SLATE 7800 Emulation Tool

The SLATE 7800 Emulation Tool is a way to automatically generate reports and configuration files to help you set up a SLATE Burner Control to emulate the behavior of one of the Honeywell 7800 SERIES Burner Controls.

Contents

Which Version of Tool to use

Included in the download is 2 versions of the Slate 7800 emulator tool. If your PC has a 64-bit version of Microsoft Office/Access, then you will want to use "Slate 7800 Emulation Tool.accde." If your PC has the 32bit version of Microsoft Office/Access, then use "Slate 7800 Emulation Tool.mde."

You will need to have Microsoft access installed or a run-time version of Access. Refer to one of the options below (A, B or C) that represents your current PC configuration.

A. **If you have a recent version of Microsoft Office with Access installed**: you will need to determine if your installed version is 64-bit or 32-bit. This can be done by opening Microsoft Access, go to File-Account and click on the command button with a question mark.

   - For a 32-bit version of Office/Access copy the file "SLATE 7800 Emulation Tool.mde" to your desktop or folder of choice
   - For a 64-bit Version of Office/Access copy the file "SLATE 7800 Emulation Tool.accde" to your desktop or folder of choice

B. **If you don't have office installed**: you can download a free Access "runtime" program that will allow you to use (but not create) Access database files. You can search the internet for "Access runtime" and follow a link to a Microsoft download page from there - make sure you are getting it from www.microsoft.com - or you can use the link below:

   https://www.microsoft.com/en-US/download/details.aspx?id=39358

   You will find two versions of an installer program at that site. One is identified as "AccessRuntime_**x64**_en-us.exe" and the other is "AccessRuntime_**x86**_en-us.exe". If you have

a 64 bit PC you can install either runtime. If you have a 32bit PC you will need to install "AccessRuntime_**x86**_en-us.exe".

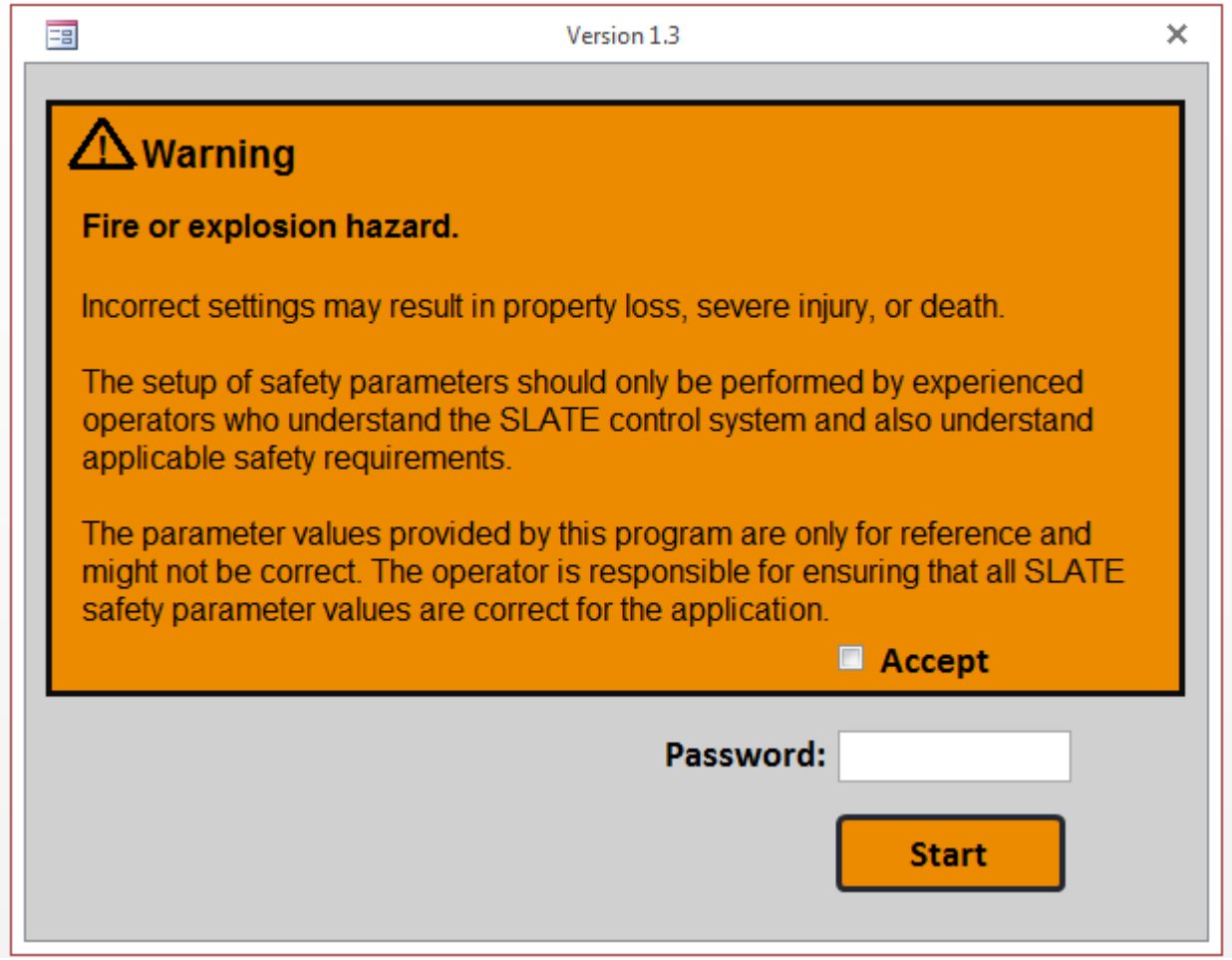
After installing the run time,

- copy the file "SLATE 7800 Emulation Tool.mde" if you installed "AccessRuntime_**x86**_en-us.exe" to your desktop or folder of choice.
- Copy "SLATE 7800 Emulation Tool.accde" if you installed "AccessRuntime_**x64**_en-us.exe"

C. **If you have an old version of Access**: you may get a message that it is not new enough to open the database file. In this case be aware that installing the Access run time files in the link above could interfere with your existing version of Microsoft Access. Proceed with caution or use the tool on another PC.

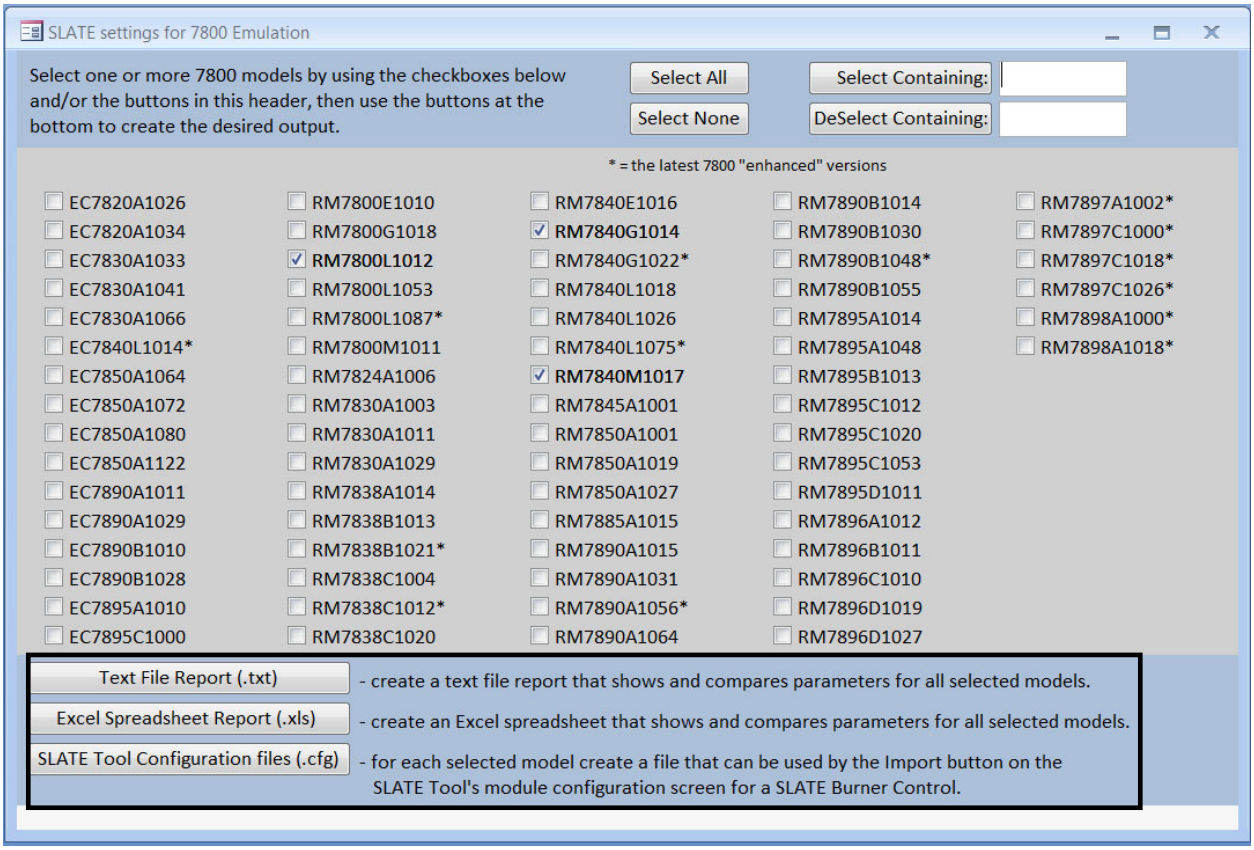
How to Use the Tool

When you double click the downloaded file and it successfully opens, this is the first dialog box that appears within the Access program's main window:



This warning is to remind you that you are dealing with combustion safety, that only certified and knowledgeable experts should be working with this system, and that it is up to you to verify that correct choices exist for all parameters. If you accept this, click the Accept box and enter the password which is SLATE7800 and then click Start.

