jAmaSeis Guide for Displaying Seismic Data

jAmaseis is free cross-platform software that allows users to collect and view near real-time seismic data from a local sensor or from around the world.

STEP 1: INSTALL JAMASEIS

Download software from http://www.iris.edu/hq/jamaseis
The software is Java based and runs on Windows, Mac, and Linux, including Raspberry Pi. Java included with the installers.

Follow the operating system specific instructions from the above page.
The installer will allow you to adjust a few default settings, and will complete the installation of jAmaSeis to your system.

**STEP 2: SELECT A STATION TO DISPLAY**

jAmaSeis can display data from up to 3 seismic stations simultaneously. Alternatively, you can display three components of a single seismic station. There are three different sources for data: the Local Source, Remote Source, and the IRIS DMC.

> A *local source* is a seismometer hooked to your computer. There are several instrument options that are described at http://www.iris.edu/hq/sis/resources/seismometers.

> A *remote source* is an educational seismometer run by a school or other non-research or government related institution. These stations are streaming data live to our server, and are available to stream through the software.

> An *IRIS Data Mangement Center (DMC)* source is a seismic station anywhere in the world that is sending data in real-time to the IRIS DMC. These stations are available for streaming, and provide access to research quality data in the classroom.
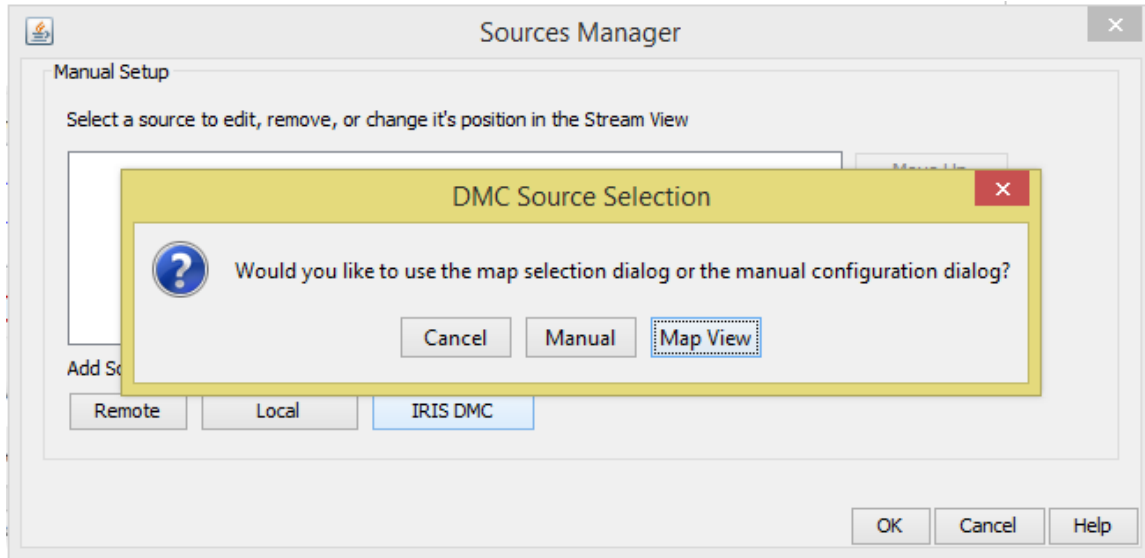
Add a remote source by going to File > Manage Sources. Select the Add Source: Remote button.
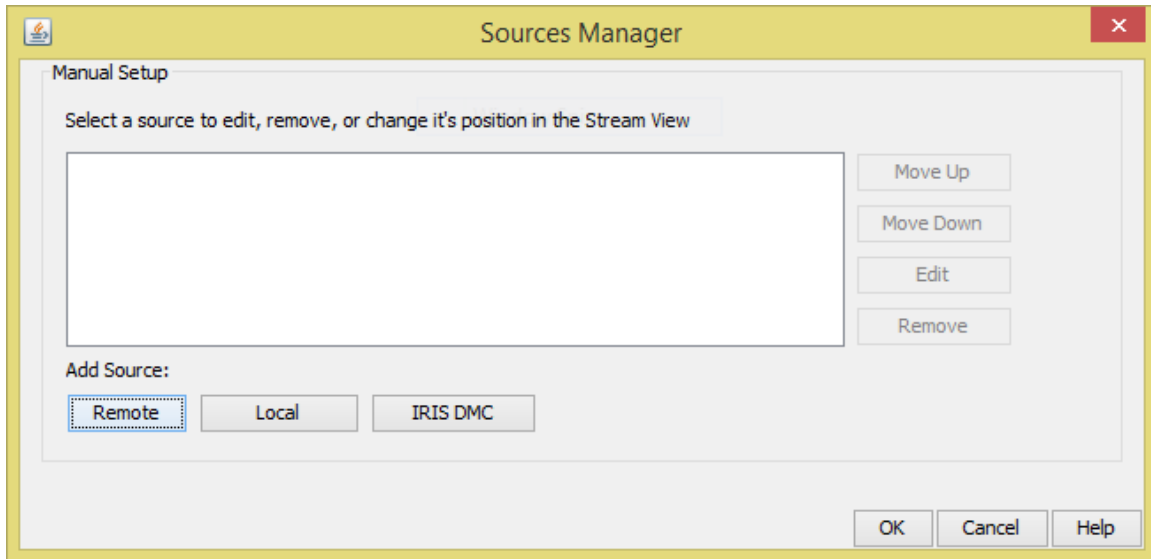
Available streams are listed on the left, and streams that are offline are listed on the right. Choose a station from the Available Streams side and click "OK".
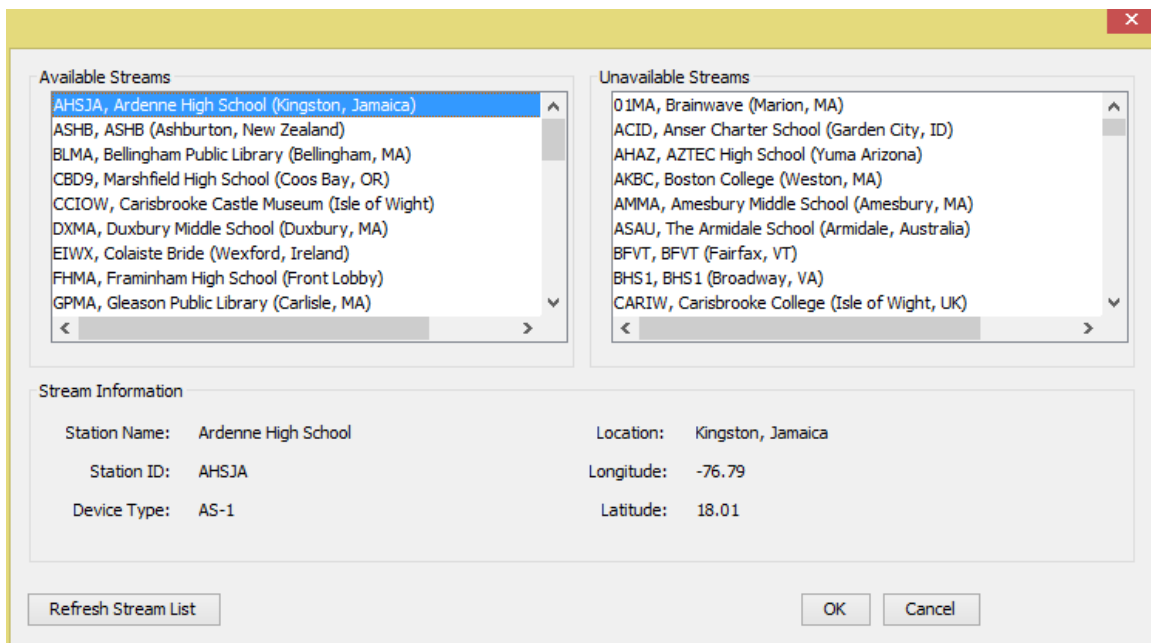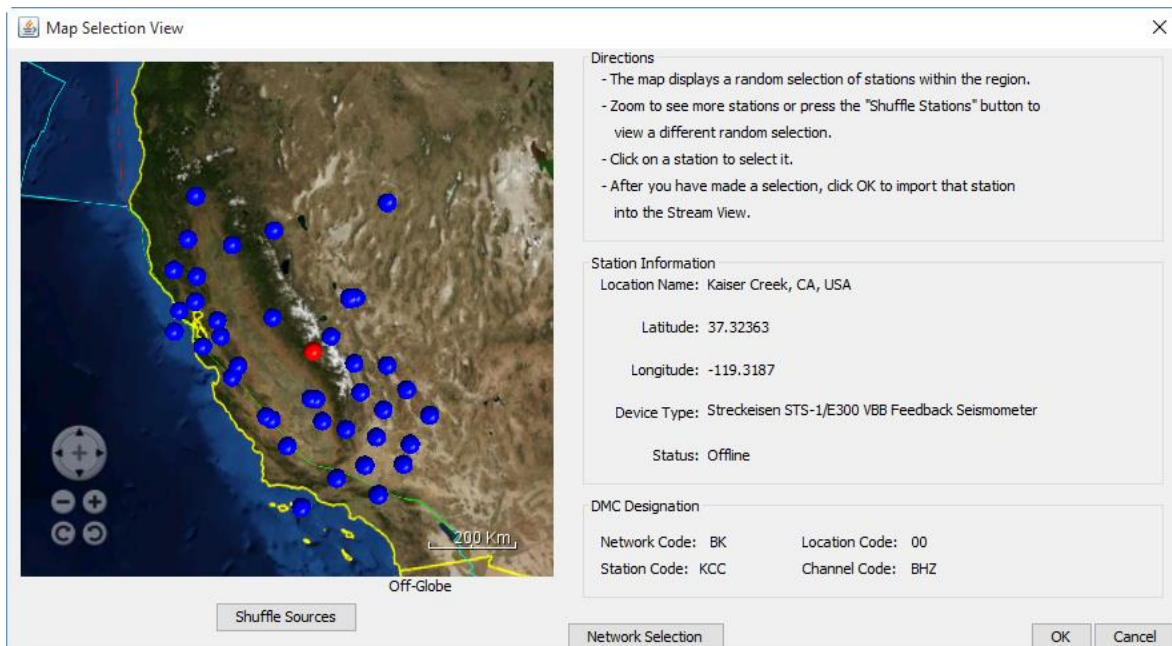
Add a station from the IRIS DMC by selecting the Add Source: IRIS DMC button.

