GeckoLink

SeedLink Streaming Adaptor & Remote Web Interface for all Gecko Seismographs

PRODUCT USER MANUAL

Overview

GeckoLink is an accessory that provides SeedLink streaming functionality and remote settings management for the Gecko series of seismic recorders and digital sensors. It is based on a Raspberry Pi computer with a custom disk image created by SRC engineers.

The GeckoLink is supplied with an official Raspberry Pi 4 USB-C power supply, a USB-to-Gecko cable, and a 64GB USB memory stick. The USB devices should be connected to the blue USB ports as these are higher speed ports. The other two USB ports can be used to connect additional Gecko recorders if multiple monitoring devices are being used at a single location. You can connect a standard USB mouse and keyboard to the USB ports to access the graphical user interface of the Raspberry Pi computer, which also requires a display to be connected to one of the mini-HDMI ports (these optional accessories are not included with the GeckoLink).

Data streaming via SeedLink is performed by connecting the GeckoLink to your local network using the GeckoLink's Ethernet port.

Setting up your Gecko

GeckoLink can receive continuous data from a 4-channel Gecko at up to 500sps over the serial-to-USB cable. Please refer to the Gecko user manual for detailed setup instructions, but the two most important settings to check are that **Telemetry** mode is set to Continuous via Serial device, and to set the **Channels to Send** according to your requirements.

```
Main Menu
   Channels to Send
> ...
   Telemetry
```

```
Channels to Send
    Channel E: On
    Channel N: On
    Channel Z: On
```

```
Telemetry

> Mode: Continuous
   Device: Serial
```

GeckoLink Connections

After connecting the Gecko USB cable and the USB storage device to the blue USB-A ports at the end of the device, connect the power to the GeckoLink's USB-C port on the side of the device. We recommend using genuine Raspberry Pi 4 USB-C power supplies, but 12V DC to 5V 3A USB-C converters are available if you want to power the GeckoLink from the same battery that is powering your Gecko.

Plug an Ethernet cable into the GeckoLink's Ethernet port and connect the other end to your LAN or laptop. The GeckoLink uses DHCP to get an IP address from the network, and uses mDNS to automatically assigns a web address to the device so that any computer on the local network can easily communicate with the device.

Start up a web browser on a computer that is connected to the GeckoLink and create a bookmark of the following address: http://raspberrypi.local/eqserver/ and browse to it.

You will be faced with a login screen. Type in Username **kelunji** and Password **minis33d** to access the GeckoLink web interface. Some web browsers may display a CSS text file rather than the main page. If that's the case, click on your bookmark and you should see this screen:
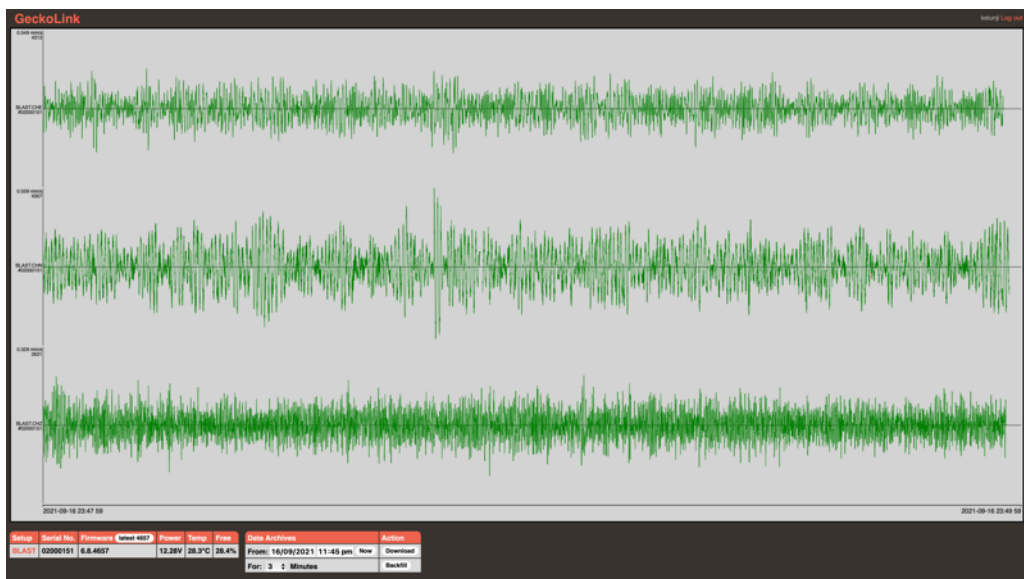
GeckoLink Web Browser Interface

The main part of the display shows a 2-minute window that will start to fill with data from the Gecko. Data is sent in 512 byte MiniSEED packets, so the data latency will depend on the sample rate and signal amplitude – the higher the sample rate and signal level, the quicker the packets will fill up and be sent to the GeckoLink. At 100sps, data latency is around 4 seconds, and around 1 second at 500sps. Below the live data display window are two tables – one with Gecko information, and another that deals with data transfers.

