AcroT<sub>E</sub>X.Net

# The thorshammer package Documentation for the system scripts

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## 1. Introduction

**Part I** describes how to execute thmclass.ps1 and documents all the subordinate files and folders it generates. The thmclass.ps1 file is a Powershell script file written, for the most part, *by the great Thor himself* to meet the needs of his classes. It can be used "as is" or modified to conform it to your requirements. The script is designed to be used with the thorshammer package, but this is not a requirement.

The file structure of Thor may not be for everyone, **Part II** describes a set of "standalone" scripts, which were derived from the scripts in **Part I**.

**From the AcroT**<sub>E</sub>**X Legal Department.** We offer no guarantees and accept no liabilities. Test the scripts extensively to be sure they are working for you. Modify the script as you will, but don't bother us with your changes, unless they are improvements.

**Platforms.** The script has been tested on Windows OS and Linux. It is our understanding that Powershell can be installed and executed on MacOS, so this script *may* have use on that platform as well.

## Part I: Using the Thor system

Thor has developed his own file structure for his class, this structure may be useful to your own classroom. Here, we describe the system that has been developed. Carefully read this part of the documentation to determine if Thor's scheme can work for you.

## 2. Deploying thmclass.ps1 et al

Locate the three files thmclass.ps1, runps1.bat, and sample-vars.txt from the system-scripts folder of the thorshammer distribution.

**The first things first.** (1) *Copy* thmclass.ps1, runps1.bat, and sample-vars.txt to a working folder. (2) Open the Powershell file thmclass.ps1 in a text editor and edit the value of the variable appropriate to your platform \$pathThorshammerWin or \$pathThorshammerLin, being sure the default path points to your thorshammer folder, and if not, modify the path to point to the folder of the thorshammer distribution on your computer.<sup>1</sup>

#### 3. Executing thmclass.ps1

On Windows, the easiest way to execute thmclass.psl is through the BAT file runpsl.bat.<sup>2</sup> Running the script requires the input of eight (8) values for variables, these are listed below and described in the order they are expected to be input.

#### **Eight basic variables**

- 1. **\$class:** The name of the class, could be name as listed in the college catalog (MAT101, STA221, HH21B, A21A, WF23, ...) or something more understandable (calc1, alg1, euhist, ...)<sup>3</sup>
- 2. **\$number**: The quiz or exam number. The value of this variable is not required to be a number.<sup>3</sup>

<sup>&</sup>lt;sup>1</sup>The purpose of this is to grab the two support files container.pdf and terminate-batch.pdf. If your T<sub>E</sub>X installation has installed these two files elsewhere, find them, and modify the path to point to the folder containing these two files.

<sup>&</sup>lt;sup>2</sup>The authors have little knowledge of how to do this on Mac OS. An interested user on Mac OS would need to advise us.

 $<sup>^{3}</sup>$ The value of this variable is used in the file name of the TEX template file; consequently, this value should be kept short, yet meaningful.

- 3. **\$subject**: Field of study, such as Math, German, History, and so on.<sup>3</sup>
- 4. **\$theme**: The topic of this exam: factoring, grammar, 20thcentury, etc.<sup>3</sup>
- 5. **\$instrName:** Instructor's name. The name should be a single word that identifies the instructor (Thor, Newton, Banach, and so on).<sup>3</sup>
- 6. **\$date**: The date of the exam.
- 7. **\$time**: The length of the exam; this is, the time the students have to work on the exam.
- 8. **\$classPath**: The full path to the folder that contains the quizzes of the class.

#### 3.1. On running thmclass.psl

Now that you have read a brief description of the eight variables, rename the file sample-vars.txt in your working folder to something short yet appropriate to your work (perhaps rename it to just class.txt). In this document, we shall refer to the renamed TXT file as  $\langle varlist \rangle$ .txt. Open  $\langle varlist \rangle$ .txt in a text editor and modify the left column to values appropriate to your class. The contents of  $\langle varlist \rangle$ .txt has the following form (shown with default values which need to be changed):

alg1	# class
1	# number
maths	# subject
factoring	<pre># theme or topic</pre>
THOR	# instrName
01.01.2019	# date
60 Min.	# time
C:/temp	<pre># classPath</pre>

Now execute runps1.bat with arguments thmclass and  $\langle varlist \rangle$ .txt from the Command Prompt:<sup>4</sup>

```
runps1 thmclass (varlist).txt
```

(1)

thmclass.ps1 reads the data contained in  $\langle varlist \rangle$ .txt. Using a batch file is the easiest way of executing the thmclass.ps1 with argument  $\langle varlist \rangle$ .txt.