After you click Start the following screen appears. Other than the startup warning as above, this is the only screen provided by the SLATE 7800 Emulation Tool. The main body of the page shows Honeywell 7800 SERIES Burner Control model numbers.

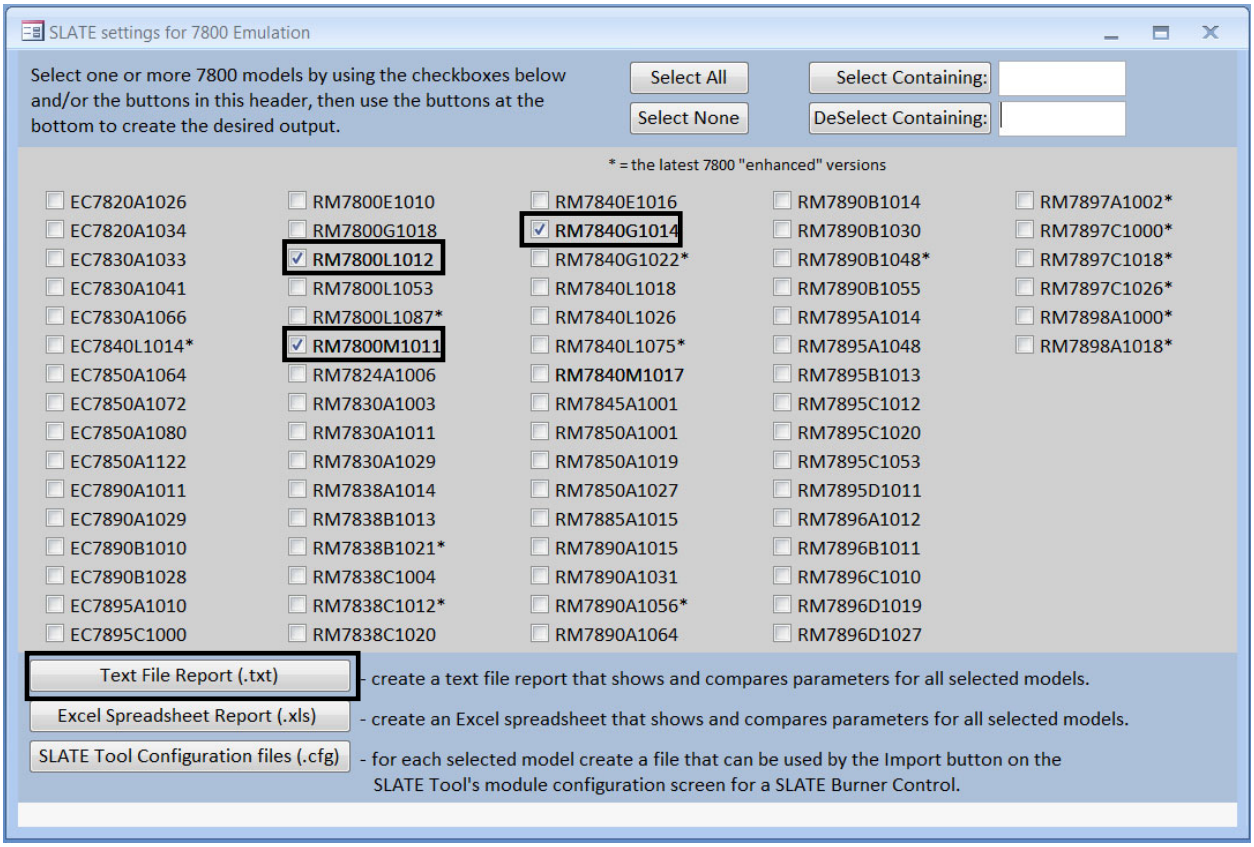


There are three ways to create useful output as shown above. You can 1) send information to a text file report or 2) create a spreadsheet report – both of those are useful for reference when manually editing or reviewing configuration data and they also include a way to see the differences between 7800 SERIES models - and 3) you can create a configuration file that you can use to load these settings into the SLATE AX Tool's configuration pages via its Import utility. Each of these is described below in its own section.

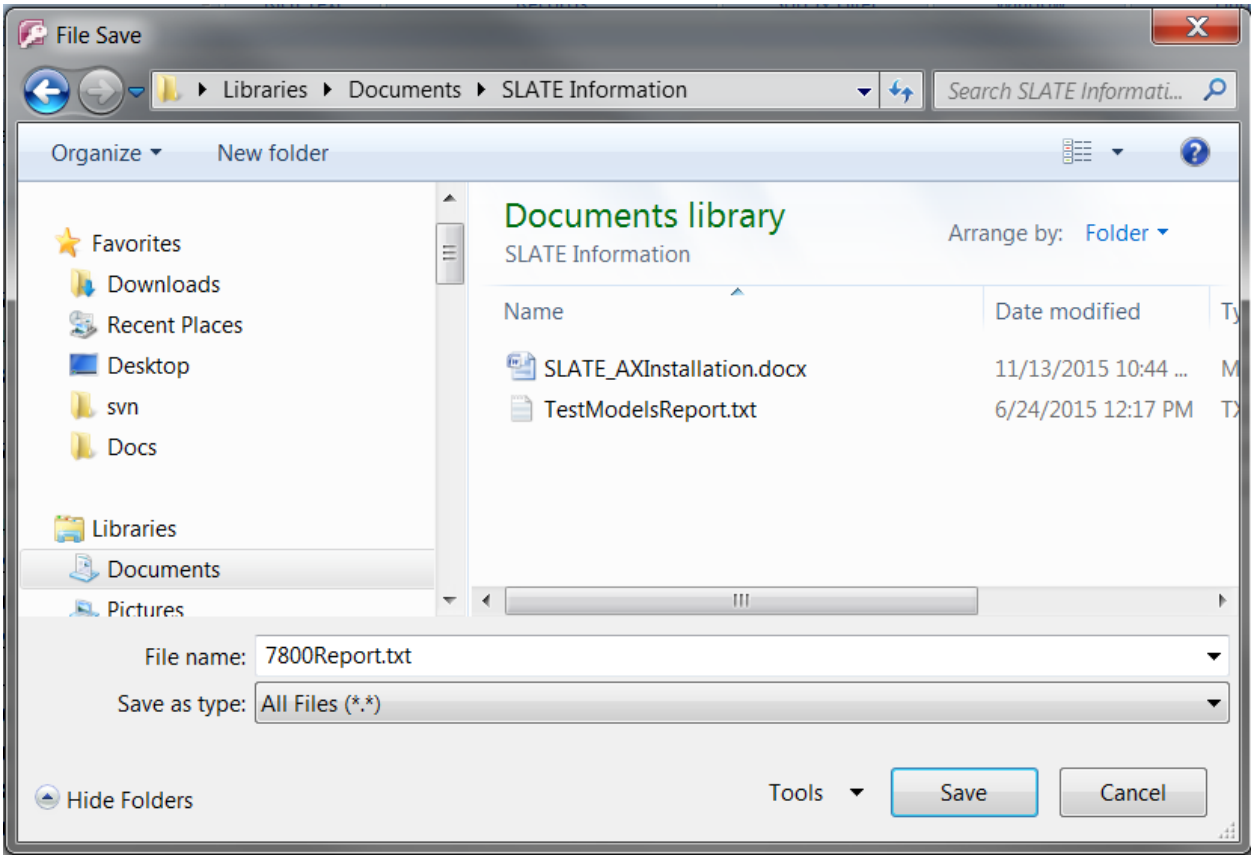
To begin, select the 7800 SERIES models by clicking the box next to the model name. There are also some buttons at the top for making multiple changes. When you are finished with your selections, choose the form of output you would like by clicking one of the three buttons at the bottom. Each is described below.

Text File Reports

When you click the Text File Report button this creates a report that shows and compares parameters for all the models that you selected. The output format is a plain text file (.txt) that is compatible with Notepad, Word, or any program that can open a text file. You can use this report as a reference when you are configuring a SLATE burner control. Below is an example of the steps:

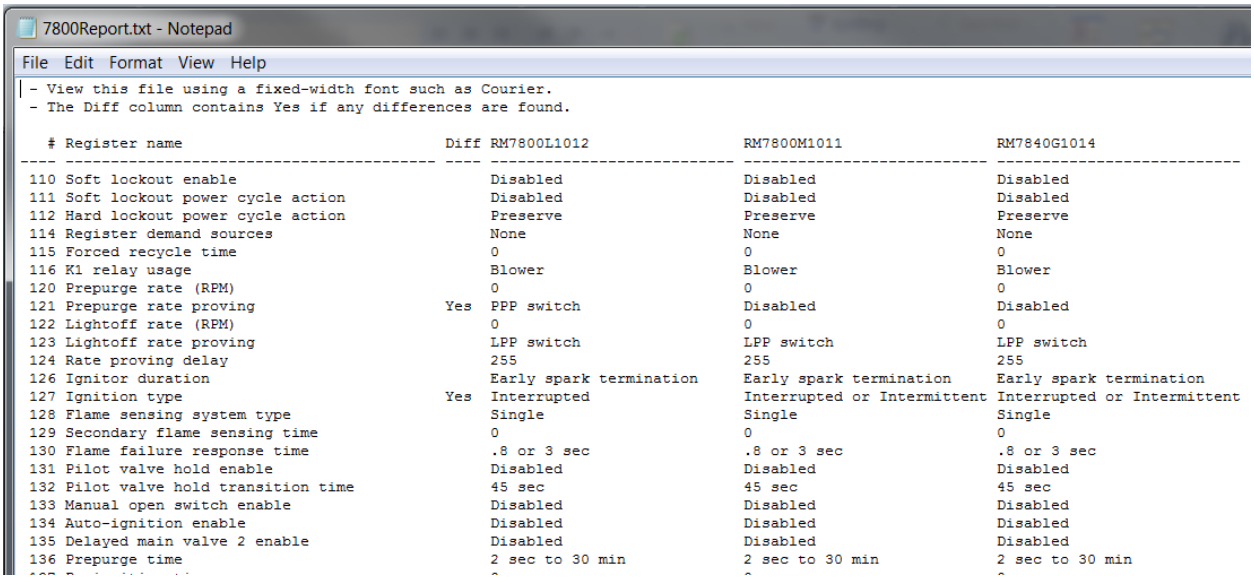


Select the desired 7800 SERIES configurations.
Click Text File Report. This will cause a typical Save dialog box to open as shown below.



