



SirettaLINK

LTE Cat 1 / 3G (UMTS) / 2G (GSM)

LTE Cat M / LTE Cat NB-IoT / 2G (GSM)

Modem Series for use with SirettaLINK
Management Portal

Start-up Guide

Rev 1.2



SirettaLINK Start-up Guide

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SirettaLINK Start-up Guide

Introduction

This user guide will cover the setup and connection of Siretta's SL500 modem to the SirettaLINK Management Portal.

No prior knowledge of the operating principles of the cellular mobile network or AT command-based modems is needed.

This guide will explain how to create and use a serial data connection over a cellular network in a simple, quick, and easy manner.

For further technical information on the SL500 modem and the SirettaLINK Management Portal, you will need to subscribe to the portal at:

<https://www.siretta-link.com/management-portal/>

You will then be able to gain access to the User Manuals for the SL500 Modems, and the SirettaLINK Management Portal.



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About Siretta

Siretta, located in Reading, United Kingdom have been manufacturing antennas, cable assemblies and cellular modems for over 10 years. We supply our products globally to many of the world's leading organisations.

Whether you require an off the shelf or custom solution, Siretta has a wide portfolio of antenna, RF cable assemblies and modems to fit your application.

Our extensive knowledge and experience in the wireless market allows us to support a wide range of customer applications, focusing on frequencies typically within the 75MHz - 5.8GHz range. These encompass the HF, VHF, ISM, GSM/GPRS/3G/4G and GPS frequencies as well as industrial WLAN and VHF/UHF antenna/Wi-Fi antenna solutions.

With a heavy emphasis on design, we have a team of dedicated Application Engineers and Product Managers, backed up by Field Sales Engineers, who specialise in wireless applications.

We have made significant investments in R&D facilities which boast GPS hardware development equipment and a GSM Pico Cell on site, as well as development software and a comprehensive suite of Industrial, Scientific and Medical band, and non ISM band frequency products. We have many technology partners enabling us to keep at the forefront of the communications industry and offer class leading wireless solutions.

Using SirettaLINK Management Portal

This section explains the basics of setting up the SirettaLINK Management Portal alongside an SL500 modem.

SIM Selection

In order to be able to use the SL500 modem, you will need a data enabled SIM card. Siretta recommend using a contract SIM as these are typically activated when provided so there is no user interaction required to prepare them for use.

Pay As You Go (PAYG) SIMs are usually more complicated as they require activation before use, this can be done using a mobile phone, and then transferred to the SL500 modem when activated.

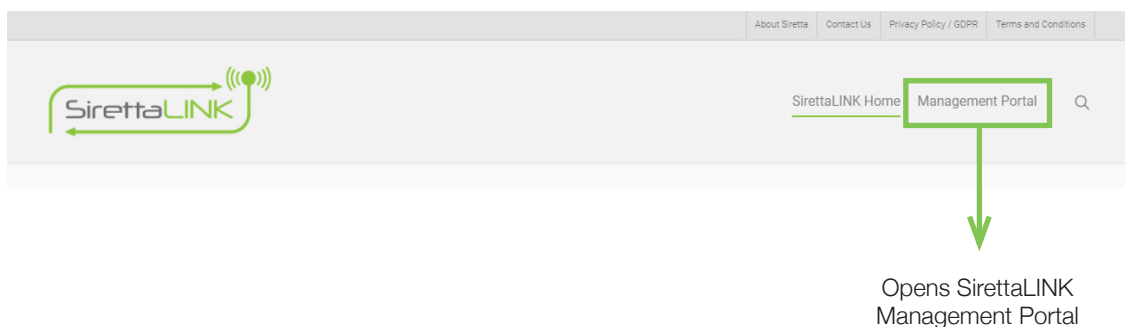
Generally, it is not advised that an SL500 modem in the field should run out of credit as you are required to restart your device once credit has been added. For that reason, a contract SIM is highly recommended or as a minimum a PAYG SIM with automatic top-up enabled.

Account Login and Registration

Setup and management of the SL500 modem is done via the SirettaLINK Management Portal: <https://www.siretta-link.com/>

Once you have navigated to the SirettaLINK website, select 'Management Portal' as highlighted in the figure below.