## • The results of running runps1.bat

Executing 'runps1 thmclass  $\langle varlist \rangle$ .txt', as just described (see display (1)), creates a series of folders and files within the same folder in which runps1.bat, thmclass.ps1, and  $\langle varlist \rangle$ .txt reside.

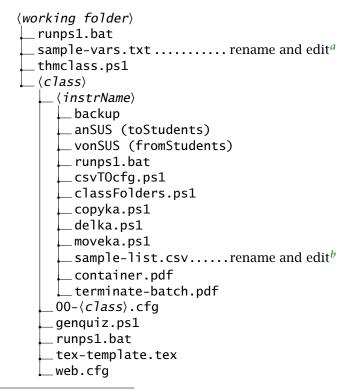
Suppose (*varlist*).txt has the following symbolic values:

(class)	#	class
(number)	#	number
(subject)	#	subject
(theme)	#	theme or topic
<pre>(instrName)</pre>	#	instrName
<i>(date)</i>	#	date
(time)	#	time
<pre>(classPath)</pre>	#	classPath

<sup>4</sup>The Command Prompt needs to be located in the folder that contains thmclass.ps1, runps1.bat, and sample-vars.txt

#### • Structure displayed

Figure 1 represents the structure created by thmclass.ps1.



<sup>a</sup>Generically referred to as (varlist).txt
<sup>b</sup>Generically referred to as (list).csv

Figure 1: Structure created by thmclass.ps1

#### • Structure explained

We now attempt the Herculean task of explaining each of these.

- $\langle class \rangle$  (folder) The folder created by the  $\langle class \rangle$  variable. This folder contains all the working files and folders of the class you are teaching.
- *(instrName)* (folder) This is a short name for the instructor. This folder contains a number of other folders and files.
  - backup A folder that will contain the instructor's copies of the quizzes generated. When you
     open the file 00-(class).cfg, you will find: \instrPath\*{(instrName)/backup}.
  - anSUS (toStudents) A folder to drop the graded quizzes into. This folder name is anSUS when the local language is German and toStudents otherwise.
  - vonSUS (fromStudents) The target destination of the script file copyka.ps1. This folder name
     is vonSUS when the local language is German and fromStudents otherwise.

- csvTocfg.ps1 A Powershell script that reads the contents of the configuration file (*list*).csv and modifies 00-(*class*).cfg by appending appropriate \classMember statements.
- classFolders.ps1 A Powershell script file that creates class folders based on the contents of the  $00-\langle c7ass \rangle$ .cfg file.<sup>5</sup>
- copyka.ps1 A Powershell script that copies the completed student quizzes from their student
  folders to the folder vonSUS (fromStudents) where the instructor can operate on them.
- delka.ps1 A Powershell script that deletes the student quizzes from their personal student folders. (This is done after they are copied using copyka.ps1.)
- moveka.ps1 The Powershell script that copies and deletes the student quizzes from their personal student folders. Not recommended! I prefer to copy them and verify that they are all successfully copied before deleted them from the personal student folders.
- sample-list.csv A comma (or semi-colon) delimited file. Each line of the file consists of three
  entries and has two formulations:

(first), (last), (rel-path)

 $\langle first \rangle, \langle last \rangle, * \langle full-path \rangle$ 

In the first case, (rel-path) is the path, relative to the argument of the classPath, to the student folder; in the second case, (full-path) is the full path to the student folder.

You should rename this file and modify its contents to reflect the class names and folder names of your class.

- container.pdf A PDF file used by Thor's way action script. See the manual for the thorshammer package for details.
- terminate-batch.pdf A PDF file used by Thor's way action script. See the manual for the thorshammer package for details.

At the top most level of this folder structure are four files.

genquiz.ps1 A Powershell script that works in concert with tex-template.tex. When executed, it reads the \langle varlist \.txt file (one level up), the variable list file used to create the folders and files, it then creates a TEX file named \langle number \-\langle class \-\langle subject \.tex, which is a copy of tex-template.tex, with certain tagged variables in tex-template.tex replaced with their values based on \langle varlist \.txt; for example, the tagged variable #class in tex-template.tex is replaced by the value of the class variable declared in \langle varlist \.txt (perhaps it is replaced by "alg1").

