

Topic	Retrieving data from IRIS/USGS stations
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1 Overview

A current map showing the location of stations of the IRIS/USGS Global Seismic Network is available on the LISS website (www.liss.org) . A phone line or internet connection enables many of these stations to provide users with data recorded within minutes of a data request.. For information regarding accounts and passwords for data retrieval from stations one should contact the GSN maintenance group, gsnmaint@asl.cr.usgs.gov or call (01-505) - 462-3200.

Data can be retrieved from the IRIS/USGS stations in either decompressed ASCII format or in compressed binary (SEED) format.

1.1 Data Formats

- ASCII Format

Choices of ASCII format data include:

- “Expanded variable record length ascii”
- “Expanded fixed record length ascii”
- “SAC ascii digital counts”

There is a limit of 10,000 samples per request (8.3 minutes of 20 sample/second data).

- SEED Format

SEED data format is a much more efficient way to transfer and store data than ASCII data but requires a program that will decode the data (such as DIMAS or RDSEED). The limit per request varies from hours to days of data depending on the sample rate of the data.

1.2 Type of Connection

The method of data retrieval depends both on the desired data format and the type of connection available between the analysis computer and the IRIS/UGSG station computer. To access the IRIS/USGS computer at the user’s station, the user can set up the following types of connections:

1. Direct Serial Connection:

This requires that a cable be connected from a serial port on the analysis computer to a serial port that is configured as a spare terminal on the IRIS/USGS computer.

2. LAN (Local Area Network) connection:

The LAN connection requires that network software (including TCP/IP programs telnet and ftp) be running on the analysis computer and that the appropriate ethernet cable and transceiver are available.

3. Dial up connection:

Most IRIS/USGS stations can be accessed by dial-up (telephone) connection. The dial-up connection requires that the analysis computer be connected via a modem to a phone line.

4. Internet Connection:

The website of the Albuquerque Seismic Lab <http://aslwww.cr.usgs.gov/> provides information about the stations, their co-ordinates and sensors as well as a tutorial and notes regarding data retrieval from the stations. The Internet connection requires that both the IRIS/USGS station and the analysis computer have access to the internet and that the analysis computer has the programs telnet and ftp. Users wishing access to the data of a particular station should send an E-mail to gsmaint@asl.cr.usgs.gov, call +1-505-462-3200 or send a request in writing to

USGS Albuquerque Seismological Laboratory
801 University SE, Suite 300
Albuquerque, NM 87106

2 Retrieving decompressed ASCII data

The basic method for retrieving ASCII format data is to capture/log a retrieve session to a file on the analysis computer. A retrieve session entails connecting to the IRIS/USGS station and logging in as user=seed and password=data. This starts a program called "Retrieve" which allows the user to select and transmit the requested data.

The method used to log the retrieve session and connect to the station computer will depend on the type of analysis computer and the software running on the computer.

2.1 Serial Connection (Direct Serial connection or dial-up connection)

For a PC running Windows95, the program Hyperterminal will allow the user to connect to the station computer through a direct serial connection or by dial-up connection. The Transfer menu option "Capture Text" will allow the user to log the retrieve session.

2.2 Internet connection or LAN connection

The Windows95 program Telnet will allow the user to make a network connection to the station. The Terminal menu option "Start Logging" will allow the user to log the retrieve session.

2.3 Examples

Once the user is connected to the station computer, the retrieve session will be the same no matter what method was used to connect to the computer.

The following is an example of a retrieve session:

```
OS-9/68K V2.4   Motorola VME147 - 68030   99/08/26 22:11:51
```

```
User name?: seed   (Enter seed for the User Name)
Password:   (Enter data - the Password will not be displayed)
Process #39 logged on   99/08/26 22:11:59
Welcome!
```

```
IRIS/GSN Seismic Network Station: GUMO
MultiSHEAR acquisition system - Copyright (C) 1998 Quanterra, Inc.
```

...please wait

```
MultiShear -***LOCATION CODES REQUIRED!!*** IRIS/GSN Seismic Network -
STATION:
GUMO
```