Figure 1. Management Portal



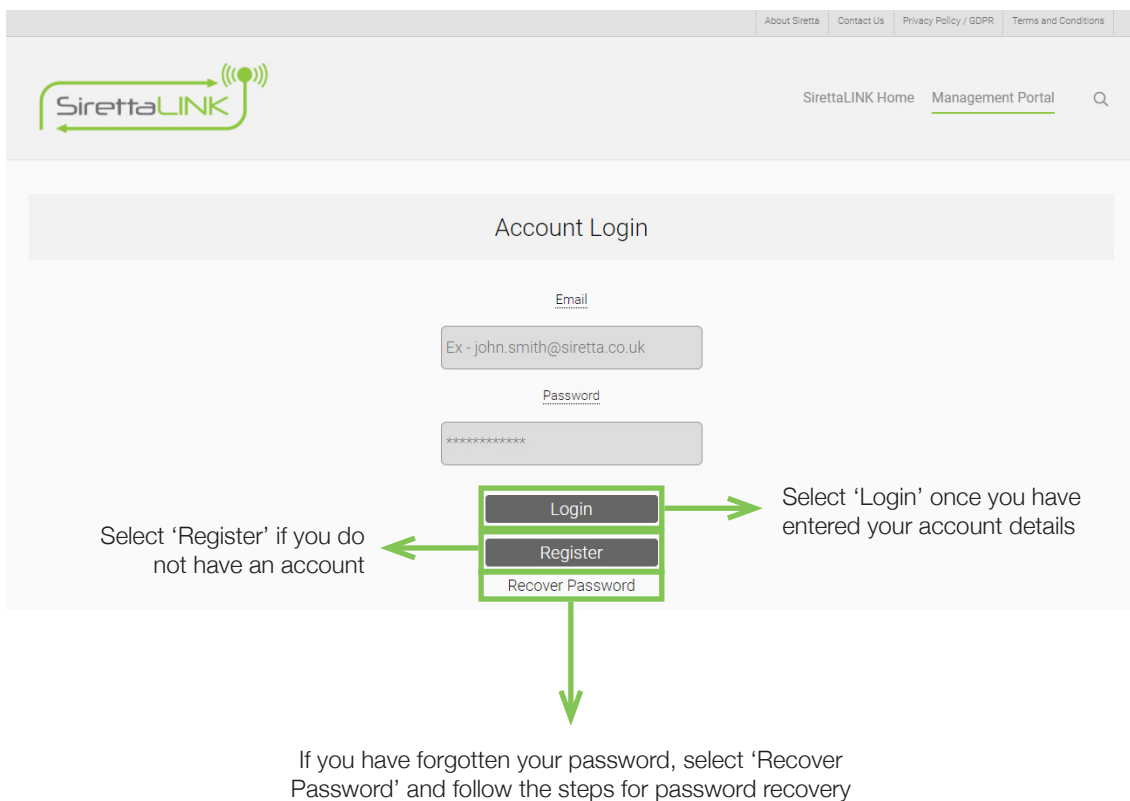
Account Login

If you already have an account, enter your username and password to login to the SirettaLINK Management Portal.

Select 'Login'.

If you do not have an account, see 'Account Registration' section over page.

Figure 2. Account Login



The screenshot shows the 'Account Login' page of the SirettaLINK Management Portal. At the top, there is a navigation bar with links for 'About Siretta', 'Contact Us', 'Privacy Policy / GDPR', and 'Terms and Conditions'. Below this is the SirettaLINK logo and a search bar. The main heading is 'Account Login'. There are two input fields: 'Email' with the example 'john.smith@siretta.co.uk' and 'Password' with masked characters. Below the input fields are three buttons: 'Login', 'Register', and 'Recover Password'. A green box highlights these three buttons. An arrow points from the 'Login' button to the right, with the text 'Select 'Login' once you have entered your account details'. An arrow points from the 'Register' button to the left, with the text 'Select 'Register' if you do not have an account'. An arrow points from the 'Recover Password' button downwards, with the text 'If you have forgotten your password, select 'Recover Password' and follow the steps for password recovery'.

Account Registration

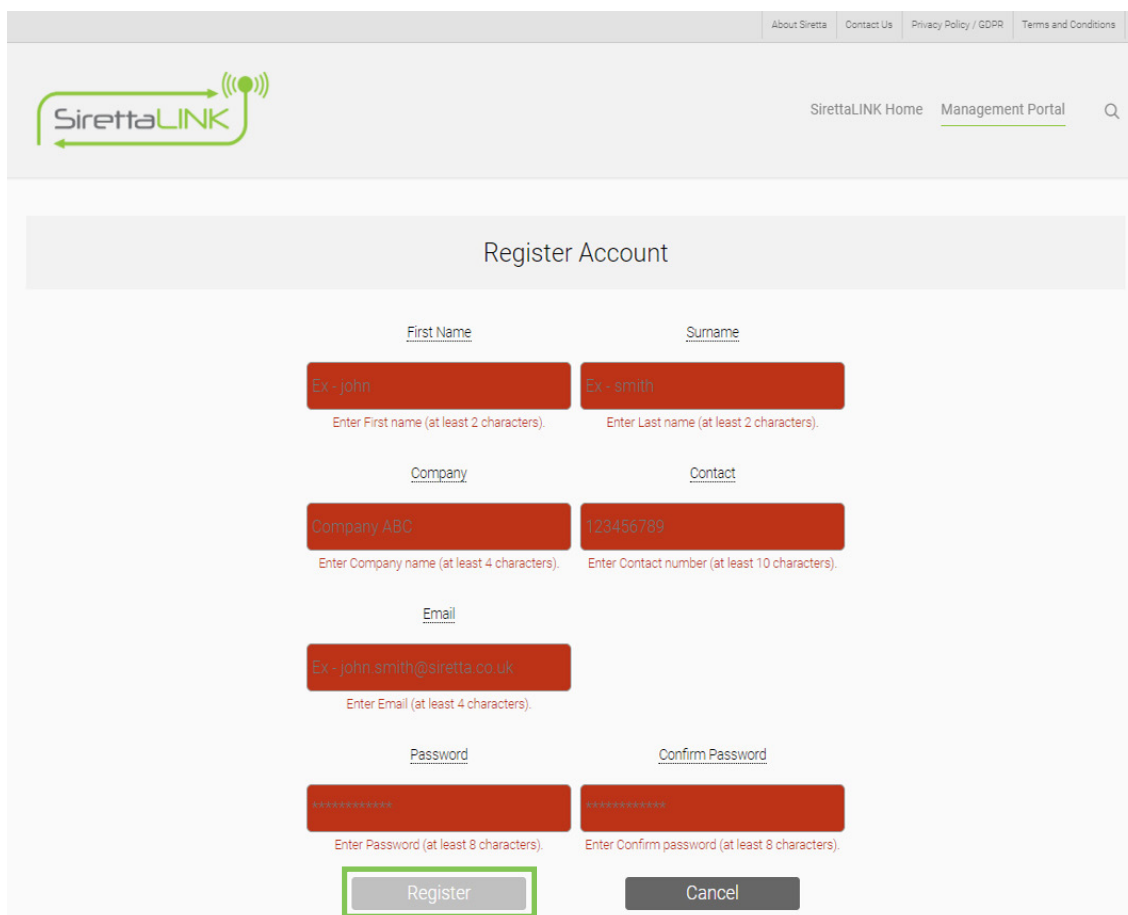
You must complete all fields to register an account.

