SOF Visit 8 and Visit 9
EBE (V8_eID.sas7bdat, V9_eID.sas7bdat) file documentation

These files were created by Terri Blackwell
Email: tblackwell@sfcc-cpmc.net

Overview:
These "EBE" (epoch-by-epoch) files come from the actigraphs, and are in the format of one record per epoch per participant, for the entire time the device was worn. Each epoch is one minute long. The main data available in these files are the activity (counts/minute) of the epoch, whether the epoch was scored as sleeping or wake, and whether the device was off during that epoch. These files can be used to create your own summary variables if you want something more specific that is not available in the summary files (V8ACTIG.sas7bdat, V9ACTIG.sas7bdat), and they were used in the circadian rhythm analysis variable creation. There is one file per ID, of the format VX_EID.sas7bdat, where X represents visit number (8 or 9). (for example, Visit 8 data for ID 22 would be V8_E22.sas7bdat). There are 3,127 files for Visit 8 and 831 for Visit 9.

It is useful to see if the variables you are interested in have already been created. The main summary file is called VXACTIG.sas7bdat, with documentation that explains the file. This documentation also explains commonly used terms (day, night, up interval, down interval, PIM, TAT, ZCM, etc) and describes the sleep scoring algorithms used. It has one record per participant, and has data that is summarized over all days/nights the participant had the device on (for example, the average total sleep time per night, based on all nights the participant wore the actigraph). The VXACTIG.sas7bdat file also contains rest-activity (circadian) rhythm variables.

Examples of variables you may need to use these EBE files for is: if you want the average out-of-bed interval activity level for only those minutes the participant was not coded as sleeping, or you want to see how much sleep a participant had between the hours of 5pm and 8pm.

Deidentification:
The dates have been removed from the file. There are summary variables in the VXACTIG.sas7bdat file that note the number of days form the clinic visit to the start and end of the actigraph recording (VXDAYSVS, VXDAYSVE), as well as the season of the start of the actigraph recording (VXACSEAS).

Variable description

Identifier variables:

ID	SOF Public Data Release ID
VXACDATENUM	Day number (First date of wear =1)
VXACWEEKDAY	Day of the week (Sunday-Saturday)
VXACTIME	Time of the epoch
VXACENUM	epoch number (a record number created by the actigraph)

General Information

VXACMODES	Modes with data available (ZPT= all 3 modes, ZP=no TAT data, Z=ZCM only)
VXACBAD10P	This minute is from an out-of-bed interval that had over 10% bad epochs, so in our main summary file this entire day was not included in the overall summary. (1=yes, 0=no). This is only for out-of-bed epochs.
VXACBAD2HR	This minute is from an in-bed interval that had over 2 hours of bad epochs, so in our main summary file this entire night was not included in the overall summary. (1=yes, 0=no). This is only for in-bed epochs.
VXACDAY	The day this epoch was from (first day, second day, etc)
VXACNIGHT	The night this epoch was from (first night, second night, etc).
VXACDOWN	Epoch coded as "down" interval, meaning it is from when the participant was in bed (an in-bed interval). (1=yes, 0=no)
VXACPARTDY	This is an out-of bed epoch that is from an incomplete out-of-bed interval (the data is not bounded by 2 in-bed intervals). We do not use this data in the summary of out-of-bed interval data because it does not represent a complete days worth of data. (1=yes, 0=no).

Main information to analyze:

VXACBAD	The participant had the device off during this epoch. (1=yes, 0=no)
VXACACTIVP	PIM mode: The activity score (counts/min) for this epoch
VXACACTIVT	TAT mode: The activity score (counts/min) for this epoch
VXACACTIVZ	ZCM mode: The activity score (counts/min) for this epoch
VXACSLEEPP	PIM: Whether the epoch was coded as sleeping by the UCSD sleep scoring algorithm (1=yes, 0=no)
VXACSLEEPT	TAT: Whether the epoch was coded as sleeping by the UCSD sleep-scoring algorithm (1=yes, 0=no)
VXACSLEEPZ	ZCM: Whether the epoch was coded as sleeping by the Cole-Kripke sleep scoring algorithm (1=yes, 0=no)

Instructions on dealing with "bad" or partial data:

Those epochs with VXACBAD=1 are times when the device was removed, and should not be included in analysis of sleep or activity. The sleep and activity variables for epochs where VXACBAD=1 have been set to .A=missing.

The variable VXACBAD10P=1 are epochs that were removed from the VXACTIG.sas7bdat summary variables for the out-of-bed interval because they were from an out-of-bed interval that had over 10% missing data (the entire day was deleted from the summary variable calculation). If you want to be consistent with the main summary file VXACTIG.sas7bdat, do not include this data in your out-of-bed summary variable calculation. This variable will be .M= from a partial day if the epoch comes from an incomplete out-of-bed interval. These epochs from partial days are also not included in calculation of out-of-bed summary variables in the VXACTIG.sasbdat file.

The variable VXACBAD2HR=1 are epochs that were removed from the VXACTIG.sas7bdat summary variables for the in-bed interval because they were from an an in-bed interval that had over 2 hours missing data (the entire night was deleted from the summary variable calculation). If you want to be consistent with the main summary file VXACTIG.sas7bdat do not include this data in your in-bed summary variable calculation.

The variable VXACPARTDY=1 shows the epoch that come from a partial out-of-bed interval. These are at the end of the file, and represent the time the participant woke up from the last night of sleep until about 9:30 that morning, which is when the clinic was scheduled to pick up the device from the participant. If you include this data in summaries of the out-of-bed interval it may be skewed, because it does not represent a full day of data, just the morning right after awakening. If you want to be consistent with the main analysis file VXACTIG.sas7bdat do not include this data in your out-of-bed summary variable calculation.

Special Missing values:
The variable VXACNIGHT shows which night the data is from. If the epoch is from an out-of-bed interval, this variable will be .M=not applicable. The variable VXACBAD10P is a variable describing the out-of-bed interval data, so if the epoch is from an in-bed interval the variable will also be set to .M=not applicable. The variable VXACPARTDY is a variable describing the out-of-bed interval data, and will be set to .M=not applicable if the epoch is from an in-bed interval.

The variable VXACDAY shows which day the data is from. If the epoch is from an in-bed interval, this variable will be .M=not applicable. The variable VXACBAD2HR is a variable describing in-bed interval data, so if the epoch is from an out-of-bed interval the variable will also be set to .M=not applicable.

If the participant did not have data collected for all 3 modes of activity (variable VXACMODES) then the data from the mode with missing data will be set to .A=missing (VXACSLEEPX, VXACACTIVX, where X is P, T or Z).

Format that may not be on the SOF SAS format library:
This temporary format may be needed:

```
/*************************************************/
TITLE2 "TEMPORARY FORMATS"; RUN;
/*************************************************/
PROC FORMAT;
VALUE WKDYFMT
   1 =  '1:SUNDAY'
   2 =  '2:MONDAY'
   3 =  '3:TUESDAY'
   4 =  '4:WEDNESDAY'
   5 =  '5:THURSDAY'
   6 =  '6:FRIDAY'
   7 =  '7:SATURDAY';
RUN;
```

Validation of this data:
This data has been cross checked against the summary output files created by the actigraphy software and our main summary file VXACTIG.sas7bdat to ensure that the summary data for total sleep time and average activity per day/night matches the estimates output from the device. The start and end times were also checked, as well as the bad intervals.