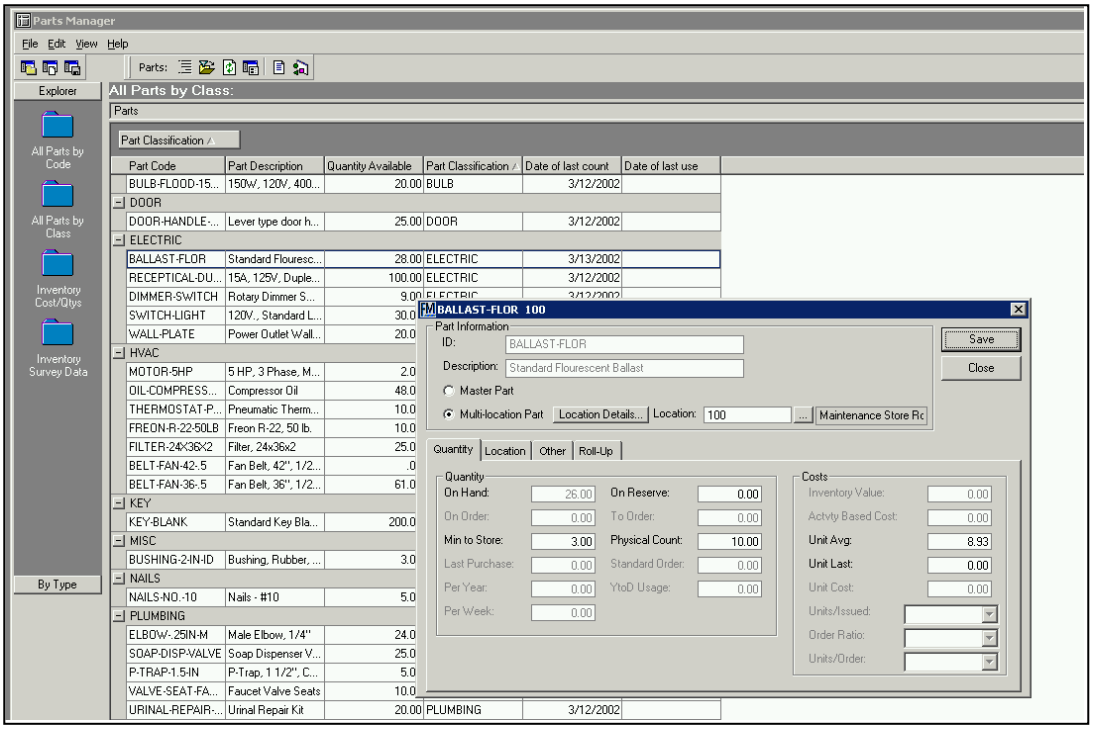
When the maintenance worker clicks on the work request link, the system displays the resource detail page which enables the user to update his/her work, add resources, leave comments, etc.

The web version of Work Order Express is intended to provide an easy-to-use, web-based method of accessing assigned work and quickly updating the status, resources, etc. Users may also create new requests from the web version. It does not have all of the features of the Windows version, but it plays an important role in enabling a variety of methods for work distribution and updating.

There is also an option that allows the craftsperson to add or change equipment to an on-demand work request. This is helpful if the dispatcher was not aware of an actual piece of equipment being in the system when the work request was created.

Parts Manager

Parts Manager allows you to effectively manage your parts inventory using a Windows Outlook/Explorer type of interface.

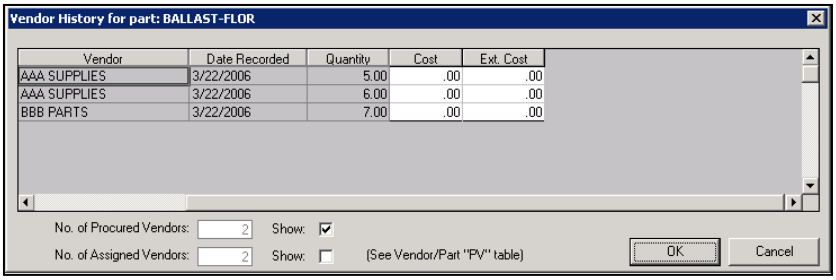


Parts Manager displays a list of all parts defined in the inventory, allowing you to see the "big picture" regarding quantities on hand, reserved, on order, etc. Just as in other FM Works modules, you can now easily organize the parts data using drag & drop, point & click methods. You can set up as many WorkViews of parts data as you wish and recall a view at the touch of a button. The screen shot above has the parts organized by primary classification, and the detail screen for the fluorescent ballast has been activated.

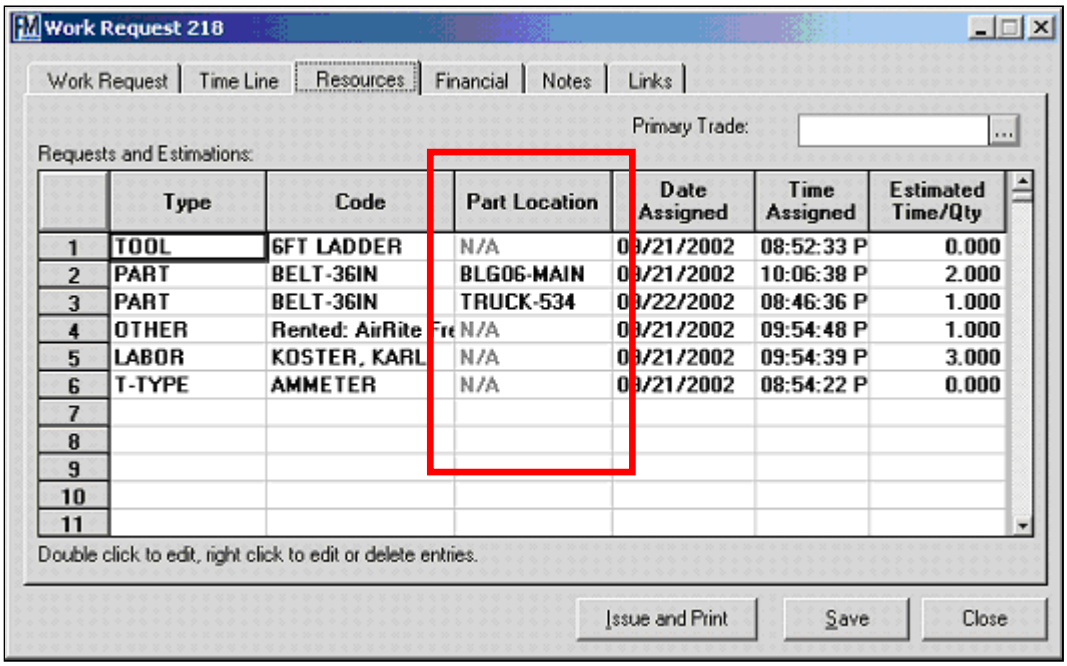
Parts Manager has a simple dialog to update newly received parts, make adjustments, and handle manual disbursements. This information is tracked in the same audit table that is found in ARCHIBUS.

Because FM Works allows multiple windows to be open simultaneously, you can easily move between Parts Manager, PM Explorer, and Works Manager to coordinate parts availability and information across all areas of your operations.

In FM Works, we have extended the functionality of the basic ARCHIBUS system to enable historical tracking of parts purchases from different vendors and to easily display the history in a summary screen as shown below.



FM Works also includes features that enable you to track a single part code stored at multiple locations -- along with the ability to assign non-inventoried parts (for *ad hoc* part use) and "other" resource usage, such as equipment rentals to work orders.