There are two options to choose a DMC station, the Map View or Manually adding the station. Map View is the easiest option.

Map View

The map displays a random selection of stations within the region. Zoom to see more stations or press the "Shuffle Stations" button to see a different random selection. Click on a station to select it. Check the status of the station under "Station Information" → "Status". If it says "Online" you can connect to that station; if it says "Offline" you need to choose a different station.

After you have made a selection, click "OK" to import that station into the Stream View. The data will backfill, and may take several minutes to load.

Manual

To manually select a station, you can either enter the network/station/location/channel information if you know the exact station and channel information, or more commonly you can select it from the full station drop down list.
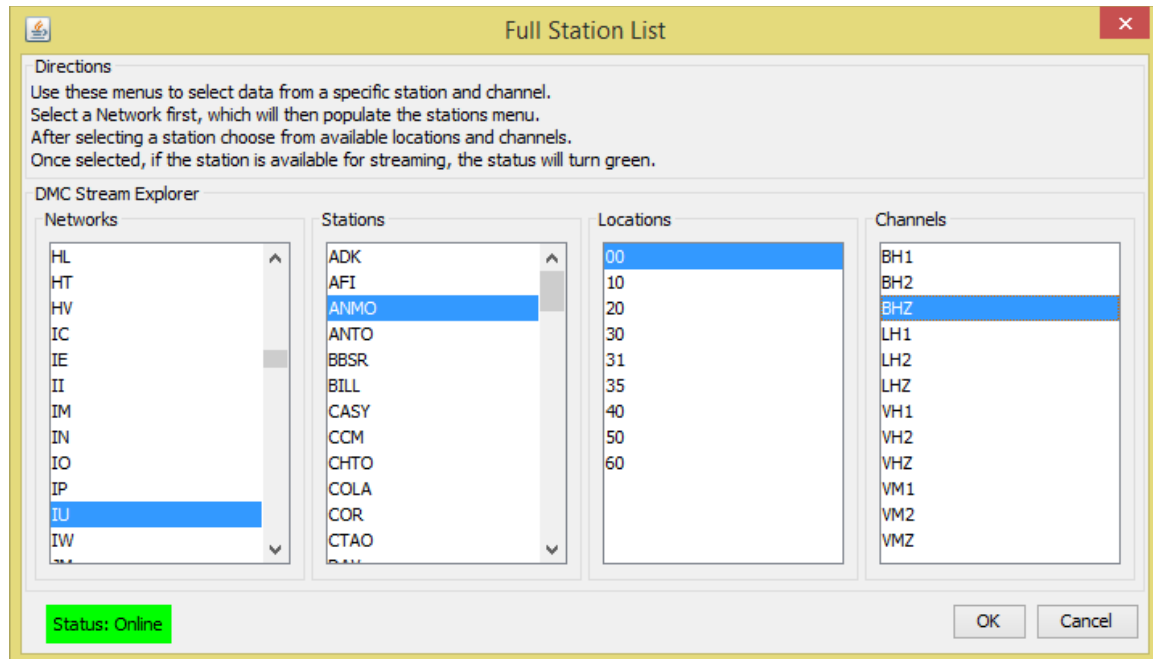
Use these menus to select your seismic station, location and channel.