**Steps to change the default name.** You can change the default name of the generated TEX file by following these steps: (1) open genquiz.ps1 in your favorite text editor; (2) find the line,

\$templateName="\$number-\$class-\$subject.tex"

and, finally, (3) change the assignment, perhaps to a function of one or more of the above above variables.

<sup>&</sup>lt;sup>5</sup>The sysadmin may now allow creation of folders on the system drive; this script may be used for testing on the instructor's own drive.

tex-template.tex There are two renditions (or versions) for the TEX template: (1) a German language version, and (2) an English language version. The Powershell script thmclass.ps1 detects the language as set by your operating system and writes the proper TEX template. The TEX template, which is tex-template.tex by name, contains tagged variables #class, #number, #subject, #theme, #instrName, #date, and #time, which are replaced by their counterparts \$class, \$number, \$subject, \$theme, \$instrName, \$date, and \$time, as declared in (varlist).txt.

German. This tex-template.tex file is Thor's visualization of what his quizzes should look like. When genguiz.ps1 is executed, it reads this file and saves it again under a different name, as discussed above.

**English.** This form of the TEX template is more basic, without Thor's specialized features.

The contents of tex-template.tex can be modified to suite your own understanding of what your quiz should look like. Use the tagged variables as you wish in your personal template file.

 $00-\langle class \rangle$ .cfg The configuration file for building a quiz for the class. Initially, it has the following form:

```
% Reset the paths for \instrPath and \classPath for your system
```

% Use relative paths here for instructor according to dir, where tex file is located \classPath{(*classPath*)}

\instrPath\*{(instrName)/backup}

```
% Syntax:
```

```
% \classMember{firstname}{lastname}{rel-path}
```

```
% \classMember{firstname}{lastname}*{full-path}
```

Running csvTocfq.ps1 appends \classMember to the file. On running, it might now read,

```
% Reset the paths for \instrPath and \classPath for your system
% Use relative paths here for instructor according to dir, where tex file is located
\classPath{(classPath)}
\instrPath*{(instrName)/backup}
% Syntax:
```

```
% \classMember{firstname}{lastname}{rel-path}
```

```
% \classMember{firstname}{lastname}*{full-path}
```

```
\classMember{Muehle}{Waeter}{MW634B/(instrName)}
```

```
\classMember{Anton}{Mueller}{AM256M/(instrName)}
```

```
\classMember{Laura}{Voegt}{LM356B/(instrName})
```

web.cfg The TEX template file uses the web package, and as such, uses many web-defined commands. These commands can be redefined through the web.cfg. The file thmclass.ps1 creates its own web.cfg, for local use. If you open this created file, its contents are,

```
%
% AeB Web Configuration file
\ExecuteOptions{dvips}
\bWebCustomize
```

```
% Insert redefinitions between these two marks \eWebCustomize
```

To illustrate the use of the web.cfg, modify the file to now read,

```
%
% AeB Web Configuration file
%
\ExecuteOptions{dvips}
\bWebCustomize
\author{Herr Dr. Thor}
\university{AcroTeX.edu}
\eWebCustomize
```

Above, we have declared \author{Herr Dr. Thor} and \university{AcroTeX.edu}. (The \author and \university commands are defined in the web package.) There are no restrictions, other redefinitions of commands defined by other packages are permitted. Freely use the special character '@' without having to type \makeatletter/\makeatother combination.

The thorshammer package defines a new command, that will be picked by web itself; the command is \inputWebCfg. This command has been embedded in the preamble of the TEX template.

Additional comments on the eight variables. We document how the eight variables are used throughout the files generated by thmclass.ps1.

- (class) is used to construct a top-level folder containing all the files generated by thmclass.ps1. This variable is the base name of the CFG file (00-(class).cfg). 00-(class).cfg is input by the template file using the \InputClassData macro. It also appears as the argument of the \thQzHeaderL and \title commands in the template file.
- *(number)* This variable appears in the TEX template file as the argument of the \DeclareQuiz and of the \version commands.
- (subject) This variable appears as an argument of \thQzHeaderCQ and \subject in the TEX template
   file.
- *(theme)* This variable appears as the argument of \thQzName.
- (instrName) This variable appears in several Powershell script files: copyka.ps1, moveka.ps1, delka.ps1, csvTOcfg.ps1, and classFolders.ps1. In the TEX template file, it appears as the argument of \author. Within 00-(class).cfg, (instrName) appears as an argument of \instrPath.
- *(date)* This variable is an argument of *\copyrightyears* in the TEX template file.
- *(time)* This variable appears in the argument of \keywords
- (classPath) This variable is used in various places: copyka.ps1, moveka.ps1, delka.ps1, and class-Folders.ps1. It also appears as the argument of \classPath within 00-(class).cfg.

