# Team: Equipment

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Clinical Engineering is about providing comprehensive life cycle asset management. It's important for planning for, protecting and preserving those assets.



*Figure 1*

Basic information screen reflects information from the following tabs, which can be seen above (figure 1):

- Asset Info
- Risk Info
- PM Schedule
- Points
- Notes
- Attachments
- Work Orders
- User Defined Fields
- Stats
- History



*Figure 2*

Asset ID – unique within the system

Description -

Manufacturer – who made the device

Doesn't matter what the device or who supports it today

For example: Hewlett Packer makes the device but Phillips supports it – Hewlett Packer is the Manufacturer

Model # - standard pick list of models for that device; if you need to change this field you need to clear out the information and then begin to type in what you are looking for. This field is linked to the manufacturer and device fields listed below, the selection in the model # field will populate the manufacturer and device fields. It has the auto fill capability; multi-field selector. As users begin to type information into the field it begins to look for matching criteria in each of the 3 fields. And if the user put a space in the field it will begin to look for information in one of the other two fields

Contract # - will show the number of contracts open on a piece of equipment and allow users to directly link to the contract open

Contract End Date

Risk Factors

Next PM Date – next preventive maintenance date

Last Rep WO# - last repair work order number

Last REP WO Date – last repair work order date
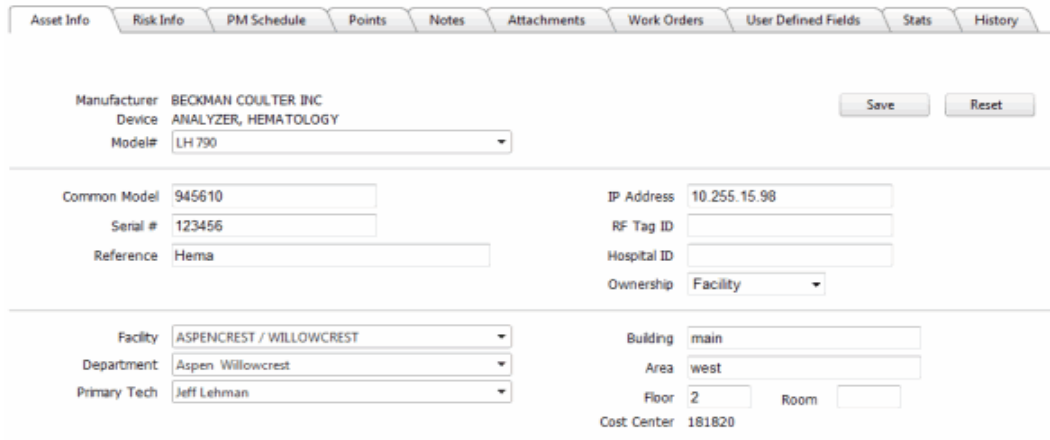LTD Svc $ - life to date service cost
MTB Failure Days – meantime between failure dates

Notice that all the "save" and "reset" options are within the tabs.

Save – will save any information that was input
Reset – will reset any information that was added back to the original information from the last save
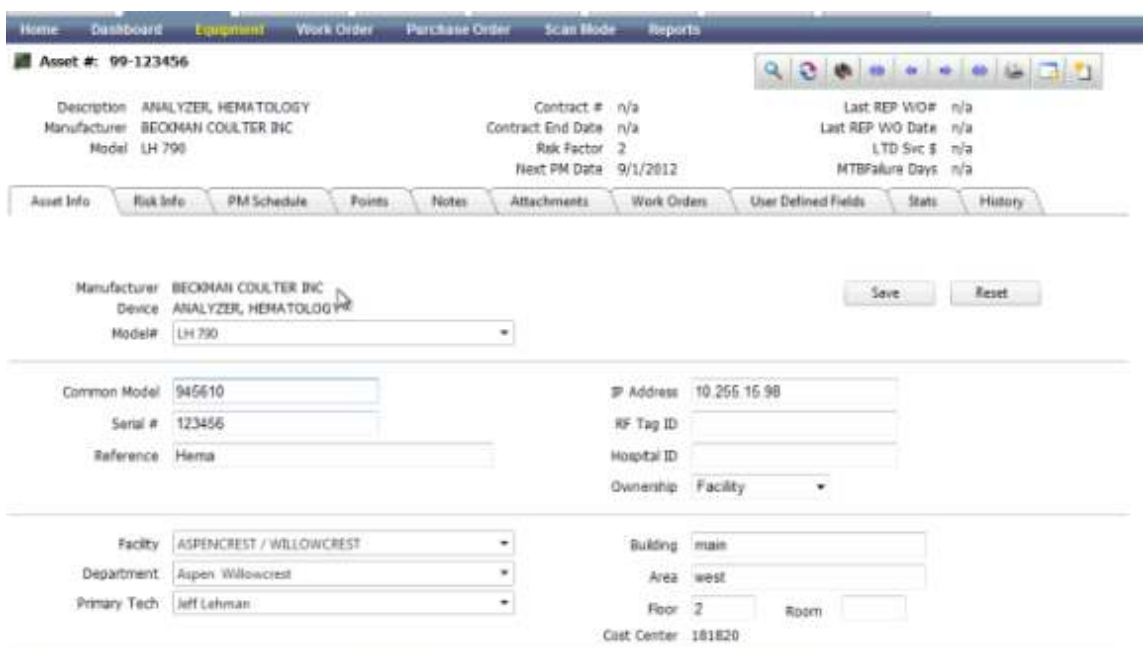
## Asset Info Tab