Select the desired location on your PC. You can also edit the file name if you prefer, then click Save.

To see the result, go to that location and double click the newly created .txt file to open it in any program that shows plain text files. Here is an example of part of a text report as shown in Notepad:



7800Report.txt - Notepad

File Edit Format View Help

```
- View this file using a fixed-width font such as Courier.
- The Diff column contains Yes if any differences are found.

   # Register name                          Diff RM7800L1012                RM7800M1011                RM7840G1014
---- ---------------------------------------- ---- --------------------------- -------------------------- --------------------------
 110 Soft lockout enable                           Disabled                    Disabled                   Disabled
 111 Soft lockout power cycle action               Disabled                    Disabled                   Disabled
 112 Hard lockout power cycle action               Preserve                    Preserve                   Preserve
 114 Register demand sources                       None                        None                       None
 115 Forced recycle time                           0                           0                          0
 116 K1 relay usage                                Blower                      Blower                     Blower
 120 Prepurge rate (RPM)                           0                           0                          0
 121 Prepurge rate proving                  Yes    PPP switch                  Disabled                   Disabled
 122 Lightoff rate (RPM)                           0                           0                          0
 123 Lightoff rate proving                         LPP switch                  LPP switch                 LPP switch
 124 Rate proving delay                            255                         255                        255
 126 Ignitor duration                              Early spark termination     Early spark termination    Early spark termination
 127 Ignition type                          Yes    Interrupted                 Interrupted or Intermittent Interrupted or Intermittent
 128 Flame sensing system type                     Single                      Single                     Single
 129 Secondary flame sensing time                  0                           0                          0
 130 Flame failure response time                   .8 or 3 sec                 .8 or 3 sec                .8 or 3 sec
 131 Pilot valve hold enable                       Disabled                    Disabled                   Disabled
 132 Pilot valve hold transition time              45 sec                      45 sec                     45 sec
 133 Manual open switch enable                     Disabled                    Disabled                   Disabled
 134 Auto-ignition enable                          Disabled                    Disabled                   Disabled
 135 Delayed main valve 2 enable                   Disabled                    Disabled                   Disabled
 136 Prepurge time                                 2 sec to 30 min             2 sec to 30 min            2 sec to 30 min
```

As it says at the top of the report, you should view this file using a fixed-width font such Courier or Courier New to make the columns line up (in Notepad this can be chosen via the “Format” menu).

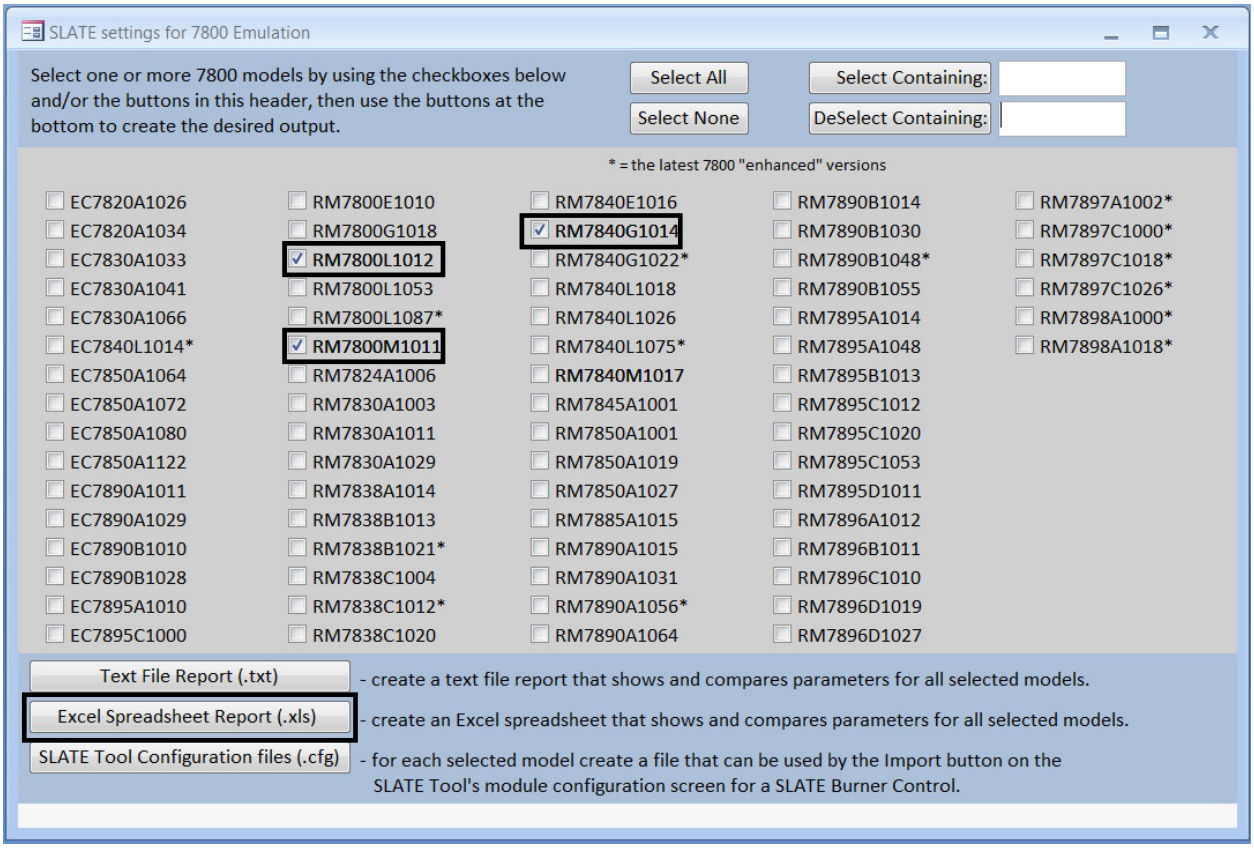
The Diff column will contain Yes if there are any differences in configuration settings across the entire row of all models in the report and will be blank if all of the settings across the row are identical. For an example look at register “121 Prepurge rate proving” in the report. The L1012 model has a “PPP switch” (Purge Position Proven switch, previously called a High Fire Switch or HFS by the 7800 SERIES) whereas the M1011 and G1014 do not have this input.

7800 SERIES models have some behaviors that are controlled by different wiring connections, configured by cutting jumpers, using different purge timer plug-ins, using flame modules with different timings, etc. Wherever a 7800 SERIES model has these options the tool will summarize them using the word “or” to separate the choices. An example above is register 127 for the M1011 and the G1014. For those models a field wiring option is used to obtain either interrupted or intermittent pilot, whereas in SLATE this same option is controlled by configuration parameter setting. Another example is that all of the 7800 SERIES models shown have a selectable Flame failure response time of either .8 or 3 seconds, depending on the flame module that is plugged into the 7800 device. In SLATE this choice is a parameter setting for register 130.