### 4. Procedures after running thmclass.ps1

After the folders and files of Figure 1 are created, go into the  $\langle class \rangle$  folder, you will see  $\langle instrName \rangle$  (a folder) and the two files  $00 - \langle class \rangle$ .cfg and tex-template.tex. Now, change directories by moving into the  $\langle instrName \rangle$  folder. Now perform the following tasks.

1. Edit sample-list.csv. Change the name, if desired, of the file sample-list.csv and open the renamed file in your text editor. For the purpose of this documentation, we shall refer to the renamed file sample-list.csv as  $\langle 1ist \rangle$ .csv. The format of each line is exemplified by the three sample lines provided. More symbolically, each line consists of a comma (or semi-colon) delimited list:

(first),(last),(rel-path) or (first);(last);(rel-path)

One or more lines in this file may have an alternate syntax:

 $\langle first \rangle, \langle last \rangle, * \langle full-path \rangle$ 

where the first character of the third entry is an \*, the rest of the entry is a full-path to the student's folder.  $^6$ 

To continue, enter the first and last names of each student in the class, followed by the relative path (relative to \classPath) to that student's folder. The sample file reads,

Mühle;Wäter;MW634B Anton,Müller,AM256M Laura,Vögt,LM356B

These sample entries are to be deleted and replaced by the names and folders of the class members. If there are any student exception—one whose student folder is outside \classPath—, then a typical entry is has the following form,

```
Laura, Vögt, *C:/Users/dpstory/Desktop/TestFolder/myOtherClass/LM356B
```

For the last entry, the third element begins with an \*, which signals that what follows is full path to this student's folder.

Run csvTOcfg.ps1: Now, execute csvTocfg.ps1 using the general purpose batch file run1.bat with a command line arguments of csvTocfg and (*list*) (a CSV file); for example, on the Command Prompt, type,

runps1 csvTocfg (list)

and execute by pressing the Enter key. *Do not include the extension in the command line argument*. This will append the student information to the end of the  $00-\langle class \rangle$ .cfg one level up. Each student has an entry in  $00-\langle class \rangle$ .cfg of  $classMember{\langle first \rangle}{\langle last \rangle}{\langle folder-name \rangle}$ . csvTocfg also replaces all German umlauts with non-problematic characters like so:  $\ddot{u} \rightarrow$  ue,  $\ddot{o} \rightarrow$  oe, etc.

(2)

(3)

 $<sup>^{6}</sup>$ This is done when the student's does not lie in the path pointed to by the argument of \classPath.

3. **Run classFolders.ps1:** The next step, if needed, creates the personal student folders.<sup>7</sup> This step may not be needed if the folders already exist. Run the runps1.bat with a command line arguments of classFolders and the CVS file; for example, on the Command Prompt, type,

runps1 classFolders 〈*list*〉

(4)

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and execute by pressing the Enter key. *Do not include the extension in the command line argument*. If the folders already exist, the script does not destroy them and create them again. No harm done, I hope.

4. **Run genquiz.ps1**: (Optional) If you want to use the tex-template.tex file to create a TEX file for your quiz, run genquiz.ps1 with the following Command prompt:

runps1 genquiz

(5)

Executing this line produces a TEX template file named ' $\langle number \rangle - \langle class \rangle - \langle subject \rangle$ . tex'. The file genquiz.ps1, when executed, reads the  $\langle varlist \rangle$ .txt, located one directory up, to get the current values of  $\langle number \rangle$ ,  $\langle class \rangle$ , and  $\langle subject \rangle$ .

**Preliminaries are done! Have fun!** You are ready to compose your quiz/exam! Open the TEX template file and modify its contents to suite your needs, removing easy questions and adding difficult ones, or copy one of the demo files from the examples folder and modify it. For this part of the process you must be knowledgable of exerquiz and the documentation of the thorshammer package. The sample files of thorshammer will help to compose the quiz using the approach you want.