*Figure 3*

Asset information (figure 3) - What the device is, where it's located, purchase dates, & warranties
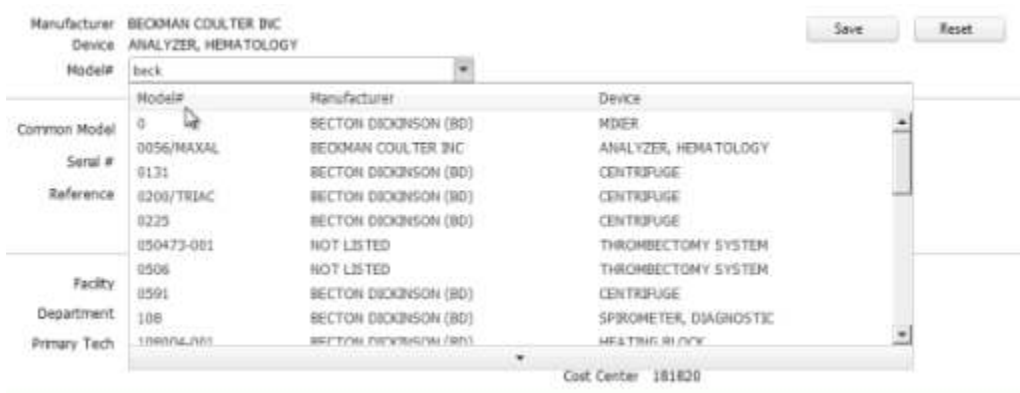
*Figure 4*

Manufacturer – who made the device
Doesn't matter what the device or who supports it today
For example: Hewlett Packer makes the device but Phillips supports it – Hewlett Packer is the Manufacturer

Device – comes from a pick list; typically in the military nomenclature scheme of the noun verb sequence, broadest category and than more defined, least descriptive to most descriptive

Model # (figure5)- standard pick list of models for that device; if you need to change this field you need to clear out the information and then begin to type in what you are looking for. This field is linked to the manufacturer and device fields listed below, the selection in the model # field will populate the manufacturer and device fields. It has the auto fill capability; multi-field selector. As users begin to type information into the field it begins to look for matching criteria in each of the 3 fields. And if the user put a space in the field it will begin to look for information in one of the other two fields



*Figure 5*

Common Model – descriptions that is generic verses a more detailed
Serial # - found on the built plate
Reference – local aisles on a device
IP Address – if connected to the network, information needs to be stored
RF Tag ID – if the device is connected this information needs to be stored as well
RF Tag ID – radio frequency
Hospital ID – if different from the asset ID, need to enter it.  Very common for the asset and hospital ID's to be one and the same number
Ownership (figure 6) – who owns the device, and is responsible for the device's maintenance (Most devices are facility owned)



*Figure 6*

- Demo/Loaner – provider of the equipment would be responsible for maintaining it
- Facility – most common
- Joint – owned by one or more groups
- Lease – depending on how the lease is written, who will be responsible
- Other – only used if cannot be classify it in any of the other options
- Patient – patient owned, not very common
- Physician/Staff – rare but possible
- Rent to Own – depending on how the agreement is written, both parties could be responsible for maintenance
- Rental –provider is usually responsible for the maintenance
- Set Agreement – similar to rental however are renting through the consumable aspects of the device

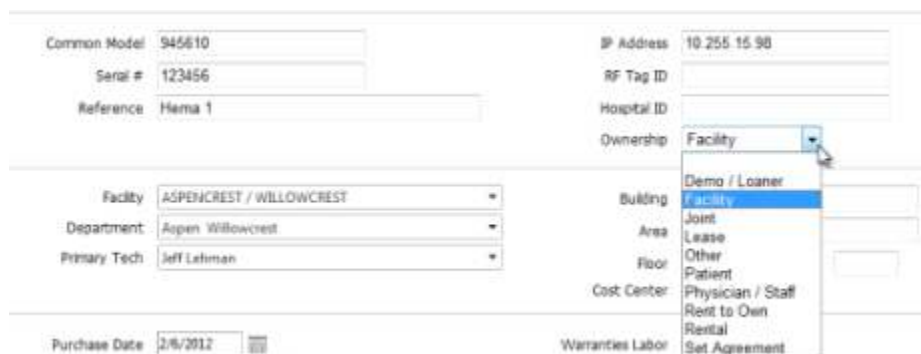Hospitals are responsible with making sure the device is safe to use in their facilities.



