

Field Guide to ChannelMaster Utilities Software v1.01.x

The ChannelMaster Utilities software package has been released as a WinH-ADCP replacement for programming and maintenance of TRDI ChannelMaster ADVMs. This guide is not meant to be a replacement for the user manual or proper instruction in equipment use; we hope it will serve as an aid to general setup and maintenance for field use.

As you begin to use this version of the software the HaWG would like to remind you that we are here to help you. We would also like to ask for your help as well. If you notice bugs, errors, or oddities in your workflow please let the HaWG know, we want to help make sure field work is as smooth as possible. If you have any questions at all you can reach us through the [HydroAcoustics Forum](#), at gs-w_hawg_all@usgs.gov, or [directly](#).

To report potential software bugs or to make feature requests we would like to ask you to make use of [this Google Form](#) that has been developed to aid in request tracking. Thank you for your help in improving this software for everyone.

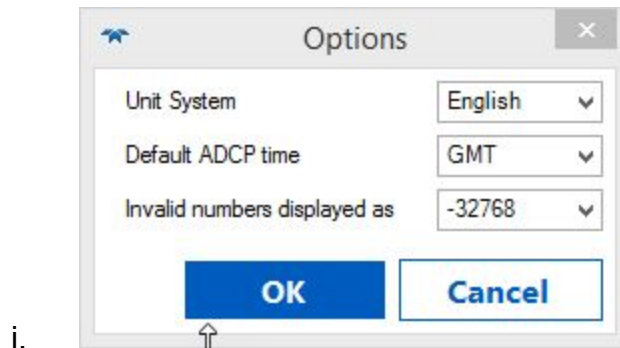
Important notes:

1. Existing ChannelMaster systems will require a firmware update to version 28.39 or newer.
2. Under certain conditions, existings ADVM setup may fail to restore following a firmware update.

Initial Software Setup:

Preferences for file download location, Units, and Time Zone should be set prior to servicing an ADVM

1. Global units and time zone can be set using the “Settings” cog located in the upper right corner of your screen. Units define units for values displayed within the program.



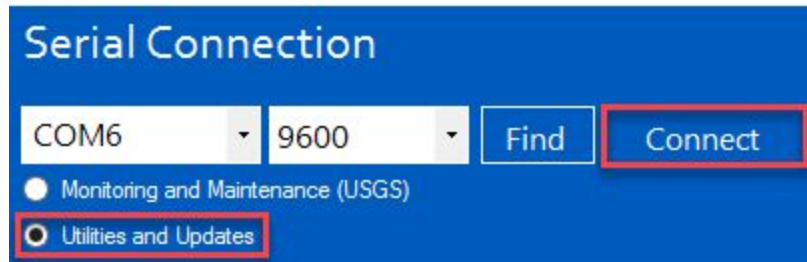
2. The location used for file downloads can be set using the “Working Folder” change button in the lower right corner of the screen.



Initial Site Setup-Detailed:

1. Connect to Utilities and Updates

- a. If you are unsure of the units baud rate select the proper comm port and press "Find"



b.

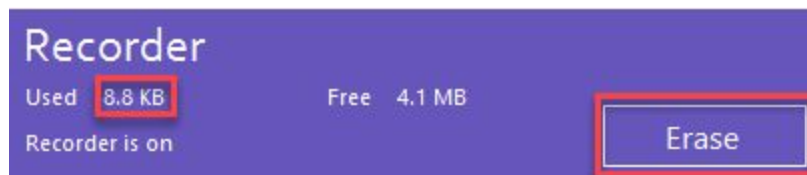
2. Insure that firmware is the current approved version

- a. Minimum of 28.39 required for proper software function



b.