Gecko Info

Setup	Serial No.	Firmware	latest 4657	Power	Temp	Free
BLAST	02000151	6.8.4657		12.28V	28.3°C	28.4%

This table shows you the connected Gecko recorders, their serial numbers, firmware versions, and the voltage, CPU temperature and amount of free storage when the page loaded. GeckoLink will periodically check for the latest Gecko firmware file from the SRC servers and download it so that it is available to upgrade any connected Gecko at your convenience. If a Gecko is eligible for upgrade, an "Update" button will appear next to the version number. Click this button to send the firmware file to the Gecko, which should complete in 1-2 minutes.

Setup

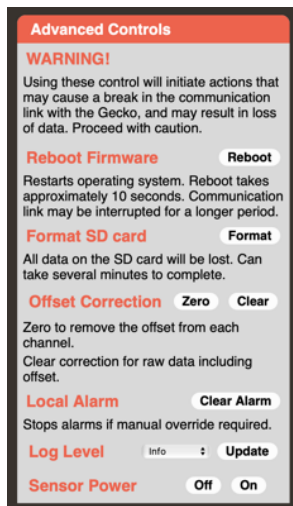Clicking on the red station name shows you all settings in that Gecko recorder:

You can change any of these settings, and when you click **Save** they will be sent to the Gecko.

On the right of the screen are Gecko control commands. If you have a Guralp 3-series sensor connected, you can Lock, Unlock or Centre the masses remotely by clicking on the buttons.

Advanced Controls

WARNING!
Using these control will initiate actions that may cause a break in the communication link with the Gecko, and may result in loss of data. Proceed with caution.

Reboot Firmware `Reboot`
Restarts operating system. Reboot takes approximately 10 seconds. Communication link may be interrupted for a longer period.

Format SD card `Format`
All data on the SD card will be lost. Can take several minutes to complete.

Offset Correction `Zero` `Clear`
Zero to remove the offset from each channel.
Clear correction for raw data including offset.

Local Alarm `Clear Alarm`
Stops alarms if manual override required.

Log Level `Info ⇕` `Update`

Sensor Power `Off` `On`

Further Advanced Controls are hidden behind a warning message. Using some of these commands restarts the Gecko and may break its connection to the GeckoLink temporarily.

Rebooting the firmware does not interrupt power to the electronic components and acts as a "soft restart" to force the main processor to re-initialise. If your SD card has less than 5% storage available, the Gecko will be deleting old data every minute. You can choose to **Format** the SD card to delete all data.

For a complete explanation of the other functions, see the relevant sections in the Gecko user manual.

Data Archives	Action
From: 16/09/2021 11:45 pm `Now`	**Download**
For: 3 ⇕ Minutes	**Backfill**

Data Archive
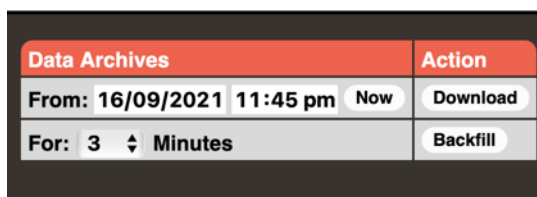
Download from GeckoLink USB

In addition to continuous data being stored on the Gecko's SD card, any data send to the GeckoLink is also stored to its USB storage device. Only one USB storage device can be connected to the GeckoLink at a time. You can extract a period of continuous data from the USB archive using the Download box located at the bottom left of the live data window.

Enter the start date and time of the data you wish to retrieve and select the duration of data to extract using the drop-down menu below (1, 3, 10, 30 or 60 minutes). If you click the **Now** button, the date and time will be set to start at the selected number of minutes before the current time.

When you click the **Download** button, the GeckoLink will extract all of the relevant files from the USB archive and merge them into a single file that will be downloaded by your web browser, which you can then open using SRC's free [Waves](#) program.