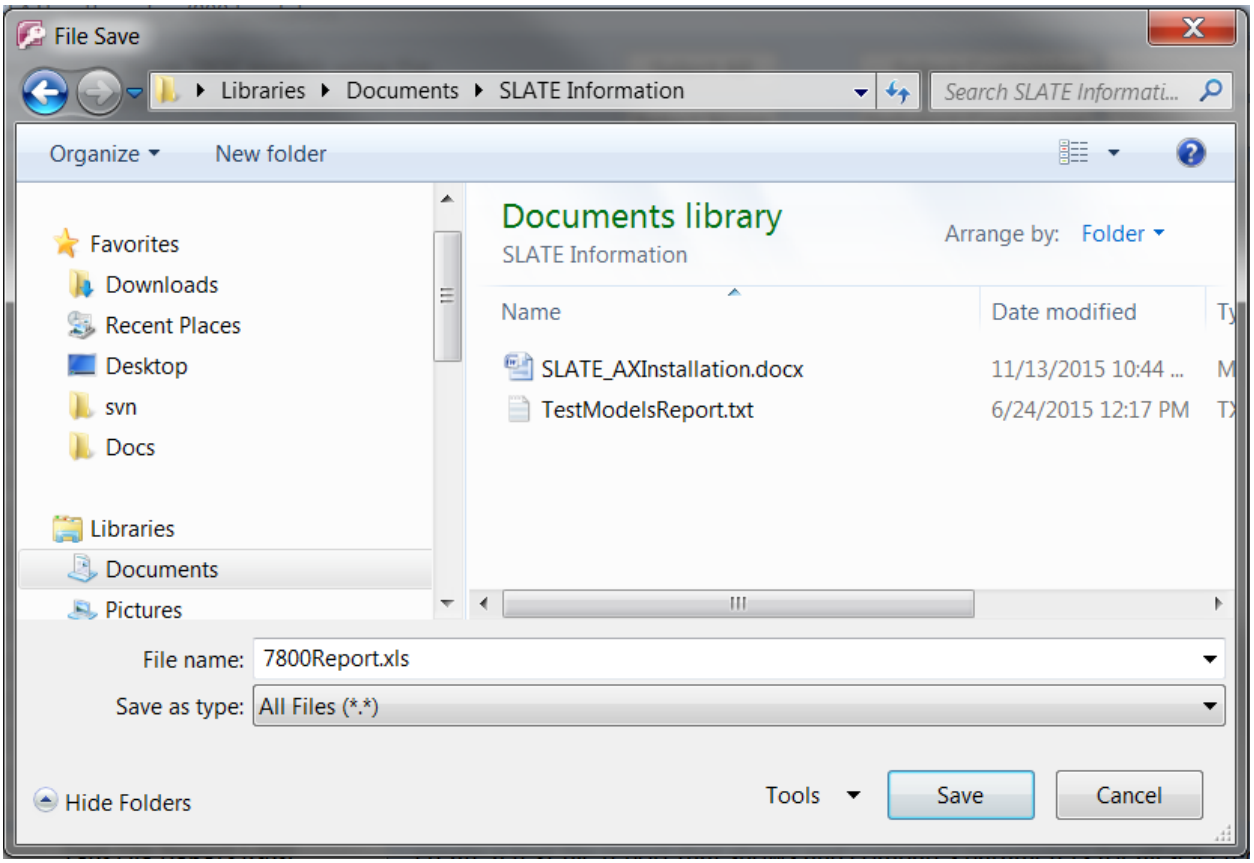
Excel Spreadsheet Reports

When selecting this report type the output is put into an Excel spreadsheet document. For any 7800 SERIES model, the body of the Excel Spreadsheet Report is completely identical to the content of the Text file report, except that it is in Excel format of course. Again, you first select the models you are interested in, then click the Excel Spreadsheet Report button, and finally use the usual save dialog box to save the Excel file somewhere on your PC. Then you can open that file to view the information. Excel can also be used to save other output formats such as a CSV (comma-separated-value) file which is compatible with importing into other programs.

Below is an example of the steps:

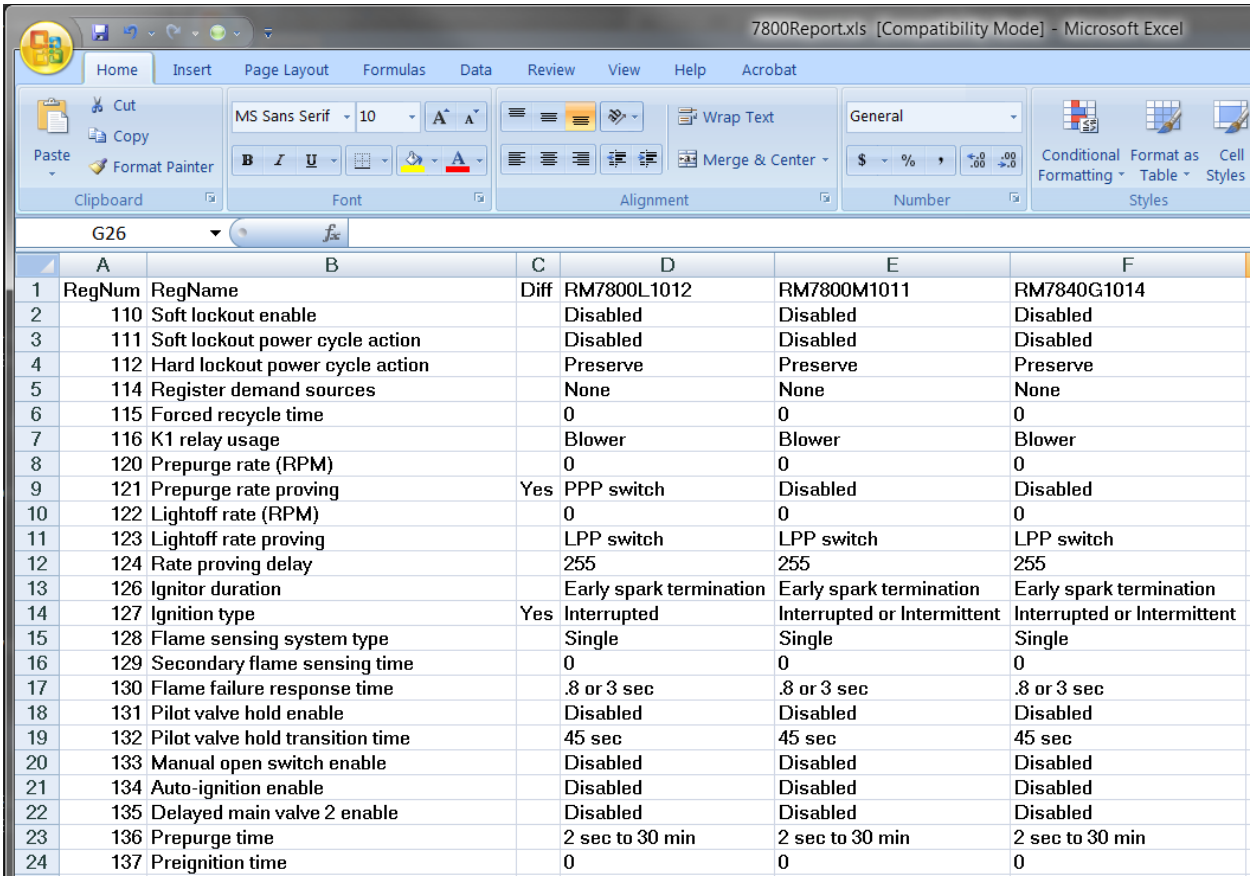


Select the desired 7800 SERIES configurations.
Click the Excel Spreadsheet Report button.
This will open a typical Save dialog box as shown below.



Select the desired location on your PC. You can also edit the file name if you prefer, then click Save.

Go to that location and double click the newly created .xls file to open it in Excel. Here is an example of part of an Excel report:



	A	B	C	D	E	F
1	RegNum	RegName	Diff	RM7800L1012	RM7800M1011	RM7840G1014
2	110	Soft lockout enable		Disabled	Disabled	Disabled
3	111	Soft lockout power cycle action		Disabled	Disabled	Disabled
4	112	Hard lockout power cycle action		Preserve	Preserve	Preserve
5	114	Register demand sources		None	None	None
6	115	Forced recycle time		0	0	0
7	116	K1 relay usage		Blower	Blower	Blower
8	120	Prepurge rate (RPM)		0	0	0
9	121	Prepurge rate proving	Yes	PPP switch	Disabled	Disabled
10	122	Lightoff rate (RPM)		0	0	0
11	123	Lightoff rate proving		LPP switch	LPP switch	LPP switch
12	124	Rate proving delay		255	255	255
13	126	Ignitor duration		Early spark termination	Early spark termination	Early spark termination
14	127	Ignition type	Yes	Interrupted	Interrupted or Intermittent	Interrupted or Intermittent
15	128	Flame sensing system type		Single	Single	Single
16	129	Secondary flame sensing time		0	0	0
17	130	Flame failure response time		.8 or 3 sec	.8 or 3 sec	.8 or 3 sec
18	131	Pilot valve hold enable		Disabled	Disabled	Disabled
19	132	Pilot valve hold transition time		45 sec	45 sec	45 sec
20	133	Manual open switch enable		Disabled	Disabled	Disabled
21	134	Auto-ignition enable		Disabled	Disabled	Disabled
22	135	Delayed main valve 2 enable		Disabled	Disabled	Disabled
23	136	Prepurge time		2 sec to 30 min	2 sec to 30 min	2 sec to 30 min
24	137	Preignition time		0	0	0

The Diff column will contain Yes if there are any differences in configuration settings across the entire row of all models in the report and will be blank if all of the settings across the row are identical. For an example look at register “121 Prepurge rate proving” in the report. The L1012 model has a “PPP switch” (Purge Position Proven switch, previously called a High Fire Switch or HFS by the 7800 SERIES) whereas the M1011 and G1014 do not have this input.

7800 SERIES models have some behaviors that are controlled by different wiring connections, configured by cutting jumpers, using different purge timer plug-ins, using flame modules with different timings, etc. Wherever a 7800 SERIES model has these options the tool will summarize them using the word “or” to separate the choices. An example above is register 127 for the M1011 and the G1014. For those models a field wiring option is used to obtain either interrupted or intermittent pilot, whereas in SLATE this same option is controlled by configuration parameter setting. Another example is that all of the 7800 SERIES models shown have a selectable Flame failure response time of either .8 or 3 seconds, depending on the flame module that is plugged into the 7800 device. In SLATE this choice is a parameter setting for register 130.