Please type your name and organization - up to 50 characters:

```
*****
```

```
Caryl Peterson - asl   (Enter your name and organization)
```

```
MultiShear -**LOCATION CODES REQUIRED!!** IRIS/GSN Seismic Network -
STATION:GUMO
Copyright 1986-1998 by Joseph M. Steim & Quanterra, Inc.
Retrieve (C) 1986-1998 - MSHEAR Release 36/09-0531- 68020- FPU
```

type ? for help

```
Command? ?   (Enter ? to display the help menu shown below)
```

```
Retrieve (C) 1986-1997 Quanterra, Inc. - Release 36/09-0531- 68020- FPU
"C <C/E>" = Change buffer from/to continuous/event data
"T <V/F/C/CS/S/P>" = Select Transmission file format
"F <W/S/L/V...>" = Select optional Filters
"E [ALL]/<DATE> <DATE> [<SEEDNAMES>]" = Examine available data or logs
"S <SEEDNAME> <DATE>" = Setup single data channel to retrieve
"G" = Start or resume sending selected segment
"G P[LOT]" = Plot selected segment on 4014 terminal
"G <S/B>" = Store selected segment to local/backup file
The following 3 methods are available for SEED binary transfer:
"X <SEEDNAMES> <DATE> <DATE> [MAXREC] [TIMETOL]" = Via STP
"V <SEEDNAMES> <DATE> <DATE> [MAXREC] [TIMETOL]" = Archive local file
"I <SEEDNAMES> <DATE> <DATE> [MAXREC] [TIMETOL]" = Via uuencode
"R" = Send station description
"L[|B|C|M] [ALL]" = View entries in event, caliB, Clock, or Msg Log
```

"P" = Display active Processes
 "U <N>" = View User log <N> entries backward
 "Y[T] [*|!<prog>] [<N> [<M>]]" = View <M> activity log <N> entries backward
 "M <message text>" = Send Message to station operator
 "Q" = Quit on-line session. CTL-"C" is ABORT key.
 <SEEDNAMES> supports wildcards (BH?,?LZ,???) and DET|CAL|TIM|MSG|BLK
 Command? **t** (Enter **t** to select the transmission format)

Possible transmission formats are:

"C" - Compressed hexadecimal ascii
 "CS" - Compressed hexadecimal ascii SEED
 "V" - Expanded variable record length ascii
 "F" - Expanded fixed record length ascii
 "S" - SAC ascii digital counts
 "X" - Exit to main command menu

At this point, the user can decide which type of data to transfer. To choose SAC ASCII digital counts, use option **S**.

Transfer mode? **s** (Enter **s** to select SAC ASCII digital counts)

Current transmission mode is SAC ascii

Transmit card numbers with each line of data? (y/n): **n** (no Card numbers)

Command? **s 00-bhz 99/8/26 1:00:00**
 (Select the **channel** and **start time** for data retrieval)

Search requested starting at 1999/08/26 01:00:00

Time window begins in segment 71 at buffer record 2419

Maximum number of samples to transfer? **25**
 (**number** of samples Limit = 10000 samples)

Buffer server is processing your request

skipping first 5165 samples...
 transmission will begin at requested starting time within 0.014161 sec

Use the "G" command to begin transmission
 or to re-transmit data received incorrectly.

Command? **g** (Enter **g** to transmit the data)

Start (31) and end (35) cards to transmit?<CR> (Enter <CR> for all cards)

```

0.0500000 -12345.0000000 -12345.0000000 -12345.0000000 -12345.0000000
0.0141610 1.2141610 0.0000000 0.0000000 2.0000000
-12345.0000000 -12345.0000000 -12345.0000000 -12345.0000000 -12345.0000000
-12345.0000000 -12345.0000000 -12345.0000000 -12345.0000000 -12345.0000000
-12345.0000000 -12345.0000000 -12345.0000000 -12345.0000000 -12345.0000000
-12345.0000000 -12345.0000000 -12345.0000000 -12345.0000000 -12345.0000000
-12345.0000000 13.5878000 144.8663025 14.0000000 -12345.0000000
-12345.0000000 -12345.0000000 -12345.0000000 -12345.0000000 -12345.0000000
-12345.0000000 -12345.0000000 -12345.0000000 -12345.0000000 -12345.0000000
-12345.0000000 -12345.0000000 -12345.0000000 -12345.0000000 -12345.0000000

