

MILITARY SEALIFT COMMAND



Introduction to Shipboard Automated Maintenance Management (SAMM)

13 MAR 2019

UNCLASSIFIED



MSC Maintenance Philosophy

The 3 Rs

The Right maintenance on
the Right equipment at
the Right time



Introduction to SAMM?

Documenting and keeping track of maintenance, how is it done?

The old way is maintenance cards and equipment files.



Now we use computers!



We use “Shipboard Automated Maintenance Management” (SAMM)



SAMM is currently supported and future development occurs here at Emprise Corporation



SAMM Database Learning Objectives

- Understand the Master Maintenance Library (MML)
- Understand the Machinery Component Breakdown
- Understand the Feedback Process
 - More effective feedback documentation
 - How feedback gets processed
- Understanding the Consolidated Database and Replication



Intro to SAMM Learning Objectives

- Introduce user to SAMM
 - Common Terminology
 - Common module features
 - Module interactions with other modules or external programs (ShipClip)
- Define the Purpose of the different SAMM Modules
- Use the Find and Navigation Pane Tree to filter for specified items
- Export a list of Filtered Items
- Access Shipclip/Feedback information using the Equipment Tree



Master Maintenance Library

Master Maintenance Library (MML)

- A Database of all MSC Vessels (GOGO, GOCO, OPCO)
- The Equipment installed on those vessels
- The Planned Preventative maintenance associated to that equipment

It also contains a database of general equipment and generic maintenance when it makes no sense to develop equipment specific maintenance.

examples:

- All motors (unless special) are relatively the same
- All motor bearings require lubrication



MSC Equipment Structure

How is the Equipment organized in the MML?

Based on the Expanded Ship Work Breakdown Structure (ESWBS), in the MML its called the Hierarchical Structure Code (HSC).

Equipment Functional Description (EFD)	Hierarchical Structure Code (HSC)
ELECTRIC PLANT, GENERAL	3
ELECTRIC POWER GENERATION	31
SHIP SERVICE POWER GENERATION	311
GENERATOR SETS, SHIP SERVICE STEAM TURBINE	3111
GENERATOR SET, SHIP SERVICE STEAM TURBINE - NO.1	31111
GENERATOR SET, SHIP SERVICE STEAM TURBINE - NO.2	31112
GENERATOR SET, SHIP SERVICE STEAM TURBINE - NO.3	31113
GENERATOR SETS, SHIP SERVICE DIESEL	3112
GENERATOR SET, SHIP SERVICE DIESEL - NO. 1	31121
GENERATOR SET, SHIP SERVICE DIESEL - NO. 2	31122



HSC Example

Equipment Functional Description (EFD)	Hierarchical Structure Code (HSC)
AUXILIARY SYSTEMS, GENERAL	5
CLIMATE CONTROL	51
SEA WATER SYSTEMS	52
FIREMAIN AND FLUSHING (SEA WATER) SYSTEM	521
SPRINKLER SYSTEM	522
WASHDOWN SYSTEM	523
AUXILIARY SEA WATER SYSTEM	524
SCUPPERS AND DECK DRAINS	526
FIREMAIN ACTUATED SERVICES - OTHER	527
PLUMBING DRAINAGE	528
DRAINAGE AND BALLASTING SYSTEM	529

Equipment Functional Description (EFD)	Hierarchical Structure Code (HSC)
PUMPS, AUXILIARY MACHINERY SEA WATER	5242 (GROUP)
PUMPS, AUXILIARY MACHINERY SEA WATER	52421
AUXILIARY MACHINERY COOLING WATER PUMPS	524211
NO.1 AUX MACHINERY COOLING WATER PUMP	5242111
NO.1 AUX MACHINERY COOLING WATER PUMP COUPLING	52421111
NO.1 AUX MACHINERY COOLING WATER PUMP MOTOR	52421112
NO.1 AUX MACHINERY COOLING WATER PUMP CONTROLLER	52421113
SEAWATER SERVICE PUMPS	524212 (sub-GROUP)
NO.1 SEAWATER SERVICE PUMP	5242121 (Parent equipment)
NO.1 SEAWATER SERVICE PUMP COUPLING	52421211 (Child equipment)
NO.1 SEAWATER SERVICE PUMP MOTOR	52421212 (Child equipment)
NO.1 SEAWATER SERVICE PUMP CONTROLLER	52421213 (Child equipment)