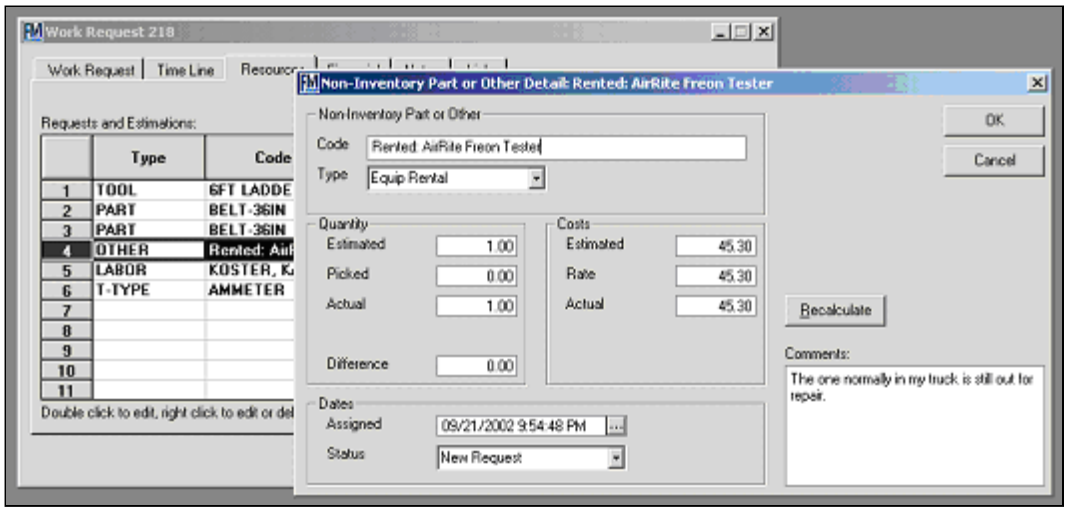
Taking a closer look at the Resources Tab in Works Manager, we can see that a single part was allocated from two different locations (rows 2 and 3). On Row 4, we see that a tool rental was also assigned to the work request. This "Other" entry could have also been a special "ad hoc" part, such as a uniquely ordered sink faucet, special paint, etc. All of the costs associated with these items are included in the cost roll-up to the linked Work Order.

The user can quickly see the quantities available at the various locations where the part is stored. For each location, the site, building, floor and room can be specified as well as the shelf and bin location.

This feature is built into FM Works but its usage is optional. If it is not enabled by your system administrator, then the parts inventory would just use a single storage location.

As stated earlier, this version of FM Works allows the user to track non-inventoried parts (for *ad hoc* part use) and "other" resource usage, such as equipment rentals.

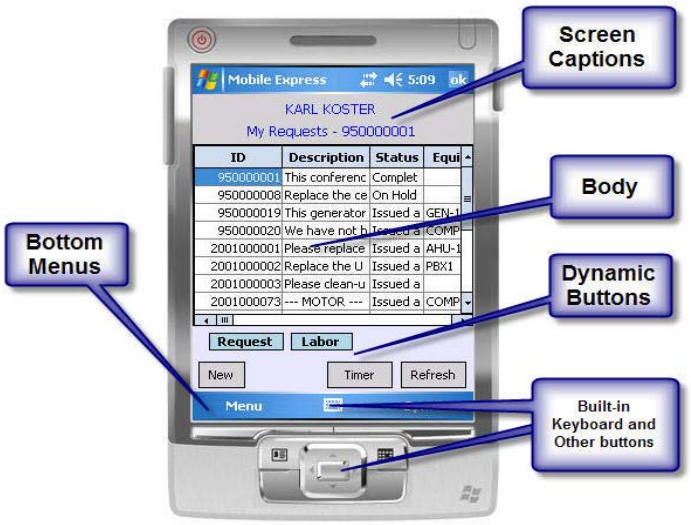
Back on the Resources Tab in Works Manager, when a user double-clicks on a row that contains an “Other” type of resource, the following detail screen is displayed:



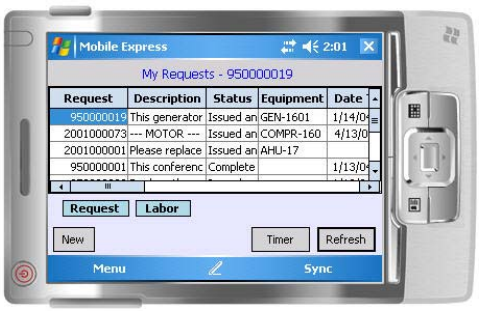
The “Code” field is a free type box where the user can put a short description of the special part, equipment rental, etc. The Quantity and costs are also tracked, as well as when the item was “assigned.”

FM WORKS MOBILE

Designed for Ease-of-Use -- The FM Works Mobile screen is designed for ease of use on a Handheld PDA/mobile device. As shown below, there are several important components to the basic screen design, with a focus on user friendliness and ease of use.



Both Portrait and Landscape Orientations – As part of this design for ease-of-use, FM Works Mobile is also designed to be used in either a traditional "portrait" (vertical) orientation as well as a "landscape" (horizontal) orientation as shown below. The orientation can be changed dynamically while the program is running so the user can select the orientation that best suits his needs.



Wireless Signal Strength Indicator -- If the user is working wirelessly, it's important to make sure you have a good wireless network connection to the server. When the PDA is in wireless mode, a WiFi indicator will automatically show in the screen captions to indicate the strength of the signal using various shades of red to green.

Mobile Work Express

Work Request Grid -- Using Mobile Work Express, a craftsperson can see all work requests where he or she has been assigned, view the detail, change the status, log his time, allocate parts and do all the functions necessary to see what needs to be done and report on its status and the resources used. The fields and their order in this grid may be changed by the system administrator.

The list of work requests will initially be sorted in descending order based on the Work Request Number. This puts the most recent Work Requests at the top of the list.

The user can easily re-sort the list on any column by simply tapping on the column header. The first tap sorts the list in ascending order based on the contents of the column. Tapping again reverses the sort order – i.e., if the list is currently in ascending order, tapping again on the same column reverses the list to descending order on that column.

This is very useful for organizing the work and being able to look at it in various ways. For example, by sorting the list on Equipment ID, you will see all work for each equipment item grouped together. Or, if you sort on Building, you will see all assigned work grouped together by building.

Unassigned Work can be configured to display in the **My Requests** screen along with requests assigned to you. There are various combinations of options that limit the unassigned feature to just show unassigned for your trade only or to see all of the unassigned requests.

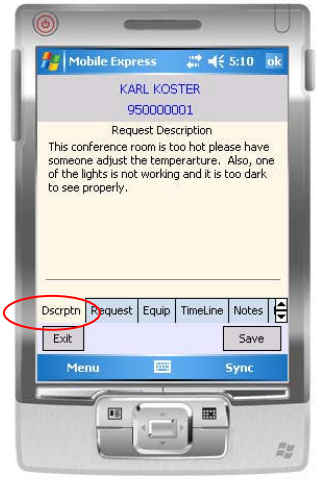
There is also an option to see all of the requests for a given trade, regardless of whom it's assigned to. Work can also be filtered per user by building, etc. This is handy in the case of a building manager needing to see work for a given building.

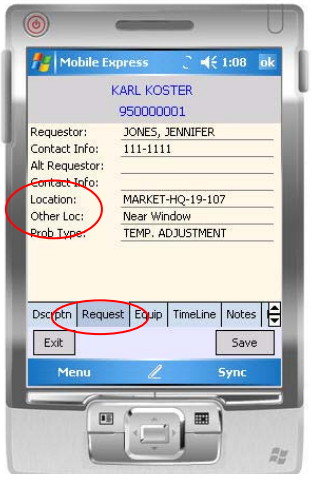
The columns shown in the grid is a customization by created by editing an XML template for the Work Order Express and the Asset Surveys.

You can also filter the requests on an asset tag or id, a serial number, a request number, or status code. By choosing Filter and either entering in the item or scanning the barcode, you can find the item you are searching for.

As an option, the filter simultaneously scans the Asset ID, Tag Number, Serial Number, Work Request or a status code. The grid is then filtered by the results of the search processed after the scan.