Fetching from Gecko to GeckoLink

If power or communications to the GeckoLink is interrupted you may find gaps in the USB data archive. If your Gecko recorder is connected to a backup battery it will still have the missing data on its SD card. You can **Backfill** data from the Gecko SD card to the GeckoLink USB archive but using that button, which will take several times longer than the requested period of data while the Gecko is also streaming live data.

SeedLink Server

GeckoLink acts as a SeedLink server by implementing the [IRIS **ringserver** code](#).
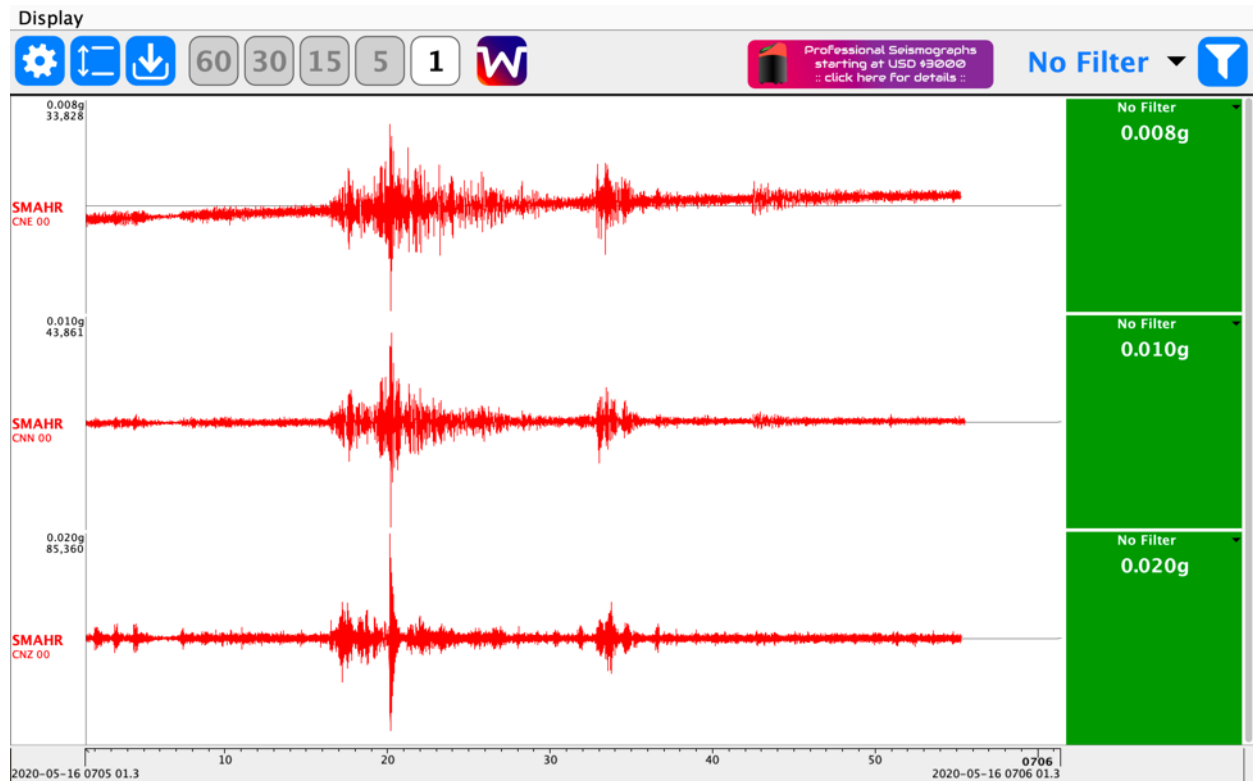
Approximately 100MB of the GeckoLink's RAM disk is made available for the GeckoLink SeedLink buffer. Simply point a SeedLink Client (e.g. [Streams for Mac, Windows and Ubuntu](#)) that is running on your local network to **raspberrypi.local** and you will see the available stations and channels. The SeedLink Server feature still operates even without a USB storage device connected.

If you plan to access the GeckoLink from an external network, you may need to set the GeckoLink to have a fixed IP address. You can manually set the IP address of the GeckoLink by editing its Ethernet settings via the Raspberry Pi graphical user interface by connecting a keyboard, mouse and display (not included).

Your IT network administrator may be able to allocate a fixed IP address to your GeckoLink. If your IT Admin requires remote access to the Gecko, the SSH username and password are **pi** and **rasborian** respectively.

If you require assistance you can contact us by email at support@src.com.au