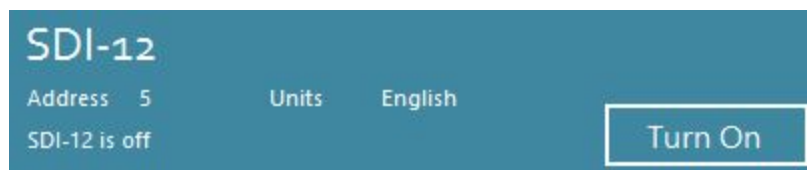
3. Format the recorder to insure any non-site data is removed is removed from log



a.

4. Turn on SDI-12 and set preferred address and units of SDI-12 output

- a. Output units can be set independent of software display



b.



c.

5. While unit is in air, zero pressure sensor to remove local drift



a.

6. Synchronize the systems time with your PC time.

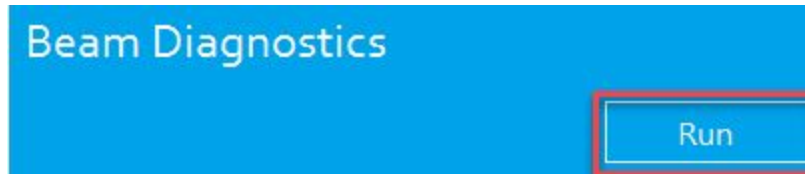
- a. Time zone will be based on the selection made in “Settings” cog
- b. GMT is recommended as it simplifies decodes by avoiding DST changes



c.

7. Run a Beam Diagnostics and evaluate for proper system orientation and to determine desired sample volume.

- a. File will automatically log to your desired download directory with a file name of BD_YYYYMMDD_HHMMSS.pd0



b.



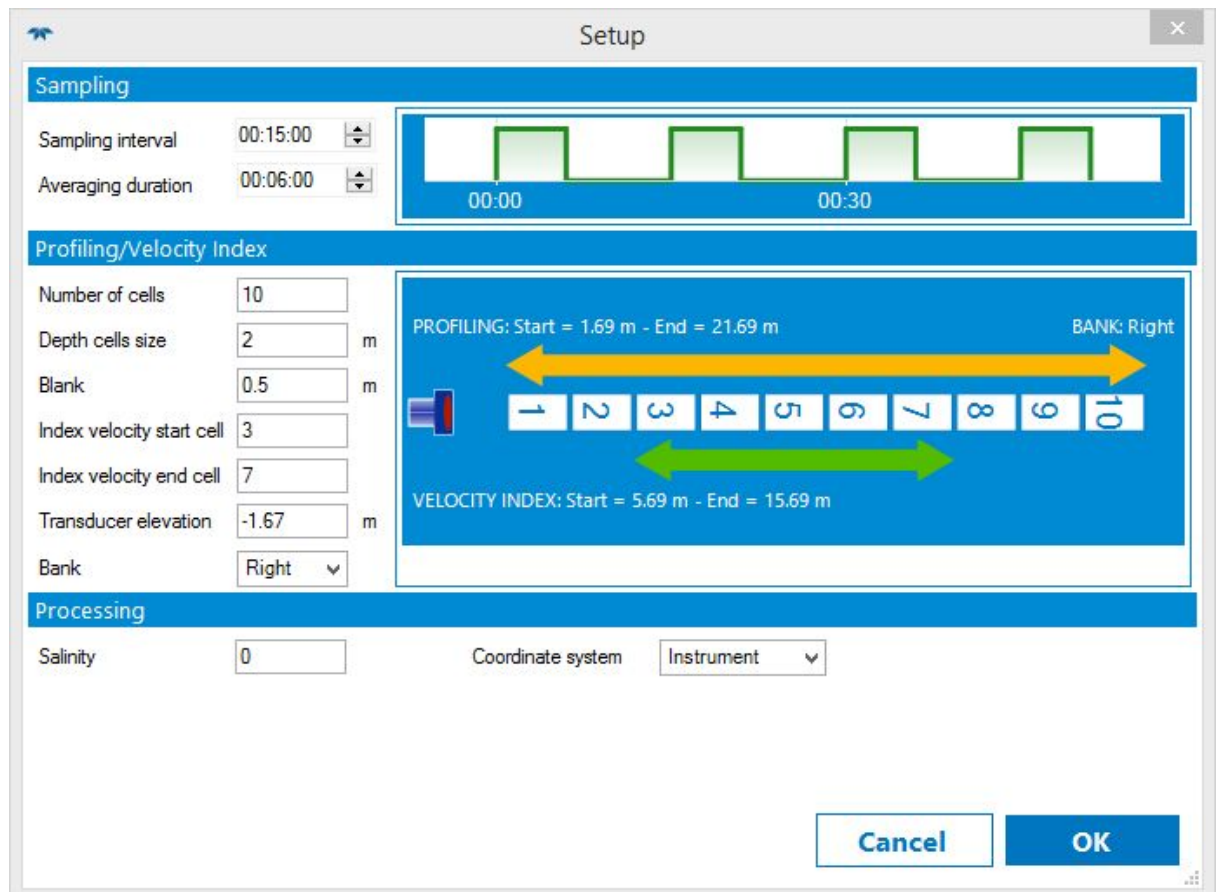
c.