1. Select a network, which will then populate the stations menu. (The IRIS/USGS network code is "IU").
2. Choose any station from the "Station" list.
3. Choose from the available locations. Most users will select "00".
4. Choose from the available channels. Most users will want to choose "BHZ", the vertical component of motion.

Once selected, if the station is available for streaming, the status will turn green. Click "Ok" to import that station into the Stream View.

To remove previously selected stations

To remove a station that you have previously selected, go to File > Manage Sources. This will bring up a new window with the selected stations. Click on the station you would like to remove and then click the "Remove" button to the right of the stations list.

STEP 3: WATCHING THE DATA

The window that appears when the program is launched is called the Stream View screen. In the Stream View, hours are shown on the Y-axis (on the left) and minutes are shown on the X-axis (along the bottom). Using default settings each horizontal line represents an hour. The current time (UTC) is found in the bottom right corner of the screen (see image below). 1-3 stations can be displayed at the same time.
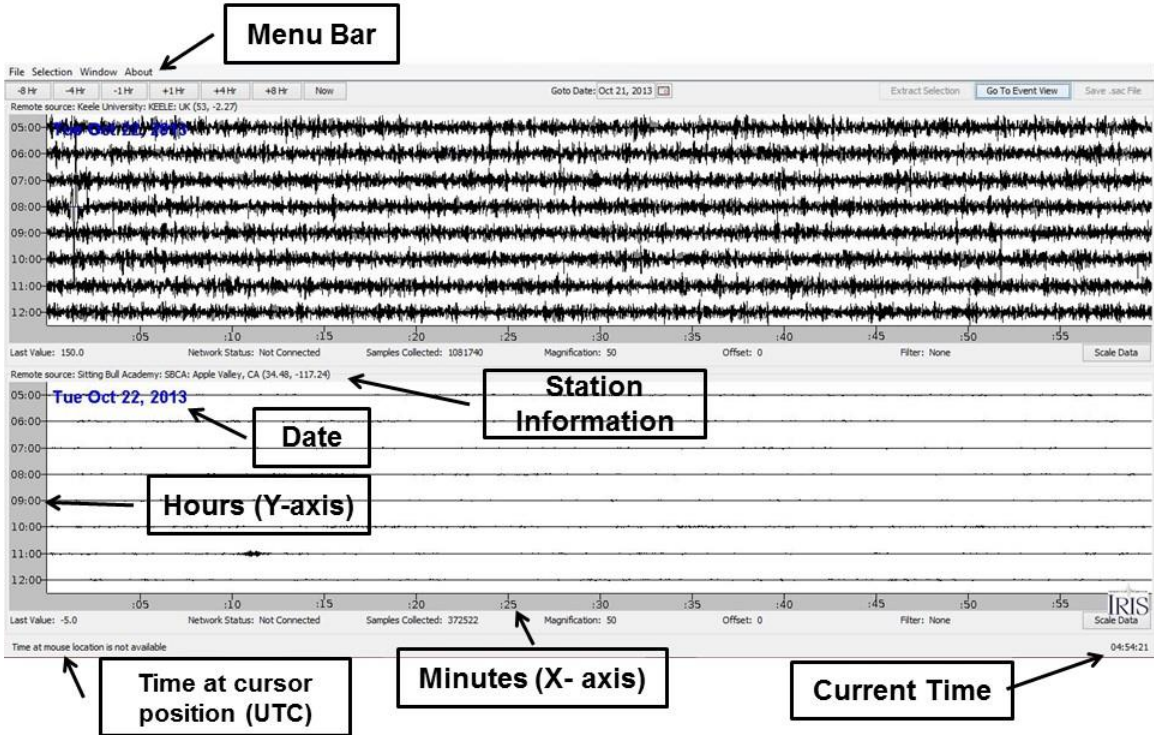
The "trace", or live data stream, should be recording along the second to the bottom hour line. If the trace is actively recording it will show up as black; a blue line means there is no data for that time period. If the trace is black and perfectly straight or if it is very "jumpy" (like in the top example above) you may need to adjust the scale using the "Scale Data" button found at the bottom right of each station window. The Scale Data button allows you to increase or decrease the amplitude of the signal. Play with the scale values until you get a trace that looks similar to the second station (SBCA) in the image above, where the background noise is just visible.