*Figure 7*

Facility – specifies which facility

Department – which department it belongs to, when selecting the department the system will automatically fill in the following fields:

- Primary tech – user can assign technician, usually assigned to the primary technician by default
- Building – location helps users locate device
- Area – location helps users locate device, can be managed when department fields are set up
- Floor – location helps users locate device, can be managed when department fields are set up

Room – location helps users locate device, can be managed when department fields are set up

Cost Center – static and dependant upon the department

| Facility | ASPENCREST / WILLOWCREST | Building | main |
| Department | Aspen Willowcrest | Area | west |
| Primary Tech | Jeff Lehman | Floor | 2 | Room | |
| | | Cost Center | 181820 |

*Figure 8*

Purchase Date – the date the device was put into use; it is also the first uses date. It is not necessarily the last maintenance date

Purchase Cost – cost of the device and accessories needed to operate, the consumables nor software are included in the purchase cost. The installation is not included either.

Warranties Labor & Expires Parts –Should read warranty expires and labor and parts. If the part's field is left empty the system assumes it's the same as the warranties field. It's important to complete both fields if the dates are different.

| Purchase Date | 2/6/2012 | Warranties Labor | 10/14/2011 |
| Purchase Cost | $168,000.00 | Expires Parts | 10/14/2012 |
| Purchase Order | 55 | | |

*Figure 9*

Be sure to click "save," and receive your confirmation, which will appear as a green bar with a check mark stating "Asset Saved," (Figure 10)
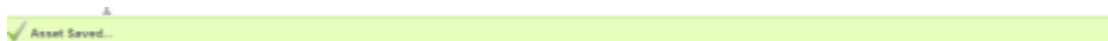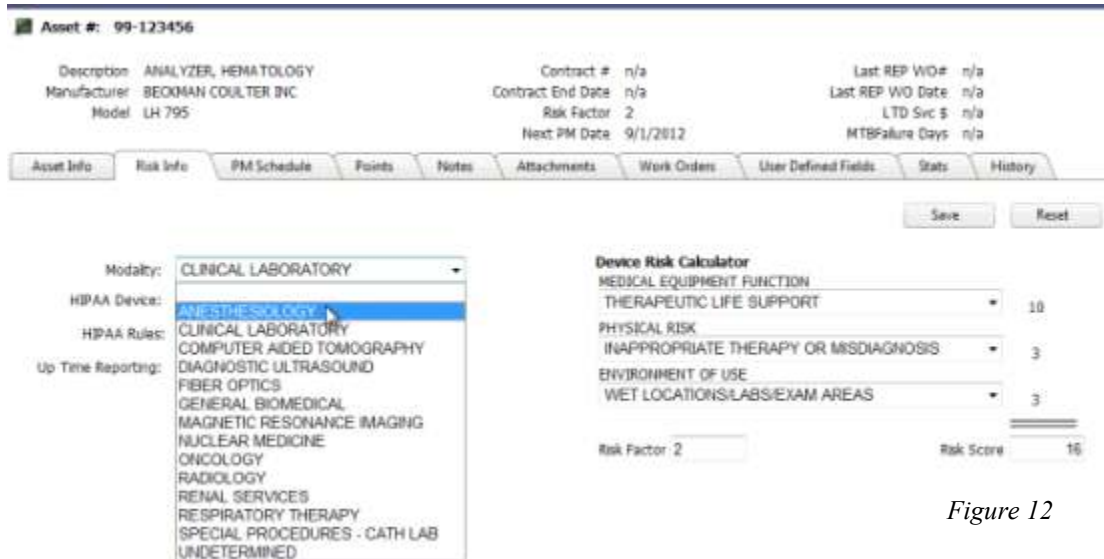
✓ Asset Saved...

*Figure 10*

If the user put in any information that does not align with what the system is looking for the system will not give you the "green confirmation" bar, the user will get a "red" bar indicating that something is incorrect or missing (figure 11).

❌ Modality: Required

*Figure 11*

*7/9/2012*

## Risk Info Tab

Allow one to look at the risk associated with a device. This pertains to the Modality. Risk information will provide default information based on the device name selected, if the device was not assessed the system cannot provide the information as a default.



*Figure 12*

Modality (figure 12) – general categorizing of the device, what and when most frequently used

- Anesthesiology – is just the anesthesia delivery systems, vaporizers and ventilation systems associated with it
- Clinical Laboratory – just the laboratory analyzers, is the analyzers and it doesn't make how small and unsophisticated they are a PH meter, a high stat point of care tester, etc.
- Computer Aided Tomography – CT
- Diagnostic Ultrasound – includes some of the treatments ultrasounds, not the vein finders
- Fiber Optics – do not have too many devices on this
- General Biomedical – most equipment that we take care of falls into this category; if it's in the lab and doesn't produce a diagnostic output it's general biomedical
- Magnetic Resonance Imaging – MRI
- Nuclear Medicine – gamma camera's
- Oncology – treatment units, high dose units, treatment planning devices
- Radiology – general x-ray items, including c-arms, portables, rad rooms, floral rooms
- Renal Services – dialysis machines
- Respiratory Therapy – CPAP, ventilators, and BIPAP
- Special Procedures – Cath Lab – EP labs