Work Request Details -- After selecting a Work Request in the grid, the user can drill down and see the details of the request in a tabbed interface similar to the Request in the Windows Works Manager and Work Order Express modules.





Work Timer -- The Work Timer screen allows the user to set up a stopwatch timer to track how long it takes to complete a task. The timer can be stopped and restarted as often as needed. The timer can track hours for today; and, if it is left to run, it will track time over any number of days.

If the timer is active, the screen may be closed and the timer will keep running. As a matter of fact, the timer will remain running even if you reboot the PDA, replace or change the battery, start and stop the program, etc. It will be interrupted if the program is uninstalled completely and reinstalled.

The Work Timer has an **automatic mode** that starts and stops the timer depending on the status code selected by the user. As the user goes into the work request details and

changes the status code, the timer will start, stop, restart and complete based on the status codes designated for this feature. The system maintains a separate automatic timer for each work request, so multiple work requests can be in progress; and the time is tracked for each one separately.

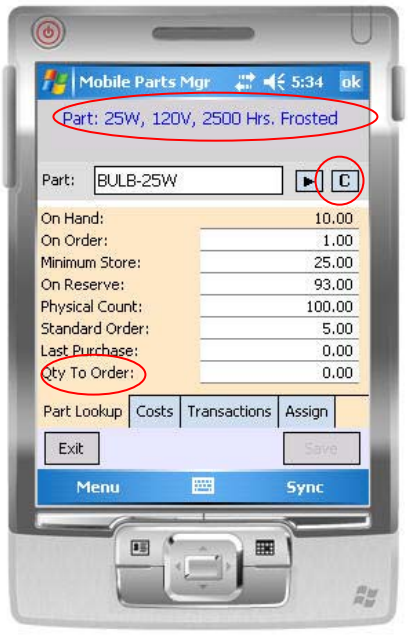
For example, changing the status to "Working On" starts (or restarts) the timer; changing the status to "On Hold" would stop the timer.

When the status code is changed to “Complete,” the total time will also be copied to the Labor entry as regular hours.

Labor (Craftspeople), Parts and Other resources can be managed on the handheld by tapping ***Resources*** from the main menu. This allows users to add craftspeople, parts and other expenses to the request at anytime while in the field. All of these options are configurable so if a certain resource is not needed, it will not show on the handheld.

Mobile Parts Manager

The FM Mobile Parts Manager allows you to effectively manage your spare parts and supplies in your parts inventory using a handheld device. It functions similarly to the Parts Manager module.



Placing the cursor in the "Part" field will enable you to either tap in the part code or scan it in if your handheld has a bar code scanner. Tapping the Blue ***Go ">"*** button will check the entry against the parts database to see if the part exists. If the part exists, then the parts detail will be presented.

There is a separate tab that enables the user to perform parts inventory transactions manually just as in the Parts Manager module.

The only difference is that these transactions will not be reflected in the main database until the PDA has been synchronized, the transactions processed, and the results updated to the PDA on the subsequent synchronizations.

The Transactions screen allows you to manually change/update current inventory in the Mobile Parts Manager. The Manual Parts Inventory Transactions screen allows you to manually update physical inventory. A part code can be selected and you may indicate a quantity that may have been added or newly received, disbursed manually, or returned back unused.

By tapping on the Assign tab, the user can also enter or scan a work request number and assign this part to a work request. Again, the transaction has to be synced and processed before the inventory and work request database is updated.

The user can indicate the quantity picked and/or actually used.

All changes to the data made in the Mobile Parts Manager can be reviewed on the PDA and deleted before the data is synced back to the server for processing.

Mobile Asset Surveys

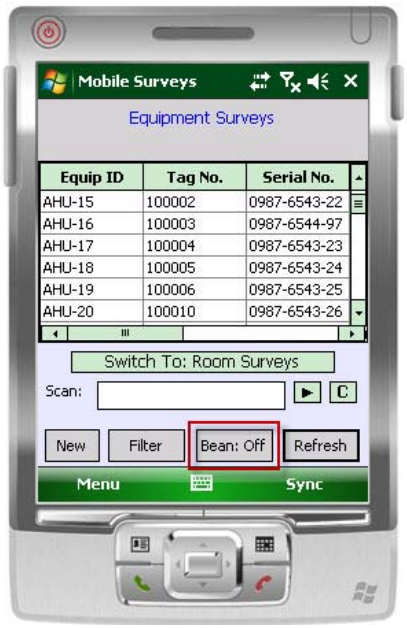
The Asset Survey module allows you to download your equipment, rooms inventory or other asset types to the handheld so it can be field verified, updated, etc. You can also add new assets as it is discovered in the field.

Once the asset is entered or updated and synchronized, the Handheld will transfer the information back to the ARCHIBUS database. The screen used to edit the asset details is customizable by an XML template.

The Filtering tool enables the asset to be filtered as it is scanned and allows default data to be added for new asset.

For example in an equipment survey, this allows for repetitive information, such as the building that the surveyor is working in or the equipment type, to be automatically copied into the new equipment item.

An asset item can be duplicated with a new asset ID by using the “Save As” function.



"Bean Counting" allows you to quickly survey and count asset items in the Asset Survey module by simply scanning barcodes. The asset records in the database will then show the date and time saved without the handheld user needing to even open an entry screen.

The Bean Count feature with the location enabled allows for the location info found in the filter to be updated on the fly when the item is bean counted without the need to select Edit to add the location information. The location info is ignored as search criteria when searching in this mode. It is activated by clicking on the **Bean** button.

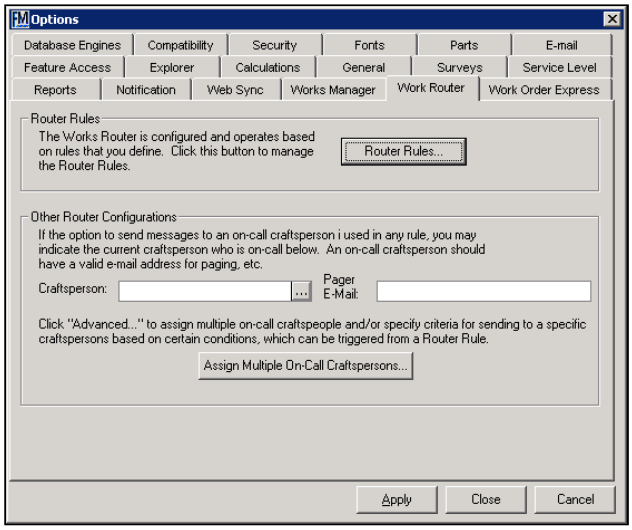
SYSTEM-WIDE CAPABILITIES

e-Works

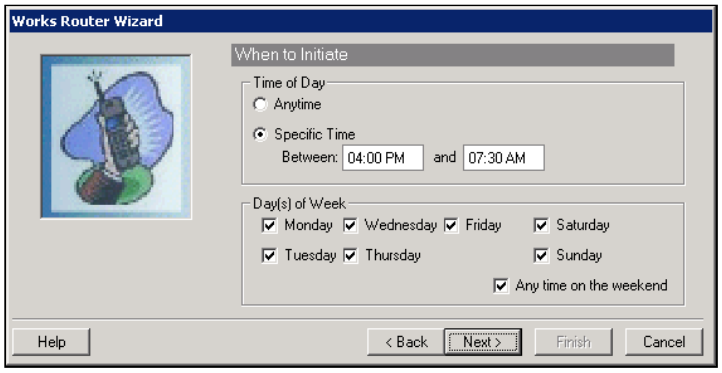
The **e-Works** component of FM Works saves time and increases efficiency in maintenance management by automating both the submission of work requests and the notification via email of changes in the status of work requests and work orders. Its features were covered in detail previously in this white paper.