Please take care to enter a **valid email address** as this is needed for the SirettaLINK Management Portal to send you system messages (such as password recovery).

Chosen password must be at least 8 characters, contain upper and lowercase characters and numbers. Symbols such as # may also be used.

As fields are completed correctly, they will turn green. Once all fields have been completed, select 'Register'.

Figure 3. Account registration



Select 'Register' when all fields have been completed

Portal Overview

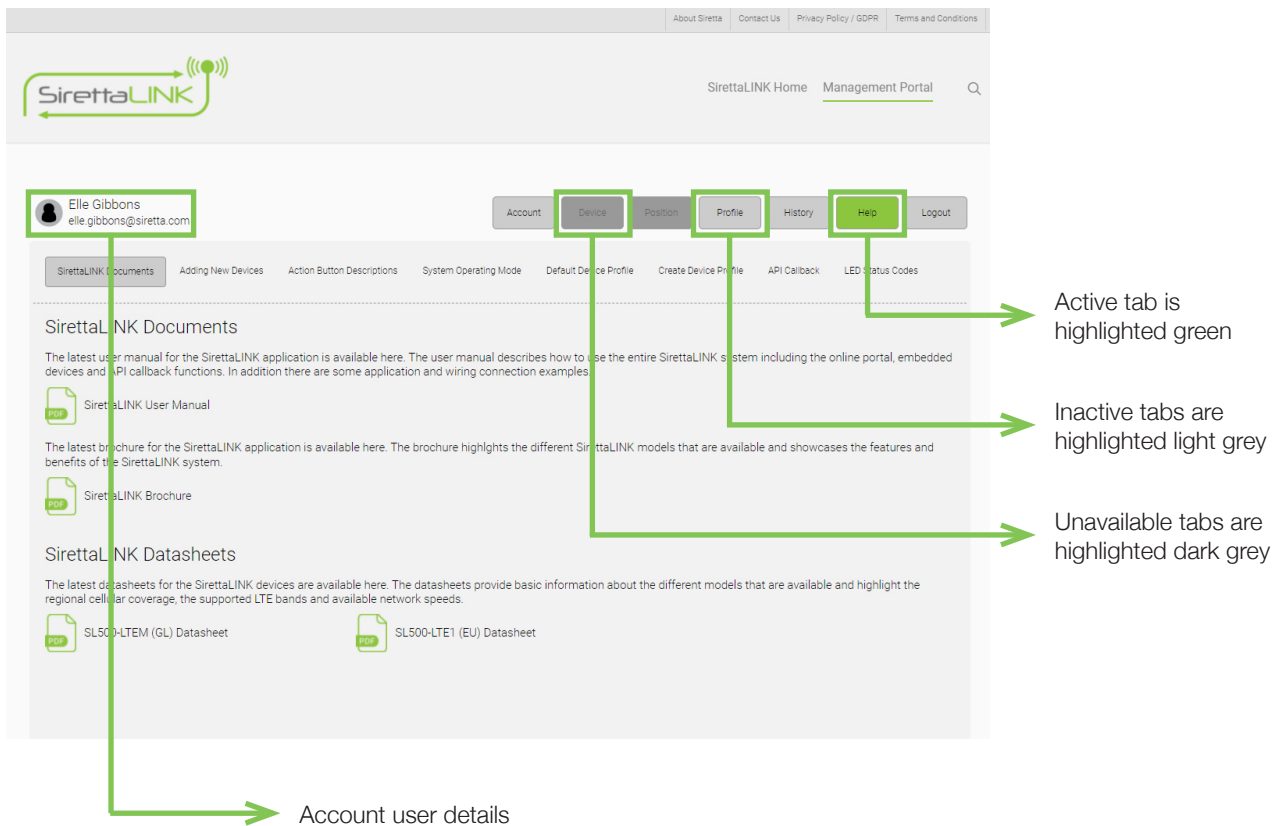
Once you are logged into the SirettaLINK Management Portal, you will be directed to the home page.