- Undetermined – if users cannot figure it out; typically though it would go into general biomedical

Better to have information filled in and be incorrect than not to have information filled in at all.  This let's one know that the user went through the process of evaluation, if left blank we do not know whether or not the user has gone through the process.
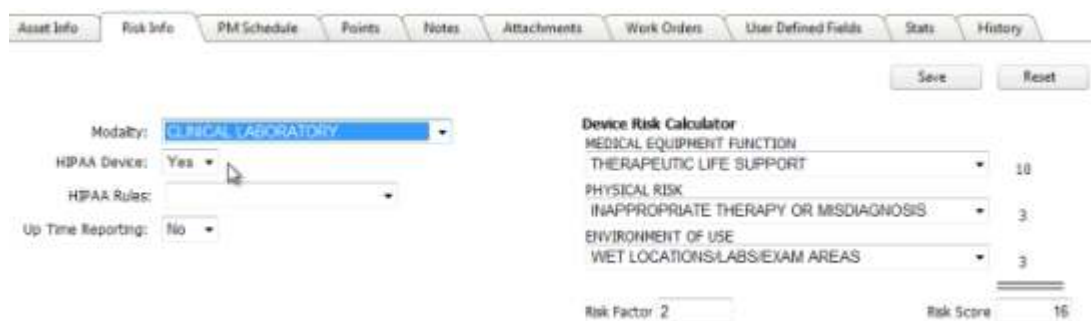


*Figure 13*

HIPAA Device - when selecting "yes," HIPAA rules will than appear.  If "no" is selected the HIPAA rules field will not appear.

HIPAA Rules (figure 14)– which way does the patient information manifest itself in the device, patient information can only manifest itself in a combination of the four categories:

1. display
2. print
3. store
4. transmit
5. or any combination of the four



*Figure 14*

Up Time Reporting – certain devices that are critical to the mission, whether it be because they generate a great deal of revenue or they are important to the mission delivery, the CT supports the emergency department. Your manager should tell you whether or not this is an up time reportable device.  If you flag it as up time reporting this device with not only be counted on the down time aggregate summary report it will also have it's owe individual line item that will detail out the down time for the device in that reporting period.

Device Risk Calculator – AHA risk calculator that have been around for ever

Medical Equipment Function (figure 15)
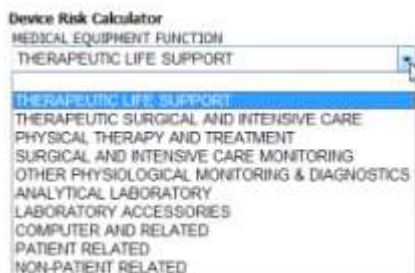(Scoring in this particular field is descending from 10-1)



*Figure 15*

Physical Risk – if it fails, what is the most significant risk (figure 16)?
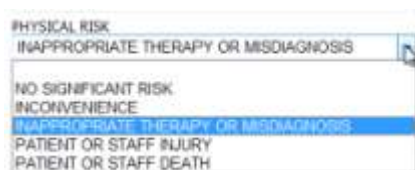(Scoring in this particular field is ascending from 1-5)



*Figure 16*

Environment of Use - where is the device being used, what area (figure 17)
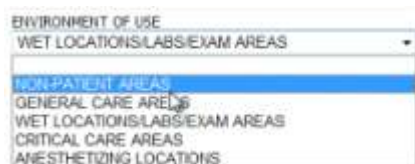(Scoring in this particular field is ascending from 1-5)



*Figure 17*

Risk scoring – the risk score is simply a sum of Medical Equipment Function, Physical Risk and Environment of Use scores. Each Factor contains a pull down menu Selection. To modify the risk factor for the device, click on the factor drop down that requires changing and select the appropriate factor selection. As the selections change, the risk score and risk factor will automatically change.

The calculation for the Risk Factor is based on the risk score and the values are shown below (figure 18).

Risk Factor Calculation

| Risk Score | Risk Factor |
|---|---|
| > 17 | 1 (Life Support) |
| > = 15 < = 17 | 2 (High) |
| > = 6 < 15 | 3 (Medium) |
| < 6 | 4 (Low) |

*Figure 18*

Be sure to click "save," and receive your confirmation.

## PM Schedule Tab

Preventive maintenance schedules will list all preventive maintenance schedules assigned to this device. Record can have as many preventive procedures as necessary assigned to it. Typically one is present but sometimes two or three, maybe battery change or filter and battery change that are off cycle or sequence. PM schedules can be added, edited and deleted in this section.



*Figure 19*

Procedure Name – what type of maintenance is scheduled
Code – system generated number
Next Due – when is the maintenance due
Interval – how often does the maintenance need to be completed
Last Done – when was the last time this maintenance was completed

### Add a new record



*Figure 20*

Procedure - Select a preventive maintenance procedure from the drop down
Next Due Date - Select your next due date

Interval schedule – how often; this will schedule itself based on the information that is input by the user.