```

```

-12345.0000000 -12345.0000000 -12345.0000000 -12345.0000000 -12345.0000000
-12345.0000000 -12345.0000000 0.0000000 0.0000000 -12345.0000000
-12345.0000000 -12345.0000000 -12345.0000000 -12345.0000000 -12345.0000000
-12345.0000000 -12345.0000000 -12345.0000000 -12345.0000000 -12345.0000000
 1999      238      1      0      0
 0      6      0      0      25
-12345 -12345 -12345 -12345 -12345
 1      1      11      -12345 -12345
-12345 -12345      40      -12345 -12345
-12345 -12345 -12345 -12345 -12345
-12345 -12345 -12345 -12345 -12345
 1      1      1      1      0
GUMO H9923801000-BHZ
-12345 -12345 -12345
-12345 -12345 -12345
-12345 -12345 -12345
-12345 -12345 -12345
-12345 -12345 -12345
-12345 -1234500-BHZ
IU -12345 -12345
 1565.0      1565.0      1565.0      1565.0      1565.0
 1565.0      1565.0      1565.0      1566.0      1565.0
 1565.0      1565.0      1565.0      1566.0      1566.0
 1565.0      1566.0      1565.0      1565.0      1565.0
 1565.0      1565.0      1565.0      1565.0      1565.0

```

Command? **q** (*Enter q to quit the retrieve session*)
 (Always remember to QUIT the retrieve session before exiting!)

...normal termination

...vbb data retrieval system logged out

If the user had selected the "V" option (Expanded Variable Length ASCII format data) for the transmission format: the data would have looked like the following:

```

GUMO.00-BHZ 1999/08/26 01:00:00 +0.014161 SEC 20.00 SPS UNFILTERED 25

1565 1565 1565 1565 1565 1565 1565 1565 12520
1566 1565 1565 1565 1565 1566 1566 1565 12523
1566 1565 1565 1565 1565 1565 1565 1565 12521
1565 0 0 0 0 0 0 0 1565

```

Option F for Expanded Fixed Length ASCII format data:

```

GUMO.00-BHZ 1999/08/26 01:00:00 +0.014161 SEC 20.00 SPS UNFILTERED 25

 1565      1565      1565      1565      1565      7825
 1565      1565      1565      1566      1565      7826
 1565      1565      1565      1566      1566      7827
 1565      1566      1565      1565      1565      7826
 1565      1565      1565      1565      1565      7825

```

IMPORTANT NOTE: Do not close the Hyperterminal or Telnet window before entering "q" to quit the retrieve session.

Once disconnected from the computer, the user should close the log session file. Depending on the analysis application, the file will probably need to be edited to remove all extraneous command lines (non-data).

3 Retrieving SEED data

Since SEED data is in binary rather than ASCII format, the procedure to log a retrieve session will not work. Two of the available procedures entail making a file on the IRIS/USGS computer and then transferring the file.

3.1 Serial Connection: Hyperterminal

For data requests using a direct serial connection or dial-up connection, the Windows95 program Hyperterminal will allow the user to connect to the station computer. The retrieve program option “K” is used to generate a file which is then transferred to the analysis computer using Kermit protocol. See the “Procedure to retrieve data using Kermit” in the DIMAS (Display, Interactive Manipulation and Analysis of Seismograms) operations manual for the details.

3.2 Internet Connection or LAN Connection:

For data requests using a network connection, the telnet program will allow the user to connect to the station computer. The retrieve program option “V” is used to create an archive local file. The program ftp (on the analysis computer) is used to transfer the file to the analysis computer and delete the file from the IRIS/USGS computer. See the “Procedure to create and copy a SEED data file via the network” in the DIMAS manual for details.

If the user is running the DIMAS software on the analysis computer, the DIMAS program NETRD will also allow the user to retrieve SEED data using a network connection. This is the preferred method as it does not create files on the IRIS/USGS computer disk.

4 How to ftp DIMAS Software from ASL

The following are current instructions to download the DIMAS software from the anonymous FTP site at ASL. These instructions may change with future updates of the software, so you should read the **READ.ME** files.

On your PC, make a directory called DIMAS and change to that directory. Ftp to **aslftp.cr.usgs.gov** or 136.177.123.21. At the login prompt, enter **anonymous**. At the password prompt, enter **your_email_address**. Note that your email address will not be displayed. Change to the directory **pub/data_analysis/dimas**. Get all of the files in the **DISK1** and **DISK2** directories. Quit from the ftp session and start **unarj.bat**. Move the RESPONSE.INI and STATION.INI files in the SEEDWGSN/WINDOWS directory to the Main Windows directory.

To obtain updated versions of the RESPONSE.INI and STATION.INI files, repeat the procedure to ftp to ASL and change to the **pub/data_analysis/dimas/STN_RESP** directory. Get the files **resp0698.ini** and **stn0698.ini**, place them in the Main Windows directory and rename them RESPONSE.INI and STATION.INI.