Creating Configuration Files

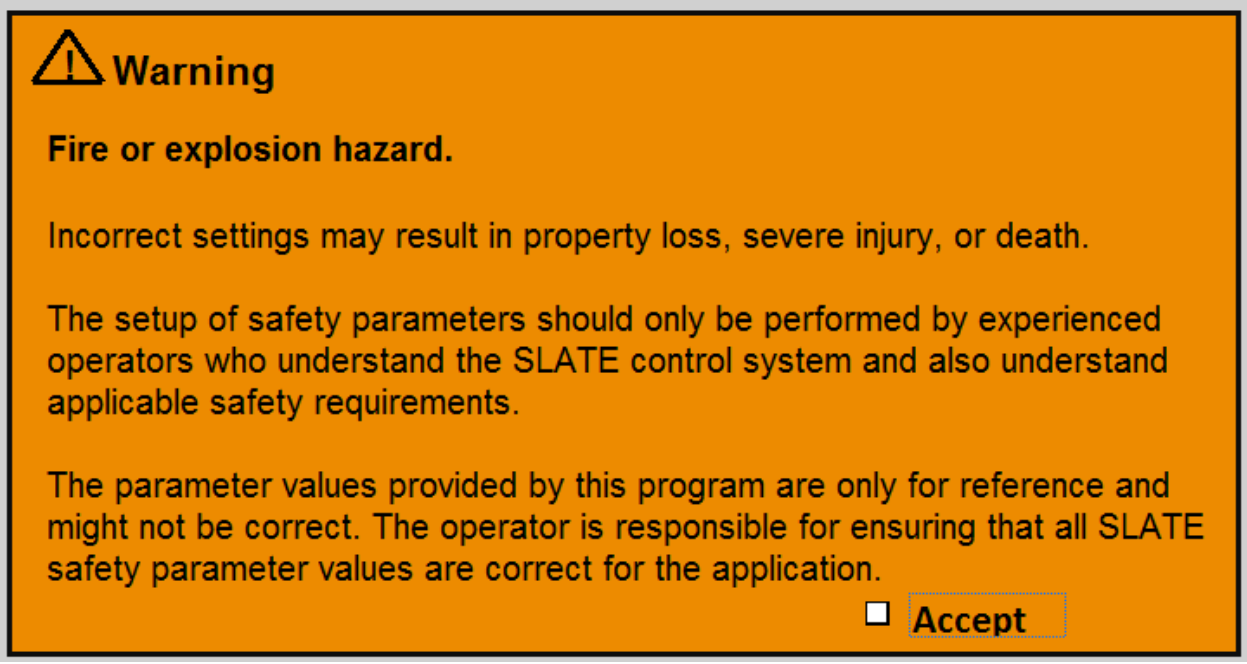
The SLATE Tool Configuration Files button is used to create a file – one for each selected model - that can then be used by the Import function that is provided in the SLATE AX Tool's module configuration screen for a SLATE Burner Control. This provides a starting point for SLATE burner control configuration. When the file is imported into the SLATE AX configuration tool the parameters are set to the values reported by the Text or Excel report files described above, with these exceptions:

- About half of the SLATE burner control configuration parameters have no representation in the 7800 SERIES because they are for new features that are not provided in the 7800 SERIES.
- Some parameters have multiple choices. You can see these wherever "or" is used between possible values in the reports (as described above) but just one of these choices is in a configuration file.

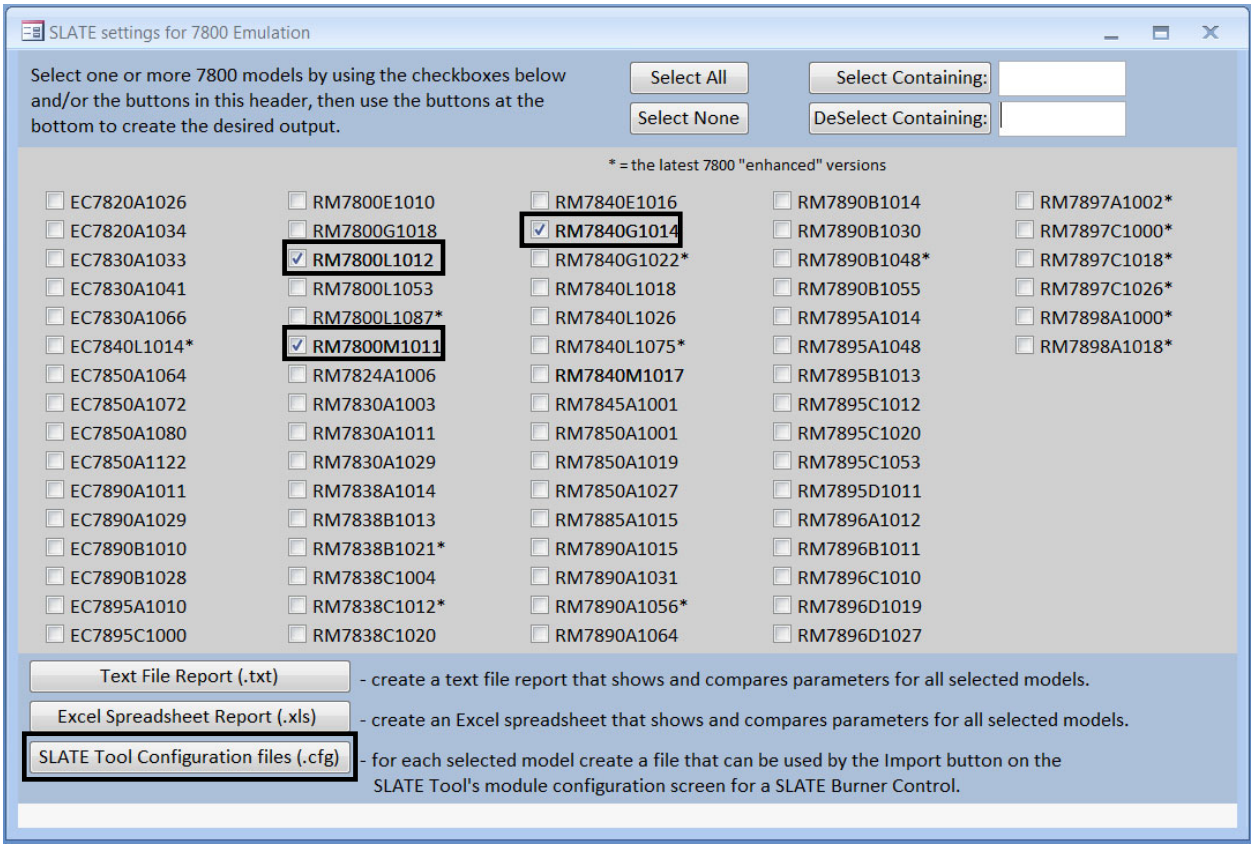
For both of those cases, the correct value for your application is neither shown nor known by the SLATE 7800 Emulation Tool. For these, the value in the provided by the configuration file is typically the most conservative of the possibilities and it typically also matches the as-shipped condition.

However for these values and also for ALL values ...

All parameters still must be verified as correct by an experienced operator who understands the SLATE control system and also understands the applicable safety requirements. The parameter values provided by this program are for reference only and might not be correct. The operator is responsible for ensuring that all SLATE safety parameter values are correct for the application.

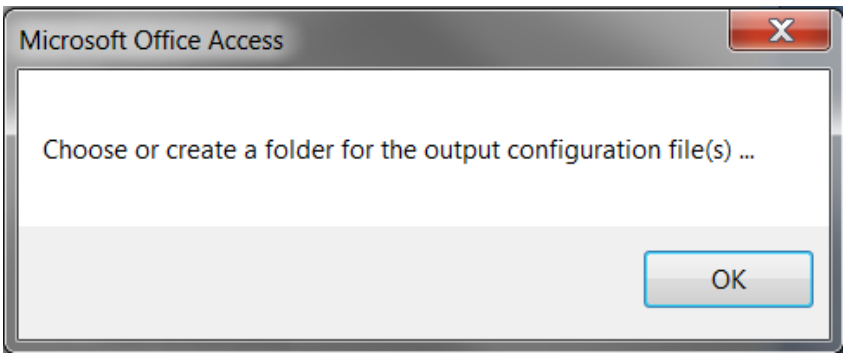


Creating one or more configuration files is similar to creating reports. Again, you first select the models you are interested in, then click the SLATE Tool Configuration files button, and finally choose the location for the files on your PC. Below is an example of the steps:

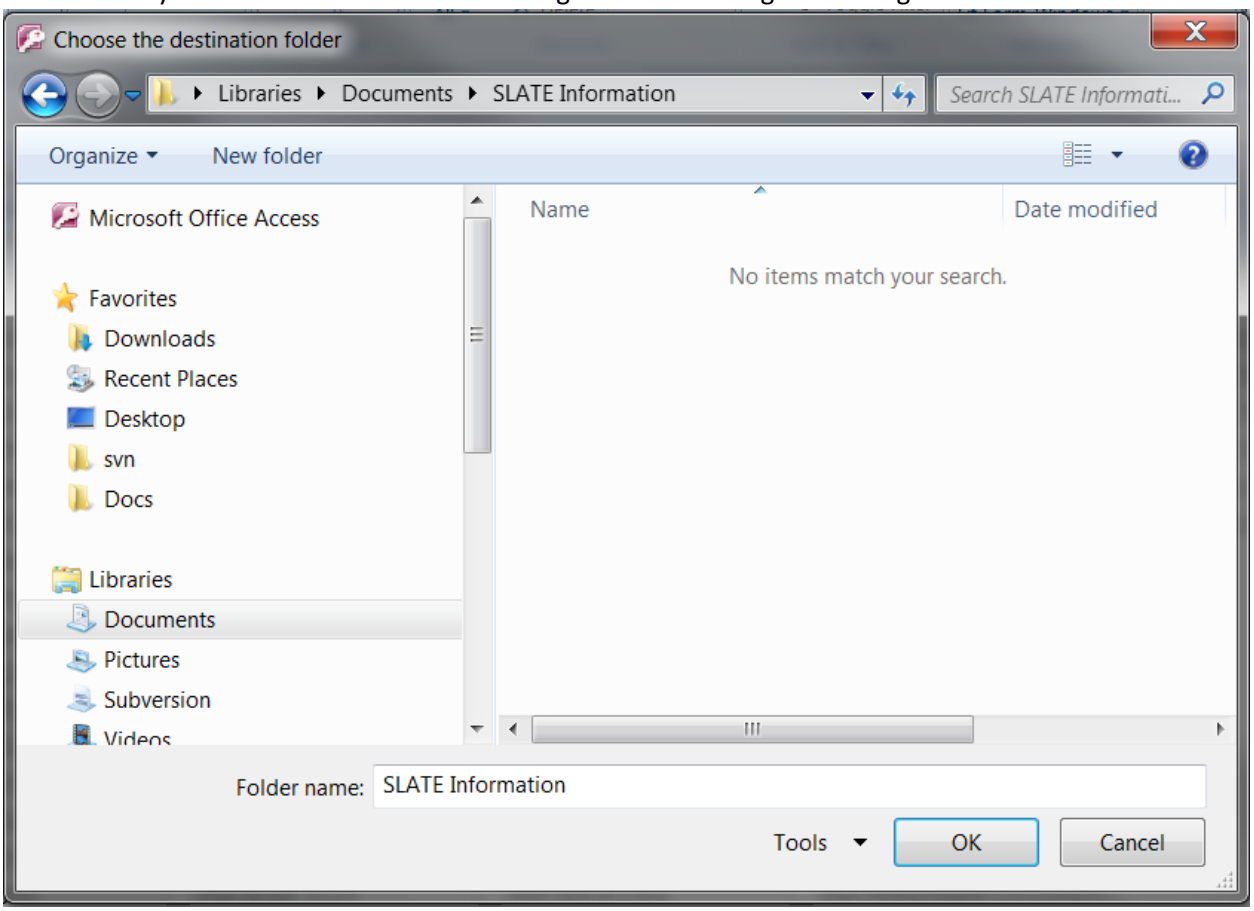


Select the desired 7800 SERIES configurations.
Click the SLATE Tool Configuration files button.
This will open a typical Save dialog box as shown below.