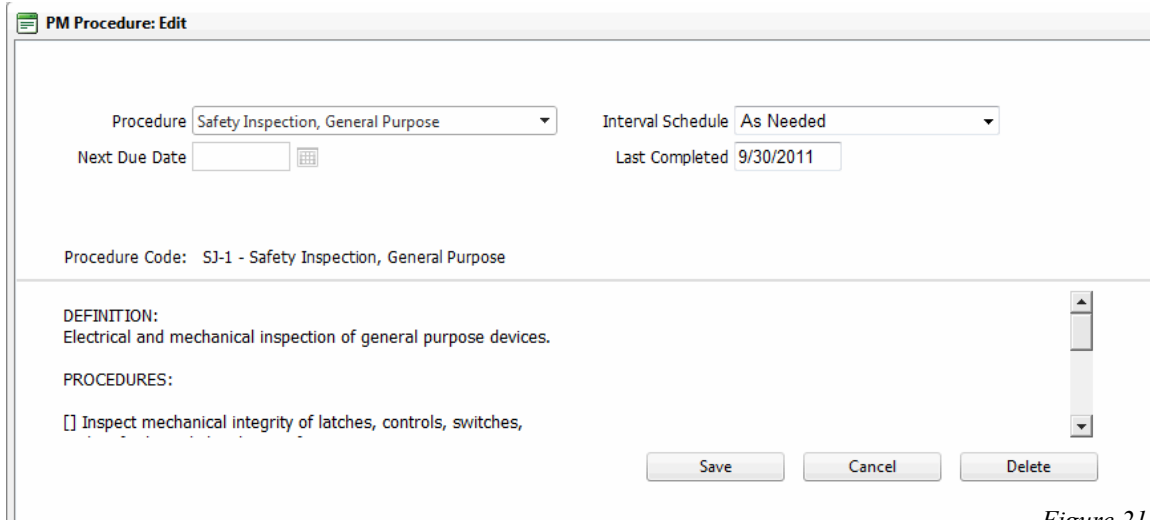Last completed date – is filled in as they are completed, it's a static field



*Figure 21*

By clicking on the save button, users will have created an additional PM

## Editing an existing PM Schedule

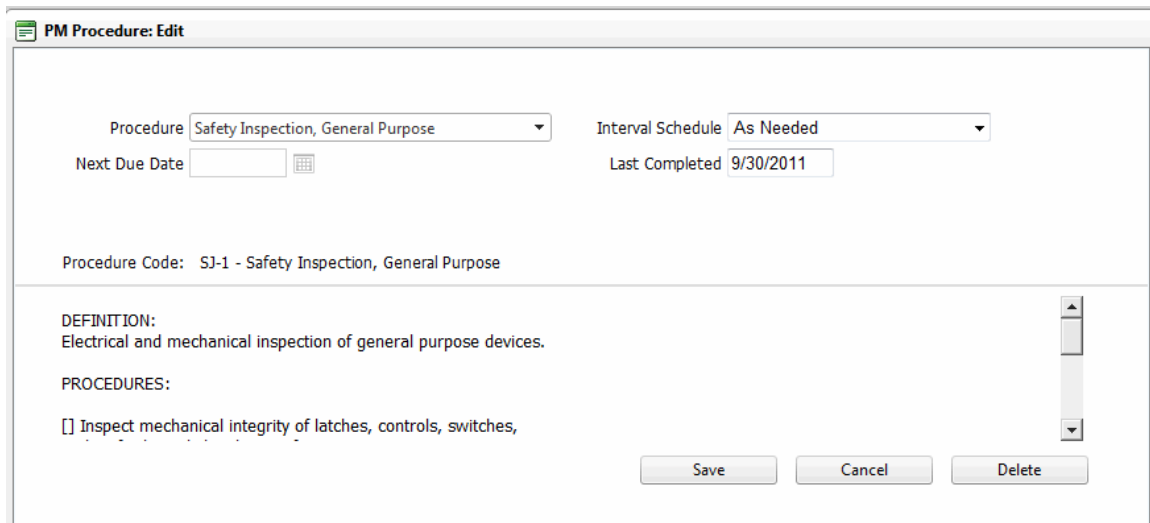Click on the edit to open up or make any changes to an existing PM schedule





*Figure 22*

Should the user select "Delete," the user will receive a message from the webpage:

