AMS Data Acquisition (DAQ) Software

6th AMS Users Meeting
Juelich, Germany
Aug, 2005
Update on Software Status

Current Software Version: V 4.5.9

Software versions that are most widely distributed right now: AMS Versions V 4.4.4. and 4.3.mode

Updated Operating Modes include:
1) Fixed Scan Saving in MS and TOF modes
2) Light Scattering
3) Jump-MS*

* Will be discussed by Jose Jimenez during this users meeting

I recommend that you all update to V 4.5.9!
Downloading AMS DAQ Software

1) Aerodyne ftp site:
   AMSIncoming\AMSUsers\ALLUsers\AMSSoftware

2) Jose’s Web Page( http://cires.colorado.edu)
   Section 3.4. Resources for Aerodyne AMS Users
   - provides direct link to ARI ftp site

You will be prompted for the Username/Password combination that you use to access your folder on the ftp site. (Please ask Tim or Manjula if you don’t have this information)

If the downloaded AMSV4.5.9.exe crashes:

Run the Win2K Application Setup on your computer as described at the end of this presentation.
Fixed Scan Saving

- Enables Saving of MS or TOF data after program has completed a user specified number of scans in the operating mode.
  - Time for 1 MS Scan = 0.3 s
  - Time for 1 TOF Scan = 0.3 s* (# of selected m/z)

So, this mode allows for a max time resolution of 0.3 seconds in either MS or TOF mode.

IMPORTANT CURRENT CONSTRAINTS OF THIS FEATURE:
1) In MS Mode, this feature does not work in Toggle Mode.
   MS Mode should be operated with Chopper in Open Position, and with Signal Averaging On (Press F4 in MS Screen)

2) Currently this saving does not work in TOF/MS Alternate mode
Fixed Scan Saving Menu Parameters

Get into Default Parameter Menu

AMS Default Parameters — Version 4.5.9 (May 16, 2005)

Data Acquisition Boards

- Fast Board (NI PCI-6110E)
  - Device Number: 1
- Slow Board (NI PCI-6024E)
  - Device Number: 2
- Slow Board Installed:
  - Yes
- Analog Output Board (PCI-6703)
  - Device Number: 0

A/D Gain for Mass Spec Signal (ch. 0): 1
A/D Gain for Chopper Signal (ch. 1): 1

Saving

- External Save Control:
  - On: Yes
- Digital Switch Dead Time (min): 1
- Fixed Scan Save Control:
  - On: Yes

AMS cycles Averaged For Save: 3
ITCF cycles Averaged For Save: 5

NOTE: For DIT Mode the length of each MS cycle is determined by Chopper Dwell Time in Averaging Saving Tab of Main Menu.
Fixed Scan Saving Menu Parameters

Autosaving Feature in Main Menu Must be Manually Turned OFF when FixedScanSaveControl is Turned ON
MS Screen w/ FixedScanSave ON

Operate in MS Open

MS is in Averaging Mode
(Press F4 on MS Screen to Activate)

Run # updates as Fixed Scans Proceed
Useful Background Information
For
AMS Data Acquisition Program
Downloading Application Setup Program

• You MUST update the Application Setup Program to the Win2K Version in order to run new version of AMS program.

The Win2K Application Setup can be downloaded from the ARI FTP site in the following folder:

AMSIncoming\AMSUsers\ALLUsers\AMSSoftware\Installs\Win2KInstalls
Installing Application Setup Program

1) Uninstall previous Application Program
   - go to Start\Settings\ControlPanel\AddRemoveSoftware
   - Remove Program called AMS

2) Install the Win2000 Application Program
   - Shut down all other programs
   - Go to copy of Win2KInstalls folder and start the Setup.exe

**NOTE:** Ignore the message that reports a conflict with the shdocvw.dll
Software Requirements During Field Campaigns

CD’s containing the following files should be available:

1) NIDAQ Software

2) AMS Application Setup Folder from ftp site

3) AMSMenu.prm and AMSID.prm files.
AMS Program Requirements

1) Pre-installation of the appropriate AMS Application Setup Program
2) Pre-installation of the NIDAQ Software for slow/fast Data Acquisition Boards
   **NOTE:** The NIDAQ EXAMPLES FILE MUST ALSO BE INCLUDED IN INSTALLATION
   - NIDAQ installation process places files accessed by AMS program (i.e. NIDAQ32.dll and NIDEX32.dll) in C:\winnt\System32 folder.

3) The computer C drive must contain a C:\AMS\AMSCode folder with the following files:
   a) AMSMenu.prm
   b) AMSID.prm files.
AMS Software problems

1) Check Menu (especially if problem is sudden)
   – Gets corrupted if program crashes or is exited in non-standard way
   – At least 50% of problems are due to this
   – C:\AMS\AMSCode\AMSMenu.prm
     – A copy is saved on AMSSLogFiles directory
       (C:\AMS\AMSData\AMSSLogFiles) every day you use the program (i.e. 041011_Menu.prm for today’s menu)
   – Also saved in every ITX file (“par” and “ParStr”)
     – Compare you current menu with a known good one side-by-side in Excel
     – Make backups of known good menus
AMS Software problems

2) Runtime Error # 6
   - Typically occurs in TOF mode only not in MS mode. It is often because of a drop out of the chopper signal.
   - Chopper signal can drop out if bad Isignal coming from diode or chopper wheel is not spinning when chopper servo moves through the block/chop/open cycles
   - Software crash due to this error will be prevented in future software versions

3) Check TOF velocity calibration. This can cause “division by zero” issues

Most Current Software problems due to either menu corruption or Chopper signal issues!
Troubleshooting Software Problems

Information Needed:

1) Software version
2) Exact error message
3) Operating mode (Alternating, TOF Mode only, LS On…)
4) What mode the error occurs in (TOF/MS /JMS)
5) Any keystrokes that may have caused error
6) AMSMenu.prm