To obtain the DIMAS manual, make sure that there is at least 12 M/byte free space on your PC hard drive. On your PC, make another directory called MANUAL and change to that directory. Repeat the procedure to ftp to ASL and change to the **pub/data_analysis/dimas/DISK3** directory. Get all of the files in this directory. Quit from the ftp session and start **unarj.bat**. The files in SAC_WGSN should be placed in a sub directory SAC_WGSN under the DIMAS directory.

In order to run the REALTIME.EXE and NETRD.EXE programs, edit the HOSTS and SERVICES files in the Main Windows directory (see the online help for details).

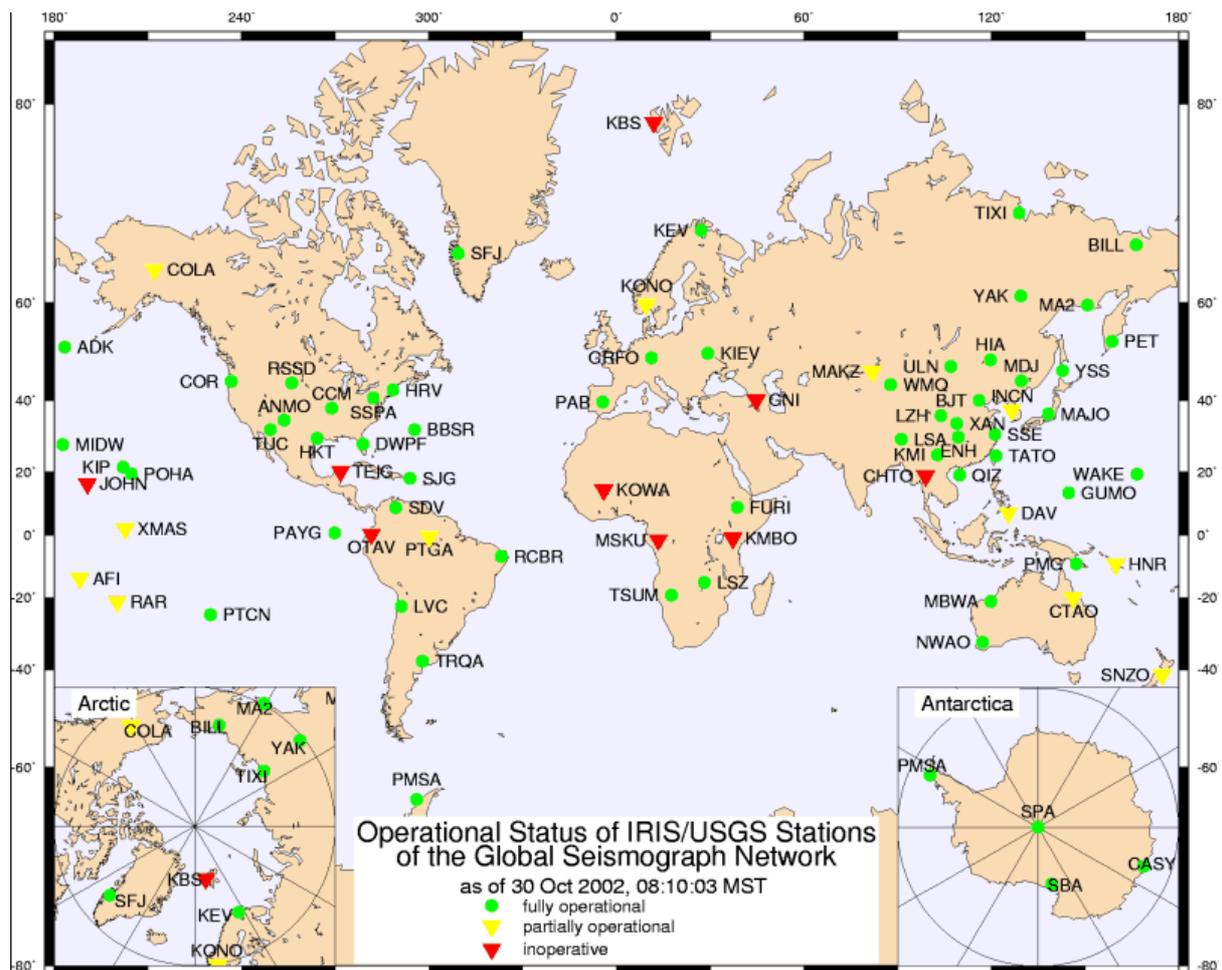


Figure 1 Distribution of stations of the IRIS/USGS Global Seismic Network (from the website of the Albuquerque Seismological Laboratory <http://aslwww.cr.usgs.gov>).