But a difference is that in this case you will be asked to identify (or create) a folder where the files will be saved and you won't and cannot specify the file names. Multiple files will be created if you select more than one and thus the file names will be created automatically. To explain the first part of this a dialog box appears after you click the SLATE Tool Configuration files button:



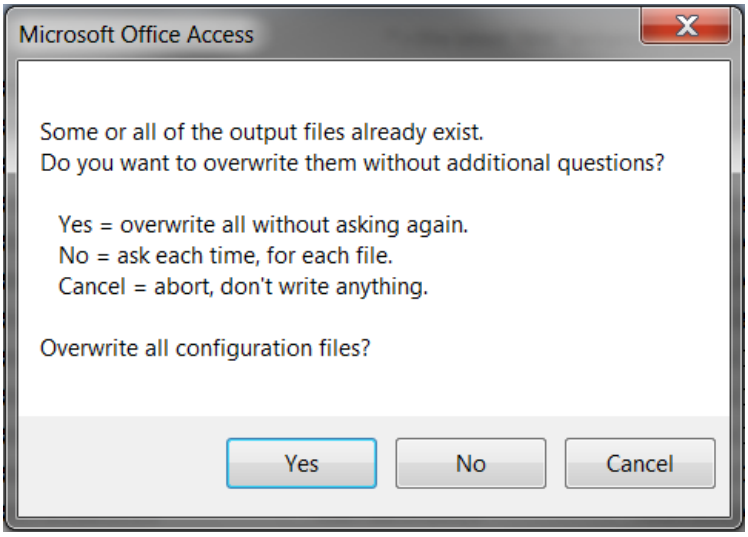
Click OK and you will then see a standard dialog box for choosing or creating a folder.



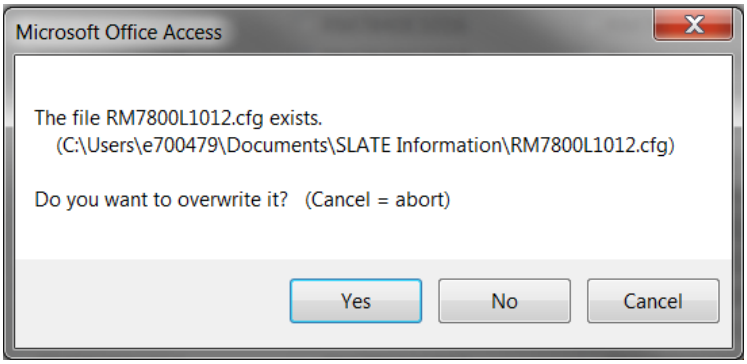
This is a standard Windows dialog box for selecting a folder in which you can navigate to a location you prefer, optionally create one or more new folders via “New Folder” in the bar at the top, navigate into those and finally click OK when you’ve browsed to the right location. Because you are being asked to choose a folder, only folders but no files are shown as you browse which explains the empty rectangle above. For this example, the same folder that was used for the reports examples above has been chosen but this SLATE Information folder does not contain any subfolders so it looks empty.

But there are some files already in that folder and the program does help protect you from accidentally overwriting files that you want to keep ...

After you click OK in the dialog box where you choose a folder the files are created there and if there are no name conflicts in that destination folder then the files (or file) are simply saved. But the dialog box below will appear the first time that a file which is about to be saved has the same name as an existing file. It gives you the three choices for what to do next as described here:

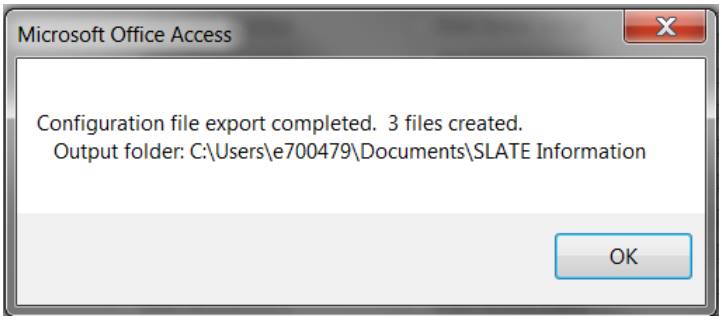


The “Yes” and “Cancel” explanations should be clear. If you chose “No” above to say no to automatic overwriting then a question dialog is shown for each name conflict. Here’s an example:

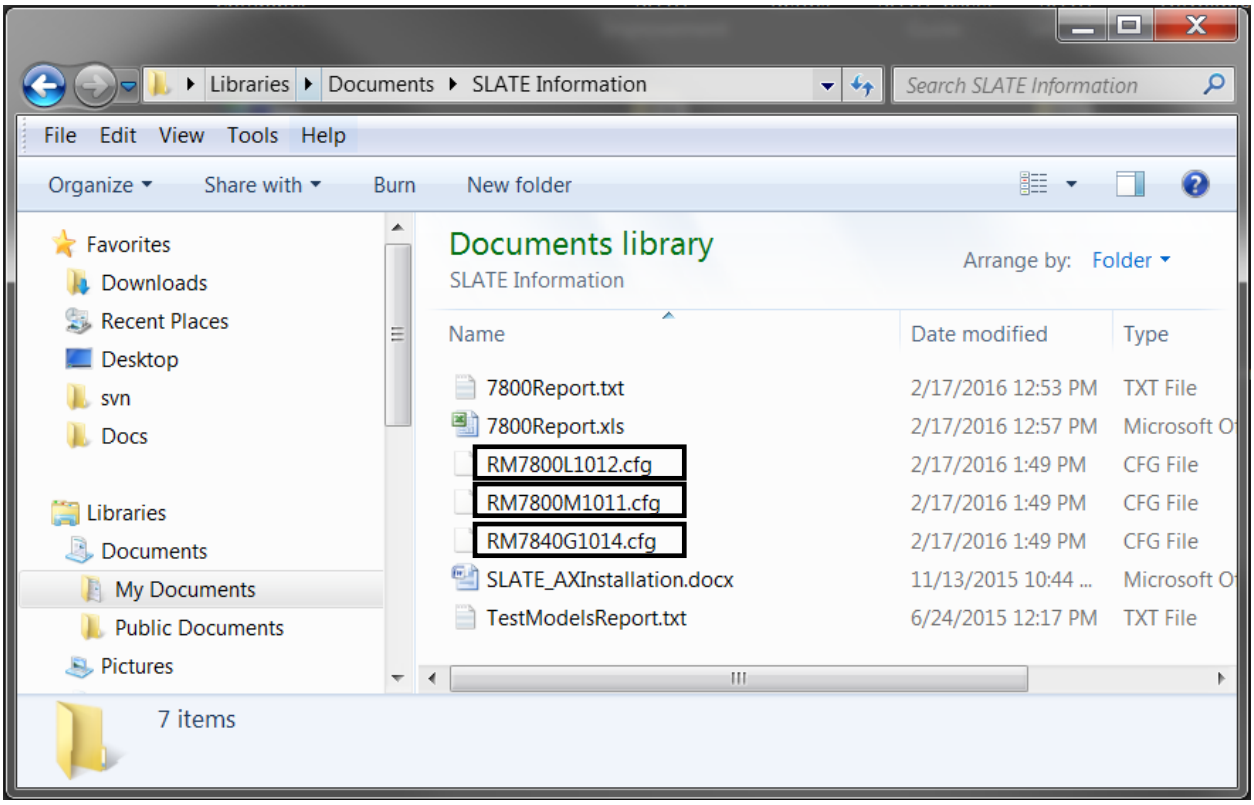


If you click “No” then that file will be skipped and the program will continue to save files for other models that you have chosen, again asking about any names that have collisions. As the dialog box above says, clicking Cancel will abort the generation of output.