Navigation tabs are presented along the top of the screen which are used to navigate the portal. The default landing tab after account creation is the 'Help' tab. The active tab is always highlighted in green, inactive tabs have light grey backgrounds, unavailable tabs have a dark grey background.

On account creation, the 'Device' and 'Position' tabs will be unavailable. When one or more SL500 modems have been added to the account these tabs will become accessible.

The registered account being used is shown to the left of the portal navigation buttons.

Figure 4. SirettaLINK homepage



Modem Configuration

This section explains how to configure the SL500 modem to be used with the SirettaLINK Management Portal.

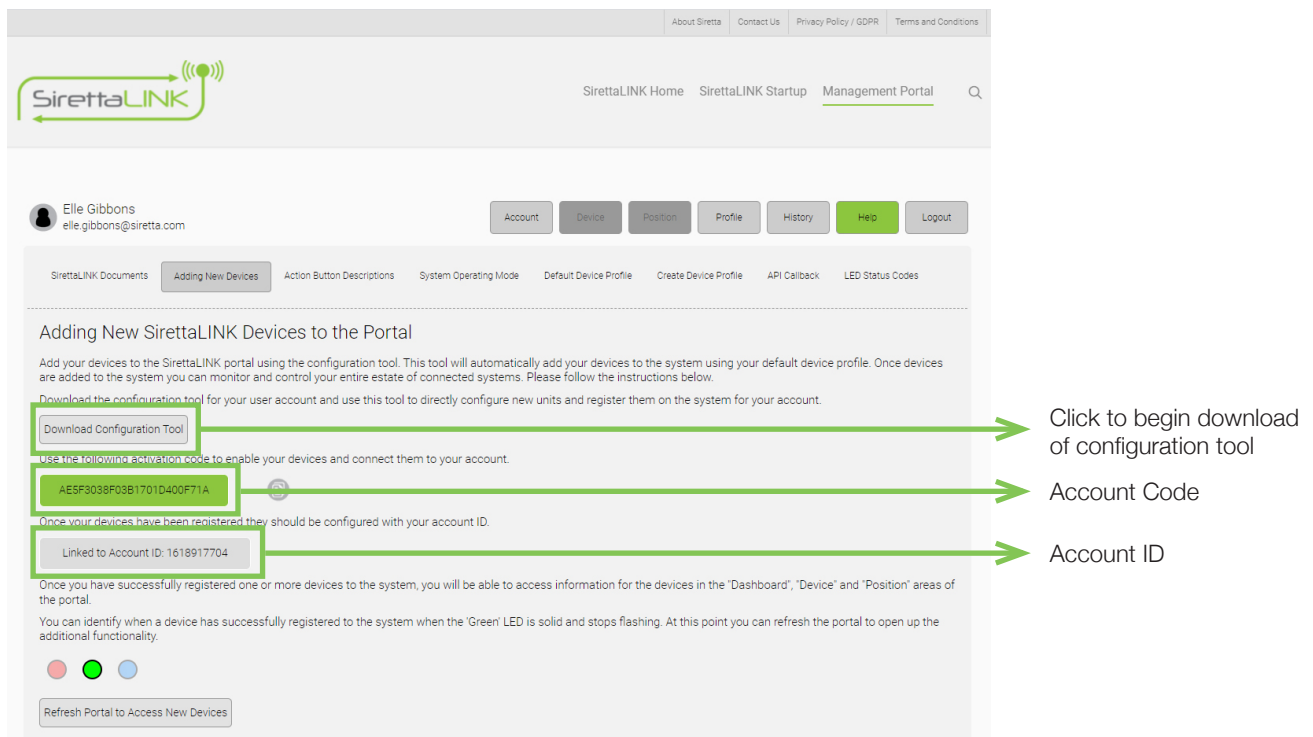
Obtaining the Configuration Tool

Once logged into the SirettaLINK Management Portal, navigate to 'Help > Adding New Devices'. From here you can download the configuration tool required to link your SL500 modem to the SirettaLINK Management Portal.

To download the configuration tool, click the 'Download Configuration Tool' button, the file is named 'SirettaLINK_Config_Tool.exe'. This application is designed for use on a PC running Windows.

NOTE: You will need the Account Key and Account ID as shown below when configuring communication between your SL500 modem and SirettaLINK Management Portal.