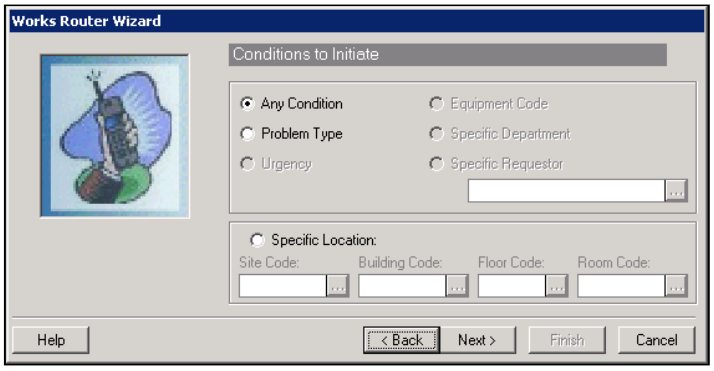
Work Router

Work Router automatically routes notifications, work assignments, updates and other information via email, hand-held or wireless/mobile technology to the appropriate parties. The current version focuses on notification of emergency or urgent situations to designated "on call" craftsperson's, but it also has certain features for general assignment and dispatch of work that arrives via e-Works.

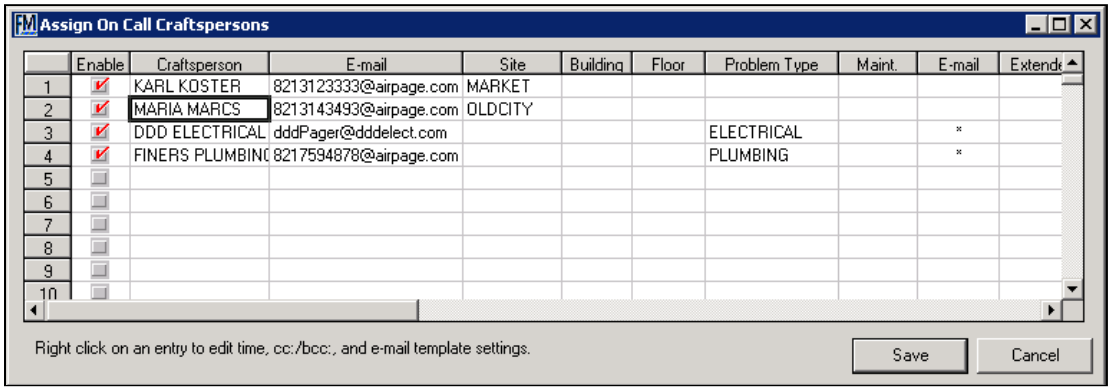


Work Router provides a user-friendly method of defining the business rules by means of a step-by-step "Rules Wizard" and an associated grid to define multiple assignment options based on problem location, time of day, day of week, type of problem, etc. The screen shots below show just two of the simple Rules Wizard screens.

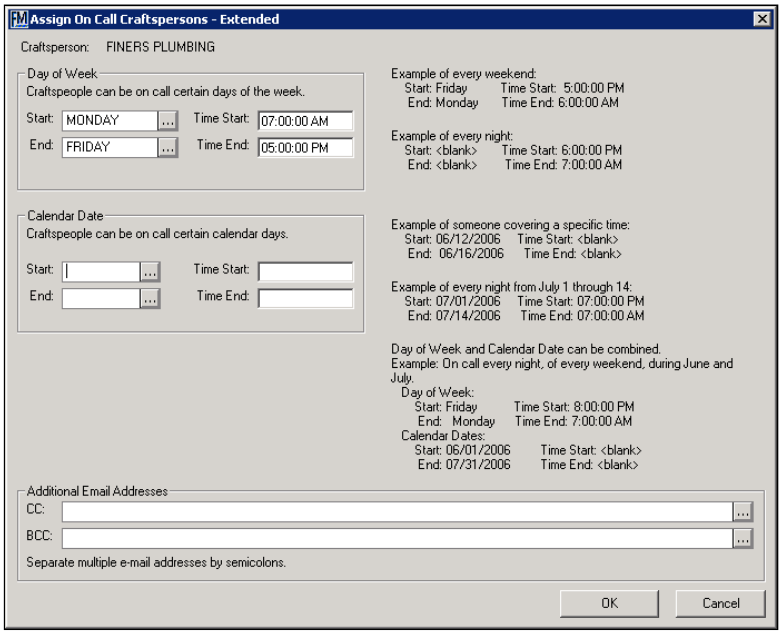




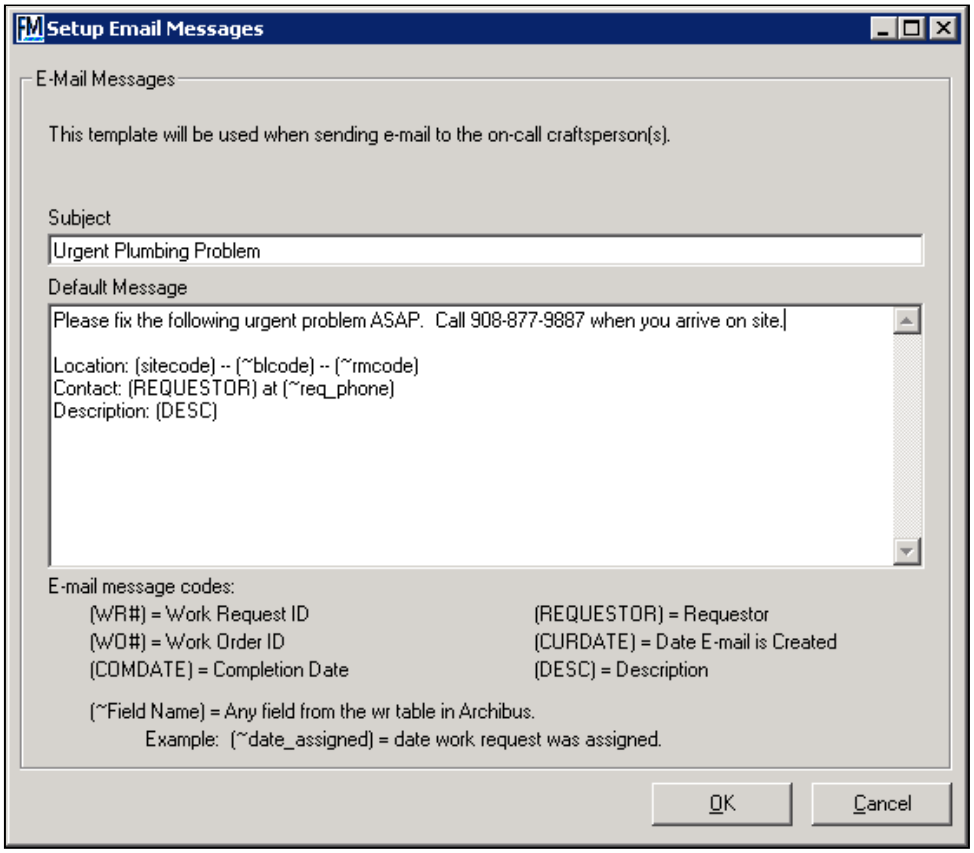
The rules are easy to expand to multiple level assignments by means of a simple grid that allows you to define a wide variety of criteria including: Site, Building, Floor, and Problem Type.



Each line in the grid can have an extended definition that provides very precise control over dates and times when that resource is to be notified of an urgent situation or assigned to a Work Request. Note that “craftspersons” can also include contractors.



Each line in the grid can also have its own template for the message to be routed to the on-call craftsperson or assigned resource. The template is easy to set up with a combination of fixed text and variable values inserted into the text as shown below.



Work Router today focuses on emergency or urgent notification to on-call craftspersons and also has certain features for general assignment and dispatch of work that arrives via e-Works. It is being continuously expanded and improved to enable a wide variety of automated processes across all operational areas.

