



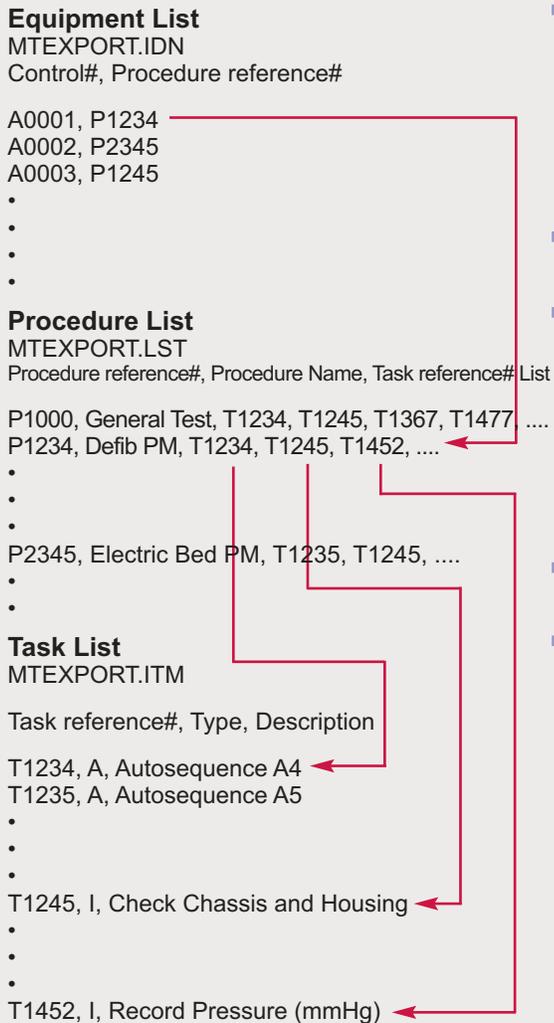
## Using vPad with a CMMS System

There are a number of CMMS systems which can be used to help automate the PM scheduling process in conjunction with an automation enabled safety analyzer. This type of automation was introduced by DNI Nevada in the early 1980's with their medTester 5000 safety analyzer. Through the use of 3 linked files, the medTester was able to perform a series of tasks (or checkitems\*) found in a Procedure (or checklist\*) linked to a Control Number.

DNI Nevada first developed this system to be used with their Sentinel CMMS program. The Sentinel program allowed the creation of the Tasks and Procedures, and also allowed the Procedures to be assigned to a device Control Number. A number of other CMMS vendors adopted this method of automation, making medTester interfaces integral to, or as options to their main systems. ■

\*checkitem and checklist are terms used by DNI Nevada/medTester 5000

The figure below shows a typical linkage of the Control#, to a Procedure, to a list of Tasks.



When a PM schedule is created by the CMMS system, three MTEXPORT files are created. The MTEXPORT.IDN file provides a list of Control#'s and their associated Procedure, typically by use of a reference #.

The MTEXPORT.LST file provides a list of the Procedure reference#'s, the Procedure name, and a list of Task reference numbers per Procedure.

The third file, MTEXPORT.ITM, is a list of the Tasks. Each Task has a reference#, a task type, and a Description.

Innovation by design

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If you have medTester 5000 safety analysers and have been using them with your CMMS system to automate your PM's, then converting to vPad is pretty simple. The vPad-mT App uses the same files as the medTester, thereby preserving all of the legacy setup work that you have put into your CMMS system. The main difference is the way in which the files are transferred to the safety analyzer: serial rs232 for the medTester, and USB drive or Bluetooth for vPad.

But what if you have never enabled the medTester interface on your CMMS system, either because you don't have medTesters, or you had medTesters but just didn't get around to completing the automation loop due to the cost (the medTester would require one or more firmware modules and the CMMS system would usually charge for the interface module)? Is it easy to automate? Well, unfortunately there is no free lunch. The amount of work required to automate the PM testing will depend on the way you decide to implement it, through the CMMS system medTester interface, or through the vPad-EQM App. But, either way, there is work involved.