Figure 5. Download configuration tool



The screenshot shows the SirettaLINK Management Portal interface. At the top, there is a navigation bar with links for 'About Siretta', 'Contact Us', 'Privacy Policy / GDPR', and 'Terms and Conditions'. Below this is the SirettaLINK logo and a search bar. The user profile 'Elle Gibbons' is visible, along with buttons for 'Account', 'Device', 'Position', 'Profile', 'History', 'Help', and 'Logout'. The main content area is titled 'Adding New SirettaLINK Devices to the Portal' and contains instructions on how to use the configuration tool. A 'Download Configuration Tool' button is highlighted with a green box and an arrow pointing to the text 'Click to begin download of configuration tool'. Below this, the account code 'AESF3038F03B1701D400F71A' is displayed in a green box with an arrow pointing to 'Account Code'. Further down, the message 'Linked to Account ID: 1618917704' is shown in a green box with an arrow pointing to 'Account ID'. At the bottom of the page, there are three colored circles (red, green, blue) and a 'Refresh Portal to Access New Devices' button.



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Once downloaded, double click the file to run the application. Depending on the version of Windows and your computers security settings (Windows Defender and Anti-virus) you may get a warning about it being a potentially harmful application. In this case, follow dialogues presented to enable the application to run.

When the configuration tool is successfully executed, the window below will be displayed.

Figure 6. SirettaLINK configuration tool



Connecting SL500 Modem

For this section, you will need a data enabled SIM card and the components found in the SL500 modem starter kit.

Step 1. Insert SIM card into the SL500 modem. This should be pushed all the way in until a small click is heard. Siretta recommend using the corner of a credit card to push the SIM card into the modem as this is unlikely to cause damage to the SIM.

Step 2. Connect a suitable antenna to the SL500 modem. The antenna supplied with the starter kit is a general purpose antenna that will be suitable for many applications.

Step 3. Connect the PC to the RS232 port of the SL500 modem. Most modern PCs no longer have a serial port so you will have to use the USB to serial adapter cable included with the starter kit to connect the PC to the serial port. Remember to install any drivers for the USB to serial cable that may be necessary before plugging in the adapter. The Siretta RS232 Serial Port cable should automatically install on your system. However if it does not install automatically then you can find installation instructions and drivers for the Siretta RS232 Serial Port Cable in the following link: <https://www.siretta.com/serialdrivers>

Step 4. Locate the configuration function boot switch on the underside of the SL500 modem and push the 'Siretta Function Pin Tool' provided with your SL500 Starter Kit through the hole until you hear an audible click and then apply power to the SL500 modem.

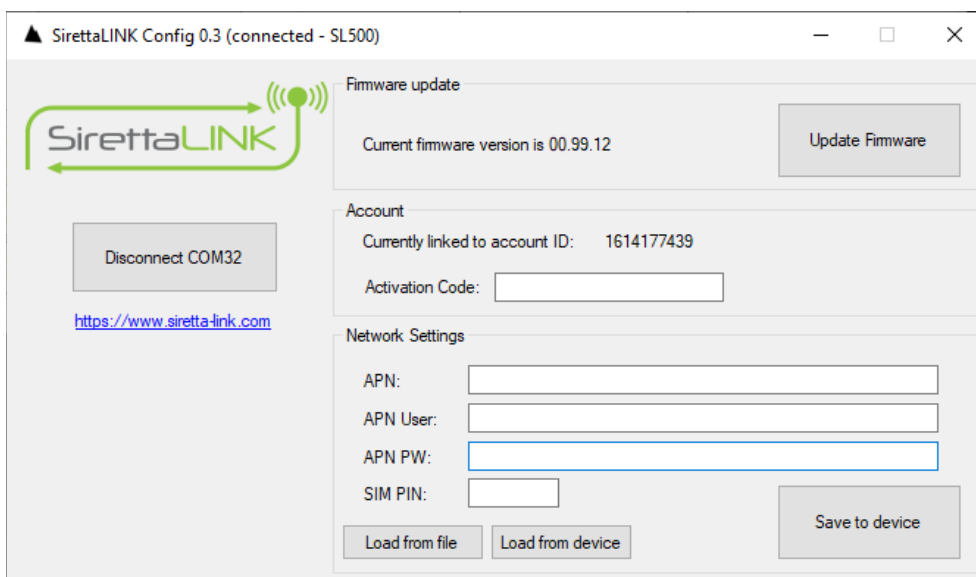
Keep the button pressed for at least 2 seconds after power is applied until the green and blue LEDs illuminate and start rapidly blinking alternately.

Figure 7. Configuration function boot switch



The SL500 modem is successfully in configuration mode once the green and blue LED's alternately flash. With the LEDs in this state, press 'Connect' on the configuration tool application. A 'Connecting' message will now be displayed. When the SL500 modem successfully connects in configuration mode, the configuration tool below will open.

Figure 8. Modem connected to configuration tool



Once connected, the 'Connect' button is renamed 'Disconnect', and reports the COM port the SL500 modem has detected. Make a note of the COM port used – this will be needed later to enable communication with the SL500 modem.

The 'Account Code' field is used to match the SL500 modem to the SirettaLINK Management Portal account being used. On the 'Help > Adding New Devices' page of the portal, there will be an "activation code" displayed in a green box under the button for downloading the configuration tool, as shown on page 9. Copy and paste this activation code into the 'Account Code' field, then click 'Save to device'.