- d. Once Beam Diagnostics are completed navigate to the download folder and rename according to your office policy
 - i. ie StationNumber.BC_SL1200.YYYYMMDD

8. Adjust ADVM mount as needed and repeat step 7.
 - a. Repeat until unit is properly oriented.
9. Configure velocity sampling setup using the Setup Data Collection menu
 - a. Range averaged(IVC) and multi-cell (MC) sample volumes will be defined using methods identified in Appendix 3 of T&M 3-A23 based on beam check results and cell velocity data.
 - b. Sample interval = Time between samples
 - c. Averaging duration = Length of averaging period
 - d. Enter a transducer depth to convert from depth of ADVM to gage height.
 - i. Transducer depth can be computed as (Gage Height-Beam diagnostic stage)
 - ii. Insure you are working in the same units



e.



f.

- g. Deploy the unit by pressing OK
 - h. Unit will now enter SDI-12 mode and apply settings from the Setup Menu
10. Connect to DCP and verify communication and correct units

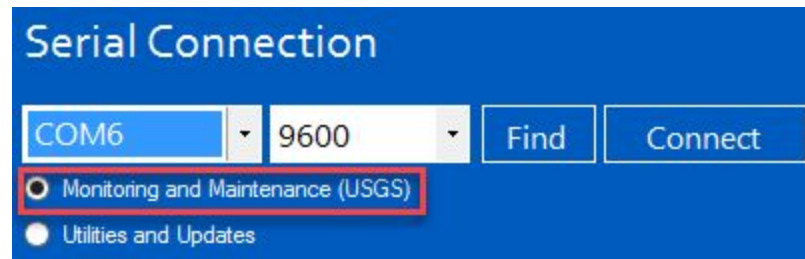
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Initial Site Setup-Simple:

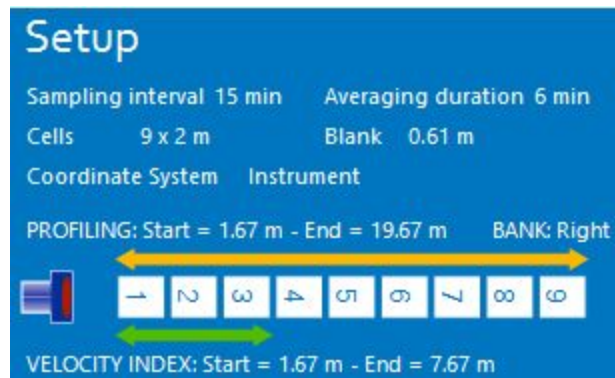
- ❑ Connect to Utilities and Updates
 - If you are unsure of the units baud rate select the proper comm port and press “Find”
- ❑ Insure that firmware is the current approved version
 - Minimum of 28.39 required for proper software function
- ❑ Format the recorder to insure any non-site data is removed is removed from log
- ❑ Turn on SDI-12 and set preferred address and units of SDI-12 output
 - Output units can be set independent of software display
- ❑ While unit is in air, zero pressure sensor to remove local drift
- ❑ Synchronize the systems time with your PC time.
 - Time zone will be based on the selection made in “Settings” cog
 - GMT is recommended as it simplifies decodes by avoiding DST changes
- ❑ Run a Beam Diagnostics and evaluate for proper system orientation and to determine desired sample volume.
 - File will automatically log to your desired download directory with a file name of BD_YYYYMMDD_HHMMSS.pd0
 - Navigate to the download folder and rename according to your office policy
 - ie StationNumber.BC_SL1200.YYYYMMDD
- ❑ Adjust ADVm mount as needed and repeat step 7.
 - Repeat until unit is properly oriented.
- ❑ Configure velocity sampling setup using the Setup Data Collection menu
 - Range averaged(IVC) and multi-cell (MC) sample volumes will be defined using methods identified in Appendix 3 of T&M 3-A23 based on beam check results and cell velocity data.
 - Enter a transducer depth to convert from depth of ADVm to gage height.
 - Transducer depth can be computed as (Gage Height-Beam diagnostic stage)
 - Insure you are working in the same units
 - Deploy the unit by pressing OK
 - Unit will now enter SDI-12 mode and apply settings from the Setup Menu
- ❑ Connect to DCP and verify communication and correct units

Site Maintenance-Detailed:

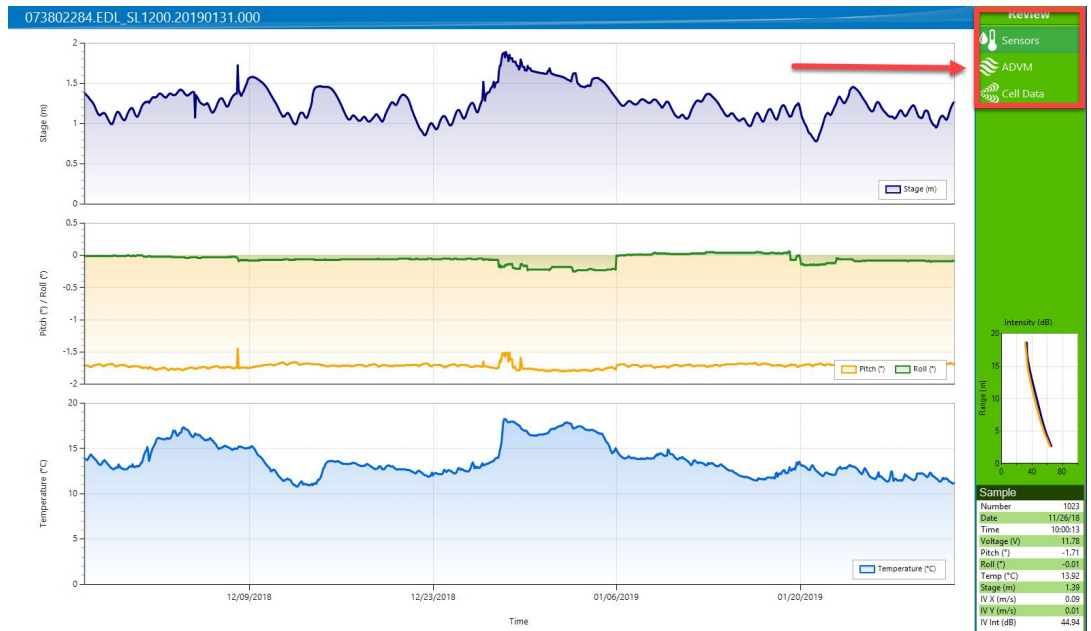
1. Connect to Monitoring and Maintenance (USGS)
 - a. If you are unsure of the units baud rate select the proper comm port and press “Find”