When it's all done (typically takes just a few seconds) a dialog box reports the results including the pathname of where the files were stored. For example:



If you then open that destination folder, the configurations files will be shown, for example:



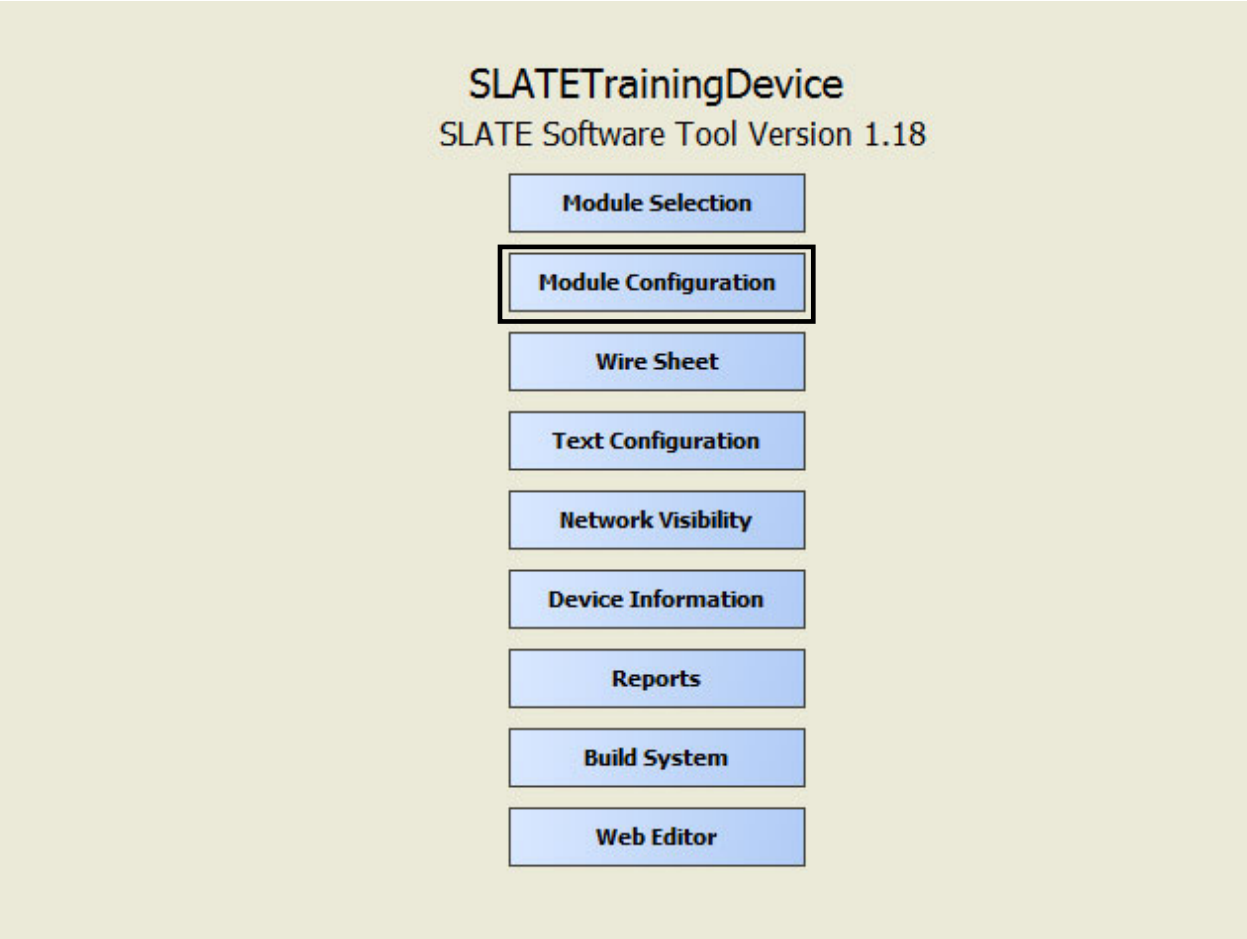
As shown they will be named for the 7800 SERIES model with a .cfg extension. (Again, you may or may not see the extension .cfg as part of the name depending on your PC's personal preference settings, but if this is not shown also note that this is represented also under the "Type" heading, as above.

The .cfg extension and the internal format of the file is what is expected and required by the SLATE AX Tool's Import function. Do not modify these files.

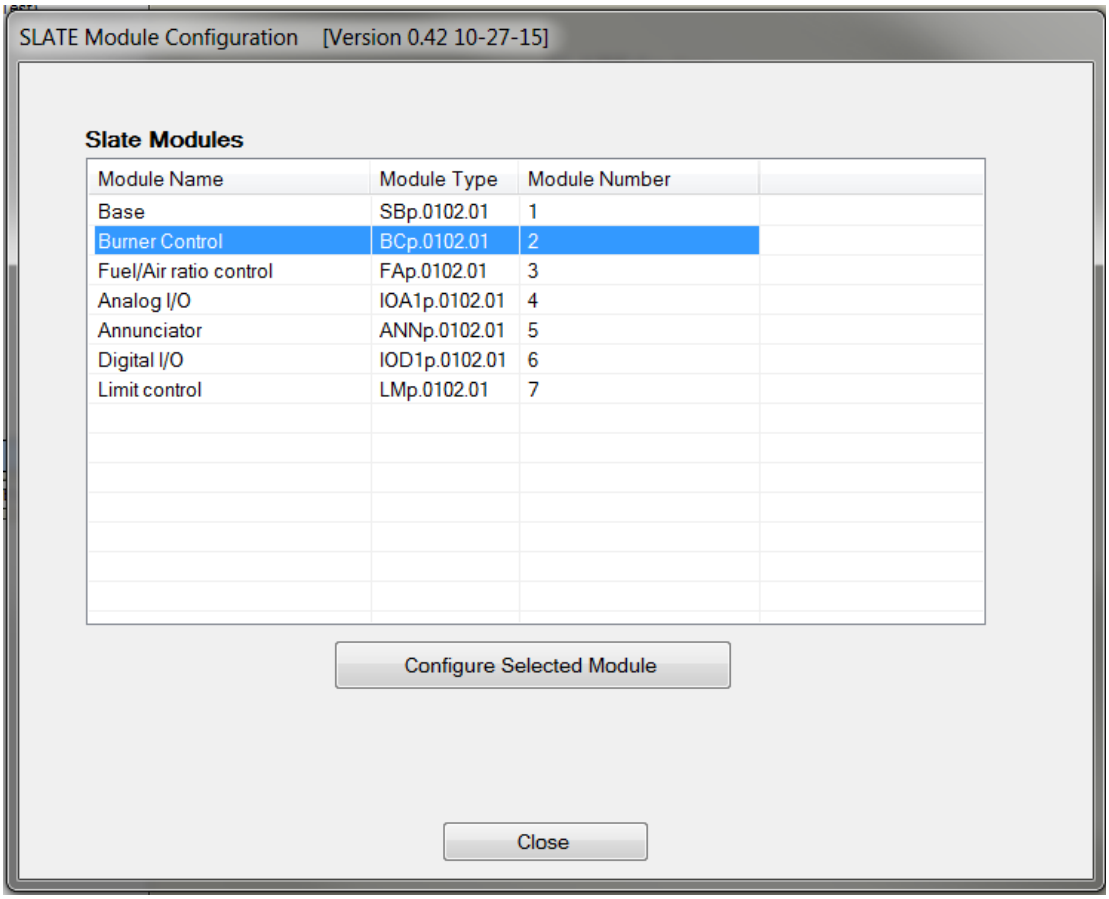
Using Configuration Files

To import the file into a SLATE burner control's configuration you will launch the SLATE AX Tool, open the Station that you want to work on, connect to it, and then drill down the selection tree to a SLATE device that you have created (or which you create), and finally double click on the your SLATE device to open screen shown below. All of these are the usual steps for working with the SLATE AX Tool that are typically covered in hands-on training sessions; the details of these steps are outside of the scope of this document.

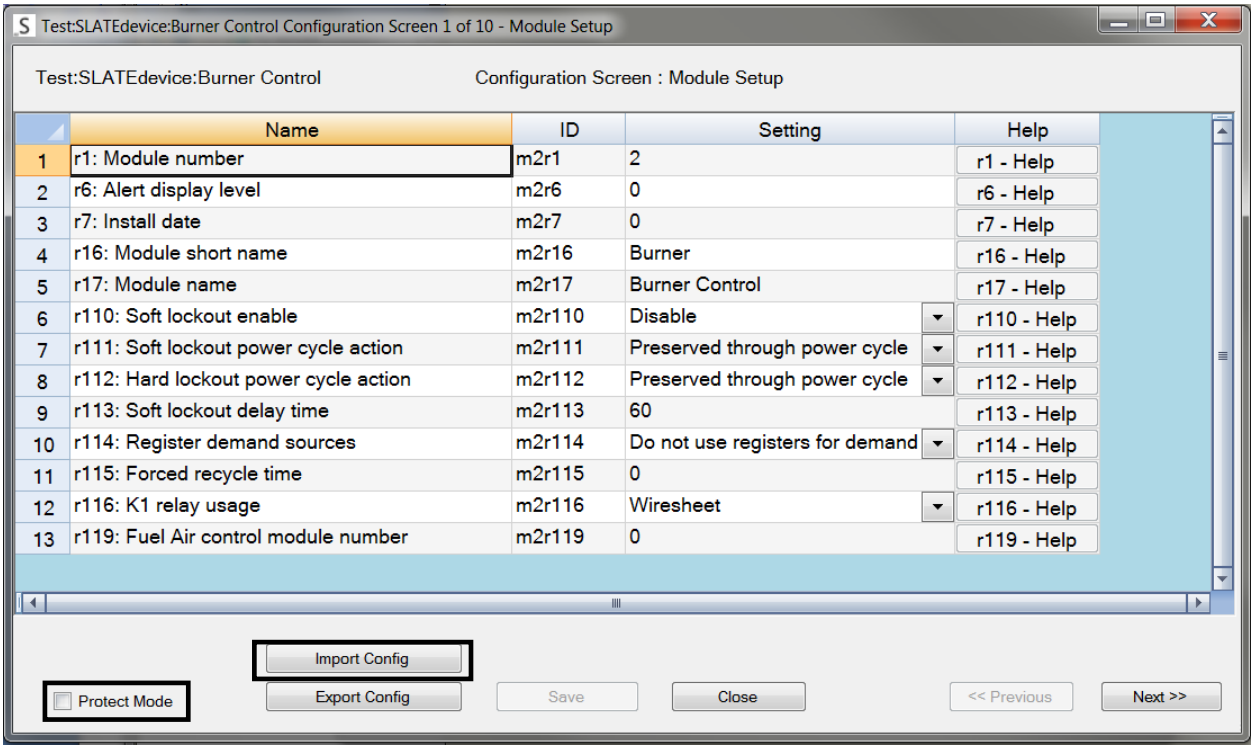
You must have already performed the Module Selection step before choosing Module Configuration. Assuming that has been done, click the Module Configuration button:



Accept the Warning message and then a list of the modules that you have selected for your design will appear such as in the example shown below. Select the SLATE Burner Control into which you want to load a configuration (.cfg) file, then click the Configure Selected Module button (or just double-click the module in the list, as a shortcut). Again, these all are steps that are entirely typical for working with any SLATE module and are covered in the SLATE AX Tool references and training classes.

