Q-AMS Data Acquisition (DAQ) Software

8th AMS Users Meeting
Desert Research Institute, Reno, Nevada
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Update on Q-AMS Data Acquisition Software Status

Current Distributed Software Version: V 4.6

I recommend that you all update to V 4.6!

NOTE: Those who are using light scattering modules, V 4.7 is being tested and will be released soon. If you have issues with light scattering portion of software, let me know and I can give you the current version.
Old CPC Type:
3010, 3022, 3025, 3760, 3761

New CPC Type:
377x, 378x

Downloading AMS DAQ Software

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

2) Jose’s Q-AMS Web Page
http://cires.colorado.edu/jimenez-group/QAMSResources/

You will be prompted for the Username/Password combination for both these sites
Jump Mass Spectrum Operation

Jump MS mode

- Like MS mode, but scanning only a few m/z
- Like “selected ion monitoring” (SIM) in GC-MS

Scan m/z once

m/z 30

Go to peak

m/z 48

Move On to Next m/z
S/N Improvement in Jump-MS

Flight Data Courtesy of J. Crosier (UMIST)

10 Hz Jump Mode Sensitivity

Example Time-Series Measured with AMS (Urban Emission of NO₃⁻)

Courtesy E. Nemitz (CEH, Scotland)

Obtained with Eddy Type2 Mode programmed by Jose Jimenez
Jump-MS Screen

**NOTES:**
- In data acquisition boards menu tab the acquisition rate for JMS needs to be specified for the JMS Mode.
- Scanned m/z’s are from F6 Screen Settings. First m/z scanned provides DC level. So it should be one with no particle signal.
- Data is saved in JMS.itx (Analogous to MS.itx)

**General Alternation Mode (“GENALT”)**

- Alternate TOF, MS, JMS
  - Or any two of them
  - Variable time for each mode
- Implemented as separate mode from old TOF-MS alternate mode
- At present (v. 4.4.8) both modes work
  - In future probably only support GENALT
Menu Parameters For General Alternation Mode

Useful Background Information For AMS Data Acquisition Program
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 AMSLogFiles directory
     (C:\AMS\AMSData\AMSLogFiles) 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 lsignal 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

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
OR

http://cires.colorado.edu/jimenez-group/QAMSResources/
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.