- b.
 - c. After connection the software will:
 - ➔ Turn off SDI-12
 - ➔ Synchronize time
 - ➔ Download data
 1. Progress can be monitored in the lower left hand corner
 - ➔ Prompt to format the recorder
 1. Always erase the recorder following download.
 - ➔ Display downloaded data and current setup information
2. Navigate to download folder and rename downloaded ADVM log
 - a. Default name will be a unique 8 digit ID with a CM prefix
 - ➔ ie CM_XXXXXXXXXX.000
 - b. File should be named according to your office policy
 - ➔ ie StationNumber_EDL_SL1200_YYYYMMDD
3. Review Downloaded Data according to standard field practices and methods.
see Appendix 4 of T&M 3-A23 for details
 - a. Verify correct setup information



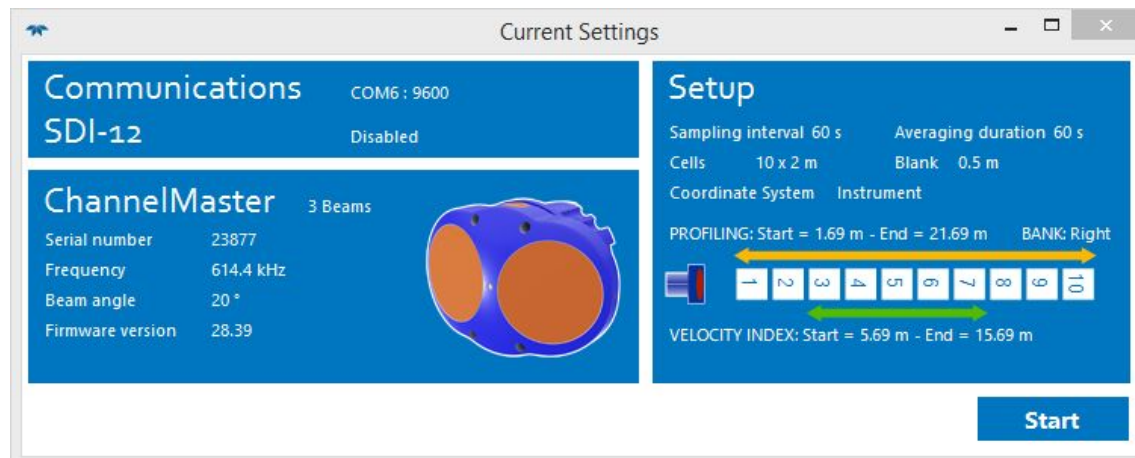
- b. Using the Review menu in the top right corner to select data type



- c. Using “Sensor”, review sensor data for potential orientation, gage height, or temperature data concerns
 - d. Using “ADVM”, review range averaged velocity and intensity data for apparent data concerns
 - e. Using “Cell Data”, review the multi-cell information for apparent data concerns.
 - f. Slowly move the crosshair across data graph and evaluate beam intensity plot for apparent beam interference.
4. Press “Next” to proceed to collect a Beam Diagnostic file.
 - a. Review for potential issues and document your findings in SVMAQ
 - ➡ Evaluate beam data according to standard practices
 - ➡ Verify temperature
 - ➡ Document ADVM alignment in SVMAQ