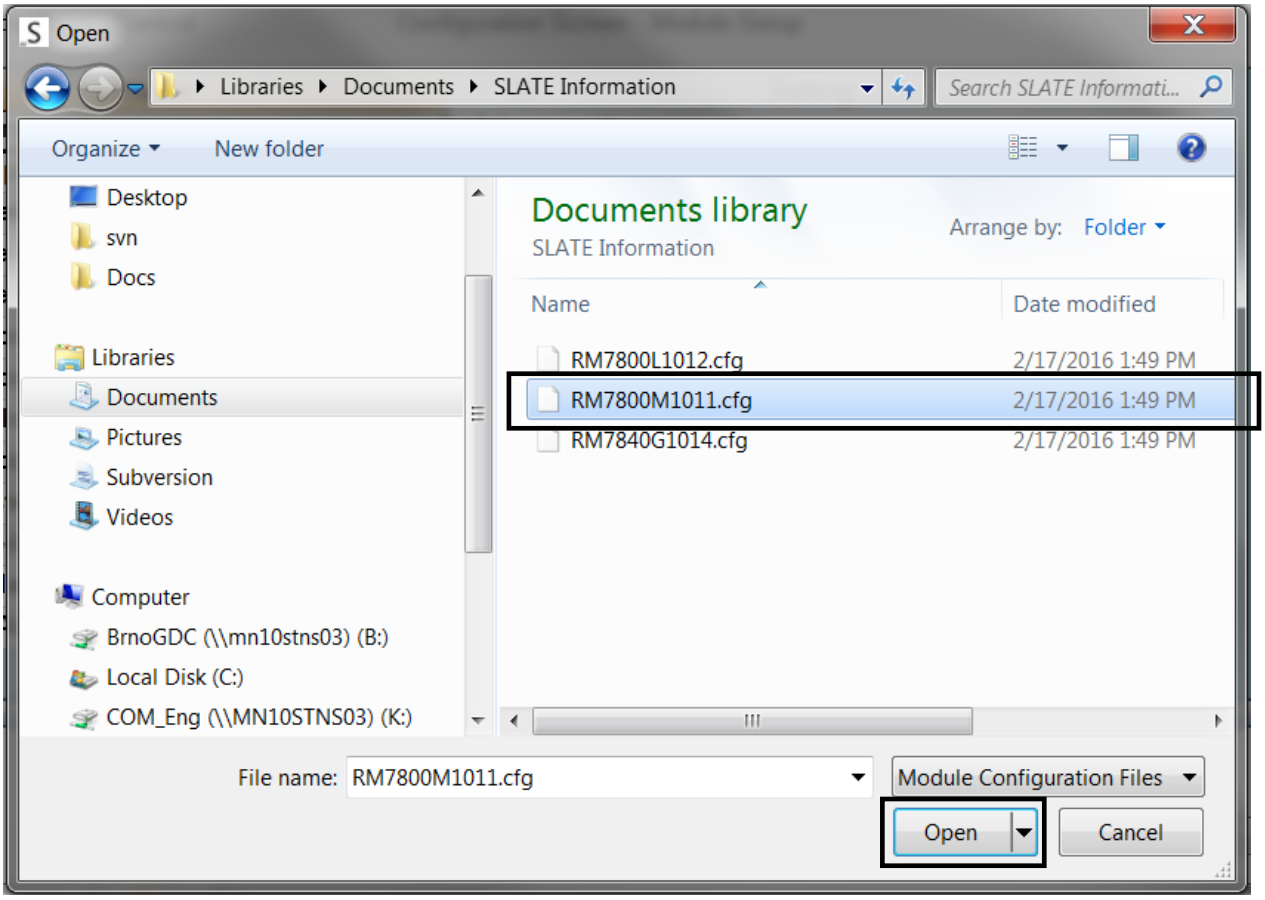


The SLATE burner control configuration screen will then appear displaying the first page of registers that can be configured. First make sure that the “Protect Mode” checkbox is not checked. This checkbox is provided simply to prevent accidental changes when you are just browsing a configuration: you must uncheck it to make any changes. This will enable the Import Config button. Click it.



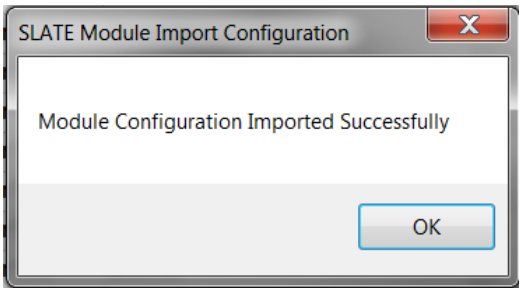
Note: The same buttons appear on all of the Configuration pages and it doesn’t matter if you’ve gone to the “Next >>” page or which page you’re on when you use an Import Config or Export Config button. No matter where you are, the entire configuration for the module that you selected (just above) – all pages, all registers - is always imported or exported.

Clicking Import Config will open a standard file selector dialog box. Navigate to your folder where you have saved the configuration file you want to load, click to select it (only files having a .cfg extension will be shown) then click the Open button.



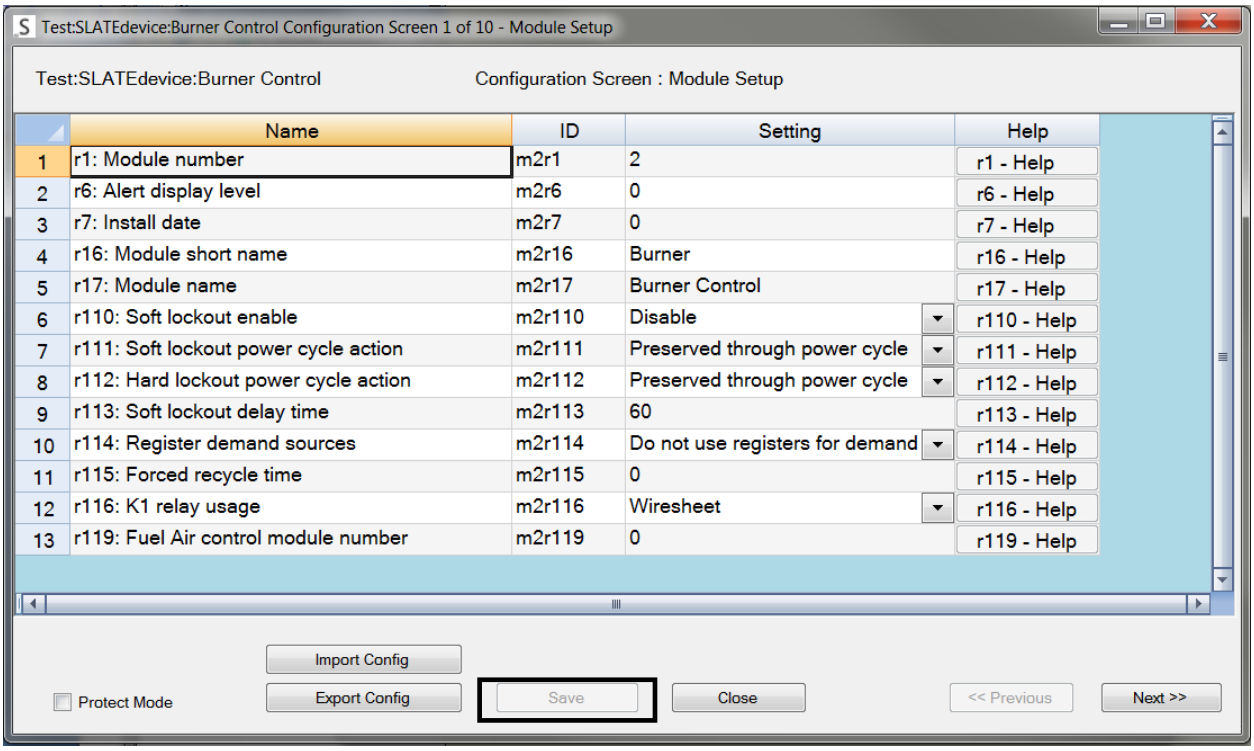
Clicking Open will then perform these steps:

1. ALL of the Burner Control configuration parameters will be reset to their default, as-shipped from Honeywell condition, and then
2. Only those parameters that are shown in the reports described above will be set to the values that are shown in the reports. As also described above, wherever an “or” option is shown in a report; that is, wherever the 7800 SERIES itself has configurable behavior, then just one of the values will be used and typically it will be the most conservative choice.
3. A dialog box will appear confirming that importing is complete, click OK:



To finish then either click Save to save your work so far, or continue to review and set parameter values.

Note: if you want to Save after importing it may be that the Save button is not enabled such as shown below. This minor problem occurs in some versions of the AX Tool and will be fixed. As a work-around, it is easy to enable the Save button: choose any parameter that is shown and note its current value, then change it to some other value, then change it back again. That is, changing something enables the Save button.



A configuration file provided by the SLATE 7800 Emulation Tool database can be kept and used as a starting point for new configurations whenever you need this.

Additionally, after you have done work on the configuration for any module, you might use the “Export Config” button to create your own .cfg file containing all of your choices for that module. Then when working on some other SLATE design or a perhaps a second module of the same type (e.g. a second burner control in the same SLATE device), you can import your choices. Just keep in mind that whenever you use Import Config that ALL parameters will be set; there is no way to Import a configuration file to adjust only some of them while retaining the existing values in others.