Automated Customer Satisfaction Survey

Directly integrated within FM Works, the Automated Customer Satisfaction Survey (ACSS) component provides a powerful, user-friendly interface combined with automated communications, documentation, and management capabilities to enable users to easily obtain customer satisfaction ratings and comments.

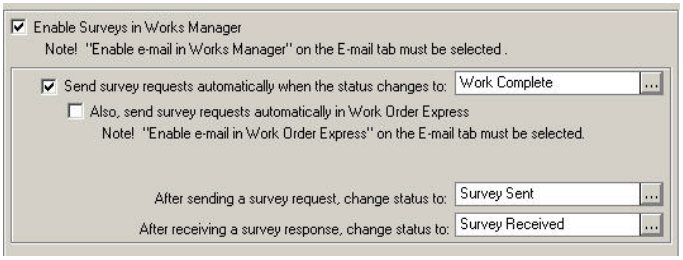
- Surveys may be automatically sent for all work requests or to selected individual recipients.
- New status codes are automatically maintained by the system to enable easy tracking and management of the process.
- Email survey templates are easy to set up and maintain.
- The web form provides for easy modification/customization. The web page is in standard HTML and ASP code, so it can be modified by the system administrator.
- Survey results appear on a work request tab in Works Manager.

Some new *optional* status codes are added to enable tracking and management of surveys.

Work Complete – This status code indicates that the work has been completed by the craftsperson, but the WR may still need further management review to be sure all costs are captured, survey results have been entered, etc. The “Work Complete” code should be distinguished from the more comprehensive ARCHIBUS status of “Complete,” which means that all required data is in the WR, it has been verified (if that is part of the internal process) and is ready for “Close Out” – i.e. ready to be moved to the historical file.

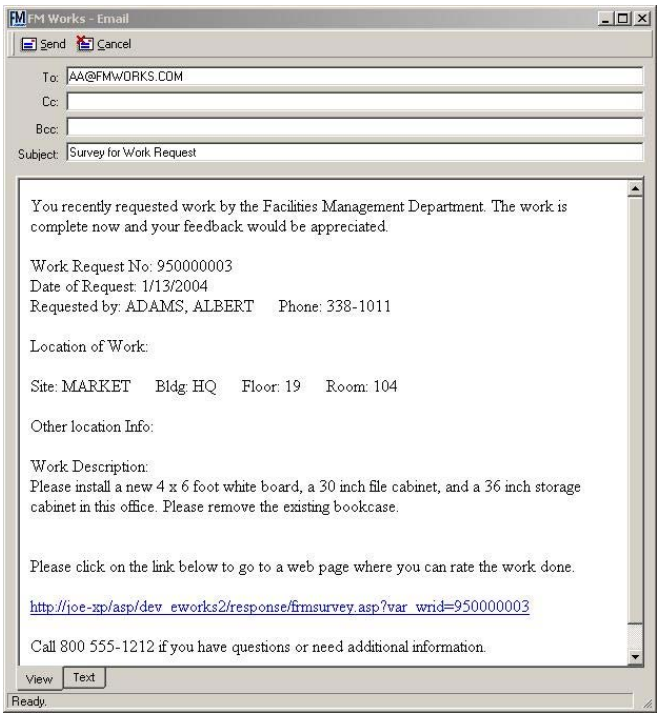
Survey Sent – Indicates that a customer survey request has been sent to the requestor.

Survey Received – Indicates that the requestor has completed the survey.

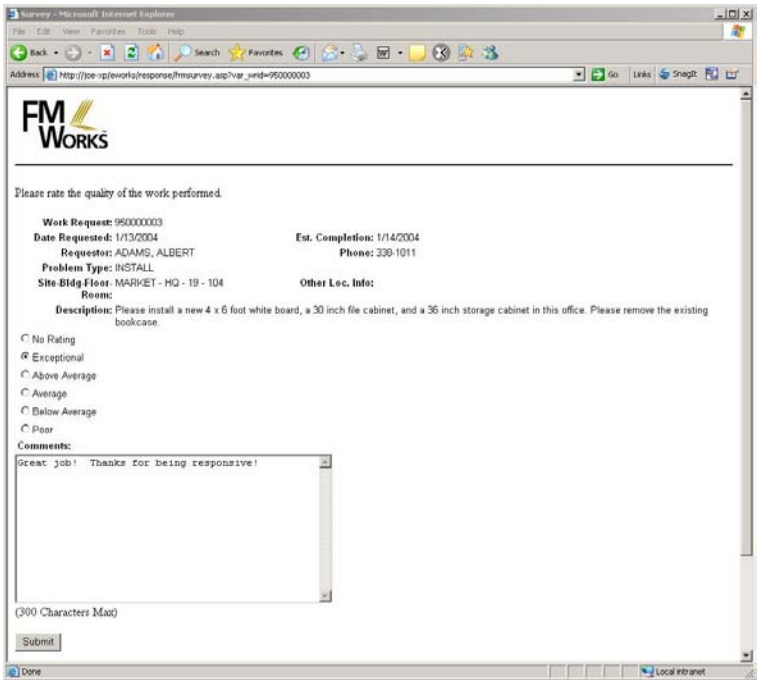


When a Work Request is changed to the designated status code e.g. “Work Complete,” an email is created. When a WR is selected for survey (either automatically or manually), an email is sent to the requestor informing them that the work has been completed and the FM department is interested in their level of satisfaction and any comments they may

have. This action automatically assigns a status of “Survey Sent” and is recorded in the database.

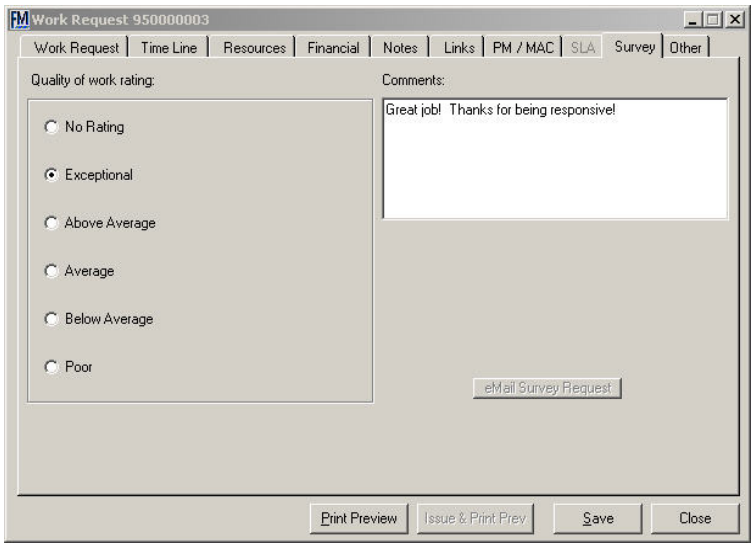


The survey email to the requestor contains a summary of the WR and a link to a web page where the WR is also summarized and the survey questions appear.



Once the requestor fills in the survey information, they then press the **Submit** button on the web form which automatically updates the survey fields with the survey data in the core database and changes the status to “Survey Received,” the status code selected for completed surveys.

The results will then show on the **Survey** tab on the Work Request in Works Manager and also be available for analysis and reporting via ARCHIBUS.



Because of the different status codes that get automatically set, it is easy to use Works Manager's saved view capabilities to set up views of Work Requests in each status and then manage the surveys received from the Works Manager interface.