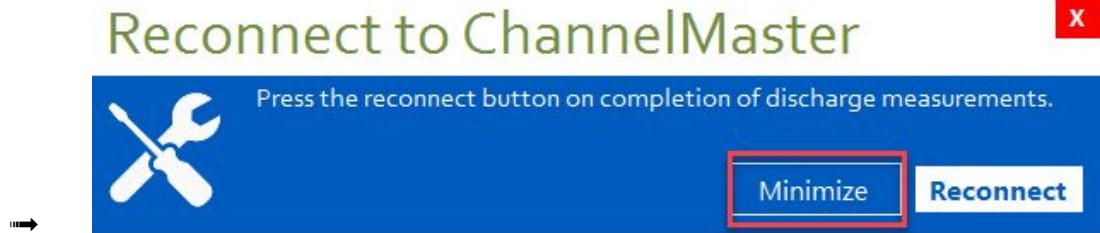


5. Press “Next” to end the Beam Diagnostic and proceed to equipment maintenance
 - a. Raise ADVM and follow standard cleaning and inspection methods
 - b. Document in SVMAQ
 - c. Once maintenance is complete, redeploy unit and press “Complete”
6. Navigate to the download folder and rename according to your office policy
 - a. ie StationNumber.BC_SL1200.YYYYMMDD.01
7. If not making a discharge measurement:
 - a. Press “Skip” and proceed to step
8. If making a discharge measurement:
 - a. Press “Start”
 - b. Evaluate the Current Settings popup window for correct values

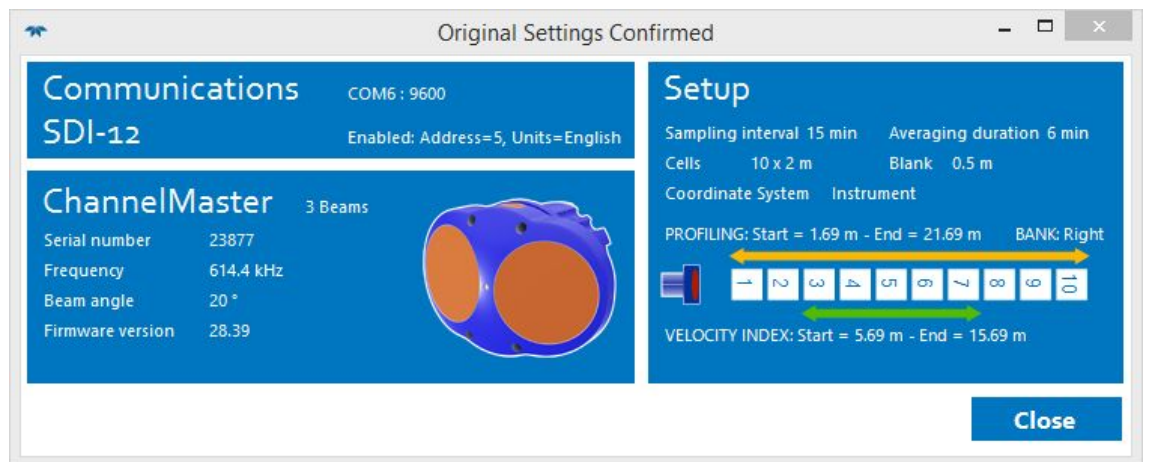


- c. Press “Start”

- d. Use the “Minimize” button to shrink ChannelMaster Utilities until you are ready to reconnect.



9. Complete discharge measurement according to best practices
10. Reconnect to the ChannelMaster
 - a. Connect using the same comm port as during previous connection
 - b. Reopen the CMU software
 - c. Press the “Reconnect” button
 - d. Once connected the software will
 - ➔ Download data
 - ➔ Prompt to Format the recorder
 1. Always Erase the recorder following download
 - ➔ Display downloaded data and current setup information
11. Navigate to download folder and rename downloaded ADVM log
 - a. Default name will be a unique 8 digit ID with a QM prefix
 - ➔ ie QM_XXXXXXXXXX.000
 - b. File should be named according to your office policy
 - ➔ ie StationNumber_EDL_SL1200_YYYYMMDD
12. Review Downloaded Data according to standard field practices and methods. see Appendix 4 of T&M 3-A23 for details
13. Press “Next” to proceed to post measurement beam diagnostics
 - a. Review for potential issues and document your findings in SVMAQ
 - ➔ Evaluate beam data according to standard practices
 - ➔ Verify temperature
 - ➔ Document ADVM alignment in SVMAQ
14. Press “Next” to end the Beam Diagnostic and Redeploy the ADVM with standard settings
 - a. Raise ADVM and follow standard cleaning and inspection methods
 - b. Document in SVMAQ
 - c. Once maintenance is complete, redeploy unit and press “Complete”
15. Verify that the original settings are being properly restored



a.