First, let's discuss the CMMS/medTester interface option. On the vPad system you would need the following automation Apps: vPad-AS (or NFPA), vPad-Check, vPad-mT and vPad XPORT and CMX.exe on your PC. From your CMMS vendor you would need to acquire the medTester/Fluke interface option, for which there may or may not be a charge. Does this mean you are good to go? No. As part of the interface you may or may not be provided with default/examples of Procedures and Tasks. The extent and quality of these examples will determine how much more work will be required to make them suitable to work or be

compatible with your existing paper based system of PM procedures. Let's assume that the example Procedures and Tasks are a perfect fit with your PM Procedures. You still need to link each device Control# to a Procedure. The amount of work involved here will depend on the CMMS system capabilities, and may require some assistance from your CMMS vendor to find the best solution for some type of mass update through manipulation of the underlying database.

So, what would be the advantage(s) of going with the CMMS/medTester interface option? The main advantage would be that the CMMS system is going to be able to import the test results into its database automatically. This may include the automatic closure of PM work orders, time recording and cost allocation, to name a few. The disadvantages are that the Tasks are limited to those types that were envisaged in the early 1980's, and the text associated with a task is limited to 40 characters.

Our second option would be to use the capabilities of the vPad system to automate the PM testing, and use the inherent capabilities of the CMMS system to generate reports and record data. On the vPad system you would need the following automation Apps: vPad-AS (or NFPA), vPad-Check, and vPad-EQM. In the previous option, vPad-Check was used to run the Procedures defined by the CMMS/medTester interface. In this option, the Procedures (or Autosequences) are defined within the vPad-Check app and are retained on the vPad tablet. There are over 70 representative procedures provided with vPad-Check which can be used as is, or modified to suit the user's needs. They can also be used as templates to create any new Procedures required to meet the needs of the device database.

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The vPad-EQM App is designed to accept an import of device data from the CMMS system. The data is required to be in CSV format. The device data must include the Control# of the device and a Procedure name that is the filename of one of the Procedures from vPad-Check. Most CMMS systems allow the user to define (some of) their own fields, so a Procedure field could be created in the CMMS system. Additional fields that would be advantageous are: the next PM due date, the PM schedule in months, and the last PM date. This would allow the vPad-EQM data to be filtered by PM schedule. Additional information such as Description, Make, Model and Serial Number can also be included.

The CMMS system can normally attach notes or files to work orders in some fashion. The test reports can be sent from the vPad to a PC by USB drive, Bluetooth or via WiFi. Integrating the reports into the CMMS system would be done in a similar manner to what is currently done within the clinical engineering department. Your CMMS vendor may be able to assist in automating this function.

The advantage(s) of using vPad-EQM to facilitate the automation of PM testing are:

- a) Procedures can take advantage of capabilities not envisioned in the 1980's, such as display of pictures and videos within the procedure, talking to test devices which do not return English language responses, running other Apps from within a Procedure (such as vPad-Cal for traceability of test instruments used during a test);
- b) Tasks are not restricted to 40 character text descriptions;

- c) the complete equipment inventory, including the PM schedule/due date can be resident on the test instrument (vPad)

The main disadvantage of using this method is that the integration of the test results into the CMMS database is not normally (pre-) automated, although your CMMS vendor may be able to provide direction on this. There have been a lot of changes in technology since the medTester was introduced, and vPad has been designed to take advantage of these changes. Some CMMS systems are web based and provide the ability to query and update information via the Internet. Communication with this type of CMMS system is already integrated into the vPad system for one vendor and can be expanded to include other vendors, as required. vPad is poised to use new technologies as tablet technology advances and is constantly working on integrating these advances into its Apps.

In summary, converting from a pre-existing CMMS/medTester automated system is relatively easy, although there will be some differences in moving files from PC to tester and back. Beginning to implement an automated system will always require work by the end user, the extent of which will depend on the CMMS system capabilities. The advantages of automating your PM testing are: consistency, efficiency, improved productivity, reduced paper consumption and associated filing requirements, improved documentation and ease of meeting accreditation requirements. Your initial investment in automation will have significant payback over time. ■



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