**Repeat.** There is no need to run 'runps1 thmclass (*varlist*).txt' more than once a semester. As you work through the semester, you can copy an old quiz with a new file with a new name and modify for the new material studied or run genquiz.ps1 to obtain a new clean template file:

#### runps1 genquiz

The file genquiz.ps1 reads the  $\langle varlist \rangle$ .txt one level up; you might want to first edit this file and change the value of  $\langle number \rangle$ .

The contents of  $00-\langle class \rangle$ .cfg remains unchanged; if students drop out of the course simply delete that student's line from  $00-\langle class \rangle$ .cfg or if students add the course simply append a line to  $00-\langle class \rangle$ .cfg using the template  $classMember{\langle first \rangle}{\langle last \rangle}{\langle folder-name \rangle}$ . Read the discussion on how to handle Exceptions to these general rules.

#### 5. Deploying the quizzes

The quizzes may be deployed to the student folders in two ways:

- 1. When a quiz is compiled with the usebatch option, the \sadQuizzes command executes JavaScript lines when first opened in Acrobat, which builds and distributes the quizzes to the designated instructor folder and deploys individualized quizzes to the correct student folder.
- 2. When the batchdistr option is specified, \sadQuizzes does its thing, but does not send the quizzes to the individualized student folders. To deploy them, either use the action sequence Thor protects and distributes or just Thor distributes. The end result of these two is to deploy the quizzes to their designated student folders.

<sup>&</sup>lt;sup>7</sup>The sysadmin may not allow creation of folders on the system system drive; this script may be used for testing on the instructor's own drive.

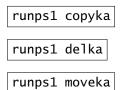
## 6. Retrieving the quizzes

After the exam period is over the quizzes need to be retrieved from the student folders and placed in a folder where the instructor can grade them. The mechanics of doing this are explained next:

- copyka.ps1 copies the quizzes from their respective student folders in the class folder declared by the \classPath command to the folder designated by the \instrPath. These two declarations can be found in 00-(*class*).cfg.
- delka.ps1 delete the quizzes from their respective student folders in the class folder declared by the \classPath command. Important: Do not run this script until you've first run copyka.ps1 *and* you've *verified* all files have indeed been transferred.
- moveka.ps1 copies and then deletes the quizzes. Not recommended, use a copyka.ps1 → verify → delka.ps1 workflow.

**Danger Will Robinson!** These scripts dig down deep into the folder structure (pointed to by \classPath or any exception paths (refer to Exceptions) looking for PDFs in the student's folder, in the subfolder named  $\langle instr \rangle$ . If there are more than one PDF in this folder, the scripts will copy, delete, and move all PDFs found in the  $\langle instr \rangle$  subfolder.

**Running these scripts:** In the **Command Prompt** and with the cursor in the same folder as the scripts you are to execute, type,



**Exceptions:** In an ideal semester, each of the students takes the class for the first time and no additional information is needed by the above three scripts; however, for students who are taking the class again, their class folder may not be located on the \classPath. The three scripts make a provision for this. The above PS1 files look for a file named altclasspaths.txt in the current directory. The contents of this file is a list of *alternate class paths*. For example, suppose we declare

\classPath{/C/Users/dpstory/Desktop/myClass}

but there are students whose class folder is located on the path

/C/Users/dpstory/Desktop/TestFolder/myOtherClass

To service these 'exceptional' students, create a file named altclasspaths.txt and add the following line to that TXT file

## /C/Users/dpstory/Desktop/TestFolder/myOtherClass

BTW, on Windows, you can use standard Windows notation (with forward slashes) as well:

## C:/Users/dpstory/Desktop/TestFolder/myOtherClass

When any of the above three scripts is run, it will first perform its task for the main \classPath, then it will perform the same task for the paths listed in altclasspaths.txt.

### 7. Redeploying the quizzes

After the quizzes are marked and saved in a folder of the instructor's choice, you can (optionally) return the graded quizzes to the students. To do this, use the Thor distributes action sequence.

## 8. How to execute a PS1 file without a BAT file

There are two methods.

Using the Powershell App: From File Explorer, open a window and navigate to the folder containing the PS1 file. Now select File > Open Windows Powershell (or perhaps the administrator version). In the Powershell command prompt, type

Powershell -ExecutionPolicy Bypass -Command .\\basename\.ps1

The -ExecutionPolicy Bypass allows the script to run without security warnings.