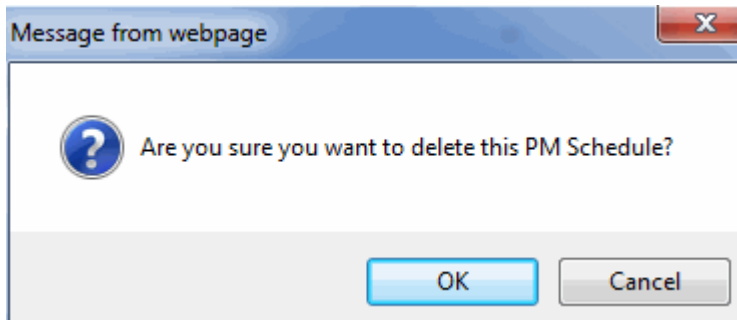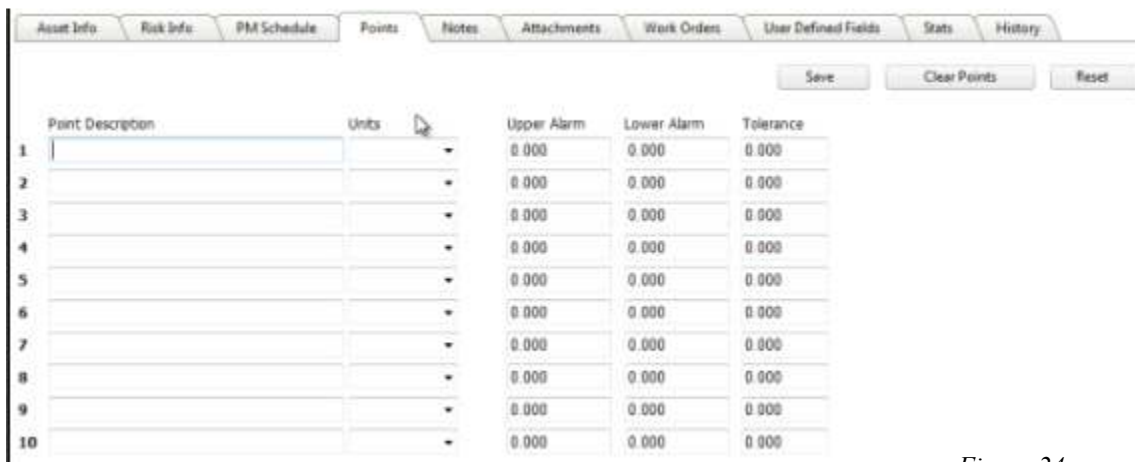"Are you sure you want to delete this PM Schedule?" (figure23)



*Figure 23*

## Points Tab

The points tab allows for setting up specific measurement criteria's, set the upper and lower alarms for a device. Any points entered here are transferred to open work order for this device. This is used mostly in clinical engineering since the use of pass/fail on the procedures for a preventive maintenance schedule there are certain regulatory agencies that require us to document and record specific information



*Figure 24*

Point description – what is being set up
Units – unit of measurement
Upper Alarm – high level
Lower Alarm – low level
Tolerance – system generated based on alarms created

Users can add up to 10 points

Save – saves information input into the system for future reference
Clear Points – clears out any points that were created
Reset – resets all information to the previously saved information
Be sure to click "save," and receive your confirmation, which will appear as a green bar with a check mark stating "Asset Points Saved," (Figure 25)
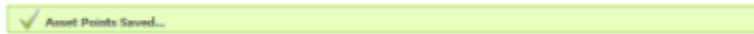


*Figure 25*

## Notes Tab

Allow users to add information that is believes to be relevant and does not fit into one of the data fields.  Notes can be comments, opinions, stories, setting, etc.
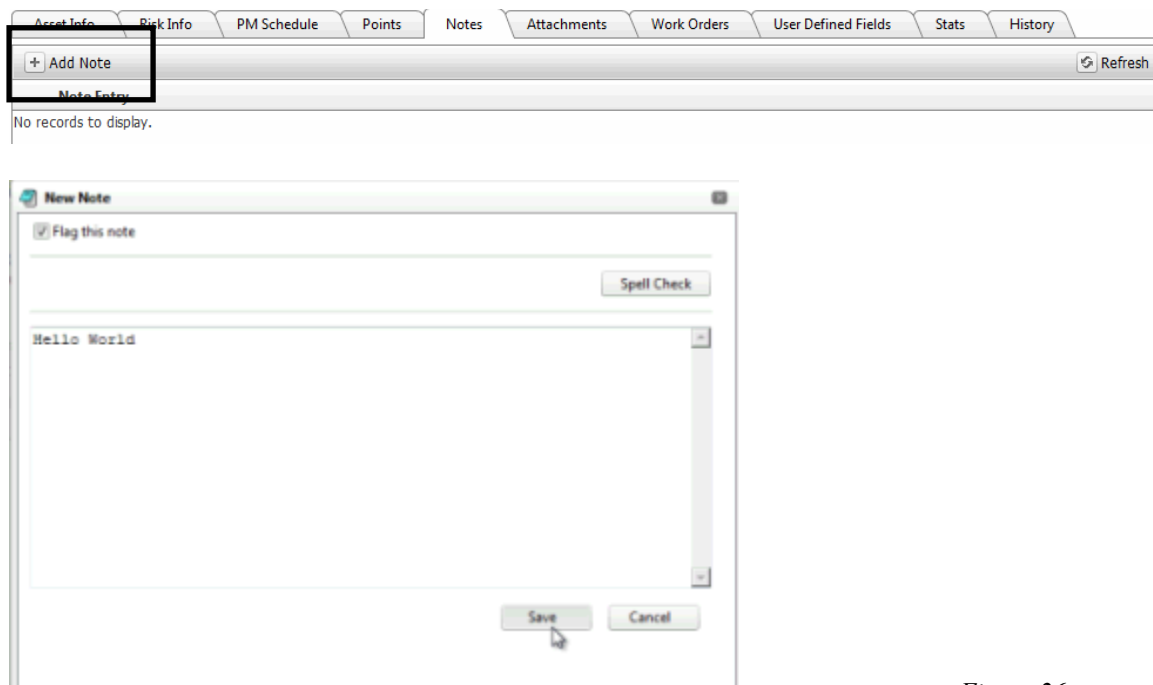
### Creating a new note





*Figure 26*

You will notice the option to "Flag this note," this is in future development (figure 26).