The 'Network Settings' field is required to get the SL500 modem online and enable connection to the SirettaLINK Management Portal. The APN, APN User and APN PW are settings that your chosen SIM card provider will supply and must be entered here. Not all network operators require an APN username or password, but a valid APN is a requirement for the modem to connect to the cellular network. If the SIM is protected by a PIN number, it must be entered, otherwise leave the SIM PIN field blank. If settings are blank, the SL500 modem will attempt to use the internally saved public APN settings. This may or may not work depending on the SIM in use.



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Once the SirettaLINK modem has been configured, click the 'Disconnect' button on the configuration tool and then power cycle the SL500 modem to take it out of configuration mode.

Once power has been cycled, observe the three LEDs on the side of the SL500 modem to confirm that it is connecting to the SirettaLINK Management Portal. The LED functions are as follows:

Table 1. LED functions

| LED | Function |
|-------|---|
| Red | Cellular network connection status |
| Green | SirettaLINK Management Portal connection status |
| Blue | Client application server connection status |

A connected and synchronized SL500 modem will have the green and blue LEDs on continuously, and the red LED flashing at 1Hz. It could take several minutes from power up to reach this state depending on network conditions and signal strength. See 'Help > LED Status Codes' on the SirettaLINK Management Portal for further detail.

When the SirettaLINK modem connects to the SirettaLINK Management Portal you will see that the web page changes to the 'History' tab, and that the newly added SL500 modem appears in the 'Device' section.

Figure 9. Audit history

Elle Gibbons
elle.gibbons@siretta.com

Account Device Position Profile **History** Help Logout

Device Profile User Error SMS Server Software

Device History Report

Search...

Device History: Total 1

| Action | Date | Time | Name | IMEI Number | Description |
|--------------|------------|----------|------|-------------|-------------------------------|
| DEVICE ADDED | 06/04/2021 | 20:14:09 | | | New Unit - 02793 (06/04/2021) |

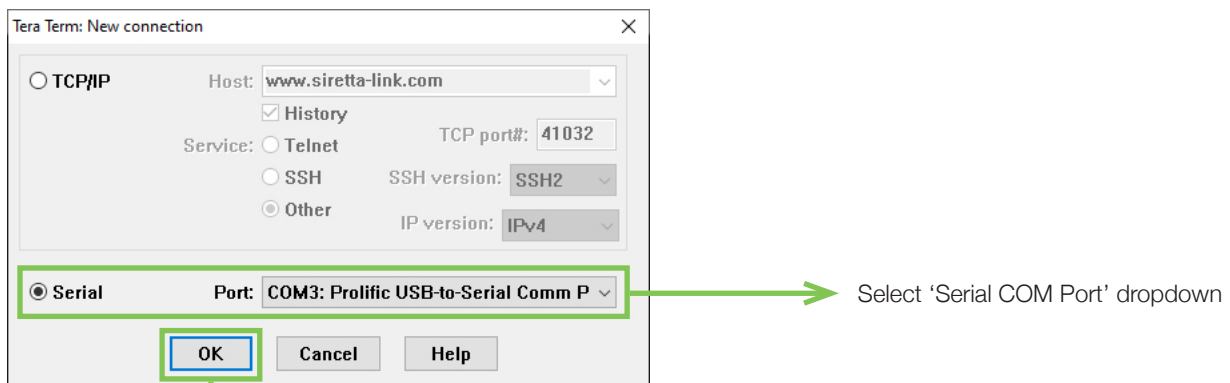
Confirming Connection

To test that the connection that has been automatically established using the factory default settings, Siretta recommends the use of Tera Term as a terminal emulator for PC. This is a free, open-source program that can be downloaded from:

<https://tssh2.osdn.jp/index.html.en>.

Click the 'Serial' button and select the COM port that was identified by the configuration tool instructions on **page 12**. Then click 'OK'.