To run a PS1 file with argument,

Powershell -ExecutionPolicy Bypass -Command .\thmclass.ps1 myVars.txt

Using the Powershell ISE App: This application has a built-in editor. Start Powershell ISE. Here you can load in your PS1 file by simply dragging and dropping it into the window. Be sure the command prompt is showing the folder where the script file is located. Change directories using the cd command, as needed. For a PS1 file that does not have an argument, simple press on the Run Script icon on the toolbar, or choose the Run menu item from the File menu.

To run a PS1 file with argument, type, for example,

Powershell -ExecutionPolicy Bypass -Command .\thmclass.ps1 myVars.txt

into the command prompt window and press the Enter key to execute that line.

## Part II: Using a standalone system

Using the Thor system of class structure (see Figure 1) may not be for everyone. For this reason, some standalone scripts are provided in the standalone folder of the system-scripts folder.

**Important:** The contents of the standalone folder should be copied to your working folder, the one that contains the source files for your quizzes you are developing.

Within the system-scripts/standalone folder, the following files are provided:

cpquizzes.ps1 A renamed and modified version of copyka.ps1. To use this script, first open it in your editor and modify the following lines:

\$baseName="\baseName\"
\$classPath="\classPath\"
\$destPath="\destPath\"

The value of **\$baseName** is usually one word that represents the instructor (eg, THOR), but it does not have to be the instructor's name. **\$classPath** is the path to the class folders. The script searches **\$classPath** and copies all PDFs within *any* subfolder with **\$baseName** as its name.

It copies the PDFs to **\$destPath**. The quizzes all must be uniquely named because they are all copied to the same destination folder (**\$destPath**). Any older PDFs (perhaps from earlier quizzes, or actually any latent PDFs) are also copied, so you must set up your protocols appropriately. Execute this script from the Command Prompt:

runps1 cpquizzes

rmquizzes.ps1 After you've run cpquizzes.ps1 and verified that all required files have been copied, you can safely delete (or remove) the quizzes from the student quiz folders. Open rmquizzes.ps1 in your editor, and modify the values of this variables:

\$baseName="{baseName}"
\$classPath="{classPath}"

The meanings of the variables **\$baseName** and **\$classPath** are the same as above in the description of **cpquizzes.ps1**. Run the script as follows:

runps1 rmquizzes

These first two scripts are basic and the class can be conducted using only cpquizzes.ps1 and rmquizzes.ps1. The next two scripts can be considered optional.

mkcfg.ps1 This is a modified and renamed version of csvTOcfg.ps1, refer to the description of csvTOcfg.ps1. Prior to using this script, delete the file 00-web.cfg in the current folder (this file is created by mkcfg.ps1). Open your editor and modify the values of the following variables:

\$classPath="(classPath)"
\$instrPath="(instrPath)"

The values of these variables correspond to \classPath and \instrPath, respectively. The script is executed from the Command Prompt as follows:

runps1 mkcfg (list)

where the argument  $\langle list \rangle$  is a list of class members and folder locations data, as described in 'Edit sample-list.csv' on page 9.

The purpose of this script is to create the OO-web.cfg file. Once created, move this file to the same file as your quizzes; input this file using \InputClassData{OO-web}. Examples of the use of \InputClassData are found in the examples/cfgs folder. As described earlier, the format of this file is,

```
\classPath{\classPath\}
\instrPath{\instrPath\}
\classMember{Muehle}{Waeter}{MW634B/_Thor}
\classMember{Anton}{Mueller}{AM256M/_Thor}
\classMember{Laura}{Voegt}{LM356B/_Thor}
```

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Here, the sample class members of sample-list.csv are shown. For the \classPath and \instrPath, *use only full paths*. Refer to 'Edit sample-list.csv' on page 9 for more information.

mkfolders.ps1 This is a modified and renamed version of classFolders.ps1. This script is used for testing purposes; it can also be used to set up class folders provided you have the necessary permissions. Run this script from the Command prompt:

Open the file and edit the variable

\$classPath="(classPath)"

where  $\langle classPath \rangle$  is the full path to the root of the class folders. Run this script from the Command prompt:

runps1 mkfolders (list)

where the argument  $\langle list \rangle$  is a list of class members and folder locations data, as described in 'Edit sample-list.csv' on page 9.

## Part III: My retirement

Now, I simply must get back to it. 🔊