16. Press “Close”

- a. Software will complete redeployment of unit and prompt to close software instance

17. Navigate to the download folder and rename final beam diagnostic according to your office policy

- a. ie StationNumber.BC_SL1200.YYYYMMDD.02

Site Maintenance-Simple:

- ❑ Connect to Monitoring and Maintenance (USGS)
 - If you are unsure of the units baud rate select the proper comm port and press “Find”
 - After connection the software will:
 - Turn off SDI-12
 - Synchronize time
 - Download data
 - Prompt to format the recorder
 - Always erase the recorder following download.
- ❑ Navigate to download folder and rename downloaded ADVM log
 - Default name will be a unique 8 digit ID with a CM prefix
 - ie CM_XXXXXXXXXX.000
 - File should be named according to your office policy
 - ie StationNumber_EDL_SL1200_YYYYMMDD
- ❑ Review Downloaded Data according to standard field practices and methods. see Appendix 4 of T&M 3-A23 for details
 - Verify correct setup information
 - Use the Review menu in the top right corner to select data type
 - Slowly move the crosshair across data graph and evaluate beam intensity plot for apparent beam interference.
- ❑ Press “Next” to proceed to collect a Beam Diagnostic file.
 - Review for potential issues and document your findings in SVMAQ
 - Evaluate beam data according to standard practices
 - Verify temperature
 - Document ADVM alignment in SVMAQ
- ❑ Press “Next” to end the Beam Diagnostic and proceed to equipment maintenance
 - Raise ADVM and follow standard cleaning and inspection methods
 - Document in SVMAQ
 - Once maintenance is complete, redeploy unit and press “Complete”
- ❑ Navigate to the download folder and rename according to your office policy
 - ie StationNumber.BC_SL1200.YYYYMMDD.01
- ❑ If making a discharge measurement:
 - Press “Start”
 - Evaluate the Current Settings popup window for correct values
 - Press “Start”
 - Use the “Minimize” button to shrink ChannelMaster Utilities until you are ready to reconnect.

- ❑ Complete discharge measurement according to best practices
- ❑ Reconnect to the ChannelMaster
 - Connect using the same comm port as during previous connection
 - Reopen the CMU software
 - Press the “Reconnect” button
 - Once connected the software will
 - Download data
 - Prompt to Format the recorder
 - Always Erase the recorder following download
 - Display downloaded data and current setup information
- ❑ Review Downloaded Data according to standard field practices and methods, see Appendix 4 of T&M 3-A23 for details
- ❑ Navigate to download folder and rename downloaded ADVM log
 - Default name will be a unique 8 digit ID with a QM prefix
 - ie QM_XXXXXXXXXX.000
 - File should be named according to your office policy
 - ie StationNumber_EDL_SL1200_YYYYMMDD
- ❑ If not making a discharge measurement:
 - Press “Skip” and proceed to next step
- ❑ Press “Next” to proceed to post measurement beam diagnostics
 - Review for potential issues and document your findings in SVMAQ
 - Evaluate beam data according to standard practices
 - Verify temperature
 - Document ADVM alignment in SVMAQ
- ❑ Press “Next” to end the Beam Diagnostic and Redeploy the ADVM with standard settings
 - Raise ADVM and follow standard cleaning and inspection methods
 - Document in SVMAQ
 - Once maintenance is complete, redeploy unit and press “Complete”
- ❑ Verify that the original settings are being properly restored
- ❑ Press “Close”
 - Software will complete redeployment of unit and prompt to close software instance
- ❑ Navigate to the download folder and rename final beam diagnostic according to your office policy
 - ie StationNumber.BC_SL1200.YYYYMMDD.02