

Model recovery steps

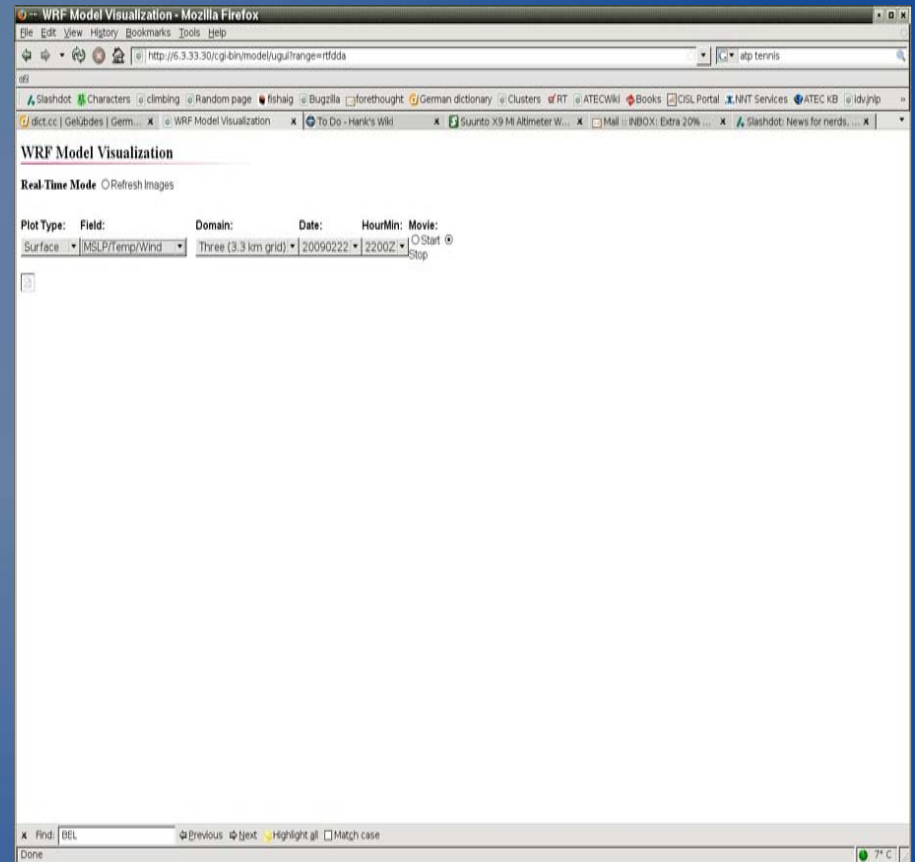
Or what to do when everyone
at NCAR went skiing

Follow the chain backwards

- **First link = what you see via the web**
- Nodes on the cluster
- GM_Mapper
- Logfiles
- Data transfer
- Bits and pieces

The Model images are missing!