## Attachments Tab

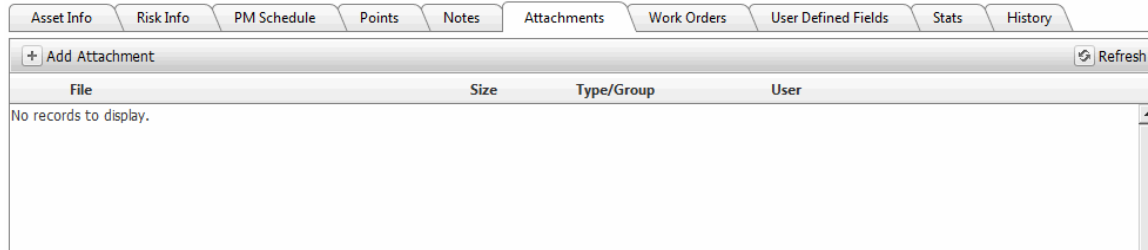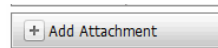Users have the ability to add any kind of document or image to any record.



*Figure 27*

Add Attachment

Click on the "+ Add Attachment" button.
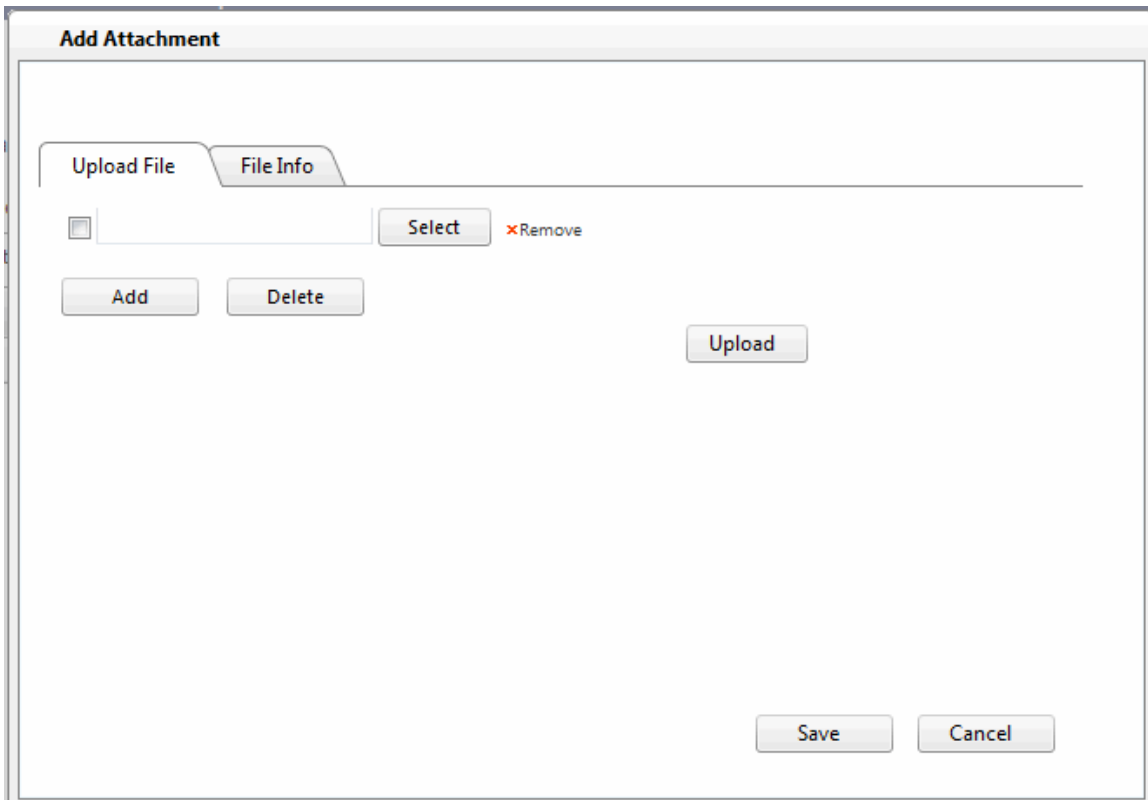


*Figure 28*

Once users are in the add attachment screen, select the "select" button.  This will allow users to search for the document wanted to add to this particular record.  Users have the capability to add multiple documents by selecting documents and than selecting the "Add" button.  By selecting the "Add" button, the system will pull up another selection box (figure 28).

*Figure 29*

Once the user has selected and added all desired document, the user will not need to click on the "Upload" button (figure 29).



