The SpecTcl Radware I/O plugin

Ron Fox

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by Ron Fox

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Chapter 1. Introduction

Radware is a popular gamma ray spectrum analysis tool written by David Radford of the Physics Division of Oak Ridge National Laboratory. The home page for the package is at: http://radware.phy.ornl.gov. The radwareio plugin adds the capability to export SpecTcl 1-d spectra to radware in *spe* format.

The radware I/O functions needed to do this are included in this package by permission from Dr. Radford. Therefore there are no external dependencies other than an installation of SpecTcl-3.2.

The remainder of this document:

- How to build and install the plugin.
- How to use the plugin once it is installed.

Chapter 2. Installation

To install the plugin you must decide where the plugin files will live. I recommend installing them into your SpecTcl-3.2 installation directory, however you may install plugins elsewhere in the filesystem if that suits your organizational needs better.

The plugin is installed using the usual two step **configure**, **make install** operation. The **configure** command accepts several options specific to the configuring the makefiles for the plugin:

`--prefix=path`

> The value of this switch is the top level installation directory. The plugin will be installed in the `TclLibs` subdirectory of this directory.
>
> By default, the SpecTcl installation is assumed to be here as well. See, however the `--with-spectcl-home` option.
>
> The default value for this is `/usr/local`.

`--with-tcl-header-dir=path`

> The configuration script attempts to locate the Tcl headers by searching a number of 'normal' locations for `tcl.h`. If configure fails to find this header, or if you want to use an installation of Tcl other than the one that it does locate (e.g. because you have installed ActiveTcl, you can specify the value of this switch to be the directory in which `tcl.h` is.
>
> Normally you will not have to set this.

`--with-spectcl-home=path`

> If the value for your `--prefix` option is not where SpecTcl is installed, you must provide the toplevel installation directory path as the value to this switch.

Example 2-1. Installation at the NSCL for SpecTcl-3.2

```
./configure --prefix=/usr/opt/spectcl/3.2
...
make install
...
```

Chapter 3. Using

This chapter describes:

• How to load the plugin into a running SpecTcl.

• The commands that are added by the plugin.

3.1. Loading the plugin

The Tcl **load** command is used to load plugins. This command requires the full path to the plugin. The plugin will have been installed in the `TclLibs` subdirectory of the plugin's installation directory. If the plugin was installed in the SpecTcl directory, the `SpecTclHome` Tcl variable can be used to load the plugin.

Example 3-1. Loading the plugin

```
load /usr/opt/SpecTcl/plugins/TclLibs/libradwareio.so ❶
load $SpecTclHome/TclLibs/libradwareio.so              ❷
```

❶   The plugin is loaded after being installed in `/usr/opt/SpecTcl/plugins`. Note again the plugin file is installed in the `TclLibs` directory, and is named; `libradwareio.so`.

❷   Here the plugin was installed in the SpecTcl installation directory so the path `$SpecTclHome/TclLibs/libradwario.so` can be used.

3.2. Commands added by the plugin

Successfully loading the plugin adds two commands:

rwwrite

Writes a spectrum in .spe form to file.

rwread

Reads a spectrum in .spe form from file.

The remainder of this chapter provides reference pages for both of these commands.

rwwrite

Name

rwwrite — Write a spectrum to file in radware .spe format.

Synopsis

rwwrite *spectrum file*

DESCRIPTION

Write *spectrum* to the file *file*. The spectrum is written in Radware .spe format.

spectrum must be a 1-d spectrum. The spectrum name is used for the spectrum title in the .spe output file. If the name is longer than 79 characters, it is truncate to 79 characters, as that's the maximum allowed name length for radware spectrum titles.

EXAMPLES

Write the spectrum gamma1 to the file gamma1.spe:

Example 3-1. Write a spectrum to .spe formatted file

```
rwwrite gamma1 gamma1.spe
```

BUGS and other ISSUES

- Some errors are output to stderr which is the terminal on which SpecTcl was started. This is a property of the radware I/O library and is not expected to be fixed. It does mean that the command is not always able to return a meaningful error message on failure, although it will always return an error condition on failure.

SEE ALSO

rwread(1radwareio)

rwread

Name

`rwread` — Read radware .spe formatted file

Synopsis

rwread [?-maxchans n?] *`filename`*

DESCRIPTION

Reads the spectrum in the .spe file *`filename`* into a SpecTcl spectrum. The name of the spectrum is taken from the .spe file's title field. The spectrum will always be a snapshot spectrum as .spe files do not have sufficient information to allow SpecTcl to hook up parameters to the spectrum.

The optional `-maxchans` switch allows you to specify the maximum number of channels of data that may be in the spectrum. This defaults to `8192`.

The Radware spectrum I/O functions don't allow the program to inquire the length of a spectrum. Therefore, the `-maxchans` value is used to allocate the array into which the spectrum is initially read in prior to converting the data to a SpecTcl Spectrum object. if `-maxchans` is too small, radware will not read the last set of channels from the spectrum.

EXAMPLES

Example 3-1. Reading in a radware .spe spectrum

`rwread -maxchans 32768 george.spe`

BUGS and ISSUES

- Radware's I/O library can emit error messages to `stdout`. For SpecTcl this is the terminal (window) on which SpecTcl was started. While the command will always know when it failed, this behavior means that it is not possible to report errors detected by the radware I/O library as the result of the command.

SEE ALSO

rwwrite(1radwareio)