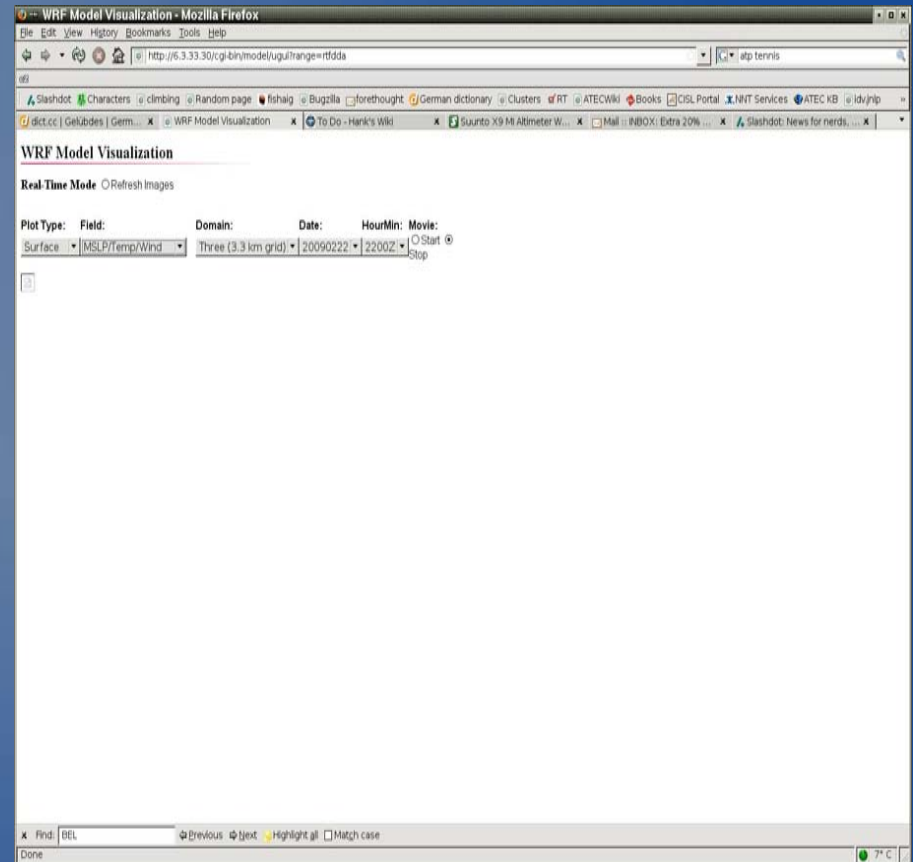
- Find your webserver machine



The Model images are missing!

- Find your webserver machine

- Crtc-das1
- Epg-das1
- Ypg-das1
- Atc-ingest
- Dpg-ingest
- Rttc-inget
- wsmr-ingest



Check the disk on the web server

- Df
 - /raid is important
 - Any 100% is potential trouble

```
Shell No. 9 - Konsole
Session Edit View Bookmarks Settings Help
atc-ingest:4dwx:~> df
Filesystem          1K-blocks      Used Available Use% Mounted on
/dev/sda10           4061540       515712  3336184   14% /
/dev/sda11          19491080      176628  18308384    1% /d1
/dev/sda9            4061540        76508  3775388    2% /tmp
/dev/sda8            8123168     3189736  4514140   42% /usr
/dev/sda7            8123168     1754204  5949672   23% /var
/dev/sda6            8123168     3651564  4052312   48% /opt
/dev/sda5            8123168     1874776  5829100   25% /home
/dev/sda2           1019240         51376   915252    6% /boot
tmpfs                2022164         0   2022164    0% /dev/shm
134.194.66.131:/raid 1692109088 842235712 815491712   51% /raid
atc-ingest:4dwx:~> █
```

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Next step the MAC

- How do you log into the cluster?

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- Your own username first then su - fddasys
- Fddasys password is.....

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- How do you log into the cluster?
- Your own username first then su - fddasys
- Fddasys password is.....
- Why fddasys?
 - Home cross mounted to computes
 - Ssh keys setup
 - Utilities

NPS and node availability

- Nps

```
Shell No. 9 - Konsole
Session Edit View Bookmarks Settings Help
/home/fddasys/nps: Command not found.
[fisherh@dpg-c2-int2 ~]$ /home/fddasys/bin/nps
  Node1:
fisherh@node1's password:

[fisherh@dpg-c2-int2 ~]$ su - fddasys
Password:
dpg-c2-int2:/home/fddasys>nps
  Node1:

26012 ?          00:00:00 RT_L_wrf_rtfdda26295 ?          01:21:05 wrf.mpich
  Node2:
          SSH FAILED -time out. May be it's down!!!
  Node3:

6525 ?          01:21:50 wrf.mpich 6536 ?          01:21:53 wrf.mpich
  Node4:

6032 ?          01:21:44 wrf.mpich 6048 ?          01:21:44 wrf.mpich
  Node5:

6027 ?          01:21:40 wrf.mpich 6029 ?          01:21:38 wrf.mpich
  Node6:

6035 ?          01:21:46 wrf.mpich 6048 ?          01:21:45 wrf.mpich
  Node7:

6016 ?          01:21:44 wrf.mpich 6027 ?          01:21:44 wrf.mpich
```

NPS and node availability

- Nps
- How many nodes do you need?
- Thermal shutdown
- Who do you contact?
- support@4dwx.org
- Local admin

Nodes part 2

- Node1 is a critical node
- Don't forget df on the MAC

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GM_Mapper

- What exactly is gm_mapper?
- Interactive nodes vs Compute nodes
- /opt/gm/bin/
- gm_board_info

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No solutions yet, now what?