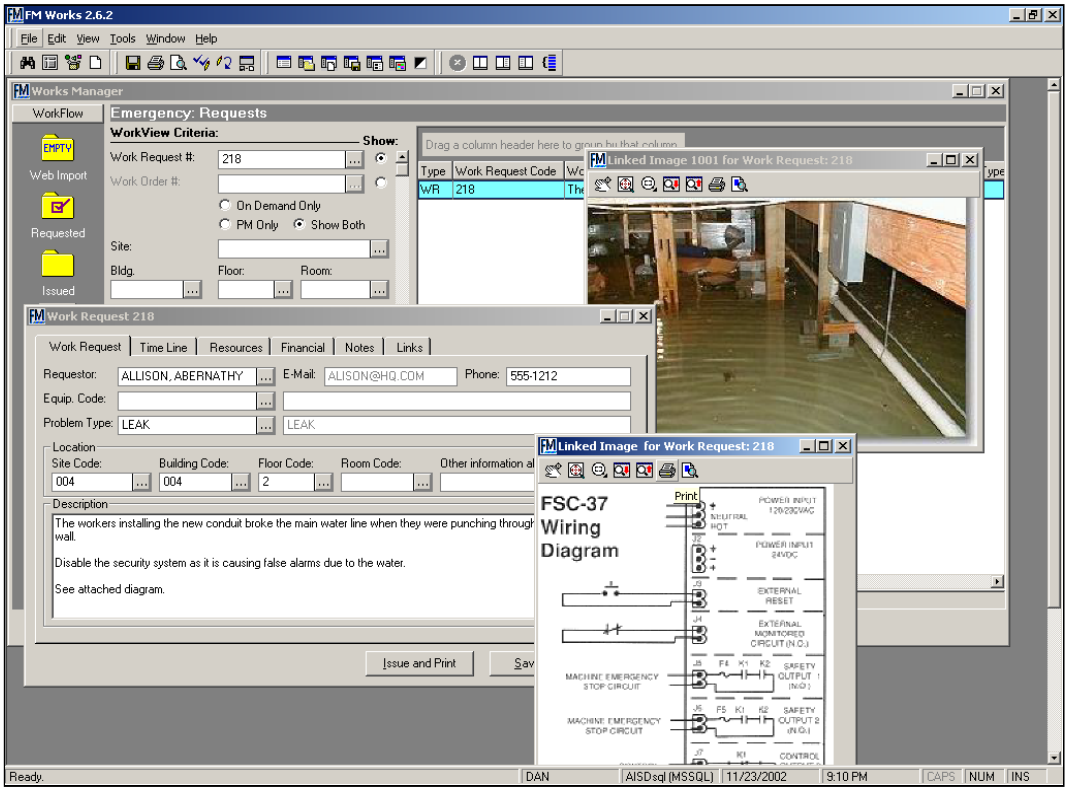
Note: Currently FM Works only supports the standard ARCHIBUS survey data for the overall level of satisfaction of a requester and any comments they wish to make. Future versions will enable the user to define more extensive survey questions.

LINKING AND ATTACHING DIGITAL ITEMS

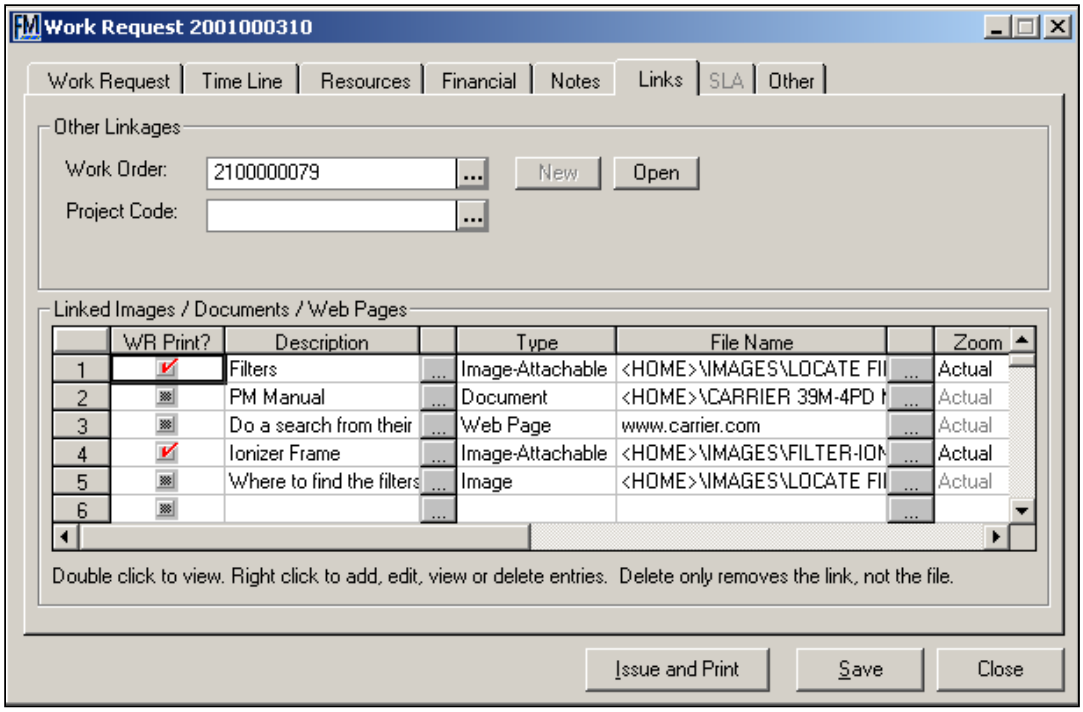
FM Works includes a powerful feature that enables you to link and attach any number of digital items to Work Requests, associated Work Orders, PM Procedures and Equipment. Examples include: photos of the work area or problem, AutoCAD drawings, diagrams, copies of purchase orders, scanned documents, PM procedures from the manufacturer, actual documents (e.g. MS Word or Adobe Acrobat (PDF) files), links to web pages, etc. The screen below shows how these items can be viewed within FM Works using the built-in viewer while showing other images and work requests.

There is a pop-up version of this screen that is available in PM Explorer (so items can be linked to a PM Procedure and to Equipment) and in non-web Work Order Express (so items can be viewed by the Craftspeople).

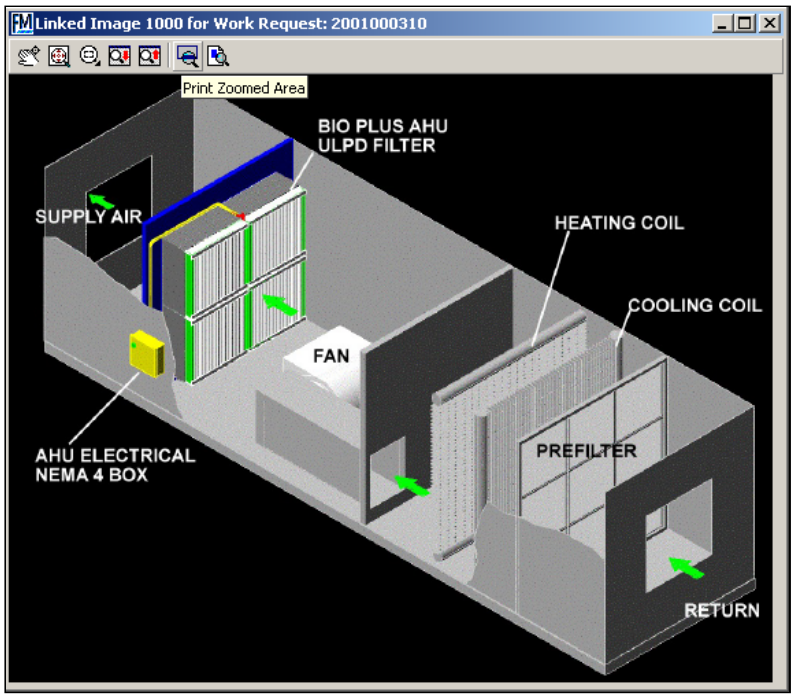
Below is a screen shot of Works Manager showing the FM Works Image Viewer. The PM Explorer and Express users will only see the grid.