STEP 4: INTERPRETING THE DATA
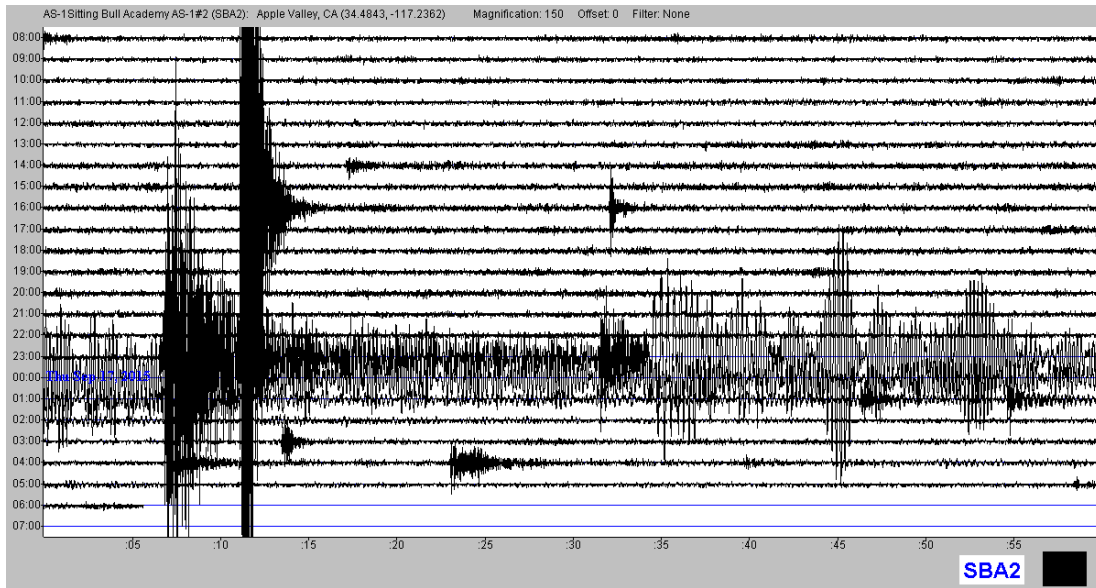
Depending on the location of the seismic station that you are viewing, there can be long periods of quiet like the top few lines in the above example (the tiny wiggles are background noise). There can also be times with lots of earthquake activity, like that shown after 16:00 in the above example.

You may also see seismic recordings for phenomenon that aren't earthquakes, like trains, car traffic, explosions or electrical surges. To see examples of seismograms from different types of sources please visit -
https://www.iris.edu/hq/inclass/animation/seismograms_of_common_events_compiled

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ADDITIONAL USES

jAmaSeis was originally created to facilitate the study of seismological concepts in middle school through introductory undergraduate classrooms. In addition to displaying near real-time seismic data, users can also filter data, fit a seismogram to travel time curves, triangulate event epicenters on a globe, estimate event magnitudes, and generate images showing seismograms and corresponding calculations. Users accomplish these tasks through an interface designed specifically for educational use. For more information on the educational applications of jAmaseis please visit
https://www.iris.edu/hq/inclass/software-web-app/jamaseis

Display Version 2.0   9/30/16