Commercial Planned Maintenance

On a pump motor combination – commercially you might have one JOB – 3 maintenance actions, Example: 500 hour pump service

- Step 1. Check pump bearings and operating pressures.
- Step 2. Clean Motor, Lubricate bearings and inspect the coupling.
- Step 3. Verify proper motor controller operation.



MSC Planned Maintenance

In MSC, Maintenance is assigned to each component.

PUMP

- PM Item 1 - Inspect And Lubricate Coupling
- PM Item 2 - Lubricate Pump And Motor Bearings
- PM Item 3 - Inspect Pump Operation
- PM Item 4 - Sample Vibration

MOTOR

- PM Item 5 - Measure motor insulation Resistance
- PM Item 6 - Inspect and Clean motor

CONTROLLER

- PM Item 7 - Service Controller



Changes to MML

Changes can be made on the vessel temporarily (AD-HOC):

- Equipment can be added
- Maintenance can be added and then scheduled

Permanent changes must be made shoreside directly into the MML ashore.

- A **Feedback** request is required.



Causes for Feedback

- Instruction in the narrative is incorrect – Tells me to open valve 21 before 22, but there is no valve 21.
- Maintenance doesn't apply to a piece of equipment – I have sealed bearings, you are telling me to lubricate.
- Equipment has been replaced with different.
- Equipment is deactivated.
- I have performed this inspection hundreds of times, never found a problem – RCM analysis process is required
- And many more...



Improper Feedback Usage

- **Not for Documenting performance of an inspection**
Use SAMM History or Planned Maintenance
- **Not for Reporting problems with MSC provided hardware**
 - **Computers, Data collectors, measurement devices, etc.**

For these problems, open a help call with the MSC Global Service Desk (mscgds@msc.navy.mil)

Or call

1-800-672-4356



Feedback

When submitting feedback:

State the problem clearly

- Cryptic isn't helpful "This PM Sucks"
- Word Salad doesn't help either

State the action you desire

- Downfall of many a PM.
Removing PM, Change the Narrative, Adjust the Schedule

Provide supporting documentation

- Pictures, Tech Manuals, Diagrams, etc...

Document if the current maintenance (or lack of) can result in premature equipment failure.