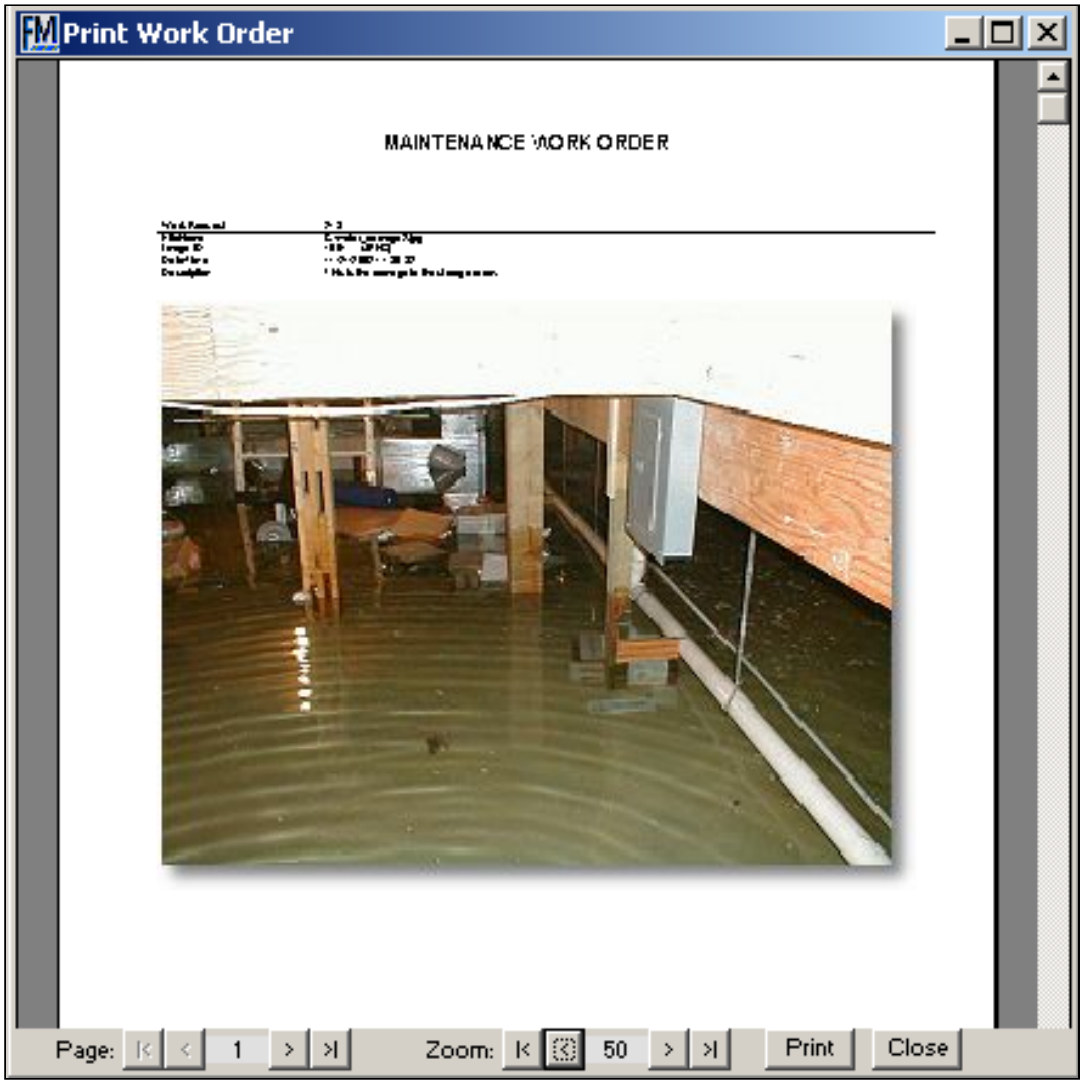


Once the items are linked to the work request or PM procedure, certain images can be viewed using the FM Works Viewer and can be optionally attached and printed with the Work Request (see summary below). There can be any number of linked items and you have full control over which linked images will be attached to the printed Work Request/Work Order.



Here are two examples of an attached image. Information from the grid on the Links tab is summarized at the top of the page.





It is easy to attach images to a printed Work Request. Works Manager has a special grid on the “Links” tab that enables you to specify a numerical code, the location of the image file, and a description. If the item is a .JPG, .BMP, or .PDF, check the box under the column heading "WR Print" to "attach it" to the Printed Work Order.

The zoom can be set ahead of time to print the image in its original size, zoom it to a factor (such as twice its normal size), or specify that it fit to the width of the page. You can specify which images or PDFs to actually attach to the printed Work Order by checking the "WR Print" check box. In addition, a separate pop-up window enables a lengthy caption or description to be entered that will be printed with the image.

Double clicking on the row header opens the default viewer that enables you to pan and zoom (and print only the zoomed-in areas). There is an icon to print the image to fit a full sheet of paper or preview the image(s) as attachments to a printed Work Request.

Also, in the Print Setup, you can Un-check "Print Work Order" to only get the attachments and not the body of the work order. This is handy if you are using a Crystal Report for your actual printed work order.

POWERFUL REPORTING AND FORMS CUSTOMIZATION

FM Works has a built in tool that can produce a sub-set of the report “views” that you find in the ARCHIBUS Enterprise Windows version. FM Works also supports Crystal Reports™. These are often referred to as the “fixed format” reports found in ARCHIBUS.

More specifically for work orders, users can either use the built-in work order that comes with FM Works or develop their own work order using Crystal Reports™ and then indicate to FM Works to use the custom format.

Custom work orders/requests created in Crystal Reports can be linked to FM Works to generate even more specific, specialized reports for your organization.

RELIABLE AND FLEXIBLE SECURITY CONTROL

FM Works uses the security features and data as ARCHIBUS (user and group level). If the security features in ARCHIBUS are enabled, FM Works will also require a security login. The same user and group tables found in ARCHIBUS are used by FM Works.

FM Works also has an option to have security turned on *even if security is turned off* in ARCHIBUS. This allows the use of Work Order Express, by providing a login for the maintenance workers. As described earlier, maintenance workers can be identified in the ARCHIBUS user table. This allows the system administrator to set up the security so that when a maintenance worker logs-in, he/she will only then have access to the Work Order Express component of FM Works.

Also, by using the ARCHIBUS groups, users can be blocked from accessing various modules, features and components.

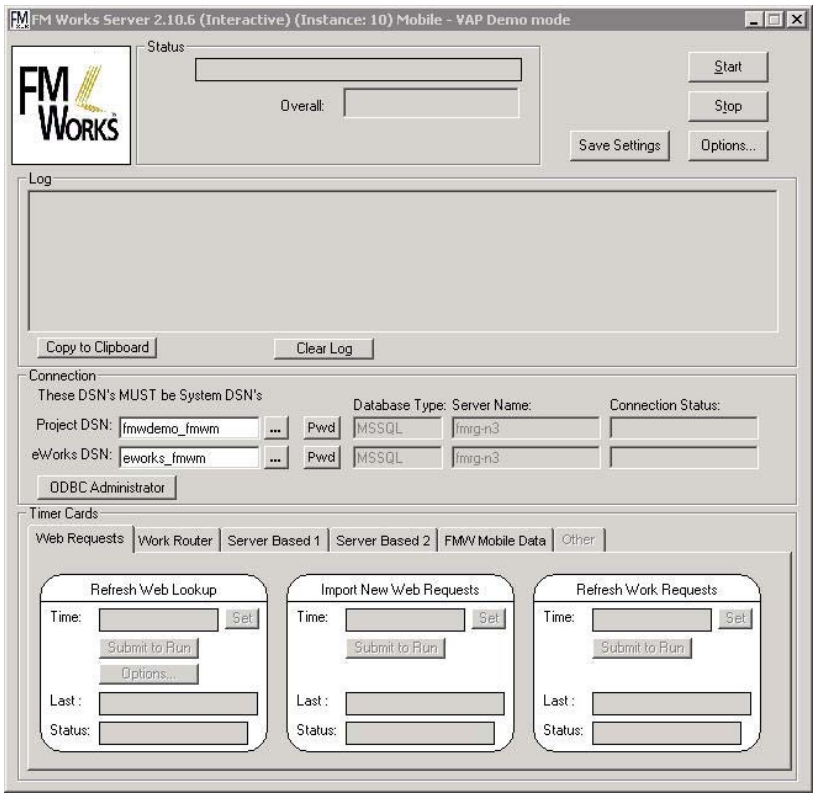
Users can change their passwords from within Works Manager. Passwords can also be encrypted.