- Log files
- raid/cycles/GWYPG/
YPG/date

```
Shell No. 9 - Konsole
Session Edit View Bookmarks Settings Help
wsmr-c2-int2.wsmr.army.mil:/raid/cycles/GWWSMR/WSMR/2009022014/WRF_P% ls
CAM_ABS_DATA*      OBS_DOMAIN106@  ozone_lat.formatted*  rsl.error.0009  rsl.error.0023  r
CAM_AEROPT_DATA*  OBS_DOMAIN201@  ozone_plev.formatted*  rsl.error.0010  rsl.out.0000   r
ETAMPNEW_DATA     OBS_DOMAIN202@  README.namelist*     rsl.error.0011  rsl.out.0001   r
ETAMPNEW_DATA_DBL* OBS_DOMAIN203@  RRTM_DATA             rsl.error.0012  rsl.out.0002   r
GENPARM.TBL       OBS_DOMAIN204@  RRTM_DATA_DBL*       rsl.error.0013  rsl.out.0003   r
grib2map.tbl*     OBS_DOMAIN205@  rsl.error.0000        rsl.error.0014  rsl.out.0004   r
gribmap.txt*      OBS_DOMAIN206@  rsl.error.0001        rsl.error.0015  rsl.out.0005   r
LANDUSE.TBL       OBS_DOMAIN301@  rsl.error.0002        rsl.error.0016  rsl.out.0006   r
namelist.input    OBS_DOMAIN302@  rsl.error.0003        rsl.error.0017  rsl.out.0007   r
OBS_DOMAIN101@    OBS_DOMAIN303@  rsl.error.0004        rsl.error.0018  rsl.out.0008   r
OBS_DOMAIN102@    OBS_DOMAIN304@  rsl.error.0005        rsl.error.0019  rsl.out.0009   r
OBS_DOMAIN103@    OBS_DOMAIN305@  rsl.error.0006        rsl.error.0020  rsl.out.0010   S
OBS_DOMAIN104@    OBS_DOMAIN306@  rsl.error.0007        rsl.error.0021  rsl.out.0011   t
OBS_DOMAIN105@    ozone.formatted*  rsl.error.0008        rsl.error.0022  rsl.out.0012   t
wsmr-c2-int2.wsmr.army.mil:/raid/cycles/GWWSMR/WSMR/2009022014/WRF_P% █
```

No solutions yet, now what?

- Log files
- raid/cycles/GWYPG/
YPG/date
- WRF_F
- WRF_P

Log files

- wrf_print.out
- rsl.error.0000
- rsl.out.0000

```
Shell No. 9 - Konsole
Session Edit View Bookmarks Settings Help
starting wrf task          3 of 24
starting wrf task          9 of 24
starting wrf task         11 of 24
starting wrf task         13 of 24
starting wrf task         21 of 24
starting wrf task         19 of 24
starting wrf task         23 of 24
starting wrf task          2 of 24
starting wrf task          8 of 24
starting wrf task         10 of 24
starting wrf task         12 of 24
starting wrf task          6 of 24
starting wrf task          4 of 24
starting wrf task         20 of 24
starting wrf task          1 of 24
starting wrf task         22 of 24
starting wrf task         16 of 24
starting wrf task         18 of 24
starting wrf task          7 of 24
starting wrf task          5 of 24
starting wrf task         17 of 24
starting wrf task         15 of 24
starting wrf task         14 of 24
starting wrf task          0 of 24
total 412620
-rwxrwxr-x  1 fddasys rap 20580056 Feb 20 14:55 CAM
-rwxrwxr-x  1 fddasys rap  18208 Feb 20 14:55 CAM
-rw-rw-r--  1 fddasys rap   30200 Feb 20 14:55 ETAN
```

Really everything looks fine!

- All your checks seem to look good

Really everything looks fine!

- All your checks seem to look good
 - Images are created on MAC and transferred over using rsync every 5 minutes
 - Check images in /raid/cycles/<jobid>/<range>/web/gifs
 - Check rsync logs
 - /home/fddasys/datlog/Distrib.log

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This sucks!

- Gif/jpeg/png images are missing
- support@4dwx.org
- Rsync looks broken
- support@4dwx.org
- Root level fixes most likely needed.