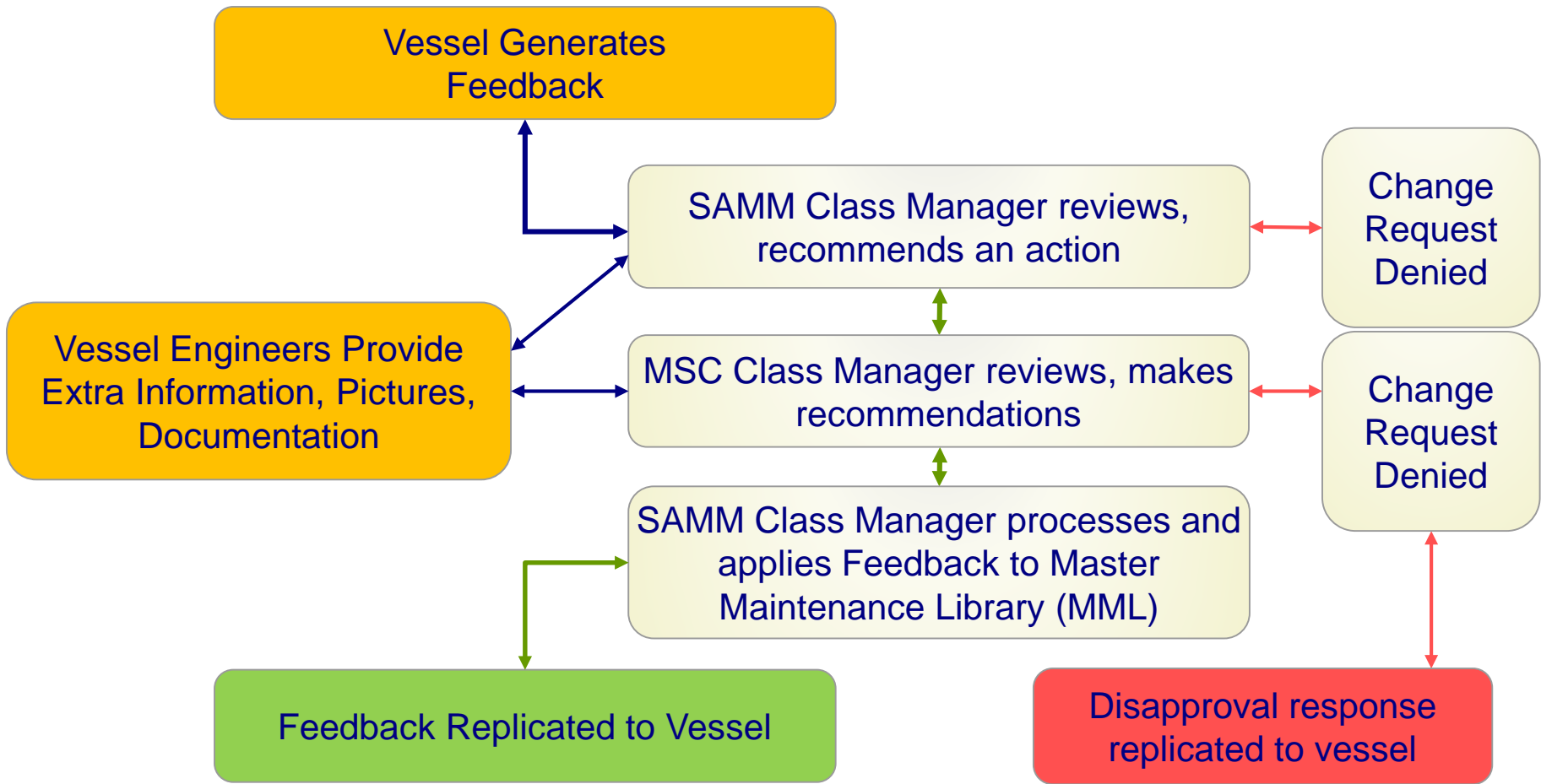
Requirement for Feedback

Feedback MUST incorporate a need. All maintenance should be based on "evidence of need"

- Regulatory: - Provide/cite reference document
- Maintenance addition: - Identify problem, actual failure in fleet, failure mode, new periodicity and process (task type and supporting data)
- Maintenance deletion/periodicity change: - Identify configuration mistake (grease pm on sealed bearing; identify perceived lack of problem (failure mode) addressed by maintenance (supporting data)
- Add/delete equipment: - What relative maintenance information needs to be collected. Is new machine in MML. If yes, can plan be applied. If not, recommend use TM as reference with consideration for RCM and PdM techniques.
- Task content clarification: - Will not require a "need" but should be accompanied by an explanation.