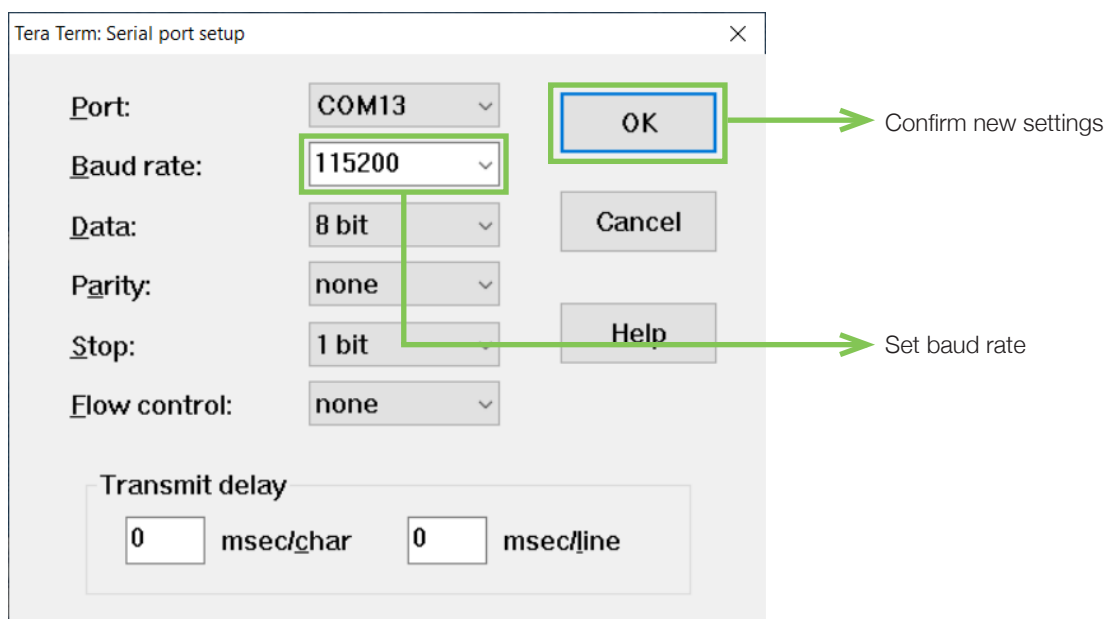
Figure 10. Confirm connection



Click 'OK' when correct COM port has been selected

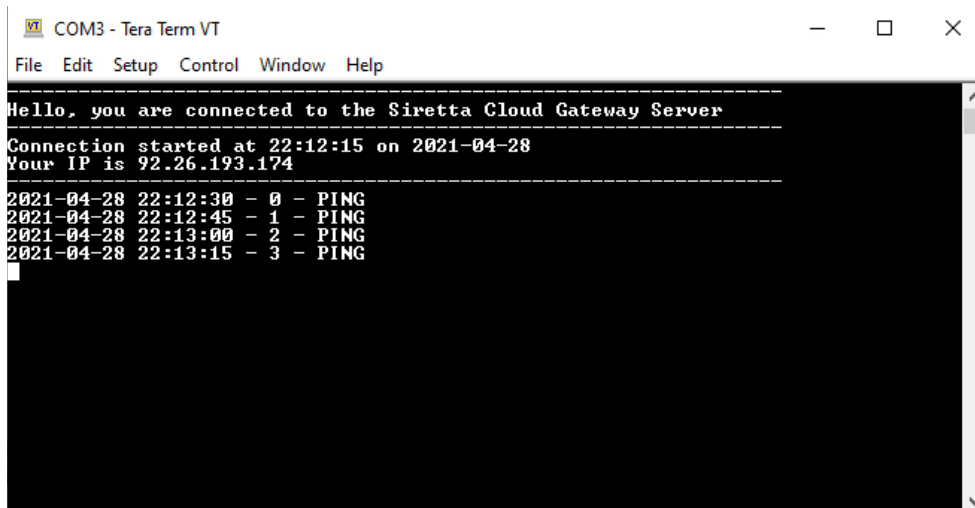
The terminal window will appear. Tera Term defaults to a 9600 baud connection, but the default 'new connection profile' for the SL500 modems have a baud rate set to 115200, however, you need to select whatever baud rate is configured on your unit's profile. Click 'Setup > Serial Port' and set the port speed to 115200. Once changed, click 'New Setting' to confirm changes.

Figure 11. Set baud rate



It is now possible to see data pushed from the Siretta test server to the SL500 modem.

Figure 12. Data being pushed



```

COM3 - Tera Term VT
File Edit Setup Control Window Help
-----
Hello, you are connected to the Siretta Cloud Gateway Server
-----
Connection started at 22:12:15 on 2021-04-28
Your IP is 92.26.193.174
-----
2021-04-28 22:12:30 - 0 - PING
2021-04-28 22:12:45 - 1 - PING
2021-04-28 22:13:00 - 2 - PING
2021-04-28 22:13:15 - 3 - PING
  
```

In the above figure, the server is sending a message string to the SL500 modem every 15 seconds.

Cycle power to the SL500 modem (while keeping Tera Term open, connected to the COM port) and see how the server recognises the reconnection and responds with the welcome message initially.

You can also use Tera Term to connect your PC directly to the SirettaLINK test server if you want to check that the connection path provided by your PC's Internet is equivalent to that of the SL500 modem. In the Tera Term window, go to 'File > New Connection'. In the new connection box, use the following settings:

- » TCP/IP connection: device.siretta-link.com
- » Port: 41032
- » Service: Other
- » Protocol: IPv4

NOTE: When first connected to the SirettaLINK Management Portal, the newly connected SL500 modem will check to see if there is a newer version of software available. If there is, it will download and apply it to the modem. During the download process the SL500 modem will continue to work normally as the software download will happen in the background. However, to apply the update the unit will reboot. This means that the data link provided by the modem will go down while the modem is rebooting and re-acquiring a network connection. The software download will occur shortly after the SL500 modem is connected to the portal, and this will normally take 2 to 3 minutes to complete (dependant on network speed).