*Figure 30*

If multiple documents are added at the same time the system will automatically create a .zip file (Figure 30).

Under the "Add Attachment" screen you also have a "File Info" tab.

**Add Attachment**

| Upload File | File Info |

☐ Flag this file for review.

Date [____] 🗓

Type [_____ ▾]

Title [ SampleVendorMaintForm.pdf+(2 other files).zip ] 🔤✓

SampleVendorMaintForm.pdf
quote sample

[ Save ]  [ Cancel ]

*Figure 31*

Under the "File Info" tab, keep in mind this information does not effect anything.

Remember to click on the "Save" button, the system will save the attachments and any additional information the user added to the record.

## Work Order Tab

Complete work order list, this list will include active and inactive work orders, and all service events on this device. Includes: PM, incoming inspection, correctives and administrative work orders icon to the left with open up that particular work order

| Asset Info | Risk Info | PM Schedule | Points | Notes | Attachments | Work Orders | User Defined Fields | Stats | History |

| WO # | Status | Type | Request | Opened / Closed | Created / Modified |
|------|--------|------|---------|-----------------|--------------------|
| 📄 22-5028350 | Closed | Incoming Inspection | INCOMING INSPECTION | 02/04/2012 1:00 PM ET 02/08/2012 10:27 AM ET | EllaAnn Knight ( 1275 ) @ 02/08/2012 EllaAnn Knight ( 1275 ) @ 02/08/2012 |

*Figure 32*

WO# - system generated number
Status – how far along is the work order
Type –type of work order
Request – the service being requested
Opened/Closed op– date opened and closed if service was completed
Created/Modified – when was the work order created or when was the last time a user edits the work order

Individual work orders

| WO # | Status | Type | Request | Opened / Closed | Created / Modified |
|------|--------|------|---------|-----------------|--------------------|
| JD-1-201059 | Closed | Preventive Maintenance | PM | 09/01/2011 1:00 AM PT 09/30/2011 1:00 AM PT | Team Support Desk ( 1 ) @ 09/01/201: @ PT |

*Figure 33*

For additional information work orders, please refer to the Work Order Notes.

**Work Order ID: JD-1-201059**

| Facility: | St. Jude Medical Center (SJMC) | Status: | Closed |
|-----------|-------------------------------|---------|--------|
| Work Order Type: | Preventive Maintenance | Opened: | Team Support Desk ( 1 ) - 09/01/2011 1:00 AM PT |
| Service Requested: | Scheduled Preventive Maintenance (SPM) | Down Time Hours: | n/a |
| Item Total: | $17.50    Hours Applied: 0h 30m | Closed: | Raul Jimenez ( 54978 ) - 09/30/2011 1:00 AM PT |
| Department: | CRW - Ortho & Sports Med | Total Open Time: | 4 Weeks |
| Asset ID: | JD-10000 | Last Updated: | - PT |

Work Order Info | Notes ( 1 ) | Attachments | Observations/Actions | Points | User Defined Fields | History | Procedure - SJ-204

| Priority | Immediate |
|----------|-----------|
| PM Procedure | 29564: PM Procedure, GMP |
| Reported Problem | PM |
| Reported By | | Phone | | Ext. | |
| Assigned Technician | Raul Jimenez |

| Technician | Date | Time In | Time Out | Hours | Minutes | Lab Code / PM Status | Created / Modified |
|------------|------|---------|----------|-------|---------|---------------------|--------------------|
| Raul Jimenez ( 54978 ) | 10/07/2011 | 02:03 PM | 02:33 PM | 0 | 30 | LABOR - REG - CE | Raul Jimenez ( 54978 ) - 10/06/2011 5:00 PM PT |

*Figure 34*

## User Defined Fields Tab

Not active at this time, future development

## Stats Tab

Future development tab, will allow users to compare like devices across the enterprise on both the model and device type.

## History Tab

History will shows users all edits and changes made to devices overtime.

When records where create and when any changes occurred, who made the changes. What the field was prior to the change and what the field is after the change. Shows users the time and date (figure 34)



*Figure 34*

Notice, users have the ability to open additional records by clicking on the "+" next the records or interest (figure 35).
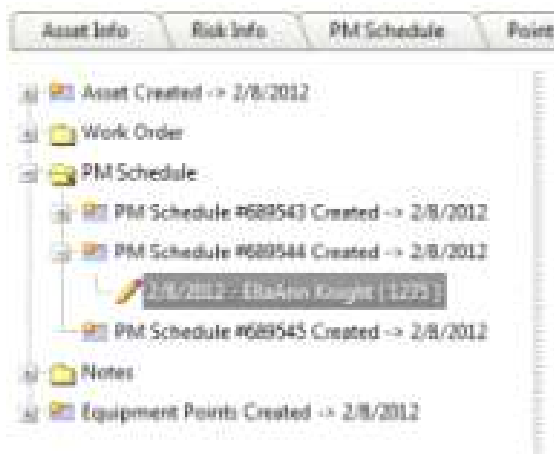


*Figure 35*

*7/9/2012*