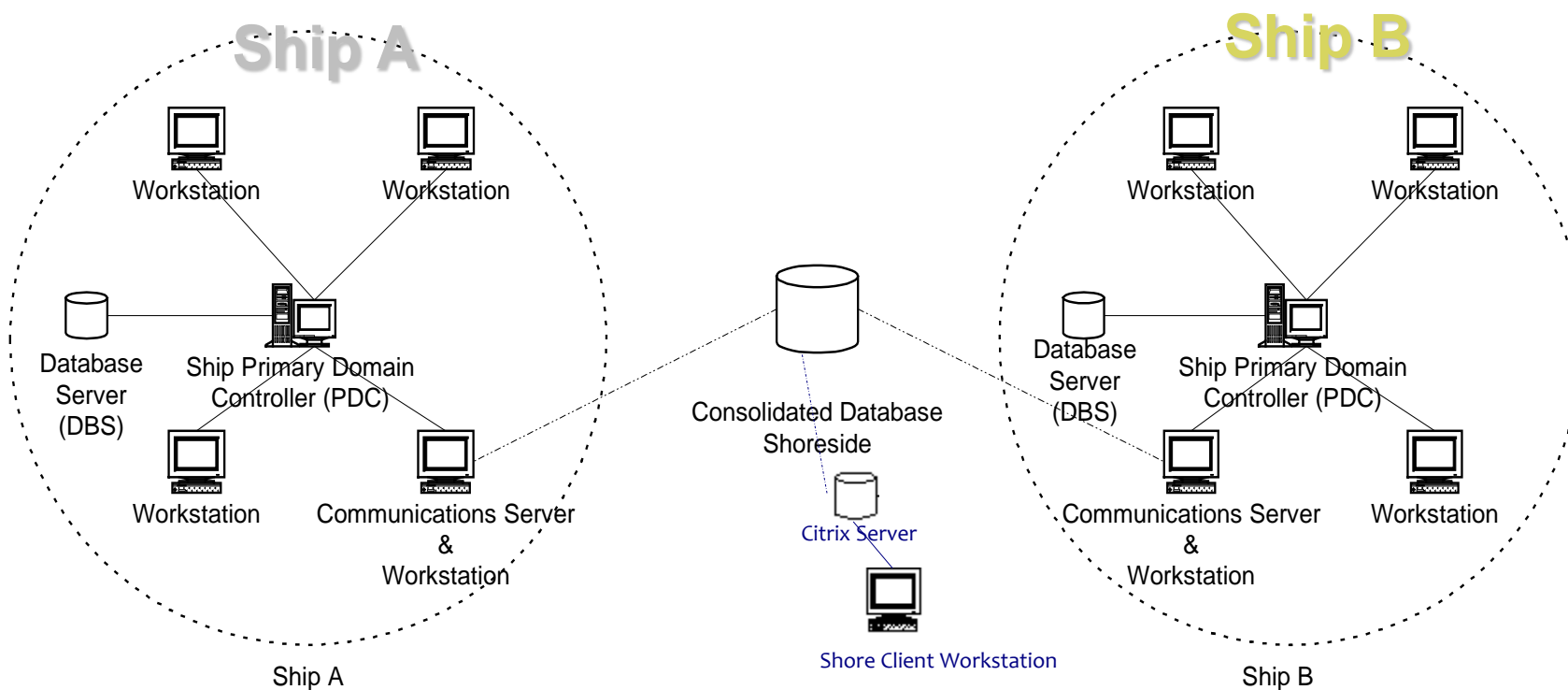


Feedback Flow Path





Replication





Consolidated Database

MSC Controls access to the Consolidated Database ashore

- Port Engineers
- Class Managers
- Feedback Managers
- Contractors
- SAMM Afloat + Ashore Support
- MSC Personnel
- Etc....

MSC Personnel can review in real-time (as soon as replication happens)

- All Planned Maintenance completions in SAMM
- All Corrective Maintenance Actions in SAMM
- TRANSALT status
- Voyage Repair Request tracking
- Availability planning
- Etc...



Review

- The Master Maintenance Library (MML) contains information for every vessel/equipment/maintenance
- The Hierarchical Structure Code (HSC) is used to organize the Systems and Equipment in the MML.
- Maintenance is applied according to the HSC.
- Feedback is how permanent changes are made, and is generated from the Vessels.
- Changes are made to the Consolidated Database ashore and replicated out to the vessels.
- Shipboard Automated Maintenance Management (SAMM) is how all maintenance is documented in MSC.

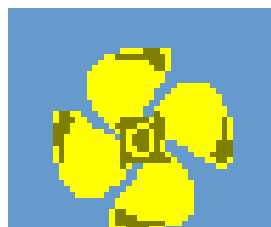


How do I use SAMM?

We have provided training laptops with a sample training database for use by students here in the CMEO Course.

Now that we understand some of the “nuts and bolts” behind the scenes in SAMM, let’s learn about SAMM itself!

So open up the SAMM Icon



And have some fun!