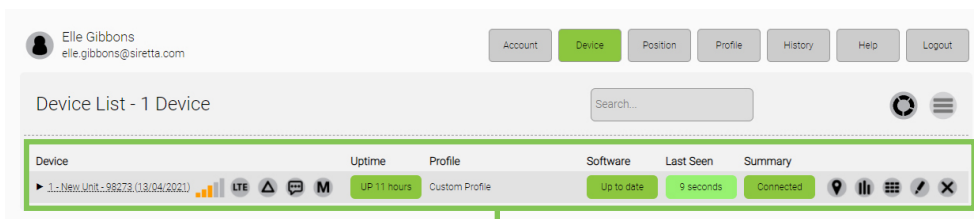
SirettaLINK Management Portal

The SirettaLINK Management Portal provides a large range of information about how the SL500 modem is set up, used and performs on the cellular network. Full instruction of the use of the SirettaLINK Management Portal is available in the 'SirettaLINK Management Portal User Manual'. This section provides a quick overview of the device settings of your newly connected SL500 modem.

Device Connection Overview

Click on the 'Device' tab on the SirettaLINK Management Portal to get an overview of the SL500 modem attached to the portal account. Initially it will be just one unit, but as devices are added the list will increase.

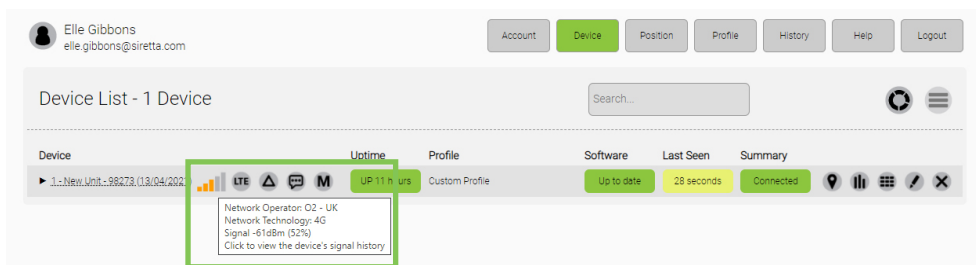
Figure 13. List of devices



Overview of modem connected to
SirettaLINK Management Portal

You will see a summary about the connection status of the SL500 modem that has just been configured. Hovering the mouse over any information about the unit will display a popup giving more detail and what action will occur by clicking on it. For instance, if you hover over the signal strength bar you will get more information about the network operator being used, the network technology and the signal strength measurement itself, as shown in the figure below.

Figure 14. Signal strength overview



Hovering over different sections will expand information displayed

The explanation of the data in the columns is as follows:


Device: Device name. This defaults to a system generated name of “New Unit – <last 5 digits of IMEI number> (date added)”. This can be changed to a different name. When a firmware update is in progress the lettering will turn red.

 **Signal:** Signal strength indicator.

 **Cell Technology:** Indicates technology the SL500 modem is connected to.

 **Error Log:** Access the error logs from the SL500 modem.

 **SMS History:** Access SMS log history from the SL500 modem.

 **Mode:** Mode of the connection. The default setting is Client Maintain (the ‘M’ symbol shown), which means the SL500 modem is acting as the client (therefore does not need a fixed IP address) and is maintaining an “always on” link with the server. Other possible modes of operation are Client Mode (‘C’) and Server Mode (‘S’). In Server Mode, the SIM used in the SL500 modem must have a fixed IP address. In Client Mode, the connection is opened only when the link is required.



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Uptime: Duration that the SL500 modem has been connected to the SirettaLINK Management Portal. This could also show as 'Online Pending' where the configuration has just been changed using the portal and the portal is expecting the SL500 modem to connect to the server and download the new configuration settings, or 'Offline pending' where the SL500 modem appears to be disconnected from the network (or powered down).

Profile: Name of the profile used in the SL500 modem. A newly added SL500 modem will display as 'New Connection Profile'. Profiles describe all aspects of a device's configuration and allow for rapid cloning of settings for new devices.

Software: This will display as 'Up to date' if the SL500 modem is running the latest software. If the software is not current, the latest version available is displayed against a pink background.

Last Seen: Duration since SL500 modem was last in contact with the SirettaLINK Management Portal. The system default update rate is 90 seconds which means that the last seen time should not exceed 90 seconds, however, when devices are having connection difficulties or have been powered off this time will be higher.

Summary: Connection status of the customers application server. This could be 'Connected' or 'Disconnected'. It could also display 'Waiting' which occurs when SL500 is trying to connect to the customers application server or is idle in server mode and is waiting for an incoming socket connection.



Device Location: Last known location of the SL500 modem. This value is not automatically generated. Click this field to go through to the position tab where position will be calculated based on the cell that the SL500 modem is connected to. Initially there will be a red bar through the symbol indicating that a position has not been determined.



Device History: Access to historical device status, signal strength and traffic logs and graphs. Up to 7 days history is available.



Device Summary: Access to full device summary detailing how the device is connected and configured, data usage and connection information.



Device Settings: Edit configuration options and allows them to be changed.



Delete Device: Deletes the device from the SirettaLINK Management Portal.



by



Enabling Industrial IoT

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