FM Works also supports integrated logins, which can automatically log the user into the program.

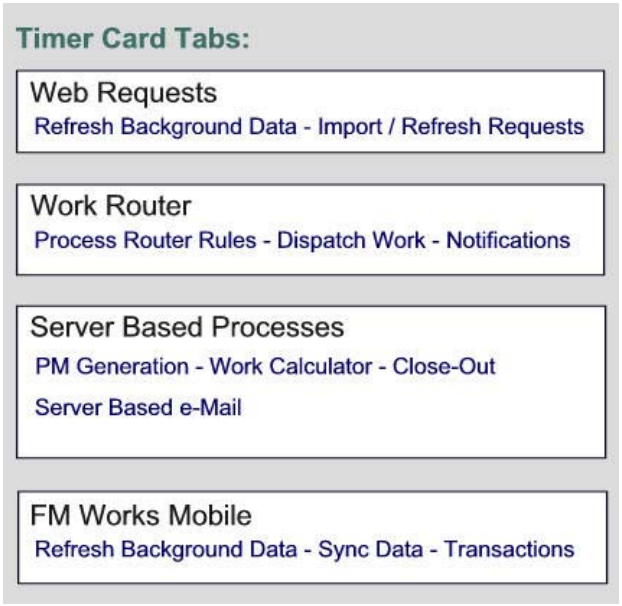
FM WORKS SERVER – THE "MIDDLEWARE" THAT PULLS IT ALL TOGETHER

FM Works Server is a powerful interface program that transfers data to and from the web to the FM Works/ARCHIBUS database. Since the data for e-Works resides in a separate database on the web server, the data must be transferred or synchronized. This doesn't apply to the Web-based Work Order Express as it connects directly to the ARCHIBUS database.

NOTE: FM Works Server is a software program that synchronizes and controls various aspects of the FM Works system. It is NOT necessary for FM Works Server to have its own physical server. It can easily run on the same server as the database or any available application server in the customer's Information Technology infrastructure.



By setting the Timer Cards, FM Works Server allows you to set the time intervals to process the server based functions. These are grouped on various tabs containing the various Timer Cards:



The FM Works Server can reside on a variety of hardware platforms: Microsoft Windows 2003 or 2008 Server. There can be multiple instances of FM Works Server to spread "the load" over multiple PDA groups.

FM Works Server has the ability by default to run in the background as a Windows Server Service or interactively (for administrator use) as shown in the above screen. The server contains special features that allow errors to be logged to the Windows Server Application log and is generally auto-restartable in the Service Manager.

UPGRADING YOUR ARCHIBUS DATABASE FOR FM WORKS

Upgrading your ARCHIBUS database for FM Works is an easy automated process.

FM Works supports all of the database platforms deployed with the current version of ARCHIBUS.

Because of all the innovative features in FM Works, we have added some tables and fields to the ARCHIBUS database.

In addition, the distribution CD for the FM Works software also contains an updated ARCHIBUS test database (the “HQ” project) that has been modified with the FM Works schema changes without the need to run the FM Works Remote Schema Tool.

This database allows users to evaluate the FM Works system without touching their own database. There are example databases for Sybase and Microsoft SQL Server provided on the CD.

To make your ARCHIBUS database compatible with FM Works, FMRG has developed a special utility called Remote Schema Tool. This handy utility updates your ARCHIBUS or e-Works physical database, and updates the Table of Tables, and Table of Fields with necessary schema changes.

A STRONG AND ENDURING COMMITMENT TO THE ARCHIBUS PLATFORM

The Facilities Management Resource Group (FMRG), the developer of FM Works, has been an ARCHIBUS business partner since 1997 and a proud member of the ARCHIBUS DEVELOPERS NETWORK (ADN) since its inception. FMRG is a founding member of the ADN and is a member of the ADN Advisory Council.

FM Works is listed by ARCHIBUS® as an ADN product, and FMRG was awarded the ADN Developer and Customer Support of the Year awards for FM Works.

In designing FM Works, we have maintained compatibility with ARCHIBUS; and we have continuously updated and maintained FM Works across all versions of ARCHIBUS starting with Version 11.

THE FUTURE OF FM WORKS

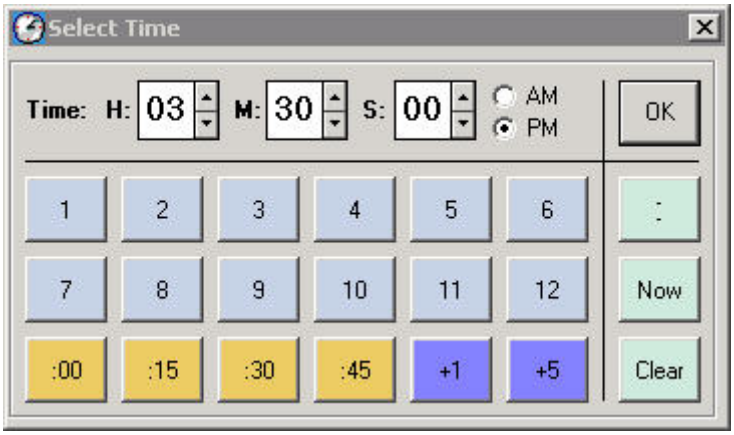
FM Works has been continuously upgraded, expanded and improved since its introduction. Most new features have been suggested by our customers, and we have listened. Our overall vision for FM Works is for it to become an even more powerful, fully-featured, stand-alone Computerized Maintenance Management System (CMMS) but still operating seamlessly with ARCHIBUS.

By choosing FM Works today, you not only implement the most powerful CMMS system, you also establish a platform for continued upgrade and improvement as new features and capabilities are added to FM Works in the future. FM Works is a sound investment in the best technology available today; and it also assures that your future CMMS capabilities will always be the most modern, efficient, and productive. And all this at a cost that is less than any other solution available.

I HAVE AN IDEA!

FMRG has its "ears" to its customers -- listening for ways to make this innovative product even better. We plan to continue to maintain this close relationship in order to constantly make FM Works a better product. We always welcome suggestions and comments.

As an example, in many Windows programs, entering time values is often a difficult and frustrating keyboard and mouse gymnastics exercise. To solve this problem, we've created a simple pop-up window that allows the user to easily and quickly click in the time, based on a "PDA Like" screen.



We are always looking for ways to make the program even easier to use!

Either call us toll free at (800) 942-8293 or send email to support@fmworks.com

WHERE CAN I LEARN MORE?

The www.fmworks.com and support.fmworks.com web sites provide news and information, downloads, patches, etc. for end-users, prospective end-users and resellers. Access to the support website content is limited by maintenance agreements, reseller coverage, etc.

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ARCHIBUS®, ARCHIBUS® Web Central, ARCHIBUS® Enterprise, ARCHIBUS® Building Operations Module -- ARCHIBUS Inc.

Microsoft Windows Explorer, Microsoft Outlook, Microsoft SQL Server -- Microsoft Corporation

FM Works, PM Explorer, Works Manager, Work Order Express, Parts Manager, e-Work, Work Router – Facilities Management Resource Group

Sybase SQL Anywhere, Sybase Adaptive Server Anywhere -- Sybase, Inc.

Oracle -- Oracle Corporation

Crystal Reports – SAP Crystal Solutions

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