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Status monitor

- Missing observations
- Cold starts
- Late input data

Missing observations

Date/time (UTC)	Status	Cold Start	SAMS Obs Count	Range Sdgs Cnt	All Obs Count	Cluster	Nodes in Use	Nodes Uj
2008042317	green	no	132	0	5548	smac-c2-int2.rap.ucar.edu	6	6
2008042314	green	no	139	0	5154	smac-c2-int2.rap.ucar.edu	6	6
2008042311	green	no	151	0	5333	smac-c2-int2.rap.ucar.edu	6	6
2008042308	green	no	140	0	6749	smac-c2-int2.rap.ucar.edu	6	6
2008042305	green	no	142	0	6121	smac-c2-int2.rap.ucar.edu	6	6
2008042302	green	no	122	0	5937	smac-c2-int2.rap.ucar.edu	6	6
2008042223	green	no	137	0	6466	smac-c2-int2.rap.ucar.edu	6	6
2008042220	green	no	108	0	6632	smac-c2-int2.rap.ucar.edu	6	6
2008042217	green	no	121	0	3729	smac-c2-int2.rap.ucar.edu	6	6
2008042214	green	no	0	0	2129	smac-c2-int2.rap.ucar.edu	6	6
2008042211	green	no	0	0	1941	smac-c2-int2.rap.ucar.edu	6	6
2008042208	green	no	0	0	4008	smac-c2-int2.rap.ucar.edu	6	6
2008042205	green	no	1	0	2717	smac-c2-int2.rap.ucar.edu	6	6
2008042202	green	no	73	0	3213	smac-c2-int2.rap.ucar.edu	6	6
2008042123	green	no	154	0	3270	smac-c2-int2.rap.ucar.edu	6	6
2008042120	green	no	152	0	4738	smac-c2-int2.rap.ucar.edu	6	6
2008042117	green	no	119	0	2591	smac-c2-int2.rap.ucar.edu	6	6

Missing observations

- ARMADA to
- MIR to
- Netcdf to
- MAC to
- Qc to
- model

Cold Starts and Late Input

Please hit "reload" to see the latest status

Date/time (UTC)	Status	Cold Start	SAMS Obs Count	Range Sdgs Cnt	All Obs Count	Cluster	No
2008042811	green	no	2404	0	66490	gs-c3	
2008042808	green	no	2389	0	69571	gs-c3	
2008042805	green	no	2358	0	79098	gs-c3	
2008042802	green	no	2325	0	79641	gs-c3	
2008042723	green	no	2379	0	79872	gs-c3	
2008042720	green	no	2375	0	79845	gs-c3	
2008042717	green	no	2395	0	79661	gs-c3	
2008042714	green	no	2398	0	67371	gs-c3	
2008042711	green	no	2392	0	66846	gs-c3	
2008042708	green	no	2399	0	71252	gs-c3	
2008042705	green	yes	2376	0	73732	gs-c3	
2008042702	yellow	no	2352	0	77660	gs-c3	
2008042623	yellow	yes	3004	0	97695	gs-c3	
2008042620	red	no				gs-c3	
2008042611	yellow	no	2397	0	67048	gs-c3	
2008042608	yellow	no	2399	0	71535	gs-c3	
2008042605	green	no	2391	0	78999	gs-c3	

Cold Starts and Late Input

- If the previous cycle fails there will be a cold start
 - Failures come in many flavors
- Late AVN will not affect the model immediately
 - Very late AVN (2 days or so) will.

Data chain for AVN

- NCEP to NCAR to ALL ranges via rsync
- Timing can be critical
 - You need 66 hours of AVN forecast data before the 5Z and 17Z cycles start.

The whole cluster is down

- Power outage
- Wind storm
- Someone tripped on the cable
- Waterfall in the computer room
- Network down

Cluster reboot procedure

- http://www.4dwx.org/documentation/kbase/SSL!/WebHelp/system_administration/mac_shutdown_and_reboot_instructions.htm
- http://www.4dwx.org/documentation/kbase/SSL!/WebHelp/system_administration/shutdown_and_restart_instructions.htm

Resources

- http://www.4dwx.org/documentation/kbase/SSL!/WebHelp/system_administration/system_admin_intro.htm
- http://www.4dwx.org/documentation/kbase/SSL!/WebHelp/system_administration/das_shutdown_and_re-start_procedures.htm
- http://www.4dwx.org/documentation/kbase/SSL!/WebHelp/rtfdda/common_problems.htm