mta_find_states

Description:

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   For MTA purposes, the "state" or "current configuration" of the spacecraft
can be described by 7 fields:

             Field                          Values
      Focal plane instrument         H= HRC; A=ACIS; T=Transition
      HRC Power                      1= ON; 0=off
      HRC Side                       A= Side A; B= Side B
      HRC Mode                       I= Image; S= Spectral
      ACIS Power                     1= ON; 0=off
      ACIS Side                      A= Side A; B= Side B
      Gratings                       1= In; 0= Out

Scan the input data, extracting those elements which determine the current
state.  Generate a file indicating the times at which the state changes,
and the full configuration description at that time.  Generate a file
containing updates to the limits database.  This file shows the appropriate
limits for state dependent mnemonics effected by the changes that occured.
```

Parameters:

instates	file		Input states file
engfile	file		Engineering data
statefile	file		Output states file
updatefile	file		Output limits database updates file
statelimits	file	hidden	State dependent limits database
debug	int	hidden	Debug level (0-5)

Inputs:

States file
L0 Engineering data

```
1) ACIS ON/OFF (usually on even when not taking data (except during
eclipse))
2) HRC-S on / HRC-I on/ HRC LV on / HRC off
3) HEG/MEG in / LETG in / No grating
4) transition

mnemonic indicators for the configuration:
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for ACIS: 5 tests

1)
Is the DPA side A and/or B powered on (in normal science both sides of
the DPA should be on, on other occasions maybe only one side is powered,
and during eclipse the whole thing is off)?

DPA Power Supply Enable/Disbale A 1DPPSAEN
DPA Power Supply On/Off A 1DPPSAON
DPA Power Supply Enable/Disbale B 1DPPSBEN
DPA Power Supply On/Off B 1DPPSBON



2) Is the DEA side A or B powered on (only one side should be
powered on) ?

DEA Power Supply Enable/Disable A 1DEPSAEN
DEA Power Supply On/Off A 1DEPSAON

OR

DEA Power Supply Enable/Disable A 1DEPSAEN
DEA Power Supply On/Off A 1DEPSAON





For HRC

for high voltage
2IMONST =1 --> HRC-I HVPS on
2SPONST =1 --> HRC-S HVPS on


these are exclusive

for low voltage

2PS5AON" "+5V LV POWER SUPPLY A ON/OFF
2PS5BON" "+5V LV POWER SUPPLY B ON/OFF
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if either is =1 the +5V digital voltage is on
for one of the sides of the electronics



For gratings my first cut is:


4HILSA" "MCE A: HETG LIMIT SWITCH 2A MONITOR (INSERTED)
4HILSB" "MCE B: HETG LIMIT SWITCH 2A MONITOR (INSERTED)
4HRLSA" "MCE A: HETG LIMIT SWITCH 1A MONITOR (RETRACTED)
4HRLSB" "MCE B: HETG LIMIT SWITCH 1A MONITOR (RETRACTED)

4LILSA"  "MCE A: LETG LIMIT SWITCH 2A MONITOR (INSERTED)
4LILSBD" "MCE B: LETG LIMIT SWITCH 2A MONITOR (INSERTED)
4LRLSA"  "MCE A: LETG LIMIT SWITCH 1A MONITOR (RETRACTED)"
4LRLSBD" "MCE B: LETG LIMIT SWITCH 1A MONITOR (RETRACTED)
```

State dependent limits database

NOTE: The number and identity of the input engineering files is not known at this point

Outputs:

States file
Limits database update file

Processing: see mta/spec/spec.mta_find_states

Release: 4

Group: DA

Analysis Domain: MTA

DS Tool Class: 3

DS Tool Category: MTA

Spec Name: mta_find_states

Spec Category: MTA

Code Type: ASCDS

Code Source: New