

WISH LIST FOR THE PIPELINE
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Version 1.0
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This is a list, in NO particular order, of items which have been requested for the Pipeline system. Some are bugs, some are minor extensions of existing software, some are major revisions or new projects. There are even a couple of hardware requests.

I have not (yet) decided which of these should be done or made any attempts at setting priorities; nor have I estimated manpower and time required to complete them.

Additions, deletions, comments and suggestions are, of course, always welcome. In particular, if I have somehow forgotten something, please let me know.

1. Allow combining AC and BD IF data into one map if the frequencies are very different. At present, the limit is $dF = 100\text{MHz}$ maximum.
2. Rigorous testing of UVFITS clip and uvlimits options.
3. Make the Pipeline work better (i.e. more user friendly) for snapshots. Necessary for 4 IF continuum since DEC-10 databases cannot make one map by combining both IF pairs. Allow much more flexibility in specifying map names so that user need not specify one source at a time (eg. implement wild cards).
4. Tapes - (eg. FITS, UVFITS) - handle multi-reel tapes properly
 - do something sensible at end of reel
 - implement labelled tapes
5. Document DISPLAY programs for the Pipeline manual (TVL0D, TVDIS etc.)
6. Gridding frequency is now taken as average frequency of the IF's used; eg. $F_{grid} = (F1 + F2 + F3 + F4)/4$ but map catalog shows frequency as F1 only.
7. Help for the UVCONVOLVE command needs work (ORM too?).
8. Install RSX-11M+ in SORTER, GRIDDER, DISPLAY.
9. Install Ethernet connections between PDP-11's and VAX's. Need TOPS-10 version 7.02 to include the DEC-10 too.
10. PIPELN program doesn't communicate properly with some tasks, some of the time. Users have real trouble. Fix or replace. (Replacement with remote terminal capability requires RSX-11M+ on SORTER, GRIDDER).
11. Test and document the new program LINSUB for subtracting the

continuum from line channels in GRIDDER.

12. GRIDER, BTMAP, UVFITS - confusion about dbname, db2name commands. Documentation needs work or we should change the software so that it automatically looks for and uses the appropriate databases on the DEC-10. In any case, if the user gives both dbname and db2name, the software should check that both databases exist and that the db specified with dbname is an AC db and the one specified with db2name is a BD database.
13. Implement, test and document the new Stokes options put into GRIDER by Wim Brouw and Bob Payne.
14. Changes to allow old data (i.e. pre-ModComp tape version 10) to be filled into the Pipeline. How far back should we go? Can we go?
15. Proper handling of velocities in DBFILL (put SPFINX into DBFILL).
16. Proper handling of velocities in DEC-10 FILLER (put SPFINX into FILLER - Gareth says he has almost finished this and it works but only if the user specifies his velocity in his OBSERV file).
17. Additional tape drive for SORTER.
18. Finish PTA (Pipeline to AIPS) program to ship maps and data to the VAX via DECnet and Ethernet.
19. Any further AIPS improvement to handle Pipeline output?
20. MAPIO into all programs.
21. New map catalog structure - propagate into all programs.
22. DBUTIL - put in standard commands, miscellaneous minor changes.
23. GRIDER - change so that it can choose the emptiest disk pack, as DBFILL does.
24. Software control (detection) of tape drive: density, tape mounts.
25. Much better program abort procedures (cntrl-C is disastrous).
26. Log files for Pipeline programs, especially DBFILL, UVFITS, GRIDER.
27. Fully implement R.Ekers definitions of map names and wild cards for names, versions, classes.
28. MAPCON needs to know about disk space available so it doesn't just blindly schedule jobs if there is no space.
29. Torson's great long list of new features for the DISPLAY system.
30. Improve the speed of CLEAN.

31. CLEAN + GRIDER = MX in the Pipeline? WNB, RRP think it's possible.
32. VM tasks in the transpose memory?
33. Implement a SELFCAL program in the Pipeline?
34. Mapping - fully implement and test WNB additions (eg. make transposed cubes, 2- and 4-IF spectral line).
35. Pipeline disk space management. Automatic deletes? After suitable time? After FITS is run?
36. Real-time Pipeline FILLER.
37. Turn off IMPS. When COMTAL dies?
38. Move the DEMO program to the IIS.
39. Long-block FITS; involves AIPS group, international committees.
40. Procedures for, and someone to do, Pipeline software updates.
41. DBCON program in the Pipeline.
42. Flagging program in the Pipeline (visibility record flagging).
43. LISTER program in the Pipeline.
44. Effects of Doppler tracking in the ModComps??
45. Make commands consistent from program to program.
46. Make specification of passband file the same everywhere.
47. Add tape commands to std. command package (all machines).
48. Add channels command to FITS or change version command to allow selection of a range.
49. Changes required to MAPCON priorities, especially since MAPCON has no knowledge of the size of a SORTER dataset. Priorities now set based on output map size principally.
50. Make DISPLAY software more robust; users get into trouble when more than one task is running (eg. cursor used by two tasks at the same time). MCR vs. DCL and IMPS confusion (RSX-11M+ will help, so will IMPS disabling).
51. Effects of Ken's proposed change in the ModComps to allow offset pointing/phase tracking centers. Needs work in FILLER, DBFILL mostly but perhaps in mapping and UVFITS too.
52. Change channel command in TVL0D to PLANE command to avoid confusion

between IIS image plane and spectral line channel number.

53. Antennas files - any additions needed? They should at least go onto UVFITS tapes.
54. Increase the memory size on each Array Processor?
55. Allow user to select maps by catalog number rather than name, class, version.
56. Hard copies of output files - especially log files, catalogs (maps and visibility catalogs).
57. Better documentation (and software?) to avoid confusion between channel number and version number for maps. Users are now using the version number to specify channel number and get into trouble sometimes.
58. Make BTMAP background black for phase plots.
59. Location of wedge and header information (cursor position etc.) in DISPLAY needs work, especially in zoom mode.
60. Put the pack name facility into DISPLAY programs.
61. Programmer documentation for all PDP-11 modules.
62. Additions, changes to standard commands package and command scanner. See Torsons memo of 12/9/83 for a start.
63. VT-11 under RSX-11M+.
64. Shared disks under RSX-11M+.
65. Additional disk capacity for maps on GRIDDER. Steal from SORTER??
66. Transfer cursor coordinates to another task in DISPLAY rather than just displaying on the screen.
67. DISPLAY auto flagging information to the DEC-10.
68. Floating point formats for visibilities everywhere.
69. Increase the number of allowed spectral line channel-baselines to 16K; 32K; ??
70. Implement batch queueing in DISPLAY.
71. Allow different data averaging time when filling into the Pipeline.
72. Timing tests - how fast will the Pipeline really fly?
73. Get gain tables from AIPS Selfcal back into the DEC-10.