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Spectra Diagnostic File Format

SpectraDiagnostics produces spectra diagnostic files of CSS during radial processing that start with **STAT_** and end with **.xdt** that helps to trouble shoot system issues. The .xdt file is built upon the Columnar Table Format (CTF) which is covered in a separate document for which you should be familiar with before reading this document.

To plot these files, use the **DiagDisplay** application in the Viewers folder. DiagDisplay can display multiple STAT files simultaneously, select the STAT_ files you want in the Finder (use shift and/or command key to select) and drag the multiple selection to DiagDisplay icon. Note, if you try to plot a year's worth or more, you will need a very fast machine or a lot of patience.

File Naming

These files are put into /Codar/SeaSonde/Data/Diagnostics and have the file naming format of **STAT_XXXX_yyyy_mm_dd.xdt**
where
XXXX is the radial site code,
yyyy is the year, mm is the month, and dd is the day.

The processing tools are hard coded to create new STAT_ files weekly on Sundays.

Identification of the File

The first keyword of the file will typically be '%CTF: <version>' describing the version of the CTF file. Before version 1.00, the file will be missing this key; however, it is still readable with this standard.

Within the first ten lines of the file will must be a keyword of:
%FileType: <type> <subtype> <name>
The **<type>** must be **DIAG** to identify it as a diagnostic file.
The **<subtype>** must be **pcss** to identify it as a hardware diagnostic file.

Table Data

The table data time starts from the files **%TimeStamp:** key.
The **%TableType: <type> <subtype>** must have a <type> of **xspc** while the <subtype> **spr1** describes the current table column output and will change in the future as more columns are added or inserted. The best way to read this files is to use the **%TableColumnType:** key, which contain a list of four character codes describing each column.

The <subtype> **'spr1'** output is:
%TableColumnTypes: DMIN STYP RTYP RBEG REND SNA3 SNF1 SNF2 SNF3 SPWR SBW1 SBW2 SBW3 SSP1 SSP2 SSP3 SEP1 SEP2 SEP3 SBNG TYRS TMON TDAY THRS TMIN TSEC

Each table row is the processing result of a single CSS into a short time radial.

The column character codes can be decoded as:

DMIN	Recorded time of the data row in minutes from the %TimeStamp:
STYP	Spectra type (Just the third filename character in ascii)
RTYP	Radial type
RBEG	Range cell start for diagnostics
REND	Range cell end for diagnostics
SNA3	Number of doppler cells negatively flagged by CSPro
SNF1	Average noise floor for Loop1 from RBEG to REND
SNF2	Average noise floor for Loop2 from RBEG to REND
SNF3	Average noise floor for Monopole/Dipole from RBEG to REND
SPWR	Sum of all power in cross spectra from RBEG to REND
SBW1	Average Bragg Width of Loop1 from RBEG to REND
SBW2	Average Bragg Width of Loop2 from RBEG to REND
SBW3	Average Bragg Width of Monopole/Dipole from RBEG to REND
SSP1	Average S/N of Loop1 from RBEG to REND
SSP2	Average S/N in Bragg of Loop2 from RBEG to REND
SSP3	Average S/N in Bragg of Monopole/Dipole from RBEG to REND
SEP1	Average S/N Not in Bragg of Loop1 from RBEG to REND
SEP2	Average S/N Not in Bragg of Loop2 from RBEG to REND
SEP3	Average S/N Not in Bragg of Monopole/Dipole from RBEG to REND
SBNG	Number of Bragg rejected by Ionospheric Noise check.
TYRS	Year of measurement date.
TMOS	Month of measurement date.
TDAY	Day of measurement date.
THRS	Hour of measurement date.
TMIN	Minute of measurement date.
TSEC	Second of measurement date.

Revision History

First Draft Oct 28, 2016

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